Chapter 9
Recreation

9.1 Introduction

This chapter provides a description of recreation and recreational use in the affected environment and evaluates potential recreation impacts associated with project construction and operation.

The purpose of this chapter is to provide

- an overview of regional recreation resources,
- a description of recreational uses that occur in the project operation area, and
- an analysis of the environmental impacts of project alternative implementation on stream-based recreation opportunities.

9.2 Affected Environment

For the purpose of this chapter, the affected environment consists of the construction and operation areas.

9.2.1 Sources of Information

Information presented in this chapter is based primarily on

- ongoing hydrologic studies and analyses of the Truckee river watershed;
- discussions with kayakers and rafters, as well as comments from individuals involved in sport fishing and other recreational activities along this reach of the Truckee River;
- *Instream Flows and Recreation on the Truckee River and Selected Tributaries* (Aukerman et al. 1999); and
- information presented in chapter 3, "Hydrology," and chapter 6, "Aquatic Resources."

9.2.2 Regional Setting

The Tahoe basin is a unique and highly valuable recreation resource for the people of Nevada and California. The gaming industry in Nevada, combined with the natural setting and wide variety of recreation opportunities, make the basin a prime destination for tourists. Visitors are drawn mostly from the San Francisco Bay Area, Sacramento, and Reno (California Department of Water Resources 1991). The river and surrounding areas provide summer and winter recreation opportunities that include scenic and historic sites, ski areas, campgrounds, national forests, trails, and various other recreation resources. This diversity of opportunities in the area allows visitors to readily substitute one recreational use for another without leaving the basin.

A detailed 2-month recreation survey conducted in the summer of 1999 estimated that approximately 73,000 people use the Truckee River, between Tahoe City and Pyramid Lake, annually for water-based recreation, and that approximately 1,200 people use the project area annually (Aukerman et al. 1999).

9.2.2.1 Recreational Boating

The Truckee River from Lake Tahoe to the state line is the largest and most accessible river in the Tahoe basin for recreational rafting, commercial whitewater rafting and whitewater kayaking. Recreational rafting occurs downstream of Tahoe City. Whitewater rafting and kayaking occurs downstream of Truckee. Whitewater rafting outfitters operate guided tours from May to September as streamflow conditions allow. In general, whitewater rafters prefer the months of June, July, and August (Aukerman et al. 1999). Use of the river by whitewater kayakers usually coincides with the peak runoff season (mid-March to mid-June). However, the river is suitable for kayaking at a wide range of flow levels, and boating is common throughout the season depending on streamflow conditions. Peak-use times for boating activities are weekends and summer holidays, including Memorial Day and the fourth of July. Navigation on some segments of the river is limited by existing diversion structures and at higher flows by low bridges. Kayaking organizations have conducted races, rodeos, and other activities during high-flow periods in the more challenging reaches of the river because of the difficulty and the type of rapids and the proximity of the Truckee River to metropolitan areas. Descriptions of each class of rapid and corresponding levels of difficulty are listed in table 9-1.

There are three river segments currently used for both kayaking and rafting in the vicinity of the project operation area: Boca to Floriston, Floriston to Farad, and Farad to Verdi (figure 9-1). The following discussion describes the important features associated with these river segments.

Table 9-1. International Scale of River Difficulty

Class	Definition
Class 1: Easy	Fast moving water with riffles and small waves. Few obstructions, all obvious and easily missed with little training. Risk to swimmers is slight; self-rescue is easy.
Class II: Novice	Straightforward rapids with wide, clear, channels that are evident without scouting. Occasional maneuvering may be required, but rocks and medium-sized waves easily missed by trained paddlers. Swimmers are seldom injured and group assistance, although helpful, is seldom needed. Rapids that are at the upper end of this difficulty classification are designated *Class II+*.
Class III: Intermediate	Rapids with moderate, irregular waves that may be difficult to avoid and that can swamp an open canoe. Complex maneuvers in fast currents and good boat control in tight passages or around ledges are often required; large waves or strainers may be present but are easily avoided. Strong eddies and powerful current effects can be found, particularly on large-volume rivers. Scouting is advisable for inexperienced parties. Injuries while swimming are rare; self-rescue is usually easy but group assistance may be required to avoid long swims. Rapids at the lower or upper end of this difficulty range are designated *Class III-* or *Class III+*, respectively.
Class IV: Advanced	Intense, powerful, but predictable rapids requiring precise boat handling in turbulent water. Depending on the character of the river, this class may feature large, unavoidable waves and holes or constricted passages demanding fast maneuvers under pressure. A fast, reliable eddy turn may be needed to initiate maneuvers, scout rapids, or rest. Scouting may be necessary the first time down. Risk of injury to swimmers is moderate to high, and water conditions may make self-rescue difficult. Group assistance for rescue is often essential but requires practiced skills. A strong Eskimo roll is highly recommended. Rapids at the lower or upper end of this difficulty range are designated *Class IV-* or *,* respectively.
Class V: Expert	Extremely long, obstructed, or very violent rapids that expose paddlers to added risk. Drops may contain large, unavoidable waves or holes, or steep, congested chutes with complex, demanding routes. Rapids may continue for long distances between pools, demanding a high level of fitness. Eddies may be small, turbulent, or difficult to reach. At the high end of the scale, several of these characteristics may be combined. Scouting is recommended but may be difficult. Swims are dangerous, and rescue is often difficult, even for experts. A very reliable Eskimo roll, proper equipment, extensive experience, and practiced rescue skills are essential.
Class VI. Extreme and Exploratory	These runs have almost never been attempted and often exemplify the extremes of difficulty, unpredictability, or danger. The consequences of errors are very severe and rescue may be impossible. For teams of experts only, at favorable water levels, after close personal inspection and taking all precautions.

Source: American Whitewater Association 1998.

9.2.2.1.1 Boca to Floriston

The upstream river segment from Boca to Floriston is a primary use area for guided whitewater rafting outfitters and whitewater kayakers. The steep-walled canyons in this reach provide deep river channel with good suitability for whitewater activities and tend to allow a longer rafting season at lower flow regimes than other downstream segments. In this segment, a series of rapids located near the Floriston area is also a popular use area for whitewater kayaking. The majority of this use occurs on weekends and holidays.

Four rafting outfitters operate on this segment of the river under permits obtained from Nevada County, Caltrans, and USFS. Outfitters must put boats in the river at Boca on National Forest land and take them out approximately 8 miles downstream at the I-80 Floriston overpass. Kayakers access the river at various locations, including I-80 overpasses at Boca, Hirschdale, and Floriston; the Union Pacific Railroad Gray Creek Bridge; and by foot in areas along the Union Pacific Railroad tracts downstream from Boca.

Rapids in this area range from Class II to Class IV depending on seasonal flow regimes. Kayakers familiar with this reach indicate a minimum flow of 400 cfs. Flows ranging from 500 to more than 2,000 cfs are considered optimal for kayaking in this reach. Ideal upper flow limits are based on skill level and a kayaker's individual evaluation of acceptable risk.

Commercial rafting outfitters indicate a preferred minimum flow of 600 cfs. Flows ranging from 800 to 1,000 cfs are considered optimal rafting flows. For safety purposes, most commercial rafting outfitters consider 1,500 cfs for this reach to be an upper limit.

Boaters use this segment of the river more than other downstream segments. It is estimated from Nevada County records and commercial logs that commercial rafting outfitters made approximately 1,100 half-day trips and carried about 3,400 customers in 1999 and 5,000 customers in 2000 (Wagner and Miltner pers. comms.).

9.2.2.1.2 Floriston to Farad

The natural river channel from Floriston to Farad begins to diverge from a deep-cutting canyon into a slightly wider floodplain. A remnant of the foundation for the old Farad diversion structure creates a standing wave in the river channel. During high-flow conditions (above 1,000 cfs), water moving over this remnant causes a hydraulic surf effect that is a desirable play destination for whitewater kayakers. Access to this segment of the river is gained upstream at the Hirschdale Bridge or near the I-80 Floriston overpass; the river is exited by kayakers downstream near the Farad powerhouse. Commercial rafting outfitters are currently allowed, under an easement from Caltrans, to take boats out of the river at the Floriston I-80 overpass. However, given adequate flow conditions,

some outfitters are able to extend trip length by continuing downstream to Verdi. Nevada County permit restrictions currently do not allow commercial rafting outfitters to remove or add boats at the Farad powerhouse or at any other locations along this reach of the river.

Rapids remain in the Class II range throughout the length of this segment. Preferred flow ranges for kayaking and rafting are the same as those described above for the Boca to Floriston segment; historically, however, there have been fewer boat trips down this segment of the river, particularly in the summer, because of nearly 100 years of diversions.

The segment from Floriston to Farad is used primarily by whitewater kayakers. The surf spot created by the old dam remnant (a rapid called "park and ride" or, in this document, "play wave") has attracted paddling organizations, which use the area for slalom races, whitewater rodeos, river rescue classes, and other gatherings. Because of safety concerns, Caltrans will close access to the play wave off the shoulder of westbound I-80 after it completes its bridge improvement project.

Under current permit requirements, commercial rafting outfitters who choose to proceed past the take-out location at Floriston must proceed to downstream to areas outside of Nevada County before they can take boats out of the river. Therefore, use of this segment by commercial whitewater rafters is limited by flow requirements for downstream segments of the river. Most commercial rafting outfitters indicated that they will raft between Floriston and Farad if flows are above 600 cfs but that rafting in the downstream segment of the river from Farad to Verdi requires flows in excess of 800 cfs.

9.2.2.1.3 Farad to Verdi (Crystal Peak Park)

Downstream of Farad, the river channel begins to widen, and slightly higher flows are required to support whitewater activities. Kayakers can gain access to this segment of the river from I-80 (near the Farad powerhouse) and exit downstream at Crystal Peak Park or other areas near Verdi, Nevada.

Access to the river near the Farad powerhouse is currently not adequate to support current demand as a put-in/ take-out area for kayaking. The site is not a permitted location for use by commercial rafting outfitters; however, members of the paddling community have initiated discussion with SPPC regarding improved access at this location. The run from Farad to Verdi requires portages at the Fleish, Steamboat Canal, and Verdi diversion dams. At these locations, portage trails are provided for boaters to exit the river and carry equipment overland around the diversion structures.

Preferred flows for kayaking activities are the same as those identified for upstream segments; however, commercial rafting outfitters indicate a higher

preferred minimum flow of 800–1,000 cfs for this river segment. During certain flow regimes, rapids in this segment are of the challenging Class IV level.

Use of this area increases as flows rise above 800–1,000 cfs. Currently, commercial rafting outfitters use this segment less than the Boca to Floriston segment because existing diversion structures limit navigation and because minimum flow requirements are higher and therefore not met as frequently.

9.2.2.2 Sport Fishing

The Truckee River is a popular destination for sportfishing enthusiasts. Segments of the river below Lake Tahoe have been stocked by DFG with hatchery trout. However, since the last stocking in May 2000, USFWS has requested that DFG discontinue this practice (Redfern pers. comm.). Resident fish species include rainbow trout, brown trout, mountain whitefish, and smallmouth bass. Use data on the amount of sport fishing that occurs in the project operation area are not available.

Access to the river for fly-fishing activities is primarily limited to Boca, Floriston, and Farad. Locations suitable for fly-fishing from Boca to the state line are scattered throughout the area; gaining access to these locations may require anglers to walk or wade in the river for moderate to long distances. Optimal flows for sport fishing in this area are reported to be between 250 and 400 cfs (California School of Fly Fishing 2001), although minimum flows for sport fishing are close to flows that maintain fish in good health (i.e., 150 cfs). Flows of 500–600 cfs are perceived by some as being optimal (Aukerman et al. 1999). Flows in excess of 1,000 cfs are not considered wadeable and make the river less suitable for fly-fishing. Deep pools and steep banks that prevent wading or instream maneuverability can restrict fly-fishing on this part of the Truckee River (Yesavage pers. comm.). Impacts on fish and their associated habitats are evaluated in detail in chapter 6, “Aquatic Resources.”

9.2.2.3 Other Recreational Uses

Other recreational uses occurring in the project operation area and vicinity include sightseeing, picnicking, rock climbing (near the Nevada state line), and wildlife viewing. The geologic and natural setting of this area make it a popular region for nature study. Some visitors enjoy the cultural and historic views provided by the historic flumes that follow parts of the riverbank. However, the project operation area does not contain any officially authorized recreational use areas other than those identified under “Recreational Boating” and “Sport Fishing,” above. Consequently, other recreational users are not addressed further in this analysis.

9.2.3 Regulatory Setting

9.2.3.1 Floriston Rates

Flows in the Truckee River are regulated to comply with the Floriston Rates, see "Appendix B" for details.

9.2.3.3 Rafting Permits

Nevada County regulates commercial rafting on the Truckee River from the Boca Bridge to the Sierra County line. Nevada County code dictates that a maximum of 4 permits can be in use at any given time, with each permit lasting for 2 years (Nevada County 2000). The terms and conditions of the county permit require outfitters to independently provide and maintain secure points of ingress and egress from the river before permits are approved. Therefore, before county permit approval, an outfitter must also obtain a use permit from USFS in order to put boats into the river at Boca, as well as an easement from Caltrans to use the take-out area at the I-80 bridge near Floriston. Each rafting permit application is subject to review pursuant to CEQA and must include a complete program plan description discussing the maximum number of rafts and rafters to be accommodated; access to and from the river; the qualifications of guides; and provisions for safety, sanitation, vehicle parking, and river cleanup.

Permit conditions restrict rafting activity to 10:00 a.m.–5:00 p.m. and restrict each outfitter to the use of a maximum of 10 rafts per day. Raft days can be transferred to other permitees as long as use of the river does not exceed a total of 40 rafts per day. Noncommercial boating uses are not subject to permit requirements.

9.2.3.4 Water Quality Control Plan for the Lahontan Region

The Water Quality Control Plan for the Lahontan Region (1995) lists the beneficial uses of waters that must be protected. Recreational uses of water that involve both contact with water (e.g., rafting) and noncontact are identified as beneficial in the Lahontan Region Water Quality Control Plan. The SWRCB will consider how the proposed project will affect these uses during the Section 401 water quality certification process.

9.2.3.5 Fishing Regulations

From the confluence of Trout Creek to the confluence of Gray Creek, special fishing restrictions apply to the Truckee River in designated areas. In these

areas, fishing is allowed from the last Saturday in April through November 15. In addition, catches are limited to 2 fish per day and only artificial flies with barbless hooks may be used. The river from Gray Creek downstream to the Nevada state line is regulated by the district general regulations (California Department of Fish and Game 2000b).

9.3 Impact Assessment Methodology

This analysis describes the impacts on stream-based recreation that would result from construction and implementation of project alternatives; specifically, this analysis is concerned with impacts that would be caused by changes to river flow conditions and by disruption of recreational activities. The potentially affected recreational opportunities that are the focus of this analysis are

- recreational boating (e.g., kayaking and rafting) passage through the construction area;
- recreational boating in the operation area from Floriston to the Farad powerhouse; and
- recreational fishing in the project operation area.

Project-level impacts were evaluated by comparing Alternatives A, B, and C to existing conditions.

9.3.1 Analytical Approach

9.3.1.1 Recreational Boating

Project implementation could change the frequency with which river flows achieve the minimum flows necessary to conduct boating activities. The boating opportunity thresholds used in this analysis are shown in table 9-2. These thresholds are based on information compiled from discussions with individuals experienced with kayaking and rafting on the Truckee River. Participating individuals were asked via questionnaire or through direct communication to provide a range of high, low, and optimal flows for each activity. In addition, the 1998 TROA draft EIS/EIR and the 1999 study *Instream Flows and Recreation on the Truckee River and Selected Tributaries* (Aukerman et al. 1999) were used as sources of comparison for recreation flows.

The analysis of recreational boating uses mean daily flow data collected from the Farad USGS gaging station. This gage is located approximately 2.4 miles downstream of the proposed Farad diversion and has a tributary area of 932 square miles. A modification to the Truckee River basin hydrology was made before the 1968 water year; operations of the dam at Lake Tahoe and construction of other upstream reservoirs altered flow patterns for the Truckee

River. Therefore, hydrologic data from 1968 to 2000 were used to estimate how replacement of the diversion could affect recreation opportunities.

With-project conditions for the 30-year period of record were determined by subtracting the maximum allowable diversion specified in the applicant's water right from the gage data while maintaining 50 cfs instream. For the purpose of this EIR, its was assumed that the applicant would divert 400 cfs plus an additional 35 cfs (10 cfs fish-screen return and 25 cfs transportation loss) for a total maximum allowable diversion of 435 cfs. A detailed discussion and evaluation of hydrologic impacts is included in chapter 3, "Hydrology."

Impacts on recreational boating opportunities were evaluated by analyzing flow scenarios for with-project and no-project conditions. The difference in days that river flow recreation thresholds would be met under with-project conditions, compared with existing conditions, provides an indication of the impacts of the project alternatives on recreational activities. The overall and average reduction in days that would meet recreation thresholds was used as a basis for evaluating impacts on recreational boating.

This is a worst-case analysis because it represents "opportunities lost" and not necessarily an actual reduction in boating usage. Actual Truckee River use data in the operation area are not available; therefore, the analysis is not based on a change in user days.

Other factors contributing to a qualitative assessment of recreation impacts include

- the consideration of project design features in comparison to similar structures on the river and
- the evaluation of the relative safety of project alternatives for boating activities in the construction and operation phases of project alternatives.

The evaluation of recreation opportunities focused on spring and summer seasons from March 1 through the end of September, which typically constitute the busiest recreation periods. The peak-use season for recreational boating is mid-March through mid-June but can easily extend into September if flows allow. In general, kayakers prefer higher flows earlier in the season (April, May, and June) and rafters prefer slightly lower flows later in the season (June, July, and August). An off-season analysis was not conducted because existing conditions for streamflow limit recreational boating during these periods.

Table 9-2. Recreation Thresholds

Recreation Use	Minimum (cfs)	Preferred (cfs)	Preferred-High (cfs)
Kayaking	400	500–2,000	Unlimited
Rafting	600	800–1,000	1,500
Fishing	150	250–600	1,000

* cfs = cubic feet per second

9.3.1.2 Sport Fishing

To measure the possible impacts of the project alternatives on sport fishing, the effect of proposed flow changes on the availability of physical habitat for rainbow and brown trout were evaluated quantitatively using habitat-flow relationships developed by DFG (California Department of Fish and Game 1996). This analysis has been completed and is fully described in chapter 6, "Aquatic Resources." Therefore, it is assumed that if implementation of project alternatives would substantially reduce fish habitat or cause fish habitat to drop below self-sustaining levels, conditions would not be suitable for sport fishing and lead to an overall decease in angling success in the project operation area.

9.3.2 Criteria for Determining Impact Significance

Impacts on stream-based recreation opportunities are considered significant if

- project-related operational or construction activities would cause a substantial long-term disruption of any institutionally recognized recreational activities;
- aspects of construction, design, or implementation would create an increased risk to public safety; or
- project-related changes in river flows would result in substantial changes in recreational opportunities (including beneficial uses identified in the Basin Plan) when compared with existing conditions.

9.4 Impacts and Mitigation Measures of Alternative A: Proposed Project

9.4.1 Construction-Related Impacts

Under Alternative A, recreation conditions in the construction area would be changed by temporary modifications to the river channel. Construction activities would include diverting water into a temporary channel during each construction season in order to build the new diversion facilities. This channel would be constructed of grouted boulders and rocks and located on river right between the diversion site and I-80. The channel would be approximately 30 feet wide and is designed to accommodate a range of flows up to 2,000 cfs. Additionally, a Bailey bridge (i.e., an easily assembled, prefabricated bridge) or equivalent structure would be placed at the former diversion site for construction access from the left bank to the right bank of the Truckee River. The bridge would be placed above the mean high water mark and would remain in place until construction of the new diversion facilities is completed.

Construction of the proposed project would include placing and operating heavy equipment and materials in or near the river channel. Construction activities would also include blasting bedrock at the site of the new diversion facility.

Impact 9-1: Change in Recreation Opportunities during Project Construction

Recreational boating through the temporary diversion and under the proposed bridge by kayak or raft would be possible; however, the presence of construction equipment, materials, and the temporary construction features discussed above would represent an increased risk to public safety. This increased risk would exist especially in situations where boaters find themselves in unfamiliar navigational circumstances resulting from changes in flow or are unaware of temporarily changed instream conditions resulting from project construction. This impact is considered ***significant***.

Implementing Mitigation Measure 9-1 would reduce this impact to a less-than-significant level.

Mitigation Measure 9-1: Implement appropriate measures to ensure public safety during project construction

In order to minimize risk of injury to recreational boaters within the construction area, a temporary portage path will be constructed before initiation of instream construction activities. The pathway will extend from upstream of the proposed diversion site to the downstream side of the temporary bridge to allow for complete portage around the construction area and its associated equipment, materials, and temporary features. A rope, floating boom, or other appropriate equipment will be installed in the river upstream of the construction area to guide boaters to a take-out location and the portage path or to allow them to scout the construction area for passage.

Signs will be placed at an appropriate distance upstream of the construction area, warning boaters of the upcoming construction zone. Signs and information will be made available at put-in and take-out areas or other points of river access, informing boaters and other recreational users of the proposed construction schedule and components of project construction that may pose a challenge to navigation. The project applicant will provide easily updated information to the public regarding construction schedules and activities. This information will be provided in the form of a phone number with a message that is updated on a daily basis. In addition, the project applicant will work in coordination with the blasting contactor to ensure that the river is clear of boaters before blasting activities occur by posting signage and possibly stationing an employee above the I-80 Floriston bridge during blasting, and that

boaters and other recreational users are informed of the times that blasting would occur by mailing notices to commercial river companies.

Appropriate fencing will be placed around points of ingress to the construction area; this fencing must prevent recreation users from unknowingly entering the construction area. Fencing will not interfere with the take-out area or the portage path around the project construction area.

To ensure the safety of boaters attempting passage through the project construction area, the project applicant will keep the temporary diversion channel clear of obstructions when construction is not occurring. Obstructions include construction equipment or materials (e.g., rebar) that impede navigation or compromise the safety of recreational boaters.

Impact 9-2: Change in Angling Success during Project Construction

Construction activities associated with the proposed project have the potential to cause mortality and habitat degradation of fish species and other aquatic-dependent organisms in the project construction and operation areas. However, the implementation of a SWPPP, construction BMPs, and a hazardous materials spill prevention and response plan would minimize potential sedimentation, turbidity, and the spills of hazardous materials into the stream environment that can harm aquatic organisms and communities. These factors are not expected to lead to a decrease in angling success during project construction.

The temporary diversion channel associated with project construction would provide the primary route for movement of adult and juvenile fish past the construction area. Therefore, this impact is considered ***less than significant.*** No mitigation is required.

9.4.2 Operation-Related Impacts

The proposed diversion structure is designed with a boat/debris chute for passage of recreational craft. This feature is new to diversion dams on the Truckee River. The proposed project is designed to

- keep the overall diversion structure small and approximately 5 feet above the bottom of the river bed at its lowest point (figure 2-4);
- keep the river gradient near existing grade, with 16 feet of fall over 700 feet of length (average slope is 2.3%, or 120 feet per mile);
- align the boat/debris chute to direct water into the boating play wave (described above, under "Recreational Boating—Floriston to Farad");
- retain the popular downstream boating play wave;

- provide self-rescue areas on river right by constructing eddy structures into the roughened channel;
- fine-tune the replacement of the weir (just below the I-80 bridge) to minimize its effects;
- include a marked portage trail on river right, connected to a convenient landing point near the I-80 bridge; and
- prevent entrapment of boaters passing over the dam.

Impact 9-3: Change in Boat Passage Resulting from Project Implementation

The boat/debris chute is designed to maintain a Class II rapid-difficulty ranking. The boat/debris chute is designed to be 20 feet long; therefore, a standard 14-foot-long rubber raft could pass in any orientation. Approach and navigation through the chute should be straightforward for knowledgeable and well-equipped boaters. Safe navigation of the diversion dam would require a moderate level of skill because of powerful currents and high-standing waves; however, this skill level is less than or equal that required to navigate the river under existing conditions.

The proposed project is designed to create a sweeping velocity parallel to the intake structure. Sweeping velocities are intended to enhance the passage of sediment and debris in the downstream direction horizontally across the structure. Vertical or approach velocities that have the potential to pin a kayaker, swimmer, or other buoyant object against the intake screen have been physically and hydrologically modeled for the project. Modeling results indicate that vertical (approach) velocities across the intake screen would range from 1 to 3 feet per second depending on flow regimes (McLaughlin 2001). This velocity is comparable to existing river velocities and is a rate that most swimmers and kayakers can exceed. Therefore, it is not expected that implementation of the proposed project will lead to an increased risk of entrapment. This impact is considered ***less than significant.*** No mitigation is required.

Impact 9-4: Impairment of Flows Affecting Designated Beneficial Uses (Change in Recreational Boating Opportunities during Project Operation)

The State CEQA Guidelines (14 CCR 15131(b)) state that "economic or social effects of a project may be used to determine the significance of physical changes caused by the project." Under this impact, recreational use is considered to assist in determining the significance of a reduction in flows.

Diversion of water from the river would alter the frequency with which flows equal or exceed the minimum rate necessary to conduct boating activities (a designated beneficial use as identified in chapter 4, "Water Quality"). Kayakers and rafters require minimum streamflows of 400 and 600 cfs, respectively. The average number of days that various flow rates representing recreation thresholds are met or exceeded during the period of study (March 1–September 30) is shown in table 9-3.

Project diversions would reduce the number of days during which the 400 cfs minimum threshold for kayaking was met by an average of 55% over the period of record. During the recreation season, the distribution of reduction in suitable kayaking days is highly variable, ranging from an average reduction of 6 days (16%) in May to an average reduction of 23 days (93%) in August (the highest monthly average reduction). A monthly comparison between existing and with-project conditions, in terms of the average number of days that the 400 cfs minimum threshold is met or exceeded, is shown in table 9-4. The specific reduction each year would depend largely on water year type. The average number of days based on water year type is shown in table 9-5.

Project diversions would reduce the number of days the 600 cfs threshold for rafting is met or exceeded by an average of 44% over the period of record. During the recreation season, the distribution of reduction in suitable rafting days is less variable than that for kayaking, ranging from an average reduction of 4 days (15%) in May to an average reduction of 10 days (43%) in April (the highest monthly reduction in days). A monthly comparison between existing and with-project conditions, in terms of the average number of days that the 600 cfs minimum threshold is met or exceeded, is shown in table 9-6. The specific reduction each year would depend largely on water year type. The average number of days based on water year type is shown in table 9-7. The number of days the 400 cfs and 600 cfs thresholds are met or exceeded was also compared (figure 9-2).

Table 9-3. Recreational Flow Thresholds for the Hydrologic Record between the Months of March and September under Existing and With-Project Conditions, and Average Number of Days per Year on which Recreation Flows are Reduced

Recreation Flow (cfs) Thresholds	Existing Conditions (days)	With Project (days)	Days Reduced	Percent Reduction (%)
Fishing: 150	203	122	81	40
Kayaking: 400	189	82	107	56
Rafting: 600	119	67	52	44

Table 9-4. Recreational Flows for the Hydrologic Record under Existing and With-Project Conditions, and Reduction in Average Number of Days per Month during which the 400 cfs Level is Met

Month	Existing Conditions (days)	With Project (days)	Days Reduced	Percent Reduction (%)
March	24	11	13	54
April	29	18	11	38
May	31	25	6	19
June	28	16	12	43
July	28	7	21	75
August	27	2	25	93
September	24	2	22	92

Table 9-5. Recreational Flows for Normal, Driest, and Wettest Years of the Hydrologic Record by Month during which the 400 cfs Level is Met

Month	1973 Normal (days)	1977 Dry (days)	1983 Wet (days)
March	31	0	31
April	30	5	30
May	31	27	31
June	30	20	30
July	31	22	31
August	31	14	31
September	30	0	30

Table 9-6. Recreational Flows for the Hydrologic Record under Existing and With-Project Conditions, and Reduction in Average Number of Days per Month during which the 600 cfs Level is Met

Month	Existing Conditions (days)	With Project (days)	Days Reduced	Percent Reduction (%)
March	17	9	8	47
April	23	13	10	43
May	27	23	4	15
June	21	14	7	33
July	14	6	8	57
August	9	1	8	89
September	8	1	7	88

Table 9-7. Recreational Flows for Normal, Driest, and Wettest Years of the Hydrologic Record by Month during which the 600 cfs Level is Met

Month	1973 Normal (days)	1977 Dry (days)	1983 Wet (days)
March	0	0	31
April	25	0	30
May	31	0	31
June	30	0	30
July	31	0	31
August	31	0	31
September	30	0	30

Use of the project operation area varies between whitewater kayakers and commercial rafting outfitters. Kayakers indicate that they use the river on a regular basis when flows meet or exceed 400 cfs (Albright pers comm.). Information collected from questionnaires indicates that, on average, whitewater kayakers use the upstream segment from Boca to Floriston about twice as often as the downstream areas from Floriston to Verdi. Under current permit requirements, commercial rafting outfitters who proceed past the take-out location at Floriston must continue downstream to areas outside of Nevada County before they can take boats out of the river. Therefore, use of the affected segment by commercial whitewater rafters is limited by rafters' flow requirements for downstream segments of the river.

Most commercial rafting outfitters indicate that they will raft between Floriston and Farad if flows are more than 600 cfs, but that the downstream segment of the

river from Farad to Verdi must have flows in excess of 800 cfs to support rafting. Peak-use periods for both rafting and kayaking occur primarily on weekends and holidays.

Implementation of the proposed project would create a substantial reduction in the number of days during which minimum recreation thresholds for kayaking and rafting would be met. These changes in flow conditions would create a long-term reduction in potential boating opportunities in the operation area (a designated beneficial use as identified in chapter 4, "Water Quality"). Therefore, this impact is considered ***significant.*** Potential mitigation of this effect includes adjusting flows to accommodate minimum flow thresholds for recreational boating and creating improved conditions for recreational access and use.

Implementation of Mitigation Measures 9-1 and 9-2 would ensure flows to support beneficial uses are maintained on a regular basis and would reduce this impact to a less-than-significant level.

Mitigation Measure 9-1: Maintain 1 weekend per month of recreational flows from April to September, when available

If flows are between 400 and 1,700 cfs in the Truckee River above Floriston, SPPC will not divert water for power generation for the 1st weekend each month from April through September. When flows exceed 1,700 cfs SPPC will maintain a minimum bypass flow of 1,500 cfs. Maintenance of flows on the weekend should be timed such that full flows are achieve 400 cfs by 8 a.m. on Saturday and are not diminished before 5 p.m. on Sunday. SPPC will monitor weekend boating for a minimum of 2 years; if boating use exceeds a use level that results in excessive crowding a second weekend each month of boating flows will be made available. SPPC will provide information to the public by flow-phone or website on when weekend flow releases will be made.

This mitigation measure reduces project effects to a less-than-significant level because it will minimize the loss of boating opportunities on the Truckee River, allow commercial boaters to extend their trip length during the boating season, and ensure a regular weekend flow when flows are suitable. Flows will not be suitable in dry years, but will be suitable in most months in normal and wet years.

Fluctuations of flow once or twice a month could affect invertebrates and fish, and this effect cannot be predicted. However, the ramping and monitoring proposed in Mitigation Measure 6-5 would ensure that the flow requirements will be reevaluated and revised to minimize impacts if an adverse effect is detected. Because anglers are capable of using the Truckee River under a full range of flows, this mitigation would not adversely affect fishing opportunities, although there may be a slight change in angling success. However, aquatic resources, and

thus angling success, will also be protected as part of implementing Mitigation Measure 6-5.

Regular reliable weekend flows could also result in increased recreational use and crowding on the river. The effect is not expected to be substantial for commercial boaters because the County regulates commercial permits. Private use could result in localized parking issues near the Caltrans shed south of I-80 though there is sufficient parking for approximately 10 vehicles. In the event parking becomes a problem and the County begins receiving complaints, the County may post signage restricting parking.

Mitigation Measure 9-1 would result in restrictions on the project applicant's ability to generate power as indicated in appendix F.

Mitigation Measure 9-2: Create improved recreation access at the Farad powerhouse

The project applicant will work with permitting agencies, as well as commercial rafting outfitters and whitewater kayakers, to establish and improve river access by creating a take-out/put-in location for whitewater activities at the Farad powerhouse. This action will include completion or fulfillment of all Nevada County permit requirements. The project applicant will also provide parking for recreational boaters using the river at the take-in/put-out location.

Impact 9-5: Change in Angling Opportunities and Success during Project Operation

Changes in flow between 50 and 585 cfs caused by implementation of the proposed project would result in a narrower fishing corridor and reduced habitat availability for juvenile and adult rainbow and brown trout within the project operation area. As explained in chapter 6, "Aquatic Resources," operation of the proposed project would decrease availability of habitat for fish species and selective life stages.

Project operations would result in a decrease in fishing opportunities and potentially angling success due to decreased habitat availability for adult rainbow trout and for both spawning rainbow and brown trout. Therefore, an adverse change in angling success in the project operation area is anticipated. This impact is considered ***significant.***

Implementation of Mitigation Measures 6-2, 6-3, and 6-4 as explained in chapter 6, "Aquatic Resources," would ensure that aquatic health is maintained and reduce this impact to a less-than-significant level.

Mitigation Measure 6-2: Prepare and implement a monitoring and evaluation program to ensure long-term fish protection

This mitigation measure is explained in chapter 6, "Aquatic Resources."

Mitigation Measure 6-3: Maintain a minimum flow of 150 cfs in the operation area at all times during project operations

This mitigation measure is explained in chapter 6, "Aquatic Resources."

Mitigation Measure 6-4: Monitor and evaluate water temperature effects of the project and implement mitigation measures if warranted

This mitigation measure is explained in chapter 6, "Aquatic Resources."