

# The Anadromous Fish Restoration Program CVPIA Section 3406 (b)(1)

Anadromous  
Fish  
Restoration  
Program



# AFRP

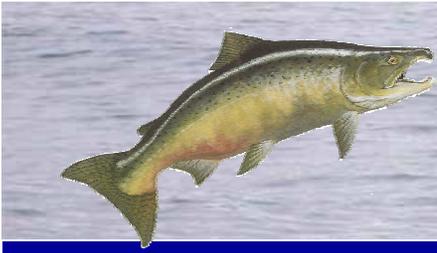


*"Building Partnerships  
to Restore Natural Production  
in Central Valley Streams"*



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<http://www.delta.dfg.ca.gov/afrp/>



## **ANADROMOUS FISH RESTORATION PROGRAM**

# **OBJECTIVES**

- **Improve habitat for all life stages of anadromous fish through provision of flows of suitable quality, quantity, and timing, and improved physical habitat;**
- **Improve survival rates by reducing or eliminating entrainment of juveniles at diversions;**
- **Improve the opportunity for adult fish to reach their spawning habitats in a timely manner;**
- **Collect fish population, health, and habitat data to facilitate evaluation of restoration actions;**
- **Integrate habitat restoration efforts with harvest and hatchery management;**
- **Involve partners in the implementation and evaluation of restoration actions.**



# ANADROMOUS FISH RESTORATION PROGRAM

## Habitat Restoration Coordinators



### FWS

### DFG

### CBDA

T. Parker

P. Bratcher

R. Fris

J. Icanberry

I. Drury

C. Blanco

I. Drury

R. Fris

D. Hu

J. Wikert

P. Brantley

L. Hastings

D. Hu

C. Mesick

P. Brantley

J. Shelton

R. Burmister



## **ANADROMOUS FISH RESTORATION PROGRAM**

### **LEVERAGING and PARTNERING WITH CALFED**

- **AFRP continues to be well coordinated with CBDA (avoids redundancy, insures scientific and technical review to determine the best and highest priority projects and utilizes the most efficient use of limited funds)**
- **AFRP Staff Members are currently participating in CBDA's ERP Database Quality Assurance Check**



## **ANADROMOUS FISH RESTORATION PROGRAM**

# **PROJECT EXAMPLES OF CALFED LEVERAGING**

- **Lower Butte Creek, stakeholder facilitation for Butte Sink/Sutter Bypass restoration project development:  
*AFRP- \$95,000; CALFED- \$5,300,000***
- **Lower Butte Creek, east side Sutter Bypass, develop small pump screening needs:  
*AFRP- \$420,000; CALFED-\$4,790,000***
- **Lower Butte Creek, White Mallard Dam Diversions construction :  
*AFRP- \$885,000; CALFED- \$750,000***
- **Lower Butte Creek, Sanborn Slough Bifurcation Structure, fish passage engineering designs:  
*AFRP-\$70,000; CALFED- \$1,000,000***



# ANADROMOUS FISH RESTORATION PROGRAM

## WORKING WITH OTHER CVPIA PROGRAMS

- AFRP continues to communicate and coordinate with other CVPIA Program Sections

### A Few Examples:

*AFRP and CAMP collaborated to develop a paper on “Statistical Procedures for Detecting the CVPIA Natural Chinook Salmon Production Doubling Goal and Determining Sustainability of Production Increases” (by Ken Newman and Dave Hankin)*

*AFRP and Screens Program collaborated on developing a passage project on Antelope Creek which is currently under competitive bidding*

- AFRP is working with CVPIA partners and CVPIA Program Sections to organize two AFRP workshops: a “Salmon Workshop” and a “CVPIA Salmon Doubling Programs Workshop”



## ANADROMOUS FISH RESTORATION PROGRAM

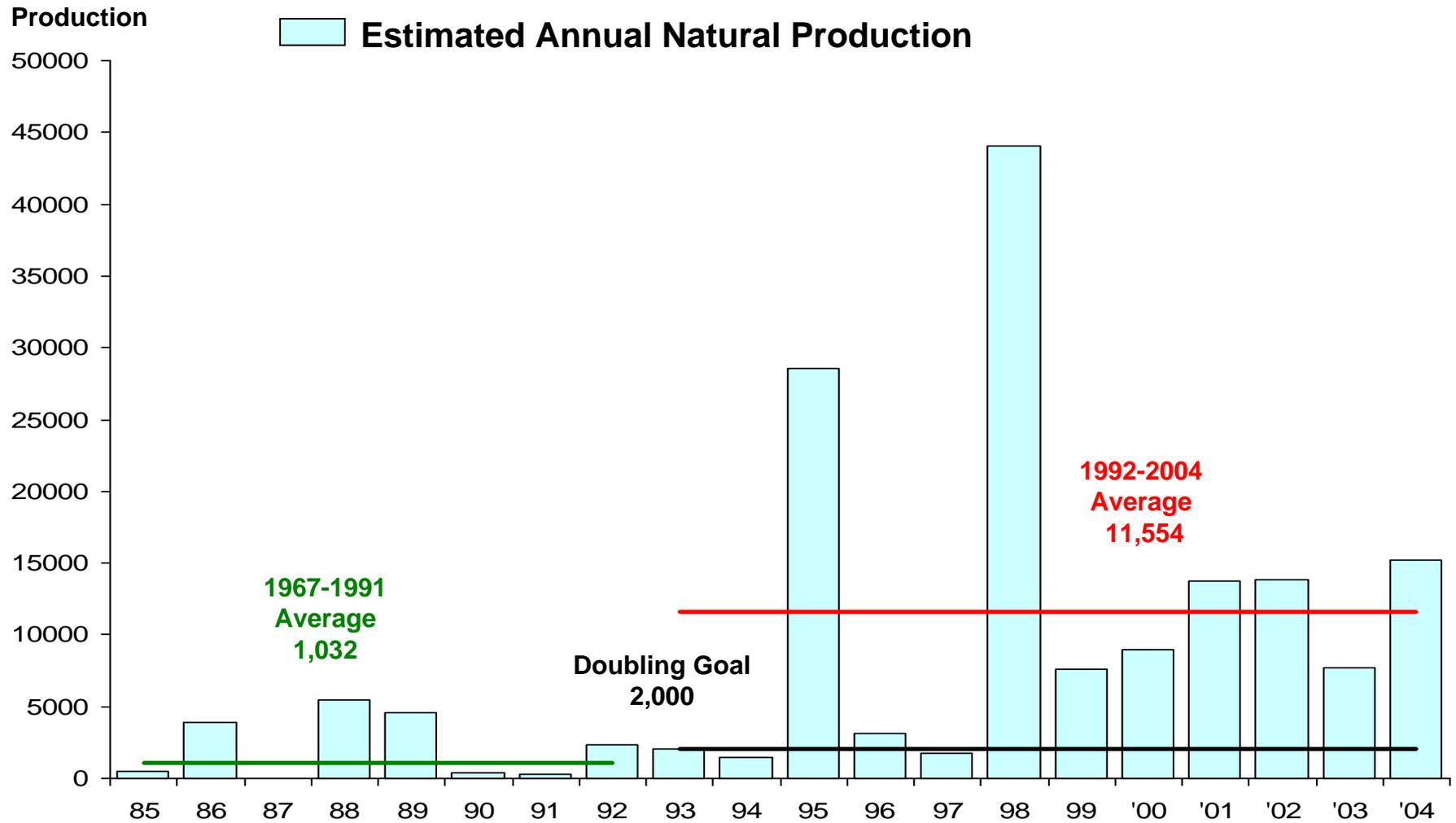
### PROGRAM STATUS

(where are we in this program?)

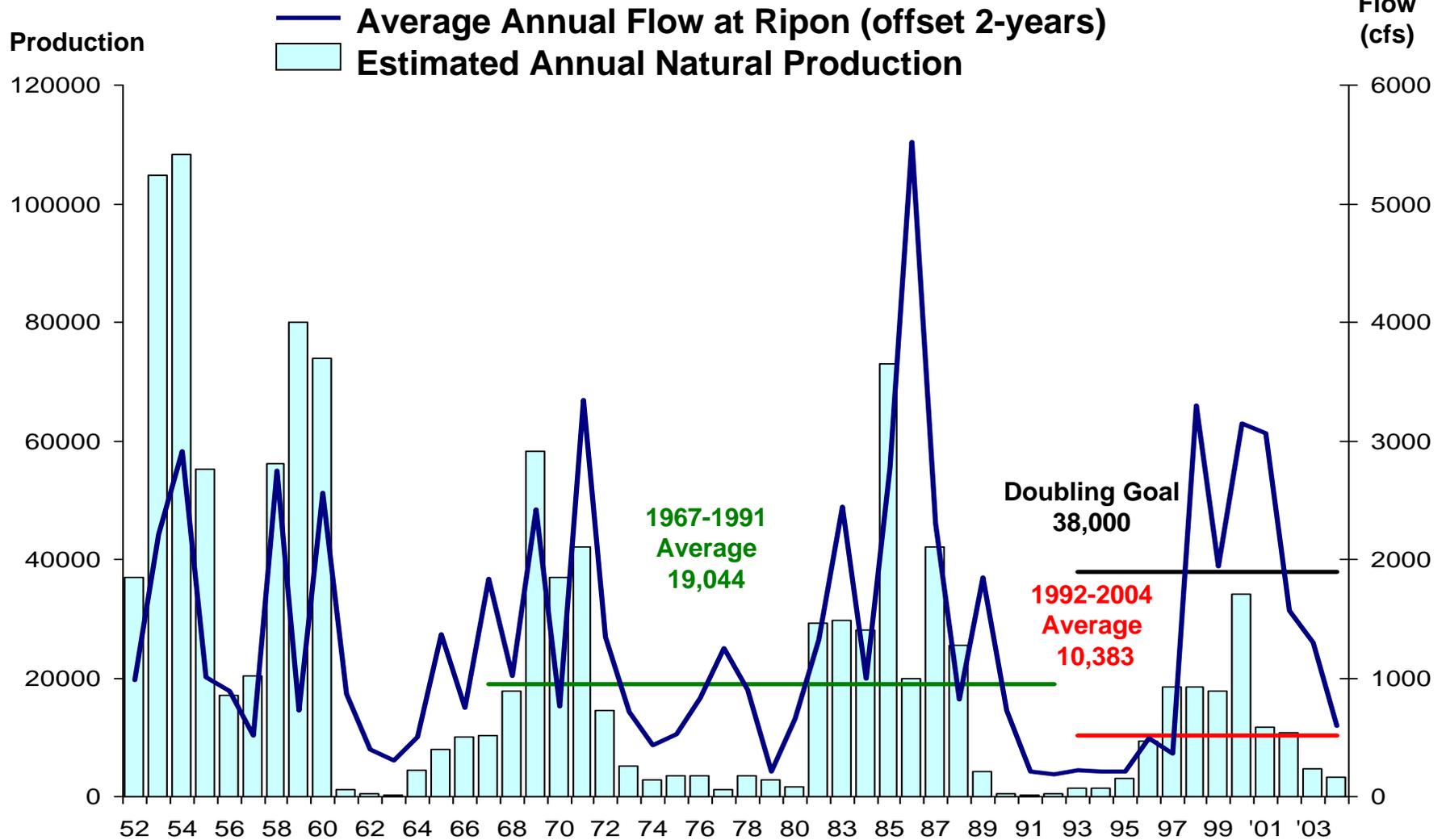
#### Progress towards meeting AFRP Doubling Goal

- **Winning streams-** where most of the identified limiting factors have been addressed with restoration actions:  
*examples, Butte and Clear creeks*
- **Losing streams-** the identified limiting factors have not been addressed with enough restoration actions:  
*examples, Tuolumne and Stanislaus rivers*

# Butte Creek spring-run Chinook salmon



# Tuolumne River fall-run Chinook salmon





# **ANADROMOUS FISH RESTORATION PROGRAM ACCOMPLISHMENTS TO DATE**

## **Big Picture**

**Approximately \$40 million have been spent on almost 200 prioritized and implemented AFRP restoration and applied research projects in 26 Central Valley watersheds between 1995 and 2005.**



# **ANADROMOUS FISH RESTORATION PROGRAM ACCOMPLISHMENTS TO DATE**

## **Planning Accomplishments**

- Cottonwood, Paynes, Antelope and Elder creeks, submitted watershed assessment RFPs to Grants.gov for competitive selection process
- Stanislaus River, field tested Alaskan Weir and Vaki infrared fish counter to count fall-run Chinook escapement
- Stanislaus River, completed the fisheries summary of a draft plan to restore anadromous fish habitat
- Tuolumne and Merced rivers and Clear Creek, completed three Adaptive Management Forum reports



# ACCOMPLISHMENTS TO DATE

**Alaskan Weir and Vaki infrared fish counter, Stanislaus River**





## **ANADROMOUS FISH RESTORATION PROGRAM ACCOMPLISHMENTS TO DATE, cont'd**

### **Restoration Actions (examples)**

- **Lower Butte Creek, White Mallard reach, completed dam and fish ladder designs. Construction to begin summer, 2005**
- **Lower Butte Creek, Butte Sink, constructed five water control structures**
- **Lower Butte Creek, Butte Sink, constructed two adult fish barriers**
- **Lower Butte Creek, west side of the Sutter Bypass, constructed three weirs**



## ACCOMPLISHMENTS TO DATE

**Weir Five- one of three fish passage modifications to Sutter Bypass West Side, Lower Butte Creek**



**Before construction**



**Completed**



## **ANADROMOUS FISH RESTORATION PROGRAM ACCOMPLISHMENTS TO DATE, cont'd**

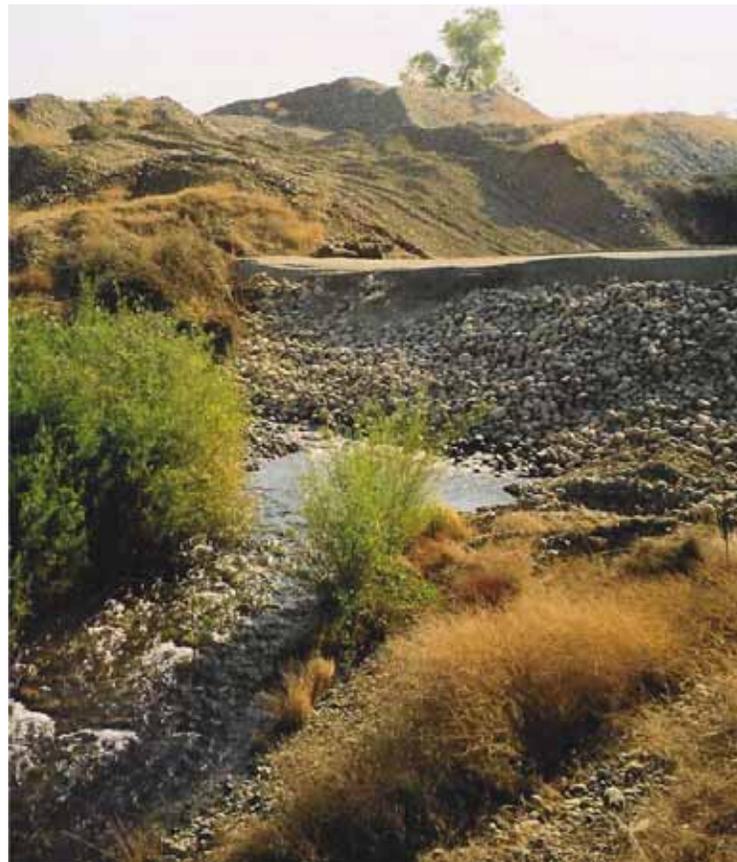
### **Restoration Actions (more examples)**

- **Yuba River, constructed a permanent “leaky dike” barrier to prevent migration of salmon and steelhead into the Goldfields**
- **Stanislaus River, Mohler Tract, completed riparian revegetation and floodplain restoration**
- **Tuolumne River, 7/11 materials restoration site, continued channel and floodplain restoration**



## ACCOMPLISHMENTS TO DATE

**“Leaky dike” fish barrier, Yuba Gold Fields, Yuba River**





## ACCOMPLISHMENTS TO DATE

**Riparian revegetation and floodplain restoration, Mohler Tract, Stanislaus River**



**Before**



**After**



## **ANADROMOUS FISH RESTORATION PROGRAM**

### **2005-2006 ACTIVITIES**

- **Funding ongoing projects**
- **Funding 2 to 4 new projects**
- **Participating in conferences and workshops**
- **Developed salmon production and flow data for Central Valley watersheds and submitted exhibit to SWQCB**
- **Developing two AFRP workshops, "Salmon Workshop" and the "CVPIA Salmon Doubling Programs Workshop"**

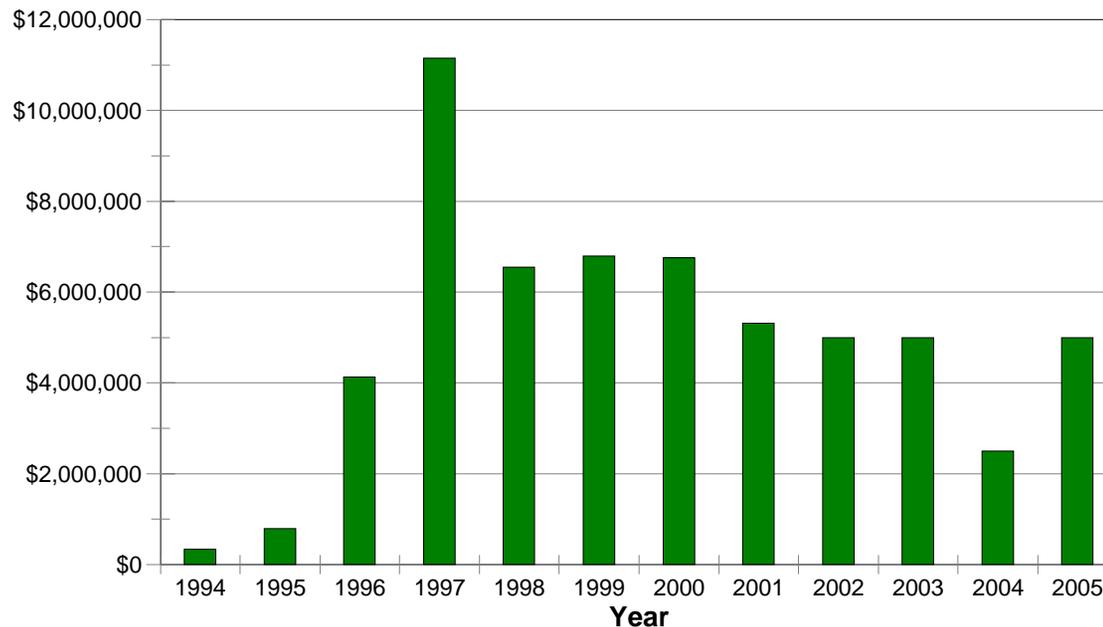


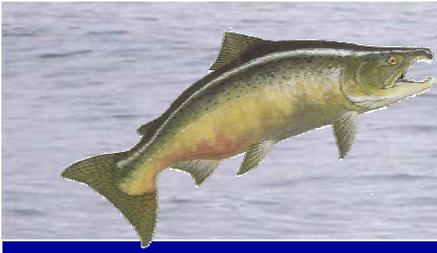
# ANADROMOUS FISH RESTORATION PROGRAM

## PROGRESS TOWARDS MEETING OBJECTIVES

**Low Funding Levels- "AFRP could potentially spend about \$18 million over the next three-year period (FY2005-07)"**

**Anadromous Fish Restoration Program  
Funding Over Time**





# **ANADROMOUS FISH RESTORATION PROGRAM**

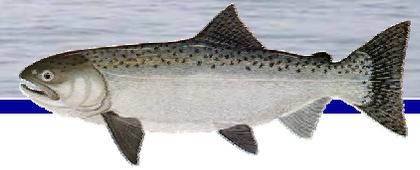
## **FUTURE ACTIONS**

- **Continue to leverage for CBDA funding**
- **Continue the RFP and independent evaluation process**
- **Implement the results of two AFRP led workshops  
("Salmon Workshop" and the "CVPIA Salmon Doubling  
Programs Workshop")**
- **Continue on-the-ground restoration, applied research,  
planning and building the partner collaboration  
process**

A large salmon is shown swimming underwater in a river. The fish is the central focus, moving from the bottom right towards the top left. Its body is covered in scales and has a mottled pattern of brown and grey. The riverbed is composed of smooth, rounded rocks of various sizes. The water is clear, and the lighting is bright, creating a shimmering effect on the fish's scales. The background shows more rocks and the surface of the water.

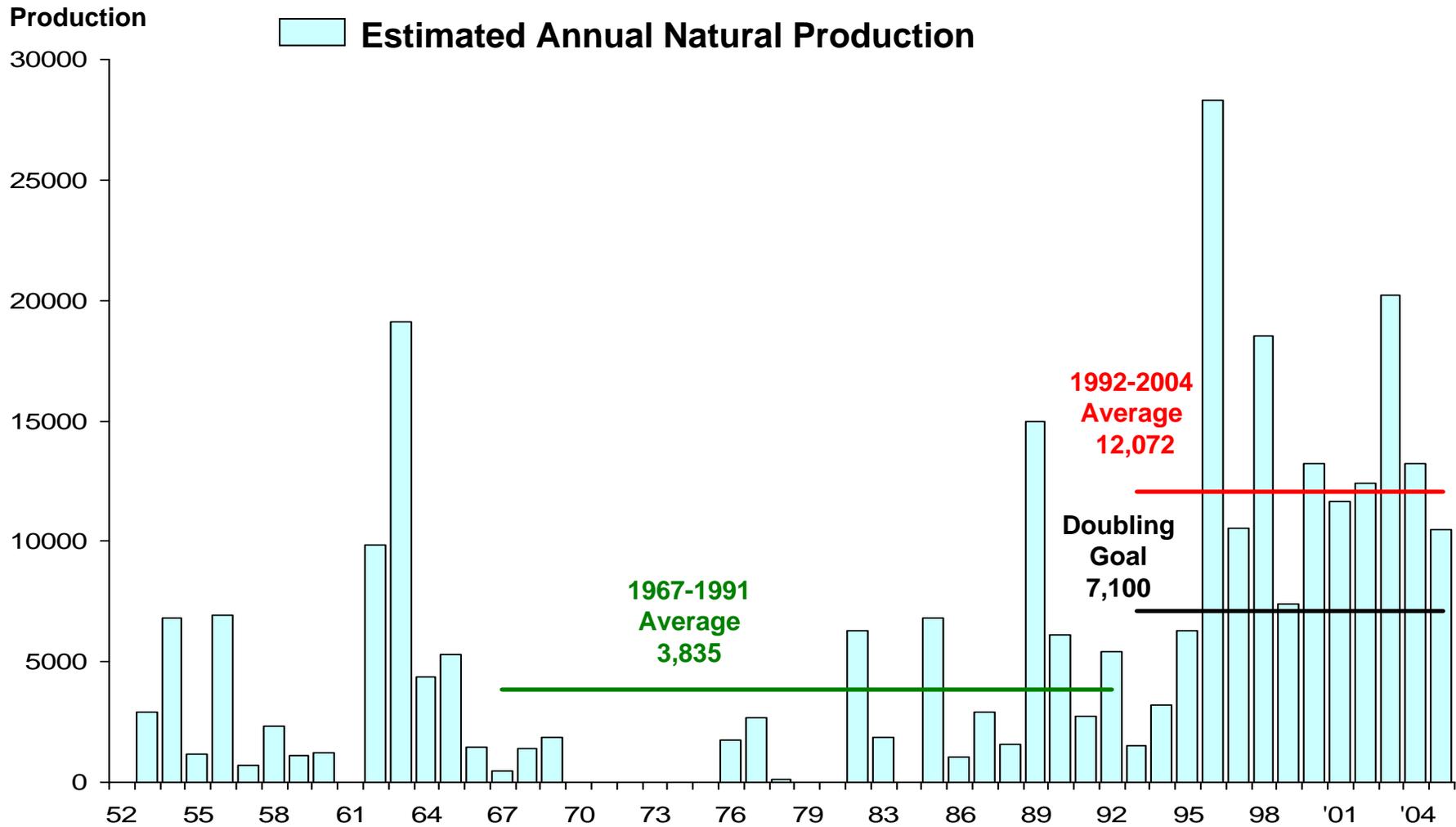
Although salmon population survival mechanisms are not absolutely clear, the literature suggests that naturally functioning watersheds are the ultimate source of insurance, in the face of changing ocean conditions and human activities, to insure the persistence of wild salmon populations (Hare et al., 1999; Lawson, 1993).

# Butte Creek spring-run Chinook salmon



**SUPPORTING SLIDES**

# Clear Creek fall-run Chinook salmon



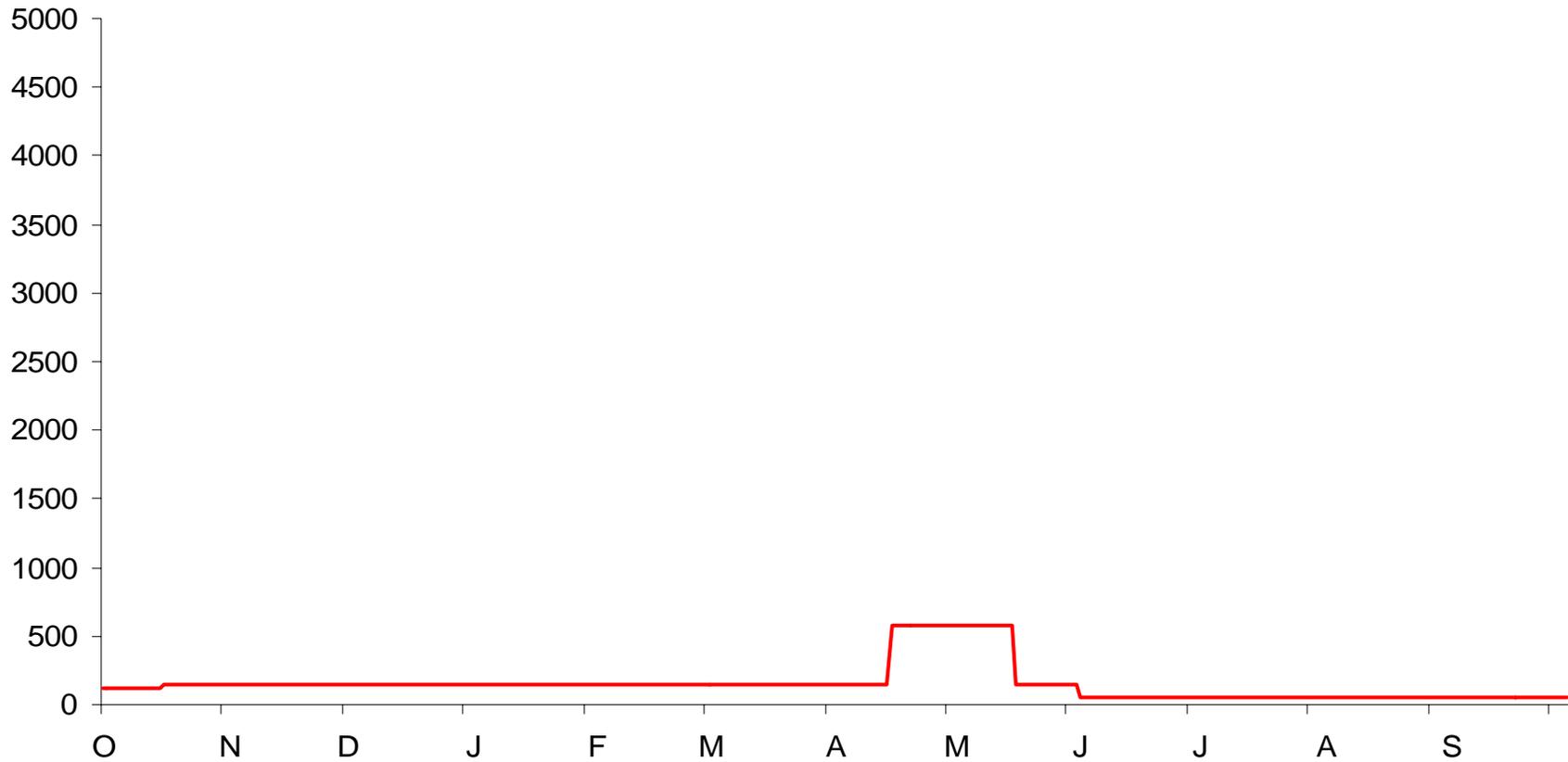
# Tuolumne River flows, 'DRY' year



Flow  
(cfs)

**FERC MINIMUM FLOWS**

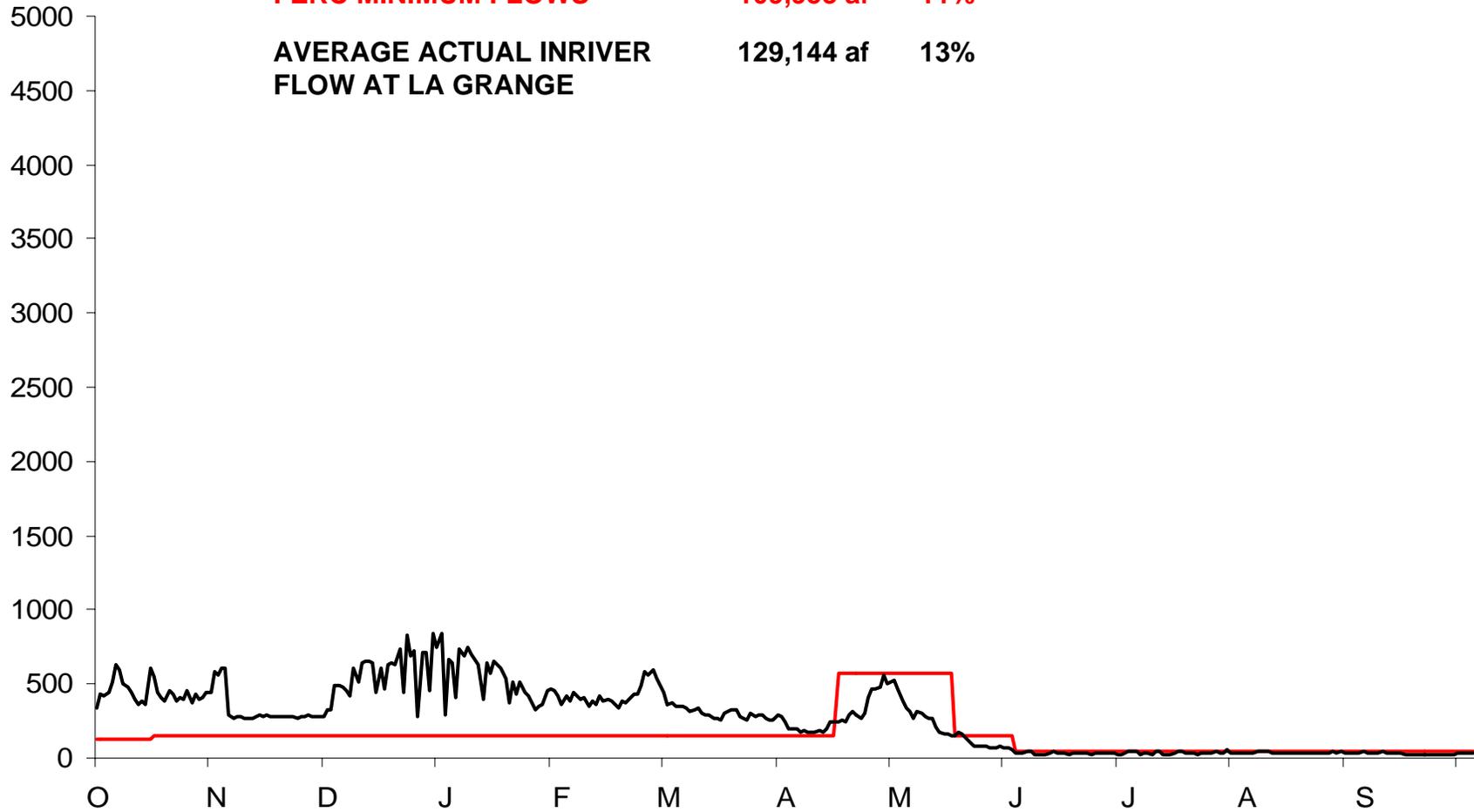
**109,953 af 11%**



# Tuolumne River flows, 'DRY' year



Flow  
(cfs)



**FERC MINIMUM FLOWS**

**109,953 af 11%**

**AVERAGE ACTUAL INRIVER  
FLOW AT LA GRANGE**

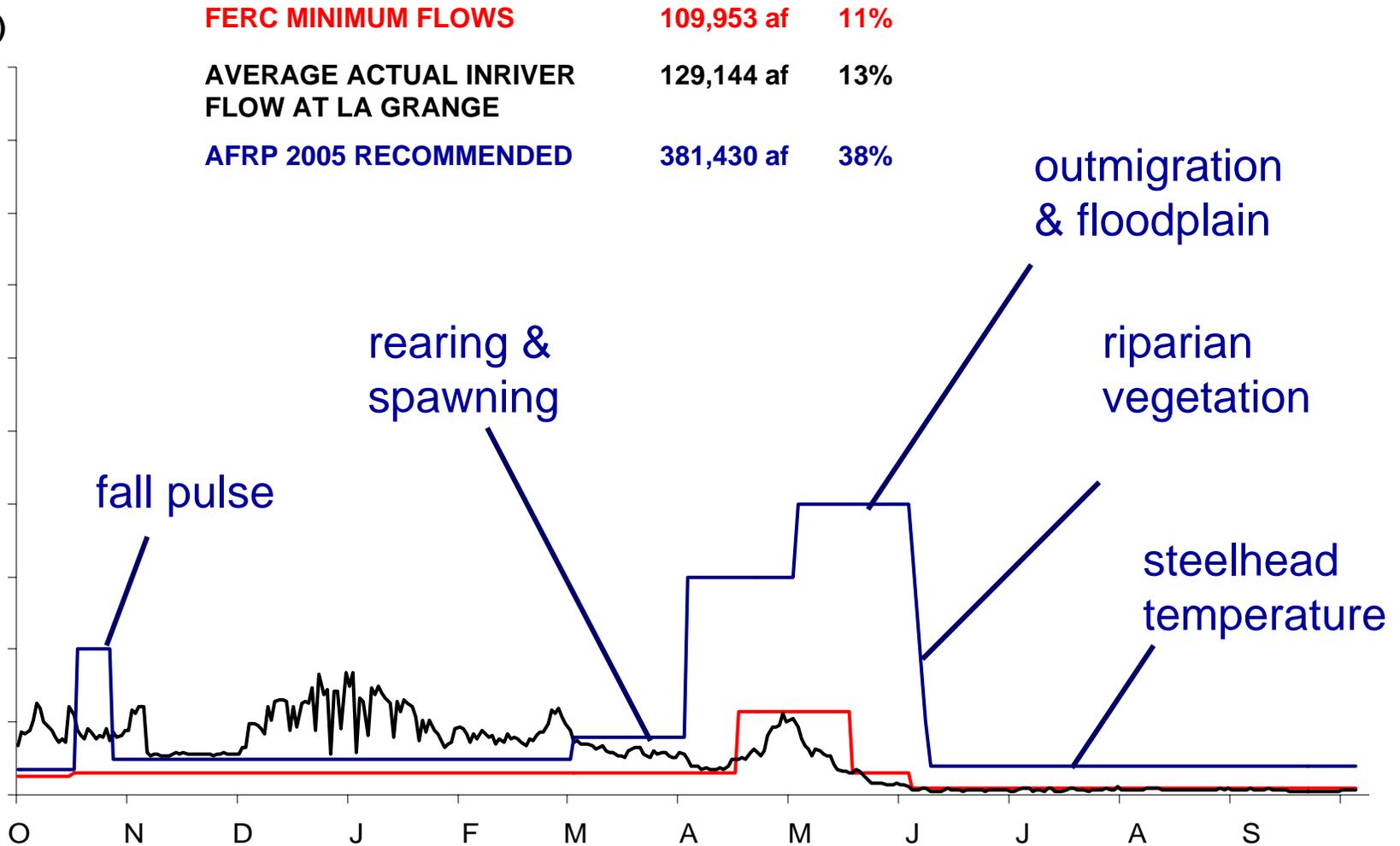
**129,144 af 13%**

# Tuolumne River flows, 'DRY' year

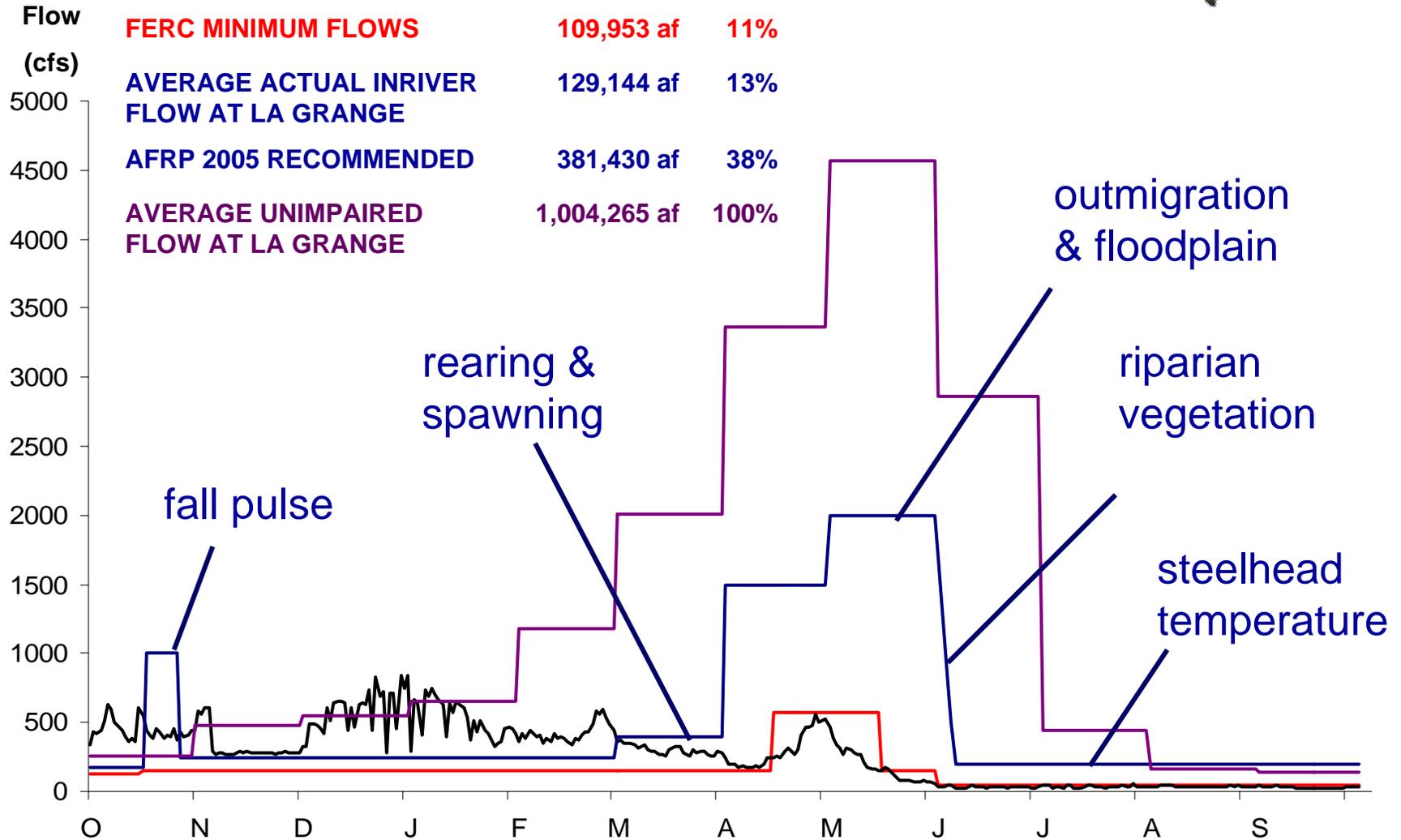


Flow  
(cfs)

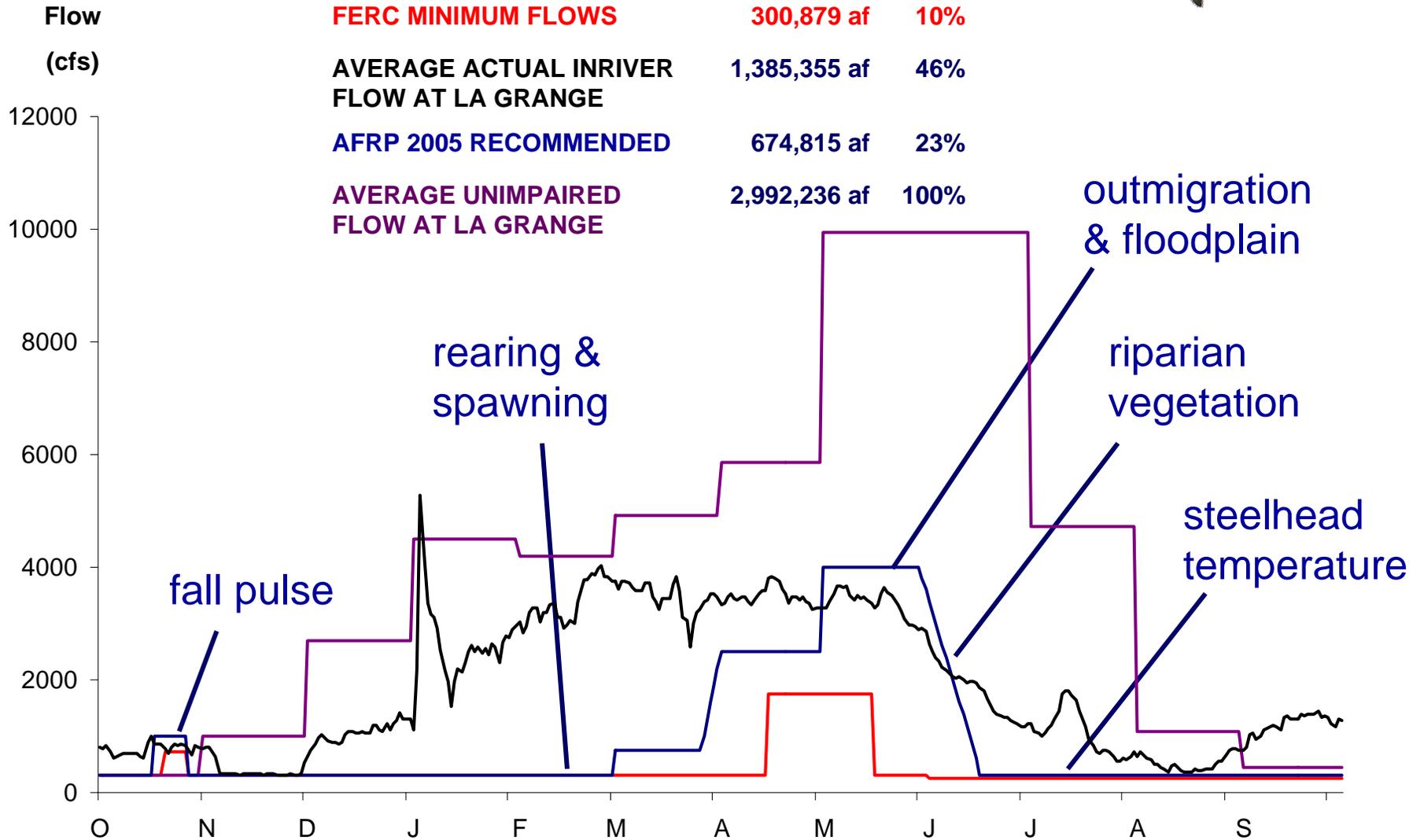
5000  
4500  
4000  
3500  
3000  
2500  
2000  
1500  
1000  
500  
0



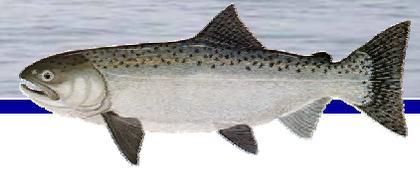
# Tuolumne River flows, 'DRY' year



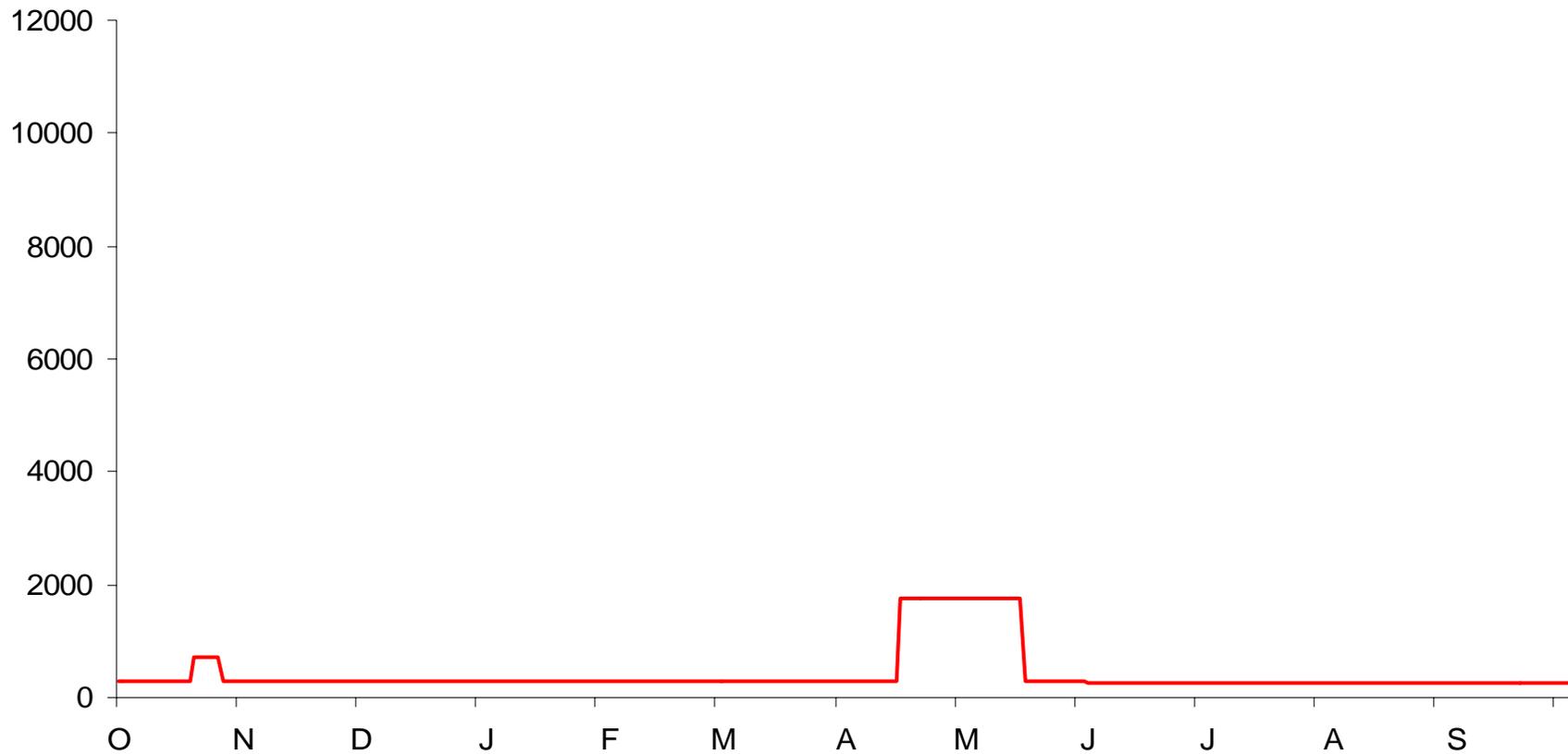
# Tuolumne River flows, 'WET' year



# Tuolumne River flows 'WET' year



Flow (cfs) **FERC MINIMUM FLOWS** 300,879 af 10%

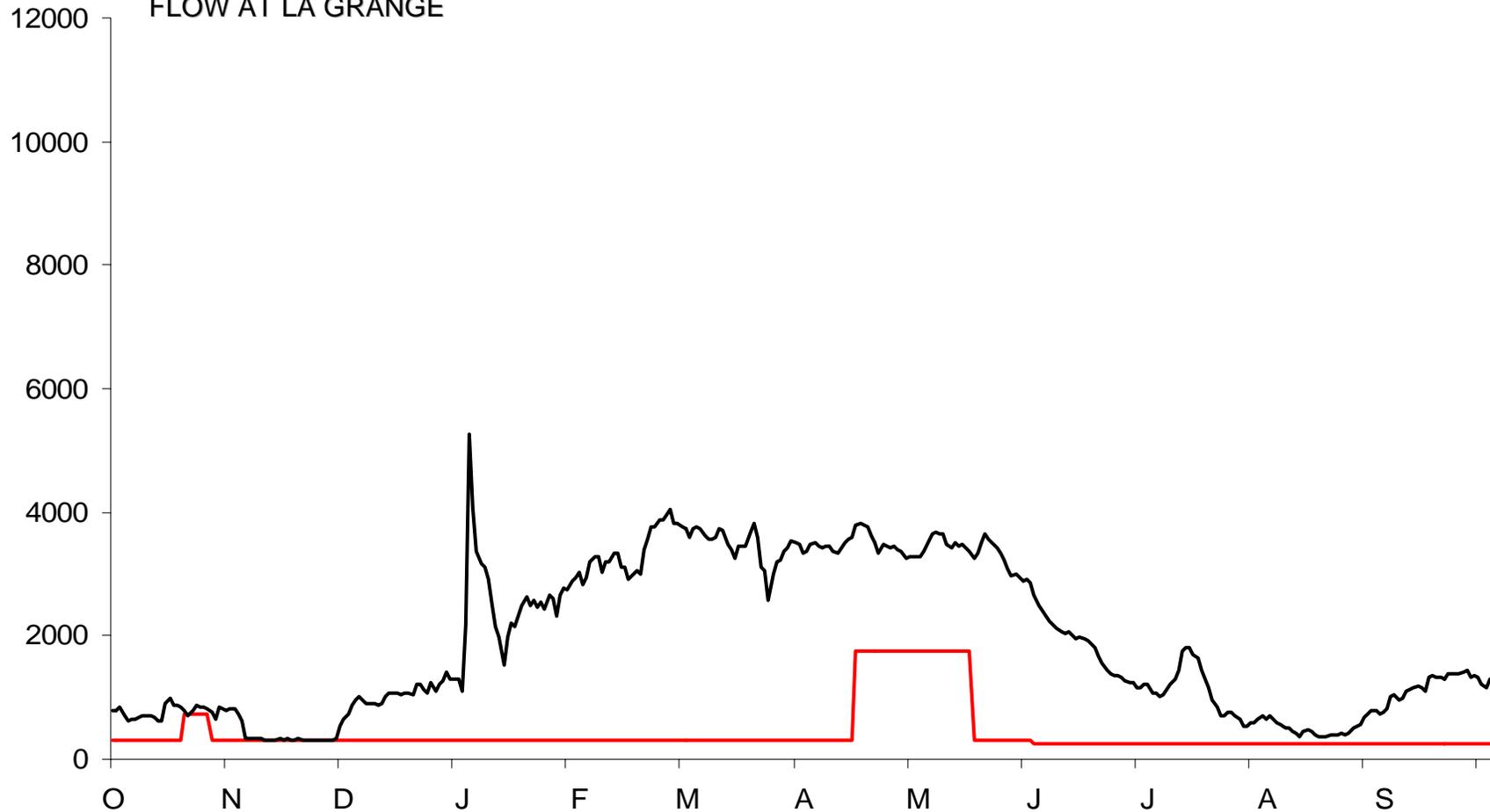


# Tuolumne River flows 'WET' year



Flow (cfs)

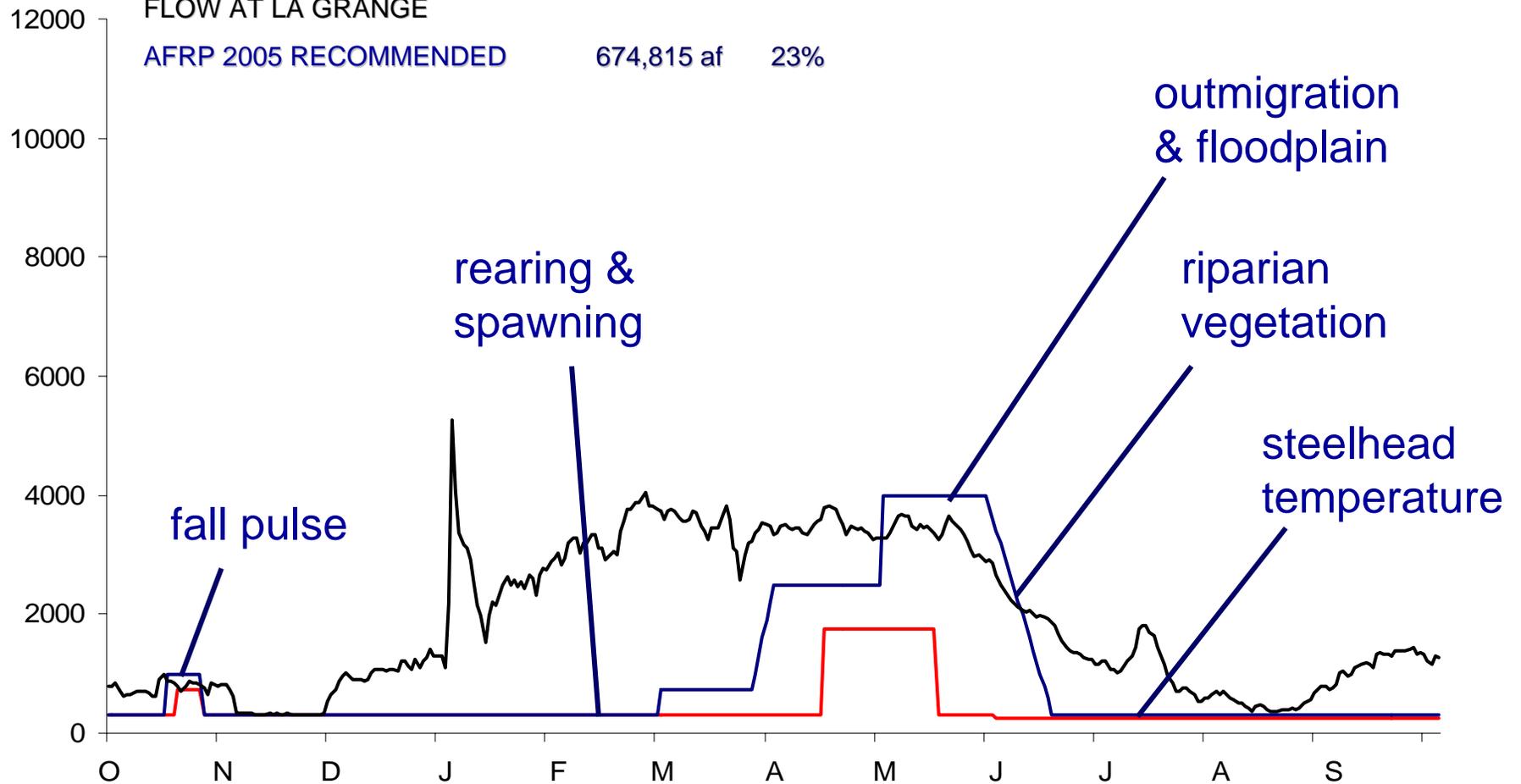
<b>FERC MINIMUM FLOWS</b>	300,879 af	10%
AVERAGE ACTUAL INRIVER FLOW AT LA GRANGE	1,385,355 af	46%



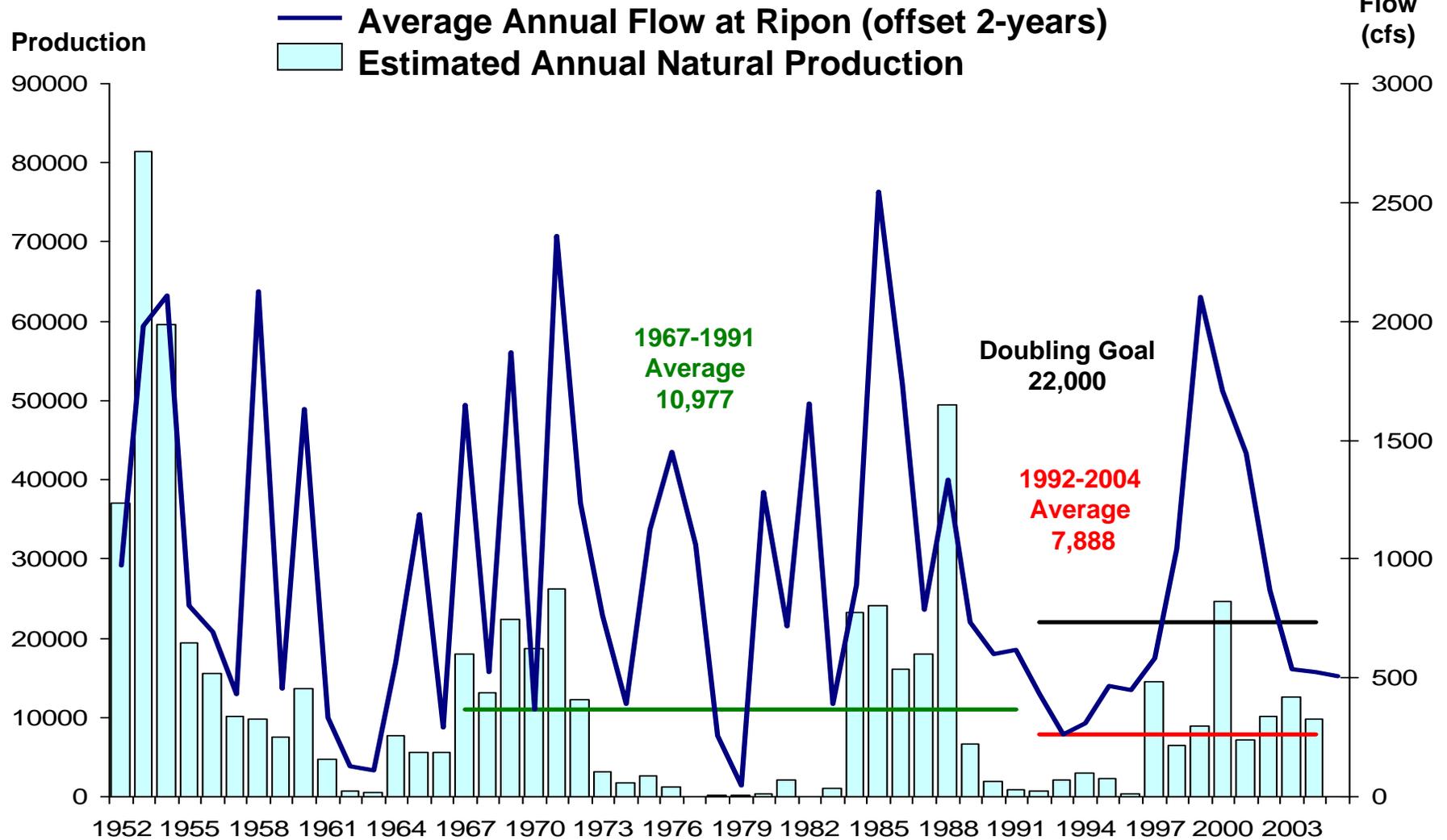
# Tuolumne River flows 'WET' year



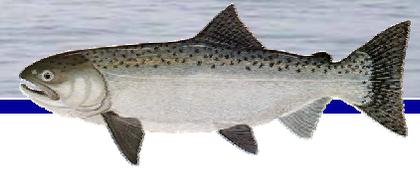
Flow	<b>FERC MINIMUM FLOWS</b>	300,879 af	10%
(cfs)	AVERAGE ACTUAL INRIVER FLOW AT LA GRANGE	1,385,355 af	46%
	AFRP 2005 RECOMMENDED	674,815 af	23%



# Stanislaus River fall-run Chinook salmon



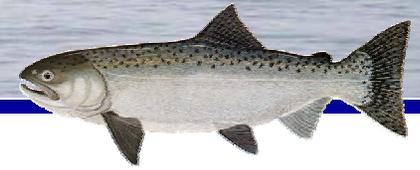
# Stanislaus River flows 'DRY' year



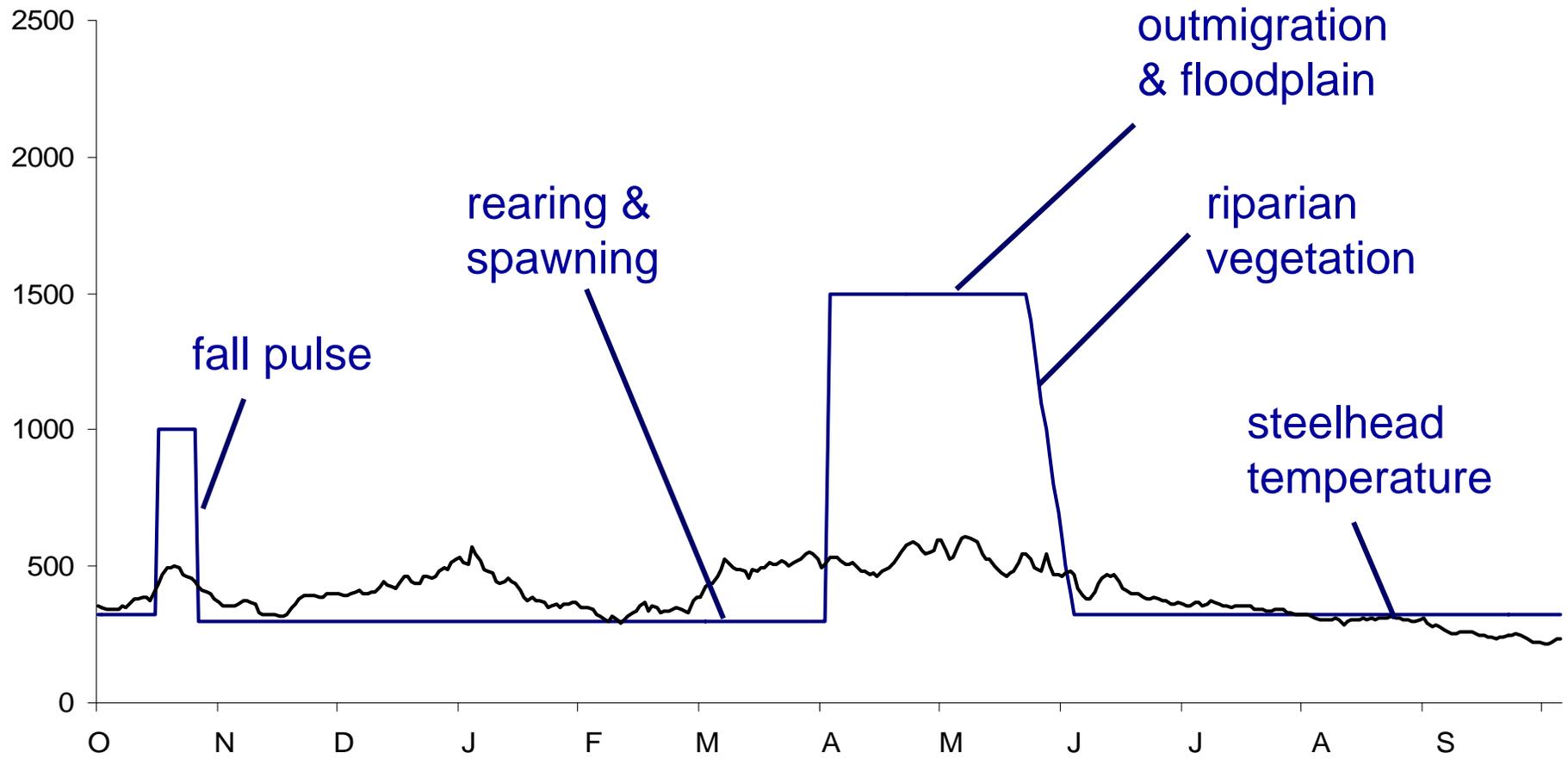
Flow (cfs) AVERAGE ACTUAL IN RIVER FLOW AT RIPON 290,405 af 53%



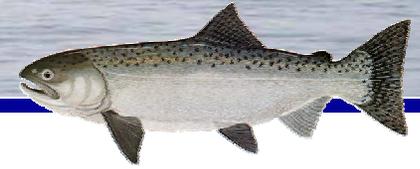
# Stanislaus River flows 'DRY' year



Flow (cfs)	AVERAGE ACTUAL IN RIVER FLOW AT RIPON	290,405 af	53%
	AFRP 2005 RECOMMENDED	369,879 af	68%



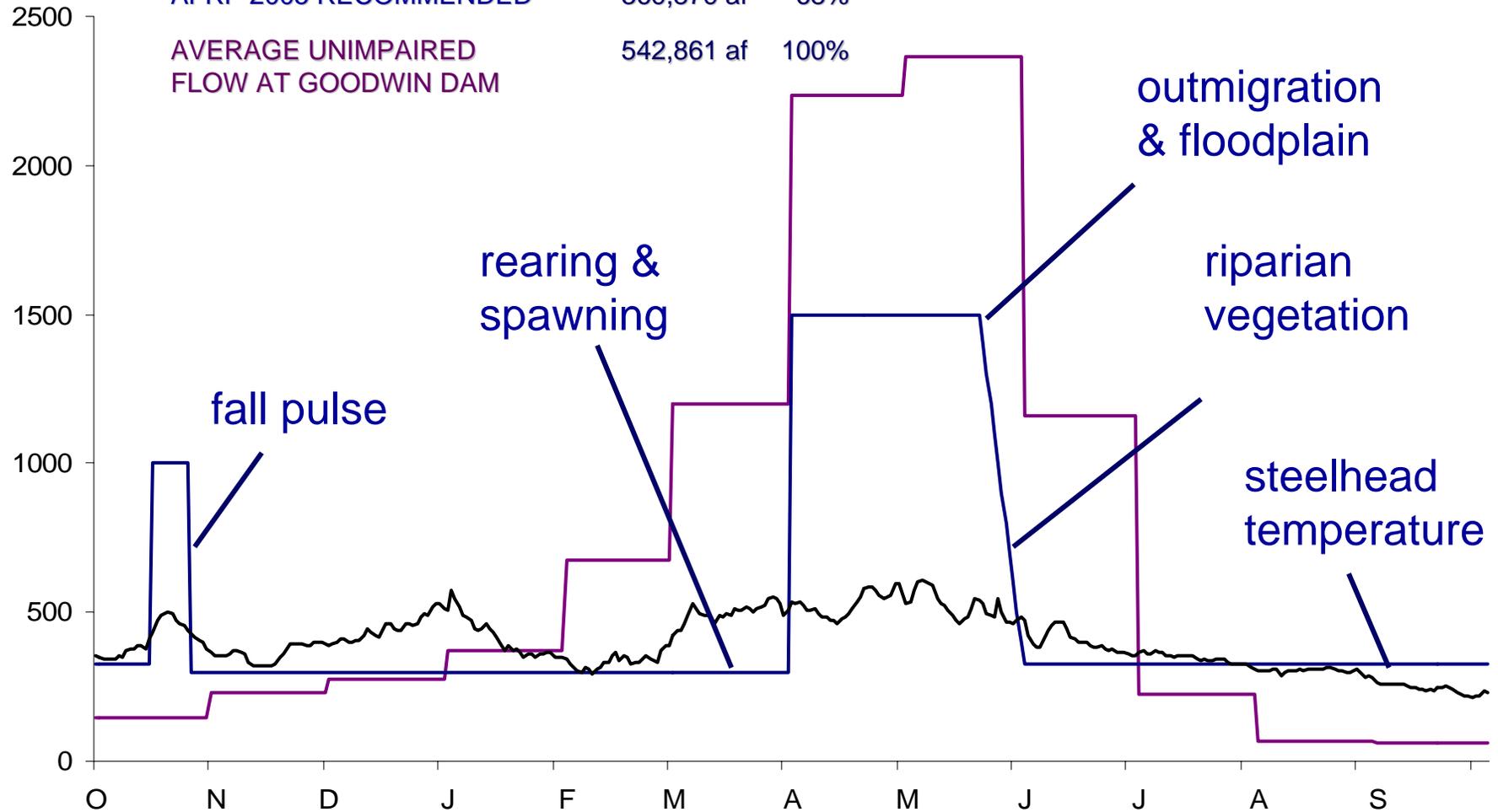
# Stanislaus River flows 'DRY' year



**Flow (cfs)**  
 AVERAGE ACTUAL IN RIVER FLOW AT RIPON 290,405 af 53%

AFRP 2005 RECOMMENDED 369,879 af 68%

AVERAGE UNIMPAIRED FLOW AT GOODWIN DAM 542,861 af 100%





## **ANADROMOUS FISH RESTORATION PROGRAM**

### **PROJECT EXAMPLES OF CALFED LEVERAGING, cont'd**

- Stanislaus River Gravel Replenishment Project:  
*AFRP- \$139,744; CALFED- \$561,000*
  - Merced River, Robinson Reach spawning habitat  
assessment:  
*AFRP- \$149,440; CALFED- \$4,132,860*
  - Tuolumne River, MJ Ruddy Segment: *AFRP-*  
*\$3,145,000; CALFED- \$4,425,430*
  - Tuolumne River, Warner-Deardorff Segment:  
*AFRP- \$518,670; CALFED- \$11,749,486*
- Totals: AFRP, \$5.4 million; CALFED, \$32.7 million**