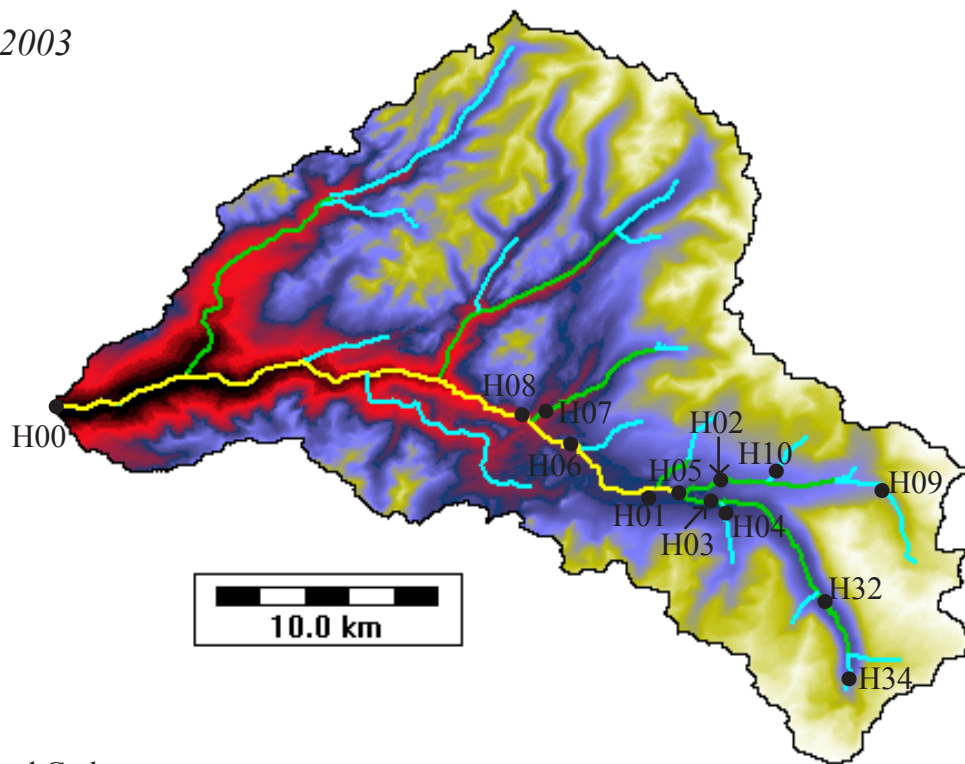


Guide to Streamgauging Sites in the Tuolumne River Drainage

*measurements by Jessica Lundquist, Brian Huggett, Jim Roche,
Mike Dettinger, Dan Cayan, Dave Peterson, and Rich Smith*

version 1.2

October 3, 2003



List of Sites and Codes:

site code	site name	longitude	latitude	elevation (ft/m)
H01	Budd Ck	-119.38150	37.87333	8508 / 2593
H02	Dana Fork (at Tuol lodge)	-119.33250	37.87630	8742 / 2665
H03	Lyell Fork (Blw Twin Br)	-119.33367	37.86900	8762 / 2671
H04	Rafferty Ck	-119.32220	37.86667	8742 / 2665
H05	Tuolumne R (Hwy120 Bridge)	-119.35450	37.87550	8699 / 2651
H06	Tuolumne R (Abv Glen Aulin)	-119.40983	37.89950	8360 / 2548
H07	Conness Ck (at Glen Aulin)	-119.41867	37.91017	7870 / 2399
H08	Tuolumne R (Blw Glen Aulin)	-119.42033	37.90983	7870 / 2399
H09	Parker Pass Ck	-119.24695	37.87820	9605 / 2928
H10	Gaylor Ck	-119.30150	37.87917	9614 / 2930
H00	Tuolumne abv Hetch Hetchy	-119.65800	37.91600	3835 / 1169
H32	Lyell abv Ireland	-119.27711	37.82564	8855 / 2699
H34	Lyell at Maclure Bridge	-119.26139	37.77778	9670 / 2947

Yosemite Hydroclimate Monitoring Network

Site name: **Budd Creek**

Site code: H01

Latitude: -119.38150

Longitude: 37.87333

Elevation: 2593 m

Basin area: 5.99 km²

Established: 8/2001

Instruments: solinst

seabird

hobo

tidbit

Conductivity: 2-3 μ S

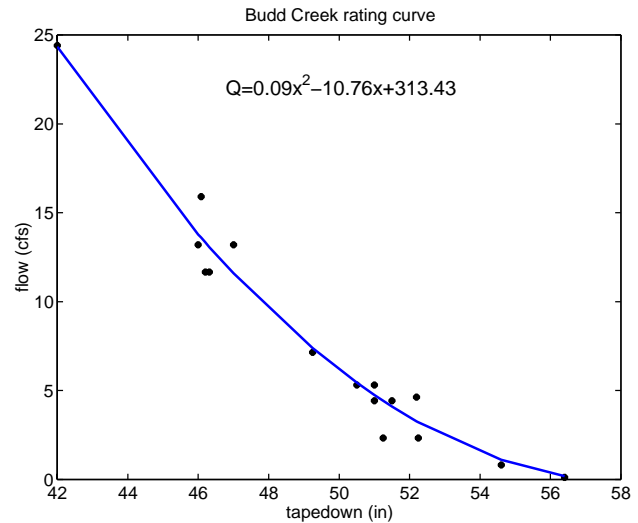
Stream Order: 1



Tapedown: Marked with circle and line on downstream side of culvert, river right



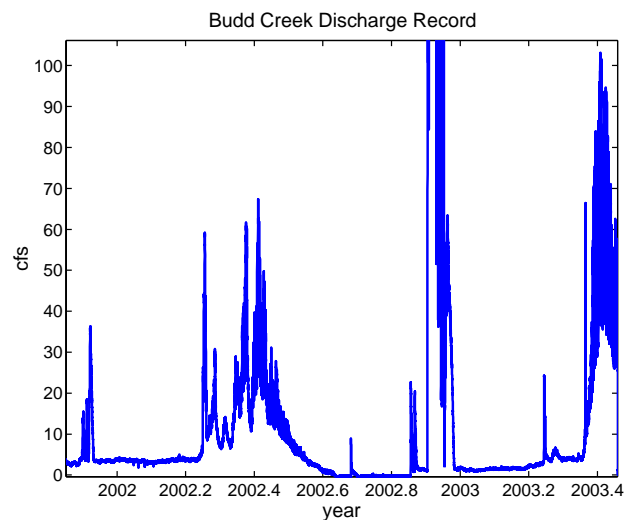
Tapedown-based Rating Curve:



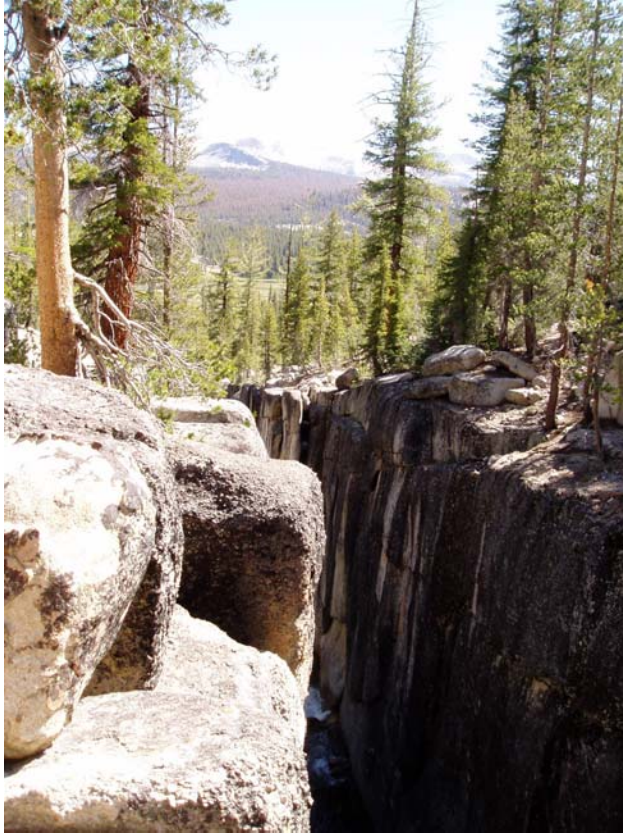
Flow Measurement: Taken downstream of culvert and fallen tree, in rectangular x-section



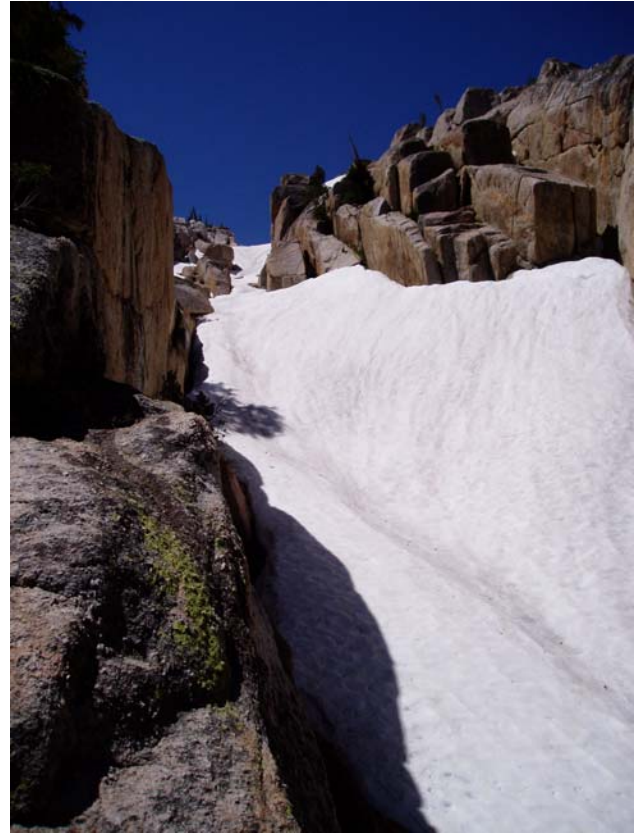
Streamflow record:



Budd Creek Basin Characteristics: North-facing, granite slopes, very little soil. Headwaters originate in Budd Lake, several small unnamed lakes, and a series of fissures that fill with snow. Stream flows very quickly, with a section through a deep chasm in the rock, keeping stream temperatures and conductivity low. Stream height rises anomalously high during initiation of spring melt each year.



Deep crevasse through which Budd Creek flows.
P6260211



Fissure of snow where meltwater originates.
P6260220



Budd Lake on June 26, 2003.
P6260228



Budd Lake on July 30, 2003. Snow in foreground of June photo has all melted away.
P7300711

Yosemite Hydroclimate Monitoring Network

Site name: **Dana Fork, Tuolumne River
at Tuolumne Lodge bridge**

Site code: H02
Latitude: -119.33250
Longitude: 37.87630
Elevation: 2665 m
Basin area: 73.52 km²
Established: 8/2001
Instruments: solinst
seabird
hobo
Conductivity: 16-48 µS
Stream Order: 2

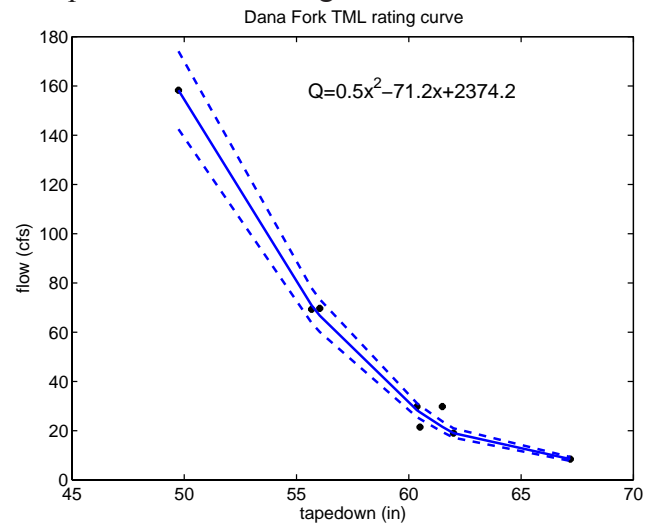


Instrument located upstream of bridge. SDC80034

Tapedown: Taken from mark on upstream side of bridge, stream left P6180079



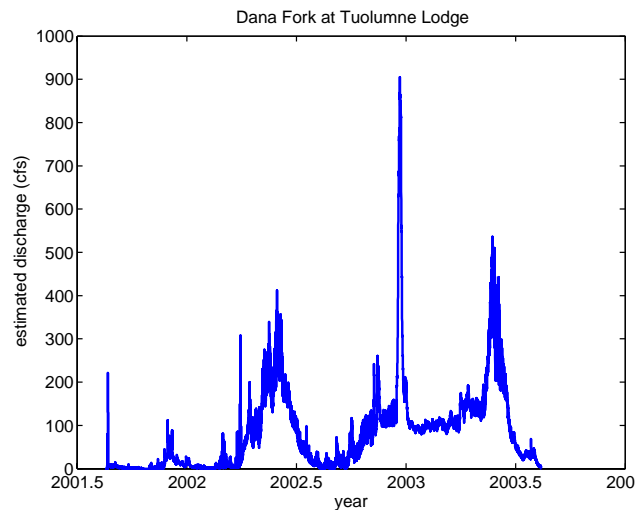
Tapedown-based rating curve:



Flow measurement: Typically taken downstream of bridge and waterfall/swimhole near Dog lake Parking, just before channel divides. Velocity here is too low for pygmy meter during lower flows. P6250206



Streamflow record:



Site name: **Lyell Fork, Tuolumne River
at twin bridges**

Site code: H03

Latitude: -119.33367

Longitude: 37.86900

Elevation: 2671 m

Basin area: 108.93 km²

Established: 8/2001

Instruments: solinst
hobo

Conductivity: 8-25 µS

Stream Order: 2



Instrument located upstream of rock down-stream of bridges. P6180072

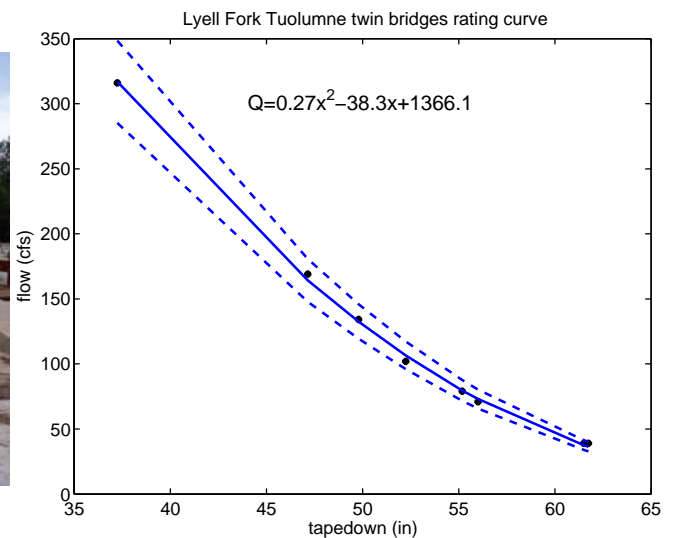
Tapedown: Taken from mark on bridge closer to lodge, upstream, river right. P6180069



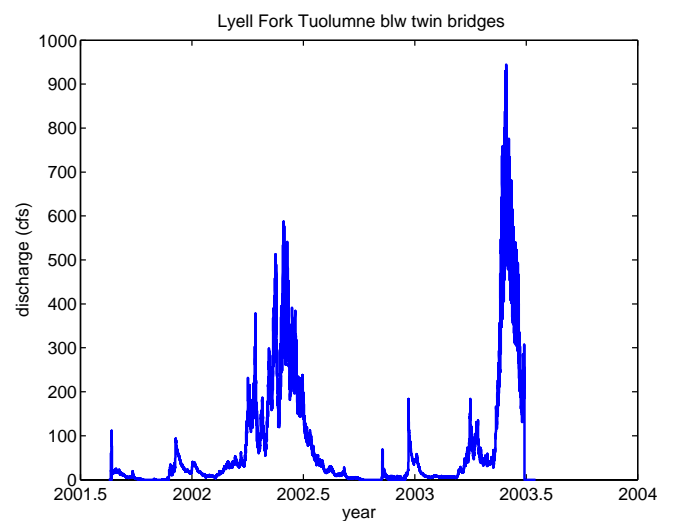
Flow measurement: Typically taken in meadow upstream of twin bridges. Location needs to shift slightly as flows become lower. P6180065



Tapedown-based rating curve:



Streamflow record:



Yosemite Hydroclimate Monitoring Network

Site name: **Rafferty Creek**

Site code: H04

Latitude: -119.32220

Longitude: 37.86667

Elevation: 2665 m

Basin area: 24.53 km²

Established: 8/2001

Instruments: solinst
hobo

Conductivity: 3.5-6.5 μ S

Stream Order: 1



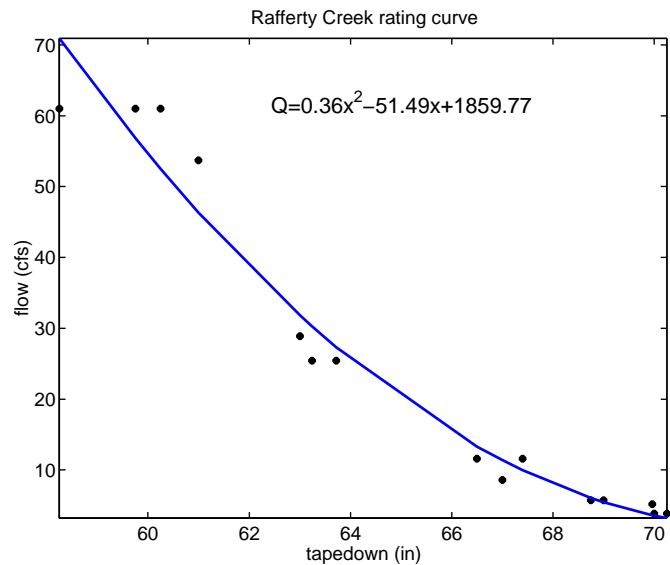
Tapedown: Marked with circle and line on upstream side of bridge, river left



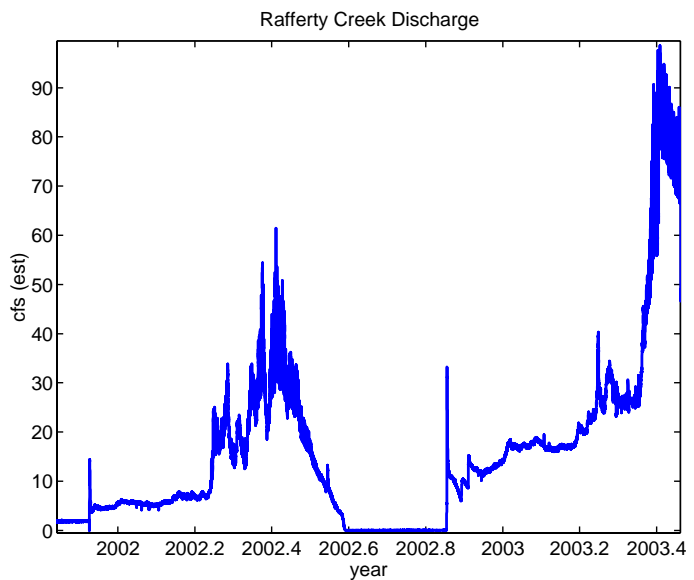
Flow Measurement: Braided channel, rocky, turbulent. Taken upstream in 3 parts early in season; downstream of bridge when flow is lower



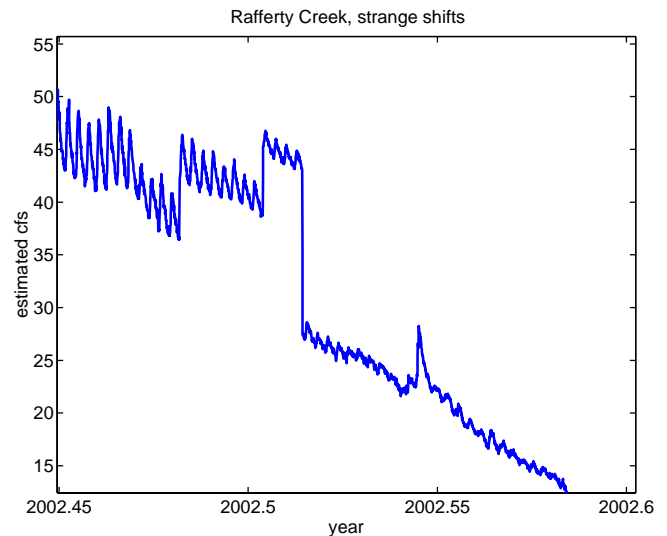
Tapedown-based Rating Curve:



Streamflow record:



Rafferty Creek Basin Characteristics: Separated from the Vogelsang drainage by only a shallow ridge, Rafferty Creek has few high-altitude areas to maintain late-summer snow. The basin is steep and rocky and prone to flashy flow in summer thunderstorms and during spring runoff. The instrument has moved repeatedly in the past, and accurate flow measurements are difficult to make in this area.



During summer 2002, the instrument seemed to shift dramatically in a period of an hour. This may be due to tourists moving the instrument. In August 2003, the instrument was reinstalled with a tighter cable and hidden carefully under rocks.

During peak flows in 2003, the instrument moved from the deep pool at site 1, to the much higher rock at site 2.



Evelyn Lake is the highest in Rafferty Creek's catchment and is separated from Vogelsang by a small rise.



The outlet to Evelyn Lake joins Rafferty Creek in a steep valley lined by the peaks in the back of this picture.

Yosemite Hydroclimate Monitoring Network

Site name: **Tuolumne River
at Highway 120 Bridge**

Site code: H05

Latitude: -119.35450

Longitude: 37.87550

Elevation: 2651 m

Basin area: 186.30 km²

Established: 8/2001

Instruments: solinst
seabird

Conductivity: 10-40 µS

Stream Order: 3



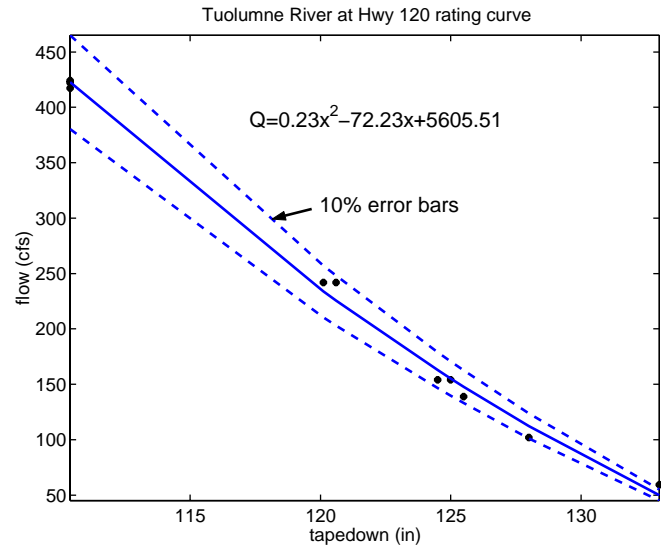
P7090378

Tapedown: Taken from mark on railing, up-stream side of bridge.

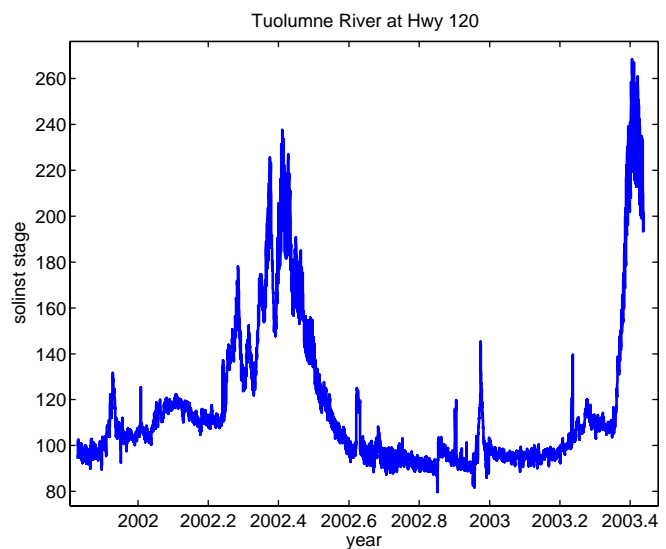


P7090377

Tapedown-based rating curve:



Streamflow record:



Flow
measure-
ment taken
down-
stream of
bridge near
meadow.
P7290697



Site name: **Tuolumne River
at bridges above Glen Aulin**

Site code: H06
Latitude: -119.40983
Longitude: 37.89950
Elevation: 2548 m
Basin area: 250.73 km²
Established: 8/2001
Instruments: solinst
Conductivity: 10-30 µS
Stream Order: 3

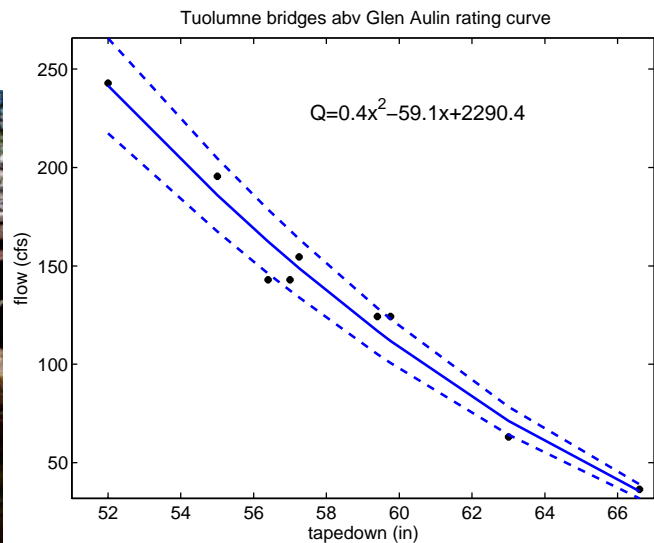


instrument

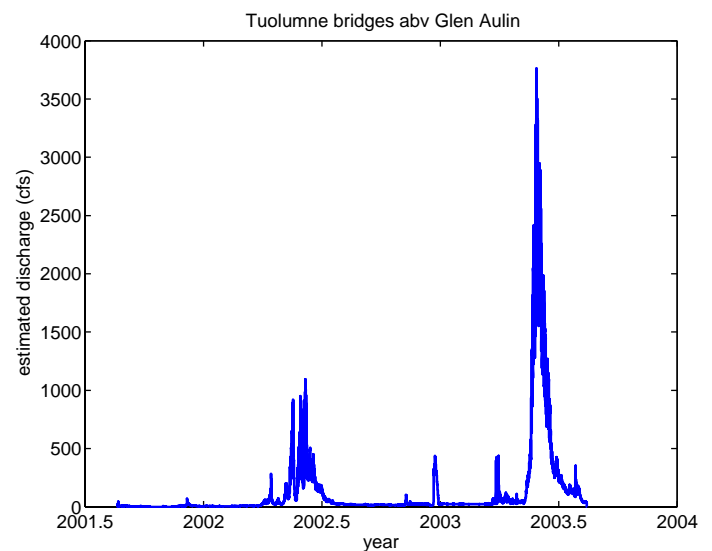
Tapedown: Taken from bridge near Tuolumne side of trail, upstream, river right towards center pylon, from bottom of horizontal metal. P8120920



Tapedown-based rating curve:



Streamflow record:



Flow measurements can only be taken at this location during low flows. Measurement typically taken below Glen Aulin Falls, above Conness Creek (see next page.)

Yosemite Hydroclimate Monitoring Network

Site name: **Conness Creek**

Site code: H07

Latitude: -119.41867

Longitude: 37.91017

Elevation: 2399 m

Basin area: 58.31 km²

Established: 8/2001

Instruments: solinst

hobo

tidbit

Conductivity: 6.5-19 µS

Stream Order: 2



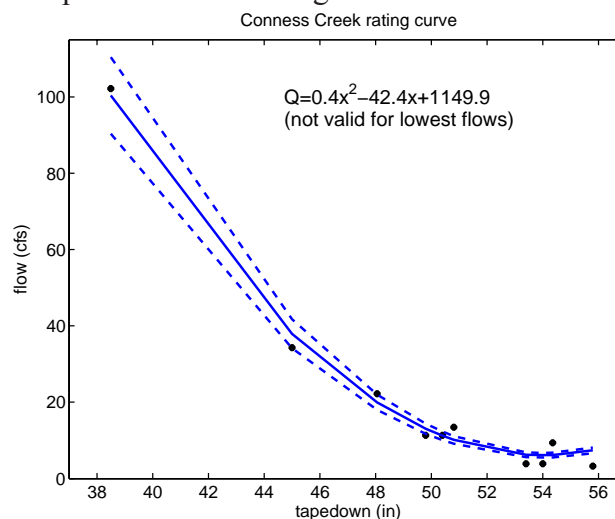
P8120925

Instrument located upstream of bridge, river right, in deep pool, under a bush.

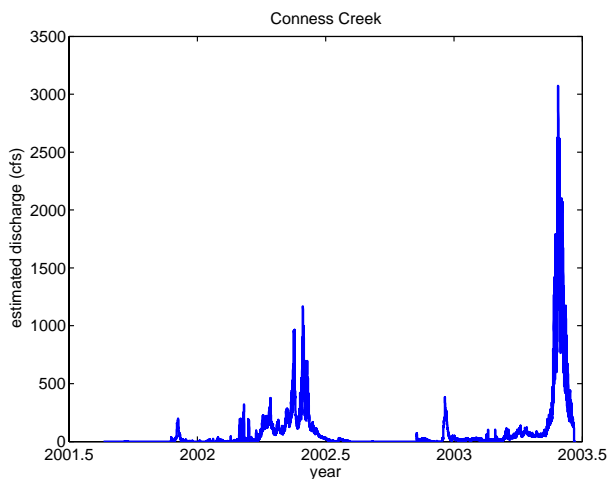
Tapedown: Taken from mark on Glen Aulin camp side pylon, upstream, river left. P8120924



Tapedown-based rating curve:



Streamflow record:



Flow measurement: No good cross-sections, but best available is upstream of bridge, next to camp.P7310753

Site name: **Tuolumne River
at Glen Aulin Bridge**

Site code: H08
Latitude: -119.42033
Longitude: 37.90983
Elevation: 2399 m
Basin area: 315.73 km²
Established: 8/2001
Instruments: solinst
barologger
Conductivity: 14-30 µS
Stream Order: 3



instrument

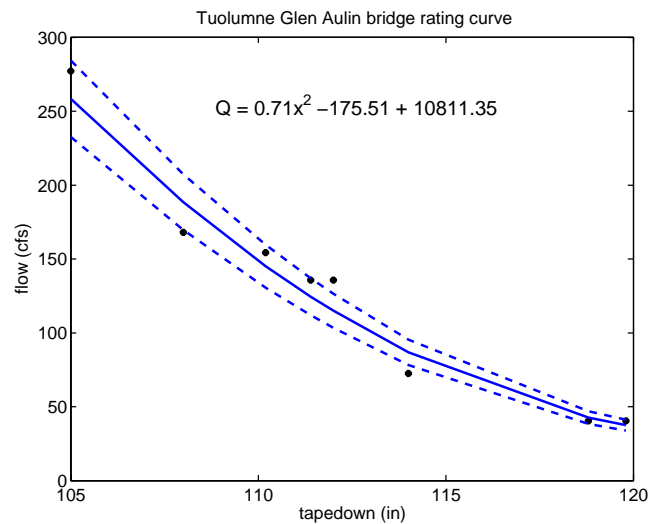
Tapedown: Taken from bottom horizontal metal ribar on bridge, upstream, river right, above instrument. Small arrow marks location. P8120926



Flow measurement: Typically taken below falls, above where Conness Creek joins the Tuolumne River. P7310758



Tapedown-based rating curve: (Flow is a sum of Conness and Tuolumne below the falls.)



No flow record available because previously installed instruments have been lost or removed from this location. Newer installation is better attached and better concealed.

Yosemite Hydroclimate Monitoring Network

Site name: **Parker Pass Creek**

Site code: H09

Latitude: -119.24695

Longitude: 37.87820

Elevation: 2928 m

Basin area: 24.26 km²

Established: 8/2001

Instruments: solinst
seabird
hobo

Conductivity: 17-22 µS

Stream Order: 1

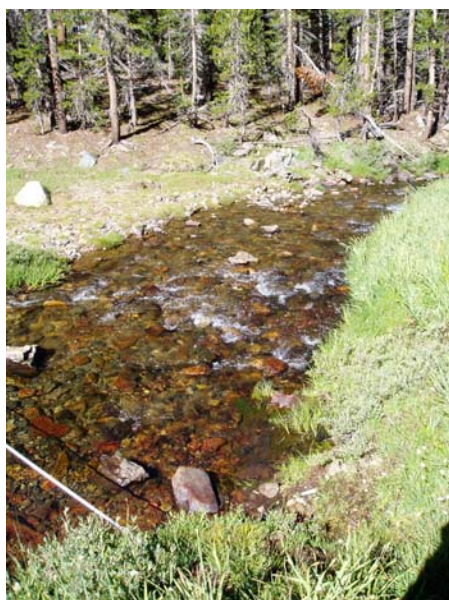


Instrument moved to new, more stable location 8/1/2003.
P8010772

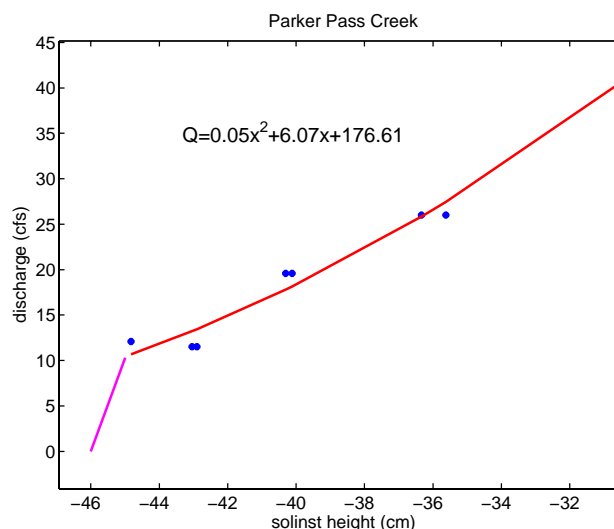
Tapedown: Taken from top of rock on stream left bank, above instrument.



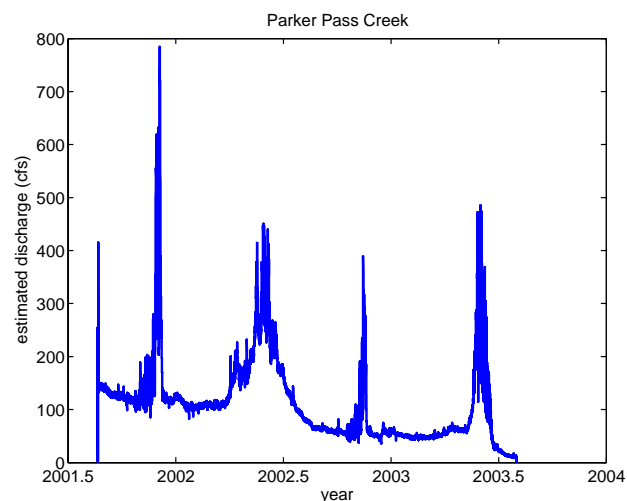
Flow measurement: Location varies with the season, generally taken above rocks and turbulent section upstream of instrument. P807819



Solinst-based rating curve for summer 2003:



Streamflow record: There appears to be a linear drift in the instrument and/or the channel.



Parker Pass Creek Basin characteristics: Parker Pass drains the Kuna Crest, the largest north-facing area in the Dana fork drainage, and runs longer than any other part of the Dana drainage. This may be due to more soils and soil water storage in the region of metamorphic rocks.



View of peaks contributing to the drainage, near Parker Pass. P1010344



Parker Pass Lake P7050337



June 27, 2003 Lots of snow on Mammoth Mtn and meadows are very wet. P6270242



July 6, 2003 The pond is shrinking and snow is less extensive. P7060369



July 16, 2003 Pond has mostly evaporated and snow has greatly decreased. P7160498



September 24, 2003 Meadow is dry. No snow persists on Mammoth Mtn. P9240991

Yosemite Hydroclimate Monitoring Network

Site name: **Gaylor Creek**

Site code: H10

Latitude: -119.30150

Longitude: 37.87917

Elevation: 2930 m

Basin area: 16.16 km²

Established: 8/2001

Instruments: solinst

hobo

seabird

Conductivity: 8-15 µS

Stream Order: 1



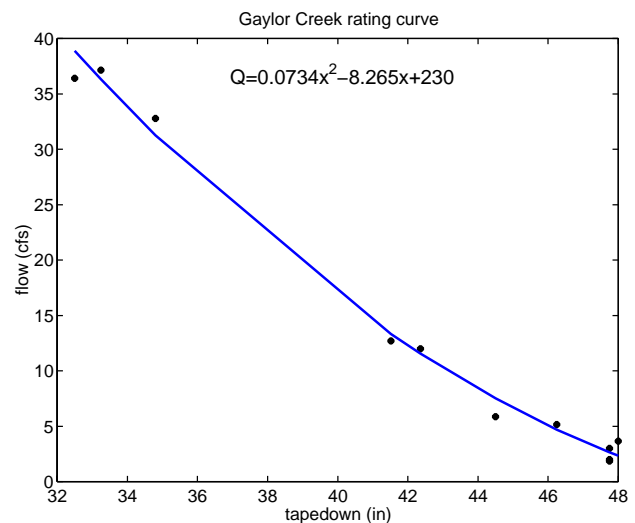
Tapedown: Marked with circle and line on upstream side of culvert, river left



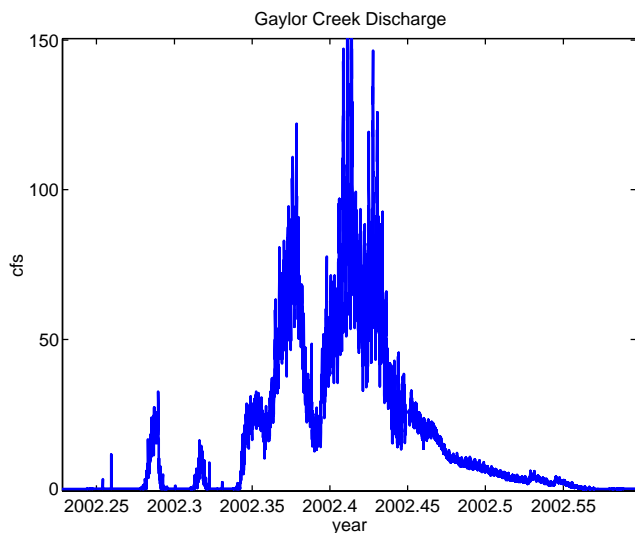
Flow Measurement: Taken downstream of culvert, location changes with flow, rocky



Tapedown-based Rating Curve:



Streamflow record:



Gaylor Creek Basin Characteristics: Primarily south-facing, with open meadows where water gets a lot of sun. Headwaters are made up of five lakes, of which the Upper Granite has the most shaded exposure. The basin is a juxtaposition of granite and metamorphic rocks, at the park border. The upper lakes remain ice-covered well into June.



The river spends time meandering through meadows and gets much sun.
P6300244



The middle Gaylor Lake, with the Granite Lakes cirque in the background. Snow and ice remain through June. P6240190



Outlet to Upper Granite Lake on June 30, 2003.
P6300291



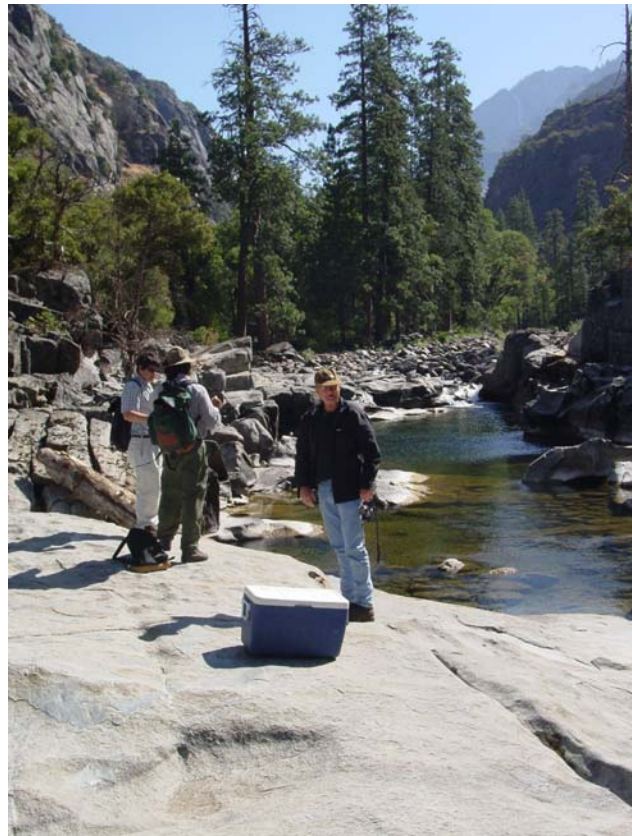
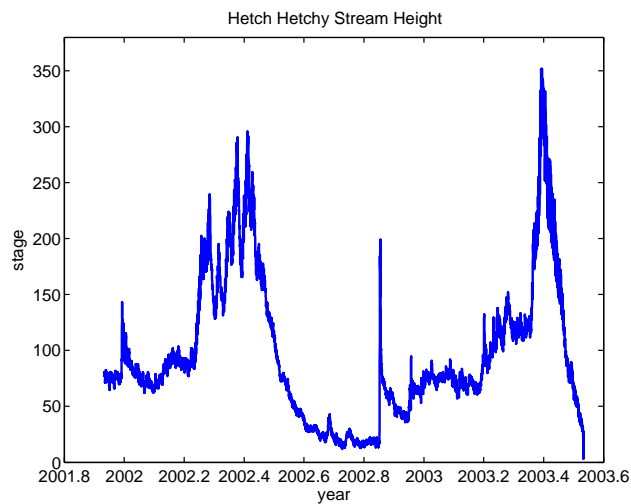
Outlet to Upper Granite Lake on July 15, 2003.
P7150443

Yosemite Hydroclimate Monitoring Network

Site name: **Tuolumne River
at Hetch Hetchy**

Site code: H00
Latitude: -119.6580
Longitude: 37.9160
Elevation: 1169 m
Basin area: 775.4 km²
Established: 9/2001
Instruments: seabird
Conductivity: 6-40 μ S
Stream Order: 3

Stage record:



View of instrument site.

Due to the inaccessibility of this site, no tapedown or flow measurements exist. We hope to relate instrument readings to discharge through comparison with inflow and outflow records at the Hetch Hetchy Reservoir.



View downstream from instrument site.



View upstream from instrument site.

Site name: **Lyell Fork, Tuolumne River
above Ireland Creek**

Site code: H32

Latitude: -119.27711

Longitude: 37.82564

Elevation: 2699 m

Basin area: 49.07 km²

Established: 9/2002

Instruments: solinst
hobo

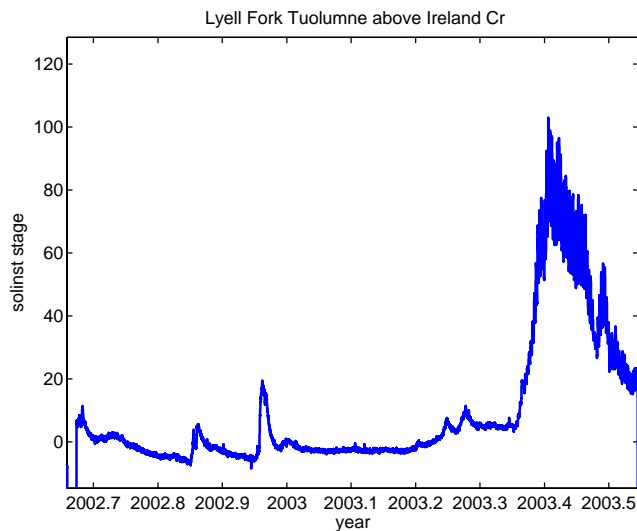
Conductivity: 9-18 μ S

Stream Order: 2



Tapedown: Needs to be established.

Stage record:



Flow measurement: Typically taken in box-shaped cross-section upstream of instrument.
P7280692



Dan points to the hobo in the tree upstream from the Lyell above Ireland site. You cross two small rivulets of water before finding this tree.
P7180520



View of Lyell Canyon P7220602

Yosemite Hydroclimate Monitoring Network

Site name: **Lyell Fork, Tuolumne River
at Maclure Creek Bridge**

Site code: H34
Latitude: -119.26139
Longitude: 37.77778
Elevation: 2947 m
Basin area: 15.40 km²
Established: 9/2003
Instruments: solinst
 hobo
Conductivity: 4-5 μ S
Stream Order: 1



Instrument would be placed near the central pylon under the bridge at river rights (side closer to Donahue Pass). P722_Maclure



Tapedown taken from upstream side of bridge on river right, near center pylon.P7220600

Note: Site is proposed. No instrument exists here at this time.



Flow measurement taken just downstream of bridge. Wading will not be possible at high flows.P7220596