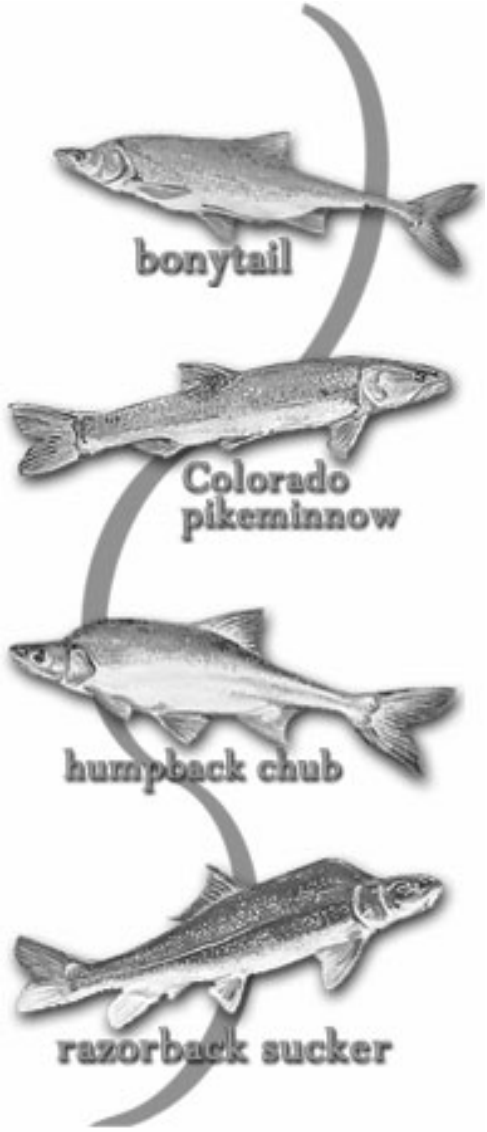
Operation of
Flaming Gorge Dam
Final Environmental
Impact Statement



Recreation Visitation and Valuation Analysis Technical Appendix

RECREATION VISITATION AND VALUATION ANALYSIS TECHNICAL APPENDIX

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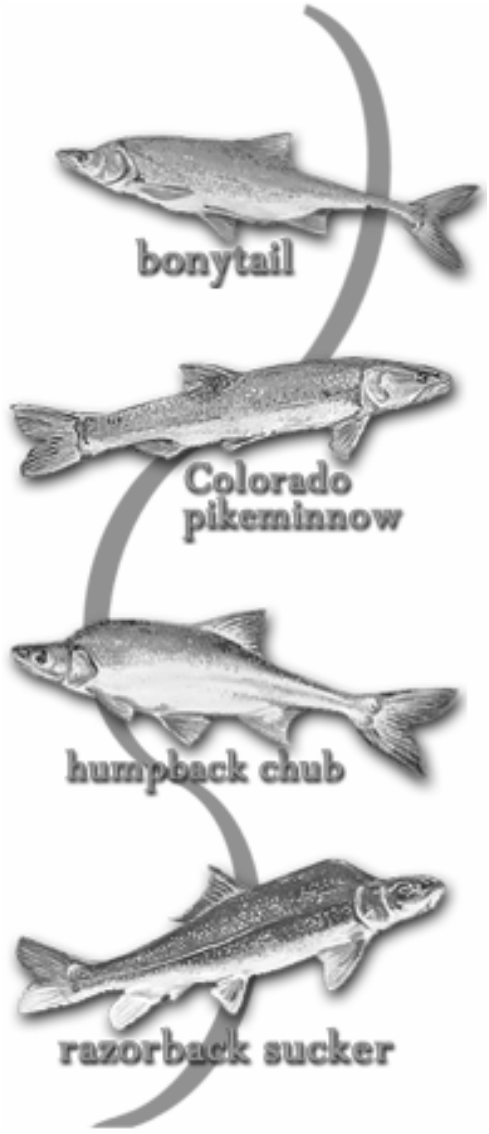

1.0 INTRODUCTION

This technical appendix (TA) presents information on the Flaming Gorge EIS recreation analysis. The TA is broken down into two primary sections: affected environment and environmental consequences. The affected environment section describes the geographic impact area where the majority of the recreation effects are anticipated to occur as well as current recreation conditions within the impact area. The environmental consequences section presents a detailed discussion of the various methodologies applied as well as the results of the analysis for each alternative.

2.0 AFFECTED ENVIRONMENT

The affected environment section consists of two subsections: geographic impact area and current conditions. The geographic impact area section provides background on the location and management jurisdiction of the potentially affected lands within the impact area as well as the rationale for defining the impact area. The current conditions section presents information on current conditions in terms of reservoir water levels/river flows, recreation visitation, and recreation economic value.

2.1 Geographic Impact Area

The Bureau of Reclamation (Reclamation) constructed and currently operates Flaming Gorge Dam located on the Green River in northeast Utah. Flaming Gorge Reservoir and the Green River for approximately 12 miles downstream of the dam comprise the Flaming Gorge National Recreation Area (FGNRA) which is managed by the Ashley National Forest,

USDA Forest Service (FS). After exiting the FGNRA, the Green River flows across U.S. Bureau of Land Management (BLM) and State of Utah lands for approximately 18 miles before entering the U. S. Fish and Wildlife Service (USFWS) managed Browns Park National Wildlife Refuge along the Utah/Colorado border 30 miles downstream of the dam. Immediately downstream of the refuge, approximately 47 miles downstream of the dam, lies Dinosaur National Monument (NM) managed by the U.S. National Park Service (NPS). The upper portion of Dinosaur NM, upstream of the confluence with the Yampa River, reflects the end of Reach 1 of the study area.

The recreation analysis conducted for the Flaming Gorge EIS addresses impacts to both Flaming Gorge Reservoir and the Green River downstream of Flaming Gorge Dam. Despite the series of Federal and State managed public lands along the river downstream of the dam, the analysis focuses upon recreation effects within Reach 1 and specifically within the FGNRA because that is where the majority of the potentially impacted water based recreation occurs. Relatively little of the river oriented recreation activity within the region (mainly scenic floating via raft/kayak, shoreline and boat based fishing, and camping) initiates within the 35-mile stretch of the river between the FGNRA and Dinosaur NM. In Dinosaur NM, water-based recreation is dominated by rafting activities. Rafting within the monument is managed via a permit system that covers both the Green and Yampa Rivers. If flow conditions deteriorated on the Green River to the point of adversely impacting rafting activity, there exists the possibility of shifting activity to the Yampa River. While NPS constrains the total number of permits for both commercial and private rafting parties across both rivers to 600 a year, and the number of launches from either river to 4 per day, there still exists the potential for rafting substitution between the rivers. In addition, the majority of commercial and private rafting trips are scheduled well ahead of time. Commercial rafting operations are popular and early reservations are often required since space on these trips tends to fill up quickly. Private rafting permits are limited to one per person annually and must be obtained via a lottery system months prior to the actual trip date. Given the degree of planning and financial commitment required for these rafting trips, there exists a fairly strong incentive to take trips even when flow conditions are less than ideal. To substantiate this discussion, attempts were made to model the impact of average monthly flows on rafting visitation within Dinosaur (see Dinosaur NM Rafting Methodology section 3.1.1.1.2). Separate models were estimated for commercial and private rafting activity. These models either resulted in insignificant flow variables (commercial model) or significant flow variables with relatively minor impacts on rafting activity (private model). As a result, the assumption was made that rafting activity within Dinosaur NM would not vary substantially with the fluctuations in Green River flows associated with the EIS alternatives. Finally, changes in water-based recreation activity within Reaches 2 and 3 based on the EIS alternatives were also assumed to be relatively minor either due to low levels of recreation use or the overriding effect of the combined flows from the numerous tributaries (e.g., Yampa, Duchesne, White, etc.) as compared to dam releases. Given all of the above, the decision was made to focus the recreation visitation and value analysis on water-based effects primarily within the Flaming Gorge National Recreation Area.

The Green River portion of the FGNRA is located entirely within Daggett County Utah, found in the northeast corner of the state. The southernmost portions of the reservoir are also found within Daggett County. This part of the reservoir is relatively narrow given the water is impounded via a series of canyons. The reservoir widens as one travels northward out of the canyons and toward the Utah/Wyoming border. The Wyoming portion of the reservoir, located entirely within Sweetwater County, is relatively wide and extends northward for many miles before narrowing at the confluence of the Green and Blacks Fork Rivers.

Potentially affected recreation facilities within the FGNRA along both the Green River and Flaming Gorge Reservoir include the following:

Green River:

1. Boat ramps at the Flaming Gorge Dam spillway and at the Little Hole recreation complex
2. Little Hole National Recreation Trail (from the spillway of Flaming Gorge Dam to the Little Hole recreation complex)
3. Fishing pier at the Little Hole recreation complex
4. 18 riverside campgrounds (7 are on BLM lands outside FGNRA)

Flaming Gorge Reservoir:

1. 11 boat ramps (4 associated with marinas)
2. 3 marinas
3. 3 boat based campgrounds
4. 4 swimming beaches
5. Cut Through - Horseshoe Canyon Bypass (not evaluated within the recreation analysis since it has only minor impacts on recreation use)

While the Green River recreation analysis emphasizes impacts within the upper portion of Reach 1, primarily within Flaming Gorge National Recreation Area, consideration is also given to recreation facilities downstream, all the way to the confluence with the Colorado River. After passing out of Reach 1 within Dinosaur National Monument, the Green River flows across private lands, State of Utah lands, Federal lands (BLM, USFWS including Ouray National Wildlife Refuge), and Ute Indian tribal lands within Reach 2. Very few recreational facilities are found in this reach. Reach 3 of the Green River starts at the confluence with the White River and ends at the Colorado River. This long stretch of river includes Ute Indian tribal lands (including Desolation Canyon), State of Utah lands (including Green River State Park), Federal lands (BLM, NPS including Canyonlands National Park), and private lands. Numerous recreational facilities are located within Reach 3. The following represents a list of recreational facilities found along the Green River downstream of Flaming Gorge National Recreation Area within Reaches 1, 2, and 3.

Green River – Reach 1 (downstream of Flaming Gorge National Recreation Area):

BLM:

1. Three boat ramps (Indian Crossing, Bridge Hollow, and Swallow Canyon – a fourth ramp at the pipeline crossing below Jarvies Ranch, is being phased out).
2. Twenty campgrounds, of which only one (at Bridge Hollow) may be impacted. Six of these are administered by the FS for BLM.

State of Utah:

3. One boat ramp (Bridge Port Camp)
4. Five campgrounds (Gorge Creek, Little Davenport, Bridge Port, Elm Grove, and Burned Tree)

USFWS (Browns Park NWR):	5. Two boat ramps (Swinging Bridge, Crook)
	6. Two campgrounds (Swinging Bridge, Crook)
	7. Fishing Pier
NPS (Dinosaur NM):	8. Three boat ramps (Lodore, Deerlodge, and Split Mountain)
(Note: Facilities located downstream of the Yampa are technically Reach 2 (e.g., Split Mountain))	9. Five riverside campgrounds (Lodore, Deerlodge, Echo Park, Split Mountain, and Green River)
	10. One riverside picnic area (Split Mountain)

Green River – Reach 2 (Yampa River to White River):

USFWS (Ouray NWR):	1. One boat launch site

Green River – Reach 3 (White River to Colorado River):

BLM:	1. Five boat ramps/launch sites (Sand Wash, Swasey's Beach ramp, Nefertiti, Butler Rapid, and Mineral Bottom)
	2. One riverside campground (Swasey's Beach)
State of Utah (Green River S.P.):	3. One boat ramp
	4. One campground
Private:	5. One boat launch site (Ruby Ranch)
NPS (Canyonlands N.P.):	6. Eight campsites

2.2 Current Conditions

This section describes current conditions within the geographic impact area in terms of Green River flows and Flaming Gorge Reservoir water levels, recreation visitation, and economic value. Given the recreation analyses linked hydrologic river flows and reservoir water levels to recreation visitation and economic value to estimate impacts, this current condition information should provide some perspective when considering the impacts presented under the environmental consequences section.

Recreation visitation is measured in terms of the number of recreation trips or visits by recreation activity. A recreation trip or visit reflects a round trip excursion from a recreator's primary residence for the main purpose of recreation. Recreation value reflects the sum of individual recreator benefits aggregated across users of a site. Recreator value is represented by consumer surplus which is measured by estimating recreator willingness-to-pay in excess of per visit costs.

The current condition information and recreation analysis results are presented separately for the Green River and Flaming Gorge Reservoir due to differences in methodology. When referring to current

conditions, we describe information which formed the basis or starting point of the two applied analyses: facility availability approach for reservoir visitation and the linear interpolation approach for all other analyses (i.e., river visitation, river valuation, and reservoir valuation). This perspective was selected instead of simply choosing to gather data for the most recent time period because in many cases, recent data does not exist. Furthermore, since current information was used as a data point in the survey based interpolation analysis, it was important to link the current period to the survey period (see section 3.1.1 for more on the recreation survey).

Recreation activities studied were generally water based, implying they require the use of water for participation. Water influenced activities, which do not require water access but typically benefit from the presence of water (such as picnicking, sightseeing), were generally insignificant compared to the water based activities at both these water oriented sites. Activities studied on the Green River include scenic floating, guide boat fishing, private boat fishing, shoreline fishing/trail use, and boat based camping. These activities more or less cover the gamut of activities pursued on the river. Activities studied on Flaming Gorge Reservoir focused on power boating/waterskiing, boat fishing, boat based camping, and swimming/waterplay. These water based activities represent nearly 80 percent of the total visitation at the reservoir. In both cases, the camping activity was considered a water based activity since the studied campsites were accessed from the water.

2.2.1 Current Hydrology

As will be discussed in more detail under the environmental consequences methodology section, the recreation analyses in this appendix relate recreation visitation and value to hydrologic Green River flows (measured in cubic feet per second (cfs)) and Flaming Gorge Reservoir water levels (measured in feet above mean sea level (msl)).

2.2.1.1 Current Green River Flows

To get some perspective on current Green River recreation visitation, it is necessary to have information on current river flows. The difficulty lies in defining what should be considered current. Since the Green River recreation analysis is tied to the results generated from a recreation survey conducted from May to September 2001, and the survey asked recreators about their activity over the past 12 months, it was necessary to gather flow data from June 2000 to September 2001 to estimate current survey oriented monthly flows.

Current monthly flow was calculated from March through October given visitation data, obtained from the FS, was only available for those months. While visitation information was not gathered from November through February, loss of those months was not considered significant.

Calculating current average monthly flows relevant to the survey data was complicated by the fact that depending on when a recreator was contacted during the May through September 2001 survey sampling period, a different annual and monthly perspective could result. For example, when considering June flows, someone contacted about their recreation activity over the past 12 months in May 2001 would visualize June 2000 flows, whereas all others would be visualizing June 2001 flows. To calculate current flows for months with this dual year situation (basically June - September), actual average monthly flows for 2000 and 2001 were weighted by the percent of the sample contacted in each month (May = 11.3%, June = 20.5%, July = 29.2%, August = 15.4%, and September = 23.6%). For the other months (March, April, May, and October), all recreators would be referencing the same months implying no timing conflicts in estimating average monthly flows. Using this weighting procedure, current average monthly

Green River flows were estimated as follows:

	Current Monthly Flows (cfs)
March	1,036
April	1,145
May	2,478
June	1,215
July	1,007
August	1,122
September	1,118
October	1,024

The analysis of economic values was also conducted monthly, but the actual calculation used annual flow information by activity as a reference point. The survey asked recreators for their current value by recreation activity based on activity pursued across the past 12 months. As a result, the current flows associated with the current economic values by activity were based on average annual (technically high season) flows for the months of March to October using data from the June 2000 through September 2001 survey orientation period. The average annual flow for each activity took into consideration both when a recreator was contacted during the sampling period (weighting based on sampling percentage by month as described above) and the percent of visitation by month associated with each activity. The weighted average current annual flows for the five studied Green River recreational activities are as follows:

	Current Annual Flows (cfs)
Scenic Floating	1,097
Guide Boat Fishing	1,359
Private Boat Fishing	1,373
Trail Use/Shoreline Fishing	1,299
Camping	1,115

2.2.1.2 Current Flaming Gorge Reservoir Water Levels

Whereas the Green River recreation analysis used the interpolation approach for both the visitation and value analysis, lack of visitation data for the relevant survey period from June 2000 through September 2001 resulted in the use of a facilities availability approach for estimating reservoir visitation. The interpolation approach was used to estimate economic values by reservoir recreation activity as with the river analysis.

The two different analyses for developing reservoir visitation and value estimates create different perspectives for estimating current reservoir water levels. The visitation analysis is based on information collected during fiscal year 1997 (October 1996–September 1997), whereas the value analysis stems from survey data referring to the June 2000–September 2001 period. Fortunately, regardless of whether one focuses on hydrology from fiscal year 1997 or weighted average water levels during the 2000-2001 survey period, facility availability and associated visitation turns out the same. In both cases, all water based facilities were available, which implies the same visitation estimate using the facility availability approach. Given it doesn't matter which time frame is selected for the visitation analysis and it does for the value analysis, it makes the most sense to simply refer to the current water levels as those represented by the survey period. Table 1 reflects end of month water levels at Flaming Gorge reservoir for both fiscal year 1997 and the survey period.

As with the river economic value analysis, the reservoir value analysis keys into the current weighted average annual water levels by activity as presented in table 1. Note that warm water activities are defined as power boating/waterskiing, boat fishing, swimming and cool water activities are defined as camping.

2.2.2 Current Recreation Visitation

Recreation visits have been counted by FS contractors from March to October on an annual basis since the early 1990's on the Green River portion of the FGNRA. Visitation counts on the reservoir have been more infrequent with the most recent estimates made for fiscal year 1997 (October 1996 to September 1997).

Table 1: Flaming Gorge Reservoir Current Water Level Data (feet above msl)

Month	Fiscal Year 1997	Current Water Levels (Survey Period)
January	6027	6020.3
February	6026	6020.4
March	6024.9	6020.7
April	6023.6	6021.5
May	6023	6021.8
June	6027.7	6021.3
July	6031.5	6021.3
August	6031.3	6020.9
September	6030.5	6020.6
October	6029.6	6020.4
November	6028.5	6020.6
December	6027.4	6020.4
Weighted Average for Warm Water Activities:		6021.2
Weighted Average for Cooler Water Activities:		6021.1

2.2.2.1 Current Green River Visitation

As mentioned above and described in more detail below under the recreation methodology section located under environmental consequences, the Green River analysis was based on interpolation of results obtained from a recreation survey conducted from May to September 2001. Current visitation was one of the data points used in the interpolation analysis. Current visitation was calculated on a monthly basis from March through October based on the FS data. To allow for use in the interpolations, current visitation estimates needed to be consistent with the time period of the recreation data collection. FS monthly visitation data by recreation activity were weighted, using the monthly sampling percentage approach described above, to come up with the estimates of current monthly visitation by activity.

Summing the current weighted average monthly visitation estimates by activity across the March through October months provided an estimate of current annual visitation. While the FS data was not gathered

across the November through February months, the exclusion of these months was not considered significant from the perspective of missing data given these are very low use months. Table 2 presents the current estimates of visitation by activity and month.

Reviewing the data in table 4 indicates that shoreline fishing/trail use (mainly shoreline fishing), scenic floating, and private boat fishing are the top three activities on the Green River portion of FGNRA combining for slightly over 85 percent of the river visitation. The top three high use months are as expected June, July, and August with over 60 percent of the river visitation.

Table 2: Current Green River Visitation Estimates by Activity and Month

Month	Scenic Floating	Guide Boat Fishing	Private Boat Fishing	Shoreline Fishing/ Trail Use	Camping	Total	Percent
March	42	280	1,265	1,774	0	3,361	3.6
April	217	1,560	3,214	5,892	0	10,883	11.8
May	99	2,018	3,549	4,942	0	10,608	11.5
June	5,527	2,099	1,767	5,976	668	16,037	17.3
July	11,063	1,781	1,520	7,708	655	22,727	24.6
August	7,749	1,814	1,457	5,462	600	17,082	18.5
September	62	1,530	4,827	2,935	352	9,707	10.5
October	9	318	932	793	6	2,058	2.2
Total:	24,768	11,400	18,531	35,482	2,281	92,461	100
Percent:	26.8	12.3	20.0	38.4	2.5	100	

2.2.2.2 Current Flaming Gorge Reservoir Visitation

The most recent visitation estimates developed for Flaming Gorge Reservoir were collected by the FS during fiscal year 1997. This data was gathered by recreation activity and reservoir site (i.e., marina, boat ramp, swimming beach, campground). To allow for analysis of monthly facility availability, this annual FS data needed to be converted into monthly estimates. Fortunately, the State of Utah has periodically gathered monthly fishing data for boat fishing, shore fishing, and ice fishing. The boat fishing monthly percentages were used to allocate warm water recreation activities across months, specifically power boating, waterskiing, boat fishing, and swimming/waterplay. The shore fishing monthly percentages were used to allocate cooler month activities across months, specifically camping. While not directly tied to the activities of interest in some cases, the State of Utah percentages were believed to be representative of all warm and cool month activities.

Table 3 presents the current estimates of Flaming Gorge Reservoir visitation by activity, site, and month. The estimates of visitation could be linked to the individual facilities at each site based on the different recreation activities (i.e., power boating/waterskiing/boat fishing were linked to the boat ramps and marinas, boat camping was linked to the boat camp sites, and swimming/waterplay was linked to the swimming beaches).

Reviewing the data in table 3 indicates that the heaviest used reservoir sites from a water based activity perspective are Lucerne Valley (52.8%), Buckboard Crossing (15.8%), and Cedar Springs (15.8%). These three sites combine for nearly 85 percent of the reservoir's water based activity (recall that the water based activities represent nearly 80 percent of the total activity at the reservoir). Of the water based activities, power boating/waterskiing (62.8%) and boat fishing (31.7%) are dominant accounting for nearly 95 percent of the total water based reservoir visitation. Finally, from a monthly perspective, the months of May through August reflect nearly 75 percent of water based visitation, with over 95 percent occurring between April and October.

2.2.3 Current Recreation Valuation

The current total value estimates by activity were developed by simply multiplying the current value estimates per visit by activity, as obtained from the recreation survey, by the estimates of total current visitation by activity, as obtained from manipulating the FS visitation data. All value estimates were developed using a conservative, but frequently applied approach of assuming survey nonrespondents had a value of zero. River camping and reservoir swimming values were most affected by the nonresponse adjustment due to the large number of nonresponses for those activities.

2.2.3.1 Current Green River Valuation

Table 4 presents the estimates of Green River total current value by recreation activity. It is interesting to note the differences when comparing the percent of total visits by activity to the percent of total value by activity. The percent of total value by activity takes into account both the visitation and value per visit. While shore fishing/trail use reflects 38.4 percent of the visitation, it represents only 17.4 percent of the value due to the relatively low value per visit. Conversely, guide boat fishing reflects only 12.3 percent of the visitation, but 43.5 percent of the value due to the high value per visit.

2.2.3.2 Current Flaming Gorge Reservoir Valuation

Table 5 presents the estimates of Flaming Gorge Reservoir total current value by recreation activity. The differences between the reservoir visitation and valuation percentages are less dramatic compared to those of the river. The largest differentials are for power boating/waterskiing and swimming/waterplay. Power boating shows an increasing percentage under value compared to visitation, whereas swimming shows a decreasing percentage.

3.0 ENVIRONMENTAL CONSEQUENCES

This section is broken down into two primary subsections, methodology and results. The methodology section presents detailed information on the various approaches applied to estimate impacts. The results section presents and compares results across alternatives in terms of reservoir water levels/river flows, recreation visitation, recreation economic value, and recreation facility availability.

Table 3: Current Flaming Gorge Reservoir Visitation by Site, Activity, and Month

Site/ Activity	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total/Percent	
Antelope Flat:	24	0	117	928	2489	3356	3654	2121	1216	1094	286	185	15469	2.7
Power Boating:	8	0	38	300	805	1085	1181	686	393	353	92	60	5001	
Boat Fishing:	6	0	30	240	643	868	945	548	314	283	74	48	3999	
Boat Camping:	0	0	0	0	0	0	0	0	0	0	0	0	0	
Swimming:	10	0	49	388	1041	1403	1528	887	509	458	120	77	6469	
Anvil Draw:	5	0	21	168	450	607	661	384	220	198	52	33	2800	0.5
Power Boating:	2	0	9	72	193	260	283	165	94	85	22	14	1200	
Boat Fishing:	3	0	12	96	257	347	378	219	126	113	30	19	1600	
Boat Camping:	0	0	0	0	0	0	0	0	0	0	0	0	0	
Swimming:	0	0	0	0	0	0	0	0	0	0	0	0	0	
Buckboard Crossing Marina:	66	0	304	2427	6515	8786	9567	5554	3185	2866	748	482	40500	7.1
Power Boating:	49	0	225	1798	4826	6508	7087	4114	2359	2123	554	357	30000	
Boat Fishing:	17	0	79	629	1689	2278	2480	1440	826	743	194	125	10500	
Boat Camping:	0	0	0	0	0	0	0	0	0	0	0	0	0	
Swimming:	0	0	0	0	0	0	0	0	0	0	0	0	0	
Buckboard Crossing Boat Ramp:	81	0	371	2967	7963	10738	11693	6788	3892	3503	914	589	49500	8.7
Power Boating:	49	0	225	1798	4826	6508	7087	4114	2359	2123	554	357	30000	
Boat Fishing:	32	0	146	1169	3137	4230	4606	2674	1533	1380	360	232	19500	
Boat Camping:	0	0	0	0	0	0	0	0	0	0	0	0	0	
Swimming:	0	0	0	0	0	0	0	0	0	0	0	0	0	
Cedar Springs Marina:	66	0	304	2427	6515	8786	9567	5554	3185	2866	748	482	40500	7.1
Power Boating:	49	0	225	1798	4826	6508	7087	4114	2359	2123	554	357	30000	
Boat Fishing:	17	0	79	629	1689	2278	2480	1440	826	743	194	125	10500	
Boat Camping:	0	0	0	0	0	0	0	0	0	0	0	0	0	
Swimming:	0	0	0	0	0	0	0	0	0	0	0	0	0	
Cedar Springs Boat Ramp:	81	0	371	2967	7963	10738	11693	6788	3892	3503	914	589	49500	8.7
Power Boating:	49	0	225	1798	4826	6508	7087	4114	2359	2123	554	357	30000	
Boat Fishing:	32	0	146	1169	3137	4230	4606	2674	1533	1380	360	232	19500	
Boat Camping:	0	0	0	0	0	0	0	0	0	0	0	0	0	
Swimming:	0	0	0	0	0	0	0	0	0	0	0	0	0	
Firehole:	13	0	61	482	1294	1744	1898	1102	632	570	148	96	8037	1.4
Power Boating:	4	0	20	156	420	566	616	358	205	185	48	31	2608	
Boat Fishing:	3	0	15	120	322	434	472	274	157	142	37	24	2000	
Boat Camping:	0	0	0	0	0	0	0	0	0	0	0	0	0	
Swimming:	6	0	26	206	552	744	810	470	270	243	63	41	3429	

Gooseneck:	1	0	15	52	75	101	98	64	34	34	15	10	500	0.1
Power Boating:	0	0	1	12	32	43	47	27	16	14	4	2	200	
Boat Fishing:	0	0	1	6	16	22	24	14	8	7	2	1	100	
Boat Camping:	1	0	13	34	27	36	27	23	10	13	9	7	200	
Swimming:	0	0	0	0	0	0	0	0	0	0	0	0	0	
Hideout:	91	0	717	2466	3624	4881	4738	3082	1645	1652	707	497	24100	4.2
Power Boating:	14	0	66	527	1415	1909	2079	1207	692	623	163	105	8800	
Boat Fishing:	8	0	37	300	804	1085	1181	686	393	354	92	60	5000	
Boat Camping:	67	0	607	1579	1244	1670	1242	1052	481	604	434	320	9300	
Swimming:	2	0	7	60	161	217	236	137	79	71	18	12	1000	
Jarvies Canyon:	5	0	39	137	198	268	259	169	90	91	39	28	1325	0.2
Power Boating:	1	0	3	27	72	98	106	62	35	32	8	5	450	
Boat Fishing:	0	0	2	18	48	65	71	41	24	21	6	4	300	
Boat Camping:	4	0	34	89	70	94	70	59	27	34	24	18	525	
Swimming:	0	0	0	3	8	11	12	7	4	4	1	1	50	
Kingfisher Island:	3	0	26	87	122	165	158	104	55	56	25	17	820	0.1
Power Boating:	0	0	2	16	43	59	64	37	21	19	5	3	270	
Boat Fishing:	0	0	1	12	32	43	47	27	16	14	4	2	200	
Boat Camping:	3	0	23	59	47	63	47	40	18	23	16	12	350	
Swimming:	0	0	0	0	0	0	0	0	0	0	0	0	0	
Lucerne Valley Marina:	227	0	1045	8354	22420	30239	32926	19116	10960	9865	2577	1660	139387	24.4
Power Boating:	164	0	756	6041	16214	21868	23811	13824	7926	7134	1863	1200	100800	
Boat Fishing:	54	0	249	1993	5348	7213	7854	4560	2614	2353	615	396	33250	
Boat Camping:	0	0	0	0	0	0	0	0	0	0	0	0	0	
Swimming:	9	0	40	320	858	1158	1261	732	420	378	99	64	5337	
Lucerne Valley Boat Ramp:	264	0	1219	9742	26147	35264	38398	22293	12781	11504	3004	1935	162550	28.4
Power Boating:	164	0	756	6041	16214	21868	23811	13824	7926	7134	1863	1200	100800	
Boat Fishing:	100	0	463	3701	9933	13396	14587	8469	4855	4370	1141	735	61750	
Boat Camping:	0	0	0	0	0	0	0	0	0	0	0	0	0	
Swimming:	0	0	0	0	0	0	0	0	0	0	0	0	0	
Mustang Ridge:	17	0	82	660	1769	2387	2599	1509	865	778	203	131	11000	1.9
Power Boating:	11	0	52	420	1126	1519	1654	960	550	495	129	83	7000	
Boat Fishing:	6	0	30	240	643	868	945	549	315	283	74	48	4000	
Boat Camping:	0	0	0	0	0	0	0	0	0	0	0	0	0	
Swimming:	0	0	0	0	0	0	0	0	0	0	0	0	0	
Sheep Creek:	34	0	157	1258	3378	4556	4961	2880	1652	1486	388	250	21000	3.7
Power Boating:	19	0	90	719	1930	2603	2835	1646	944	849	222	143	12000	
Boat Fishing:	15	0	67	539	1448	1953	2126	1234	708	637	166	107	9000	
Boat Camping:	0	0	0	0	0	0	0	0	0	0	0	0	0	
Swimming:	0	0	0	0	0	0	0	0	0	0	0	0	0	

Squaw Hollow:	0	0	2	12	32	44	48	28	16	14	4	2	200	0.0
Power Boating:	0	0	1	6	16	22	24	14	8	7	2	1	100	
Boat Fishing:	0	0	1	6	16	22	24	14	8	7	2	1	100	
Boat Camping:	0	0	0	0	0	0	0	0	0	0	0	0	0	
Swimming:	0	0	0	0	0	0	0	0	0	0	0	0	0	
Sunny Cove Swim Beach:	8	0	37	300	804	1085	1181	686	393	354	92	60	5000	0.9
Power Boating:														
Boat Fishing:	0	0	0	0	0	0	0	0	0	0	0	0	0	
Boat Camping:	0	0	0	0	0	0	0	0	0	0	0	0	0	
Swimming:	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8	0	37	300	804	1085	1181	686	393	354	92	60	5000	
Upper Marsh Creek:	0	0	0	6	16	22	24	14	8	8	2	2	100	0.0
Power Boating:														
Boat Fishing:	0	0	0	3	8	11	12	7	4	4	1	1	50	
Boat Camping:	0	0	0	3	8	11	12	7	4	4	1	1	50	
Swimming:	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total:	986	0	4888	35440	91774	123767	134123	78236	44721	40442	10866	7048	572291	100
Percent:	0.2	0	0.9	6.2	16.0	21.6	23.4	13.7	7.8	7.1	1.9	1.2	100	
Power Boating:	583	0	2694	21532	57792	77943	84871	49273	28250	25426	6638	4276	359278	62.8
Boat Fishing:	293	0	1358	10870	29170	39343	42838	24870	14260	12834	3352	2160	181348	31.7
Boat Camping:	75	0	677	1761	1388	1863	1386	1174	536	674	483	357	10374	1.8
Swimming:	35	0	159	1277	3424	4618	5028	2919	1675	1508	393	255	21291	3.7

Table 4: Current Green River Value Estimates by Activity								
Recreation Activity	Original Value per Visit (Survey)	Number of Responses	Full Sample	Revised Current Value per Visit	Current Number of Total Visits	% of Total Visits	Current Total Value	Percent of Total Value
Scenic Floating	80.05	38	65	$ 46.80	24,768	26.8	$ 1,159,154	24.2
Guide Boat Fishing	296.19	21	34	$ 182.94	11,400	12.3	$ 2,085,497	43.5
Private Boat Fishing	85.00	37	84	$ 37.44	18,531	20.0	$ 693,786	14.5
Shoreline Fishing/ Trail Use	33.55	105	150	$ 23.49	35,482	38.4	$ 833,469	17.4
Camping	24.55	8	59	$ 10.78	2,281	2.5	$ 24,588	.5
Total:					92,461	100	$ 4,796,494	100

Table 5: Current Flaming Gorge Reservoir Value Estimates by Activity								
Recreation Activity	Original Value per Visit (Survey)	Number of Responses	Full Sample	Revised Current Value per Visit	Current Number of Total Visits	Percent of Total Visits	Current Total Value	Percent of Total Value
Power Boating/ Waterskiing	$ 50.60	62	122	$ 25.71	359,278	62.8	$9,237,038	66.1
Boat Fishing	$ 57.30	55	125	$ 25.21	181,348	31.7	$4,571,785	32.7
Boat Camping	$ 30.10	46	106	$ 13.06	10,374	1.8	$35,484	1.0
Swimming/ Waterplay	$ 35.00	4	97	$ 1.44	21,291	3.7	$30,659	.2
Total:					572,291	100	$13,974,966	100

3.1 Methodology

This section describes the methodology used to analyze recreation impacts both on Flaming Gorge Reservoir and the Green River. The recreation analyses evaluate effects in terms of visitation, economic value, and facility availability.

3.1.1 Recreation Visitation, Economic Value, and Facility Availability Methodology

The recreation visitation and value analysis compares estimates of visitation and value by recreation activity for the action alternative to those of the no action alternative. The driving force behind the analyses is changes in visitation and value stemming from variations in alternative specific hydrology as measured by reservoir water levels and river instream flows. Recreation visitation is measured in terms of recreation visits which reflect an individual's round-trip recreation excursions typically from their

primary residence. Recreation value, measured in terms of per visit willingness-to-pay minus actual per visit costs, reflects the increment in benefits a recreator experiences in excess of what they actually pay. Multiplying and summing hydrology influenced visits and values by recreation activity for each alternative provide estimates of total recreation value by alternative. The gain or loss in recreation visitation and value, compared to the no action alternative, provides one measure of an alternative's effect on recreation.

Initially, attempts were made to gather and apply existing information in the development of the visitation and value analyses. Existing information was sought in terms of recreation visitation and recreation values per visit by activity, as well as how these measures might be affected by changing reservoir water levels and river flows. Some visitation information existed for both the river and reservoir, but very little value information was available. Attempts were made to model statistical relationships between reservoir visitation and water levels and river visitation and instream flows. For various reasons, these modeling efforts proved unsuccessful. Even if they had been successful, the results for the reservoir in particular would still have been insufficient given data was only available for fishing activities. As a result, the FS, one of the EIS's cooperating agencies, contracted with Colorado State University to gather additional recreation information.

The contractor conducted a survey at both Flaming Gorge Reservoir and the Green River within the FGNRA during the summer of 2001. Recreators were contacted on-site from May 2001 through September 2001 and asked a series of questions about their recreation activity over the past year. The survey provided information by recreation activity in terms of visitation and value for both current and preferred reservoir water level and river flow conditions. In many cases, survey responses were adjusted downward using a conservative, but frequently applied approach of assuming nonrespondents equal to zero. As a result, differences exist between certain estimates used in the analysis and those presented in the survey report. In addition, information was also obtained on the water levels and flows where recreators would stop participating due to low or high water level/flow conditions. Detailed information on survey methods and results are presented in Aukerman and Schuster (2002).

3.1.1.1 Green River Visitation and Valuation Analysis Methodology

As noted in the affected environment section, the Green River recreation analysis looked at visitation impacts at both the Flaming Gorge National Recreation Area and Dinosaur NM.

3.1.1.1.1 Flaming Gorge National Recreation Area Analysis Methodology – Using existing data along with information gathered by the contractor, estimates of recreation use and economic value were developed by recreation activity for both current and preferred flow conditions. Combining that information with the high and low flow thresholds by activity where visitation and economic value go to zero, provides four flow oriented data points of visitation and value. These four data points sketch out an inverted U-shaped distribution which was used to estimate Green River visitation and value through a process of linear interpolation.

Typically, the current conditions data point fell between the low end threshold and preferred conditions data points (except for current river flows during May which fell between the preferred flow and high end threshold). To provide a more symmetric distribution and to avoid problems associated rapid drop offs after exceeding the preferred condition, a high end kink data point was estimated. The high end kink (and in May, a low end kink) was developed to be proportional with the location of the current conditions data point. If the current conditions data point fell 75 percent of the way between the low end threshold and the preferred condition, the high end kink was estimated to fall 75 percent of the way between the preferred condition and the high end threshold. Since the location of the high end kink was based on a

proportional calculation, the actual distance from the preferred condition of the high end kink and current condition data points would vary in terms of flows, but not percentages. Since the difference between the low and high end thresholds and the preferred condition varies in terms of flow, the same proportional location for the current condition and high end kink would imply different flows. Therefore, the high end kink and the current conditions flows will not be the same distance from the preferred flow condition in terms of flows, but they will be the same distance in terms of percentage.

Combining the high end kink with the other four data points provides five data points for performing the interpolation to estimate recreation visitation and value. The five data points reflect information on river flows, visitation by activity, and values by activity. The linear interpolation starts by evaluating where monthly flows for each alternative and hydrologic condition (i.e., average, wet (90% exceedence), and dry (10% exceedence)) fall within the range of flows of the five data points: low end threshold, current conditions, preferred conditions, high end kink, and high end threshold data points. Once an alternative's monthly flows are located within the range of data points, the calculation progresses to deriving the visitation or value estimate by determining the percentage distance between the two flow data points and applying that percentage to the two relevant visitation or value data points. For example, let's assume that a given monthly flow for the No Action Alternative average condition falls 60 percent of the way between the current conditions and preferred flow data points. The resulting visitation or value estimate would also be estimated at 60 percent of the way between the current conditions and preferred flow visitation or value data points. This linear interpolation procedure was used to develop all the monthly visitation and value estimates by activity for each Green River alternative and hydrologic condition.

Since the five data points in terms of flow, visitation, and value are critical to the entire Green River recreation analysis, it is important to understand how each of these data point was derived. The following presents a discussion of the calculation procedures for each of the data points with respect to flows, visits, and values.

A) Flow Data Points:

1) Low End Threshold Flow: The low end threshold flow for each activity reflects the point were visitation for that recreation activity is assumed to go to zero due to low flows. This flow level was obtained from the survey and represents the average flow where recreators pursuing that activity indicated they would stop participating.

Low end threshold flows by recreation activity were based on recreator rankings in terms of physical descriptions of Green River flows. A range of physical descriptions, from very low to very high flows, were used in each flow oriented survey question. River experts were used to convert the physical description oriented recreator rankings into actual flow estimates (river expert opinions: very low = 800, low = 1,000, medium = 2,000, high = 3,000, very high = 5,000).

	Low End Flow (cfs) Threshold
Scenic Floating:	953
Guide Boat Fishing:	854
Private Boat Fishing:	879
Shoreline Fishing/Trail Use:	825
Camping:	836

2) Current Flow (Monthly or Annually): Current flows, either monthly or annually, needed to be based on the time period associated with the recreation survey. The recreation survey was conducted from May to September 2001, but asked recreators about their activity over the past 12 months, implying it was necessary to gather flow data from June 2000 to September 2001 to estimate current flows.

Current monthly flows were calculated from March through October given visitation data was only available for those months. Calculating current monthly flows relevant to the survey data was complicated by the fact that depending on when a recreator was contacted during the May through September 2001 survey sampling period, a different monthly perspective could result. For example, when considering June flows, someone contacted in May 2001 about their recreation activity over the past 12 months would visualize June 2000 flows, whereas recreators contacted in June, July August, or September 2001 would be visualizing June 2001 flows. To calculate current flows for months with this dual year situation (June–September), actual average monthly flows for 2000 and 2001 were weighted by the percent of the sample contacted in each month (May = 11.3%, June = 20.5%, July = 29.2%, August = 15.4%, and September = 23.6%). For the other months (March, April, May, and October), all recreators would be referencing the same months implying no timing conflicts in estimating average monthly flows. Using this weighting procedure, current average monthly Green River flows relevant for all activities were estimated as follows (measured in cfs):

	Current Flows	Calculation
March	1,036	1,036 (March 2001) across entire sample
April	1,145	1,145 (April 2001) across entire sample
May	2,478	2,478 (May 2001) across entire sample
June	1,215	(2,292*.113 + .887*1,078), 2,292 = 6/2000, 1,078 = 6/2001
July	1,007	(1,408*.318 + .682*820), 1,408 = 7/2000, 820 = 7/2001
August	1,122	(1,311*.61 + .39*827), 1,311 = 8/2000, 827 = 8/2001
September	1,118	(1,203*.764 + .236*843), 1,203 = 9/2000, 843 = 9/2001
October	1,024	1,024 (October 2000) across entire sample

It should be emphasized that the hydrologic data used in the analysis reflects average monthly flows. Regardless of whether the discussion focuses on average, wet, or dry conditions, the underlying hydrologic data is measured in terms of average monthly flows. So even in the extreme hydrologic conditions of wet and dry, the 90% and 10% flow levels still represent average flows (i.e., the highest 90% of average flows and the lowest 10% of average flows for a particular month). This average monthly flow measure was assumed to adequately reflect hydrologic conditions during any given month. This introduces some error into the analysis given the potential variation in flows across the month. In some cases, average monthly flows for a given alternative and hydrologic condition, fall above or below the high and low end flow thresholds for a given recreation activity. As a result, the interpolation analysis predicts zero visitation for that activity and month. Given the average flow may imply that for part of the month, flows may not fall below or exceed the threshold, use of the average flow may somewhat overstate the impact. Perhaps a better approach would be to use a shorter time step, such as a day, but unfortunately the rest of the data for the analysis was not available to such detail. Therefore, the monthly orientation does provide a certain degree of embedded error, but given the analyses were conducted similarly across alternatives, the results are still comparable.

The analysis of economic values was also conducted monthly, but the actual calculation used annual flow information by activity as the current flow reference point. When estimating per trip values, it makes no difference whether the flow reference point is daily, weekly, monthly, or annually. The survey asked

recreators for their current value by recreation activity based on activity pursued across the past 12 months (the survey did not ask about values per activity by month since that would be overly complicated). As a result, the current flows associated with the current economic values by activity were based on average annual flows reflected by the high use months from March to October based on data from the June 2000 through September 2001 survey orientation period. The average annual flow for each activity took into consideration both when a recreator was contacted during the sampling period (weighting based on sampling percentage by month) and the percent of visitation by month associated with each activity. Table 6 presents the annual average flow calculation for scenic floating.

Table 6: Scenic Floating Current Average Annual Flows (cfs)

Month	Scenic Floating Current Visits	Percent	Monthly Visits Required Weighting by Sampling %?	Current Flows	Weighted Average Flow
March	42	.2	No	1,036	2.1
April	217	.9	No	1,145	10.3
May	99	.4	No	2,478	9.9
June	5,527	22.3	Yes	1,215	270.9
July	11,063	44.7	Yes	1,007	450.1
August	7,749	31.3	Yes	1,122	351.2
September	62	.3	Yes	1,118	3.3
October	9	0	No	1,024	0
Total:	24,768				1,097

The weighted average current annual flows for the five studied Green River recreational activities are as follows:

	Wtd. Average
Scenic Floating:	1,097
Guide Boat Fishing:	1,359
Private Boat Fishing:	1,373
Trail Use/Shoreline Fishing:	1,299
Camping:	1,115

3) Preferred Flow: The preferred flow for each activity reflects the point were visitation for that recreation activity is assumed to be at the maximum. This flow level was obtained from the survey and represents the average flow where recreators pursuing that activity indicated they would participate the most.

As with the low end threshold flows, preferred flows by recreation activity were based on recreator rankings of physical descriptions of Green River flows combined with expert opinion of what those physical descriptions represent in terms of flow levels.

	Preferred Flow (cfs)
Scenic Floating:	2,170
Guide Boat Fishing:	1,837
Private Boat Fishing:	1,808
Shoreline Fishing/Trail Use:	1,624
Camping:	2,000

4) High End (Low End) Kink Flow: Calculation of the high end kink flow was discussed above. Note that for the river visitation analysis, current monthly flow varies by month, but not by activity. However, since the preferred and low/high threshold flows vary by activity, the monthly high (low) end kink by activity for the visitation analysis varies by month and activity. See table 14 for the various monthly high end kink flows for each activity used in the visitation analysis.

The high end kink of the valuation analysis is based on the current annual flow by activity. The current annual flow varies by activity, but since it is annual, it doesn't vary by month. Therefore, for the valuation analysis, the five data points vary by activity, but not by month. The high end kink flows used in the valuation analysis are as follows:

	"Value Analysis" High End Kink Flow
Scenic Floating:	3,699.9
Guide Boat Fishing:	2,757.9
Private Boat Fishing:	2,672.7
Shoreline Fishing/Trail Use:	2,473.1
Camping:	3,168.7

5) High End Threshold Flow: The high end threshold flow for each activity reflects the point were visitation for that recreation activity is assumed to go to zero due to high flows. This flow level was obtained from the survey and represents the average flow where recreators pursuing that activity indicated they would stop participating.

As with the low end threshold and preferred flows, high end threshold flows by recreation activity were based on recreator rankings of physical descriptions of Green River flows combined with expert opinion of what those physical descriptions represent in terms of flow levels.

	High End Flow Threshold (cfs)
Scenic Floating:	3,905
Guide Boat Fishing:	3,731
Private Boat Fishing:	3,656
Shoreline Fishing/Trail Use:	3,709
Camping:	3,538

B) Visitation Data Points:

1) Low End Visitation: Assumed to be zero by definition.

2) Current Visitation: Current visitation by activity was based on data collected by the FS from June 2000 through September 2001. As discussed throughout this technical appendix, current visitation estimates needed to be tied into the survey period. The recreation survey was conducted from May to September 2001, but asked recreators about their activity over the past 12 months, implying it was necessary to gather visitation data from June 2000 to September 2001 to estimate current visitation. Current monthly visitation was calculated from March through October given visitation data was only available for those months. Calculating current monthly visitation relevant to the survey data was complicated by the fact that depending on when a recreator was contacted during the May through September 2001 sampling period, a different annual and monthly perspective could result. For example, when considering current June visitation, someone contacted in May 2001 about their recreation activity over the past 12 months would be visualize June 2000 visitation, whereas recreators contacted in June, July August, or September 2001 would be visualizing June 2001 visitation. To calculate current visitation for months with this dual year situation (June–September), actual average monthly visitation for 2000 and 2001 were weighted by the percent of the sample contacted in each month (May = 11.3%, June = 20.5%, July = 29.2%, August = 15.4%, and September = 23.6%). For the other months (March, April, May, and October), all recreators would be referencing the same months implying no timing conflicts in estimating average monthly visitation. Using this weighting procedure, current average monthly Green River visitation by activity was estimated as presented in table 2 under Affected Environment current conditions.

3) Preferred Visitation: The survey asked a contingent behavior question to estimate how many more visits by activity recreators would take if flows were at the recreator's preferred level. The survey additional visit responses were averaged by activity and divided by the average current visits by activity (also obtained from the survey) to estimate a percentage change compared to current visitation. The additional visits by activity were revised downward using the conservative, but frequently applied adjustment of assuming nonrespondents equal to zero. Table 7 shows the percentage increase in visits per year under preferred conditions.

Table 7: Preferred (Upper Bound) Green River Visitation Estimates by Activity

Recreation Activity	Additional Visits per Year (Survey)	Number of Responses	Full Sample	Revised Additional Visits per Year	Current Visits per Year	% Increase Visits per Year under Preferred Conditions
Scenic Floating	2.417	18	65	.67	2.765	24.2
Guide Boat Fishing	2.133	15	34	.94	4.875	19.3
Private Boat Fishing	3.563	24	84	1.02	6.137	16.6
Shoreline Fishing/ Trail Use	3.143	70	150	1.47	3.401	43.2
Camping	2.885	13	123	.3	3.074	9.8

The percentage increase by activity (from the survey) was then applied to the current monthly visitation estimates (based on the FS data) to derive the preferred flow monthly visitation estimates.

Given the percentage changes varied by activity, and the current visitation estimates varied by activity and month, the preferred visitation estimates ended up varying by activity and month. Table 8 presents estimates of preferred visitation by activity and month. The estimates of preferred visits reflect an upper bound for potential visitation.

Table 8: Preferred (Upper Bound) Green River Visitation Estimates by Activity and Month

Month	Scenic Floating	Guide Boat Fishing	Private Boat Fishing	Shoreline Fishing/ Trail Use	Camping	Total	Percent
March	52	334	1,475	2,541	0	4,402	3.7
April	270	1,861	3,748	8,439	0	14,318	12.0
May	123	2,407	4,139	7,078	0	13,747	11.5
June	6,867	2,504	2,060	8,559	733	20,723	17.4
July	13,744	2,124	1,773	11,039	719	29,399	24.6
August	9,626	2,163	1,699	7,823	659	21,970	18.4
September	77	1,826	5,629	4,204	386	12,122	10.2
October	11	379	1,087	1,136	7	2,620	2.2
Total:	30,770	13,598	21,610	50,819	2,504	119,301	100
Percent:	25.8	11.4	18.1	42.6	2.1	100	

While the percentage change by activity refers to annual visitation, the decision was made to assume the percentages also held on a monthly basis to allow for monthly analysis. The monthly analysis was seen as a significant improvement over an annual analysis since it allowed for a more thorough evaluation of the month-to-month consequences of each alternative.

4) High End (Low End) Kink Visitation: Since the high end kink data point was analogous to the current conditions data point, visitation for the high end kink was assumed to be the same as current visitation as presented in table 2 under Affected Environment current conditions.

5) High End Visitation: Assumed to be zero by definition.

C) Value per Visit Data Points:

1) Low End Values: Assumed to be zero by definition.

2) Current Values: Current value estimates were obtained by activity from the survey. All value estimates were developed using the conservative, but frequently applied approach of assuming nonrespondents have a value of zero. River camping values were most affected by the nonresponse adjustments due to the large number of nonresponses. Table 4 under Affected Environment current conditions presents the estimates of current value per visit by recreation activity for the Green River.

3) Preferred Values per Visit: As with the preferred visitation estimates, the survey asked a contingent valuation question to estimate how much more value per visit by activity recreators would expect if flows were at the recreator's preferred level. The survey additional value per visit responses were averaged by activity and revised downward using the conservative, but frequently applied adjustment of assuming nonrespondents equal to zero. The revised additional values per

visit by activity were added to the current revised values per visit by activity to estimate preferred values per visit by activity. The preferred values per visit vary by activity, but not by month. Table 9 presents estimates of preferred values per visit by activity. The estimates of preferred values per visit reflect an upper bound.

Table 9: Preferred (Upper Bound) Green River Values per Visit by Activity

Recreation Activity	Additional Value per Visit (Survey)	No. of Responses	Full Sample	Revised Additional Value per Visit	Revised Current Value per Visit	Preferred Value per Visit
Scenic Floating	$ 64.39	48	65	$ 47.55	$ 46.80	$ 94.35
Guide Boat Fishing	$ 71.37	27	34	$ 56.68	$ 182.94	$ 239.62
Private Boat Fishing	$ 55.66	49	84	$ 32.47	$ 37.44	$ 69.91
Shoreline Fishing/Trail Use	$ 13.53	118	150	$ 10.64	$ 23.49	$ 34.13
Camping	$ 9.36	44	123	$ 3.35	$ 10.78	$ 14.13

4) High End (Low End) Kink Value per Visit: Since the high end kink data point was analogous to the current conditions data point, value per visit for the high end kink was assumed to be the same as current value per visit. Table 4 under Affected Environment current conditions presents the estimates of current value per visit by recreation activity for the Green River.

5) High End Value per Visit: Assumed to be zero by definition.

3.1.1.1.2 Dinosaur National Monument Analysis Methodology – Based on conversations with Dinosaur NM staff (personal communications with Christy Wright), there was uncertainty over whether Green River flows would have a significant impact on rafting visitation within Dinosaur. As noted in the affected environment section, given the potential for substitution of rafting activity between the Green and Yampa Rivers and the fact that most rafting trips are scheduled well ahead of time and, thereby, involve both time and financial commitments, the general hypothesis was that changing Green River flows would not have a significant impact on rafting activity.

To test this hypothesis, monthly data on both private and commercial rafting visitation and average Green River flows was gathered over an 11-year period (1993-2003). Annual population data for the States of Colorado, Utah, and Wyoming was also gathered over this period. Using this data, the following models were attempted.

Rafting visits = f (Green River Flows, Green River Flows^2, Population, School)

Dependent Variables:

Private Visits = Number of monthly visitors on private rafting trips
Commercial Visits = Number of monthly visitors on commercial rafting trips

Explanatory Variables:

Green River Flows = Average monthly Green River flows as obtained from the USGS.
Expected sign: +

Green River Flows^2 =	Average monthly Green River flows squared. Provides the often assumed quadratic (inverted U-shaped) distribution. Expected sign: -
Population =	Annual population of Colorado, Utah, Wyoming. Reflects trend variable. Expected sign: +
School =	Qualitative variable reflecting 1 when school is out of session (months of June, July, August) and 0 when in session. Expected sign: +

Private Rafting Model Results:

Variables	Constant	Flows	Flows^2	Population	School	Adjusted R^2
Constant	-609.469	.3998	-3.855E-05	8.11E-05	856.811	.656
t Statistic	-.941	4.445	-2.973	.919	11.042	

Interestingly, the flow variable in the private model proved to be statistically significant implying that changes in average flows do influence changes in private rafting visitation. However, when plugging the average monthly flows (along with the other variables) associated with both the No Action and Action Alternatives into the model, the estimated visitation differences weren't considered substantial. On average, Action Alternative rafting visits were estimated to increase by less than 8 percent compared to the No Action Alternative. In wet and dry conditions, which each only occur about 10 percent of the time, the change in visitation associated with the Action Alternative was +11% and -5%, respectively.

	Average Conditions	Wet Conditions	Dry Conditions
No Action Alternative Visits	6,750	7,665	4,961
Action Alternative Visits	7,284 (+7.9%)	8,510 (+11.0%)	4,715 (-5.0%)

Commercial Rafting Model Results: In the initial regression, we tested the relationship between commercial rafting visits and average monthly flow only. Given this relationship did not prove significant, we went no further with the commercial rafting analysis.

Bottom line, since the private model indicated fairly minor changes in rafting visitation between the two alternatives and the commercial rafting model showed no statistical relationship between flows and visitation, the assumption was made that rafting in Dinosaur would not be substantially affected by the EIS alternative and, therefore, a detailed analysis of Dinosaur NM rafting would not be included in the EIS.

3.1.1.2 Flaming Gorge Reservoir Visitation and Valuation Analysis Methodology

Whereas the Green River recreation analysis used the interpolation approach for both the visitation and value analyses, lack of visitation data for the relevant survey period from June 2000 through September 2001 precluded use of an interpolation analysis to estimate Flaming Gorge Reservoir visitation. Instead, a facilities availability approach was used to estimate reservoir visitation. However, the interpolation approach was used to estimate economic values by reservoir recreation activity as with the Green River analysis.

3.1.1.2.1 Facility Availability Approach to Flaming Gorge Reservoir Visitation – The facility availability approach to estimating recreation visitation focuses purely on the influence of water access on recreation activity. Water access is determined by the availability of recreation facilities as reservoir water levels fluctuate. The basic concept that recreation visitation varies with availability of facilities is well founded, but it obviously only applies to water based activities. In addition, by focusing purely on access, the approach fails to consider other influential factors such as aesthetics and safety concerns. Nevertheless, facilities availability approaches are often used to estimate changes in visitation.

Step 1: The first step in developing a facility availability analysis is to gather information on the high and low end usability thresholds associated with each potentially affected facility. Usability thresholds, measured in feet above mean sea level (msl), represent the point where each facility would no longer be usable due to either high or low water. For the Flaming Gorge analysis, high end thresholds were of little concern and were not included in the analysis. Table 10 presents a list of sites, facilities, and low end usability thresholds.

Table 10: Flaming Gorge Reservoir Facility List

Site	Facility Type	Low End Threshold (feet above msl)
Antelope Flat	Boat Ramp Swim Beach	6015 6012
Anvil Draw[1]	Boat Ramp	6020
Buckboard Crossing	Marina Boat Ramp	6015 6000
Cedar Springs	Marina Boat Ramp	6018 6018
Firehole	Boat Ramp Swim Beach	6019 6012
Hideout	Boat Camp	6014
Jarvies Canyon	Boat Camp	6012
Kingfisher Island	Boat Camp	6010
Lucerne Valley	Marina Two Boat Ramps Swim Beach	6010 5994 6014
Mustang Ridge	Boat Ramp	6000
Sheep Creek	Boat Ramp	6015
Squaw Hollow	Boat Ramp	6015
Sunny Cove	Swim Beach	6018
Upper Marsh Creek	Boat Ramp	6000

[1] The Anvil Draw boat ramp was extended in 2003 such that the low end threshold changed from 6020 to 6015. This change is not reflected in the analysis because it would not substantially affect the results (impacts only this low use ramp during dry conditions).

Step 2: The next step involves obtaining visitation estimates by activity linked to each of the recreation facilities. The latest, most reliable visitation estimates for the reservoir were gathered by the FS in fiscal year 1997 (October 1996–September 1997). This data was gathered by recreation activity, site, and facility. This annual visitation data needed to be converted into monthly estimates allow for use of the facility availability approach. Fortunately, the State of Utah has periodically gathered monthly data for boat, shore, and ice fishing from which monthly percentages were estimated. The boat fishing monthly

percentages were used to allocate warm water recreation activities across months. Warm water activities were defined as power boating, waterskiing, boat fishing, and swimming/waterplay. The shore fishing monthly percentages were used to allocate cooler month activities across months. The only cool water activity of interest was boat camping. While not directly targeted toward each of our activities of interest, the State of Utah percentages were seen as representative of the various warm and cool water activities.

Fishing data from the State of Utah was available for 1993-4, 1988-9, and 1982. Given there was not much variation in these percentages over time, which helped justify their use, it mattered little which set of data was applied. Data from 1988-9, as presented in table 11, was selected as most representative since the reservoir water levels of 1988-9 matched the visitation oriented 1996-7 water levels the closest.

Table 11: Flaming Gorge Reservoir Monthly Percentages by Activity Type

Month	Monthly Percentages for Warm Water Activities	Monthly Percentages for Cool Water Activities
January	.002	.007
February	.000	.000
March	.007	.065
April	.060	.170
May	.161	.134
June	.217	.180
July	.236	.134
August	.137	.113
September	.079	.052
October	.071	.065
November	.018	.047
December	.012	.034

Step 3: The next step in the analysis was to look at the actual availability of the facilities under current conditions and conditions associated with each alternative. As noted in the Affected Environment discussion of current reservoir water levels, use of both a facility availability approach and an interpolation approach to estimate visitation and value respectively within the reservoir recreation analysis complicates the definition of current flows to some extent. Fortunately, regardless of whether one defines current conditions in terms of water levels for fiscal year 1997 (based on visitation data) or water levels from June 2000 through September 2001 (based on survey value data), the current visitation estimate derived from the facility availability approach would be the same. Under both perspectives, all facilities are available in all months. The current visitation estimate is presented in table 3 under Affected Environment current conditions.

The current visitation estimate was used as the starting point for estimating visitation for the No Action and Action Alternatives. End of month reservoir water levels were obtained from the hydrologists for each alternative under a series of conditions ranging from dry (10% exceedence) to wet (90% exceedence). Monthly availability of facilities was evaluated for dry, average, and wet conditions. An implicit assumption is made that end of month water levels are representative of water levels throughout the month. Monthly water level data was used for each alternative since that time step was consistent with the lowest level of detail available for the visitation data as well as the historical water level data.

Step 4: Based on the availability of facilities under each alternative and hydrologic scenario, estimates of visitation were developed. As facilities became unusable, the level of visitation associated with that facility was assumed lost under the initial analysis run. Full loss of visitation as facilities become unusable is a worst case scenario since it fails to address potential substitution of visitation to other facilities along the reservoir. After developing the initial, worst case loss estimates, the results were presented to on-site recreation managers for their opinions as to the potential degree of facility substitution. The final monthly visitation estimates by recreation activity, alternative, and hydrologic condition therefore take into account facility substitution based on the professional judgement of recreation management.

3.1.1.2.2 Interpolation Approach to Flaming Gorge Reservoir Valuation – The linear interpolation approach was also used to estimate monthly recreation values by activity. The approach used was the same as that presented above to estimate Green River values. The following reflects details of the interpolation data points for Flaming Gorge Reservoir water levels and values.

A) Water Level Data Points:

1) Low End Water Level Thresholds: The low end threshold water level for each activity reflects the point were value for that recreation activity is assumed to go to zero due to low flows. This flow level was obtained from the survey and represents the average flow where recreators pursuing that activity indicated they would stop participating.

As with Green River flows, low end threshold water levels by recreation activity were based on recreator rankings in terms of physical descriptions of Flaming Gorge Reservoir water levels. A range of physical descriptions, from very low to very high water levels, were used in each water level oriented survey question. Reservoir experts were used to convert the physical description oriented recreator rankings into actual water level estimates (reservoir expert opinions: very low = 6015, low = 6022, medium = 6028, high = 6030, very high = 6040).

	Low End Water Level Threshold
Power Boating/WaterSkiing:	6016.7
Boat Fishing:	6017.3
Boat Camping:	6017.1
Swimming/Waterplay:	6017.4

2) Current Water Levels: The analysis of economic values was conducted by month and alternative, but the actual calculation used annual water level information by activity as the current flow reference point. When estimating per visit values, it makes no difference whether the water level reference point is daily, weekly, monthly, or annually. The survey asked recreators for their current value by recreation activity based on activities pursued across the past 12 months (the survey did not ask about values per activity by month since that would be overly complicated). As a result, the current water levels associated with the current economic values by activity were based on average annual water levels from the June 2000 through September 2001 survey orientation period. The average annual water level for each activity took into consideration both when a recreator was contacted during the sampling period (weighting based on sampling percentage by month) and the percent of visitation by month associated with each activity.

The weighted average current annual water levels for the four studied Flaming Gorge Reservoir recreational activities hardly varied and are as follows:

	Low End Water Level Threshold
Power Boating/WaterSkiing:	6021.2
Boat Fishing:	6021.2
Boat Camping:	6021.1
Swimming/Waterplay:	6021.2

3) Preferred Water Levels: The preferred water level for each activity reflects the point were visitation for that recreation activity is assumed to be at the maximum. This water level was obtained from the survey and represents the average water level where recreators pursuing that activity indicated they would participate the most.

As with the low end threshold reservoir water levels, preferred water levels by recreation activity were based on recreator rankings of physical descriptions of Flaming Gorge Reservoir water levels combined with expert opinion of what those physical descriptions represent in terms of water levels.

	Preferred Water Levels
Power Boating/WaterSkiing:	6029.0
Boat Fishing:	6029.1
Boat Camping:	6028.9
Swimming/Waterplay:	6028.9

3) High End Kink Water Levels: Calculation of the high end kink water level was discussed above under the Green River section. Note that for the reservoir valuation analysis, current annual water levels (and all data points for that matter) vary by activity, but not by month. As a result, the high end kink water level also varies by activity, but not month. Also note that in all months, this data point reflects a high end kink and never a low end kink.

	High End Kink Water Levels
Power Boating/WaterSkiing:	6021.2
Boat Fishing:	6021.2
Boat Camping:	6021.1
Swimming/Waterplay:	6021.2

4) High End Threshold Water Levels: The high end threshold water level for each activity reflects the point were value for that recreation activity is assumed to go to zero due to high water levels. This water level was obtained from the survey and represents the average water level where recreators pursuing that activity indicated they would stop participating.

As with the low end threshold and preferred reservoir water levels, high end threshold water levels by recreation activity were based on recreator rankings of physical descriptions of Flaming Gorge Reservoir water levels combined with expert opinion of what those physical descriptions represent in terms of water levels.

	High End K Water Level Threshold
Power Boating/WaterSkiing:	6036.8
Boat Fishing:	6037.5
Boat Camping:	6036.7
Swimming/Waterplay:	6036.7

B) Visitation Data Points: Not relevant since the reservoir visitation analysis is based on the facility availability approach as opposed to the interpolation approach.

C) Value per Visit Data Points:

1) Low End Values: Assumed to be zero by definition.

2) Current Values: Current value estimates were obtained by activity from the survey. All value estimates were developed using the conservative, but frequently applied approach of assuming nonrespondents have a value of zero. All activities were significantly affected by this adjustment. Table 5 under Affected Environment current conditions presents the estimates of current value per visit by recreation activity for the reservoir.

3) Preferred Values per Visit: The survey asked a contingent value question to estimate how much more value per visit by activity recreators would expect if water levels were at the recreator's preferred level. The survey additional value per visit responses were averaged by activity and revised downward using the conservative nonrespondent adjustment. The revised additional values per visit by activity were added to the current revised values per visit by activity to estimate preferred values per visit by activity. The preferred values per visit vary by activity, but not by month. Table 12 presents estimates of preferred values per visit by activity. The estimates of preferred values per visit reflect an upper bound.

Table 12: Preferred (Upper Bound) Flaming Gorge Reservoir Values per Visit by Activity

Recreation Activity	Additional Value per Visit (Survey)	Number of Responses	Full Sample	Revised Additional Value per Visit	Revised Current Value per Visit	Preferred Value per Visit
Power Boating/ Waterskiing	$ 41.71	60	122	$ 20.51	$ 25.71	$ 46.22
Boat Fishing	$ 33.79	47	125	$ 12.71	$ 25.21	$ 37.92
Boat Camping	$ 40.52	24	8106	$ 9.17	$ 13.06	$ 22.23
Swimming/ Waterplay	$ 36.25	24	97	$ 8.97	$ 1.44	$ 10.41

4) High End (Low End) Kink Value per Visit: Since the high end kink data point was analogous to the current conditions data point, value per visit for the high end kink was assumed to be the same as current value per visit. See current values per visit in table 12 directly above.

5) High End Value per Visit: Assumed to be zero by definition.

Monthly values by alternative and hydrologic condition were multiplied by monthly visitation estimates by alternative and hydrologic condition to estimate total value by alternative and hydrologic condition.

3.1.1.3 Green River Facility Availability Analysis Methodology

In addition to the visitation and economic value analysis, evaluations were also made as to the availability of recreation facilities for each alternative. As noted above, facility availability provided the basis for estimating visitation effects for the reservoir. Although not used to estimate the visitation effects on the Green River, facility availability was also reviewed on the Green River downstream of the dam, all the way to the confluence with the Colorado River. As with the reservoir visitation analysis, high and low end usability thresholds were obtained for each facility from the various managing entities (i.e., FS, BLM, State of Utah, USFWS, NPS). Average, wet (90^{th} percentile), and dry (10^{th} percentile) flows from the hydrology model for each alternative were compared to the high and low end usability thresholds for each facility to determine availability. In addition, the raw hydrologic output data was searched to determine the percent of time each usability threshold was exceeded for each alternative. This facility availability information is presented for each alternative along with the visitation and valuation information. For consistency with the reservoir analysis, the results of the Green River facility availability analysis are presented within the visitation sections.

The following summarizes information obtained from discussions with the various managing entities. Note that as a result of these discussions, many of the recreation facilities identified in the affected environment section were assumed to be unaffected by river flows given their historical use across a wide range of flow conditions. Table 13 presents the high and low end usability thresholds for each potentially impacted facility on the Green River.

Reach 1: Flaming Gorge Dam to the confluence with the Yampa River

USDA Forest Service: The FS manages two boat ramps (Spillway and Little Hole), a fishing pier, a hiking trail, and 18 riverside campgrounds along the Green River within FGNRA. Use of both boat ramps and the fishing pier become difficult as flows fall below 600 cfs. Significant impacts occur to nine of the eighteen campgrounds as flows exceed 5,000 cfs. The Spillway ramp, the fishing pier, and the hiking trail become unusable or significantly impacted as flows rise above 6,000 cfs. Finally, the Little Hole boat ramp becomes inaccessible as flows exceed 8,000 cfs.

Bureau of Land Management: The BLM manages numerous recreational facilities between FGNRA and Browns Park NWR including three boat ramps and approximately 20 campsites. The boat ramps are found at Indian Crossing, Bridge Hollow, and Swallow Canyon (an additional ramp at Pipeline is being phased out). These ramps have remained usable at very high flows, and therefore no information exists as to high end flow thresholds where the ramps become unusable. However, these ramps do become difficult to use below 800 cfs. The only campsite which may experience flooding is the Bridge Hollow camp. The group campsites at Bridge Hollow have flooded at about 10,000 cfs in the past.

State of Utah: The State manages one boat ramp (Bridge Port Camp) and five campgrounds (Gorge Creek, Little Davenport, Bridge Port, Elm Grove, and Burned Tree) between FGNRA and Browns Park NWR. The boat ramp remains usable at very high flows so no high end flow threshold was assumed, but becomes unusable below 800 cfs. The campgrounds are far enough away from the water that they would be unaffected by high flows.

Table 13. Green River Facility Usability Thresholds				
Site Name	Facility Type	Managing Entity	Low End Usability Threshold (cfs)	High End Usability Threshold (cfs)
Green River – Reach 1 (Dam to Confluence With Yampa River):				
Spillway	Boat Ramp	FS	600	6,000
Little Hole	Boat Ramp	FS	600	8,000
	Fishing Pier	FS	600	6,000
	Trail	FS	n/a	6,000
	9 of 18 Campgrounds	FS	n/a	5,000
Indian Crossing	Boat Ramp	BLM	800	None
Bridge Hollow	Boat Ramp	BLM	800	None
	Campground	BLM	n/a	10,000
Swallow Canyon	Boat Ramp	BLM	800	None
Bridge Port Camp	Boat Ramp	State of Utah – Wildlife Resources	800	None
Green River – Reach 2 (Yampa River to confluence with White River):				
Ouray NWR	Boat Ramp	USFWS	None	25,000
Green River – Reach 3 (White River to confluence with Colorado River):				
Sand Wash	Boat Ramp	BLM	800	50,000
Swasey's Beach	Boat Ramp	BLM	2,000	50,000
Nefertiti	Boat Ramp	BLM	800	[1]27,000
Butler Rapid	Boat Ramp	BLM	800	[1]27,000
Mineral Bottom	Boat Ramp	BLM	800	[1]30,000
Green River State Park	Boat Ramp	State of Utah	800	25,000
	Campground	State of Utah	None	25,000
	Golf Course	State of Utah	None	19,000

[1] Access road to the facility becomes inundated, not the facility itself.

National Park Service (Dinosaur National Monument): Dinosaur NM has three primary boat ramp facilities: Lodore, Deerlodge, and Split Mountain. Generally speaking, these facilities have been usable across all flow levels and hence high and low end usability thresholds are unknown. The likely continued operation of recreation facilities across a wide range of flow levels also holds for the riverside campgrounds (i.e., Lodore, Deerlodge, Echo Park, Split Mountain, and Green River) and picnic areas (i.e., Split Mountain).

Reach 2: Yampa River to the confluence with the White River

U.S. Fish and Wildlife Service (Ouray National Wildlife Refuge): While there is a primitive boat ramp, very little boating activity occurs within the refuge. Site management estimates that use of this ramp becomes difficult at about 25,000 cfs. There are no riverside campgrounds within the refuge.

Reach 3: White River to the confluence with the Colorado River

Bureau of Land Management: The BLM oversees a considerable amount of land within Reach 3 from the confluence with the White River to the northern border of Canyonlands National Park. The agency maintains five boat ramps/launches (Sand Wash, Swasey's Beach, Nefertiti, Butler Rapid, and Mineral Bottom) within this river stretch. Swasey's Beach is the only developed concrete ramp, with the other sites being primitive. Sand Wash is usable at virtually all flow levels, with impacts occurring at the low end below 800 cfs and at the high end above 50,000 cfs. Swasey's Beach ramp becomes unusable below 2,000 cfs due to rocks and at very high flows in excess of 50,000 cfs. The launch sites at Nefertiti and Butler Rapid remain accessible at virtually all flow levels, but the access road to these facilities floods at about 27,000 cfs. At Mineral Bottom, use of the site becomes difficult below 800 cfs. As with Nefertiti and Butler Rapid, the site remains accessible at high flows, but the access road floods at about 30,000 cfs. Finally, three sites at the campground at Swasey's Beach get inundated at about 26,000 cfs, but this is not a significant enough effect to close the campground.

State of Utah (Green River State Park): The park has a developed boat ramp, a 42 unit campground, and a golf course all located along the Green River. At 19,000 cfs the golf course begins to see significant impacts. At 25,000 cfs, impacts begin at both the campground and boat ramp. While these facilities may still be usable at these flow levels, impacts become readily apparent.

Private Lands: A primitive boat launch site exists on private lands at Ruby Ranch upstream of Canyonlands National Park. No information was readily available on high or low end usability thresholds.

National Park Service (Canyonlands National Park): Given there are no boat ramps within the park, Green River boaters within Canyonlands use boat ramps outside the park on BLM, State, or private lands. Boaters use undeveloped, undesignated campsites throughout the park available at all flow levels. Usability thresholds for 8 minimally developed road-accessible campsites along the river are unknown. Above about 30,000 cfs, a portion of the access road from the north becomes inundated, but access is still possible from the south or east.

3.2 Results

This section presents the results of the recreation visitation and value analyses. Results are presented by alternative within each section with the Action Alternative results compared to the No Action Alternative results.

3.2.1 Recreation Visitation and Valuation Results

This section presents the results of the recreation visitation and valuation analysis by alternative starting with the No Action Alternative. Under each alternative, separate sections are presented for hydrology, visitation, and value. Within each hydrology, visitation, and value subsection, a further division is made between the Green River and Flaming Gorge Reservoir analyses, but the visitation and value results are

ultimately combined across both sites. Finally, information presented for the Action Alternative will be compared to the No Action Alternative to evaluate the effects of the Action Alternative.

3.2.1.1 No Action Alternative

Within a Federal environmental document, such as this Flaming Gorge EIS, the No Action Alternative reflects the baseline from which to compare all other alternatives.

3.2.1.1.1 Hydrologic Conditions –

A) Green River Flows:

Monthly average Green River flows were obtained from the hydrology models for each project alternative. Within the recreation analysis, comparisons were made of recreation effects between alternatives under average, wet, and dry hydrologic conditions. The monthly average flows under average conditions simply reflects the average flows for that particular month across all years within the hydrologic output. As a result, average flows do not necessarily equate to information related to average water year types presented within the context of the Green River flow recommendations. Similarly, the wet and dry flows used in the recreation analysis are not based on information by water year type, but reflect the 90 percent and 10 percent thresholds associated with the output from the hydrologic models. The dry flows represent the lowest 10% flow level whereas the wet flows represent the highest 90% flow level. Table 14 presents the average, wet, and dry flows by month for the No Action Alternative. Also included in the table are the five flow data points used in the interpolations. Comparing the alternative flows to the data points provides an idea as to where the alternative flow falls within the inverted U-shaped flow distribution. For example, the No Action Alternative average condition flow for scenic floating for March of 1,484 falls between the current flow data point (1,036) and the preferred flows data point (2,170). The visitation and value interpolation for the No Action Alternative scenic floating March average condition would therefore also result in estimates falling between the current and preferred visit and value data points.

Note that the Green River recreation analysis evaluated the months of March through October given visitation data was only available for those months. In addition, as described under affected environment, the river recreation analysis focused on the Flaming Gorge NRA which is found in Reach 1. Reach 1 of the Green River is defined within this EIS as the stretch of river from Flaming Gorge Dam to the confluence of the Green and Yampa Rivers.

B) Flaming Gorge Reservoir Water Levels:

End of month Flaming Gorge Reservoir water levels were also obtained from the hydrology models for each alternative. As with the river hydrology, reservoir water levels were obtained by alternative for average, wet, and dry hydrologic conditions. The end of month (EOM) water levels under average conditions simply reflects the average water levels for that particular month across all years within the hydrologic output. As a result, average water levels do not necessarily equate to information related to average water year types presented within the context of the Green River flow recommendations. Similarly, the wet and dry water levels used in the recreation analysis are not based on information by water year type, but reflect the 90 percent and 10 percent thresholds associated with the output from the hydrologic models. The dry water levels represent the lowest 10% water level whereas the wet water levels represent the highest 90% water level. Table 15 presents the average, wet, and dry water levels by month for the No Action Alternative. Note that the Flaming Gorge Reservoir recreation analysis evaluated across all months, and not only March through October as was the river analysis.

Table 14: No Action Alternative, Green River Reach 1 Average Monthly Flows (cfs) by Hydrologic Condition									
		Interpolation Data Points					No Action Alternative		
Month	Recreation Activity	Low End Threshold Flow	Current Flow	Preferred Flow	High End Kink Flow	High End Threshold Flow	Average	Wet	Dry
		Monthly Oriented Flow Data Points for Visitation Analysis Interpolation							
March	Scenic Floating	953	1036.0	2170	3786.7	3905	1484	1898	800
	Guide Boat Fishing	854	"	1837	3380.3	3731	"	"	"
	Private Boat Fishing	879	"	1808	3343.7	3656	"	"	"
	Shore Fishing/Trail Use	825	"	1624	3158.4	3709	"	"	"
	Camping	836	"	2000	3273.7	3538	"	"	"
April	Scenic Floating	953	1145.0	2170	3631.3	3905	2207	3290	800
	Guide Boat Fishing	854	"	1837	3170.3	3731	"	"	"
	Private Boat Fishing	879	"	1808	3126.9	3656	"	"	"
	Shore Fishing/Trail Use	825	"	1624	2874.0	3709	"	"	"
	Camping	836	"	2000	3129.7	3538	"	"	"
May	Scenic Floating	953	1954.0	2170	2478.0	3905	3463	5100	1400
	Guide Boat Fishing	854	1504.3	1837	"	3731	"	"	"
	Private Boat Fishing	879	1471.2	1808	"	3656	"	"	"
	Shore Fishing/Trail Use	825	1296.7	1624	"	3709	"	"	"
	Camping	836	1638.2	2000	"	3538	"	"	"
June	Scenic Floating	953	1215.2	2170	3531.2	3905	2710	5917	800
	Guide Boat Fishing	854	"	1837	3035.1	3731	"	"	"
	Private Boat Fishing	879	"	1808	2987.3	3656	"	"	"
	Shore Fishing/Trail Use	825	"	1624	2690.8	3709	"	"	"
	Camping	836	"	2000	3037.0	3538	"	"	"
July	Scenic Floating	953	1007.0	2170	3828.0	3905	983	1200	800
	Guide Boat Fishing	854	"	1837	3436.2	3731	"	"	"
	Private Boat Fishing	879	"	1808	3401.4	3656	"	"	"
	Shore Fishing/Trail Use	825	"	1624	3234.1	3709	"	"	"
	Camping	836	"	2000	3312.1	3538	"	"	"
Aug	Scenic Floating	953	1122.2	2170	3663.7	3905	1251	1531	931
	Guide Boat Fishing	854	"	1837	3214.2	3731	"	"	"
	Private Boat Fishing	879	"	1808	3172.1	3656	"	"	"
	Shore Fishing/Trail Use	825	"	1624	2933.3	3709	"	"	"
	Camping	836	"	2000	3159.8	3538	"	"	"
Sept	Scenic Floating	953	1118.0	2170	3669.7	3905	1374	1639	1039
	Guide Boat Fishing	854	"	1837	3222.3	3731	"	"	"
	Private Boat Fishing	879	"	1808	3180.5	3656	"	"	"
	Shore Fishing/Trail Use	825	"	1624	2944.3	3709	"	"	"
	Camping	836	"	2000	3165.3	3538	"	"	"
Oct	Scenic Floating	953	1024.0	2170	3803.8	3905	1654	2075	1039
	Guide Boat Fishing	854	"	1837	3403.5	3731	"	"	"
	Private Boat Fishing	879	"	1808	3367.6	3656	"	"	"
	Shore Fishing/Trail Use	825	"	1624	3189.7	3709	"	"	"
	Camping	836	"	2000	3289.6	3538	"	"	"
		Annually Oriented Flow Data Points for Valuation Analysis Interpolation							
		Low End Threshold Flow	Annual Current Flow	Preferred Flow	Annual High End Kink Flow	High End Threshold Flow			
All Months	Scenic Floating	953	1096.9	2170	3699.8	3905	Monthly flows are as above		
	Guide Boat Fishing	854	1359.0	1837	2757.9	3731			
	Private Boat Fishing	879	1373.3	1808	2672.7	3656			
	Shore Fishing/Trail Use	825	1298.6	1624	2473.1	3709			
	Camping	836	1115.5	2000	3168.7	3538			

Table 15: No Action Alternative, Flaming Gorge Reservoir Average End of Month Water Levels (feet above msl) by Hydrologic Condition									
		Annually Oriented Water Level (WL) Data Points for Valuation Analysis Interpolation					No Action Alternative Water Levels		
Month	Recreation Activity	Low End Threshold WL	Annual Current WL	Preferred WL	Annual High End Kink WL	High End Threshold WL	Average	Wet	Dry
January	Power Boating/Skiing Boat Fishing Boat Camping Swimming/Waterplay	6016.7 6017.3 6017.1 6017.4	6021.2 6021.2 6021.1 6021.2	6029.0 6029.1 6028.9 6028.9	6035.2 6034.7 6034.0 6034.1	6038.8 6037.5 6036.7 6036.7	6024.3	6028.1	6017.4
February	Power Boating/Skiing Boat Fishing Boat Camping Swimming/Waterplay	6016.7 6017.3 6017.1 6017.4	6021.2 6021.2 6021.1 6021.2	6029.0 6029.1 6028.9 6028.9	6035.2 6034.7 6034.0 6034.1	6038.8 6037.5 6036.7 6036.7	6024.0	6026.8	6017.8
March	Power Boating/Skiing Boat Fishing Boat Camping Swimming/Waterplay	6016.7 6017.3 6017.1 6017.4	6021.2 6021.2 6021.1 6021.2	6029.0 6029.1 6028.9 6028.9	6035.2 6034.7 6034.0 6034.1	6038.8 6037.5 6036.7 6036.7	6024.0	6027.9	6019.0
April	Power Boating/Skiing Boat Fishing Boat Camping Swimming/Waterplay	6016.7 6017.3 6017.1 6017.4	6021.2 6021.2 6021.1 6021.2	6029.0 6029.1 6028.9 6028.9	6035.2 6034.7 6034.0 6034.1	6038.8 6037.5 6036.7 6036.7	6024.1	6028.5	6020.1
May	Power Boating/Skiing Boat Fishing Boat Camping Swimming/Waterplay	6016.7 6017.3 6017.1 6017.4	6021.2 6021.2 6021.1 6021.2	6029.0 6029.1 6028.9 6028.9	6035.2 6034.7 6034.0 6034.1	6038.8 6037.5 6036.7 6036.7	6023.8	6029.4	6017.6
June	Power Boating/Skiing Boat Fishing Boat Camping Swimming/Waterplay	6016.7 6017.3 6017.1 6017.4	6021.2 6021.2 6021.1 6021.2	6029.0 6029.1 6028.9 6028.9	6035.2 6034.7 6034.0 6034.1	6038.8 6037.5 6036.7 6036.7	6026.6	6031.7	6018.5
July	Power Boating/Skiing Boat Fishing Boat Camping Swimming/Waterplay	6016.7 6017.3 6017.1 6017.4	6021.2 6021.2 6021.1 6021.2	6029.0 6029.1 6028.9 6028.9	6035.2 6034.7 6034.0 6034.1	6038.8 6037.5 6036.7 6036.7	6029.1	6035.5	6019.3
August	Power Boating/Skiing Boat Fishing Boat Camping Swimming/Waterplay	6016.7 6017.3 6017.1 6017.4	6021.2 6021.2 6021.1 6021.2	6029.0 6029.1 6028.9 6028.9	6035.2 6034.7 6034.0 6034.1	6038.8 6037.5 6036.7 6036.7	6028.9	6036.0	6018.5
September	Power Boating/Skiing Boat Fishing Boat Camping Swimming/Waterplay	6016.7 6017.3 6017.1 6017.4	6021.2 6021.2 6021.1 6021.2	6029.0 6029.1 6028.9 6028.9	6035.2 6034.7 6034.0 6034.1	6038.8 6037.5 6036.7 6036.7	6028.3	6035.5	6017.9
October	Power Boating/Skiing Boat Fishing Boat Camping Swimming/Waterplay	6016.7 6017.3 6017.1 6017.4	6021.2 6021.2 6021.1 6021.2	6029.0 6029.1 6028.9 6028.9	6035.2 6034.7 6034.0 6034.1	6038.8 6037.5 6036.7 6036.7	6027.5	6034.9	6017.3
November	Power Boating/Skiing Boat Fishing Boat Camping Swimming/Waterplay	6016.7 6017.3 6017.1 6017.4	6021.2 6021.2 6021.1 6021.2	6029.0 6029.1 6028.9 6028.9	6035.2 6034.7 6034.0 6034.1	6038.8 6037.5 6036.7 6036.7	6026.3	6032.9	6017.5
December	Power Boating/Skiing Boat Fishing Boat Camping Swimming/Waterplay	6016.7 6017.3 6017.1 6017.4	6021.2 6021.2 6021.1 6021.2	6029.0 6029.1 6028.9 6028.9	6035.2 6034.7 6034.0 6034.1	6038.8 6037.5 6036.7 6036.7	6025.1	6030.3	6017.3

3.2.1.1.2 Annual Recreation Visitation and Infrastructure Impacts – Based on the methods described above, visitation estimates by recreation activity for both the Green River and Flaming Gorge Reservoir are presented below for the No Action Alternative under average, wet, and dry hydrologic conditions. In addition, impacts to recreation facilities are also presented by alternative and hydrologic condition.

A) Green River Visitation:

Table 16 presents the Green River visitation estimates for the No Action Alternative. The five data points for the interpolation are included in the table as well as the visitation estimates. Note that the data points and visitation estimates vary by recreation activity and month. Visitation estimates were summed across the March through October time period to provide an estimate of annual water based visitation.

No Action Alternative visitation under average conditions was estimated at nearly 83,500 or about 9,000 visits (9.7%) less than current 2000-2001 conditions. The estimated decline in visitation affected all activities due primarily to the high flows in May (3,463 cfs) and low flows in July (983 cfs).

The wet condition was estimated at nearly 69,700 visits. This reflects a drop of about 13,800 visits (16.5%) compared to the No Action Alternative average condition. While certain months were expected to generate more visitation under wet conditions compared to average conditions, the loss of May and June visitation due to flows (5,100 and 5,917 respectively) averaging in excess of the high end thresholds for all activities resulted in the lower visitation estimate. The loss was expected to occur across all activities.

The dry condition was estimated to generate only about 22,300 visits reflecting a 61,200 visit (73.3%) decline compared to average conditions. These declines held for all activities and stemmed mainly from the complete loss of visitation which is expected during the months of March, April, June, and July. Visitation was expected to drop to zero for these months due to the monthly average flows of 800 cfs.

Although unrelated to the interpolation based Green River visitation analysis, an analysis of facility availability was also conducted for Green River recreation facilities. As shown in table 17, within Reach 1, all river facilities were expected to be available based on average monthly flows across all months under No Action Alternative average and dry conditions. However, under No Action Alternative wet conditions, 9 of the 18 riverside campgrounds were expected to be unavailable in May and June due to high flows. Looking across all years, the unavailability percentage, due exclusively to high flows, ranges from 0 to 15.5 percent (or from virtually never to once every 6.5 years). It should be noted that facility unavailability due to low water levels on the reservoir implies little damage to the facilities whereas facility unavailability on the river due to high flows can imply substantial damage. River facility unavailability was based on the point where significant impacts were expected to occur. However, in most cases, erosion damage begins prior to the significant impact flow level (e.g., impacts begin at: 4,200 cfs to Little Hole ramp foundations, 5,000 cfs to trail tread/boardwalk footings and campground banks and vegetation, and 6,000 cfs to Spillway boat ramp protective riprap and foundations).

Within Reach 2, the boat ramp at Ouray National Wildlife Refuge remains available under average, dry, and wet conditions across all months for the No Action Alternative. Looking across all years, unavailability is expected to occur in May and June, but only about 2 percent of the time.

Within Reach 3, all facilities remain available under average conditions for the No Action Alternative. However, under dry conditions, the Swasey's Beach boat ramp would be unavailable during the months of January, February, and July through December. Under wet conditions, the facilities at Green River State Park would be affected during May and June (golf course during both May and June, and the campground and boat ramp during June). Looking across all years, again the Swasey's Beach boat ramp and the Green River State Park facilities show the most dramatic effects. The unavailability percentages displayed in table 17 need to be looked at with some skepticism given the uncertainty associated with the Reach 3 hydrology model.

Table 16: No Action Alternative, Green River Reach 1 Average Monthly Visitation by Hydrologic Condition									
		Interpolation Data Points					No Action Alternative Visits		
Month	Recreation Activity	Low End Threshold Visits	Current Visits	Preferred Visits	High End Kink Visits	High End Threshold Visits	Average	Wet	Dry
March	Scenic Floating	0	42	52	42	0	46	50	0
	Guide Boat Fishing	0	280	334	280	0	310	332	0
	Private Boat Fishing	0	1,265	1,475	1,265	0	1,387	1,463	0
	Shore Fishing/Trail Use	0	1,774	2,541	1,774	0	2,358	2,404	0
	Camping	0	0	0	0	0	0	0	0
	Total:	0	3,361	4,402	3,361	0	4,101	4,249	0
April	Scenic Floating	0	217	270	217	0	269	229	0
	Guide Boat Fishing	0	1,560	1,861	1,560	0	1,777	1,227	0
	Private Boat Fishing	0	3,214	3,748	3,214	0	3,586	2,223	0
	Shore Fishing/Trail Use	0	5,892	8,439	5,892	0	7,251	2,956	0
	Camping	0	0	0	0	0	0	0	0
	Total:	0	10,883	14,318	10,883	0	12,883	6,635	0
May	Scenic Floating	0	99	123	99	0	31	0	44
	Guide Boat Fishing	0	2,018	2,407	2,018	0	432	0	1,694
	Private Boat Fishing	0	3,549	4,139	3,549	0	581	0	3,122
	Shore Fishing/Trail Use	0	4,942	7,078	4,942	0	988	0	5,616
	Camping	0	0	0	0	0	0	0	0
	Total:	0	10,608	13,747	10,608	0	2,032	0	10,476
June	Scenic Floating	0	5,527	6,867	5,527	0	6,336	0	0
	Guide Boat Fishing	0	2,099	2,504	2,099	0	2,209	0	0
	Private Boat Fishing	0	1,767	5,060	1,767	0	1,836	0	0
	Shore Fishing/Trail Use	0	5,976	8,559	5,976	0	5,864	0	0
	Camping	0	668	733	668	0	688	0	0
	Total:	0	16,037	20,723	16,037	0	16,933	0	0
July	Scenic Floating	0	11,063	13,744	11,063	0	6,148	11,508	0
	Guide Boat Fishing	0	1,781	2,124	1,781	0	1,502	1,861	0
	Private Boat Fishing	0	1,520	1,773	1,520	0	1,235	1,581	0
	Shore Fishing/Trail Use	0	7,708	11,039	7,708	0	6,692	8,750	0
	Camping	0	655	719	655	0	563	667	0
	Total:	0	22,727	29,399	22,727	0	16,140	24,367	0
Aug	Scenic Floating	0	7,749	9,626	7,749	0	7,979	8,481	0
	Guide Boat Fishing	0	1,814	2,163	1,814	0	1,877	2,013	521
	Private Boat Fishing	0	1,457	1,699	1,457	0	1,503	1,601	312
	Shore Fishing/Trail Use	0	5,462	7,823	5,462	0	6,068	7,385	1,948
	Camping	0	600	659	600	0	609	628	199
	Total:	0	17,082	21,970	17,082	0	18,036	20,108	2,980
Sept	Scenic Floating	0	62	77	62	0	66	70	32
	Guide Boat Fishing	0	1,530	1,826	1,530	0	1,636	1,745	1,072
	Private Boat Fishing	0	4,827	5,629	4,827	0	5,124	5,432	3,231
	Shore Fishing/Trail Use	0	2,935	4,204	2,935	0	3,577	4,190	2,143
	Camping	0	352	386	352	0	362	372	253
	Total:	0	9,707	12,122	9,707	0	10,765	11,809	6,731
Oct	Scenic Floating	0	9	11	9	0	10	11	9
	Guide Boat Fishing	0	318	379	318	0	365	370	319
	Private Boat Fishing	0	932	1,087	932	0	1,057	1,060	935
	Shore Fishing/Trail Use	0	793	1,136	793	0	1,129	1,037	802
	Camping	0	6	7	6	0	7	7	6
	Total:	0	2,058	2,620	2,058	0	2,568	2,485	2,071
Total	Scenic Floating	0	24,768	30,770	24,768	0	20,885	20,349	85
	Guide Boat Fishing	0	11,400	13,598	11,400	0	10,108	7,548	3,606
	Private Boat Fishing	0	18,531	21,610	18,531	0	16,309	13,360	7,600
	Shore Fishing/Trail Use	0	35,482	50,819	35,482	0	33,927	26,722	10,509
	Camping	0	2,281	2,504	2,281	0	2,229	1,674	458
	Total:	0	9,2461	119,301	92,461	0	83,458	69,653	22,258

Table 17: No Action Alternative, Green River Facility Availability by Site and Hydrologic Condition																	(Facility Availability: Yes = available, No = unavailable)
Agency	Site	Facility	Low End Thres-hold	High End Thres-hold	Hydrologic Condition	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Reach 1: Flaming Gorge Dam to the Yampa River																	
No Action Alternative, Reach 1, Average Flows:						1,721	1,432	1,484	2,207	3,463	2,710	983	1,251	1,374	1,654	1,969	1,895
USFS	Spillway	Boat Ramp	600	6,000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Little Hole	Boat Ramp	600	8,000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Fishing Pier	600	6,000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Trail	n/a	6,000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		9 of 18 Campgrounds	n/a	5,000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BLM	Indian Crossing	Boat Ramp	800	None	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Bridge Hollow	Boat Ramp	800	None	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Campground	None	10,000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Swallow Canyon	Boat Ramp	800	None	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State of Utah	Bridge Port Camp	Boat Ramp	800	None	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No Action Alternative, Reach 1, Dry Flows:						800	800	800	800	1,400	800	800	931	1,039	1,039	800	800
USFS	Spillway	Boat Ramp	600	6,000	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Little Hole	Boat Ramp	600	8,000	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Fishing Pier	600	6,000	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Trail	n/a	6,000	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		9 of 18 Campgrounds	n/a	5,000	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BLM	Indian Crossing	Boat Ramp	800	None	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Bridge Hollow	Boat Ramp	800	None	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Campground	None	10,000	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Swallow Canyon	Boat Ramp	800	None	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State of Utah	Bridge Port Camp	Boat Ramp	800	None	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

No Action Alternative, Reach 1, Wet Flows:						3,212	2,895	1,898	3,290	5,100	5,917	1,200	1,531	1,639	2,075	3,389	3,337
USFS	Spillway	Boat Ramp	600	6,000	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Little Hole	Boat Ramp	600	8,000	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Fishing Pier	600	6,000	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Trail	n/a	6,000	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		9 of 18 Campgrounds	n/a	5,000	Wet	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
BLM	Indian Crossing	Boat Ramp	800	None	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Bridge Hollow	Boat Ramp	800	None	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Campground	None	10,000	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Swallow Canyon	Boat Ramp	800	None	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State of Utah	Bridge Port Camp	Boat Ramp	800	None	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
						Percent of Time, Across All Years, Facilities Are Unavailable											
USFS	Spillway	Boat Ramp	600	6,000	All Years	0	0	0	0	6.3	9.9	0	0	0	0	0	0
	Little Hole	Boat Ramp	600	8,000	All Years	0	0	0	0	2.8	4.0	0	0	0	0	0	0
		Fishing Pier	600	6,000	All Years	0	0	0	0	6.3	9.9	0	0	0	0	0	0
		Trail	n/a	6,000	All Years	0	0	0	0	6.3	9.9	0	0	0	0	0	0
		9 of 18 Campgrounds	n/a	5,000	All Years	0	0	0	0	10.3	15.5	0.1	0	0	0	0	0
BLM	Indian Crossing	Boat Ramp	800	None	All Years	0	0	0	0	0	0	0	0	0	0	0	0
	Bridge Hollow	Boat Ramp	800	None	All Years	0	0	0	0	0	0	0	0	0	0	0	0
		Campground	None	10,000	All Years	0	0	0	0	.7	1.1	0	0	0	0	0	0
	Swallow Canyon	Boat Ramp	800	None	All Years	0	0	0	0	0	0	0	0	0	0	0	0
State of Utah	Bridge Port Camp	Boat Ramp	800	None	All Years	0	0	0	0	0	0	0	0	0	0	0	0

Reach 2: Yampa River to the White River																	
No Action Alternative, Reach 2, Average Flows:						2,078	1,884	2,521	5,956	12,429	10,366	2,662	1,702	1,646	2,107	2,409	2,295
FWS	Ouray NWR	Boat Ramp	None	25,000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No Action Alternative, Reach 2, Dry Flows:						1,050	1,085	1,501	2,655	5,975	3,349	1,109	1,097	1,132	1,288	1,119	1,080
FWS	Ouray NWR	Boat Ramp	None	25,000	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No Action Alternative, Reach 2, Extremely Wet Flows:						3,638	3,389	3,584	10,013	19,670	18,113	4,993	2,234	2,081	2,748	3,881	3,821
FWS	Ouray NWR	Boat Ramp	None	25,000	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
						Percent of Time, Across All Years, Facilities Are Unavailable											
FWS	Ouray NWR	Boat Ramp	None	25,000	All Years	0	0	0	0	2.2	2.4	0	0	0	0	0	0
Reach 3: White River to the Colorado River																	
No Action Alternative, Reach 3, Average Flows:						2,841	3,030	4,163	6,646	14,292	15,189	4,494	2,636	2,487	3,099	3,411	3,076
BLM	Sand Wash	Boat Ramp	800	50,000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Swasey Beach	Boat Ramp	2000	50,000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Nefertiti	Boat Ramp	800	27,000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Butler Rapid	Boat Ramp	800	27,000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Mineral Bottom	Boat Ramp	800	30,000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State of Utah	Green River State Park	Boat Ramp	800	25,000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Campground	n/a	25,000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Golf Course	n/a	19,000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No Action Alternative, Reach 3, Dry Flows:						1,520	1,727	2,266	3,151	6,140	4,819	1,326	1,366	1,520	1,751	1,819	1,441
BLM	Sand Wash	Boat Ramp	800	50,000	Critically Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Swasey Beach	Boat Ramp	2000	50,000	Critically Dry	No	No	Yes	Yes	Yes	Yes	No	No	No	No	No	No
	Nefertiti	Boat Ramp	800	27,000	Critically Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Butler Rapid	Boat Ramp	800	27,000	Critically Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Mineral Bottom	Boat Ramp	800	30,000	Critically Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

State of Utah	Green River State Park	Boat Ramp	800	25,000	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Campground	n/a	25,000	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Golf Course	n/a	19,000	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No Action Alternative, Reach 3, Wet Flows:						4,328	4,770	6,420	11,478	23,500	25,688	9,383	4,450	3,911	4,785	5,076	4,791
BLM	Sand Wash	Boat Ramp	800	50,000	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Swasey Beach	Boat Ramp	2000	50,000	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Nefertiti	Boat Ramp	800	27,000	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Butler Rapid	Boat Ramp	800	27,000	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Mineral Bottom	Boat Ramp	800	30,000	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State of Utah	Green River State Park	Boat Ramp	800	25,000	Wet	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
		Campground	n/a	25,000	Wet	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
		Golf Course	n/a	19,000	Wet	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
						Percent of Time, Across All Years, Facilities Are Unavailable											
BLM	Sand Wash	Boat Ramp	800	50,000	All Years	0.3	0.8	0.7	0.1	0	0	1.6	0.8	1.0	0.1	0.2	1.2
	Swasey Beach	Boat Ramp	2000	50,000	All Years	29.4	18.1	4.8	0.7	0	1.2	24.7	34.7	35.9	16.2	15.8	24.5
	Nefertiti	Boat Ramp	800	27,000	All Years	0.3	0.8	0.8	0.1	5.1	7.7	1.8	0.8	1.0	0.1	0.2	1.2
	Butler Rapid	Boat Ramp	800	27,000	All Years	0.3	0.8	0.8	0.1	5.1	7.7	1.8	0.8	1.0	0.1	0.2	1.2
	Mineral Bottom	Boat Ramp	800	30,000	All Years	0.3	0.8	0.8	0.1	2.9	4.6	1.8	0.8	1.0	0.1	0.2	1.2
State of Utah	Green River State Park	Boat Ramp	800	25,000	All Years	0.3	0.8	0.8	0.2	7.6	11.4	1.8	0.8	1.0	0.1	0.2	1.2
		Campground	n/a	25,000	All Years	0	0	0.1	0	7.6	11.4	0.2	0	0	0	0	0
		Golf Course	n/a	19,000	All Years	0	0.2	0.3	0.7	23.6	31.8	1.0	0	0.1	0	0	0

B) Flaming Gorge Visitation:

As noted under methodology, visitation estimates by recreation activity and month at Flaming Gorge Reservoir were developed using a facility availability approach as opposed to the interpolation approach. Table 18 presents facility availability for the No Action Alternative average, wet, and dry conditions by site and facility (while not comparable to the rest of the analysis, table 18 also presents the percent of time each facility is unavailable by month across all years). Comparing end of month water levels by hydrologic condition from table 15 to the low end usability thresholds for each facility provides an estimate of monthly facility availability.

All facilities were expected to be available based on end of month water levels across all months under No Action Alternative average and wet conditions. However, under No Action Alternative dry conditions, several facilities are expected to be unusable. The Anvil Draw boat ramp has a low end usability threshold of 6020 and becomes unusable on average for all months except April during dry conditions. The Cedar Springs marina and boat ramp are expected to experience problems under dry conditions during January, February, May, and September through December. The Firehole boat ramp would only be available under dry conditions during March, April, and July. Finally, the Sunny Cove swim beach follows at pattern similar to Cedar Springs during dry conditions experiencing problems in January, February, May, and September through December.

Table 19, which immediately follows the facility availability table, presents results of a preliminary analysis on visitation for the No Action Alternative dry condition conducted without taking into consideration the potential for recreators moving or substituting to other facilities around the reservoir. The 533,940 visitation estimate reflects a lower bound given it assumes loss of a facility implies a complete loss of visitation from that facility. This information is not the focus of the analysis, but is presented as an indicator of the worst case scenario.

Table 20 presents the results of the with facility substitution analysis for the No Action Alternative dry condition. The No Action Alternative average and wet conditions indicated facility availability in all months such that visitation estimates would be equal to current conditions (572,290 visits). The facility substitution effects were developed based on discussions with Flaming Gorge Reservoir recreation managers (see notes at the end of the table). The table emphasizes changes at the four affected sites: Anvil Draw, Cedar Springs, Firehole, and Sunny Cove. Affected sites are defined as those that suffered some level of facility unavailability under the dry condition. For each recreation activity at each affected site and facility, the table presents visitation estimates by month which continue to occur at the facility, visitation estimates which substitute to other facilities along the reservoir, and the total visitation. The total visitation is simply at the site visitation plus the visitation which moves to other sites, so technically it does not apply only to the site in question. Given the site managers only indicated what percent of visitation lost at a given facility would substitute to all other available facilities, the analysis could not actually estimate total visitation at each site and facility. However, the information provided allowed for the development of visitation estimates by recreation activity across all sites. These estimates were considered to be sufficient for comparison between alternatives.

In addition to the affected site visitation estimates, visitation estimates for the unaffected sites are also included in table 20 to allow for calculation of total visitation across all sites and activities. The term "unaffected sites" is somewhat of a misnomer since several of these sites (i.e., Lucerne Valley, Squaw Hollow, Mustang Ridge, Buckboard Crossing) would probably be affected by the substitution from the "affected sites." The No Action Alternative dry condition visitation estimate is approximately 28,300 below that of current conditions (572,290) or a 4.9-percent decline. Nearly all of the loss (99%) occurred

Table 18: No Action Alternative, Flaming Gorge Reservoir Facility Availability by Site and Hydrologic Condition

Site	Facility	Low End Usability Threshold	Hydrologic Condition	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Antelope Flat	Boat Ramp Swim Beach	6015 6012	Average	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
Anvil Draw	Boat Ramp	6020	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Buckboard Crossing	Marina Boat Ramp	6015 6000	Average	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
Cedar Springs	Marina Boat Ramp	6018 6018	Average	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
Firehole	Boat Ramp Swim Beach	6019 6012	Average	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
Hideout	Boat Camp	6014	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Jarvies Canyon	Boat Camp	6012	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kingfisher Island	Boat Camp	6010	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lucerne Valley	Marina Boat Ramps Swim Beach	6010 5994 6014	Average	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes
Mustang Ridge	Boat Ramp	6000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sheep Creek	Boat Ramp	6015	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Squaw Hollow	Boat Ramp	6015	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sunny Cove	Swim Beach	6018	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Upper Marsh Creek	Boat Ramp	6000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CUT Through	Boat Channel	6022	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Antelope Flat	Boat Ramp Swim Beach	6015 6012	Wet	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
Anvil Draw	Boat Ramp	6020	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Buckboard Crossing	Marina Boat Ramp	6015 6000	Wet	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
Cedar Springs	Marina Boat Ramp	6018 6018	Wet	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
Firehole	Boat Ramp Swim Beach	6019 6012	Wet	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
Hideout	Boat Camp	6014	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Jarvies Canyon	Boat Camp	6012	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kingfisher Island	Boat Camp	6010	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lucerne Valley	Marina Boat Ramps Swim Beach	6010 5994 6014	Wet	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes

Mustang Ridge	Boat Ramp	6000	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sheep Creek	Boat Ramp	6015	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Squaw Hollow	Boat Ramp	6015	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sunny Cove	Swim Beach	6018	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Upper Marsh Creek	Boat Ramp	6000	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CUT Through	Boat Channel	6022	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Antelope Flat	Boat Ramp Swim Beach	6015 6012	Dry	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
Anvil Draw	Boat Ramp	6020	Dry	No	No	No	Yes	No	No	No	No	No	No	No	No
Buckboard Crossing	Marina Boat Ramp	6015 6000	Dry	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
Cedar Springs	Marina Boat Ramp	6018 6018	Dry	No No	No No	Yes Yes	Yes Yes	No No	Yes Yes	Yes Yes	Yes Yes	No No	No No	No No	No No
Firehole	Boat Ramp Swim Beach	6019 6012	Dry	No Yes	No Yes	Yes Yes	Yes Yes	No Yes	No Yes	Yes Yes	No Yes	No Yes	No Yes	No Yes	No Yes
Hideout	Boat Camp	6014	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Jarvies Canyon	Boat Camp	6012	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kingfisher Island	Boat Camp	6010	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lucerne Valley	Marina Boat Ramps Swim Beach	6010 5994 6014	Dry	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes
Mustang Ridge	Boat Ramp	6000	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sheep Creek	Boat Ramp	6015	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Squaw Hollow	Boat Ramp	6015	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sunny Cove	Swim Beach	6018	Dry	No	No	Yes	Yes	No	Yes	Yes	Yes	No	No	No	No
Upper Marsh Creek	Boat Ramp	6000	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CUT Through	Boat Channel	6022	Dry	No	No	No	No	No	No	No	No	No	No	No	No
				Percent of Time below Low End Threshold											
Antelope Flat	Boat Ramp Swim Beach	6015 6012	All Years	8.9 7.4	7.8 7.4	7.4 5.5	6.0 3.3	4.8 3.3	2.1 1.5	4.7 1.5	7.1 1.6	9.1 3.3	9.1 4.9	9.1 5.4	9.1 6.8
Anvil Draw	Boat Ramp	6020	All Years	12.2	12.2	12.3	9.7	15.9	11.2	12.7	12.6	12.6	12.7	12.5	12.5
Buckboard Crossing	Marina Boat Ramp	6015 6000	All Years	8.9 0.0	7.8 0.1	7.4 0.0	6.0 0.0	4.8 0.1	2.1 0.0	4.7 0.0	7.1 0.0	9.1 0.0	9.1 0.0	9.1 0.0	9.1 0.0
Cedar Springs	Marina Boat Ramp	6018 6018	All Years	10.4 10.4	10.4 10.4	8.1 8.1	7.4 7.4	10.5 10.5	8.2 8.2	9.2 9.2	9.2 9.2	10.5 10.5	10.7 10.7	10.7 10.7	10.7 10.7
Firehole	Boat Ramp Swim Beach	6019 6012	All Years	10.9 7.4	10.8 7.4	10.0 5.5	7.9 3.3	12.0 3.3	10.6 1.5	9.4 1.5	11.1 1.6	11.6 3.3	12.2 4.9	11.4 5.4	11.4 6.8
Hideout	Boat Camp	6014	All Years	7.9	7.6	7.4	5.1	4.4	1.6	2.1	5.0	7.9	9.1	8.5	8.2
Jarvies Canyon	Boat Camp	6012	All Years	7.4	7.4	5.5	3.3	3.3	1.5	1.5	1.6	3.3	4.9	5.4	6.8

Kingfisher Island	Boat Camp	6010	All Years	3.2	3.7	3.2	2.9	2.1	1.5	1.5	1.5	1.6	3.0	3.0	3.2
Lucerne Valley	Marina Boat Ramps Swim Beach	6010 5994 6014	All Years	3.2 0.0 7.9	3.7 0.0 7.6	3.2 0.0 7.4	2.9 0.0 5.1	2.1 0.0 4.4	1.5 0.0 1.6	1.5 0.0 2.1	1.5 0.0 5.0	1.6 0.0 7.9	3.0 0.0 9.1	3.0 0.0 8.5	3.2 0.0 8.2
Mustang Ridge	Boat Ramp	6000	All Years	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sheep Creek	**Boat Ramp**	**6015**	**All Years**	**8.9**	**7.8**	**7.4**	**6.0**	**4.8**	**2.1**	**4.7**	**7.1**	**9.1**	**9.1**	**9.1**	**9.1**
Squaw Hollow	Boat Ramp	6015	All Years	8.9	7.8	7.4	6.0	4.8	2.1	4.7	7.1	9.1	9.1	9.1	9.1
Sunny Cove	Swim Beach	6018	All Years	10.4	10.4	8.1	7.4	10.5	8.2	9.2	9.2	10.5	10.7	10.7	10.7
Upper Marsh Creek	Boat Ramp	6000	All Years	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CUT Through	Boat Channel	6022	All Years	15.8	15.2	15.0	13.4	32.8	23.0	15.9	18.2	18.5	17.8	17.2	17.1

Table 19: No Action Alternative –Dry Condition, Flaming Gorge Reservoir Visitation by Affected Site and Recreation Activity Without Facility Substitution							
Without Facility Substitution Analysis:							
Site	Facility	Month	Power Boating/ Waterskiing	Boat Fishing	Camping	Swimming and Waterplay	Total
Anvil Draw	Boat Ramp	Jan	0	0		0	0
		Feb	0	0		0	0
		Mar	0	0		0	0
		Apr	72	96		0	168
		May	0	0		0	0
		June	0	0		0	0
		July	0	0		0	0
		Aug	0	0		0	0
		Sept	0	0		0	0
		Oct	0	0		0	0
		Nov	0	0		0	0
		Dec	0	0		0	0
		Total:	72	96		0	168
Cedar Springs	Marina	Jan	0	0			0
		Feb	0	0			0
		Mar	225	79			304
		Apr	1,798	629			2,427
		May	0	0			0
		June	6,508	2,278			8,786
		July	7,087	2,480			9,567
		Aug	4,114	1,440			5,554
		Sept	0	0			0
		Oct	0	0			0
		Nov	0	0			0
		Dec	0	0			0
		Total:	19,732	6,906			26,638
Cedar Springs	Boat Ramp	Jan	0	0			0
		Feb	0	0			0
		Mar	225	146			371
		Apr	1,798	1,169			2,967
		May	0	0			0
		June	6,508	4,230			10,738
		July	7,087	4,606			11,693
		Aug	4,114	2,674			6,788
		Sept	0	0			0
		Oct	0	0			0
		Nov	0	0			0
		Dec	0	0			0
		Total:	19,732	12,825			32,557
Firehole	Boat Ramp	Jan	0	0		6	6
		Feb	0	0		0	0
		Mar	20	15		26	61
		Apr	156	120		206	482
		May	0	0		552	552
		June	0	0		744	744
		July	616	472		810	1,898
		Aug	0	0		470	470
		Sept	0	0		270	270
		Oct	0	0		243	243
		Nov	0	0		63	63
		Dec	0	0		41	41
		Total:	792	607		3,431	4,830

Table 19: No Action Alternative –Dry Condition, Flaming Gorge Reservoir Visitation by Affected Site and Recreation Activity Without Facility Substitution (continued)

Without Facility Substitution Analysis:

Site	Facility	Month	Power Boating/ Waterskiing	Boat Fishing	Camping	Swimming and Waterplay	Total
Sunny Cove	Swim Beach	Jan				0	0
		Feb				0	0
		Mar				37	37
		Apr				300	300
		May				0	0
		June				1,085	1,085
		July				1,181	1,181
		Aug				686	686
		Sept				0	0
		Oct				0	0
		Nov				0	0
		Dec				0	0
		Total:				3,289	3,289
Total for All Affected Sites:		Jan	0	0	0	6	6
		Feb	0	0	0	0	0
		Mar	470	240	0	63	773
		Apr	3,824	2,014	0	506	6,344
		May	0	0	0	552	552
		June	13,016	6,508	0	1,829	21,353
		July	14,790	7,558	0	1,991	24,339
		Aug	8,228	4,114	0	1,156	13,498
		Sept	0	0	0	270	270
		Oct	0	0	0	243	243
		Nov	0	0	0	63	63
		Dec	0	0	0	41	41
		Total:	40,328	20,434	0	6,720	67,482
Total for All Unaffected Sites:		Jan	479	238	75	21	813
		Feb	0	0	0	0	0
		Mar	2,215	1,106	677	96	4,094
		Apr	17,708	8,856	1,761	771	29,096
		May	47,527	23,765	1,388	2,068	74,748
		June	64,101	32,054	1,863	2,789	100,807
		July	69,798	34,902	1,386	3,037	109,123
		Aug	40,522	20,263	1,174	1,763	63,722
		Sept	23,233	11,618	536	1,012	36,399
		Oct	20,910	10,456	674	911	32,951
		Nov	5,460	2,731	483	238	8,912
		Dec	3,517	1,760	357	154	5,788
		Total:	295,470	147,749	10,374	12,860	466,453
Overall Total :		Jan	479	238	75	27	819
		Feb	0	0	0	0	0
		Mar	2,685	1,346	677	159	4,867
		Apr	21,532	10,870	1,761	1,277	35,440
		May	47,527	23,765	1,388	2,620	75,300
		June	77,117	38,562	1,863	4,618	122,160
		July	84,588	42,460	1,386	5,028	133,462
		Aug	48,750	24,377	1,174	2,919	77,220
		Sept	23,233	11,618	536	1,282	36,669
		Oct	20,910	10,456	674	1,154	33,194
		Nov	5,460	2,731	483	301	8,975
		Dec	3,517	1,760	357	195	5,829
		Total:	335,798	168,183	10,374	19,580	533,935

Table 20: No Action Alternative - Dry Condition, Flaming Gorge Reservoir Visitation by Affected Site and Recreation Activity With Facility Substitution

With Facility Substitution Results:

Site	Facility	Month	Power Boating/ Waterskiing			Boat Fishing			Camping			Swimming and Waterplay			Total
			At Site	Substituted to Other Facilities	Total	At Site	Substituted to Other Facilities	Total	At Site	Substituted to Other Facilities	Total	At Site	Substituted to Other Facilities	Total	
Anvil Draw	Boat Ramp	Jan		2	2		3	3	0	0	0	0	0	0	5
		Feb		0	0		0	0	0	0	0	0	0	0	0
		Mar		9	9		12	12	0	0	0	0	0	0	21
		Apr	72		72	96		96	0	0	0	0	0	0	168
		May		193	193		257	257	0	0	0	0	0	0	450
		June		260	260		347	347	0	0	0	0	0	0	607
		July		283	283		378	378	0	0	0	0	0	0	661
		Aug		165	165		219	219	0	0	0	0	0	0	384
		Sept		94	94		126	126	0	0	0	0	0	0	220
		Oct		85	85		113	113	0	0	0	0	0	0	198
		Nov		22	22		30	30	0	0	0	0	0	0	52
		Dec		14	14		19	19	0	0	0	0	0	0	33
		Total:	72	1,128	1,200	96	1,504	1,600	0	0	0	0	0	0	2,800
Cedar Springs	Marina	Jan		5	5		2	2	0	0	0	0	0	0	7
		Feb	0		0	0		0	0	0	0	0	0	0	0
		Mar	225		225	79		79	0	0	0	0	0	0	304
		Apr	1798		1798	629		629	0	0	0	0	0	0	2,427
		May		483	483		169	169	0	0	0	0	0	0	652
		June	6508		6508	2278		2278	0	0	0	0	0	0	8,786
		July	7087		7087	2480		2480	0	0	0	0	0	0	9,567
		Aug	4114		4114	1440		1440	0	0	0	0	0	0	5,554
		Sept		236	236		83	83	0	0	0	0	0	0	319
		Oct		212	212		74	74	0	0	0	0	0	0	286
		Nov		55	55		19	19	0	0	0	0	0	0	74
		Dec		36	36		13	13	0	0	0	0	0	0	49
		Total:	19732	1027	20759	6906	360	7266	0	0	0	0	0	0	28,025
Cedar Springs	Boat Ramp	Jan		5	5		3	3	0	0	0	0	0	0	8
		Feb	0		0	0		0	0	0	0	0	0	0	0
		Mar	225		225	146		146	0	0	0	0	0	0	371
		Apr	1798		1798	1169		1169	0	0	0	0	0	0	2,967
		May		483	483		314	314	0	0	0	0	0	0	797
		June	6508		6508	4230		4230	0	0	0	0	0	0	10,738
		July	7087		7087	4606		4606	0	0	0	0	0	0	11,693
		Aug	4114		4114	2674		2674	0	0	0	0	0	0	6,788
		Sept		236	236		153	153	0	0	0	0	0	0	389
		Oct		212	212		138	138	0	0	0	0	0	0	350
		Nov		55	55		36	36	0	0	0	0	0	0	91
		Dec		36	36		23	23	0	0	0	0	0	0	59
		Total:	19732	1027	20759	12825	667	13492	0	0	0	0	0	0	34,251

Firehole	Boat Ramp	Jan		4	4		3	3	0	0	0	0	0	0	7
		Feb		0	0		0	0	0	0	0	0	0	0	0
		Mar	20		20	15		15	0	0	0	0	0	0	35
		Apr	156		156	120		120	0	0	0	0	0	0	276
		May		378	378		290	290	0	0	0	0	0	0	668
		June		509	509		391	391	0	0	0	0	0	0	900
		July	616		616	472		472	0	0	0	0	0	0	1,088
		Aug		322	322		247	247	0	0	0	0	0	0	569
		Sept		185	185		141	141	0	0	0	0	0	0	326
		Oct		167	167		128	128	0	0	0	0	0	0	295
		Nov		43	43		33	33	0	0	0	0	0	0	76
		Dec		30	30		22	22	0	0	0	0	0	0	50
		Total:	792	1,638	2,430	607	1,255	1,862	0	0	0	0	0	0	4,290
Sunny Cove	Swim Beach	Jan	0	0	0	0	0	0	0	0	0		7	7	7
		Feb	0	0	0	0	0	0	0	0	0		0	0	0
		Mar	0	0	0	0	0	0	0	0	0	37		37	37
		Apr	0	0	0	0	0	0	0	0	0	300		300	300
		May	0	0	0	0	0	0	0	0	0		683	683	683
		June	0	0	0	0	0	0	0	0	0	1,085		1,085	1,085
		July	0	0	0	0	0	0	0	0	0	1,181		1,181	1,181
		Aug	0	0	0	0	0	0	0	0	0	686		686	686
		Sept	0	0	0	0	0	0	0	0	0		334	334	334
		Oct	0	0	0	0	0	0	0	0	0		301	301	301
		Nov	0	0	0	0	0	0	0	0	0		78	78	78
		Dec	0	0	0	0	0	0	0	0	0		51	51	51
		Total:	0	0	0	0	0	0	0	0	0	3,289	1,454	4,743	4,743
Total for All Affected Sites:		Jan			16			11			0			7	34
		Feb			0			0			0			0	0
		Mar			479			252			0			37	768
		Apr			3,824			2,014			0			300	6,138
		May			1,537			1,030			0			683	3,250
		June			13,785			7,246			0			1,085	22,116
		July			15,073			7,936			0			1,181	24,190
		Aug			8,715			4,580			0			686	13,981
		Sept			751			503			0			334	1,588
		Oct			676			453			0			301	1,430
		Nov			175			118			0			78	371
		Dec			114			77			0			51	242
		Total:			45,145			24,220			0			4,743	74,108

Total for All Unaffected Sites:		Jan			479			238			75			27	819
		Feb			0			0			0			0	0
		Mar			2,215			1,106			677			122	4,120
		Apr			17,708			8,856			1,761			977	29,302
		May			47,527			23,765			1,388			2,620	75,300
		June			64,101			32,054			1,863			3,533	101,551
		July			69,798			34,902			1,386			3,847	109,933
		Aug			40,522			20,263			1,174			2,233	64,192
		Sept			23,233			11,618			536			1,282	36,669
		Oct			20,910			10,456			674			1,154	33,194
		Nov			5,460			2,731			483			201	8,975
		Dec			3,517			1,760			357			195	5,829
		Total:			29,5470			147,749			10,374			16,291	469,884
Overall Total:		Jan			495			249			75			34	853
		Feb			0			0			0			0	0
		Mar			2,694			1,358			677			159	4888
		Apr			21,532			10,870			1761			1277	35440
		May			49,064			24,795			1388			3303	78550
		June			77,886			39,300			1863			4618	123667
		July			84,871			42,838			1386			5028	134123
		Aug			49,237			24,843			1174			2919	78173
		Sept			23,984			12,121			536			1616	38257
		Oct			21,586			10,909			674			1455	34624
		Nov			5,635			2,849			483			379	9346
		Dec			3,631			1,837			357			246	6071
		Total:			340,615			171,969			10374			21034	543992

Notes:

1) Anvil Draw Boat Ramp: All visitation losses at Anvil Draw could be completely absorbed by Lucerne Valley and Squaw Hollow boat ramps. Therefore, the loss identified via the without facility substitution analysis would not materialize. True Loss: 0%

2) Cedar Springs Marina and Boat Ramp: Lucerne Valley and Mustang Ridge could absorb only about 10% of the losses at Cedar Springs. Ninety percent of the without facility substitution losses would likely move to another reservoir. True Loss: 90%

3) Firehole Boat Ramp: Antelope Flat, Buckboard Crossing, and Lucerne Valley would likely absorb 90% of the losses at Firehole as identified in the without substitution analysis. True Loss: 10%

4) Sunny Cove Swim Beach: Even when water drops below the edge of the sand at Sunny Cove, most swimmers would cross the mud flats or use other beach such that the swimming loss would not be severe. True Loss: 15%

to power boating (18,660 lost visits) and boat fishing (9,380 lost visits). Comparing the total visitation estimates across activities with facility substitution (approximately 543,990) to those without facility substitution (approximately 533,940) indicates that only about 10,055 visits would substitute to other facilities along the reservoir. The amount of substitution reflects only about 26 percent of the total without facility substitution loss. Nearly all (98%) of the unabsorbed visitation losses stem from the Cedar Springs facilities.

C) Total River and Reservoir Visitation:

Table 21 presents information on water based visitation combined for both the Green River and Flaming Gorge Reservoir for the No Action Alternative under average, wet, and dry conditions. Reservoir visitation accounts for anywhere from 86.1 to 96.1 percent of the total depending on the hydrologic condition. The average condition is slightly less than current visitation (-9000 visits or 1.4%). The percentage loss in total water based visitation compared to average conditions is 2.1% for the wet condition and 13.7% for the dry condition. The Green River losses account for 100% of the difference during wet conditions and 68.4% of the losses during dry conditions. So despite reflecting only a relatively small percent of total water based visitation, Green River losses account for the majority of the impact compared to the average condition.

Table 21: Total Water Based Visitation for Green River and Flaming Gorge Reservoir for No Action Alternative

			Visitation by Hydrologic Condition						
			Average	Wet			Dry		
					Change from Average Condition			Change from Average Condition	
Site	Recreation Activity	Current Visits	Visits	Visits	Visits	%	Visits	Visits	%
Green River	Scenic Floating	24,768	20,885	20,349	-536	-2.6	85	-20,800	-99.6
	Guide Boat Fishing	11,400	10,108	7,548	-2,560	-25.3	3,606	–6,502	-64.3
	Private Boat Fishing	18,531	16,309	13,360	-2,949	-18.1	7,600	-8,709	-53.4
	Shoreline Fishing/Trail Use	35,482	33,927	26,722	-7,205	-21.2	10,509	-23,418	-69.0
	Boat Based Camping	2,281	2,229	1,674	-555	-24.9	458	-1,771	-79.5
	Total:	92,461	83,458	69,653	-13,805	-16.5	22,258	-61,200	-73.3
Flaming Gorge Reservoir	Power Boating/ Waterskiing	359,278	359,278	359,278	0	0	340,615	-18,663	-5.2
	Boat Fishing	181,348	181,348	181,348	0	0	171,969	-9,379	-5.2
	Boat Based Camping	10,374	10,374	10,374	0	0	10,374	0	0
	Swimming/ Waterplay	21,291	21,291	21,291	0	0	21,034	-257	-1.2
	Total:	572,291	572,291	572,291	0	0	543,992	-28,299	-4.9
Both Sites	Combined Total:	664,752	655,749	641,944	-13,805	-2.1	566,250	-89,499	-13.7

3.2.1.1.3 Recreation Value –

A) Green River Valuation:

Table 22 presents value per visit and total value by month and activity for the No Action Alternative under average, wet, and dry conditions. Determining where monthly No Action Alternative flows by hydrologic condition fall within the range of data points allows for interpolation of the per visit value by activity. For example, looking at table 14, compare average condition flows for March to the annual flow oriented data points for the valuation analysis at the bottom of the table. The 1,484 average condition flow falls between the valuation analysis data point current flow and preferred flow levels. As a result, the value per visit for No Action Alternative March average condition in table 22 also falls between current and preferred values per visit. The percentage of the distance the No Action March average flows fall between preferred and current flows is used to calculate the value per visit. Applying the values per visit to the visitation estimates in table 16 results in the total value estimates.

The No Action Alternative average condition total valuation is estimated at nearly $ 4 million ($3,965.7 thousand). This reflects a decline of about $830 million or 17.3 percent compared to current conditions. wet conditions imply a further $206 million or 5.2 percent decline compared to average conditions. Finally, No Action Alternative dry conditions result in a dramatic decline of more than $3.1 million or nearly 80 percent compared to average conditions.

B) Flaming Gorge Valuation:

The Flaming Gorge Reservoir valuation analysis used a similar interpolation approach as the Green River valuation analysis. As a result, the reservoir valuation analysis applies value per visit estimates by activity derived from interpolation to visitation estimates by activity derived from a facility availability approach.

As indicated in table 23, the No Action Alternative average condition value of nearly $21.4 million exceeds current condition values by over $7.4 million or 53 percent. Current water levels for the survey period (table 1) fall in the 6020 to 6021 range, whereas the No Action Alternative flows for the average condition (table 15) fall in the 6024 to 6029 range. The facility availability approach indicates no difference in average condition visitation since all facilities were available in all months in both cases. Herein lies a disadvantage of the facility availability approach, when facilities are available under two varying scenarios, the approach fails to detect potential increases in visitation as water levels rise. The interpolation based valuation analysis is more sensitive to water level changes thereby resulting in the differential.

Compared to the average condition, the No Action Alternative wet and dry conditions both result in declining values. Wet conditions result in nearly a $5.2 million loss (24.1%), whereas dry conditions result in a $16.4 million loss (76.6% decline) compared to average conditions.

C) Total River and Reservoir Valuation:

Table 24 presents information on water based valuation combined for both the Green River and Flaming Gorge Reservoir for the No Action Alternative under average, wet, and dry conditions. Reservoir valuation accounts for anywhere from 81.2 to 86.2 percent of total value depending on the hydrologic condition. The average condition is significantly greater than current valuation (increase of nearly

Table 22: No Action Alternative, Green River Reach 1 Average Monthly Value per Visit by Hydrologic Condition

Month	Recreation Activity	Interpolation Data Points					No Action Alternative Values					
							Per Visit			Total ($1,000s)		
		Low End Threshold Values	Current Values	Preferred Values	High End Kink Values	High End Threshold Values	Average	Wet	Dry	Average	Wet	Dry
March	Scenic Floating	0	46.8	94.35	46.8	0	63.95	82.30	0	2.9	4.1	0
	Guide Boat Fishing	0	182.94	239.62	182.94	0	197.76	235.87	0	61.3	78.3	0
	Private Boat Fishing	0	37.44	69.91	37.44	0	45.71	66.53	0	63.4	97.3	0
	Shore Fishing/Trail Use	0	23.49	34.13	23.49	0	29.55	30.70	0	69.7	73.8	0
	Camping	0	10.78	14.13	10.78	0	12.18	13.74	0	0	0	0
	Total:									197.3	253.6	0
April	Scenic Floating	0	46.8	94.35	46.8	0	93.20	59.54	0	25.1	13.6	0
	Guide Boat Fishing	0	182.94	239.62	182.94	0	216.85	82.91	0	385.3	101.7	0
	Private Boat Fishing	0	37.44	69.91	37.44	0	54.93	13.94	0	197.0	31.0	0
	Shore Fishing/Trail Use	0	23.49	34.13	23.49	0	26.82	7.96	0	194.5	23.5	0
	Camping	0	10.78	14.13	10.78	0	13.54	7.24	0	0	0	0
	Total:									801.9	169.9	0
May	Scenic Floating	0	46.8	94.35	46.8	0	54.16	0	60.23	1.7	0	2.7
	Guide Boat Fishing	0	182.94	239.62	182.94	0	50.38	0	187.80	21.8	0	318.1
	Private Boat Fishing	0	37.44	69.91	37.44	0	7.35	0	39.43	4.3	0	123.1
	Shore Fishing/Trail Use	0	23.49	34.13	23.49	0	4.68	0	26.81	4.6	0	150.6
	Camping	0	10.78	14.13	10.78	0	2.19	0	11.86	0	0	0
	Total:									32.3	0	594.5
June	Scenic Floating	0	46.8	94.35	46.8	0	77.57	0	0	491.5	0	0
	Guide Boat Fishing	0	182.94	239.62	182.94	0	185.89	0	0	410.6	0	0
	Private Boat Fishing	0	37.44	69.91	37.44	0	36.02	0	0	66.1	0	0
	Shore Fishing/Trail Use	0	23.49	34.13	23.49	0	18.99	0	0	111.4	0	0
	Camping	0	10.78	14.13	10.78	0	12.09	0	0	8.3	0	0
	Total:									1,087.9	0	0
July	Scenic Floating	0	46.8	94.35	46.8	0	9.75	51.37	0	59.9	591.2	0
	Guide Boat Fishing	0	182.94	239.62	182.94	0	46.73	125.33	0	70.2	233.2	0
	Private Boat Fishing	0	37.44	69.91	37.44	0	7.88	24.31	0	9.7	38.4	0
	Shore Fishing/Trail Use	0	23.49	34.13	23.49	0	7.84	18.60	0	52.5	162.8	0
	Camping	0	10.78	14.13	10.78	0	5.67	11.10	0	3.2	7.4	0
	Total:									195.5	1,033.0	0

Aug	Scenic Floating	0	46.8	94.35	46.8	0	53.63	66.03	0	427.9	560.0	0
	Guide Boat Fishing	0	182.94	239.62	182.94	0	143.81	203.33	27.89	269.9	409.3	14.5
	Private Boat Fishing	0	37.44	69.91	37.44	0	28.17	49.22	3.94	42.3	78.8	1.2
	Shore Fishing/Trail Use	0	23.49	34.13	23.49	0	21.13	31.09	5.26	128.2	229.6	10.2
	Camping	0	10.78	14.13	10.78	0	11.29	12.35	3.66	6.9	7.8	.7
	Total:									875.3	1,285.5	26.7
Sept	Scenic Floating	0	46.8	94.35	46.8	0	59.08	70.82	27.96	3.9	5.0	.9
	Guide Boat Fishing	0	182.94	239.62	182.94	0	184.71	216.14	67.01	302.2	377.2	71.8
	Private Boat Fishing	0	37.44	69.91	37.44	0	37.49	57.29	12.12	192.1	311.2	39.2
	Shore Fishing/Trail Use	0	23.49	34.13	23.49	0	25.96	33.94	10.61	92.9	142.2	22.7
	Camping	0	10.78	14.13	10.78	0	11.76	12.76	7.83	4.3	4.7	2.0
	Total:									595.3	840.3	136.6
Oct	Scenic Floating	0	46.8	94.35	46.8	0	71.49	90.14	27.96	.7	1.0	.3
	Guide Boat Fishing	0	182.94	239.62	182.94	0	217.92	224.97	67.01	79.5	83.2	21.4
	Private Boat Fishing	0	37.44	69.91	37.44	0	58.41	59.88	12.12	61.7	63.5	11.3
	Shore Fishing/Trail Use	0	23.49	34.13	23.49	0	33.75	28.48	10.61	38.1	29.5	8.5
	Camping	0	10.78	14.13	10.78	0	12.82	13.92	7.83	0	0	0
	Total:									180.2	177.3	41.5
Total	Scenic Floating									1,013.6	1,174.9	3.8
	Guide Boat Fishing									1,600.9	1,283.0	425.9
	Private Boat Fishing									636.7	620.2	174.8
	Shore Fishing/Trail Use									691.8	661.4	192.1
	Camping									22.7	20.0	2.8
	Total:									3,965.7	3,759.5	799.3

Table 23: No Action Alternative, Flaming Gorge Reservoir Monthly Values per Visit by Hydrologic Condition													
		Interpolation Data Points					No Action Alternative Values						
							Per Visit			Total ($1,000s)			
Month	Recreation Activity	Low End Threshold Values	Current Values	Preferred Values	High End Kink Values	High End Threshold Values	Average	Wet	Dry	Average	Wet	Dry	
Jan	Power Boating/Skiing	0	25.71	46.22	25.71	0	33.89	43.86	4.02	19.8	25.6	2.0	
	Boat Fishing	0	25.21	37.92	25.21	0	30.22	36.31	0.65	8.9	10.6	.2	
	Boat Camping	0	13.06	22.23	13.06	0	16.79	21.28	0.97	1.3	1.6	.1	
	Swimming/Waterplay	0	1.44	10.41	1.44	0	5.06	9.48	0	.2	.3	0	
	Total:									30.0	38.1	2.2	
Feb	Power Boating/Skiing	0	25.71	46.22	25.71	0	33.10	40.45	6.31	0	0	0	
	Boat Fishing	0	25.21	37.92	25.21	0	29.73	34.23	3.25	0	0	0	
	Boat Camping	0	13.06	22.23	13.06	0	16.43	19.75	2.26	0	0	0	
	Swimming/Waterplay	0	1.44	10.41	1.44	0	4.72	7.97	0.15	0	0	0	
	Total:									0	0	0	
March	Power Boating/Skiing	0	25.71	46.22	25.71	0	33.10	43.33	13.19	89.2	116.7	35.5	
	Boat Fishing	0	25.21	37.92	25.21	0	29.73	35.99	11.04	40.4	48.9	15.0	
	Boat Camping	0	13.06	22.23	13.06	0	16.43	21.05	6.13	11.1	14.3	4.2	
	Swimming/Waterplay	0	1.44	10.41	1.44	0	4.72	9.25	0.61	.8	1.5	.1	
	Total:									141.4	181.3	54.8	
April	Power Boating/Skiing	0	25.71	46.22	25.71	0	33.37	44.91	19.50	718.5	967.0	419.9	
	Boat Fishing	0	25.21	37.92	25.21	0	29.89	36.96	18.18	324.9	401.8	197.6	
	Boat Camping	0	13.06	22.23	13.06	0	16.55	21.76	9.68	29.1	38.3	17.0	
	Swimming/Waterplay	0	1.44	10.41	1.44	0	4.83	9.95	1.03	6.2	12.7	1.3	
	Total:									1,078.7	1,419.8	635.9	
May	Power Boating/Skiing	0	25.71	46.22	25.71	0	32.58	44.90	5.16	1,882.9	2,594.9	253.2	
	Boat Fishing	0	25.21	37.92	25.21	0	29.41	37.24	1.95	858.0	1,086.3	48.4	
	Boat Camping	0	13.06	22.23	13.06	0	16.20	21.33	1.61	22.5	29.6	2.2	
	Swimming/Waterplay	0	1.44	10.41	1.44	0	4.48	9.55	0.08	15.3	32.7	.3	
	Total:									2,778.6	3,743.5	304.0	
June	Power Boating/Skiing	0	25.71	46.22	25.71	0	39.92	37.29	10.33	3,111.5	2,906.5	804.6	
	Boat Fishing	0	25.21	37.92	25.21	0	33.91	32.02	7.79	1,334.1	1,259.8	306.2	
	Boat Camping	0	13.06	22.23	13.06	0	19.51	17.2	4.52	36.3	32.0	8.4	
	Swimming/Waterplay	0	1.44	10.41	1.44	0	7.74	5.58	0.42	35.7	25.8	1.9	
	Total:									4,517.7	4,224.1	1,121.1	

July	Power Boating/Skiing	0	25.71	46.22	25.71	0	45.89	23.57	14.92	3894.7	2000.4	1266.3
	Boat Fishing	0	25.21	37.92	25.21	0	37.92	18.01	12.99	1624.4	771.5	556.5
	Boat Camping	0	13.06	22.23	13.06	0	21.87	5.80	7.10	30.3	8.0	9.8
	Swimming/Waterplay	0	1.44	10.41	1.44	0	10.06	0.66	0.72	50.6	3.3	3.6
	Total:									5600.0	2783.3	1836.2
Aug	Power Boating/Skiing	0	25.71	46.22	25.71	0	45.96	20.00	10.33	2264.6	985.5	508.6
	Boat Fishing	0	25.21	37.92	25.21	0	37.60	13.51	7.79	935.1	336.0	193.5
	Boat Camping	0	13.06	22.23	13.06	0	22.23	3.39	4.52	26.1	4.0	5.3
	Swimming/Waterplay	0	1.44	10.41	1.44	0	10.41	0.39	0.42	30.4	1.1	1.2
	Total:									3256.2	1326.6	708.7
Sept	Power Boating/Skiing	0	25.71	46.22	25.71	0	44.38	23.57	6.88	1253.7	665.9	165.0
	Boat Fishing	0	25.21	37.92	25.21	0	36.64	18.01	3.90	522.5	256.8	47.3
	Boat Camping	0	13.06	22.23	13.06	0	21.52	5.80	2.58	11.5	3.1	1.4
	Swimming/Waterplay	0	1.44	10.41	1.44	0	9.71	0.66	0.19	16.3	1.1	.3
	Total:									1804.0	926.9	214.0
Oct	Power Boating/Skiing	0	25.71	46.22	25.71	0	42.28	26.70	3.44	1075.0	678.9	74.3
	Boat Fishing	0	25.21	37.92	25.21	0	35.35	23.41	0	453.7	300.4	0
	Boat Camping	0	13.06	22.23	13.06	0	20.57	8.71	0.65	13.9	5.9	.4
	Swimming/Waterplay	0	1.44	10.41	1.44	0	8.78	1.00	0	13.2	1.5	0
	Total:									1555.8	986.7	74.7
Nov	Power Boating/Skiing	0	25.71	46.22	25.71	0	39.14	33.32	4.59	259.8	221.2	25.9
	Boat Fishing	0	25.21	37.92	25.21	0	33.43	29.3	1.30	112.1	98.2	3.7
	Boat Camping	0	13.06	22.23	13.06	0	19.15	15.04	1.29	9.2	7.3	.6
	Swimming/Waterplay	0	1.44	10.41	1.44	0	7.39	3.51	0.04	2.9	1.4	0
	Total:									384.0	328.0	30.2
Dec	Power Boating/Skiing	0	25.71	46.22	25.71	0	35.99	41.92	3.44	153.9	179.3	12.5
	Boat Fishing	0	25.21	37.92	25.21	0	31.50	35.20	0	68.0	76.0	0
	Boat Camping	0	13.06	22.23	13.06	0	17.74	19.71	0.65	6.3	7.0	.2
	Swimming/Waterplay	0	1.44	10.41	1.44	0	5.99	7.99	0	1.5	2.0	0
	Total:									229.8	264.4	12.7
Total	Power Boating/Skiing									14723.6	11341.7	3567.6
	Boat Fishing									6281.9	4646.3	1368.2
	Boat Camping									197.8	151.1	49.7
	Swimming/Waterplay									173.1	83.5	8.8
	Total:									21376.3	16222.6	4994.4

Table 24: Total Water Based Valuation for Green River and Flaming Gorge Reservoir for No Action Alternative									
			Valuation by Hydrologic Condition						
			Average	Wet			Dry		
					Change from Average Condition			Change from Average Condition	
Site	Recreation Activity	Current Values	Values	Values	Values	%	Values	Values	%
Green River	Scenic Floating	1,159.2	1,013.6	1,174.9	161.3	15.9	3.8	-1,009.8	-99.6
	Guide Boat Fishing	2,085.5	1,600.9	1,283.0	-317.9	-19.9	425.9	-1,175.0	-73.4
	Private Boat Fishing	693.8	636.7	620.2	-16.5	-2.6	174.8	-461.9	-72.6
	Shoreline Fishing/ Trail Use	833.5	691.8	661.4	-30.4	-4.4	192.1	-499.7	-72.2
	Boat Based Camping	24.6	22.7	20.0	-2.7	-11.9	2.8	-19.9	-87.7
	Total:	4,796.5	3,965.7	3,759.5	-206.2	-5.2	799.3	-3,166.4	-79.8
Flaming Gorge Reservoir	Power Boating/ Waterskiing	9,237.0	14,723.6	11,341.7	-3,381.9	-23.0	3,567.6	-11,156.0	-75.8
	Boat Fishing	4,571.8	6,281.9	4,646.3	-1,635.6	-26.0	1,368.2	-4,913.7	-78.2
	Boat Based Camping	135.5	197.8	151.1	-46.7	-23.6	49.7	-148.1	-74.9
	Swimming/ Waterplay	30.7	173.1	83.5	-89.6	-51.8	8.8	-164.3	-94.9
	Total:	13,975.0	21,376.3	16,222.6	-5,153.7	-24.1	4,994.4	-16,381.9	-76.6
Both Sites	Combined Total:	18,771.5	25,342.0	19,982.1	-5,359.9	-21.2	5,793.7	-19,548.3	-77.1

$6.6 million or 25.9%), whereas wet and dry conditions fall below the average condition. The percentage loss in total water based valuation compared to average conditions is 21.2% for the wet condition and 77% for the dry condition. Losses at Flaming Gorge Reservoir account for about 96% and 84% of the differential from average conditions for wet and dry conditions respectively.

3.2.1.2 Action Alternative

The Flaming Gorge EIS has one action alternative based on the flows suggested in the 2000 Flow and Temperature Recommendation Report (Muth et al., 2000).

3.2.1.2.1 Hydrologic Conditions –

A) Green River Flows

Table 25 presents average flows by month for the Action Alternative under average, wet, and dry hydrologic conditions as obtained from the hydrology model. Information is also presented on the difference between the Action and No Action Alternatives in terms of flows (cfs) and percentages. Also included in the table are the five flow data points used in the interpolations.

Table 25: Action Alternative Green River Reach One Flows by Hydrologic Condition and Month

Month	Recreation Activity	Interpolation Data Points					Action Alternative								
							Average Condition			Wet Condition			Dry Condition		
		Low End Threshold Flows	Current Flows	Preferred Flows	High End Kink Flows	High End Threshold Flows	Average Monthly Flows	Change from No Action		Average Monthly Flows	Change from No Action		Average Monthly Flows	Change from No Action	
								Cfs	%		Cfs	%		Cfs	%
		Monthly Oriented Flow Data Points for Visitation Analysis Interpolation													
March	Scenic Floating	953	1036.0	2170	3786.7	3905	1270	-214	-14.4	2030	132	7.0	800	0	0
	Guide Boat Fishing	854	" "	1837	3380.3	3731	" "			" "			" "		
	Private Boat Fishing	879	" "	1808	3343.7	3656	" "			" "			" "		
	Shore Fishing/Trail Use	825	" "	1624	3158.4	3709	" "			" "			" "		
	Camping	836	" "	2000	3273.7	3538	" "			" "			" "		
April	Scenic Floating	953	1145.0	2170	3631.3	3905	1904	-303	-13.7	3981	691	21.0	800	0	0
	Guide Boat Fishing	854	" "	1837	3170.3	3731	" "			" "			" "		
	Private Boat Fishing	879	" "	1808	3126.9	3656	" "			" "			" "		
	Shore Fishing/Trail Use	825	" "	1624	2874.0	3709	" "			" "			" "		
	Camping	836	" "	2000	3129.7	3538	" "			" "			" "		
May	Scenic Floating	953	1954.0	2170	2478.0	3905	3233	-230	-6.7	5537	437	8.6	800	-600	-42.9
	Guide Boat Fishing	854	1504.3	1837	" "	3731	" "			" "			" "		
	Private Boat Fishing	879	1471.2	1808	" "	3656	" "			" "			" "		
	Shore Fishing/Trail Use	825	1296.7	1624	" "	3709	" "			" "			" "		
	Camping	836	1638.2	2000	" "	3538	" "			" "			" "		
June	Scenic Floating	953	1215.2	2170	3531.2	3905	3862	1152	42.5	7038	1121	19.0	893	93	11.6
	Guide Boat Fishing	854	" "	1837	3035.1	3731	" "			" "			" "		
	Private Boat Fishing	879	" "	1808	2987.3	3656	" "			" "			" "		
	Shore Fishing/Trail Use	825	" "	1624	2690.8	3709	" "			" "			" "		
	Camping	836	" "	2000	3037.0	3538	" "			" "			" "		
July	Scenic Floating	953	1007.0	2170	3828.0	3905	2185	1202	122.2	4600	3400	283.3	893	93	11.6
	Guide Boat Fishing	854	" "	1837	3436.2	3731	" "			" "			" "		
	Private Boat Fishing	879	" "	1808	3401.4	3656	" "			" "			" "		
	Shore Fishing/Trail Use	825	" "	1624	3234.1	3709	" "			" "			" "		
	Camping	836	" "	2000	3312.1	3538	" "			" "			" "		
Aug	Scenic Floating	953	1122.2	2170	3663.7	3905	1626	375	29.9	2131	600	39.2	906	-25	-2.7
	Guide Boat Fishing	854	" "	1837	3214.2	3731	" "			" "			" "		
	Private Boat Fishing	879	" "	1808	3172.1	3656	" "			" "			" "		
	Shore Fishing/Trail Use	825	" "	1624	2933.3	3709	" "			" "			" "		
	Camping	836	" "	2000	3159.8	3538	" "			" "			" "		

Sept	Scenic Floating	953	1118.0	2170	3669.7	3905	1639	265	19.3	2239	600	36.6	939	-100	-9.6
	Guide Boat Fishing	854	" "	1837	3222.3	3731	" "			" "			" "		
	Private Boat Fishing	879	" "	1808	3180.5	3656	" "			" "			" "		
	Shore Fishing/Trail Use	825	" "	1624	2944.3	3709	" "			" "			" "		
	Camping	836	" "	2000	3165.3	3538	" "			" "			" "		
Oct	Scenic Floating	953	1024.0	2170	3803.8	3905	1487	-167	-10.1	2172	97	4.7	800	-239	-23.0
	Guide Boat Fishing	854	" "	1837	3403.5	3731	" "			" "			" "		
	Private Boat Fishing	879	" "	1808	3367.6	3656	" "			" "			" "		
	Shore Fishing/Trail Use	825	" "	1624	3189.7	3709	" "			" "			" "		
	Camping	836	" "	2000	3289.6	3538	" "			" "			" "		

		Annually Oriented Flow Data Points for Valuation Analysis Interpolation					
		Low End Threshold Flow	Annual Current Flow	Preferred Flow	Annual High End Kink Flow	High End Threshold Flow	
All Months	Scenic Floating	953	1096.9	2170	3699.8	3905	Monthly Flow Information as above.
	Guide Boat Fishing	854	1359.0	1837	2757.9	3731	
	Private Boat Fishing	879	1373.3	1808	2678.7	3656	
	Shore Fishing/Trail Use	825	1298.6	1624	2473.1	3709	
	Camping	836	1115.5	2000	3168.7	3538	

Comparing the alternative flows to the data points indicates where the alternative flow falls within the inverted U-shaped flow distribution. For example, the Action Alternative average condition flow for March of 1,270 falls between the current flow data point (1,036 or 1,096.9) and the preferred flow data point (2,170) for scenic floating. The scenic floating visitation and value interpolation for the Action Alternative March average condition would therefore also result in estimates falling between the current and preferred visit and value data points. Also note that the Action Alternative March average condition flow is 214 cfs less than the No Action Alternative. This implies that the Action Alternative March average condition visitation and value estimates will be less than those of the No Action Alternative since No Action Alternative March flows are closer to the preferred flow. Generally speaking, the closer an alternative's flow is to the preferred flow, the higher the visitation and value estimate.

Comparing the average condition flows between the Action and No Action Alternatives indicates that from June through September, Action Alternative average flows exceed No Action flows. The largest differences occur in June and July where the Action Alternative flow exceeds the No Action Alternative flow by more than 1,000 cfs.

During wet conditions, Action Alternative flows exceed No Action Alternative flows across the entire March through October period. The largest difference occurs in July where the Action Alternative exceeds the No Action Alternative by 3,400 cfs or 283 percent.

During dry conditions, the difference between the alternatives is less severe in terms of both cfs and percentage. In 4 of the 8 studied months (May, August, September, October), No Action Alternative average monthly flows exceed those of the action alternative. The largest difference (-600 cfs, -42.9%) occurs in May.

B) Flaming Gorge Reservoir Water Levels:

Table 26 presents end of month water levels for the Action Alternative under average, wet, and dry hydrologic conditions as obtained from the hydrology model. Information is also presented on the difference between the Action and No Action Alternatives in terms of water levels.

Comparing average condition end of month water levels between the Action and No Action alternatives indicates very little difference between the two alternatives. The largest difference occurs in May with the Action Alternative only 2 feet higher than the No Action.

Water levels under wet conditions were not evaluated within the recreation visitation analysis since they do not create any problems in terms of recreation access on the reservoir. However, water level differences were evaluated via the interpolation procedure in the reservoir valuation analysis. Action Alternative water levels fell below those of the No Action Alternative in 8 of 12 months, with the most significant differences being in July through November.

Under dry conditions, Action Alternative water levels exceed those of the No Action across all months. The differences between the alternatives range from a low of 2.9 feet to a high of 6.0 feet. These differences are substantially greater than those seen under average conditions and may be more significant given the lower water levels.

Table 26: Action Alternative Flaming Gorge Reservoir Water Levels by Hydrologic Condition and Month

Month	Recreation Activity	Annually Oriented Water Level (WL) Data Points for Valuation Analysis Interpolation					Action Alternative Water Levels					
							Average Condition		Wet Condition		Dry Condition	
		Low End Threshold WL	Annual Current WL	Preferred WL	Annual High End Kink WL	High End Threshold WL	Average Monthly Water Levels	Change from No Action (Feet)	Average Monthly Water Levels	Change from No Action (Feet)	Average Monthly Water Levels	Change from No Action (Feet)
January	Power Boating/Skiing Boat Fishing Boat Camping Swimming/Waterplay	6016.7 6017.3 6017.1 6017.4	6021.2 6021.2 6021.1 6021.2	6029.0 6029.1 6028.9 6028.9	6035.2 6034.7 6034.0 6034.1	6038.8 6037.5 6036.7 6036.7	6025.8	1.5	6028.4	.3	6023.4	6.0
February	Power Boating/Skiing Boat Fishing Boat Camping Swimming/Waterplay	6016.7 6017.3 6017.1 6017.4	6021.2 6021.2 6021.1 6021.2	6029.0 6029.1 6028.9 6028.9	6035.2 6034.7 6034.0 6034.1	6038.8 6037.5 6036.7 6036.7	6025.7	1.7	6028.0	1.2	6023.7	5.9
March	Power Boating/Skiing Boat Fishing Boat Camping Swimming/Waterplay	6016.7 6017.3 6017.1 6017.4	6021.2 6021.2 6021.1 6021.2	6029.0 6029.1 6028.9 6028.9	6035.2 6034.7 6034.0 6034.1	6038.8 6037.5 6036.7 6036.7	6025.8	1.8	6027.9	0	6023.5	4.5
April	Power Boating/Skiing Boat Fishing Boat Camping Swimming/Waterplay	6016.7 6017.3 6017.1 6017.4	6021.2 6021.2 6021.1 6021.2	6029.0 6029.1 6028.9 6028.9	6035.2 6034.7 6034.0 6034.1	6038.8 6037.5 6036.7 6036.7	6026.0	1.9	6028.5	0	6023.0	2.9
May	Power Boating/Skiing Boat Fishing Boat Camping Swimming/Waterplay	6016.7 6017.3 6017.1 6017.4	6021.2 6021.2 6021.1 6021.2	6029.0 6029.1 6028.9 6028.9	6035.2 6034.7 6034.0 6034.1	6038.8 6037.5 6036.7 6036.7	6025.8	2.0	6029.2	-.2	6022.8	5.2
June	Power Boating/Skiing Boat Fishing Boat Camping Swimming/Waterplay	6016.7 6017.3 6017.1 6017.4	6021.2 6021.2 6021.1 6021.2	6029.0 6029.1 6028.9 6028.9	6035.2 6034.7 6034.0 6034.1	6038.8 6037.5 6036.7 6036.7	6027.8	1.2	6030.3	-1.4	6024.5	6.0
July	Power Boating/Skiing Boat Fishing Boat Camping Swimming/Waterplay	6016.7 6017.3 6017.1 6017.4	6021.2 6021.2 6021.1 6021.2	6029.0 6029.1 6028.9 6028.9	6035.2 6034.7 6034.0 6034.1	6038.8 6037.5 6036.7 6036.7	6029.2	.1	6030.7	-4.8	6024.7	5.4
August	Power Boating/Skiing Boat Fishing Boat Camping Swimming/Waterplay	6016.7 6017.3 6017.1 6017.4	6021.2 6021.2 6021.1 6021.2	6029.0 6029.1 6028.9 6028.9	6035.2 6034.7 6034.0 6034.1	6038.8 6037.5 6036.7 6036.7	6028.4	-.5	6030.5	-5.5	6023.8	5.3

September	Power Boating/Skiing	6016.7	6021.2	6029.0	6035.2	6038.8	6027.4	-.9	6030.0	-5.5	6023.2	5.3
	Boat Fishing	6017.3	6021.2	6029.1	6034.7	6037.5						
	Boat Camping	6017.1	6021.1	6028.9	6034.0	6036.7						
	Swimming/Waterplay	6017.4	6021.2	6028.9	6034.1	6036.7						
October	Power Boating/Skiing	6016.7	6021.2	6029.0	6035.2	6038.8	6026.8	-.7	6029.8	-5.1	6023.1	5.8
	Boat Fishing	6017.3	6021.2	6029.1	6034.7	6037.5						
	Boat Camping	6017.1	6021.1	6028.9	6034.0	6036.7						
	Swimming/Waterplay	6017.4	6021.2	6028.9	6034.1	6036.7						
November	Power Boating/Skiing	6016.7	6021.2	6029.0	6035.2	6038.8	6026.5	.2	6029.5	-3.4	6023.3	5.8
	Boat Fishing	6017.3	6021.2	6029.1	6034.7	6037.5						
	Boat Camping	6017.1	6021.1	6028.9	6034.0	6036.7						
	Swimming/Waterplay	6017.4	6021.2	6028.9	6034.1	6036.7						
December	Power Boating/Skiing	6016.7	6021.2	6029.0	6035.2	6038.8	6026.1	1.0	6029.1	-1.2	6023.3	6.0
	Boat Fishing	6017.3	6021.2	6029.1	6034.7	6037.5						
	Boat Camping	6017.1	6021.1	6028.9	6034.0	6036.7						
	Swimming/Waterplay	6017.4	6021.2	6028.9	6034.1	6036.7						

3.2.1.2.2 Annual Recreation Visitation and Infrastructure Impacts –

A) Green River Visitation:

Table 27 presents the results of the Green River visitation analysis for the Action Alternative. Visitation estimates were developed for the Action Alternative by month and recreation activity. In addition, a comparative analysis is made to the No Action Alternative in terms changes in number of visits and percentage.

For the Action Alternative average condition, the 85.200 plus visitation estimate is slightly above the No Action Alternative average condition estimate by 1.770 visits or 2.1 percent. Looking at the individual activities, the gains in visitation for scenic floating and shoreline fishing/trail use somewhat outweigh the losses in guide boat fishing, private boat fishing, and camping.

Within the interpolation analysis, the closer a flow is to the preferred flow level (in percentage terms), the higher the visitation estimate. Comparing the average condition Action Alternative flows (table 25) and the average condition No Action Alternative flows (table 14, also derivable from table 25) to the visitation analysis oriented data points across the various months, it becomes evident that in some months the Action Alternative average condition is clearly an improvement over the No Action while in other months the reverse is true. For example, the months of May, August, and September have Action Alternative average monthly flows which are clearly closer to the preferred flow for all activities compared to the No Action Alternative. Conversely, the months of March, June, and October are clearly closer to the preferred flow under No Action average conditions. The months of April and July are ambiguous because the flows fall on either side of the preferred level (e.g., the April No Action flow of 2,207 falls above the preferred flow of 2,170 whereas the Action Alternative April flow of 1,904 falls below the preferred flow). The formula calculates visitation based on the percentage of the distance between data points, in April it turns out that the No Action Alternative average condition flow of 2,207 is closer on a percentage basis than the Action Alternative flow of 1,904. While one could guess that the 2,207 was closer to the preferred flow based simply on the numeric difference (2,207-2,170 = 37 versus 2,170-1,904 = 266), the assumption that the closer the numeric difference implies a higher the visitation estimate does not always hold since we are working with percentages. Hypothetically, let's say that the difference between the preferred flow and the high end kink was only 100 cfs, but the difference between the preferred flow and the current flow was 1,000 cfs. Note that widely divergent locations for the high end kink and current conditions did result in some cases from the survey data. In such a case, the Action Alternative flow would be closer to the preferred flow on a percentage basis (37/100 = 37% versus 226/1,000 = 22.6%). The fact that 5 months resulted in gains and three months resulted losses lead to slightly positive difference for the Action Alternative average condition over the No Action Alternative. The months of May, July, and August were relatively large gainers and the month of June a large loser for the Action Alternative compared to the No Action. When considering changes in visitation between the alternatives, obviously the flow differentials play a significant role, but so does the baseline visitation estimates for each month. Looking at the preferred visitation estimates, note that the heaviest use months are June, July, and August with visitation tailing off as one approaches the edges of the high recreation season in March and October. Therefore, a smaller flow differential during the highest use months could result in a larger impact compared to a larger flow differential during the lower use months.

Under Action Alternative wet conditions, Green River visitation drops significantly compared to the No Action Alternative. Total visitation drops to under 39,000 visits, a decline of over 31,000 visits and

Table 27: Action Alternative, Green River Reach One Average Monthly Visitation by Hydrologic Condition

Month	Recreation Activity	Interpolation Data Points					Action Alternative								
							Average Condition			Wet Condition			Dry Condition		
		Low End Threshold Visits	Current Visits	Preferred Visits	High End Kink Visits	High End Threshold Visits	Average Monthly Visits	Change from No Action		Average Monthly Visits	Change from No Action		Average Monthly Visits	Change from No Action	
								Visits	%		Visits	%		Visits	%
March	Scenic Floating	0	42	52	42	0	44	-2	-4.3	51	1	2.0	0	0	0
	Guide Boat Fishing	0	280	334	280	0	296	-14	-4.5	327	-5	-1.5	0	0	0
	Private Boat Fishing	0	1,265	1,475	1,265	0	1,329	-58	-4.2	1,445	-18	-1.2	0	0	0
	Shore Fishing/Trail Use	0	1,774	2,541	1,774	0	2,079	-279	-11.8	2,338	-66	-2.7	0	0	0
	Camping	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total:	0	3,361	4,402	3,361	0	3,748	-353	-8.6	4,161	-88	-2.1	0	0	0
April	Scenic Floating	0	217	270	217	0	256	-13	-4.8	0	-229	-100	0	0	0
	Guide Boat Fishing	0	1,560	1,861	1,560	0	1,846	69	3.9	0	-1,227	-100	0	0	0
	Private Boat Fishing	0	3,214	3,748	3,214	0	3,709	123	3.4	0	-2,223	-100	0	0	0
	Shore Fishing/Trail Use	0	5,892	8,439	5,892	0	7,868	617	8.5	0	-2,956	-100	0	0	0
	Camping	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total:	0	10,883	14,318	10,883	0	13,679	796	6.2	0	-6,635	-100	0	0	0
May	Scenic Floating	0	99	123	99	0	47	16	51.6	0	0	0	0	-44	-100
	Guide Boat Fishing	0	2,018	2,407	2,018	0	802	370	85.6	0	0	0	0	-1,694	-100
	Private Boat Fishing	0	3,549	4,139	3,549	0	1,274	693	119.3	0	0	0	0	-3,122	-100
	Shore Fishing/Trail Use	0	4,942	7,078	4,942	0	1,911	923	93.4	0	0	0	0	-5,616	-100
	Camping	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total:	0	10,608	13,747	10,608	0	4,034	2,002	98.5	0	0	0	0	-10,476	-100
June	Scenic Floating	0	5,527	6,867	5,527	0	636	-5,700	-90	0	0	0	0	0	n/a
	Guide Boat Fishing	0	2,099	2,504	2,099	0	0	-2,209	-100	0	0	0	227	227	n/a
	Private Boat Fishing	0	1,767	2,060	1,767	0	0	-1,836	-100	0	0	0	74	74	n/a
	Shore Fishing/Trail Use	0	5,976	8,559	5,976	0	0	-5,864	-100	0	0	0	1,042	1,042	n/a
	Camping	0	668	733	668	0	0	-688	-100	0	0	0	100	100	n/a
	Total:	0	16,037	20,723	16,037	0	636	-16,297	-96.2	0	0	0	1,443	1,443	n/a
July	Scenic Floating	0	11,063	13,744	11,063	0	13,720	7,572	123.2	0	-11,508	-100	0	0	n/a
	Guide Boat Fishing	0	1,781	2,124	1,781	0	2,049	547	36.4	0	-1,861	-100	454	454	n/a
	Private Boat Fishing	0	1,520	1,773	1,520	0	1,713	478	38.7	0	-1,581	-100	166	166	n/a
	Shore Fishing/Trail Use	0	7,708	11,039	7,708	0	9,878	3,186	47.6	0	-8,750	-100	2,880	2,880	n/a
	Camping	0	655	719	655	0	710	147	26.1	0	-667	-100	218	218	n/a
	Total:	0	22,727	29,399	22,727	0	28,070	11,930	73.9	0	-24,367	-100	3,718	3,718	n/a

Aug	Scenic Floating	0	7,749	9,626	7,749	0	8,651	672	8.4	9,556	1,075	12.7	0	0	0
	Guide Boat Fishing	0	1,814	2,163	1,814	0	2,060	183	9.7	2,088	75	3.7	352	-169	-32.4
	Private Boat Fishing	0	1,457	1,699	1,457	0	1,635	132	8.8	1,642	41	2.6	162	-150	-48.1
	Shore Fishing/Trail Use	0	5,462	7,823	5,462	0	7,819	1,751	28.9	6,909	-476	-6.4	1,488	-460	-23.6
	Camping	0	600	659	600	0	634	25	4.1	652	24	3.8	147	-52	-26.1
	Total:	0	17,082	21,970	17,082	0	20,799	2,763	15.3	20,847	739	3.7	2149	-831	-27.9
Sept	Scenic Floating	0	62	77	62	0	70	4	6.1	76	6	8.6	0	-32	-100
	Guide Boat Fishing	0	1,530	1,826	1,530	0	1,745	109	6.7	1,740	-5	-0.3	493	-579	-54.0
	Private Boat Fishing	0	4,827	5,629	4,827	0	5,432	308	6.0	5,377	-55	-1.0	1,212	-2,019	-62.5
	Shore Fishing/Trail Use	0	2,935	4,204	2,935	0	4,190	613	17.1	3,613	-577	-13.8	1,142	-1,001	-46.7
	Camping	0	352	386	352	0	372	10	2.8	379	7	-1.9	129	-124	-49.0
	Total:	0	9,707	12,122	9,707	0	11,809	1,044	9.7	11,185	-624	-5.3	2,976	-3,755	-55.8
Oct	Scenic Floating	0	9	11	9	0	10	0	0	11	0	0	0	-9	-100
	Guide Boat Fishing	0	318	379	318	0	353	-12	-3.3	366	-4	-1.1	0	-319	-100
	Private Boat Fishing	0	932	1,087	932	0	1,024	-33	-3.1	1,051	-9	-0.8	0	-935	-100
	Shore Fishing/Trail Use	0	793	1,136	793	0	1,058	-71	-6.3	1,016	-21	-2.0	0	-802	-100
	Camping	0	6	7	6	0	6	-1	-14.3	7	0	0	0	-6	-100
	Total:	0	2,058	2,620	2,058	0	2,451	-117	-4.6	2,451	-34	-1.4	0	-2,071	-100
Total:	Scenic Floating	0	24,768	30,770	24,768	0	23,434	2,549	12.2	9,694	-10,655	-52.4	0	-85	-100
	Guide Boat Fishing	0	11,400	13,598	11,400	0	9,151	-957	-9.5	4,521	-3,027	-40.1	1,526	-2,080	-57.7
	Private Boat Fishing	0	18,531	21,610	18,531	0	16,116	-193	-1.2	9,515	-3,845	-28.8	1,614	-5,986	-78.8
	Shore Fishing/Trail Use	0	35,482	50,819	35,482	0	34,803	876	2.6	13,876	-12,846	-48.1	6,552	-3,957	-37.7
	Camping	0	2,281	2,504	2,281	0	1,722	-507	-22.7	1,038	-636	-38.0	594	136	29.7
	Total:	0	92,461	119,301	92,461	0	85,226	1,768	2.1	38,644	-31,009	-44.5	10,286	-11,972	-53.8

44 percent. All activities experienced significant losses. Every month with changes in visitation (note May and June resulted in no change), except for August, resulted in lost visitation for the Action Alternative wet condition compared to the No Action. The months with the largest losses were April and July, where July accounts for nearly 80% of the total loss. In April, Action Alternative flows of 3,981 exceed the high end threshold flow for all activities resulting in an estimate of zero visits. Conversely, the No Action flow of 3,290 generally falls just beyond the high end kink flow, well below the high end threshold. In July the same situation occurs, but the impact is more severe since the No Action flow of 1,200 cfs actually falls between current and preferred flows (i.e., it is even closer to preferred flows than in April) and the base level of visitation is higher.

Under Action Alternative dry conditions, visitation drops to slightly under 10,300 visits, a decline of nearly 12,000 visits or almost 54 percent compared to the No Action Alternative. The decline is experienced for all activities except camping. The Action Alternative dry condition resulted in four months of losses and two months of gains (and 2 months of zero impact) compared to the No Action Alternative. The months with gains were relatively insignificant resulting in the 12,000 visit loss. The months of May, September, and October were the largest losers with May accounting for about 88% of the overall loss. The dry May flow of 800 cfs for the Action Alternative falls below the low end threshold for all activities resulting in a zero visitation estimate. Conversely, the 1,400 cfs May flow for the No Action Alternative falls above the low end threshold and in the case of shoreline fishing/trail use, the 1,440 cfs flow falls above the low end kink. As a result, a nearly 10,500 visit loss is predicted for the month of April for the Action Alternative dry condition compared to the No Action Alternative.

Although unrelated to the visitation and value analysis, as noted previously, an analysis of facility availability was also conducted for Green River recreation facilities. As shown in table 28, within Reach 1, all river facilities were expected to be available based on average monthly flows across all months under Action Alternative average and dry conditions. However, under wet conditions, the following Forest Service facilities are expected to be unavailable in June due to high flows: the spillway boat ramps, fishing pier, hiking trail, and 9 of 18 riverside campgrounds. In addition, 9 of the 18 riverside campgrounds are also expected to be unavailable in May under wet conditions. The June unavailability of the Spillway ramp, the Little Hole fishing pier, and the recreation trail reflect additional facility unavailability compared to the No Action Alternative. Looking across all years, the unavailability percentage, due exclusively to high flows, ranges from 0 to 27.2 percent (or from virtually never to once every 3.7 years). Across all years, the percentage difference between Action and No Action Alternatives is generally minor, with the largest differences occurring during June (Forest Service campgrounds, +11.7%) and July (spillway ramp, pier, and trail; +7%). Erosion of river facilities is similar to that discussed under the No Action Alternative, but occurs to a greater degree due to higher flows.

Within Reach 2, the boat ramp at Ouray National Wildlife Refuge remains available under average, dry, and wet conditions across all months for the Action Alternative. This implies no change in facility availability within Reach 2 between the alternatives during those hydrologic conditions. Looking across all years, unavailability is expected to occur in May and June, but only about 1.5 to 2 percent of the time. This implies virtually no change in reach two facility availability between the alternatives.

Within Reach 3, all facilities remain available under average conditions for the Action Alternative. However, under dry conditions, the Swasey's Beach boat ramp would be unavailable during the months of January, February, and July through December. Under wet conditions, the facilities at Green River State Park would be affected during May and June (golf course during both May and June, and the campground and boat ramp during June). The facility unavailability for the Action Alternative within Reach 3 mirrors that of the No Action Alternative, implying no change in facility availability between the alternatives within Reach 3 under these conditions. Looking across all years, again the Swasey's Beach

Table 28: Action Alternative, Green River Facility Availability by Site and Hydrologic Condition (Facility Availability: Yes = available, No = unavailable)																	
Agency	**Site**	**Facility**	**Low End Thres-hold**	**High End Threshold**	**Hydrologic Condition**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
Reach 1: Flaming Gorge Dam to the Yampa River																	
Action Alternative, Reach 1, Average Flows:						1,243	1,118	1,270	1,904	3,233	3,862	2,185	1,626	1,639	1,487	1,402	1,331
USFS	Spillway	Boat Ramp	600	6,000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Little Hole	Boat Ramp	600	8,000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Fishing Pier	600	6,000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Trail	n/a	6,000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		9 of 18 Campgrounds	n/a	5,000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BLM	Indian Crossing	Boat Ramp	800	None	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Bridge Hollow	Boat Ramp	800	None	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Campground	None	10,000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Swallow Canyon	Boat Ramp	800	None	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State of Utah	Bridge Port Camp	Boat Ramp	800	None	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Action Alternative, Reach 1, Dry Flows:						800	800	800	800	800	893	893	906	939	800	800	800
USFS	Spillway	Boat Ramp	600	6,000	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Little Hole	Boat Ramp	600	8,000	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Fishing Pier	600	6,000	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Trail	n/a	6,000	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		9 of 18 Campgrounds	n/a	5,000	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BLM	Indian Crossing	Boat Ramp	800	None	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Bridge Hollow	Boat Ramp	800	None	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Campground	None	10,000	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Swallow Canyon	Boat Ramp	800	None	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State of Utah	Bridge Port Camp	Boat Ramp	800	None	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Action Alternative, Reach 1, Wet Flows:						2,086	1,968	2,030	3,981	5,537	7,038	4,600	2,131	2,239	2,172	2,243	2,214
USFS	Spillway	Boat Ramp	600	6,000	Wet	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
	Little Hole	Boat Ramp	600	8,000	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Fishing Pier	600	6,000	Wet	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
		Trail	n/a	6,000	Wet	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
		9 of 18 Campgrounds	n/a	5,000	Wet	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
BLM	Indian Crossing	Boat Ramp	800	None	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Bridge Hollow	Boat Ramp	800	None	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Campground	None	10,000	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Swallow Canyon	Boat Ramp	800	None	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State of Utah	Bridge Port Camp	Boat Ramp	800	None	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
						Percent of Time, Across All Years, Facilities Are Unavailable											
USFS	Spillway	Boat Ramp	600	6,000	All Years	0	0	0	0	7.5	14.6	7.0	0	0	0	0	0
	Little Hole	Boat Ramp	600	8,000	All Years	0	0	0	0	4.2	8.5	1.2	0	0	0	0	0
		Fishing Pier	600	6,000	All Years	0	0	0	0	7.5	14.6	7.0	0	0	0	0	0
		Trail	n/a	6,000	All Years	0	0	0	0	7.5	14.6	7.0	0	0	0	0	0
		9 of 18 Campgrounds	n/a	5,000	All Years	0	0	0	0	13.0	27.2	2.8	0	0	0	0	0
BLM	Indian Crossing	Boat Ramp	800	None	All Years	0	0	0	0	0	0	0	0	0	0	0	0
	Bridge Hollow	Boat Ramp	800	None	All Years	0	0	0	0	0	0	0	0	0	0	0	0
		Campground	None	10,000	All Years	0	0	0	0	1.9	4.1	0	0	0	0	0	0
	Swallow Canyon	Boat Ramp	800	None	All Years	0	0	0	0	0	0	0	0	0	0	0	0
State of Utah	Bridge Port Camp	Boat Ramp	800	None	All Years	0	0	0	0	0	0	0	0	0	0	0	0

						Change in Percent of Time, Across All Years, Facilities Are Unavailable (Action minus No Action)											
USFS	Spillway	Boat Ramp	600	6,000	All Years	0	0	0	0	1.2	4.7	7.0	0	0	0	0	0
	Little Hole	Boat Ramp	600	8,000	All Years	0	0	0	0	1.4	4.5	1.2	0	0	0	0	0
		Fishing Pier	600	6,000	All Years	0	0	0	0	1.2	4.7	7.0	0	0	0	0	0
		Trail	n/a	6,000	All Years	0	0	0	0	1.2	4.7	7.0	0	0	0	0	0
		9 of 18 Campgrounds	n/a	5,000	All Years	0	0	0	0	2.7	11.7	2.8	0	0	0	0	0
BLM	Indian Crossing	Boat Ramp	800	None	All Years	0	0	0	0	0	0	0	0	0	0	0	0
	Bridge Hollow	Boat Ramp	800	None	All Years	0	0	0	0	0	0	0	0	0	0	0	0
		Campground	None	10,000	All Years	0	0	0	0	1.1	2.9	0	0	0	0	0	0
	Swallow Canyon	Boat Ramp	800	None	All Years	0	0	0	0	0	0	0	0	0	0	0	0
State of Utah	Bridge Port Camp	Boat Ramp	800	None	All Years	0	0	0	0	0	0	0	0	0	0	0	0
Reach 2: Yampa River to the White River																	
Action Alternative, Reach 2, Average Flows:						1,606	1,567	2,300	5,600	12,111	11,548	3,955	2,085	1,941	1,939	1,862	1,729
FWS	Ouray NWR	Boat Ramp	None	25,000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Action Alternative, Reach 2, Dry Flows:						1,040	1,080	1,350	2,205	5,320	3,943	1,206	1,170	1,036	1,100	1,115	1,060
FWS	Ouray NWR	Boat Ramp	None	25,000	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Action Alternative, Reach 2, Wet Flows:						2,665	2,642	3,650	9,625	20,310	20,160	7,949	2,884	2,818	2,837	2,747	2,776
FWS	Ouray NWR	Boat Ramp	None	25,000	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
						Percent of Time, Across All Years, Facilities Are Unavailable											
FWS	Ouray NWR	Boat Ramp	None	25,000	All Years	0	0	0	0	1.95	1.64	0	0	0	0	0	0
						Change in Percent of Time, Across All Years, Facilities Are Unavailable (Action minus No Action)											
FWS	Ouray NWR	Boat Ramp	None	25,000	All Years	0	0	0	0	-0.24	-0.73	0	0	0	0	0	0

Reach 3: White River to the Colorado River																	
Action Alternative, Reach 3, Average Flows:						2,347	2,681	3,934	6,390	13,882	16,201	5,825	3,028	2,799	2,990	2,877	2,476
BLM	Sand Wash	Boat Ramp	800	50,000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Swasey Beach	Boat Ramp	2,000	50,000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Nefertiti	Boat Ramp	800	27,000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Butler Rapid	Boat Ramp	800	27,000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Mineral Bottom	Boat Ramp	800	30,000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State of Utah	Green River State Park	Boat Ramp	800	25,000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Campground	n/a	25,000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Golf Course	n/a	19,000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Action Alternative, Reach 3, Dry Flows:						1,470	1,610	2,120	2,783	5,243	5,499	1,494	1,475	1,460	1,591	1,770	1,327
BLM	Sand Wash	Boat Ramp	800	50,000	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Swasey Beach	Boat Ramp	2,000	50,000	Dry	No	No	Yes	Yes	Yes	Yes	No	No	No	No	No	No
	Nefertiti	Boat Ramp	800	27,000	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Butler Rapid	Boat Ramp	800	27,000	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Mineral Bottom	Boat Ramp	800	30,000	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State of Utah	Green River State Park	Boat Ramp	800	25,000	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Campground	n/a	25,000	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Golf Course	n/a	19,000	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Action Alternative, Reach 3, Wet Flows:						3,438	3,995	6,256	11,507	23,690	26,730	11,880	4,967	4,333	4,692	4,149	3,769
BLM	Sand Wash	Boat Ramp	800	50,000	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Swasey Beach	Boat Ramp	2,000	50,000	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Nefertiti	Boat Ramp	800	27,000	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Butler Rapid	Boat Ramp	800	27,000	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Mineral Bottom	Boat Ramp	800	30,000	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

State of Utah	Green River State Park	Boat Ramp	800	25,000	Extremely Wet	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
		Campground	n/a	25,000	Extremely Wet	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
		Golf Course	n/a	19,000	Extremely Wet	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
						Percent of Time, Across All Years, Facilities Are Unavailable											
BLM	Sand Wash	Boat Ramp	800	50,000	All Years	0.9	1.1	0.9	0.2	0	0	0.6	0.4	0.6	0.1	0.3	2.0
	Swasey Beach	Boat Ramp	2,000	50,000	All Years	37.4	24.8	7.4	1.8	0.1	1.4	18.5	23.5	26.5	21.7	18.9	33.9
	Nefertiti	Boat Ramp	800	27,000	All Years	0.9	1.1	0.9	0.2	5.6	9.6	1	0.4	0.6	0.1	0.3	2.0
	Butler Rapid	Boat Ramp	800	27,000	All Years	0.9	1.1	0.9	0.2	5.6	9.6	1	0.4	0.6	0.1	0.3	2.0
	Mineral Bottom	Boat Ramp	800	30,000	All Years	0.9	1.1	0.9	0.2	3.5	5.3	0.8	0.4	0.6	0.1	0.3	2.0
State of Utah	Green River State Park	Boat Ramp	800	25,000	All Years	0.9	1.1	0.9	0.2	8.1	15.2	1.4	0.4	0.6	0.1	0.3	2.0
		Campground	n/a	25,000	All Years	0	0	0	0	8.1	15.2	0.7	0	0	0	0	0
		Golf Course	n/a	19,000	All Years	0	0.2	0.4	0.9	22.8	37.1	2.2	0	0	0	0	0
						Change in Percent of Time, Across All Years, Facilities Are Unavailable (Action minus No Action)											
BLM	Sand Wash	Boat Ramp	800	50,000	All Years	0.6	0.3	0.1	0.1	0	0	-1.0	0	-0.3	0	0.1	0.8
	Swasey Beach	Boat Ramp	2,000	50,000	All Years	8.1	6.7	2.6	1.1	0	0.1	-6.2	-11.2	-9.4	5.5	3.2	9.4
	Nefertiti	Boat Ramp	800	27,000	All Years	0.6	0.3	0.1	0.1	0.6	1.9	-0.8	0	-0.3	0	0.1	0.8
	Butler Rapid	Boat Ramp	800	27,000	All Years	0.6	0.3	0.1	0.1	0.6	1.9	-0.8	0	-0.3	0	0.1	0.8
	Mineral Bottom	Boat Ramp	800	30,000	All Years	0.6	0.3	0.1	0.1	0.6	0.8	-1.0	0	-0.3	0	0.1	0.8
State of Utah	Green River State Park	Boat Ramp	800	25,000	All Years	0.6	0.3	0.1	0.1	0.5	3.8	-0.5	0	-0.3	0	0.1	0.8
		Campground	n/a	25,000	All Years	0	0	-0.1	0	0.5	3.8	0.5	0	0	0	0	0
		Golf Course	n/a	19,000	All Years	0	0	0.1	0.3	-0.8	5.3	1.2	0	0	0	0	0

boat ramp and the Green River State Park facilities show the most dramatic effects. The unavailability percentages displayed in table 28 need to be looked at with some skepticism given the uncertainty associated with the reach three hydrology model. As a result, it makes sense to focus more on the differences in the unavailability percentages between the alternatives as compared to the percentages themselves. For the most part, the differences in the percentages between the alternatives are fairly minor. The largest differences (both + and -) occur with the Swasey's Beach boat ramp. The difference exceeds 5% for 7 of the months, although 3 of those months show a reduction in unavailability for the Action Alternative. In only one other month (June), did a facility (Green River State Park golf course) experience a 5% difference between alternatives?

B) Flaming Gorge Visitation:

Table 29 presents the Flaming Gorge Reservoir facility availability for the Action Alternative under average, wet, and dry conditions (while not comparable to the rest of the analysis, table 18 also presents the percent of time each facility is unavailable by month across all years). Under all three hydrologic conditions, all the facilities are available based on end of month water levels provided by the hydrologic models (table 26). The highest low end usability threshold is for the Anvil Draw boat ramp at 6020. Even under dry conditions, end of month water levels were not expected to decline below that level. As a result, reservoir visitation estimates for the Action Alternative under average, wet, and dry conditions are all estimated at the nearly 572,300 level. Visitation was also estimated at this level for the No Action Alternative average and wet conditions, therefore the only situation where a visitation difference results between alternatives is for the dry condition.

Under the No Action Alternative dry condition, losses in facility availability imply the Action Alternative dry condition results in a gain in visitation compared to the No Action Alternative. Table 30 presents information on visitation for the Action Alternative under dry conditions by activity, month, and affected site. Bottomline, the majority of the gain in visitation during dry conditions compared to No Action occurs due to the availability of the Cedar Springs marina and boat ramp. Virtually all of the gain accrues to power boating and boat fishing activities. The 28,300 visit gain reflects a 5.2 percent increase compared to No Action Alternative. Nearly 47 percent of the gain occurs in May, with 90 percent occurring across May, September, and October.

C) Total River and Reservoir Visitation:

Table 31 presents information on water based visitation combined for both the Green River and Flaming Gorge Reservoir for the Action Alternative under average, wet, and dry conditions. Reservoir visitation accounts for anywhere from 87.0 to 98.2 percent of the total depending on the hydrologic condition. For information on what these changes in recreation visitation mean in terms of expenditures, jobs, and other measures of regional economic activity, see the socioeconomic section.

For the Action Alternative average condition, the combined visitation barely changes from the No Action Alternative average condition. The Action Alternative's approximately 1,770 additional visits represent less than a 1 percent change compared to No Action. This change in visitation from the No Action Alternative was not considered significant. Since the facility availability approach indicated no visitation changes on the reservoir, the gains in visitation are completely attributable to the river. Gains in scenic floating and shoreline fishing/trail use in July and August slightly outweigh losses to guide boat fishing, private boat fishing, and boat based camping which occur primarily in June.

Table 29: Action Alternative, Flaming Gorge Reservoir Facility Availability by Site and Hydrologic Condition															
Site	Facility	Low End Usability Threshold	Hydrologic Condition	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Antelope Flat	Boat Ramp Swim Beach	6015 6012	Average	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
Anvil Draw	Boat Ramp	6015	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Buckboard Crossing	Marina Boat Ramp	6015 6000	Average	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
Cedar Springs	Marina Boat Ramp	6018 6018	Average	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
Firehole	Boat Ramp Swim Beach	6019 6012	Average	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
Hideout	Boat Camp	6014	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Jarvies Canyon	Boat Camp	6012	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kingfisher Island	Boat Camp	6010	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lucerne Valley	Marina Boat Ramps Swim Beach	6010 5994 6014	Average	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes
Mustang Ridge	Boat Ramp	6000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sheep Creek	Boat Ramp	6015	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Squaw Hollow	Boat Ramp	6015	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sunny Cove	Swim Beach	6018	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Upper Marsh Creek	Boat Ramp	6000	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CUT Through	Boat Channel	6022	Average	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Antelope Flat	Boat Ramp Swim Beach	6015 6012	Wet	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
Anvil Draw	Boat Ramp	6020	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Buckboard Crossing	Marina Boat Ramp	6015 6000	Wet	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
Cedar Springs	Marina Boat Ramp	6018 6018	Wet	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes

Firehole	Boat Ramp Swim Beach	6019 6012	Wet	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
Hideout	Boat Camp	6014	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Jarvies Canyon	Boat Camp	6012	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kingfisher Island	Boat Camp	6010	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lucerne Valley	Marina Boat Ramps Swim Beach	6010 5994 6014	Wet	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes
Mustang Ridge	Boat Ramp	6000	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sheep Creek	Boat Ramp	6015	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Squaw Hollow	Boat Ramp	6015	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sunny Cove	Swim Beach	6018	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Upper Marsh Creek	Boat Ramp	6000	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CUT Through	Boat Channel	6022	Wet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Antelope Flat	Boat Ramp Swim Beach	6015 6012	Dry	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
Anvil Draw	Boat Ramp	6020	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Buckboard Crossing	Marina Boat Ramp	6015 6000	Dry	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
Cedar Springs	Marina Boat Ramp	6018 6018	Dry	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
Firehole	Boat Ramp Swim Beach	6019 6012	Dry	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
Hideout	Boat Camp	6014	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Jarvies Canyon	Boat Camp	6012	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kingfisher Island	Boat Camp	6010	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lucerne Valley	Marina Boat Ramps Swim Beach	6010 5994 6014	Dry	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes
Mustang Ridge	Boat Ramp	6000	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sheep Creek	Boat Ramp	6015	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Squaw Hollow	Boat Ramp	6015	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Sunny Cove	Swim Beach	6018	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Upper Marsh Creek	Boat Ramp	6000	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CUT Through	Boat Channel	6022	Dry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
				Percent of Time Unavailable by Month											
Antelope Flat	Boat Ramp Swim Beach	6015 6012	All Years	1.1 0.1	1.7 0.2	2.1 0.3	1.5 0.2	1.5 0.6	0.4 0.0	0.2 0.0	0.2 0.0	0.4 0.0	0.5 0.0	0.7 0.0	1.0 0.1
Anvil Draw	Boat Ramp	6020	All Years	6.6	6.7	5.0	2.9	3.2	3.0	1.9	2.3	3.8	5.4	6.2	6.6
Buckboard Crossing	Marina Boat Ramp	6015 6000	All Years	1.2 0.0	1.7 0.0	2.1 0.0	1.5 0.0	1.5 0.0	.4 0.0	.2 0.0	.2 0.0	.4 0.0	.5 0.0	.7 0.0	1.0 0.0
Cedar Springs	Marina Boat Ramp	6018 6018	All Years	3.9 3.9	4.5 4.5	3.0 3.0	2.0 2.0	2.5 2.5	1.9 1.9	1.2 1.2	1.5 1.5	1.8 1.8	2.1 2.1	3.0 3.0	3.1 3.1
Firehole	Boat Ramp Swim Beach	6019 6012	All Years	5.0 0.1	5.1 0.2	4.3 0.3	2.4 0.2	3.0 0.6	1.9 0.0	1.5 0.0	1.7 0.0	2.4 0.0	3.2 0.0	3.4 0.0	4.9 0.1
Hideout	Boat Camp	6014	All Years	0.6	0.9	1.0	1.1	1.5	0.2	0.0	0.1	0.2	0.3	0.3	0.6
Jarvies Canyon	Boat Camp	6012	All Years	0.1	0.2	0.3	0.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Kingfisher Island	Boat Camp	6010	All Years	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lucerne Valley	Marina Boat Ramps Swim Beach	6010 5994 6014	All Years	0.0 0.0 0.6	0.0 0.0 0.9	0.0 0.0 1.0	0.0 0.0 1.1	0.0 0.0 1.5	0.0 0.0 0.2	0.0 0.0 0.0	0.0 0.0 0.1	0.0 0.0 0.2	0.0 0.0 0.3	0.0 0.0 0.3	0.0 0.0 0.6
Mustang Ridge	Boat Ramp	6000	All Years	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sheep Creek	Boat Ramp	6015	All Years	1.1	1.7	2.1	1.5	1.5	0.4	0.2	0.2	0.4	0.5	0.7	1.0
Squaw Hollow	Boat Ramp	6015	All Years	1.1	1.7	2.1	1.5	1.5	0.4	0.2	0.2	0.4	0.5	0.7	1.0
Sunny Cove	Swim Beach	6018	All Years	3.9	4.5	3.0	2.0	2.5	1.9	1.2	1.5	1.8	2.1	3.0	3.1
Upper Marsh Creek	Boat Ramp	6000	All Years	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CUT Through	Boat Channel	6022	All Years	7.8	7.8	7.8	6.6	7.3	3.4	3.6	6.6	8.0	7.9	7.3	8.1

Table 30: Action Alternative - Dry Condition, Flaming Gorge Reservoir Visitation by Affected Site, Activity and Month (Accounts for Facility Substitution)

			Action Alternative Visitation					Change from No Action Alternative									
								Power Boating/ Waterskiing		Boat Fishing		Camping		Swimming and Waterplay		Total	
Site	Facility	Month	Power Boating/ Water-skiing	Boat Fishing	Camping	Swimming & Waterplay	Total	Visits	%	Visits	%	Visits	%	Visits	%	Visits	%
Anvil Draw	Boat Ramp	Jan	2	3	0	0	5	0		0		0		0		0	
		Feb	0	0	0	0	0	0		0		0		0		0	
(affected,		Mar	9	12	0	0	21	0		0		0		0		0	
but losses		Apr	72	96	0	0	168	0		0		0		0		0	
completely		May	193	257	0	0	450	0		0		0		0		0	
absorbed		June	260	347	0	0	607	0		0		0		0		0	
by other		July	283	378	0	0	661	0		0		0		0		0	
sites)		Aug	165	219	0	0	384	0		0		0		0		0	
		Sept	94	126	0	0	220	0		0		0		0		0	
		Oct	85	113	0	0	198	0		0		0		0		0	
		Nov	22	30	0	0	52	0		0		0		0		0	
		Dec	14	19	0	0	33	0		0		0		0		0	
		Total:	1,200	1,600	0	0	2,800	0	0	0	0	0	0	0	0	0	0
Cedar Springs	Marina	Jan	49	17	0	0	66	44		15		0		0		59	
		Feb	0	0	0	0	0	0		0		0		0		0	
		Mar	225	79	0	0	304	0		0		0		0		0	
		Apr	1,798	629	0	0	2,427	0		0		0		0		0	
		May	4,826	1,689	0	0	6,515	4,343		1,520		0		0		5,863	
		June	6,508	2,278	0	0	8,786	0		0		0		0		0	
		July	7,087	2,480	0	0	9,567	0		0		0		0		0	
		Aug	4,114	1,440	0	0	5,554	0		0		0		0		0	
		Sept	2,359	826	0	0	3,185	2,123		743		0		0		2,866	
		Oct	2,123	743	0	0	2,866	1,911		669		0		0		2,580	
		Nov	554	194	0	0	748	499		175		0		0		674	
		Dec	357	125	0	0	482	321		113		0		0		434	
		Total:	30,000	10,500	0	0	40,500	9,241	44.5	3,234	44.5	0	0	0	0	12,475	44.5

Cedar Springs	Boat Ramp	Jan	49	32	0	0	81	44		29		0		0		73	
		Feb	0	0	0	0	0	0		0		0		0		0	
		Mar	225	146	0	0	371	0		0		0		0		0	
		Apr	1,798	1,169	0	0	2,967	0		0		0		0		0	
		May	4,826	3,137	0	0	7,963	4,343		2,823		0		0		7,166	
		June	6,508	4,230	0	0	10,738	0		0		0		0		0	
		July	7,087	4,606	0	0	11,693	0		0		0		0		0	
		Aug	4,114	2,674	0	0	6,788	0		0		0		0		0	
		Sept	2,359	1,533	0	0	3,892	2,123		1,380		0		0		3,503	
		Oct	2,123	1,380	0	0	3,503	1,911		1,242		0		0		3,153	
		Nov	554	360	0	0	914	499		324		0		0		823	
		Dec	357	232	0	0	589	321		209		0		0		530	
		Total:	30,000	19,500	0	0	49,500	9,241	44.5	6,008	44.5	0	0	0	0	15,249	44.5
Firehole	Boat Ramp	Jan	4	3	0	0	7	0		0		0		0		0	
		Feb	0	0	0	0	0	0		0		0		0		0	
		Mar	20	15	0	0	35	0		0		0		0		0	
		Apr	156	120	0	0	276	0		0		0		0		0	
		May	420	322	0	0	742	42		32		0		0		74	
		June	566	434	0	0	1,000	57		43		0		0		100	
		July	616	472	0	0	1,088	0		0		0		0		0	
		Aug	358	274	0	0	632	36		27		0		0		63	
		Sept	205	157	0	0	362	21		16		0		0		37	
		Oct	185	142	0	0	327	19		14		0		0		33	
		Nov	48	37	0	0	85	5		4		0		0		9	
		Dec	31	24	0	0	55	3		2		0		0		5	
		Total:	2,608	2,000	0	0	4,608	178	7.3	138	7.4	0	0	0	0	316	7.4
Sunny Cove	Swim Beach	Jan	0	0	0	8	8	0		0		0		1		1	
		Feb	0	0	0	0	0	0		0		0		0		0	
		Mar	0	0	0	37	37	0		0		0		0		0	
		Apr	0	0	0	300	300	0		0		0		0		0	
		May	0	0	0	804	804	0		0		0		121		121	
		June	0	0	0	1,085	1,085	0		0		0		0		0	
		July	0	0	0	1,181	1,181	0		0		0		0		0	
		Aug	0	0	0	686	686	0		0		0		0		0	
		Sept	0	0	0	393	393	0		0		0		59		59	
		Oct	0	0	0	354	354	0		0		0		53		53	
		Nov	0	0	0	92	92	0		0		0		14		14	
		Dec	0	0	0	60	60	0		0		0		9		9	
		Total:	0	0	0	5,000	5,000	0	0	0	0	0	0	257	5.4	257	5.4

Total for Affected Sites:		Jan	98	49	0	8	155	88		44		0		1		133	
		Feb	0	0	0	0	0	0		0		0		0		0	
		Mar	450	225	0	37	712	0		0		0		0		0	
		Apr	3,596	1,798	0	300	5,694	0		0		0		0		0	
		May	9,652	4,826	0	804	15,282	8,728		4,375		0		121		13,224	
		June	13,016	6,508	0	1,085	20,609	57		43		0		0		100	
		July	14,174	7,087	0	1,181	22,442	0		0		0		0		0	
		Aug	8,228	4,114	0	686	13,028	36		27		0		0		63	
		Sept	4,718	2,359	0	393	7,470	4,267		2,139		0		59		6,465	
		Oct	4,246	2,123	0	354	6,723	3,841		1,925		0		53		5,819	
		Nov	1,108	554	0	92	1,754	1,003		503		0		14		1,520	
		Dec	714	357	0	60	1,131	645		324		0		9		978	
		Total:	60,000	30,000	0	5,000	95,000	18,660	41.3	9,380	38.7	0	0	257	5.4	28,297	38.2
Total for Unaffected Sites:		Jan	485	244	75	27	831	0		0		0		0		0	
		Feb	0	0	0	0	0	0		0		0		0		0	
		Mar	2,244	1,133	677	122	4,176	0		0		0		0		0	
		Apr	17,936	9,072	1,761	977	29,746	0		0		0		0		0	
		May	48,140	24,344	1,388	2,620	76,492	0		0		0		0		0	
		June	64,927	32,835	1,863	3,533	103,158	0		0		0		0		0	
		July	70,697	35,751	1,386	3,847	11,681	0		0		0		0		0	
		Aug	41,045	20,756	1,174	2,233	65,208	0		0		0		0		0	
		Sept	23,532	11,901	536	1,282	37,251	0		0		0		0		0	
		Oct	21,180	10,711	674	1,154	33,719	0		0		0		0		0	
		Nov	5,530	2,798	483	301	9,112	0		0		0		0		0	
		Dec	3,562	1,803	357	195	5,917	0		0		0		0		0	
		Total:	299,278	151,348	10,374	16,291	477,291	0	0	0	0	0	0	0	0	0	0
Overall Total:		Jan	583	293	75	35	986	88		44		0		1		133	
		Feb	0	0	0	0	0	0		0		0		0		0	
		Mar	2,694	1,358	677	159	4,888	0		0		0		0		0	
		Apr	21,532	10,870	1,761	1,277	35,440	0		0		0		0		0	
		May	57,792	29,170	1,388	3,424	91,774	8,728		4,375		0		121		13,224	
		June	77,943	39,343	1,863	4,618	123,767	57		43		0		0		100	
		July	84,871	42,838	1,386	5,028	134,123	0		0		0		0		0	
		Aug	49,273	24,870	1,174	2,919	78,236	36		27		0		0		63	
		Sept	28,250	14,260	536	1,675	44,721	4,267		2,139		0		59		6,465	
		Oct	25,426	12,834	674	1,508	40,442	3,841		1,925		0		53		5,819	
		Nov	6,638	3,352	483	393	10,866	1,003		503		0		14		1,520	
		Dec	4,276	2,160	357	255	7,048	645		324		0		9		978	
		Total:	359,278	181,348	10,374	21,291	572,291	18,660	5.5	9,380	5.5	0	0	257	1.2	28,297	5.2

Table 31: Total Water Based Visitation for Green River and Flaming Gorge Reservoir for Action Alternative										
		Action Alternative Visitation by Hydrologic Condition								
		Average			Wet			Dry		
			Change from No Action Average Condition			Change from No Action Wet Condition			Change from No Action Dry Condition	
Site	Recreation Activity	Visits	Visits	%	Visits	Visits	%	Visits	Visits	%
Green River	Scenic Floating	23,434	2,549	12.2	9,694	-10,655	-52.4	0	-85	-100
	Guide Boat Fishing	9,151	-957	-9.5	4,521	-3,027	-40.1	1,526	-2,080	-57.7
	Private Boat Fishing	16,116	-193	-1.2	9,515	-3,845	-28.8	1,614	-5,986	-78.8
	Shoreline Fishing/ Trail Use	34,803	876	2.6	1,3876	-12,846	-48.1	6,552	-3,957	-37.7
	Boat Based Camping	1,772	-507	-22.7	1,038	-636	-38.0	5,94	136	29.7
	Total:	85,226	1,768	2.1	38,644	-31,009	-44.5	10,286	-11,972	-53.8
Flaming Gorge Reservoir	Power Boating/ Waterskiing	35,9278	0	0	359,278	0	0	359,278	18,663	5.5
	Boat Fishing	18,1348	0	0	181,348	0	0	181,348	9,379	5.5
	Boat Based Camping	10,374	0	0	10,374	0	0	10,374	0	0
	Swimming/ Waterplay	21,291	0	0	21,291	0	0	21,291	257	1.2
	Total:	572,291	0	0	572,291	0	0	57,291	28,299	5.2
Both Sites	Combined Total:	657,517	1,768	.3	610,935	-31,009	-4.8	582,577	16,327	2.9

For the Action Alternative wet condition, combined visitation declines about 31,000 or nearly 5 percent compared to the No Action Alternative wet condition. This change in visitation from the No Action Alternative was not considered significant especially given that wet conditions occur only 10 percent of the time. Since the facility availability approach indicated no visitation changes on the reservoir, all of this decline stems from losses experienced on the river. All river activities were estimated to experience losses compared to No Action with the majority of the losses (over 75%) accruing to scenic floating and shoreline fishing/trail use during April and July.

For the Action Alternative dry condition, combined visitation is estimated to increase by over 16,300 visits or just under 3 percent compared to the No Action Alternative dry condition. This change in visitation from the No Action Alternative was not considered significant especially given that conditions occur only 10 percent of the time. Visitation on the reservoir is estimated to increase by about 28,300 visits whereas visitation on the river is estimated to decline by nearly 12,000 visits. The largest gains are expected for reservoir power boating and boat fishing during the months of May, September, and October, and the largest losses are expected for river private boat fishing and shoreline fishing/trail use during the month of May.

3.2.1.2.3 Recreation Value – This section presents the results of the valuation analysis for the Action Alternative for both the Green River and Flaming Gorge Reservoir.

A) Green River Valuation:

Table 32 presents the results of the Green River value per visit interpolations for the Action Alternative under average, wet, and dry conditions. The five value data points used in the interpolation are presented should one be interested in comparing the values per visit to the flows and flow data points from table 25 (note that the flow data points used in the valuation analysis are those at the bottom of table 25). Zero values are the result of flows either below the low end threshold or above the high end threshold.

Table 32 also includes a comparison of values per visit by activity, month, and hydrologic condition between the Action and No Action Alternatives. Generally speaking, since the value interpolations are based on the same average monthly flows as the visitation analysis, months which provided visitation gains (losses) compared to the No Action Alternative would also provide valuation gains (losses). The magnitude or percentage change for the same month within the visitation and valuation analysis would vary because differential flow oriented interpolation data points were used in the visitation (monthly oriented data) and valuation (annually oriented data) analyses. In comparing the impacts for both the visitation and valuation analyses, the results are consistent. See the flow related discussion under the visitation section for more elaboration as to gains and losses by month.

As with the visitation analysis, Action Alternative average conditions results in gains compared to No Action Alternative average conditions in 5 of the 8 months. The largest gains in value per visit appear to occur in July and August with the largest loss in June.

Under Action Alternative wet conditions, all months with changed values (note that May and June showed no change) except August, generated predominately lower values compared to the No Action Alternative. The largest losses appear to occur in April and July.

Finally, under the Action Alternative dry condition, four months indicated losses, two months indicated gains, and two months showed no change. The months with the most significant losses appear to be May, September and October.

Table 33 presents the results of applying the values per visit from table 32 to the visitation estimates from table 27. Values are measured in thousands of dollars for the Action Alternative under average, wet, and dry conditions. Changes from the No Action Alternative for the same hydrologic condition are presented in dollar and percentage terms. The impacts by month generally align between the visitation and valuation analyses; however the magnitude of the change within the two analyses varies due to the different flow data points used in the interpolations.

For the Action Alternative average condition, total river recreation value is estimated at $5.7 million. This reflects nearly a $1.75 million or 44 percent increase over No Action Alternative average conditions. All activities, except camping, show gains in value with over 50 percent of the gain stemming from scenic floating. Five of the eights months indicate gains in value with the largest gains seen in July through September.

For the Action Alternative wet condition, total river recreation value is estimated at $2.8 million. This reflects over a $940 thousand or 25 percent loss in value compared to No Action Alternative wet conditions. All activities are estimated to result in losses compared to No Action with the largest losses due to guide boat fishing, shoreline fishing/trail use, and scenic floating. The vast majority of the loss in value occurs in July.

Table 32: Action Alternative, Green River Reach One Average Monthly Value per Visit by Hydrologic Condition

Month	Recreation Activity	Interpolation Data Points					Action Alternative Values								
		Low End Threshold Values	Current Values	Preferred Values	High End Kink Values	High End Threshold Values	Average Values	Change from No Action Average		Wet Values	Change from No Action Wet		Dry Values	Change from No Action Dry	
								$	%		$	%		$	%
March	Scenic Floating	0	46.8	94.35	46.8	0	54.47	-9.48	-14.8	88.15	5.85	7.1	0	0	0
	Guide Boat Fishing	0	182.94	239.62	182.94	0	150.69	-47.07	-23.8	227.74	-8.13	-3.4	0	0	0
	Private Boat Fishing	0	37.44	69.91	37.44	0	29.61	-16.10	-35.2	61.57	-4.96	-7.5	0	0	0
	Shore Fishing/Trail Use	0	23.49	34.13	23.49	0	22.07	-7.48	-25.3	29.04	-1.66	-5.4	0	0	0
	Camping	0	10.78	14.13	10.78	0	11.37	-0.81	-6.7	14.04	0.30	2.2	0	0	0
April	Scenic Floating	0	46.8	94.35	46.8	0	82.56	-10.64	-11.4	0	-59.54	-100	0	0	0
	Guide Boat Fishing	0	182.94	239.62	182.94	0	235.50	18.65	8.6	0	-82.91	-100	0	0	0
	Private Boat Fishing	0	37.44	69.91	37.44	0	66.30	11.37	20.7	0	-13.94	-100	0	0	0
	Shore Fishing/Trail Use	0	23.49	34.13	23.49	0	30.62	3.80	14.2	0	-7.96	-100	0	0	0
	Camping	0	10.78	14.13	10.78	0	13.77	0.23	1.7	0	-7.24	-100	0	0	0
May	Scenic Floating	0	46.8	94.35	46.8	0	61.31	7.15	13.2	0	0	0	0	-60.23	-100
	Guide Boat Fishing	0	182.94	239.62	182.94	0	93.62	43.24	85.8	0	0	0	0	-187.80	-100
	Private Boat Fishing	0	37.44	69.91	37.44	0	16.11	8.76	119.2	0	0	0	0	-39.43	-100
	Shore Fishing/Trail Use	0	23.49	34.13	23.49	0	9.05	4.37	93.4	0	0	0	0	-26.81	-100
	Camping	0	10.78	14.13	10.78	0	8.90	6.71	306.4	0	0	0	0	-11.86	-100
June	Scenic Floating	0	46.8	94.35	46.8	0	9.81	-67.76	-87.4	0	0	0	0	0	n/a
	Guide Boat Fishing	0	182.94	239.62	182.94	0	0	-185.89	-100	0	0	0	14.13	14.13	n/a
	Private Boat Fishing	0	37.44	69.91	37.44	0	0	-36.02	-100	0	0	0	1.06	1.06	n/a
	Shore Fishing/Trail Use	0	23.49	34.13	23.49	0	0	-18.99	-100	0	0	0	3.37	3.37	n/a
	Camping	0	10.78	14.13	10.78	0	0	-12.09	-100	0	0	0	2.20	2.20	n/a
July	Scenic Floating	0	46.8	94.35	46.8	0	93.88	84.13	862.9	0	-51.37	-100	0	0	n/a
	Guide Boat Fishing	0	182.94	239.62	182.94	0	218.20	171.47	366.9	0	-125.33	-100	14.13	14.13	n/a
	Private Boat Fishing	0	37.44	69.91	37.44	0	55.75	47.87	607.5	0	-24.31	-100	1.06	1.06	n/a
	Shore Fishing/Trail Use	0	23.49	34.13	23.49	0	27.10	19.26	245.7	0	-18.60	-100	3.37	3.37	n/a
	Camping	0	10.78	14.13	10.78	0	13.60	7.93	139.9	0	-11.10	-100	2.20	2.20	n/a
Aug	Scenic Floating	0	46.8	94.35	46.8	0	70.24	16.61	31.0	92.62	26.59	40.3	0	0	0
	Guide Boat Fishing	0	182.94	239.62	182.94	0	214.60	70.79	49.2	221.53	18.20	9.0	18.84	-9.05	-32.4
	Private Boat Fishing	0	37.44	69.91	37.44	0	56.31	28.14	99.9	57.78	8.56	17.4	2.04	-1.90	-48.2
	Shore Fishing/Trail Use	0	23.49	34.13	23.49	0	34.10	12.97	61.4	27.78	-3.31	-10.6	4.02	-1.24	-23.6
	Camping	0	10.78	14.13	10.78	0	12.71	1.42	12.6	13.75	1.40	11.3	2.70	-0.96	-26.2
Sept	Scenic Floating	0	46.8	94.35	46.8	0	70.82	11.74	19.9	92.21	21.39	30.2	0	-27.96	-100
	Guide Boat Fishing	0	182.94	239.62	182.94	0	216.14	34.43	17.0	214.88	-1.26	-0.6	30.79	-36.22	-54.1
	Private Boat Fishing	0	37.44	69.91	37.44	0	57.29	19.80	52.8	53.73	-3.56	-6.2	4.54	-7.58	-62.5
	Shore Fishing/Trail Use	0	23.49	34.13	23.49	0	33.94	7.98	30.7	26.42	-7.52	-22.2	5.65	-4.96	-46.7
	Camping	0	10.78	14.13	10.78	0	12.76	1.00	8.5	13.44	0.68	5.3	3.97	-3.86	-49.3
Oct	Scenic Floating	0	46.8	94.35	46.8	0	64.08	-7.41	-10.4	94.29	4.15	4.6	0	-27.96	-100
	Guide Boat Fishing	0	182.94	239.62	182.94	0	198.11	-19.81	-9.1	219.00	-5.97	-2.7	0	-67.01	-100
	Private Boat Fishing	0	37.44	69.91	37.44	0	45.93	-12.48	-21.4	56.24	-3.64	-6.1	0	-12.12	-100
	Shore Fishing/Trail Use	0	23.49	34.13	23.49	0	29.65	-4.10	-12.1	27.26	-1.22	-4.3	0	-10.61	-100
	Camping	0	10.78	14.13	10.78	0	12.19	-0.63	-4.9	13.64	-0.28	-2.0	0	-7.83	-100

Table 33: Action Alternative, Green River Reach 1 Average Monthly Total Values by Hydrologic Condition ($1,000s)										
		Action Alternative Total Values			Change from No Action					
					Average		Wet		Dry	
Month	Recreation Activity	Average	Wet	Dry	$	%	$	%	$	%
March	Scenic Floating	2.3	4.5	0	-.5	-18.5	.4	9.3	0	0
	Guide Boat Fishing	44.6	74.5	0	-16.7	-27.2	-3.8	-4.9	0	0
	Private Boat Fishing	39.4	89.0	0	-24.1	-37.9	-8.4	-8.6	0	0
	Shore Fishing/Trail Use	45.9	68.0	0	-23.8	-34.2	-5.9	-8.0	0	0
	Camping	0	0	0	0	0	0	0	0	0
	Total:	132.2	235.8	0	-65.1	-33.0	-17.7	-7.0	0	0
April	Scenic Floating	21.1	0	0	-3.9	-15.7	-13.6	-100	0	0
	Guide Boat Fishing	434.7	0	0	49.4	12.8	-101.7	-100	0	0
	Private Boat Fishing	245.9	0	0	48.9	24.8	-31.0	-100	0	0
	Shore Fishing/Trail Use	240.9	0	0	46.4	23.9	-23.5	-100	0	0
	Camping	0	0	0	0	0	0	0	0	0
	Total:	942.7	0	0	140.8	17.6	-169.9	-100	0	0
May	Scenic Floating	2.9	0	0	1.2	71.6	0	0	-2.7	-100
	Guide Boat Fishing	75.1	0	0	53.3	245.0	0	0	-318.1	-100
	Private Boat Fishing	20.5	0	0	16.3	380.6	0	0	-123.1	-100
	Shore Fishing/Trail Use	17.3	0	0	12.7	274.0	0	0	-150.6	-100
	Camping	0	0	0	0	0	0	0	0	0
	Total:	115.8	0	0	83.4	258.0	0	0	-594.5	-100
June	Scenic Floating	6.2	0	0	-485.2	-98.7	0	0	0	0
	Guide Boat Fishing	0	0	3.2	-410.6	-100	0	0	3.2	n/a
	Private Boat Fishing	0	0	0	-66.1	-100	0	0	0	0
	Shore Fishing/Trail Use	0	0	3.5	-111.4	-100	0	0	3.5	n/a
	Camping	0	0	.2	-8.3	-100	0	0	.2	n/a
	Total:	6.2	0	7.0	-1,081.7	-99.4	0	0	7.0	n/a
July	Scenic Floating	1,288.0	0	0	1,228.1	2,048.8	-591.2	-100	0	0
	Guide Boat Fishing	447.1	0	6.4	376.9	537.0	-233.2	-100	6.4	n/a
	Private Boat Fishing	95.5	0	.2	85.8	881.3	-38.4	-100	.2	n/a
	Shore Fishing/Trail Use	267.7	0	9.7	215.2	410.2	-162.8	-100	9.7	n/a
	Camping	9.7	0	.5	6.5	202.5	-7.4	-100	.5	n/a
	Total:	2,108.0	0	16.8	1,912.5	978.1	-1,033.0	-100	16.8	n/a
Aug	Scenic Floating	607.6	885.1	0	179.7	42.0	325.1	58.0	0	0
	Guide Boat Fishing	442.1	462.6	6.6	172.1	63.8	53.3	13.0	-7.9	-54.4
	Private Boat Fishing	92.1	94.9	.3	49.7	117.4	16.1	20.4	-.9	-73.1
	Shore Fishing/Trail Use	266.6	191.9	6.0	138.4	108.0	-37.7	-16.4	-4.3	-41.6
	Camping	8.1	9.0	.4	1.2	17.2	1.2	15.6	-.3	-45.5
	Total:	1,416.5	1,643.4	13.3	541.2	61.8	357.9	27.8	-13.4	-50.1
Sept	Scenic Floating	5.0	7.0	0	1.1	27.1	2.1	41.4	-.9	-100
	Guide Boat Fishing	377.2	373.9	15.2	75.0	24.8	-3.3	-.9	-56.7	-78.9
	Private Boat Fishing	311.2	288.9	5.5	119.1	62.0	-22.3	-7.2	-33.7	-85.9
	Shore Fishing/Trail Use	142.2	95.4	6.4	49.4	53.1	-46.8	-32.9	-16.3	-71.6
	Camping	4.7	5.1	.5	.5	11.5	.3	7.3	-1.5	-74.1
	Total:	840.3	770.4	27.6	245.0	41.2	-69.9	-8.3	-109.0	-79.8
Oct	Scenic Floating	.6	1.0	0	-.1	-10.4	0	4.6	-.3	-100
	Guide Boat Fishing	69.9	80.2	0	-9.6	-12.1	-3.1	-3.7	-21.4	-100
	Private Boat Fishing	47.0	59.1	0	-14.7	-23.8	-4.4	-6.9	-11.3	-100
	Shore Fishing/Trail Use	31.4	27.7	0	-6.7	-17.7	-1.8	-6.2	-8.5	-100
	Camping	.1	.1	0	0	-18.5	0	-2.0	0	-100
	Total:	149.1	168.1	0	-31.1	-17.3	-9.2	-5.2	-41.5	-100
Total	Scenic Floating	1,933.9	897.6	0	920.3	90.8	-277.2	-23.6	-3.8	-100
	Guide Boat Fishing	1,890.9	991.1	31.4	289.8	18.1	-291.9	-22.8	-394.4	-92.6
	Private Boat Fishing	851.6	531.9	6.1	214.9	33.8	-88.4	-14.2	-168.7	-96.5
	Shore Fishing/Trail Use	1,012.0	383.0	25.7	320.2	46.3	-278.4	-42.1	-166.4	-86.6
	Camping	22.5	14.2	1.6	-.2	-.9	-5.8	-29.2	-1.1	-41.6
	Total:	5,710.7	2,817.7	64.8	1745.0	44.0	-941.8	-25.1	-734.5	-91.9

For the Action Alternative dry condition, total river recreation valuation was estimated at only $65 thousand. This reflects a loss of nearly $735 thousand or 92 percent compared to No Action Alternative dry conditions. All activities are estimated to experience losses with the largest associated with guide boat fishing, private boat fishing, and shoreline fishing/trail use. The majority of the losses occur during May and September with over 80 percent of the loss occurring in May.

B) Flaming Gorge Valuation:

Table 34 presents the results of the Flaming Gorge Reservoir value per visit interpolations for the Action Alternative under average, wet, and dry conditions. The five value data points used in the interpolation are presented should one be interested in comparing the values per visit to the water levels and data points from table 26. The table also includes a comparison of Action Alternative values by hydrologic condition to those of the No Action Alternative in terms of both dollars and percent.

For the Action Alternative average condition, water levels were closer to preferred conditions during 8 of the 12 months. The months with the largest gains appear to be February through May where the largest differentials in water levels between the alternatives also occur. Given these months are associated with relatively low visitation, the gain in value is not particularly large.

For the Action Alternative wet condition, 10 of the 12 months indicated gains in values per visit compared to No Action Alternative wet conditions. The other 2 months (March and April) showed no change. The largest increases in value per visit appear to occur in July through November where the largest differentials in water levels between the two alternatives also occur.

For the Action Alternative dry condition, all months resulted in sizable gains in values per visit compared to the No Action Alternative. The increase in water level associated with the Action Alternative dry condition over that of the No Action Alternative ranged from a low of 2.9 feet to a high of 6 feet (averaging 5.3 feet).

Table 35 presents the results of applying the values per visit from table 34 to the visitation estimates from table 30. Values are measured in thousands of dollars for the Action Alternative under average, wet, and dry conditions. Changes from the No Action Alternative for the same hydrologic condition are presented in dollar and percentage terms.

For the Action Alternative average condition, total reservoir recreation value is estimated at over $22 million. This reflects about a $650 thousand or 3.0 percent increase over No Action Alternative average conditions. All activities show gains in value with nearly 97 percent of the gain stemming from power boating/waterskiing and boat fishing. Gains in value were estimated for 7 of the 12 months with the largest gains seen in April through June. All of the gain in value is attributable to the gain in values per visit obtained from the interpolation analysis since visitation was estimated via the facility availability approach to be the same under both Action and No Action Alternative average conditions at the reservoir. Recall that the facility availability approach is less sensitive to changes in water levels compared to the interpolation approach. Gains in value per trip were estimated via the interpolation approach and applied to current visitation (given the facility availability approach estimated no change in visitation) to obtain the overall gain in valuation. It is interesting to note that the months with the largest estimated gains in values per visit were not the months with the largest total value gains. This was because several of the months with large gains in values per visit were low visitation months.

For the Action Alternative wet condition, total reservoir recreation value is estimated at $22.2 million. This reflects over a $5.9 million or 36.6 percent increase in value compared to No Action Alternative wet

Table 34: Action Alternative, Flaming Gorge Reservoir Monthly Value per Visit by Hydrologic Condition

Month	Recreation Activity	Interpolation Data Points					Action Alternative Values								
		Low End Threshold Values	Current Values	Preferred Values	High End Kink Values	High End Threshold Values	Average Values	Change from No Action Average		Wet Values	Change from No Action Wet		Dry Values	Change from No Action Dry	
								$	%		$	%		$	%
Jan	Power Boating/Skiing	0	25.71	46.22	25.71	0	37.83	3.94	11.6	44.65	.79	1.8	31.53	27.51	684.3
	Boat Fishing	0	25.21	37.92	25.21	0	32.62	2.40	7.9	36.80	.49	1.3	28.77	28.12	4,326.2
	Boat Camping	0	13.06	22.23	13.06	0	18.56	1.77	10.5	21.64	.36	1.7	15.72	14.75	1,520.6
	Swimming/Waterplay	0	1.44	10.41	1.44	0	6.81	1.75	34.6	9.83	.35	3.7	4.02	4.02	N/A
Feb	Power Boating/Skiing	0	25.71	46.22	25.71	0	37.56	4.46	13.5	43.60	3.15	7.8	32.32	26.01	412.2
	Boat Fishing	0	25.21	37.92	25.21	0	32.46	2.73	9.2	36.15	1.92	5.6	29.25	26.00	800.0
	Boat Camping	0	13.06	22.23	13.06	0	18.45	2.02	12.3	21.17	1.42	7.2	16.08	13.82	611.5
	Swimming/Waterplay	0	1.44	10.41	1.44	0	6.69	1.97	41.7	9.36	1.39	17.4	4.37	4.22	2,813.3
March	Power Boating/Skiing	0	25.71	46.22	25.71	0	37.83	4.73	14.3	43.33	0	0	31.79	18.6	141.0
	Boat Fishing	0	25.21	37.92	25.21	0	32.62	2.89	9.7	35.99	0	0	28.93	17.89	162.0
	Boat Camping	0	13.06	22.23	13.06	0	18.56	2.13	13.0	21.05	0	0	15.84	9.71	158.4
	Swimming/Waterplay	0	1.44	10.41	1.44	0	6.81	2.09	44.3	9.25	0	0	4.13	3.52	577.0
April	Power Boating/Skiing	0	25.71	46.22	25.71	0	38.35	4.98	14.9	44.91	0	0	30.48	10.98	56.3
	Boat Fishing	0	25.21	37.92	25.21	0	32.94	3.05	10.2	36.96	0	0	28.13	9.95	54.7
	Boat Camping	0	13.06	22.23	13.06	0	18.80	2.25	13.6	21.76	0	0	15.25	5.57	57.5
	Swimming/Waterplay	0	1.44	10.41	1.44	0	7.04	2.21	45.8	9.95	0	0	3.55	2.52	244.7
May	Power Boating/Skiing	0	25.71	46.22	25.71	0	37.83	5.25	16.1	45.56	0.66	1.5	29.96	24.8	480.6
	Boat Fishing	0	25.21	37.92	25.21	0	32.62	3.21	10.9	37.69	0.45	1.2	27.81	25.86	1,326.2
	Boat Camping	0	13.06	22.23	13.06	0	18.56	2.36	14.6	21.69	0.36	1.7	15.02	13.41	832.9
	Swimming/Waterplay	0	1.44	10.41	1.44	0	6.81	2.33	52.0	9.89	0.34	3.6	3.32	3.24	4,050.0
June	Power Boating/Skiing	0	25.71	46.22	25.71	0	43.07	3.15	7.9	41.92	4.63	12.4	34.41	24.08	233.1
	Boat Fishing	0	25.21	37.92	25.21	0	35.83	1.92	5.7	35.20	3.18	9.9	30.54	22.75	292.0
	Boat Camping	0	13.06	22.23	13.06	0	20.93	1.42	7.3	19.71	2.51	14.6	17.03	12.51	276.8
	Swimming/Waterplay	0	1.44	10.41	1.44	0	9.13	1.39	18.0	7.99	2.41	43.2	5.30	4.88	1,161.9
July	Power Boating/Skiing	0	25.71	46.22	25.71	0	45.56	-0.33	-0.7	40.60	17.03	72.3	34.94	20.02	134.2
	Boat Fishing	0	25.21	37.92	25.21	0	37.69	-0.23	-0.6	34.29	16.28	90.4	30.86	17.87	137.6
	Boat Camping	0	13.06	22.23	13.06	0	21.69	-0.18	-0.8	18.99	13.19	227.4	17.26	10.16	143.1
	Swimming/Waterplay	0	1.44	10.41	1.44	0	9.89	-0.17	-1.7	7.31	6.65	1,000.6	5.53	4.81	668.1
Aug	Power Boating/Skiing	0	25.71	46.22	25.71	0	44.65	-1.31	-2.9	41.26	21.26	106.3	32.58	22.25	215.4
	Boat Fishing	0	25.21	37.92	25.21	0	36.80	-0.80	-2.1	34.74	21.23	157.1	29.41	21.62	277.5
	Boat Camping	0	13.06	22.23	13.06	0	21.64	-0.59	-2.7	19.35	15.96	470.8	16.20	11.68	258.4
	Swimming/Waterplay	0	1.44	10.41	1.44	0	9.83	-0.58	-5.6	7.65	7.26	1,861.5	4.48	4.06	966.7
Sept	Power Boating/Skiing	0	25.71	46.22	25.71	0	42.02	-2.36	-5.3	42.91	19.34	82.1	31.00	24.12	350.6
	Boat Fishing	0	25.21	37.92	25.21	0	35.19	-1.45	-4.0	35.88	17.87	99.2	28.45	24.55	629.5
	Boat Camping	0	13.06	22.23	13.06	0	20.46	-1.06	-4.9	20.25	14.45	249.1	15.49	12.91	500.4
	Swimming/Waterplay	0	1.44	10.41	1.44	0	8.67	-1.04	-10.7	8.51	7.85	1,189.4	3.79	3.60	1,894.7
Oct	Power Boating/Skiing	0	25.71	46.22	25.71	0	40.45	-1.83	-4.3	43.57	16.87	63.2	30.74	27.3	793.6
	Boat Fishing	0	25.21	37.92	25.21	0	34.23	-1.12	-3.2	36.33	12.92	55.2	28.29	28.29	N/A
	Boat Camping	0	13.06	22.23	13.06	0	19.75	-0.82	-4.0	20.61	11.90	136.6	15.37	14.72	2,264.6
	Swimming/Waterplay	0	1.44	10.41	1.44	0	7.97	-0.81	-9.2	8.86	7.86	786.0	3.67	3.67	N/A
Nov	Power Boating/Skiing	0	25.71	46.22	25.71	0	39.66	0.52	1.3	44.57	11.25	33.8	31.27	26.68	581.3
	Boat Fishing	0	25.21	37.92	25.21	0	33.75	0.32	1.0	37.01	7.71	26.3	28.61	27.31	2,100.8
	Boat Camping	0	13.06	22.23	13.06	0	19.39	0.24	1.3	21.15	6.11	40.6	15.61	14.32	1110.1
	Swimming/Waterplay	0	1.44	10.41	1.44	0	7.62	0.23	3.1	9.37	5.86	167.0	3.90	3.86	9,650.0
Dec	Power Boating/Skiing	0	25.71	46.22	25.71	0	38.61	2.62	7.3	45.89	3.97	9.5	31.27	27.83	809.0
	Boat Fishing	0	25.21	37.92	25.21	0	33.10	1.60	5.1	37.92	2.72	7.7	28.61	28.61	N/A
	Boat Camping	0	13.06	22.23	13.06	0	18.92	1.18	6.7	21.87	2.16	11.0	15.61	14.96	2,301.5
	Swimming/Waterplay	0	1.44	10.41	1.44	0	7.16	1.17	19.5	10.06	2.07	25.9	3.90	3.9	N/A

Table 35: Action Alternative, Flaming Gorge Reservoir Monthly Total Values by Hydrologic Condition ($1,000s)

Month	Recreation Activity	Average Values	Change from No Action Average Condition		Wet Values	Change from No Action Wet Condition		Dry Values	Change from No Action Dry Condition	
			$	%		$	%		$	%
Jan	Power Boating/Skiing	22.1	2.3		26.0	.5		18.4	16.4	
	Boat Fishing	9.6	.7		10.8	.1		8.4	8.3	
	Boat Camping	1.4	.1		1.6	0		1.2	1.1	
	Swimming/Waterplay	.2	.1		.3	0		.1	.1	
	Total:	33.2	3.2	10.6	38.8	.6	1.7	28.1	25.9	1,164.4
Feb	Power Boating/Skiing	0	0		0	0		0	0	
	Boat Fishing	0	0		0	0		0	0	
	Boat Camping	0	0		0	0		0	0	
	Swimming/Waterplay	0	0		0	0		0	0	
	Total:	0	0	0	0	0	0	0	0	0
March	Power Boating/Skiing	101.9	12.7		116.7	0		85.6	50.1	
	Boat Fishing	44.3	3.9		48.9	0		39.3	24.3	
	Boat Camping	12.6	1.4		14.3	0		10.7	6.6	
	Swimming/Waterplay	1.1	.3		1.5	0		.7	.6	
	Total:	159.9	18.4	13.0	181.3	0	0	136.3	81.5	148.9
April	Power Boating/Skiing	825.8	107.3		967.0	0		656.3	236.4	
	Boat Fishing	358.1	33.2		401.8	0		305.8	108.2	
	Boat Camping	33.1	4.0		38.3	0		26.9	9.8	
	Swimming/Waterplay	9.0	2.8		12.7	0		4.5	3.2	
	Total:	1,225.9	147.2	13.6	1,419.8	0	0	993.5	357.6	56.2
May	Power Boating/Skiing	2,186.3	303.4		2,633.0	38.1		1,731.5	1,478.3	
	Boat Fishing	951.5	93.6		1,099.4	13.1		811.2	762.9	
	Boat Camping	25.8	3.3		30.1	.5		20.8	18.6	
	Swimming/Waterplay	23.3	8.0		33.9	1.1		11.4	11.1	
	Total:	3,186.9	408.3	17.9	3,796.4	52.9	1.4	2,574.9	2,270.9	747.0
June	Power Boating/Skiing	3,357.0	245.5		3,267.4	360.9		2,682.0	1,877.5	
	Boat Fishing	1,409.7	75.5		1,384.9	125.1		1,201.5	895.4	
	Boat Camping	39.0	2.6		36.7	4.7		31.7	23.3	
	Swimming/Waterplay	42.2	6.4		36.9	11.1		24.5	22.5	
	Total:	4,847.8	330.1	7.3	4,725.9	501.8	11.9	3,939.8	2,818.7	251.4
July	Power Boating/Skiing	3,866.7	-28.0		3,445.8	1,445.4		2,965.4	1,699.1	
	Boat Fishing	1,614.6	-9.9		1,468.9	697.4		1,322.0	765.5	
	Boat Camping	30.1	-0.3		26.3	18.3		23.9	14.1	
	Swimming/Waterplay	49.7	-0.9		36.8	33.4		27.8	24.2	
	Total:	5,561.1	-39.0	-0.7	4,977.8	2,194.5	78.8	4,339.1	2,502.9	136.3
Aug	Power Boating/Skiing	2,200.0	-64.5		2,033.0	1,047.5		1,605.3	1,096.7	
	Boat Fishing	915.2	-19.9		864.0	528.0		731.4	537.9	
	Boat Camping	25.4	-.7		22.7	18.7		19.0	13.7	
	Swimming/Waterplay	28.7	-1.7		22.3	21.2		13.1	11.9	
	Total:	3,169.4	-86.8	-2.7	2,942.0	1,615.5	121.8	2,368.8	1,660.2	234.3
Sept	Power Boating/Skiing	1,187.1	-66.7		1,212.2	546.4		875.8	710.7	
	Boat Fishing	501.8	-20.7		511.6	254.8		405.7	358.4	
	Boat Camping	11.0	-.6		10.9	7.7		8.3	6.9	
	Swimming/Waterplay	14.5	-1.7		14.3	13.1		6.3	6.0	
	Total:	1,714.4	-89.7	-5.0	1,749.0	822.1	88.7	1,296.1	1,082.1	505.8
Oct	Power Boating/Skiing	1,028.5	-46.5		1,107.8	428.9		781.6	707.3	
	Boat Fishing	439.3	-14.4		466.3	165.8		363.1	363.1	
	Boat Camping	13.3	-.6		13.9	8.0		10.4	9.9	
	Swimming/Waterplay	12.0	-1.2		13.4	11.9		5.5	5.5	
	Total:	1,493.1	-62.7	-4.0	1,601.3	614.6	62.3	1,160.6	1,085.9	1,453.8
Nov	Power Boating/Skiing	263.3	3.5		295.9	74.7		207.6	181.7	
	Boat Fishing	113.1	1.1		124.1	25.8		95.9	92.2	
	Boat Camping	9.4	.1		10.2	3.0		7.5	6.9	
	Swimming/Waterplay	3.0	.1		3.7	2.3		1.5	1.5	
	Total:	388.8	4.7	1.2	433.8	105.8	32.3	312.5	282.3	934.7
Dec	Power Boating/Skiing	165.1	11.2		196.2	17.0		133.7	121.2	
	Boat Fishing	71.5	3.5		81.9	5.9		61.8	61.8	
	Boat Camping	6.8	.4		7.8	.8		5.6	5.3	
	Swimming/Waterplay	1.8	.3		2.6	.5		1.0	1.0	
	Total:	245.2	15.4	6.7	288.5	24.2	9.1	202.1	189.4	1,488.3
Total	Power Boating/Skiing	15,203.7	480.1	3.3	15,301.0	3,959.3	34.9	11,743.1	8,175.5	229.2
	Boat Fishing	6,428.6	146.7	2.3	6,462.5	1,816.1	39.1	5,346.1	3,977.9	290.7
	Boat Camping	207.7	9.9	5.0	212.8	61.7	40.8	166.0	116.3	233.8
	Swimming/Waterplay	185.6	12.5	7.2	178.2	94.8	113.6	96.5	87.7	998.2
	Total:	22,025.5	649.2	3.0	22,154.5	5,931.9	36.6	17,351.8	12,357.4	247.4

conditions. All activities are estimated to result in gains compared to No Action with the largest gain due to power boating/waterskiing and boat fishing. Nearly 97 percent of the gain occurs in the months of June through October. As with the average condition, all gains in total value under wet conditions stem from gains in value per visit since visitation was estimated to be the same under both the Action and No Action Alternatives.

For the Action Alternative dry condition, total reservoir recreation valuation was estimated at nearly $17.4 million. This reflects a substantial gain of nearly $12.4 million or 247 percent compared to No Action Alternative dry conditions. All activities are estimated to experience gains with the largest associated with power boating/waterskiing and boat fishing. Gains are expected in virtually all months with the largest accruing from May through October. The Action Alternative dry condition gains are driven by gains in both visitation and value per visit compared to No Action.

C) Total Valuation:

Table 36 presents the sum of the Green River and Flaming Gorge Reservoir recreation values for the Action Alternative under average, wet, and dry conditions. The table displays the Green River values, the Flaming Gorge Reservoir values, and the combined total across both sites. In addition to the total values

Table 36: Total Water Based Activity Valuation for Green River and Flaming Gorge Reservoir for Action Alternative

		Action Alternative Valuation by Hydrologic Condition								
		Average			Wet			Dry		
Site	Recreation Activity	Total Value	Change from No Action Average Condition		Total Values	Change from No Action Wet Condition		Total Value	Change from No Action Dry Condition	
			Value	%		Value	%		Value	%
Green River	Scenic Floating	1,933.9	920.3	90.8	897.6	-277.2	-23.6	0	-3.8	-100
	Guide Boat Fishing	1,890.9	289.8	18.1	991.1	-291.9	-22.8	31.4	-394.4	-92.6
	Private Boat Fishing	851.6	214.9	33.8	531.9	-88.4	-14.2	6.1	-168.7	-96.5
	Shoreline Fishing/ Trail Use	1,012.0	320.2	46.3	383.0	-278.4	-42.1	25.7	-166.4	-86.6
	Boat Based Camping	22.5	-.2	-.9	14.2	-5.8	-29.2	1.6	-1.1	-41.6
	Total:	5,710.7	1,745.0	44.0	2,817.7	-941.8	-25.1	64.8	-734.5	-91.9
Flaming Gorge Reservoir	Power Boating/ Waterskiing	15,203.7	480.1	3.3	15,301.0	3,959.3	34.9	11,743.1	8,175.5	229.2
	Boat Fishing	6,428.6	146.7	2.3	6462.5	1816.1	39.1	5,346.1	3,977.9	290.7
	Boat Based Camping	207.7	9.9	5.0	212.8	61.7	40.8	166.0	116.3	233.8
	Swimming/ Waterplay	185.6	12.5	7.2	178.2	94.8	113.6	96.5	87.7	998.2
	Total:	22,025.5	649.2	3.0	22,154.5	5,931.9	36.6	17,351.8	12,357.4	247.4
Both Sites	Combined Total:	27,736.2	2,394.2	9.5	24,972.2	4,990.1	25.0	17,416.6	11,622.9	200.6

by hydrologic condition, the table also presents the change from the No Action Alternative both in terms of values and percentage. Reservoir valuation accounts for anywhere from 79.4 to 99.6 percent of the total depending on the hydrologic condition.

For the Action Alternative average condition, the combined valuation was estimated at $27.7 million. This reflects nearly a $2.4 million or 10 percent increase from the No Action Alternative average condition. Gains in value occur on both the river and reservoir with the largest gains accruing to scenic floating on the river and power boating/waterskiing on the reservoir. Given the insignificant increase in visitation for the Action Alternative average condition, virtually all of the increase in value stems from increases in value per visit. The majority of the gains on the river occur from July through September and on the reservoir from April through June.

Note that total values for the Action Alternative average condition increased compared to the No Action Alternative for both guide boat and private boat fishing on the river despite the losses in visitation displayed in table 31. This result stemmed from the fact that the annual loss in visitation included certain months with gains (mainly July, August, and September) as well as the months with losses (mainly June). As it turns out, the losses in visitation were associated with months of relatively low value per visit and the gains with months of high value per visit. Recall that values per visit increase the closer flows come to the preferred flow level for each activity. When combined, the influence of the higher values per visit outweighed the influence of the lost visitation.

For the Action Alternative wet condition, combined valuation was estimated at nearly $25 million. This reflects an increase of almost $5 million or 25 percent compared to the No Action Alternative wet condition. The $5.9 million of increased value for the reservoir outweighs the $940 thousand of lost value on the river. Power boating/waterskiing and boat fishing on the reservoir account for the majority of the increase in value. The largest gains on the reservoir occur in the months of June through October, and the largest losses on the river occur in July. Keep in mind that wet conditions are expected only about 10 percent of the time.

For the Action Alternative dry condition, combined valuation is estimated at $17.4 million. This reflects an increase of over $11.6 million or 200 percent compared to the No Action Alternative dry condition. The nearly $12.4 million of increased value for the reservoir outweighs the $735 thousand of lost value on the river. Power boating/waterskiing and boat fishing on the reservoir account for the majority of the increase in value. The largest gains in value occur on the reservoir in the months of May through October. Losses on the river are seen across all activities with the majority occurring in the month of May. Keep in mind that dry conditions are expected only about 10 percent of the time.

4.0 REFERENCES

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