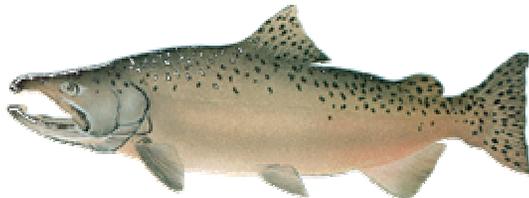


Examples and Assessment of CVPIA (b)(2) Water Used in CVP streams



Roger Guinee
Water Operations Division
USFWS Sacramento
November 29, 2006



Objective



- Provide an overview of the CVPIA (b)(2) water program used in CVP streams and in the Delta.
- Provide background and relationship of the CVPIA Anadromous Fish Restoration Program (AFRP).
- Examples of upstream uses of (b)(2) water to improve salmonid habitat in two CVP streams.

Central Valley Improvement Act, 1992

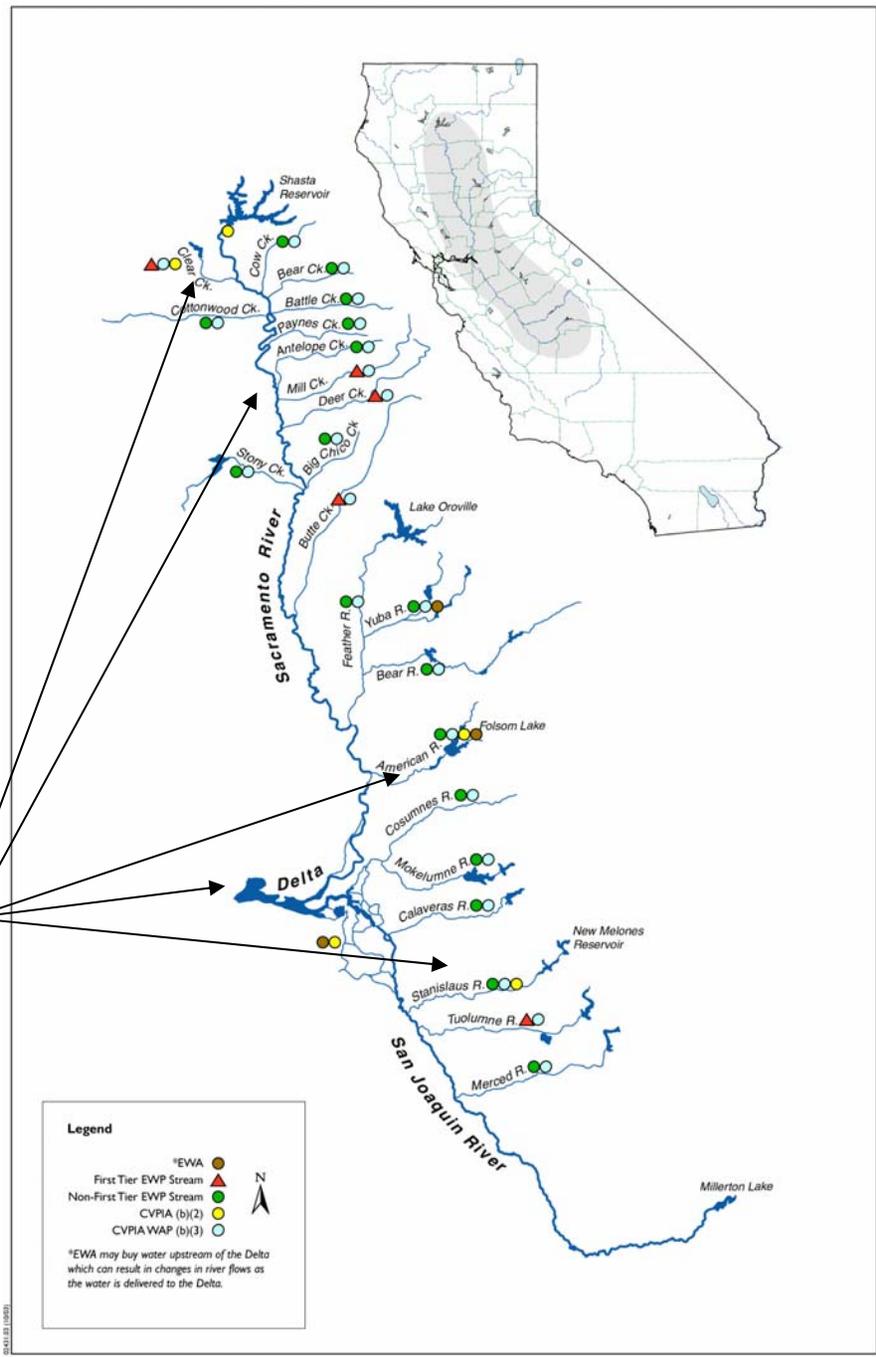
Purposes

- To protect, restore, and enhance fish, wildlife, and associated habitats in the Central Valley;
- To address impacts of the CVP on fish, wildlife, and associated habitats;
- To improve operational flexibility of the CVP;

CVPIA Section 3406 (b)(2) water

- **Purpose:** A CVPIA program that dedicates and manages 800,000 AF annually of CVP water.
- **Authority:** CVPIA in 1992. (b)(2) water is managed pursuant to conditions specified by the FWS after consultation with USBR, CDWR, and CDFG.
- **(b)(2) Agencies:** FWS, USBR, in coordination with CDFG, CDWR, and NOAA fisheries.

**B2 water
CVP controlled
streams and Delta
actions.**



Central Valley Improvement Act, 1992



ANADROMOUS FISH RESTORATION PROGRAM

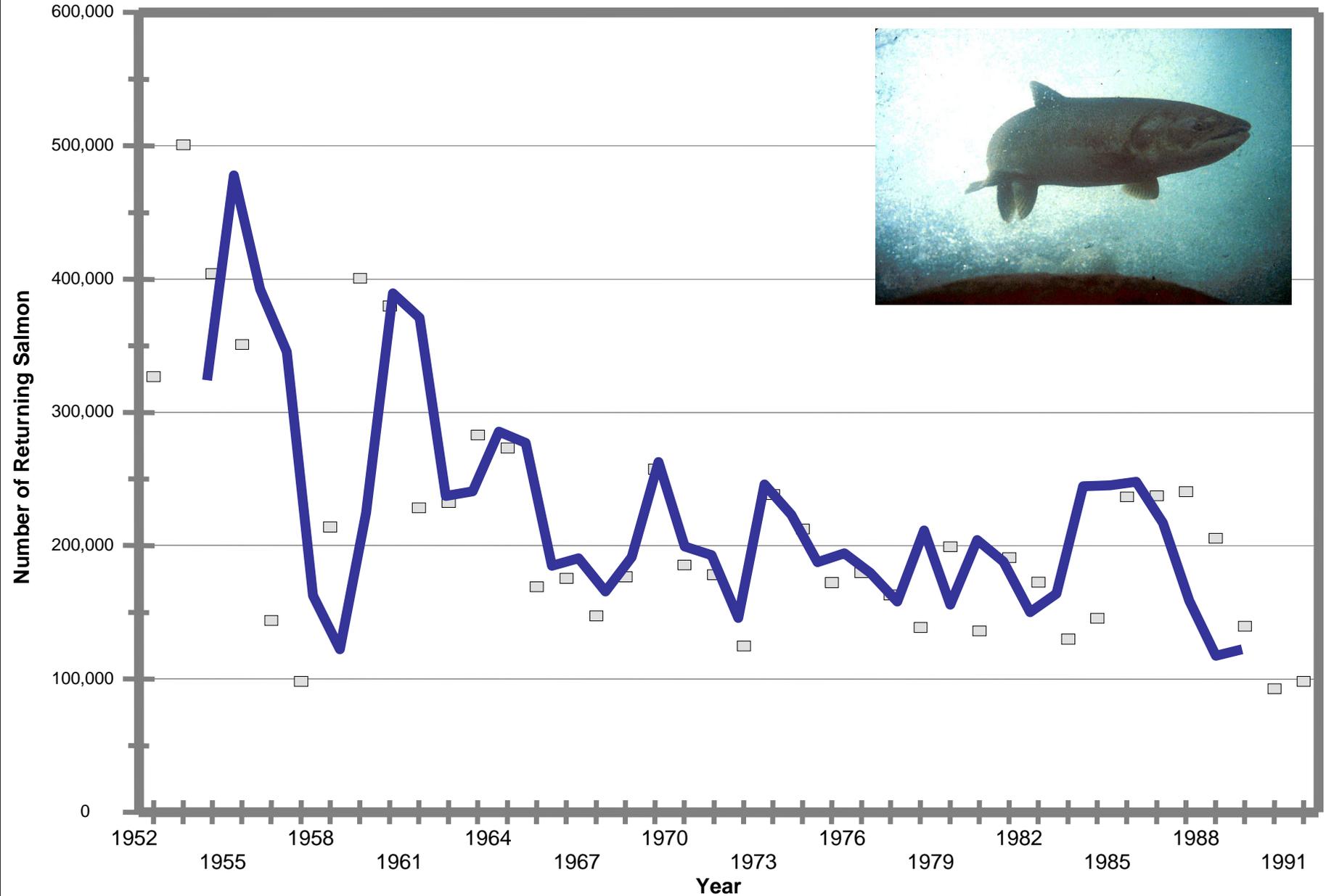
Develop and implement a program to double natural production of anadromous fish compared to the 1967-1991 average levels.

AFRP Working Paper (1995) identified flows to achieve doubling goal in Central Valley rivers and streams.

AFRP Plan (2001) recommended “reasonable” flow objectives for CVP streams that contribute toward doubling (restoration) goal.

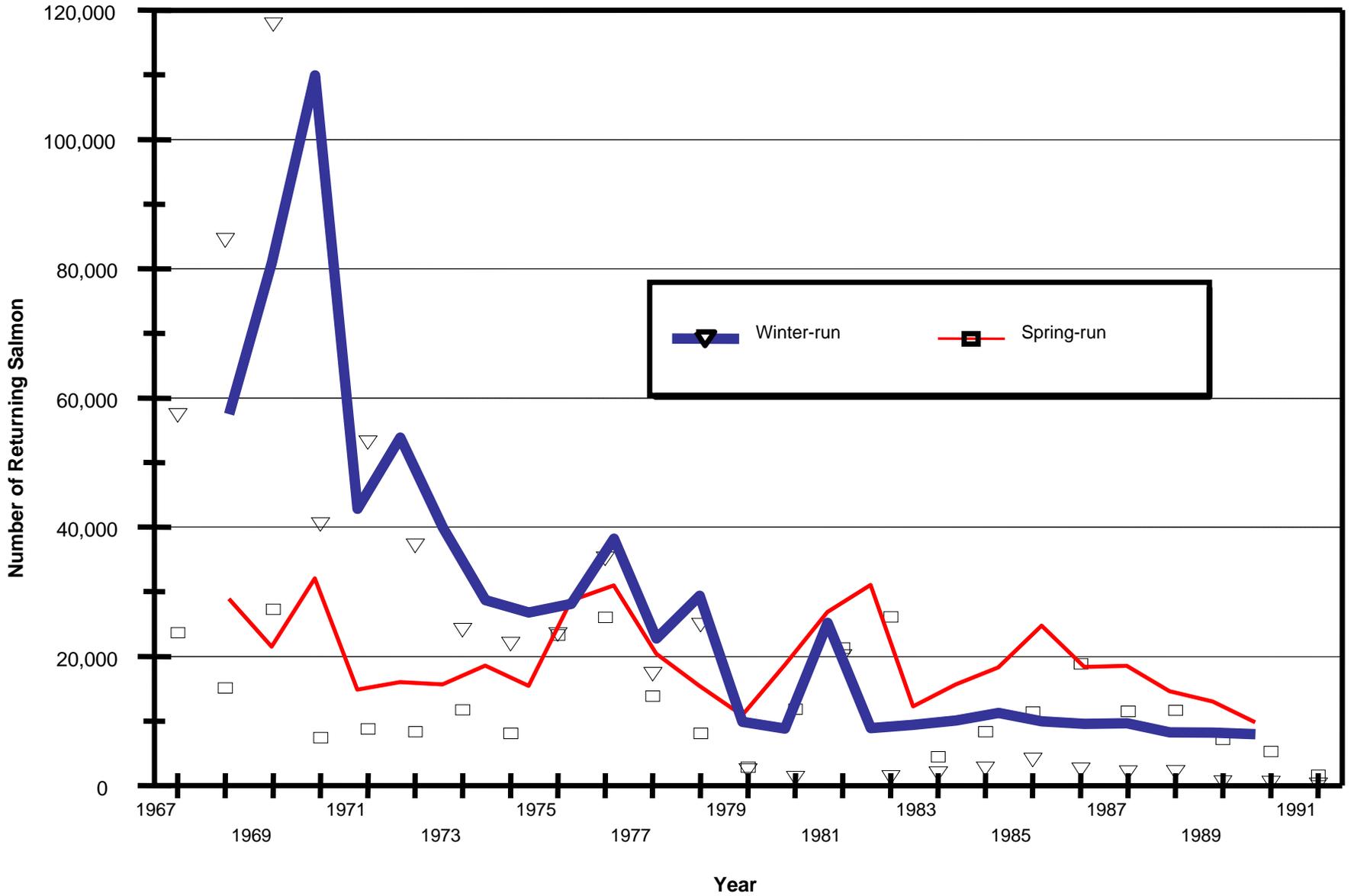
Sacramento River Basin

Fall-run Chinook salmon escapement (1952-1991)



Central Valley Basin

Winter and Spring-run Chinook salmon escapement (1967- 1991)



CVPIA Section 3406 (b)(2) water

Technical basis:

AFRP Summary of flow-related limiting factors

- Inadequate timing and/or magnitude of flow to provide suitable conditions for one or more life stages.
- Water temperatures that exceed tolerances of one or more life stage
- Direct and indirect impacts of CVP and SWP Delta pumping



CVPIA Section 3406 (b)(2) water

Technical basis:

- (b)(2) fish actions are based on AFRP documents, published literature, IEP and DFG reports.
- CVPIA's mandate to double natural production of anadromous fish.
- CVPIA says "...to provide flows of suitable quality, quantity, and timing to protect all life stages of anadromous fish..."
- (b)(2) fish actions are monitored, evaluated, and modified based on the best science available.

CENTRAL VALLEY PROJECT IMPROVEMENT ACT

WATER FOR FISH AND WILDLIFE RESOURCES

3406(b)(2) Fish Actions



CVPIA Section 3406 (b)(2) water

Typical (b)(2) actions:

- Augment flows in CVP-controlled streams using (b)(2) water:
 - Clear Creek (year round)
 - Sacramento River (Oct – Apr 15)
 - American River (Oct – May)
 - Stanislaus River (Oct – June)
- Protect fish and improve habitat conditions (Nov – June) in the Delta by implementing export pumping reductions.

CVPIA Section 3406 (b)(2) water

Comparison of (b)(2) actions and target species:

- Augment flows in CVP-controlled streams using (b)(2) water:
 - **Clear Creek** (year round) for fall-run Chinook, spring-run Chinook, and steelhead
 - **Stanislaus River** (Oct – June) for fall-run Chinook and steelhead

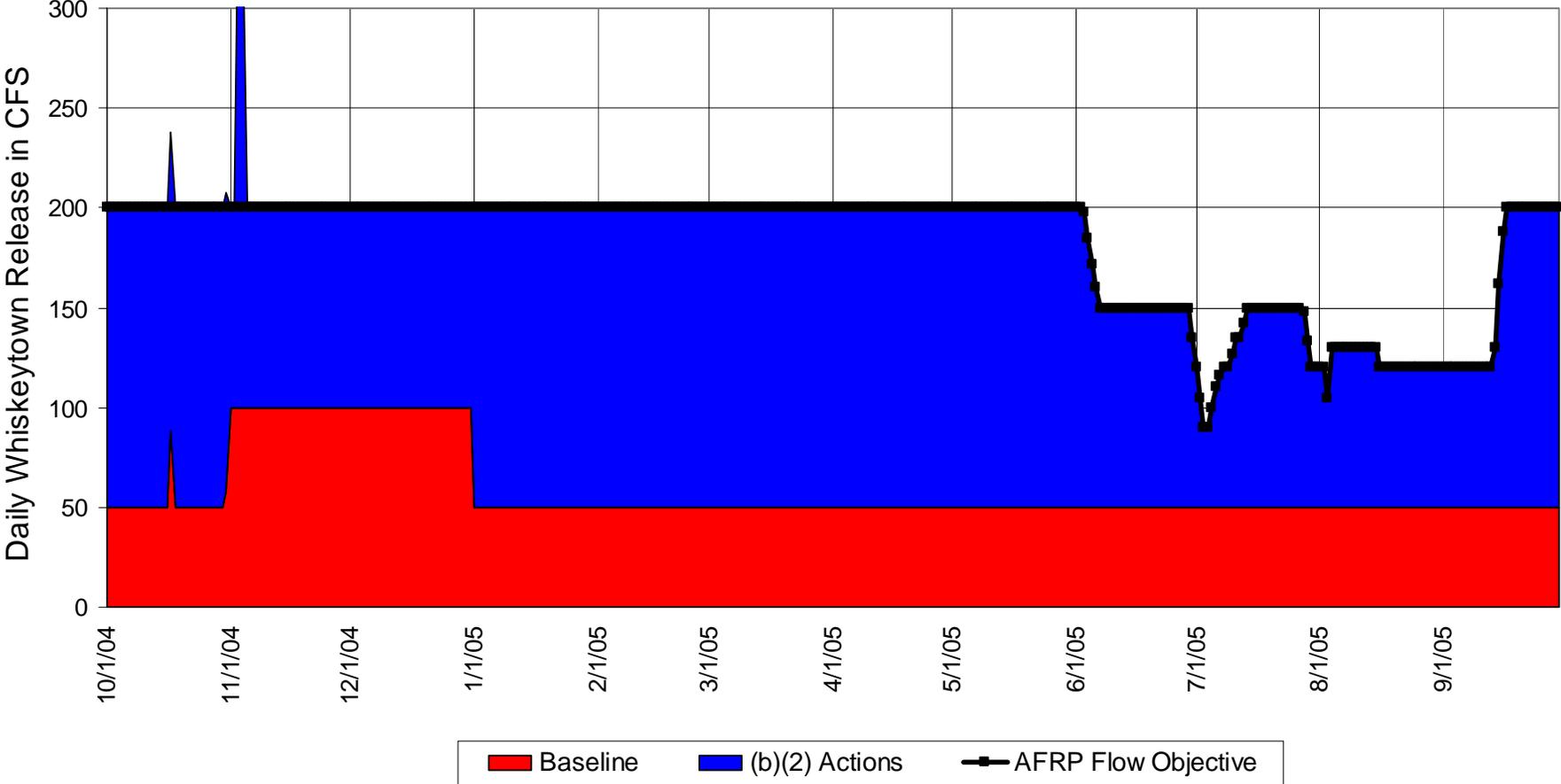
CVPIA Section 3406 (b)(2) water

Clear Creek – AFRP flow objective:

- Release 200 cfs October to June from Whiskeytown Dam
- Release 150 cfs, or less, from July through September to maintain 60 F

Clear Creek Operations

Data from DOI Daily Accounting



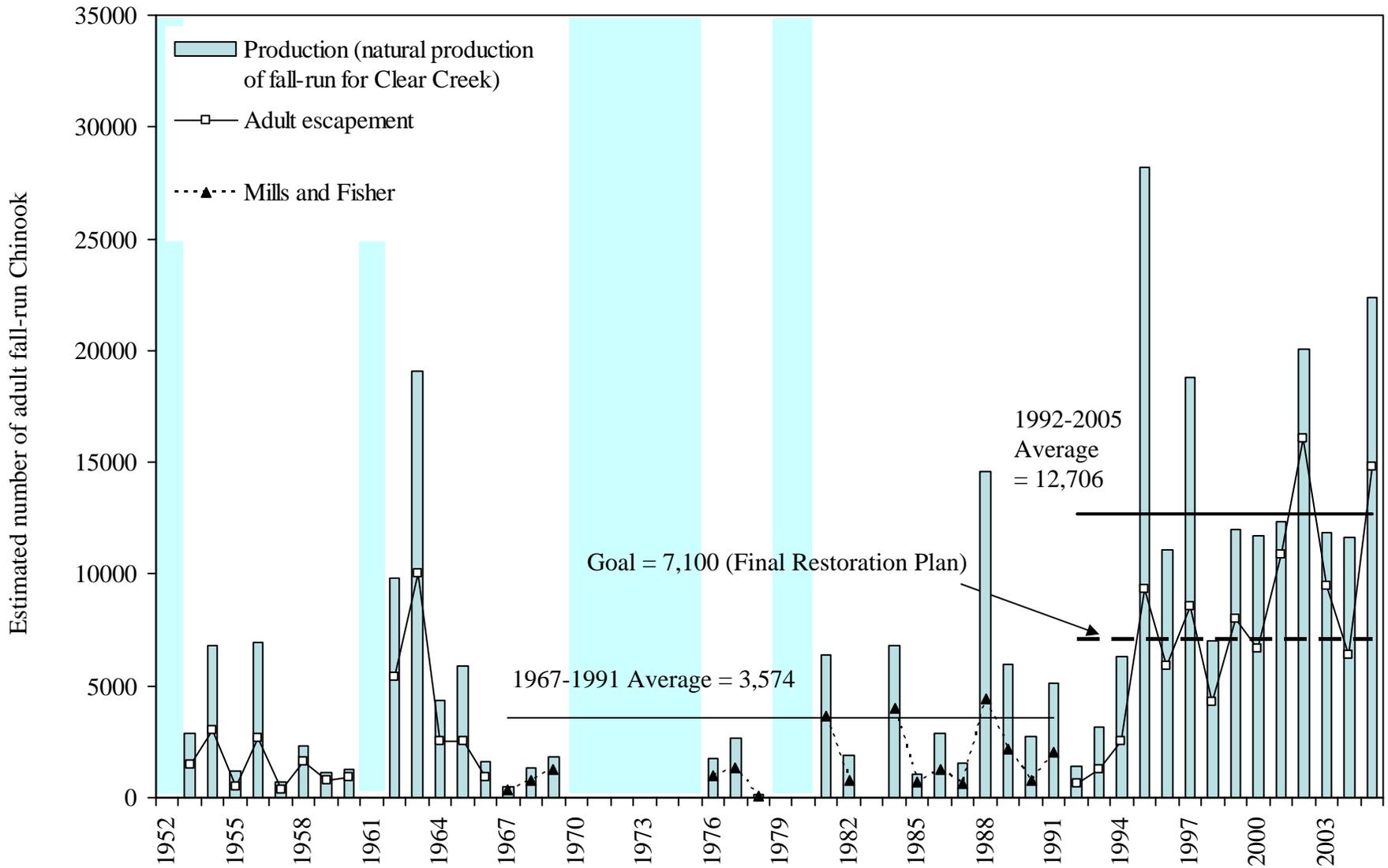
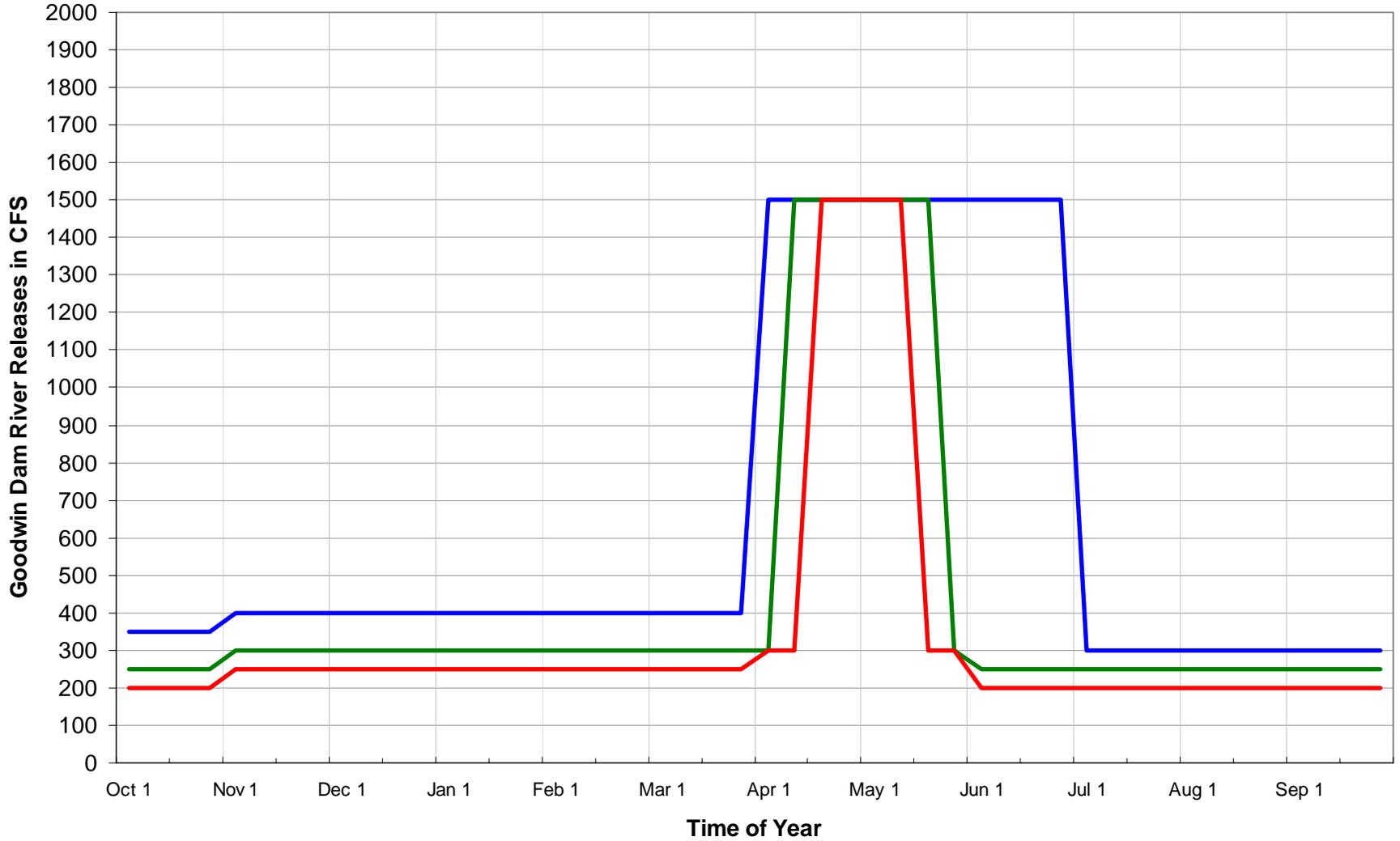


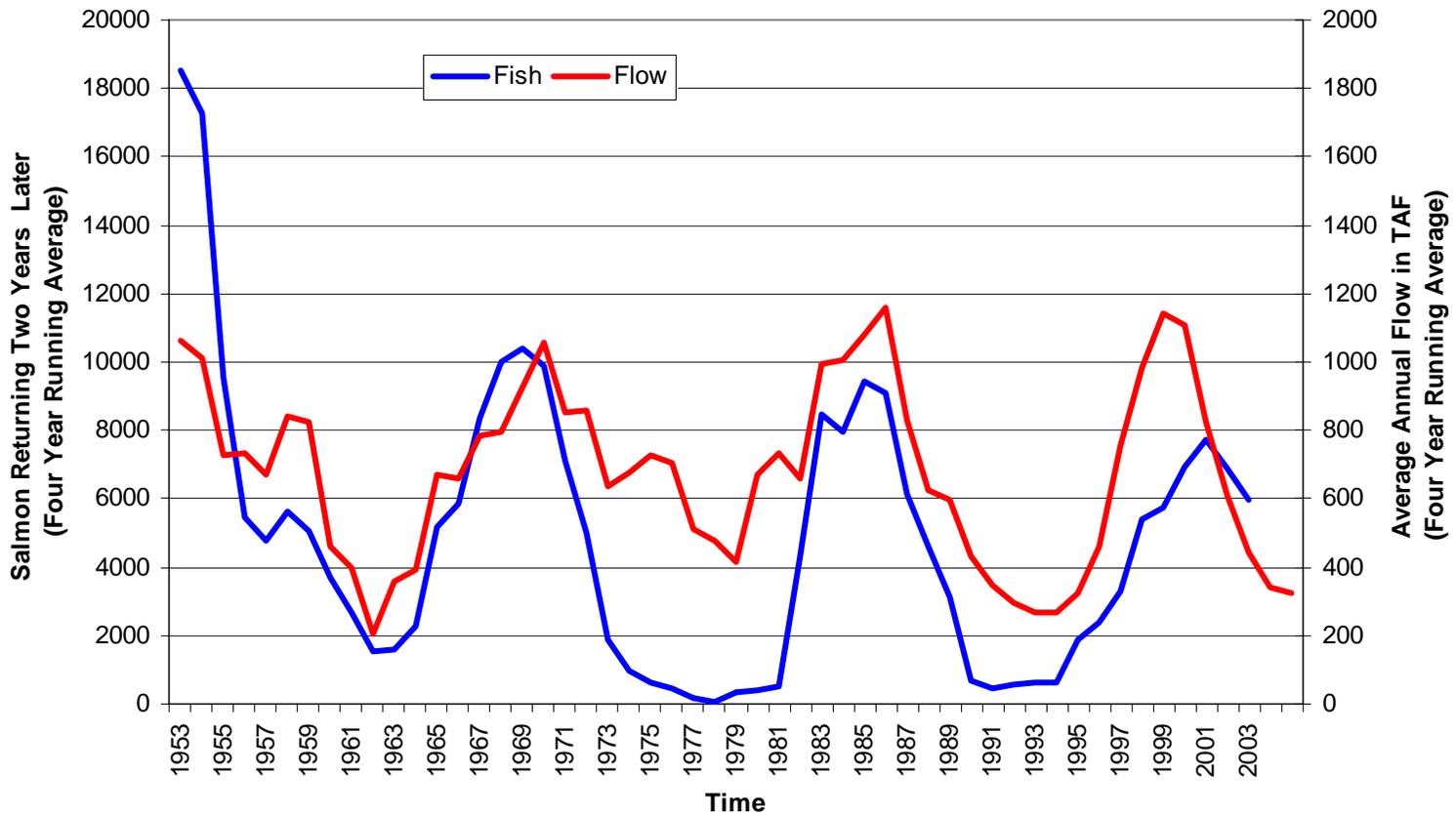
Figure 10. Estimated yearly adult natural production, and in river adult escapements of Clear Creek fall-run Chinook salmon.
 = data was not available for 1952, 1961, 1970-1975, 1979 and 1980. 1953 – 1966 and 1992 - 2005 numbers are from CDFG Grand Tab (January 31, 2006). Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994).

Month	AFRP - Stanislaus River flow schedules (cfs) by year type^b				
	Wet	Above normal	Below normal	Dry	Critical
October	350	350	250	250	200
November-March	400	350	300	275	250
April	1,500	1,500	300/1,500 ^c	300/1,500 ^d	300/1,500 ^e
May	1,500	1,500	1,500/300 ^c	1,500/300 ^d	1,500/300 ^e
June	1,500	800	250	200	200
July-September	300	300	250	200	200
Total (taf)	468	410	313	257	247
Baseline (taf)	1,015	722	406	242	269
Unimpaired (taf)	1,772	1,291	920	631	449

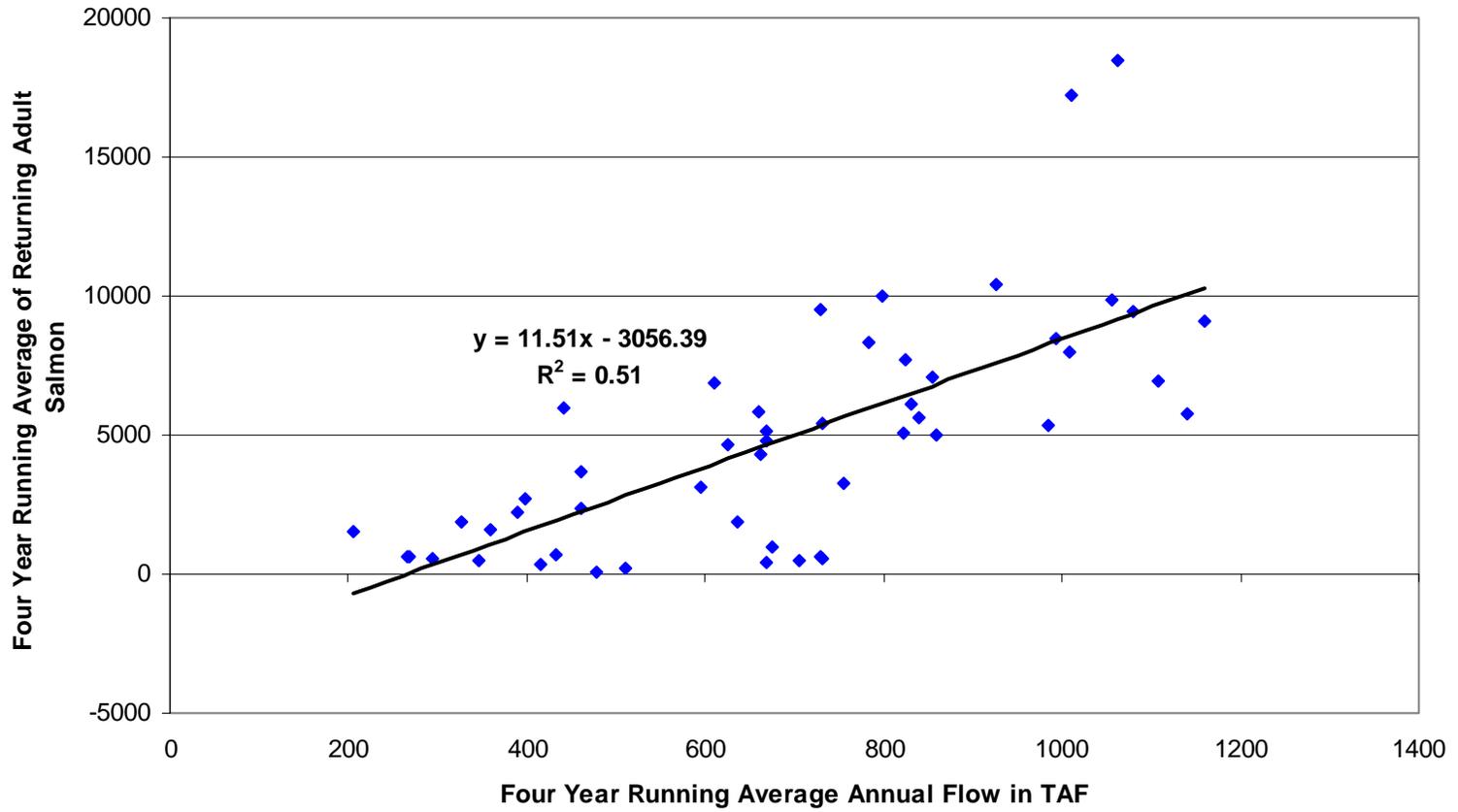
AFRP Stanislaus Flow Schedules



Stanislaus River

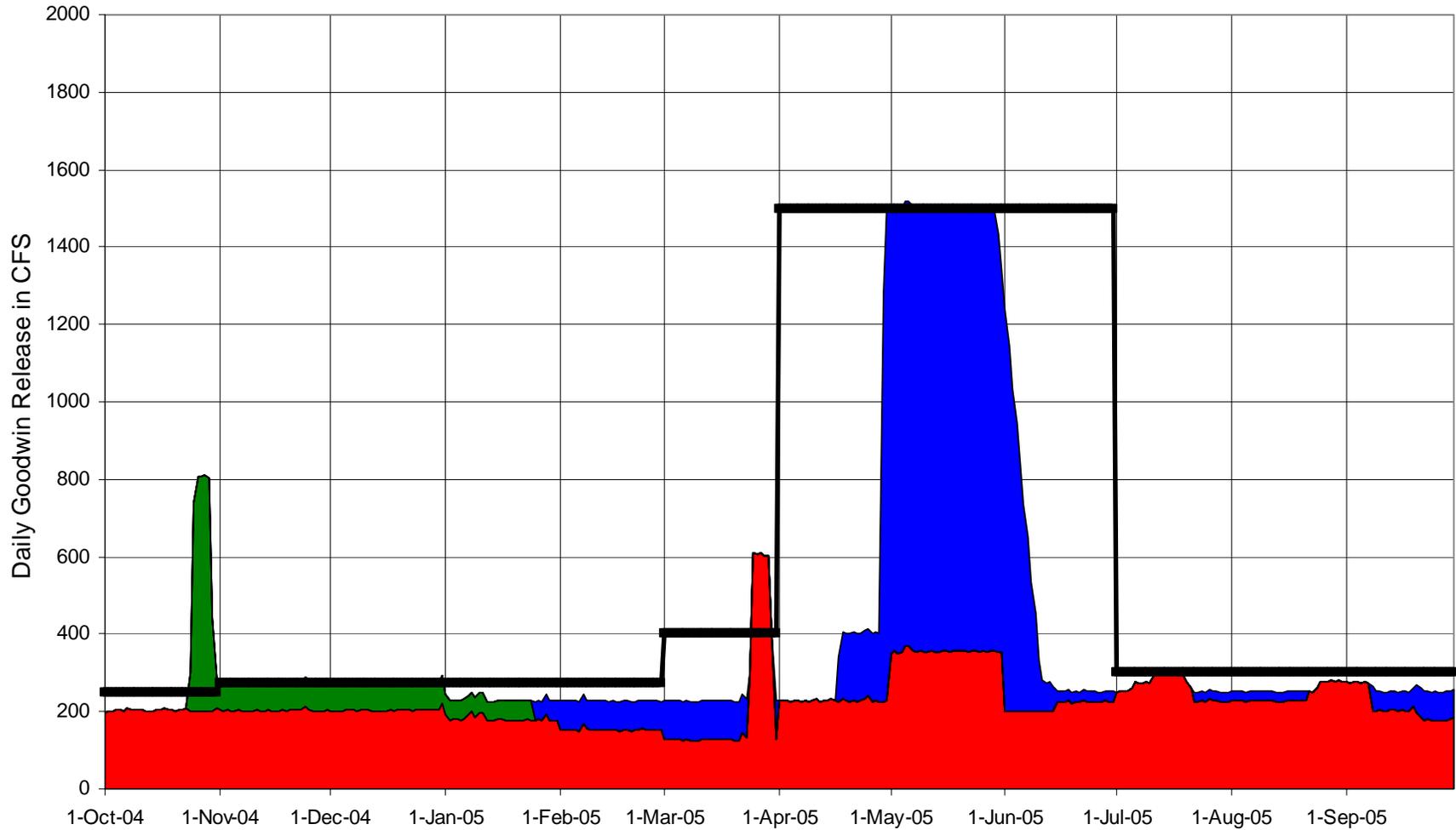


Stanislaus River



Stanislaus River Operations

Data from DOI Daily Accounting



Baseline

(b)(3)

(b)(2)

AFRP (Dry/Wet)

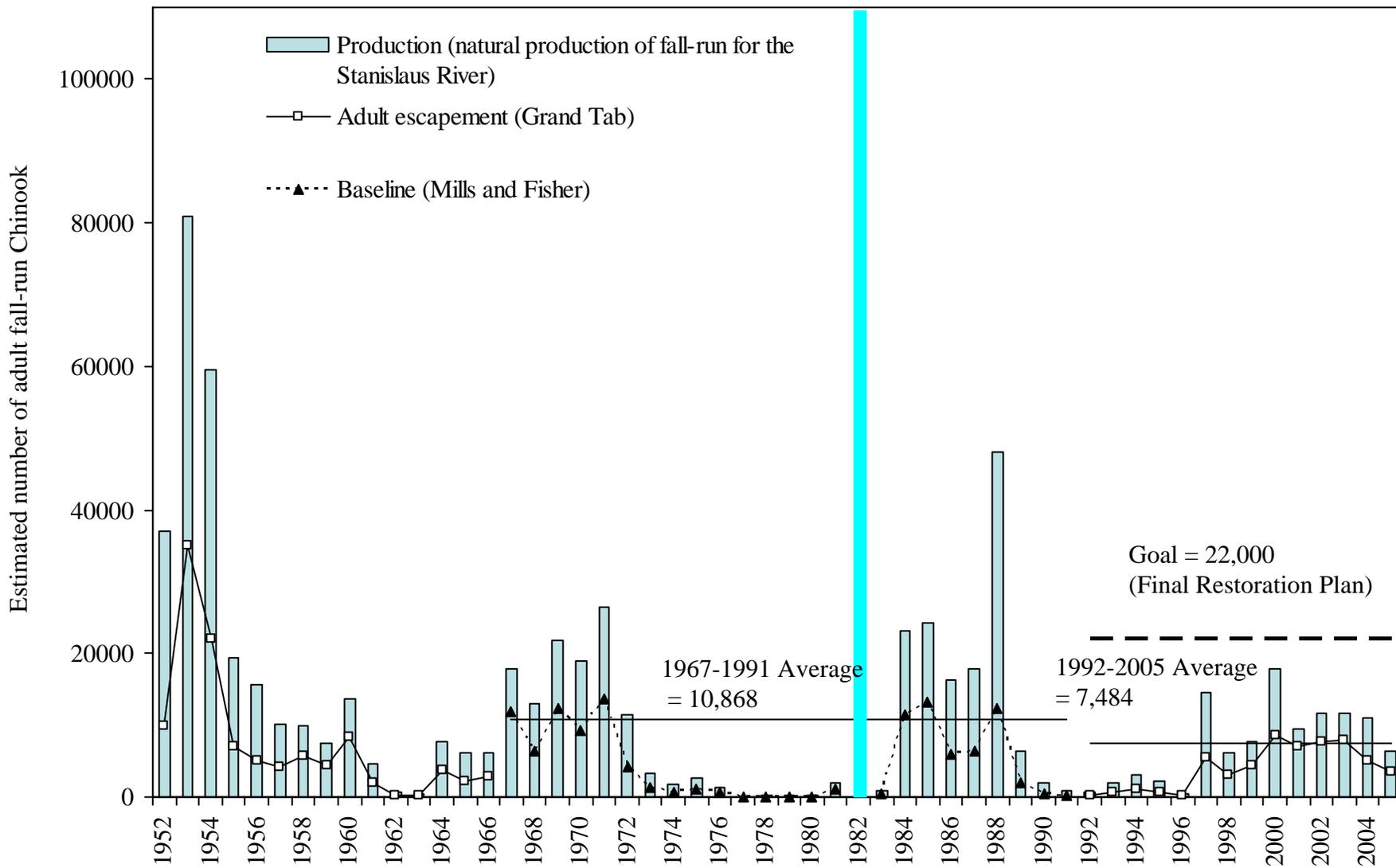


Figure 34. Estimated yearly natural production, and in river escapements of Stanislaus River adult fall-run Chinook salmon. 1952 – 1966, and 1992 - 2005 numbers are from CDFG Grand Tab (January 31, 2006). Baseline numbers (1967 - 1991) are from Mills and Fisher (CDFG, 1994). = data was not available for 1982.

Conclusion

- Clear Creek – since augmenting flows in 1995 with (b)(2) water, estimated salmon production has met or exceeded the AFRP restoration goal of 7,100.
- Stanislaus River - (b)(2) water has been used to augment flows since 1993.
- However, in many of those years (b)(2) water has been inadequate to meet the AFRP flow objectives.
- Estimated salmon production in the Stanislaus River continues to decline from 1967-1991 average production of 11,000 to approximately 7,500.

Summary

- Clear Creek – Meeting AFRP flow objectives since 1995, estimated salmon production has improved.
- Stanislaus River – Not enough water to meet AFRP flow objectives, the estimated production continues to decline.