
F1 Stream Reach Summary

Study Reach: F1, Fraser River - Lowest switch back on west slope of U.S. Highway 40 downstream to Denver Water Diversion.

Reach Description: Approximate channel length: 2 ½ miles, approximate channel slope 2.2%.

This is the most upstream reach of the Fraser River within the study footprint. The upstream limits begin at the first or lowest west slope switch back where the Fraser and U.S. Highway 40 converge and extends to the Denver Water Fraser River Diversion intake. This reach is relatively steep with vegetated overbanks, varying between wetlands-type vegetation and pine forests. The channel bed is predominantly cobble, with some areas heavily embedded with finer sediments as shown in the photograph below. One source of the fine sediment is likely from winter sanding operations along U.S. Highway 40. Erosion along the cut slopes of the highway, particularly along the switch backs in the upper basin, are also evident and likely to contribute to the sediment loading along F1. A sediment removal project at the Denver Water Fraser River Diversion intake is proposed and currently being implemented in a joint effort by the County, Denver Water, CDOT and the USFS (see F2).



Fraser River upstream of the Denver Water diversion intake

Flow Recommendations:

Environmental Flow Methodology: A study site was not established within this reach. CWCB instream flow recommendations are available.

Water Users:

- Irrigators, municipalities and industry: No diversions are present in this reach.
- Recreational flows: Angling is the predominant recreational used. This reach is within the National Forest boundaries and includes several campgrounds along the river.

Summary of Flows:

Environmental, recommended target flow range

- No environmental flow recommendations are made for this reach.

CWCB flows

- 6 cfs summer (04/15 – 09/30)
- 2.5cfs for winter (10/1 – 04/14)

Water Users

- Irrigators, municipalities and industry: No diversions are present in this reach.
- Angling: none reported

Stream Assessments: No additional stream assessments were conducted in F1.

Spawning Observations: No spawning observations have been made in F1.

Hydrologic Records: USGS Gage Station 09022000 has been operated within this reach from 1969 - 1973 and from 1985 - present. The daily streamflow exceedence plots for this station indicate the recommended CWCB flows are commonly available.

Water Temperature: F1 is a Tier I stream reach as designated by CDPHE with a chronic temperature standard of 17°C MWAT and an acute temperature standard of 21.2°C DM. Temperature data reviewed in reach F1 indicate stream temperatures for the Fraser River in this area are generally well below the MWAT and DM standards.

Water Quality: Sand operations on Highway 40 result in the application of approximately 6,400 tons of sand per year to the west side of Berthoud Pass. CDOT is able to clean and remove about half of this sand. The remaining sand accumulates adjacent to the Highway and along the Fraser River (Denver Post 2008). Extensive deposition was observed at the Fraser River Diversion Canal in July 2007 and 2008. A sediment removal project at the Denver Water Fraser River Diversion intake is proposed and currently being implemented in a joint effort by the County, Denver Water, CDOT and the USFS.

Other water quality issues include some concern, as noted in the UPCO report, about the possibility of a truck, carrying hazardous material, having an accident and contaminating the upper reaches of the Fraser River (HRC 2003).

Water Supply Issues (UPCO): Given the absence of development and diversions, flows in this reach are typically abundant and natural in regime.

Summary of Results and Additional Remarks:

1. Flows recommended by CWCB are commonly available.
2. This reach is above the major transbasin diverters and is relatively unaltered in its flow regime.
3. Water temperatures are likely supportive of a cold-water fishery.
4. Flows for water uses including recreation are generally adequate.
5. This reach is impacted by sand operations along U.S. Highway 40, immediately adjacent to the Fraser River. In addition, erosion observed along the upper switch backs appears to generate sediment that is also transported to the Fraser River.

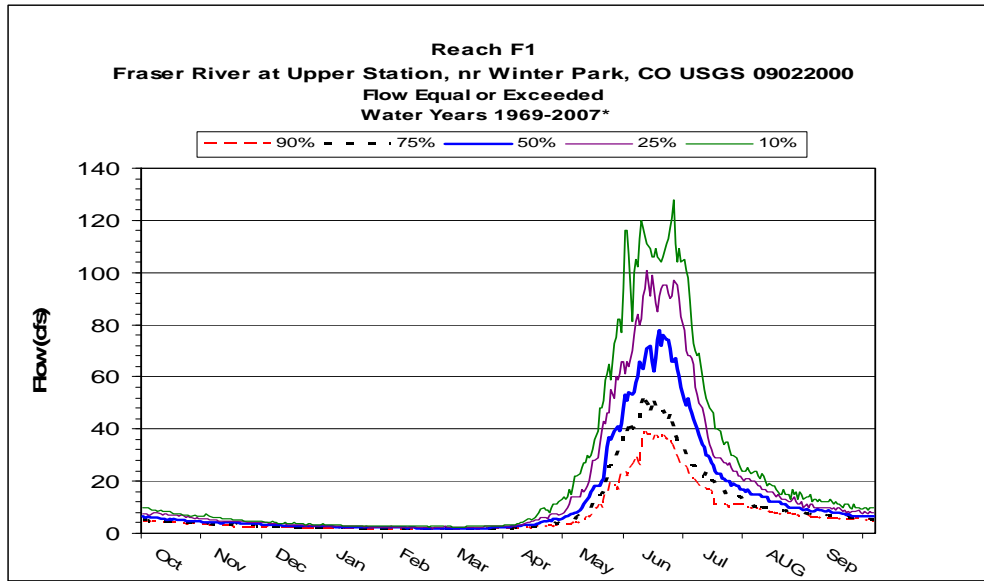
Restoration Opportunities:

- ✓ Implement roadside BMPs along U.S Highway 40 to limit traction sand and sedimentation from entering the river directly along this reach.

Monitoring: Monitor maintenance requirements and frequency of clean-out for the sediment pond proposed at the Denver Water intake on the upstream end of reach F2.

Support Data

Hydrographs and Exceedence Plots and Tables



Surface Water Temperature Plots

