

## Appendix 2.6 Fry-Ark Project and IPTDS Project Water Rights and By-Pass Flows

### Fry-Ark Project Water Rights

Table 1 summarizes the Fry-Ark Project's absolute and conditional water rights on the West Slope.

Table 1. Fryingpan-Arkansas Project water rights (West Slope facilities).

Tributary Source	Decreed Amount (cfs)	
	Absolute	Conditional
<b>NORTH SIDE COLLECTION SYSTEM</b>		
Carter Creek	83	17
Mormon Creek	60	
North Cunningham Creek	30	
Middle Cunningham Creek	50	
South Cunningham Creek	20	
Ivanhoe Creek	143	7
Granite Creek	45	5
Lily Pad Creek	335	
<b>SUBTOTALS</b>	<b>466</b>	<b>29</b>
<b>SOUTH SIDE COLLECTION SYSTEM</b>		
No Name Creek	85	10
Midway Creek	85	
Hunter Creek	140	
Sawyer Creek	40	
Chapman Creek	300	
South Fork Fryingpan River	250	
Main Stem Fryingpan River	362	38
<b>SUBTOTALS</b>	<b>1262</b>	<b>48</b>
Boustead Tunnel	900	
Ruedi Reservoir (Storage)	102,369 acre feet	
All rights:	Adjudication Date	June 20, 1958
	Appropriation Date	July 29, 1957
	Administration No.	39291.00000

## Minimum Bypass Flows on Fry-Ark Project Diversion Structures in the Fryingpan River Sub-watershed

In establishing the minimum bypass flows for the Fry-Ark Project diversion structures in the Fryingpan River Sub-watershed, the Bureau of Reclamation (BOR) may have had to reconcile several conflicting mandates.

The Fry-Ark Project Operating Principles, adopted in April of 1959 and amended in December of 1959 and again in 1960 (Operating Principles) require that Project diversions in the Fryingpan River Sub-watershed not reduce the combined streamflow at the points of diversion below 30 cfs from April through September. The Operating Principles also require that, “so far as is practicable,” this net bypass flow is to be apportioned among the affected streams “in proportion to their natural contributions” (Operating Principles, Section 9(1)(a)).

The Fry-Ark Project’s 1975 Final Environmental Statement (Final ES) included specific estimates of the natural contributions of each of the streams on which Fry-Ark Project diversion structures were located (BOR, 1975). These estimates were based on the actual streamflows during the months of May to September for the period of 1949-1964. Based on the relative flows of each of the streams during this period, the Final ES suggested allocation of the 30 cfs net bypass flow according to the following prorated scheme:

Table 2. Prorated allocation of 30 cfs net bypass flow based on natural flow of each stream (BOR, 1975).

STREAM	NATURAL STREAMFLOW NEAR DIVERSIONS BASED ON AVERAGE FROM 1949-1964		PRORATED BYPASS FLOW
	(1) (acre-feet)	(2) (percentage of total flow)	(3)* (cubic feet per second)
<b>North-Side Collection System</b>			
Carter Creek	3,500	5.22	1.6
North Fork (Fryingpan)	1,900	2.84	0.9
Mormon Creek	3,500	5.22	1.6
N. Cunningham Creek	2,100	3.13	0.9
M. Cunningham Creek	2,000	2.99	0.9
S. Cunningham Creek	1,200	1.79	0.5
Ivanhoe Creek	3,100	4.63	1.4
Granite Creek	3,600	5.37	1.6
Lily Pad Creek	1,400	2.09	0.6
<b>TOTAL</b>	<b>22,300</b>	<b>33.28</b>	<b>10</b>
<b>South-Side Collection System</b>			
Sawyer Creek	2,100	3.13	1.0
Chapman Gulch	6,800	10.15	3.0
South Fork of Fryingpan River	12,500	18.66	5.6
Fryingpan River below Marten Creek	23,300	34.78	10.4
<b>TOTAL</b>	<b>44,700</b>	<b>66.72</b>	<b>20</b>

\* column (3) = [column (2)/100] × 30

In 1978 Congress passed Public Law 95-586, which amended the Fry-Ark Project’s 1962 authorizing legislation (P.L. 87-590). P.L. 95-586 included two important provisions with respect to the Fry-Ark Project’s diversions from the Fryingpan River Sub-watershed. First, P.L. 95-586 required the BOR to construct, operate, and maintain the Fry-Ark Project in “substantial accordance” with the Final ES (P.L. 95-586, Section 901). Second, P.L. 95-586 required that the Fry-Ark Project’s operations comply with Colorado’s laws allowing the Colorado Water Conservation Board (CWCB) to acquire instream flow rights, “to the extent that such laws are not inconsistent with the [Operating Principles]” (P.L. 95-586, Section 902).

Two years before the Final ES was released, CWCB had acquired instream flow rights (ISFs) for eight of the thirteen streams on which Fry-Ark Project diversion structures were to be located (see Table 3). These rights were for the stream sections below the diversion structures, and they did not directly correspond to the average contribution of each stream, as calculated in the Final ES. Instead, the ISFs were based on a biological assessment and the statutory mandate of preserving “the natural environment to a reasonable degree” (Colorado Revised Statutes § 37-92-102 (3)).

**Table 3. CWCB instream flow rights for streams in the Fryingpan River Sub-watershed diverted by the Fry-Ark Project, for April 1 to September 30.<sup>1</sup>**

STREAM*	CWCB INSTREAM FLOW RIGHT
Chapman Gulch	3.0
North Fork Creek	1.0
Mormon Creek	2.0
N. Cunningham Creek	1.0
M. Cunningham Creek	1.0
Ivanhoe Creek	2.0
South Fork	6.0
Fryingpan River below Marten Creek	12.0

\* CWCB did not acquire instream flow rights for the South Fork of Cunningham Creek, Carter Creek, Granite Creek, Sawyer Creek, or Lily Pad Creek.

In P.L. 95-586, Congress did not provide direction for reconciling the conflicting bypass flows suggested by the Final ES and CWCB’s ISFs, leaving the decision to the BOR’s discretion. The BOR, in arriving at the final minimum bypass requirements for the individual Fry-Ark Project diversion structures (Table 4), appears to have accounted for both the recommendations in the Final ES and the CWCB’s ISFs.<sup>2</sup> On four of the five streams for which the CWCB did not acquire instream flow rights, the BOR did not set any minimum bypass flows for the Fry-Ark Project’s diversion structures, Carter Creek being the exception. For the Fryingpan River below

<sup>1</sup> [http://cwcb.state.co.us/StreamAndLake/RelatedInformation/ToolsResources/](http://cwcb.state.co.us/StreamAndLake/RelatedInformation/ToolsResources/InstreamFlowNaturalLakeLevelWaterRightsDB/InstreamFlowNaturalLakeLevelWaterRightsDB.htm)

[InstreamFlowNaturalLakeLevelWaterRightsDB/InstreamFlowNaturalLakeLevelWaterRightsDB.htm](http://cwcb.state.co.us/StreamAndLake/RelatedInformation/ToolsResources/InstreamFlowNaturalLakeLevelWaterRightsDB/InstreamFlowNaturalLakeLevelWaterRightsDB.htm)

<sup>2</sup> The preparers of this Appendix were unable to identify any document summarizing the BOR’s actual rationale for establishing the minimum bypass flows for the diversion structures in the Fryingpan River Sub-watershed.

Marten Creek, CWCB's ISF exceeded the Final ES's prorated allocation; in that case the BOR appears to have deferred to CWCB's ISF, setting the minimum bypass flow at 12.0 cfs.

Table 4. Minimum bypass flows for Fry-Ark Project diversion structures in the Fryingpan River Sub-watershed (CDSS, 2007).

STREAM	BYPASS FLOW (cubic feet per second)
Carter Creek	2.0
North Fork Creek	1.0
Mormon Creek	2.0
N. Cunningham Creek	1.0
M. Cunningham Creek	1.0
S. Cunningham Creek	0
Ivanhoe Creek	2.0
Granite Creek	0
Lily Pad Creek	0
Sawyer Creek	0
Chapman Gulch	3.0
South Fork of Fryingpan River	6.0
Fryingpan River below Marten Creek	12

Table 5 summarizes the minimum bypass flows in relation to the collection system's diversion tunnel capacity.

Table 5. Minimum bypass requirements and diversion tunnel capacity for Fryingpan-Arkansas Project facilities. Source: *Upper Colorado Basin Information*, Colo. Decision Support Sys. Rep. (Jan. 2007) (available at [http://dwrftp.state.co.us/cdss/swm/in/UColoInfo\\_20070101.pdf](http://dwrftp.state.co.us/cdss/swm/in/UColoInfo_20070101.pdf)).

<b>Tributary Source</b>	<b>Diversion Tunnel Capacity (cfs)</b>	<b>Minimum Bypass</b>
<b>NORTH SIDE COLLECTION SYSTEM</b>		
Carter Creek	100	2
North Fork (Carter Tunnel)	30	1
Mormon Creek (Mormon Tunnel)	60	2
North Cunningham Creek	30	1
Middle Cunningham Creek	50	1
South Cunningham Creek	20	0
Cunningham Tunnel	270	–
Ivanhoe Creek	605	2
Granite Creek	50	0
Lily Pad Creek	20	0
Nast Tunnel	360	–
<b>SOUTH SIDE COLLECTION SYSTEM</b>		
No Name Creek	95	4
Midway Creek	85	5
Hunter Creek	140	12
Hunter Tunnel	270	–
Sawyer Creek	30	0
Chapman Creek	300	3
Chapman Tunnel	300	–
South Fork Fryingpan River	740	6
South Fork Tunnel	450	–
Main Stem Fryingpan River	1,100	12
<b>Boustead Tunnel</b>	<b>945</b>	

In 1973, the Colorado Division of Wildlife (CDOW) recommended higher minimum bypass flows for six of the thirteen Fry-Ark Project diversion structures in order to protect existing fisheries (Finnell, 1977). (See Table 6). Whether or not these recommendations were taken into account by the BOR in determining the ultimate bypass flows is unknown. One factor that may

have prevented the BOR from incorporating these recommendations was the fact that CDOW's suggested individual bypass flows would have increased the net bypass flow for all of the structures from 30 cfs to 43.5 cfs, exceeding the minimum bypass flow established in the Operating Principles.

**Table 6. CDOW bypass flow recommendations and trout species present for the Fry-Ark Project diversion structures in the Fryingpan River Sub-watershed (Finnell, 1977).**

STREAMS	TROUT SPECIES PRESENT	RECOMMENDED BYPASS FLOWS (cubic feet per second)
Chapman Creek	Brook Trout, Cutthroat Trout*	6.0
South Fork of Fryingpan River	Brook Trout, Cutthroat Trout*	6.0
Fryingpan River below Marten Creek	Brook Trout	12.0
Ivanhoe Creek	Brook Trout	3.0
Mormon Creek	Brook Trout	3.5
North Fork of Cunningham Creek	Cutthroat Trout*	3.0
Carter Creek	n/a	2.0
Savage Creek	n/a	2.0
North Fork of Fryingpan River	Brook Trout, Rainbow Trout	3.0
Granite Creek	n/a	0.0
South Fork of Cunningham Creek	n/a	0.0
Lily Pad Creek	n/a	0.0
Sawyer Creek	n/a	0.0

\* Colorado River cutthroat (*Salmo clarki pleuriticus*)

## IPTDS Project Water Rights

Table 7 summarizes the water rights associated with the IPTDS Project.

**Table 7. Independence Pass Transmountain Diversion System Project water rights.** Source: *Upper Colorado Basin Information, Colo. Decision Support Sys. Rep. (Jan. 2007)* (available at [http://dwrftp.state.co.us/cdss/swm/in/UColoInfo\\_20070101.pdf](http://dwrftp.state.co.us/cdss/swm/in/UColoInfo_20070101.pdf)).

Tributary Source	Decreed Amount (cfs)		Approp. Date	Adjud. Date	Admin. No.
	Absolute	Conditional			
<b>NEW YORK COLLECTION SYSTEM</b>					
New York Creek	100	–	8/23/1930	8/25/1936	30941.29454
Brooklyn Creek	127	–	8/23/1930	8/25/1936	30941.29454
Tabor Creek	171	–	8/23/1930	8/25/1936	30941.29454
New York Creek	–	20	4/30/1973	12/31/1973	45045.00000
Brooklyn Creek	15	35	4/30/1973	12/31/1973	45045.00000
Tabor Creek	39	61	4/30/1973	12/31/1973	45045.00000
<b>ROARING FORK/LOST MAN COLLECTION SYSTEM</b>					
Lost Man Diversion	251	24	8/23/1930	8/25/1936	30941.29454
Tunnel No. 2	322	28	8/23/1930	8/25/1936	30941.29454
Connection Canal	–	20	8/23/1930	8/25/1936	30941.29454
Tunnel No. 1	625	–	8/23/1930	8/25/1936	30941.29454
Grizzly Reservoir	400 af	–	10/30/1974	12/31/1974	45593.00000