FRIANT
WATER USERS AUTHORITY

Restoration Goal

Restoring the San Joaquin River and its fishery between Friant Dam and the Merced River confluence is going to be a big job. In this agreement, initially covering 20 years, the Natural Resources Defense Council and its coalition, along with the Friant Water Users Authority and its members and the United States have spotlighted many physical improvements in and near the river as well concurring on a schedule of eventual Restoration Flows that will vary significantly depending upon the type of water year. It is an agreement that is rational and reasonable, even though it is going to cost Friant water users a portion of their historic water supply. It is scientifically based. Here, broadly, are key objectives:

THE INTERIOR DEPARTMENT'S ROLE

The Central Valley Project, of which Friant Dam and the Friant Division are parts, is federally-developed and owned. Not surprisingly, the Interior Department (which oversees the U.S. Bureau of Reclamation, the CVP's administering agency) is assigned a key role under the Settlement. (The actual Settlement text refers to "the Secretary" in assigning federal tasks; this is the Secretary of the Interior or his designee.) Interior is to "promptly commence activities pursuant to applicable law and provisions of this Settlement" in order to implement river improvements deemed necessary to restore a fishery. Those activities will depend upon funding authorized by Congress or obtained from other sources.

Necessary Improvements

There are many physical improvements within and near the river that are deemed necessary to fully achieve the Restoration Goal. All are to be developed and implemented in accordance with federal and state laws and regulations.

PHASE 1 IMPROVEMENTS

These parties anticipate these highest priority San Joaquin River improvements can be accomplished by 2011-13 (with all environmental studies and other required reviews to be completed by 2009 unless unforeseen events beyond control of the parties make that schedule unachievable). The projects include:

- **Creation of a bypass channel around Mendota Pool**, in western Fresno and Madera counties where a small dam impounds water delivered from another source – the Delta-Mendota Canal – to supply four West Side water agencies known as the Exchange Contractors. This bypass channel would mitigate a problem migrating salmon would face in arriving in Mendota Pool and finding unfamiliar water of Delta origin rather than Sierra water from the San Joaquin River and a myriad of pumping and diversion structures. This channel would bypass the pool and Mendota Dam and be capable of conveying at least 4,500 cubic feet per second of flow. A control structure would have to be constructed at the new divide of the San Joaquin River and the bypass channel.

- **Modifying channel capacity** (including new floodplain and related riparian habitat) to be able to convey at least 4,500 cubic feet per second within the existing San Joaquin River channel between the Chowchilla Bypass Bifurcation (diversion) and Mendota Pool, west of Fresno. This reach of the river (known as Reach 2B) now has severe limitations in conveying high flows because of deteriorated privately-owned and maintained levees. (Currently, this reach is dry except during flood release events.)

- **Modifying channel capacity** to ensure at least 475 cubic feet per second can flow through several miles of river (known as Reach 4B) north of Dos Palos that has carried no flows at all for nearly 50 years. (All river flows for the past half century have been diverted into the East Side Bypass flood control channel. The Old River is overgrown with brush and trees and its levees are deteriorated.)

- **Modifying a headgate structure** at the head of Reach 4B (the Old River) to enable and control higher flows than are now possible.

- **Modifying the Sand Slough Control Structure** through which San Joaquin River water passes into the East Side Bypass north of Dos Palos in order to ensure fish passage. (Typically, this reach is dry except during flood release events.)

- **Screening of the Arroyo Canal water diversion** on the San Joaquin River immediately upstream from a small structure known as Sack Dam, east of Dos Palos, to prevent entrainment of anadromous fish.
- **Modifying Sack Dam** to ensure fish passage. (Currently, Reach 4A downstream from Sack Dam is dry except during flood release events; upstream between Sack Dam and Mendota Dam, Reach 3 now conveys irrigation water delivered at Mendota Pool from the Delta-Mendota Canal.)
- **Modifying the East Side Bypass and Mariposa Bypass** flood control channels to provide anadromous fish passage on an interim basis until completion of improvements contemplated in Phase 2. If necessary, a suitable low-flow channel would be included.
- **Installing seasonal barriers to prevent** adult anadromous fish from entering false migration pathways near Salt and Mud sloughs, north and northeast of Los Banos.

PHASE 2 IMPROVEMENTS

These projects and activities are considered high priorities but the Settlement intends for Phase 2 improvements to be planned and implemented so Phase 1 projects are not delayed. It is anticipated Phase 2 improvements would be completed by the end of 2016. The projects include:

- **Enlargement of the now-unused Old River** (Reach 4B) and new floodplain and related riparian habitat to a capacity of 4,500 cubic feet per second, unless agencies determine that project would not substantially enhance Restoration Goal achievement, in which case the bypass system would be used instead. This would include modifications to the Sand Slough Control Structure.
- **Modifying the Chowchilla Bypass Bifurcation Structure** east of Mendota if that project is found to be necessary.
- **Filling and/or isolating the "highest priority" gravel mining pits** along the San Joaquin River on the north side of Fresno, based upon the relative potential for reducing juvenile salmon mortality.
- **Additional channel or structural improvements** (such as fish screening, restoration of side channel habitat and spawning gravel augmentation) as determined.

Fishery Water Releases

Restoration Goal

Water releases from Friant Dam are a crucial Settlement element to achieve the Restoration Goal. Approximately 17 miles of river channel (between Gravelly Ford and Mendota Pool) have been typically without flows (except for flood releases) since the Central Valley Project's Friant Division became fully operational more than 50 years ago. The 38 river miles between Friant Dam and Gravelly Ford have had constant flows of water released from Friant Dam to meet demands of historical riparian users. Approximately 43 miles of river channel (between Sack Dam and the confluence of Bear Creek have also been without flows due in part to historical downstream irrigation diversions (except during flood releases) and re-routing of flood releases from the river to the flood control system at the Sand Slough Control Structure.

THE RESTORATION FLOWS

The new San Joaquin River Restoration Flows, like the existing Riparian Flows, are to be provided from Millerton Lake's CVP supply that Friant Division Long-Term Contractors would otherwise be able to obtain for their agricultural and municipal customers. This is what makes the Settlement's Water Management Goal not only an equal part of the settlement but so crucial to existing eastern San Joaquin Valley water users who depend upon the Friant system.

Restoration Flows are an important Settlement component. The "Base Flows" called for by the agreement generally represent considerably less water than many had previously supposed might be required for restoration and are based upon six hydrographs developed by an expert for the NRDC coalition plaintiffs.

There is also provision for "Buffer Flows" of an additional 10% on top of the hydrograph amounts if it is determined extra water is needed. If channel conveyance (seepage) losses are greater than anticipated, water obtained from willing sellers would be used. The Restoration Flows listed in the settlement include the existing Riparian Flow releases from Friant Dam. The Settlement makes clear there is to be no effect or limitation on Friant Dam flood management operations.

THE HYDROGRAPHS

The six hydrographs cover a variety of flow situations in different locations and at various times of the year (to meet needs of salmon) under six separate types of water year. Flexibility in managing these releases is included with the additional 10% "Buffer Flows" and other provisions. There are also provisions for "flushing flows" to enhance gravel conditions for spawning in two of the wetter types of water years.

The six types of water years listed by the Settlement hydrographs all include existing San Joaquin River riparian releases (averaging 117,000 acre-feet per year). The types of year are based upon what was actually experienced in terms of natural flow runoff during water years (October 1-September 30) from 1922-2004.

The water year types and total restoration releases (subject to an additional 10% of "Buffer Flows") include:

- **"Wet years,"** classified in the Settlement as the wettest 20% of the water years. **Restoration release:** 555,568 acre-feet.
- **"Normal wet years,"** classified as the next wettest 30% of water years. **Restoration release:** 356,281 acre-feet.
- **"Normal dry years,"** the next 30% of the water years. **Restoration release:** 247,876 acre-feet.
- **"Dry years,"** the next 15% of the water years. **Restoration release:** 184,021 acre-feet.
- **"Critical (dry) years,"** the remaining 5% of water years. These are divided into **"critical high (dry) years," restoration release:** 70,795 acre-feet; and **"critical low years,"** less than 400,000 acre-feet of unimpaired San Joaquin River runoff; **restoration release**, 0 acre-feet.

EXAMPLES OF FRIANT WATER SUPPLY IMPACTS

There is no question that Friant Division water service contractors and their agricultural and municipal customers will have to deal with water supply effects resulting from the settlement. Friant water users will be making a major water supply contribution to the Restoration Goal and Restoration Flows. For instance, an analysis of overall Friant water deliveries shows:

- **Under current average conditions**, 1,281,000 acre-feet of Central Valley Project is used annually.
  - **Under the Settlement**, Friant's total average annual deliveries would be reduced by 242,000 acre-feet (19%), to 1,039,000 acre-feet.
- **Under average dry year conditions**, Friant currently delivers 629,000 acre-feet of water.
  - **Under the Settlement**, Friant's average annual dry year deliveries would be reduced by 145,000 acre-feet (23%), to 484,000 acre-feet. Some Friant districts, using actual water supply data from the past two decades, have determined their water supplies stand to be reduced as a result of Settlement provisions by even greater percentages under dry year and other circumstances.

WHEN RESTORATION FLOWS ARE TO BEGIN

Full Restoration Flows are to begin no later than January 1, 2014, providing time for channel improvements to be constructed.

IF FULL RESTORATION FLOWS CAN'T BEGIN AS SCHEDULED

The Settlement addresses a number of conditions and possible remedies, including a provision that as much of the scheduled Restoration Flow as possible should be released, depending upon channel constraints.

INTERIM FLOWS

Interim flows are to begin a few years before the Full Restoration Flows, in the fall of 2009. They are to be limited to experimental purposes, and by channel capacity and construction issues.