

**Placer County Water Agency
Middle Fork American River Project
(FERC No. 2079)**

**Proposed General Visitor Survey
Approach and Protocols**

March 26, 2008

Vehicle Count Data

- Vehicle counts were initiated in May of 2007 and will continue through May of 2008.
- Vehicle counts were conducted at developed day use areas, dispersed concentrated use areas, turnouts, and Hell Hole Reservoir area campgrounds.
 - USFS data was used for French Meadows Reservoir area campgrounds
- Summer data was compiled and distributed to the TWG on January 15, 2007.
 - Summary Data
 - Raw Data
- Average daily vehicle count totals assumes complete turnover of vehicles between sampling periods.

Vehicle Count Turnover

- Adjusted vehicle count data based on turnover rates .
 - 1 = No or Low Turnover
 - 2 = Moderate Turnover
 - 4 = High Turnover
- Different turnover rates for different types of sites.
 - Campgrounds - no turnover
 - Developed day use areas - varies by site, from no turnover to 4 times a day
 - Dispersed concentrated use areas - varies by site, from no turnover to 4 times a day

Turnover

Table: Vehicle Turnover Rate by Location

Table:Vehicle Turnover Rate by Location

	Site ID	Turn Over Factor	
<p>No/Low Turnover Use at site is for extended period, all-day, or multi-day recreation. During the course of a recreation day there is no expected vehicle turn over.</p>	L6	Cherokee Bar Overlook (from Drivers Flat Rd.)	1
	L8	Ruck-a-Chucky Day-use at gate upstream of Ruck-a-Chucky Day-use Boater Access	1
	U11	McGuire Picnic Area	1
	U12	McGuire Boat Ramp	1
	U13	Vista/Trailhead to Poppy Campground	1
	U17	Hell Hole Boat Ramp Parking Areas	1
	U18	Hell Hole Boat Ramp	1
	U2	Area Near Duncan Creek Gage and Weir	1
	U3	Area near new bridge crossing Duncan Creek	1
		Ahart Campground	1
		Coyote Group Campground	1
		Poppy Campground	1
		French Meadows Campground	1
		Gates Group Campground	1
		Lewis Campground	1
		Middle Meadow's Campground	1
		Big Meadow's Campground	1
	Hell Hole Campground	1	
<p>Moderate Turnover Use at site is for less then full-day recreation. During the course of a recreation day there is an expected vehicle turn over twice during the recreation day.</p>	L1	Indian Bar Rafting Access and General Parking	2
	L10	Confluence Area	2
	L11	Quarry Trail Parking Area	2
	L2	Ralston Picnic Area	2
	L3	Ralston Picnic Area Cartop Boat Ramp	2
	L4	Ralston Powerhouse Parking Turnout	2
	L7	Ruck-a-Chucky Day-use Boater Access (Drivers Flat, Greenwood Bridge)	2
	L9	Mammoth Bar	2
	U10	Area near bridge over MFAR (U10a) and turnouts along road across from Lewis CG (U10b)	2
	U16	Hell Hole General Parking Area	2
	U5	Area located immediately west of FM Reservoir (near spillway)	2
	U6	Area located immediately downstream of FM Reservoir Dam (parking near gate)	2
	U7	Area near FM-HH Tunnel Gatehouse (includes turnouts along FR 96 from dam to east of gatehouse)	2
U8	French Meadow Picnic Area (U8a) and Boat Ramp (U8b)	2	
U9	Turnouts along FR-96 between FM Boat Ramp and Bridge crossing MFAR	2	
<p>High Turnover Use at site is for short-duration recreation activities. During the course of a recreation day there is an expected vehicle turn over four times during the recreation day.</p>	L5	Ralston Afterbay Sediment Disposal Area	4
	U1	Area North of Duncan Creek Diversion	4
	U14	Area surrounding South Long Canyon Diversion Dam (U14a) and turnouts along FR2 to NF Long Canyon Dam turnoff (U14b)	4
	U15	Hell Hole Vista	4
	U4	Large Areas on road west of FM Reservoir	4

Survey Population

- Estimated total survey population for holidays, weekdays, and weekend days based upon adjusted vehicle counts and 2.8 people per vehicle.

Sampling Design

- Based on the survey population, calculated required number of samples to achieve a statistically valid sample size ($\pm 10\%$) for individual sites.
- Determined number of survey days based on:
 - The number of required samples
 - Average number of daily users on holidays, weekdays, and weekend days
 - Interception rate of 75% of potential users
 - Participation rate of 33%

Proposed Survey Approach

- Proposed survey locations are organized based on use levels:
 - Individual sites proposed for statistical surveys – use is high enough to support statistically valid survey effort
 - Grouped sites proposed for statistical surveys – when individual sites are combined, use is high enough to support statistically valid survey effort
 - Grouped sites proposed for qualitative surveys - when individual sites are combined, use is high enough to warrant qualitative survey effort
 - Sites not proposed for survey – surveys are not feasible or practical due to very low use levels.

Proposed Survey Approach

Table: Sampling Effort

REC - 4 Survey Sampling Effort

	Site Description	# Holiday Days	# Weekend Days	# Weekday Days	Total # Sampling Days	Sampling Error
Individual Sites - Statistical Survey	Mammoth Bar	0.8	4.7	11.4	16.9	10.0%
	Ahart Campground	1.1	6.2	15.0	22.3	10.0%
	Coyote/Gates Group Campground **	0.2	1.1	2.8	4.1	10.0%
	French Meadows Campground	0.2	1.0	2.3	3.4	10.0%
	Lewis Campground	0.6	3.6	8.8	13.0	10.0%
	Middle Meadow's Campground **	1.7	7.1	16.3	25.1	10.0%
	Big Meadow's Campground	1.2	6.6	16.1	23.9	10.0%
	French Meadow Picnic Area (U8a) and Boat Ramp (U8b)	0.7	3.0	7.3	11.0	10.0%
Grouped Sites - Statistical Survey	Confluence Area	0.1	0.3	0.6	1.0	10.0%
	Quarry Trail Parking Area					
	Ruck-a-Chucky Day-use Boater Access (Drivers Flat, Greenwood Bridge)	0.7	4.1	9.9	14.7	10.0%
	Ruck-a-Chucky Day-use at gate upstream of Ruck-a-Chucky Day-use Boater Access					
	Hell Hole General Parking Area	1.0	4.6	15.4	21.0	10.0%
	Hell Hole Boat Ramp Parking Areas Hell Hole Boat Ramp					
Sites Proposed for Qualitative Survey	Indian Bar Rafting Access and General Parking	1	6	0	7	
	Ralston Picnic Area					
	Ralston Picnic Area Cartop Boat Ramp					
	Ralston Powerhouse Parking Turnout					
	Oregon Bay/China Bar	1	6	0	7	
	Area North of Duncan Creek Diversion	1	6	0	7	
	Area Near Duncan Creek Gage and Weir					
	Area near new bridge crossing Duncan Creek					
	Large Areas on road west of FM Reservoir	1	6	0	7	
	Area located immediately west of FM Reservoir (near spillway)					
	McGuire Picnic Area	1	6	0	7	
	McGuire Boat Ramp					
	Parking/Trailhead to Poppy Campground					
	Poppy Campground	1	6	0	7	
	Hell Hole Campground	1	6	0	7	
Grey Horse Campground	1	6	0	7		
Upper Hell Hole Campground						

Notes:

** Survey efforts at group campgrounds will be coordinated with USFS staff to ensure that surveys are conducted when sites are reserved.

General Protocols

- Statistical sites will be sampled on weekdays, weekend days and holidays.
- Qualitative sites will be sampled on weekends and holidays.
- Sampling effort for statistical sites is stratified by month based on use distribution – June, July, August.
 - For each month, the number of holiday, weekend-day, and weekday sample-day are assigned
 - Fridays will not be scheduled for sampling to provide an open day for QA/QC and data management activities and to allow for adjustments to the sampling schedule, if needed
 - Each sample-day represents two sample-blocks
 - Each sample-block represents a four hour sample effort

General Protocols

- Sampling-blocks dates for each month are first randomly selected for each “day-type.”
- Second, sampling blocks were systematically adjusted to account for staff loading.
- Staff load balancing only occurs within “day-type” categories.
 - Example: A weekday sampling block can be re-assigned to another weekday but not a weekend-day
- Sampling block times are systematically selected based on survey location and facility type.
- Surveyors will remain on site 4 hours (AM, PM, or evening) for each designated survey block.
- Surveyors will survey all persons encountered during the sampling block, provided they are willing to participate.

Site-Specific Protocols (MFP)

- Campgrounds
 - Surveys will be conducted during AM blocks (8-12) or evening blocks (4-8) only
 - Survey team will coordinate sampling dates for reserved group sites with Forest Service to ensure occupancy at site
- All Other Individual Sites
 - Surveys will be conducted during AM blocks (8-12) or PM blocks (1-5)
- Grouped Sites
 - Surveys will be conducted during AM blocks (8-12) or PM blocks (1-5)
 - Surveyors will rove through groups of sites over a 4-hour period
 - Starting points within each group of sites will be randomly selected

Site-Specific Protocols (MFP)

- Survey Administration
 - Section A-1 will be administered at all survey locations
 - With the exception of campgrounds, each user will be asked to complete two additional relevant sections based upon the primary activities they identify
 - Users intercepted at campgrounds will be asked to complete all relevant sections
 - Users that have just arrived at the survey location will be asked to complete section A-1 only
 - Survey administration may be adjusted pending the results and/or feedback from early sampling efforts

Site-Specific Protocols (ASRA)

Locations in ASRA

- Surveys will be conducted during AM blocks (8-12) or evening blocks (1-5), and will target stream-based recreation users
- Sections A-1 and A-5 will be administered at all locations
- Section A-7 will also be administered, if applicable

Ruck-a-Chucky

- Sections A-1 and A-5 will be administered to all users
- One of the following sections will be administered - Section A-2, A-3, or A-7

Survey Log

- Survey logs will be completed for each sampling location
- Surveyors will record the following information on the survey log:
 - Site Identification
 - Weather Conditions
 - Site Conditions
 - Surveyor Name
 - Date
 - Time Arrived at Site
 - Time Departed Site
 - Estimated Turnover Rate
 - Notes (e.g. access constraints, recent events that could affect use)
 - Contact Number
 - Contact Time
 - Surveyed Previously (Y/N)
 - Willingness to Participate (Y/N)
 - Just Arrived
 - Survey No.
 - Male/Female (M/F)
 - Number of people in group

Proposed Sampling Schedule

Table: Sampling schedule

Insert Proposed Sampling Schedule May through Oct - pdf

Proposed Survey Sampling Schedule - May

Site Description		24	25	26
Individual Sites - Statistical Survey	Mammoth Bar	X		
	Ahart Campground			
	Coyote /Gates Group Campground **			
	French Meadows Campground	X		
	Lewis Campground			
	Middle Meadow's Campground **		X	
	Big Meadow's Campground		X	
	French Meadow Picnic Area (U8a) and Boat Ramp (U8b)	X		
Grouped Sites - Statistical Survey	Confluence Area			X
	Quarry Trail Parking Area			
	Ruck-a-Chucky Day-use Boater Access (Drivers Flat, Greenwood Bridge)			X
	Ruck-a-Chucky Day-use at gate upstream of Ruck-a-Chucky Day-use Boater Access			
	Hell Hole General Parking Area	X		
	Hell Hole Boat Ramp Parking Areas			
	Hell Hole Boat Ramp			
Sites Proposed for Qualatative Survey	Indian Bar Rafting Access and General Parking			
	Ralston Picnic Area			
	Ralston Picnic Area Cartop Boat Ramp			
	Ralston Powerhouse Parking Turnout			
	Oregon Bar/China Bar		X	
	Area North of Duncan Creek Diversion			X
	Area Near Duncan Creek Gage and Weir			
	Area near new bridge crossing Duncan Creek			
	Large Areas on road west of FM Reservoir			X
	Area located immediately west of FM Reservoir (near spillway)			
	McGuire Picnic Area			X
	McGuire Boat Ramp			
	Parking/Trailhead to Poppy Campground			
	Poppy Campground	X		
	Hell Hole Campground		X	
	Grey Horse Campground		X	
	Upper Hell Hole Campground			
		5	5	5

Notes:

** - Sampling dates at group campgrounds may be adjusted to ensure that surveys are conducted when sites are reserved. PCWA will coordinate with USFS to obtain information regarding reservation status.

Proposed Survey Sampling Schedule - June

Site Description		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Individual Sites - Statistical Survey	Mammoth Bar		X			X					X				X		X					X				X		X		X		
	Ahart Campground			X				X	X		X	X			X			X		X				X	X						X	
	Coyote /Gates Group Campground **																								X				X			
	French Meadows Campground		X													X																
	Lewis Campground		X	X						X	X		X			X		X														
	Middle Meadow's Campground **		X	X					X		X			X		X		X		X			X		X			X		X		X
	Big Meadow's Campground	X			X						X	X		X			X			X				X	X	X	X			X	X	
	French Meadow Picnic Area (U8a) and Boat Ramp (U8b)			X					X								X				X				X							X
Grouped Sites - Statistical Survey	Confluence Area																	X												X		
	Quarry Trail Parking Area																															
	Ruck-a-Chucky Day-use Boater Access (Drivers Flat, Greenwood Bridge)								X		X						X	X					X			X	X					
	Ruck-a-Chucky Day-use at gate upstream of Ruck-a-Chucky Day-use Boater Access																															
	Hell Hole General Parking Area	X			X						X	X								X	X		X				X		X		X	
	Hell Hole Boat Ramp Parking Areas Hell Hole Boat Ramp																															
Sites Proposed for Qualatative Survey	Indian Bar Rafting Access and General Parking								X							X							X									
	Ralston Picnic Area																															
	Ralston Picnic Area Cartop Boat Ramp																															
	Ralston Powerhouse Parking Turnout																															
	Oregon Bar/Chian Bar					X																		X					X			
	Area North of Duncan Creek Diversion																X							X						X		
	Area Near Duncan Creek Gage and Weir																															
	Area near new bridge crossing Duncan Creek																															
	Large Areas on road west of FM Reservoir	X							X	X																						
	Area located immediately west of FM Reservoir (near spillway)																															
	McGuire Picnic Area								X							X								X								
	McGuire Boat Ramp																															
	Parking/Trailhead to Poppy Campground																															
	Poppy Campground	X															X							X								
	Hell Hole Campground	X							X																						X	
	Grey Horse Campground																X							X						X		
Upper Hell Hole Campground																																
		5	4	4	2	2	0	6	5	4	5	2	2	0	6	6	4	3	3	3	0	6	5	4	3	3	3	0	6	4	6	

Notes:
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Proposed Survey Sampling Schedule - July

Site Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Individual Sites - Statistical Survey																																
Mammoth Bar	X			X		X			X	X		X	X		X	X	X				X		X				X	X			X	
Ahart Campground	X	X	X	X	X	X	X	X		X		X	X	X	X		X				X			X			X	X	X			
Coyote/Gates Group Campground**				X	X		X										X															
French Meadows Campground																						X			X							
Lewis Campground			X	X			X			X			X	X		X				X					X		X				X	
Middle Meadow's Campground**	X	X	X	X	X	X	X	X	X				X	X	X	X				X		X	X	X			X	X		X	X	
Big Meadow's Campground		X	X		X		X	X	X				X	X	X	X				X	X	X	X	X			X	X	X	X	X	
French Meadow Picnic Area (U8a) and Boat Ramp (U8b)			X						X				X	X			X			X					X		X				X	
Grouped Sites - Statistical Survey																																
Confluence Area																X				X												
Quarry Trail Parking Area																																
Ruck-a-Chucky Day-use Boater Access (Drivers Flat, Greenwood Bridge)	X				X	X						X			X							X	X	X				X	X			X
Ruck-a-Chucky Day-use at gate upstream of Ruck-a-Chucky Day-use Boater Access																																
Hell Hole General Parking Area		X	X					X	X						X	X		X		X	X	X	X				X	X	X	X	X	
Hell Hole Boat Ramp Parking Areas																																
Hell Hole Boat Ramp																																X
Sites Proposed for Qualatative Survey																																
Indian Bar Rafting Access and General Parking				X	X							X	X							X							X					
Ralston Picnic Area																																
Ralston Picnic Area Cartop Boat Ramp																																
Ralston Powerhouse Parking Turnout																																
Oregon Bar/China Bar					X	X						X	X								X											
Area North of Duncan Creek Diversion						X						X	X								X						X					
Area Near Duncan Creek Gage and Weir																																
Area near new bridge crossing Duncan Creek																																
Large Areas on road west of FM Reservoir						X														X	X						X	X				
Area located immediately west of FM Reservoir (near spillway)																																
McGuire Picnic Area						X						X									X						X	X				
McGuire Boat Ramp																																
Parking/Trailhead to Poppy Campground																																
Poppy Campground					X	X						X	X								X											
Hell Hole Campground				X	X							X								X							X					
Grey Horse Campground				X	X	X						X								X									X			
Upper Hell Hole Campground																																
	4	4	6	8	10	10	5	4	5	3	0	10	10	6	6	5	5	0	9	9	6	5	5	4	0	10	10	5	4	4	4	

Notes:
 ** - Sampling dates at group campgrounds may be adjusted to ensure that surveys are conducted when sites are reserved. PCWA will coordinate with USFS to obtain information regarding reservation status.

Proposed Survey Sampling Schedule - August

Site Description		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Individual Sites - Statistical Survey	Mammoth Bar					X	X			X	X	X									X			X		X		X			X			
	Ahart Campground						X			X	X		X	X			X	X	X	X	X					X		X	X					
	Coyote/Gates Group Campground**													X										X								X		
	French Meadows Campground		X																							X								
	Gates Group Campground																X										X		X					
	Lewis Campground					X								X					X						X	X	X					X		
	Middle Meadow's Campground**			X	X	X	X			X		X	X	X								X	X		X				X	X	X		X	
	Big Meadow's Campground			X	X	X	X			X		X			X				X	X	X								X	X	X	X	X	
	French Meadow Picnic Area (U8a) and Boat Ramp (U8b)											X							X	X	X	X					X							
Grouped Sites - Statistical Survey	Confluence Area																					X			X					X				
	Quarry Trail Parking Area																																	
	Ruck-a-Chucky Day-use Boater Access (Drivers Flat, Greenwood Bridge)						X	X			X	X	X	X								X							X		X			
	Ruck-a-Chucky Day-use at gate upstream of Ruck-a-Chucky Day-use Boater Access																																	
	Hell Hole General Parking Area				X	X								X		X		X	X	X	X				X		X	X	X					
	Hell Hole Boat Ramp Parking Areas Hell Hole Boat Ramp																																	
Sites Proposed for Qualatative Survey	Indian Bar Rafting Access and General Parking																								X								X	
	Ralston Picnic Area																																	
	Ralston Picnic Area Cartop Boat Ramp																																	
	Ralston Powerhouse Parking Turnout																																	
	Oregon Bar/China Bar		X	X																														X
	Area North of Duncan Creek Diversion		X									X						X																
	Area Near Duncan Creek Gage and Weir																																	
	Area near new bridge crossing Duncan Creek																																	
	Large Areas on road west of FM Reservoir																									X							X	
	Area located immediately west of FM Reservoir (near spillway)																																	
	McGuire Picnic Area		X	X								X																						
	McGuire Boat Ramp																																	
	Trailhead/Parking to Poppy Campground.																																	
	Poppy Campground																		X							X	X							
	Hell Hole Campground				X						X																					X		X
Grey Horse Campground		X									X															X					X			
Upper Hell Hole Campground																																		
		0	5	5	3	4	4	3	0	6	6	4	5	3	3	0	5	5	5	4	5	3	0	6	5	5	4	4	5	6	4	6		

Notes:
 ** - Sampling dates at group campgrounds may be adjusted to ensure that surveys are conducted when sites are reserved. PCWA will coordinate with USFS to obtain information regarding reservation status.

Proposed Survey Sampling Schedule - September

Site Description		1
Individual Sites - Statistical Survey	Mammoth Bar	
	Ahart Campground	X
	Coyote/Gates Group Campground **	
	French Meadows Campground	
	Lewis Campground	
	Middle Meadow's Campground **	
	Big Meadow's Campground	
	French Meadow Picnic Area (U8a) and Boat Ramp (U8b)	X
Grouped Sites - Statistical Survey	Confluence Area	
	Quarry Trail Parking Area	
	Ruck-a-Chucky Day-use Boater Access (Drivers Flat, Greenwood Bridge)	
	Ruck-a-Chucky Day-use at gate upstream of Ruck-a-Chucky Day-use Boater Access	
	Hell Hole General Parking Area	X
	Hell Hole Boat Ramp Parking Areas	
	Hell Hole Boat Ramp	
Sites Proposed for Qualatative Survey	Indian Bar Rafting Access and General Parking	X
	Ralston Picnic Area	
	Ralston Picnic Area Cartop Boat Ramp	
	Ralston Powerhouse Parking Turnout	
	Oregon Bar/China Bar	
	Area North of Duncan Creek Diversion	X
	Area Near Duncan Creek Gage and Weir	
	Area near new bridge crossing Duncan Creek	
	Large Areas on road west of FM Reservoir	X
	Area located immediately west of FM Reservoir (near spillway)	
	McGuire Picnic Area	X
	McGuire Boat Ramp	
	Trailhead/Parking to Poppy Campground	
	Poppy Campground	X
	Hell Hole Campground	
	Grey Horse Campground	
	Upper Hell Hole Campground	
		8

Notes:

** - Sampling dates at group campgrounds may be adjusted to ensure that surveys are conducted when sites are reserved. PCWA will coordinate with USFS to obtain information regarding reservation status.