

## **Attachment F**

Draft of Sample  
California Guidelines for Truckee River Reservoir  
Operations to Meet Instream Flow and  
Recreation Objectives

# SAMPLE

**CALIFORNIA GUIDELINES  
FOR TRUCKEE RIVER RESERVOIR  
OPERATIONS  
TO MEET INSTREAM FLOW AND  
RECREATION OBJECTIVES**

## **FOREWORD**

After the Truckee River Operating Agreement (TROA) is signed and becomes effective, California will annually submit Guidelines for Truckee River Reservoir Operations concerning instream flow, reservoir levels, and other environmental objectives in the California portion of the Truckee River Basin. California's TROA representative, with advice and counsel from appropriate State agencies and California Truckee River Basin local interest groups, will be responsible for preparing and submitting these Guidelines. The general content and process for submittal of the Guidelines are included in TROA Sections 9.F and 11.C.2(b), respectively. The Guidelines will be submitted to the TROA Administrator and Scheduling Parties each spring to provide the Administrator the opportunity to encourage inclusion of recommendations in the Guidelines during the subsequent TROA water operations scheduling process.

The purpose of this sample of the California Guidelines is to show what these Guidelines might look like when they are submitted to the TROA Administrator. These Guidelines do not represent a practical plan for current operations without TROA. The Department of Water Resources has prepared this sample in anticipation of TROA being signed for several reasons: (1) California local interests and potential TROA signatories have expressed interest in seeing an example of the Guidelines so they may have a better understanding of what to expect when TROA is operative; (2) during the upcoming TROA EIR/EIS process, information from this sample of the Guidelines will be used to develop criteria for scheduling use of California's Joint Program Fish Credit Water and other reservoir operations in model runs that will help analyze the environmental impacts from TROA operations; and (3) preparation and discussion of this sample of the Guidelines will help in developing an understanding among all parties of the expected type of items that will be addressed in the Guidelines and how they could be presented.

This sample of the Guidelines is based on hydrologic conditions forecasted in the March 25, 2002, United States Bureau of Reclamation, Truckee River Operation Study, which includes anticipated water demands from Nevada water right holders in the Truckee River Basin.

## **INTRODUCTION**

These Guidelines are transmitted to the TROA Administrator and TROA Scheduling Parties for use during the water operations scheduling process. Under varying conditions of water availability and anticipated use, there is often more than one option for operating upstream reservoirs without significant risk of adverse impacts to existing water rights. Section 9.F.2 of TROA calls for the TROA Administrator to encourage the scheduling parties to schedule in accordance with the California Guidelines and to engage in voluntary exchanges and re-storage options to the extent practicable and consistent with the exercise of water rights, assurance of water supplies, operational considerations, the Settlement Act (Public Law 101-618), and TROA. It is anticipated that, given the opportunity, the TROA Scheduling Parties will use these Guidelines to schedule their operations to help meet California's objectives for reservoir storage and instream flows below the reservoirs.

These Guidelines are divided into two parts. Part 1 is "Specific Goals and Objectives for Truckee River Reservoir Operations – 2002," consisting of operational goals and objectives based on a March forecast of 2002 hydrologic conditions and reservoir storage, anticipated water use, and reservoir operations. Part 2 is "General Goals and Objectives for Truckee River Reservoir Operations," consisting of operational goals and objectives for instream flows and reservoir storage that are general in nature and do not usually change from year to year. These general objectives have been developed and are included here to provide continuing overall guidance to the Administrator and other TROA scheduling parties and to provide a continuing framework within which the annual specific goals objectives are presented.

The TROA Scheduling Parties are encouraged to take the California Guidelines into account during the TROA scheduling process and to schedule and adjust their water operations to help meet California's goals and objectives. California may revise and resubmit these 2002 Guidelines to the TROA Administrator and Scheduling Parties in response to their comments and recommendations, changes in schedules for reservoir operations, and changes in forecasted hydrologic conditions.

## PART 1 - SPECIFIC GOALS AND OBJECTIVES FOR TRUCKEE RIVER RESERVOIR OPERATIONS – SAMPLE YEAR - 2002

### **Reservoir Storage and Instream Flow Goals and Objectives For 2002**

Specific proposals to achieve California's goals for improving instream flows and recreation pools in the Truckee River Basin have been developed based on the March 25, 2002, United States Bureau of Reclamation (USBR) forecast of Truckee River reservoir storages and releases. These proposals are shown in Table 1 and summarized below:

- Alternate releases between Prosser and Stampede, re-storing some of this water in Boca, where it can be released to meet Pyramid Lake fish needs in November and December to: (1) increase the Stampede release to or above the minimum of 45 cfs in July through October, (2) increase the Prosser release above the minimum of 16 cfs in June, and (3) generally even out releases from Stampede and Prosser toward the Preferred Instream Flows.
- Eliminate the predicted spike in releases from Independence Lake in September through consultation with TMWA, releasing water from Independence at a consistent rate over a longer period in July, August and September and re-storing the earlier release as needed to meet TMWA's long-term objectives.
- Increase the predicted below-minimum releases from Donner Lake in July and August toward the minimum of 8 cfs and reduce it an equivalent amount in September and October without allowing the lake to drop below 8,000 acre-feet before the end of August.

Table 2 shows the USBR forecast of Truckee River Basin reservoir storage and releases and corresponding storage and releases due to implementing these current year reservoir storage and instream flow objectives. The corresponding storage levels are computed based on proposed changes in releases.

California also plans to coordinate with the United States and the Pyramid Tribe as soon as practicable to further propose a TROA Section 8.S Exchange. This would increase low releases of water from Lake Tahoe in lieu of high Stampede releases during the Spring Cui-ui run with an equivalent increase in low releases from Stampede in lieu of high Lake Tahoe releases in late Summer and early Fall. If such an exchange can be implemented, California will resubmit these Guidelines to take into account this considerable change in scheduled operations.

**Goals for Management of Joint Program Fish Credit Water, Environmental Credit Water, and Additional Environmental Credit Water**

As of April 1, 2002, prior schedules indicate that California will have established 6,000 acre-feet of Joint Program Fish Credit Water, of which 3,000 acre-feet is in Lake Tahoe and 3,000 acre-feet is in Stampede Reservoir. California's goal is to use this Credit Water to meet the Reservoir Storage and Instream Flow Goals and Objectives that are not met through proposals made to the TROA Administrator and Scheduling Parties as identified in the previous section and shown in Tables 1 and 2.

A schedule for releases of Joint Program Fish Credit Water is in Table 3. Included in this schedule is an exchange of 3,000 acre-feet of Fish Credit Water from Lake Tahoe to Stampede, as per a Memorandum of Understanding with the U.S and Pyramid Lake Tribe. On a monthly basis, the release, re-storage and exchange schedule for the period of April 2002 through December 2002 is:

April	Release 1,800 acre-feet from Lake Tahoe, accumulating all 1,800 acre-feet in Prosser via an exchange.
May	Release 2,100 acre-feet from Tahoe and 1,500 acre-feet from Stampede, accumulating only 900 acre-feet in Boca and 1,200 acre-feet in Prosser via an exchange.
June	Release 2,100 acre-feet from Tahoe and 1,800 acre-feet from Prosser and 900 acre-feet from Boca, accumulating only 3,300 acre-feet in Stampede via an exchange.
July	Release 600 acre-feet from Prosser and 300 acre-feet from Stampede, accumulating all 300 acre-feet in Independence and 600 acre-feet in Boca via an exchange.
August	Release 600 acre-feet from Prosser, accumulating all 600 acre-feet in Boca via an exchange.
September	Release 600 acre-feet from Stampede, accumulating all 300 acre-feet in Donner and 300 acre-feet in Boca via an exchange.
October	Release 600 acre-feet from Stampede and 300 acre-feet in Donner, accumulating all 900 acre-feet in Boca via an exchange
November	Release 600 acre-feet from Stampede and 300 acre-feet from Independence, accumulating all 900 acre-feet in Boca via an exchange.
December	Release 300 acre-feet from Stampede, accumulating all 300 acre-feet in Boca via an exchange.

Table 4 shows the anticipated result of these releases if scheduled along with implementation of the specific proposals for improving instream flows and recreation pools in Tables 1 and 2. We also anticipate that, after these releases and exchanges are made, 3,000 acre-feet of Fish Credit Water will remain in Stampede, 3,000 acre-feet of Joint Program Fish Credit Water will remain in Boca, and 3,000 acre-feet of Joint Program Fish Credit Water will have been released without being exchanged.

**Consultation between California and Other TROA Parties**

As pointed out in the Introduction to these California Guidelines, they are transmitted to the TROA Administrator and Scheduling Parties so they may be used to schedule operations (to the extent practicable and consistent with the exercise of water rights, assurance of water supplies, operational considerations, the Settlement Act and TROA) to help meet California's objectives for preferred instream flows and reservoir-based recreation, to limit or eliminate releases above the maximum instream flows, and to provide ramping of flows. Any questions regarding these specific-year reservoir storage and instream flow goals and objectives, or California's management of Joint Program Fish Credit Water, Environmental Credit Water, or Additional Environmental Credit Water should be directed to California's TROA representative.

## PART 2 - GENERAL GOALS AND OBJECTIVES FOR TRUCKEE RIVER RESERVOIR OPERATIONS

### **General Objectives for Instream Flows below Reservoirs**

California's general objective for instream flows below reservoirs is that, to the extent possible, they will be maintained between the "Minimum Flows" and the "Maximums Flows" for each reach as shown in Table 5. When possible, the "Preferred Flows" shown in Table 5 should be maintained in as many reaches and for as long a time as is feasible. If options to achieve preferred flows in any given year are limited and a choice is to be made among stream reaches, the desired priority, from highest to lowest, is:

- 1) Little Truckee River (Stampede Dam to Boca Reservoir);
- 2) Truckee River from Lake Tahoe to California Border;
- 3) Little Truckee River (Independence Lake Dam to Stampede Reservoir);
- 4) Prosser Creek from Prosser Creek Reservoir to the Truckee River; and
- 5) Donner Creek from Donner Lake Dam to the Truckee River.

Another instream flow objective is to avoid rapid changes in flow rates through "ramping" of reservoir releases. It is best to limit the rate of increase or decrease to the smallest steps feasible. Ramping is most important in the reaches below Lake Tahoe, Donner Lake, Prosser Creek Reservoir, and Stampede Reservoir, and it is more important to ramp releases down slowly (limit the rate of decrease) than ramp releases up slowly. California's recommendations for ramping flows are as follows:

- Increasing flows - Flows should not be increased more than 100% during a 24-hour period; the change during the 24-hour period should occur in a minimum of three, proportional amounts (i.e., one-third the total 24-hour change per 8 hours).
- Decreasing flows - Flows should not be decreased more than 50% during a 24-hour period; the change during the 24-hour period should occur in a minimum of three, proportional amounts (i.e., one-third the total 24-hour change per 8 hours).

One further instream flow objective is to prevent the Truckee River and its tributaries from freezing solid in the winter months. To prevent icing in the stream sections outlined below, the recommended minimum flows in these stream sections during the winter months is for:

- Donner Creek, Donner Lake to the Truckee River – 3 cfs.
- Prosser Creek – To be developed in accordance with TROA Section 9.C.5(d).
- Independence Creek, Independence Lake to the Little Truckee River – 4 cfs.
- Truckee River, Lake Tahoe to Donner Creek – 30 cfs.
- Truckee River, Donner Creek to the Little Truckee River – 50 cfs.

### **General Objectives for Reservoir Storage**

California's general objective for reservoir storage is that they be maintained at or above the "Preferred Minimum Storage" levels shown in Table 6, from the start of the Memorial Day weekend to the end of the Labor Day weekend of each year. This is to maintain maximum reservoir recreation-based opportunities in California reservoirs in the Truckee River Basin

For Donner Lake, every effort should be made to maintain the "Preferred Minimum Storage" of 8,000 acre-feet through the Labor Day weekend, even at the expense of drawing down other reservoirs through exchanges.

If options to achieve the preferred minimum storage in reservoirs other than Donner Lake are limited, and a choice is necessary to maximize recreation opportunities, the preferred order of operations is as follows:

1. If any reservoir drops below the "Minimum Storage" identified in Table 6, releases from that reservoir should be continued until the reservoir reaches the minimum fish pool, in lieu of releases from other reservoirs, to allow higher storages to be maintained in the other reservoirs.
2. Avoid dropping any reservoir below levels that are necessary to protect fish ("Minimum Fish Storage") specified in Table 6. If it becomes necessary to drop the reservoirs below minimum fish storage levels please consult with California's TROA representative since more specific priorities among reservoirs may have been developed after this writing.
3. Whenever storage in Stampede Reservoir is above the "Preferred Minimum Storage" specified in Table 6, it is preferable to release water from Lake Tahoe or Stampede Reservoir in lieu of releases from Boca or Prosser Creek Reservoirs to meet water demands; so that Boca and Prosser Creek Reservoirs do not drop below their "Preferred Minimum Storages" as specified in Table 6.
4. If the storage in Stampede Reservoir drops below its "Preferred Minimum Storage" specified in Table 6 and a release from Lake Tahoe is not feasible, releases should be made from Prosser Creek Reservoir and Boca Reservoir in lieu of releases from Stampede Reservoir to meet water demands.

### **Establishing Priorities among Instream Flow and Reservoir Storage Objectives**

Instream flow objectives could, at times, conflict with the reservoir storage objectives. The "Specific Goals and Objectives" in Part 1 will, under most circumstances, describe how to best make this choice given existing hydrologic conditions.

The California TROA representative will make recommendations to the TROA Administrator on instream flow needs and reservoir levels to support recreation in consultation with California interests. If there are competing or conflicting demands for instream flows or reservoir-based

recreation, prior to making such recommendations, the California TROA representative will consult with potentially affected California interests to assist in determining the best course of action. During the consultation process, until a decision is made, maintenance of instream flows should be given priority. Parties that may be consulted during this examination process include the following:

- Truckee River Basin Water Group
- Placer County, Nevada County, And Sierra County
- Town of Truckee
- Tahoe-Truckee Sanitation Agency
- Local Rafting Interests
- Local Fishery Interests
- Local Water Supply Interests
- Local Recreation Interests
- State of California agencies, including the Departments of Fish and Game, Parks and Recreation, and Water Resources, and the State Water Resources Control Board and Lahontan Regional Water Quality Control Board
- Federal Agencies, including the U.S. Fish and Wildlife Service, U.S. Forest Service, and the U.S. Bureau of Reclamation
- Pyramid Lake Paiute Indian Tribe

**Coordinating Municipal and Industrial Storage Objectives with California Guidelines**

California M&I Credit Water may be established in Lake Tahoe and other Truckee River Reservoirs as specified in TROA. If and when this occurs, the instream flow and recreation objectives in these Guidelines may be coordinated with M&I storage objectives for this water.

**Table 1 - Specific Proposals for Voluntary Operations to Improve Instream Flows and Recreation Pools - 2002**

<b>Problem Statement and Proposed Change to March 2002 USBR Forecast</b>	<b>Consultation</b>	<b>Proposed Action to Implement Proposed Change to Forecast</b>																																				
<p>Stampede releases are low in July-Oct while Prosser Releases are high; and Prosser releases are low in June and Nov when Stampede releases are high.</p> <table border="0" style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td style="text-align: center;">Prosser</td> <td></td> <td style="text-align: center;">Stampede</td> </tr> <tr> <td></td> <td style="text-align: center;">Forecast/Proposed</td> <td></td> <td style="text-align: center;">Forecast/Proposed</td> </tr> <tr> <td>June</td> <td style="text-align: center;">12/42 cfs</td> <td></td> <td style="text-align: center;">227/197 cfs</td> </tr> <tr> <td>July</td> <td style="text-align: center;">91/66 cfs</td> <td></td> <td style="text-align: center;">29/69 cfs</td> </tr> <tr> <td>Aug</td> <td style="text-align: center;">98/73 cfs</td> <td></td> <td style="text-align: center;">29/69 cfs</td> </tr> <tr> <td>Sept</td> <td style="text-align: center;">72/87 cfs</td> <td></td> <td style="text-align: center;">30/45 cfs.</td> </tr> <tr> <td>Oct</td> <td style="text-align: center;">83/88 cfs</td> <td></td> <td style="text-align: center;">35/45 cfs</td> </tr> <tr> <td>Nov</td> <td style="text-align: center;">22/22 cfs</td> <td></td> <td style="text-align: center;">115/45 cfs</td> </tr> <tr> <td>Dec</td> <td style="text-align: center;">30/30 cfs</td> <td></td> <td style="text-align: center;">57/52 cfs</td> </tr> </table>		Prosser		Stampede		Forecast/Proposed		Forecast/Proposed	June	12/42 cfs		227/197 cfs	July	91/66 cfs		29/69 cfs	Aug	98/73 cfs		29/69 cfs	Sept	72/87 cfs		30/45 cfs.	Oct	83/88 cfs		35/45 cfs	Nov	22/22 cfs		115/45 cfs	Dec	30/30 cfs		57/52 cfs	<p>Check with USFWS/Tribe &amp; Water Master.</p>	
		Prosser		Stampede																																		
		Forecast/Proposed		Forecast/Proposed																																		
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<p>If the Prosser releases are primarily Uncommitted Water that could be released at a different schedule in coordination with Stampede releases and still meet needs in Nevada.</p>	<p>Request USFWS/Tribe alternate releases between Prosser and Stampede as proposed, also releasing and re-storing some of this water in Boca, where it can be released to meet downstream needs in Nov and Dec.</p>																																					
<p>If the Prosser releases are primarily Uncommitted Water that can only be released at specific times to meet needs in Nevada.</p>	<p>Request USFWS/Tribe alternate releases between Prosser and Stampede toward proposed flows to the extent acceptable, also releasing and re-storing some of this water in Boca, where it can be released to meet their needs in Nov and Dec.</p>																																					
<p>If the Prosser releases are primarily T-P-Exchange Water that may be blended with Tahoe and Boca releases on a different schedule.</p>	<p>Request the Water Master blend T-P-Exchange Water with other Floriston Rate releases toward proposed flows to the extent acceptable. Request USFWS/Tribe and others exchange Credit Water from Stampede to Prosser to assist in otherwise meeting proposed flows to the extent their needs are still met.</p>																																					
<p>If the Prosser releases are primarily T-P-Exchange Water that must be released as per the current release schedule.</p>	<p>Request USFWS/Tribe and others exchange Credit Water from Stampede to Prosser toward the proposed flows to the extent their needs are still met.</p>																																					

**Table 1 (continued) - Specific Proposals for Voluntary Operations to Improve Instream Flows and Recreation Pools - 2002**

<b>Problem Statement and Proposed Change to March 2002 USBR Forecast</b>	<b>Consultation</b>	<b>Proposed Action to Implement Proposed Change to Forecast</b>												
<p>Very high release from Independence Lake in Sept (monthly average)</p> <p style="text-align: center;">Forecast/Proposed</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 15%;">July</td> <td style="width: 15%;">11/19 cfs</td> </tr> <tr> <td>Aug</td> <td>5/13 cfs</td> </tr> <tr> <td>Sept</td> <td>29/13 cfs</td> </tr> <tr> <td>Oct</td> <td>8/8 cfs</td> </tr> <tr> <td>Nov</td> <td>5/5 cfs</td> </tr> </table>	July	11/19 cfs	Aug	5/13 cfs	Sept	29/13 cfs	Oct	8/8 cfs	Nov	5/5 cfs	<p>Check with TMWA.</p> <p>If the Sept release from Independence is needed as an exchange to another reservoir or to meet downstream needs in Nevada.</p> <p>If the Sept release from Independence is scheduled for some other reason.</p>	<p>Request TMWA exchange 960 acre-feet more from Independence Lake at a constant rate in July-Aug to another reservoir (Stampede?) where it can still be used; reducing the release from Independence accordingly in Sept.</p> <p>Request TMWA exchange their water, as stated in the row above, to the extent acceptable.</p>		
July	11/19 cfs													
Aug	5/13 cfs													
Sept	29/13 cfs													
Oct	8/8 cfs													
Nov	5/5 cfs													
<p>Donner Lake release (monthly average) is below the minimum (8 cfs) in July-Aug and above the maximum in Sept.</p> <p style="text-align: center;">Forecast/Proposed</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 15%;">June</td> <td style="width: 15%;">35/35 cfs</td> </tr> <tr> <td>July</td> <td>3/7 cfs</td> </tr> <tr> <td>Aug</td> <td>3/7 cfs</td> </tr> <tr> <td>Sept</td> <td>27/23 cfs</td> </tr> <tr> <td>Oct</td> <td>48/44 cfs</td> </tr> <tr> <td>Nov</td> <td>33 /33 cfs</td> </tr> </table>	June	35/35 cfs	July	3/7 cfs	Aug	3/7 cfs	Sept	27/23 cfs	Oct	48/44 cfs	Nov	33 /33 cfs	<p>Check with TMWA/TCID (and Donner Lake recreation interests).</p> <p>If the Sept-Oct releases from Donner are needed as an exchange to another reservoir or to meet downstream needs in Nevada.</p> <p>If the Sept-Oct releases from Donner are scheduled for some other reason.</p>	<p>Request TMWA/TCID exchange 480 acre-feet (or some lesser amount that does not allow the lake to drop below an acceptable end-of-Aug recreation target - assumed to be 8,000 acre-feet here) more from Donner Lake at a constant rate in July-Aug to another reservoir where it can still be used, reducing the Donner release accordingly in Sept-Oct.</p> <p>Request TMWA/TCID exchange their water, as stated in the row above, to the extent acceptable.</p>
June	35/35 cfs													
July	3/7 cfs													
Aug	3/7 cfs													
Sept	27/23 cfs													
Oct	48/44 cfs													
Nov	33 /33 cfs													

**Table 2 – USBR Forecast\* and Proposed Reservoir Storage and Instream Flows to Meet Current-year Objectives with Voluntary Changes to Operations**

	Lake Tahoe Elev (FEET)	Truckee River at Tahoe City (CFS)		Donner Lake Storage (TAF)		Donner Lake Release (CFS)		Prosser Reservoir Storage (TAF)		Prosser Reservoir Release (CFS)	
		Forecast	Proposed	Forecast	Proposed	Forecast	Proposed	Forecast	Proposed	Forecast	Proposed
Jan-02	6224.3	62 <	NC <	3.6	NC	27	NC	8.3	NC	42 ☺	NC ☺
Feb-02	6224.3	94 ☺	NC ☺	3.8	NC	20	NC	8.8	NC	33 ☺	NC ☺
Mar-02	6224.5	54 <	NC <	4.0	NC	35	NC	9.8	NC	56 ☺	NC ☺
Apr-02	6224.7	71 <	NC <	6.0	NC	56 ☺	NC ☺	11.9	NC	154 >	NC >
May-02	6225.2	68 <	NC <	9.5	NC	69 ☺	NC ☺	18.9	NC	126 ☺	NC ☺
Jun-02	6225.4	72 <	NC <	9.5 ☺	NC ☺	35 ☺	NC ☺	26.8 ☺	25.0 ☺	12 ☺	42 ☺
Jul-02	6225.1	261 ☺	NC ☺	9.2 ☺	8.9 ☺	3 <	7 <	23.5 ☺	23.2 ☺	91 ☺	66 ☺
Aug-02	6224.5	375 ☺	NC ☺	8.6 ☺	8.2 ☺	3 <	7 <	18.0 <	19.2 ☺	98 >	73 >
Sep-02	6224.0	236 ☺	NC ☺	6.9	6.7	27 >	23 >	14.0	14.3	72 >	87 >
Oct-02	6223.7	101 ☺	NC ☺	4.5	NC	48 ☺	44 ☺	9.8	NC	83 ☺	88 ☺
Nov-02	6223.6	52 <	NC <	3.2	NC	33 ☺	NC ☺	9.8	NC	22 <	NC <
Dec-02	6223.6	49 <	NC <	3.2	NC	16	NC	9.8	NC	30 ☺	NC ☺

KEY: > Instream fish flows that exceed maximums  
 ☺ Instream fish flows and reservoir storages that are within objective ranges  
 < Instream fish flows that are below minimum flows and reservoir storages that are below preferred minimum storages  
 NC No Changes Recommended

\* The 50 Percent Streamflow and Reservoir Storage Forecast is the “Most Probable” forecast and is generally considered to be the best estimate of anticipated monthly average streamflow and end of the month reservoir storage based upon the outcome of similar situations in the past. There is a 50 percent chance that actual streamflow volume and reservoir storage amounts will be less than this forecast value and a 50 percent chance that it will exceed this value.

Note: Reservoir storage is in thousand acre-feet at the end of the month and releases are in cubic feet per second as a monthly average

**Table 2 (Continued)– USBR Forecast\* and Proposed Reservoir Storage and Instream Flows to meet Current-year Objectives with Voluntary Changes to Operations**

	Independence Lake Storage (TAF)		Independence Creek below Independence Lake (CFS)		Stampede Reservoir Storage (TAF)		Stampede Reservoir Release (CFS)		Boca Reservoir Storage (TAF)		Boca Reservoir Release (CFS)	
	Forecast	Proposed	Forecast	Proposed	Forecast	Proposed	Forecast	Proposed	Forecast	Proposed	Forecast	Proposed
<b>Jan-02</b>	15.4	NC	5 <	NC <	169.1	NC	54 ☺	NC ☺	8.0	NC	38	NC
<b>Feb-02</b>	15.7	NC	4 ☺	NC ☺	168.8	NC	65 ☺	NC ☺	8.6	NC	67	NC
<b>Mar-02</b>	16.3	NC	5 ☺	NC ☺	166.4	NC	140 ☺	NC ☺	16.4	NC	43	NC
<b>Apr-02</b>	16.4	NC	34 ☺	NC ☺	161.9	NC	346 >	NC >	33.1	NC	76	NC
<b>May-02</b>	17.2	NC	56 >	NC >	179.0	NC	112 ☺	NC ☺	40.2	NC	0	NC
<b>Jun-02</b>	17.1	NC	50 >	NC >	176.3☺	178.1☺	227 ☺	197 ☺	40.1☺	NC ☺	227	197
<b>Jul-02</b>	16.8	16.3	11 ☺	19 ☺	174.8☺	174.7☺	29 <	69 ☺	34.9 ☺	35.8 ☺	106	127
<b>Aug-02</b>	16.4	15.4	5 ☺	13 ☺	172.5☺	170.4☺	29 <	69 ☺	32.7 <	34.5 ☺	56	77
<b>Sep-02</b>	14.7	NC	29 >	13 ☺	172.0	168.1	30 <	45 ☺	24.5	28.1	162	151
<b>Oct-02</b>	14.4	NC	8 ☺	NC ☺	172.0	167.5	35 <	45 ☺	15.5	19.9	187	186
<b>Nov-02</b>	14.3	NC	5 <	NC <	167.2	166.9	115 ☺	45 ☺	10.5	10.8	197	NC
<b>Dec-02</b>	14.2	NC	9 ☺	NC ☺	167.2	NC	57 ☺	52 ☺	5.3 <	NC <	141	NC

KEY: > Instream fish flows that exceed maximums  
 ☺ Instream fish flows and reservoir storages that are within objective ranges  
 < Instream fish flows that are below minimum flows and reservoir storages that are below preferred minimum storages  
 NC No Changes Recommended

\* The 50 Percent Streamflow and Reservoir Storage Forecast is the “Most Probable” forecast and is generally considered to be the best estimate of anticipated monthly average streamflow and end of the month reservoir storage based upon the outcome of similar situations in the past. There is a 50 percent chance that actual streamflow volume and reservoir storage amounts will be less than this forecast value and a 50 percent chance that it will exceed this value.

Note: Reservoir storage is in thousand acre-feet at the end of the month and releases are in cubic feet per second as a monthly average

**Table 3. Proposed Average Monthly Release Schedule for JPFCW and FCW\***

	<b>Truckee River at Tahoe City (CFS)</b>	<b>Donner Lake Release (CFS)</b>	<b>Prosser Reservoir Release (CFS)</b>	<b>Indep Lake Release (CFS)</b>	<b>Stampede Reservoir Release (CFS)</b>	<b>Boca Reservoir Release (CFS)</b>	
<b>Jan-02</b>							<b>Jan-02</b>
<b>Feb-02</b>							<b>Feb-02</b>
<b>Mar-02</b>							<b>Mar-02</b>
<b>Apr-02</b>	<b>30.0</b>		<b>(30.0)</b>				<b>Apr-02</b>
<b>May-02</b>	<b>35.0</b>		<b>(20.0)</b>		<b>25.0</b>	<b>(15.0)</b>	<b>May-02</b>
<b>Jun-02</b>	<b>35.0</b>		<b>30.0</b>		<b>(55.0)</b>	<b>15</b>	<b>Jun-02</b>
<b>Jul-02</b>			<b>10.0</b>	<b>(5.0)</b>	<b>5.0</b>	<b>(10.0)</b>	<b>Jul-02</b>
<b>Aug-02</b>			<b>10.0</b>			<b>(10.0)</b>	<b>Aug-02</b>
<b>Sep-02</b>		<b>(5.0)</b>			<b>10.0</b>	<b>(5.0)</b>	<b>Sep-02</b>
<b>Oct-02</b>		<b>5.0</b>			<b>10.0</b>	<b>(15.0)</b>	<b>Oct-02</b>
<b>Nov-02</b>				<b>5.0</b>	<b>10.0</b>	<b>(15.0)</b>	<b>Nov-02</b>
<b>Dec-02</b>					<b>5.0</b>	<b>(5.0)</b>	<b>Dec-02</b>

Negative releases (in parenthesis) indicate an exchange or re-storage of water into that reservoir

\*Releases of Fish Credit Water are per Memorandum of Understanding with the U.S. and the Pyramid Lake Paiute Indian Tribe

**Table 4 - Proposed Reservoir Storage and Instream Flows to meet Current-Year Objectives with Voluntary Changes to Operations and Releases of JPFCW and FCW**

	Lake Tahoe Elev	Truckee River at Tahoe City	Donner Lake Storage	Donner Lake Release	Prosser Reservoir Storage	Prosser Reservoir Release	Indep. Lake Storage	Indep. Creek Below Indep.	Stampede Res Storage	Stampede Res Release	Boca Res Storage	Boca Res Release
	(FEET)	(CFS)	(TAF)	(CFS)	(TAF)	(CFS)	(TAF)		(TAF)	(CFS)	(TAF)	(CFS)
Jan-02	6224.3	62 <	3.6	27	8.3	42 ☺	15.4	5 <	169.1	54 ☺	8.0	38
Feb-02	6224.3	94 ☺	3.8	20	8.8	33 ☺	15.7	4 ☺	168.8	65 ☺	8.6	67
Mar-02	6224.5	54 <	4.0	35	9.8	56 ☺	16.3	5 ☺	166.4	140 ☺	16.4	43
Apr-02	6224.7	101 ☺	6.0	56 ☺	13.7	124 ☺	16.4	34 ☺	161.9	346 >	33.1	76
May-02	6225.2	103 ☺	9.5	69 ☺	22.0	106 ☺	17.2	56 >	177.5	137 ☺	41.1	10
Jun-02	6225.3	107 ☺	9.5 ☺	35 ☺	26.2 ☺	72 ☺	17.1	50 >	179.9 ☺	142 ☺	40.1 ☺	157
Jul-02	6225.0	261 ☺	8.9 ☺	7 <	23.8 ☺	76 ☺	16.6	14 ☺	176.2 ☺	69 ☺	36.4 ☺	117
Aug-02	6224.4	375 ☺	8.2 ☺	7 <	19.2 ☺	83 >	15.7	13 ☺	171.9 ☺	69 ☺	35.8 ☺	67
Sep-02	6224.0	236 ☺	7.0	18 ☺	14.3	87 >	15.0	13 ☺	169.0	55 ☺	29.6	156
Oct-02	6223.6	101 ☺	4.5	49 ☺	9.8	88 ☺	14.7	8 ☺	167.8	55 ☺	22.3	181
Nov-02	6223.6	52 <	3.2	33 ☺	9.8	22 <	14.3	10 ☺	166.6	60 ☺	14.2	197
Dec-02	6223.6	49 <	3.2	16	9.8	30 ☺	14.2	9 ☺	166.6	57 ☺	9.0 <	141

KEY: > Instream fish flows that exceed maximums

☺ Instream fish flows and reservoir storages that are within objective ranges

< Instream fish flows that are below minimum flows and reservoir storages that are below preferred minimum storages

Note: Reservoir storage is in thousand acre-feet at the end of the month and releases are in cubic feet per second as a monthly average

**Table 5 - Instream Flow General Objectives (in cubic feet per second)\***

	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>	<u>Jan.</u>	<u>Feb.</u>	<u>Mar.</u>	<u>Apr.</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>
Minimum flow out of Lake Tahoe	75	75	75	75	75	75	75	75	75	75	75	75
Preferred flow out of Lake Tahoe	300	300	300	300	250	250	300	300	300	300	250	250
Maximum flow out of Lake Tahoe	600	600	600	600	500	500	600	600	600	600	500	500
Min. flow, Truckee R. below Donner Ck.	100	100	100	100	100	100	100	100	100	100	100	100
Pref. flow, Truckee R. below Donner Ck.	300	300	300	300	250	250	300	300	300	300	250	250
Max. flow, Truckee R. below Donner Ck.	600	600	600	600	500	500	600	600	600	600	500	500
Minimum flow, TruckeeR. below Boca	150	150	150	150	150	150	150	150	150	150	150	150
Preferred flow, Truckee R. below Boca	300	300	300	300	250	250	300	300	300	300	250	250
Maximum flow, Truckee R. below Boca	600	600	600	600	500	500	600	600	600	600	500	500
Minimum flow out of Donner Lake	8	8 <sup>1</sup>	not appl <sup>1</sup>	not appl <sup>1</sup>	not appl <sup>1</sup>	not appl <sup>1</sup>	8 <sup>1,2</sup>	8 <sup>2</sup>	8 <sup>2</sup>	8 <sup>2</sup>	8 <sup>2</sup>	8
Preferred flow out of Donner Lake <sup>3</sup>	50	50	not appl <sup>1</sup>	not appl <sup>1</sup>	not appl <sup>1</sup>	not appl <sup>1</sup>	50	50	50	50	10	10
Maximum flow out of Donner Lake	100	100	not appl <sup>1</sup>	not appl <sup>1</sup>	not appl <sup>1</sup>	not appl <sup>1</sup>	100	100	100	100	20	20
Minimum flow out of Prosser <sup>4</sup>	25	25	25	25	25	12	12	12	12	12	12	25
Preferred flow out of Prosser	50	50	50	50	35	35	75	75	75	75	30	30
Maximum flow out of Prosser	100	100	100	100	70	70	150	150	150	150	60	60
Minimum flow out of Independence <sup>5</sup>	7	7	7	7	4	4	8	8	8	8	4	4
Preferred flow out of Independence	20	20	20	20	10	10	20	20	20	20	10	10
Maximum flow out of Independence	40	40	40	40	20	20	40	40	40	40	20	20
Preferred flow into Stampede	90	90	90	90	50	50	90	90	90	90	30	30
Minimum flow out of Stampede	45	45	45	45	45	45	45	45	45	45	45	45
Preferred flow out of Stampede	125	125	125	125	100	100	125	125	125	125	100	100
Maximum flow out of Stampede	250	250	250	250	200	200	250	250	250	250	200	200

1. California Dam Safety Requirements preclude storing water in Donner Lake from November 15 to April 15, which preclude the possibility of controlling releases.
2. The minimum-flow objective for Donner Lake during April through August is reduced to 5 cfs or natural inflow, whichever is less, when the lake is projected to have less than 8,000 acre-feet of storage on Labor Day. Exchanges to meet TROA Enhanced Minimum Flows would be reduced similarly to the extent California is able to obtain a waiver for this under TROA Section 9.C.1(c).
3. As stated in TROA Section 9.F.1(a), preferred instream flows out of Donner during a Dry Season may not be specified; consequently, the flows shown here do not apply during a Dry Season.
4. Since physical constraints prevent releases between 12 cfs and 25 cfs, this is the minimum flow until the dam is modified to allow a minimum flow of 16 cfs throughout the year.
5. These releases from Independence Lake are required to the extent specified in TROA Section 9.C.6(a).

\*Developed from Instream Flow Requirements, Truckee River Basin, Lake Tahoe to Nevada (California Department of Fish and Game, 1996)

## Table 6 - Reservoir Storage Objectives (in thousands of acre-feet)

### Reservoir Storage for Recreation Purposes

- Minimum storage is an absolute minimum in the sense that recreation opportunities do not exist when storage is lower.
- June through August storage's are inclusive of the Memorial Day and Labor Day holiday weekends.

	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>	<u>Jan.</u>	<u>Feb.</u>	<u>Mar.</u>	<u>Apr.</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>
Minimum Storage in Donner Lake <sup>1</sup>	--	--	--	--	--	--	--	--	6.3	6.3	6.3	--
Preferred Min. Storage in Donner Lake	--	--	--	--	--	--	--	--	8	8	8	--
Minimum Storage in Prosser Creek Res.	--	--	--	--	--	--	--	--	11	11	11	--
Preferred Min. Storage in Prosser Creek Res.	--	--	--	--	--	--	--	--	19	19	19	--
Minimum Storage in Stampede Res.	--	--	--	--	--	--	--	--	62	62	62	--
Preferred Min. Storage in Stampede Res.	--	--	--	--	--	--	--	--	127	127	127	--
Minimum Storage in Boca Res.	--	--	--	--	--	--	--	--	22	22	22	--
Preferred Min. Storage in Boca Res.	--	--	--	--	--	--	--	--	33.5	33.5	33.5	--

### Reservoir Storage Levels to Protect Reservoir Fisheries

Minimum Fish Storage - Prosser Creek Res.	5	5	5	5	5	5	5	5	5	5	5	5
Minimum Fish Storage - Stampede Res.	15	15	15	15	15	15	15	15	15	15	15	15
Minimum Fish Storage - Boca Res.	10	10	10	10	10	10	10	10	10	10	10	10
Min. Fish Storage in Independence Lake <sup>2</sup>	--	--	--	--	--	--	7.5	7.5	7.5	7.5	--	--

### Other Reservoir Storage Objectives

Exchanges out of Lake Tahoe may be recommended at appropriate times to help reduce the potential for wave-induced erosion, to increase the available habitat for the Tahoe Yellow Cress, and to help meet water quality objectives for the Truckee River.

<sup>1</sup> Minimum storage specified in the Donner Lake Indenture Agreement (May 3, 1943), below which releases are not permitted

<sup>2</sup> Minimum storage for spawning access to upper Independence Creek for the Independence Lake and Independence Creek population of Lahontan Cutthroat Trout