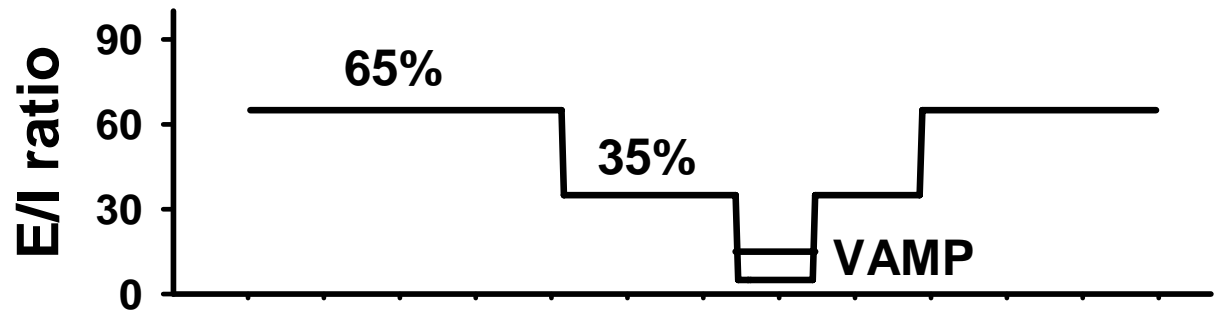


**Periodic Review of the 1995 Water  
Quality Control Plan for the San  
Francisco Bay/Sacramento-San  
Joaquin Delta Estuary**

**Comments of  
The Bay Institute  
on  
Export Limits**

**January 18, 2005**



Species or Run	O	N	D	J	F	M	A	M	J	J	A	S
Fall Chinook					■	■	■	■	■			
Late fall Chinook	■	■					■	■	■	■	■	■
Winter Chinook	■	■	■	■	■							
Spring Chinook	■	■	■	■	■	■	■					
Steelhead			■	■	■	■	■	■				
Delta smelt			■	■	■	■	■	■	■	■		

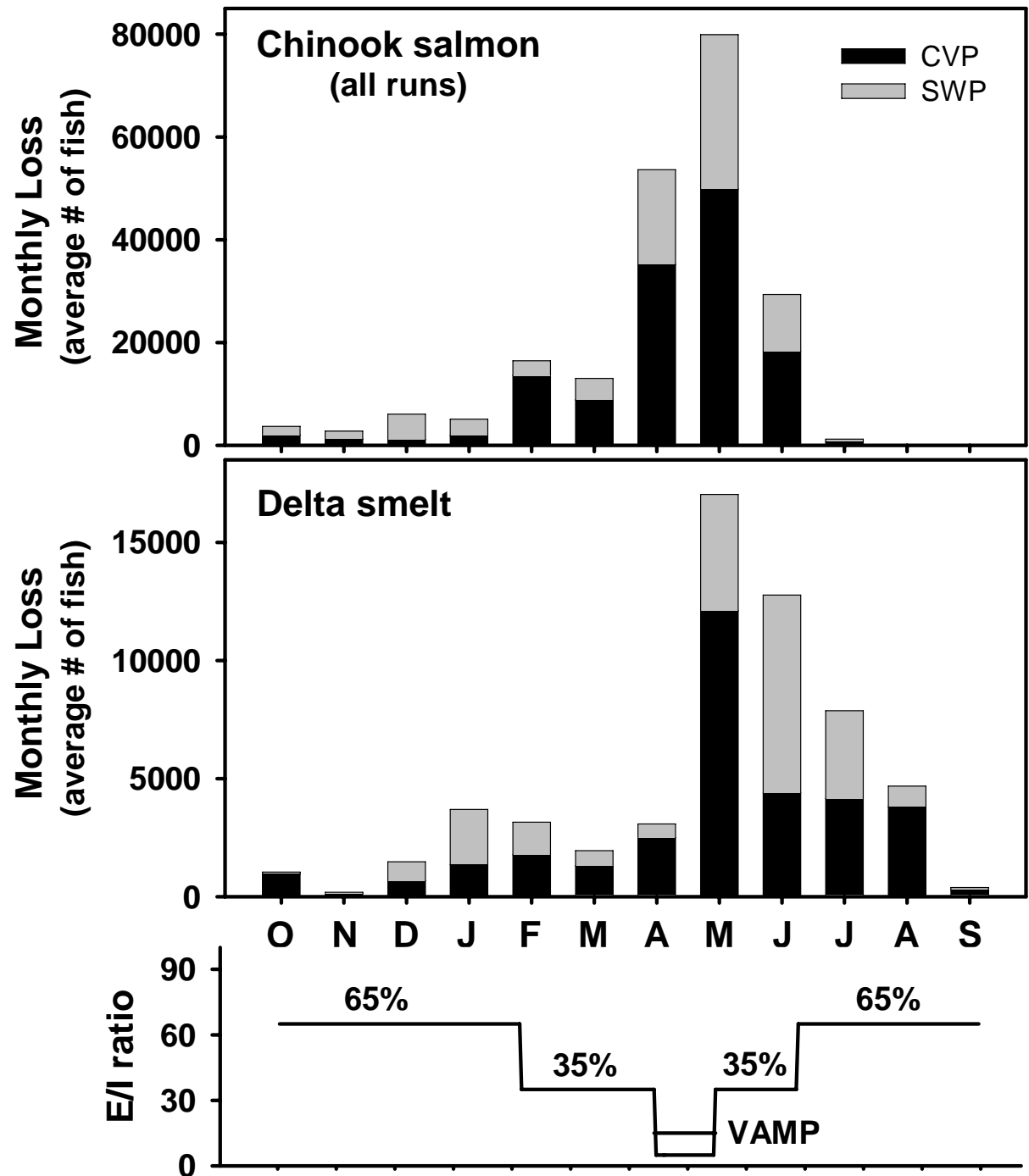
Delta smelt:      Adults ↗  
 (spawning)      Juveniles      Juveniles  
 (<20 mm)      (>20 mm)

Chinook salmon & Steelhead:      ■ Juvenile outmigration

## **Export-related actions in addition to the 1995 WQCP**

- **1995 Biological Opinion for delta smelt**
- **Vernalis Adaptive Management Plan (VAMP)**
- **Environmental Water Account/CVPIA (b)(2)**

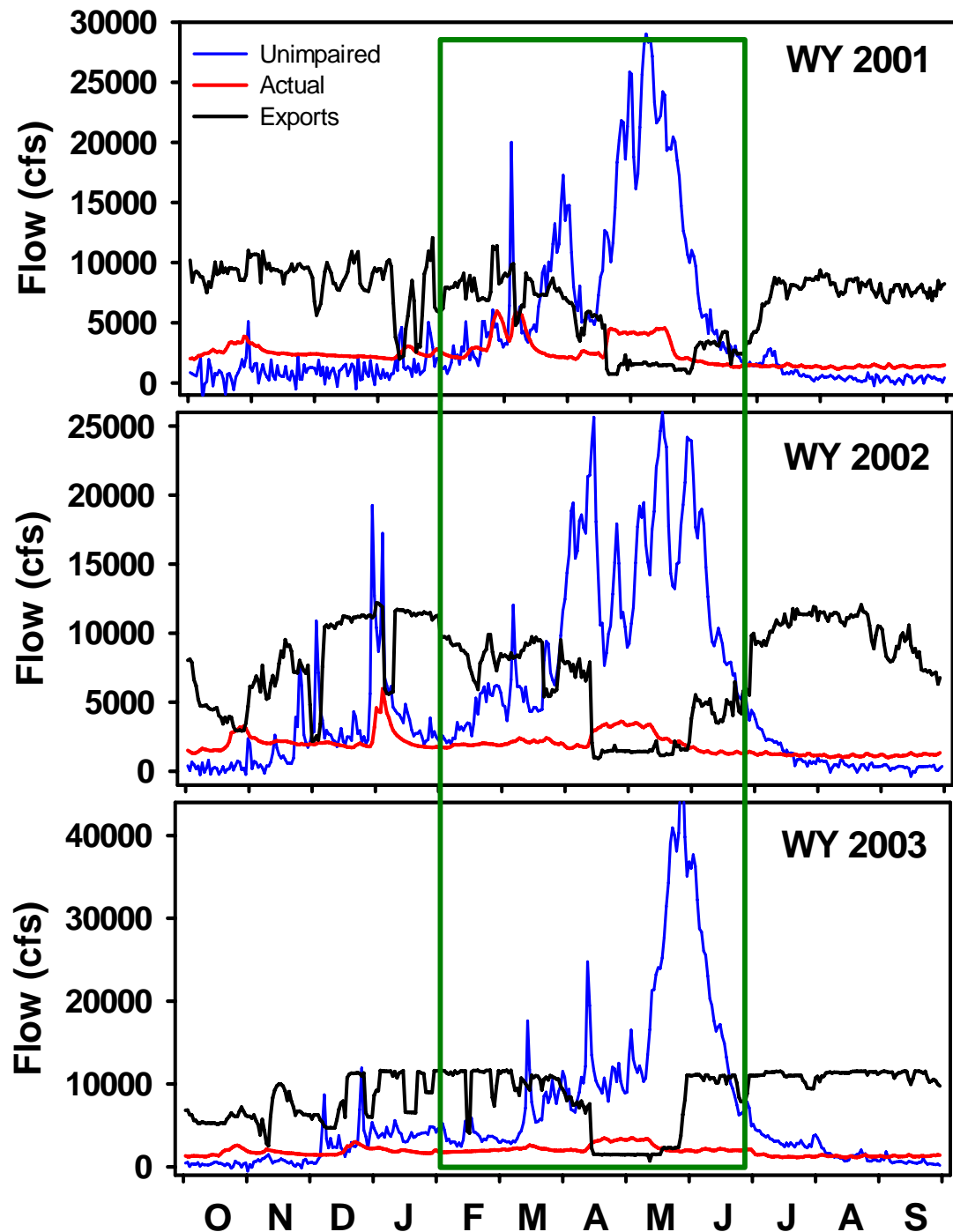
**Each year, millions of fish are entrained and lost at the CVP and SWP Delta export facilities.**



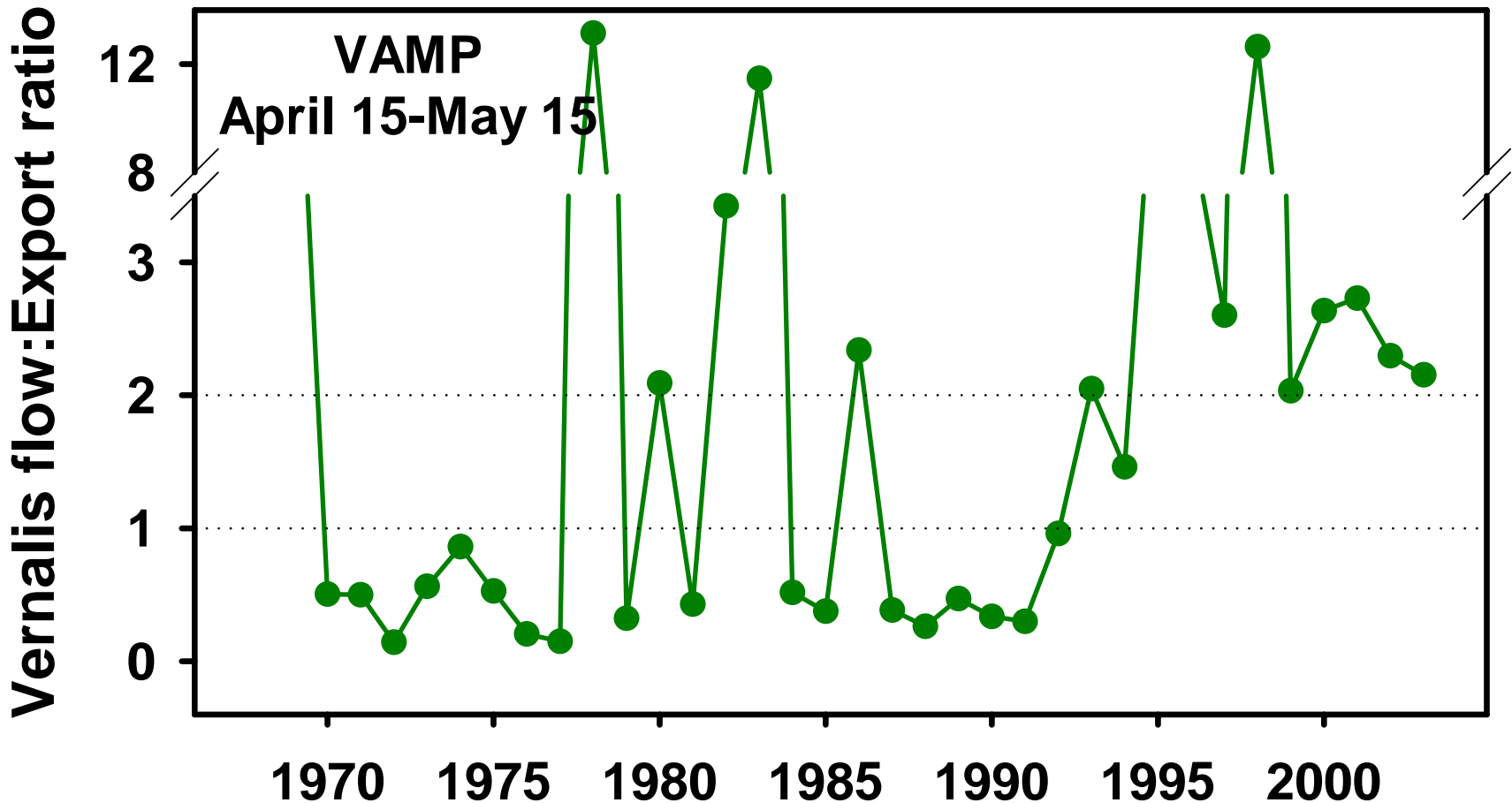
Entrainment loss data from D. Odenweller and CDFG

**Current water management regimes have greatest effects in late-winter and spring on:**

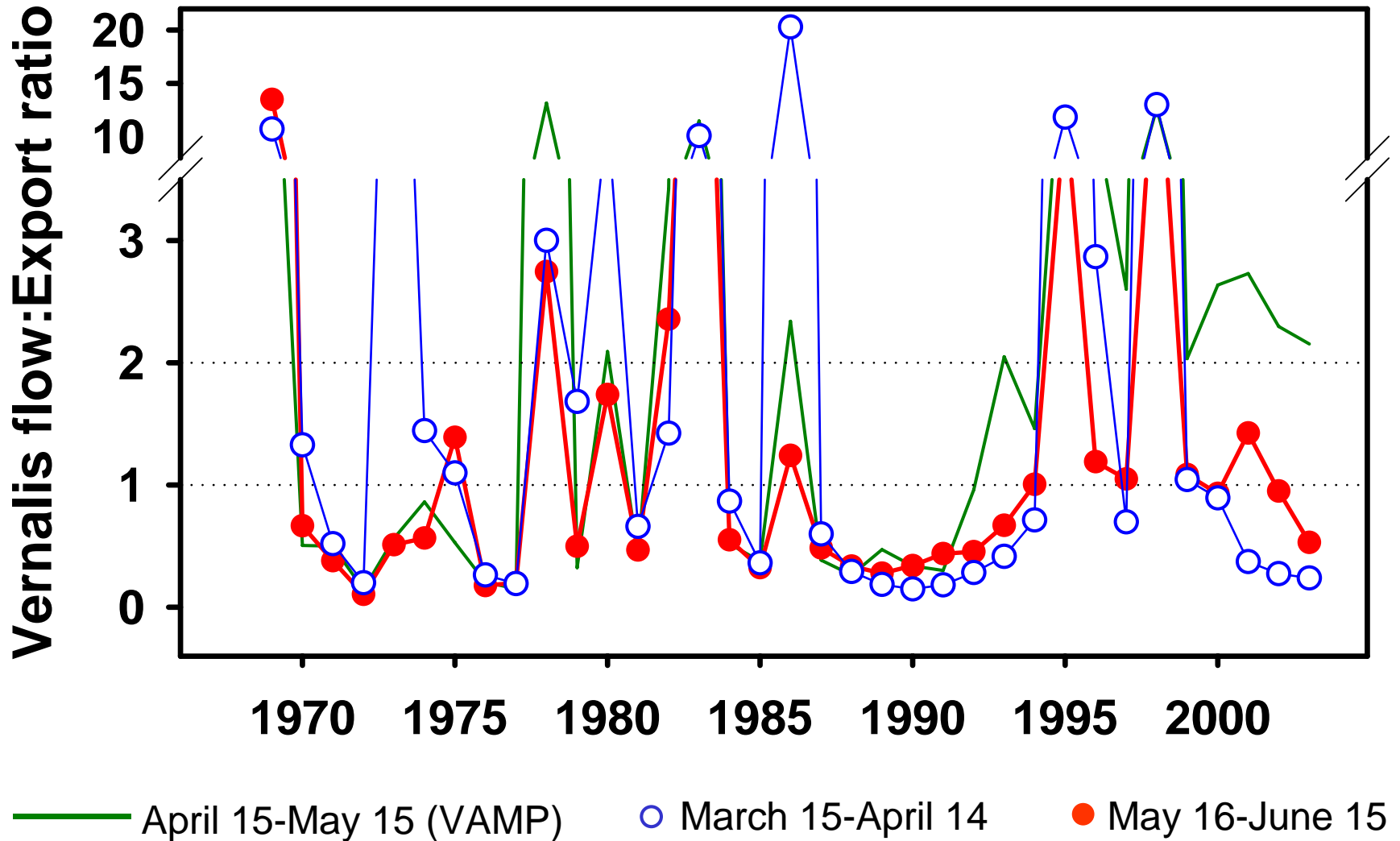
- **San Joaquin River (Vernalis) flows**
- **exports**
- **SJR:Export ratio.**



**Since 1995 WQCP, delta smelt BO, and VAMP, San Joaquin River flow:Export ratio has improved during April 15 – May 15 period.**

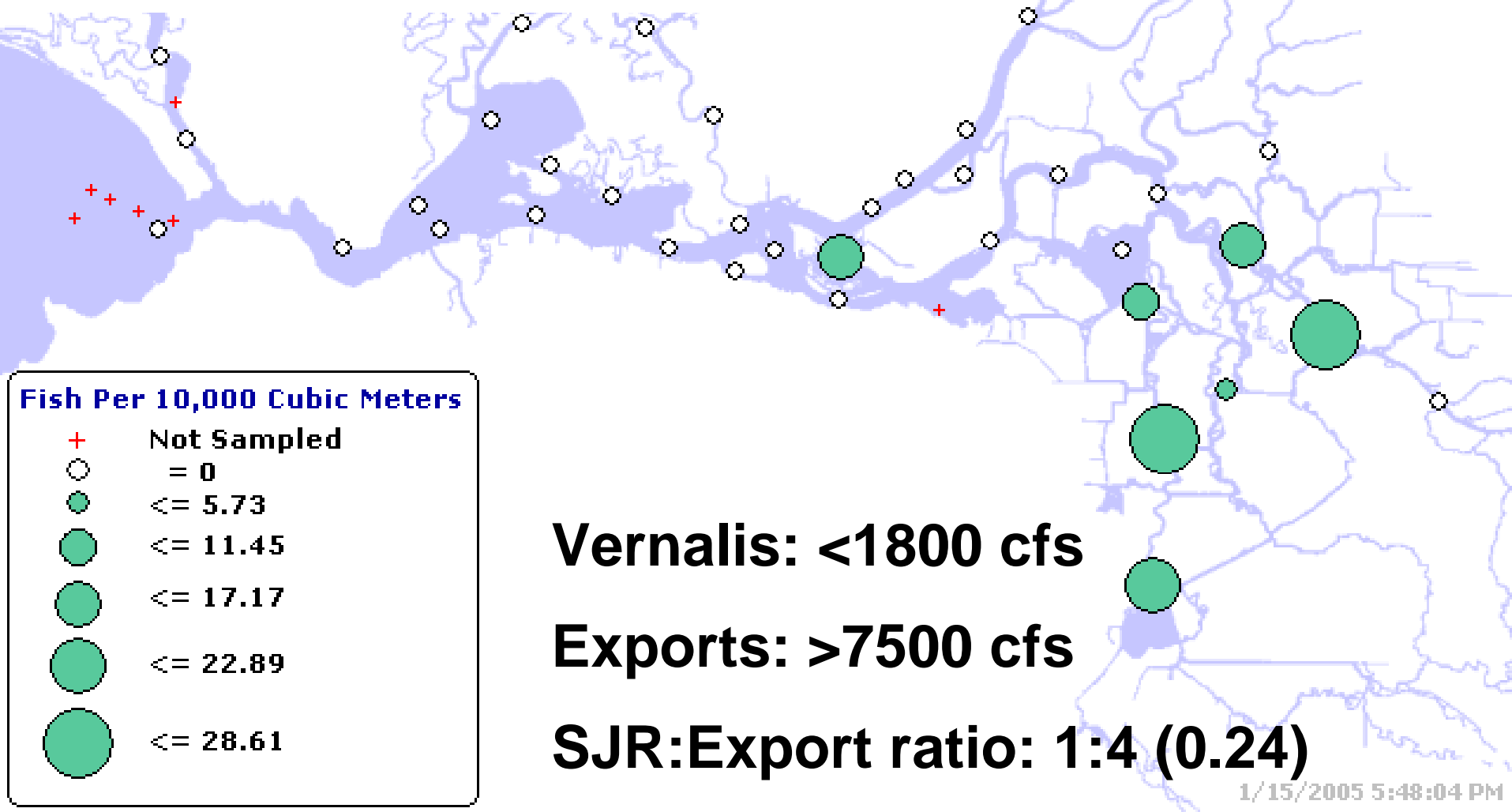
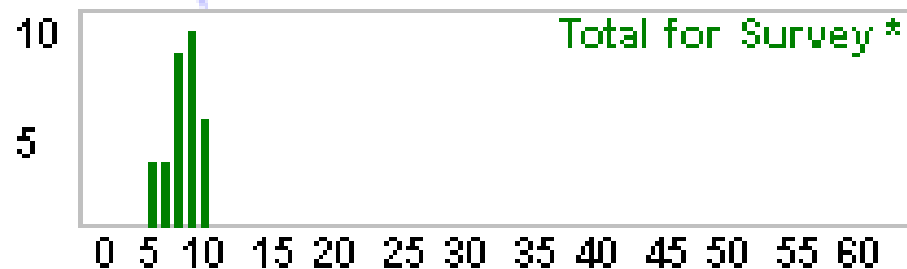


# San Joaquin River flow:Export ratio before VAMP (March 15-April 14) and after VAMP (May 15-June 15) is poor and has worsened.



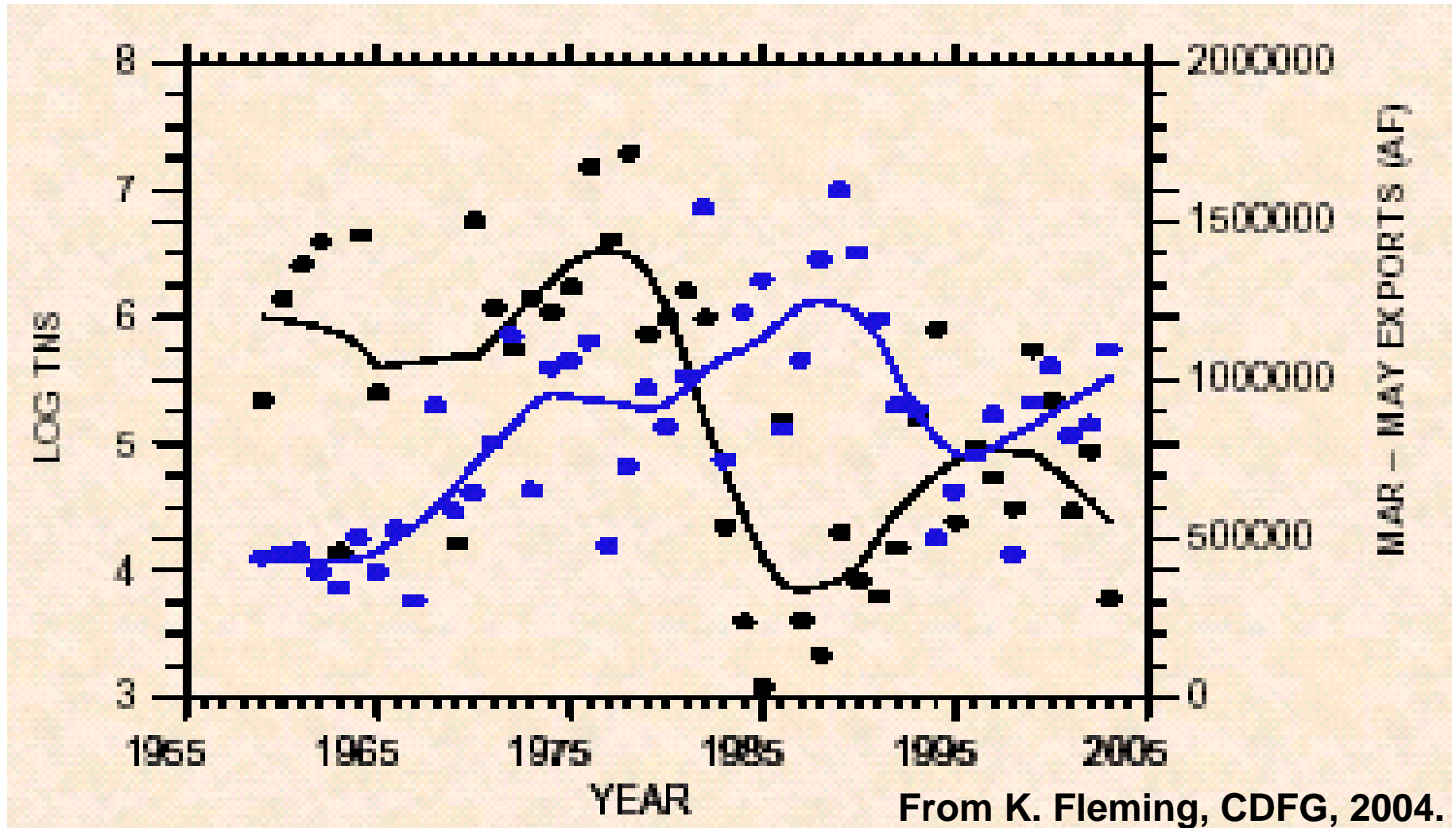
# Delta Smelt 2002

SURVEY 2 (4/2/2002 - 4/7/2002)



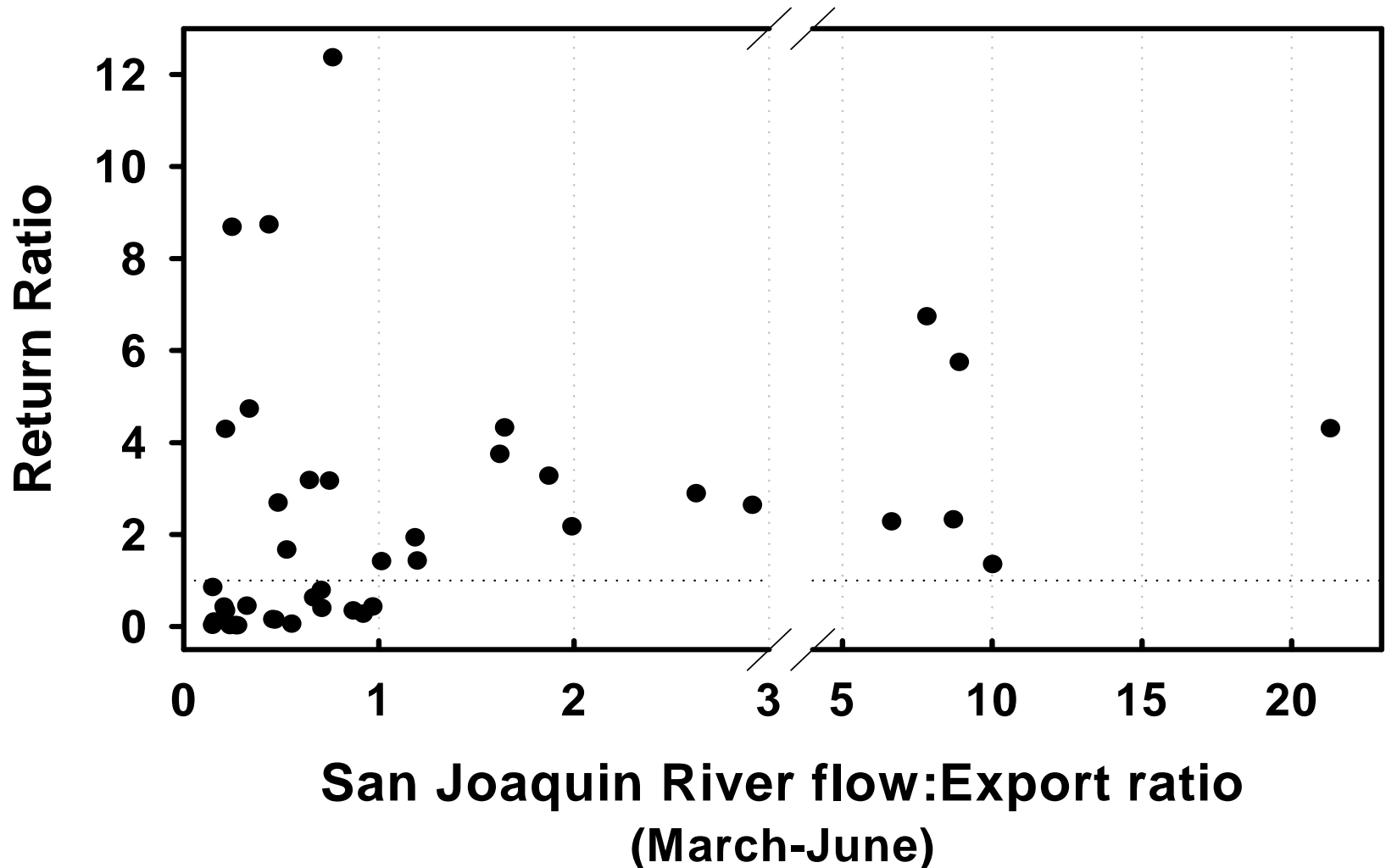


# Abundance of juvenile delta smelt declines when March-May exports are high.

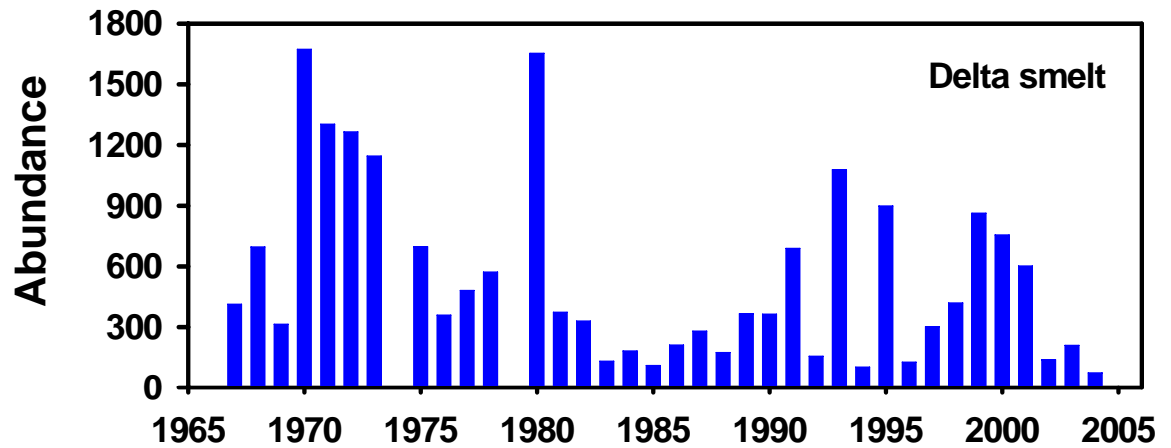


- Delta smelt abundance, Summer townet survey
- Exports

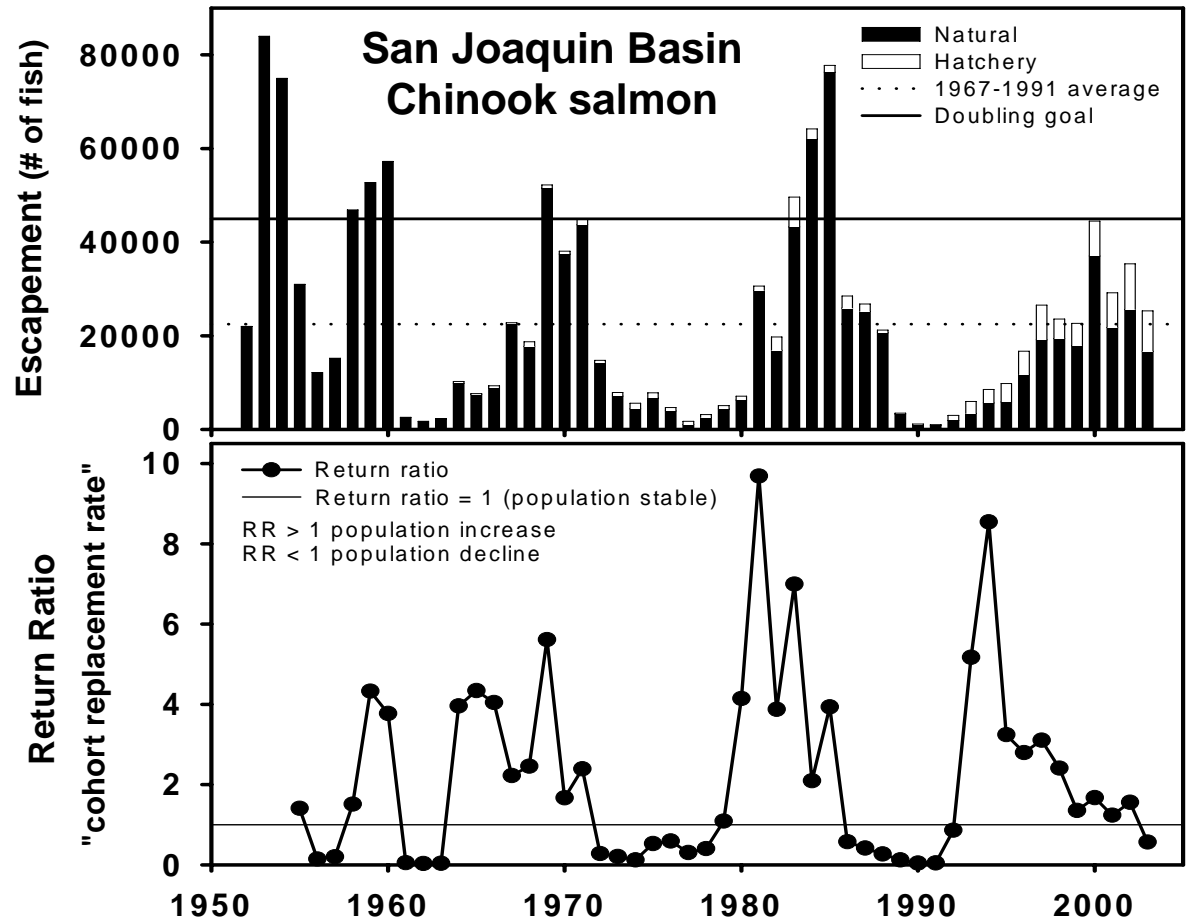
**In 95% of years with SJR:Export ratio > 1.0, SJ Basin Chinook salmon populations increase.**  
**Salmon populations decrease in 63% of years with SJR:Export < 1.0**



**Delta smelt  
population  
abundance  
declining.**



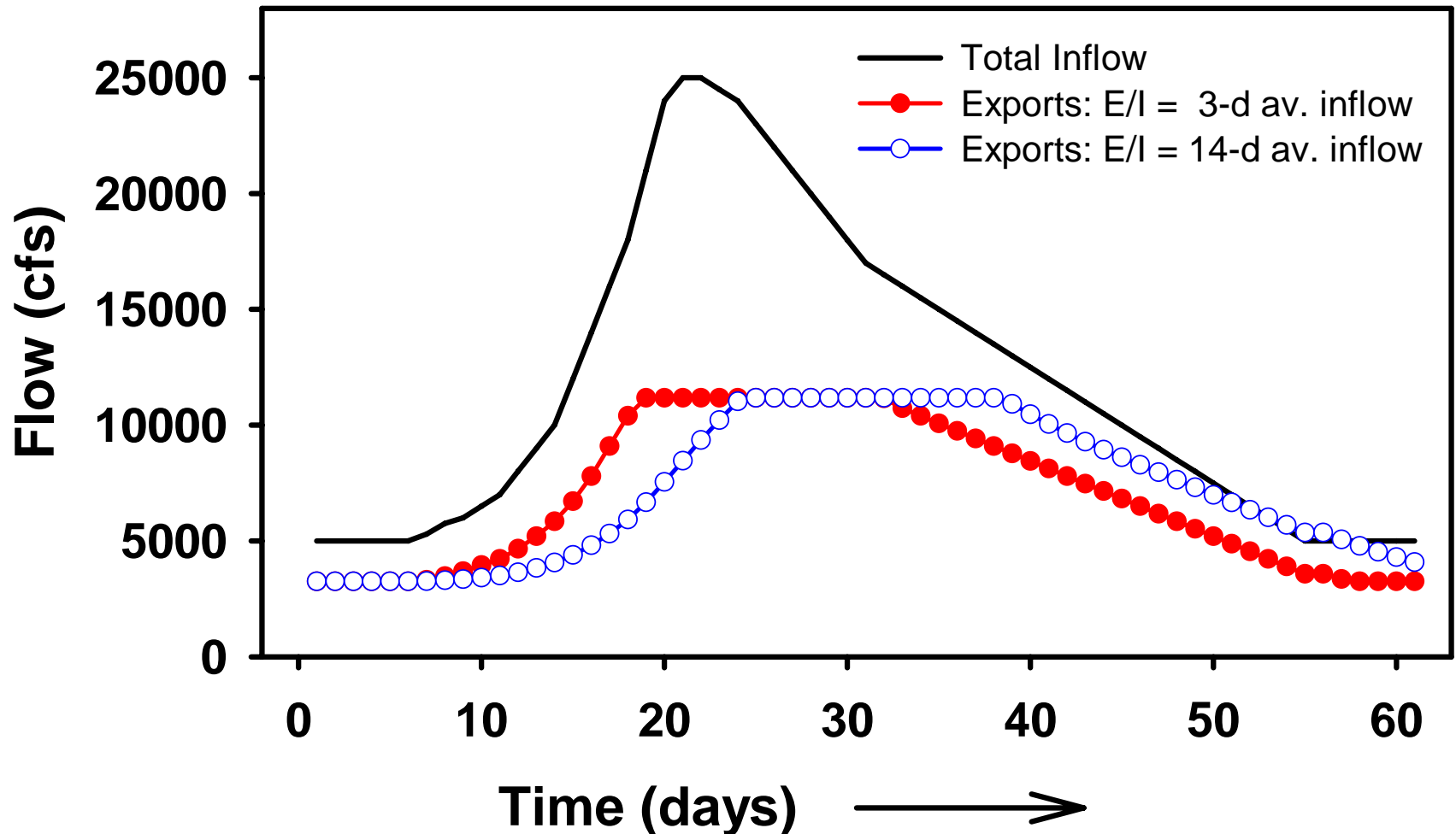
**San Joaquin  
Chinook  
salmon  
population at  
just 54% of  
doubling  
objective and  
Return Ratio  
declining.**



**Recommendations: Adopt more protective export limits before and after April 15-May 15. Link maximum exports to Vernalis flows.**

March 15-31	Exports limited to <b>200% of Vernalis flow</b> or 35% of total inflow, whichever is lower.
April 1-April 15	Exports limited to <b>100% of Vernalis flow</b> or 35% of total inflow, whichever is lower.
April 15-May 15	VAMP export rates, as determined by the Hydrology Group of the San Joaquin River Technical Committee.
May 16-31	Exports limited to <b>100% of Vernalis flow</b> or 35% of total inflow, whichever is lower.
June 1-15	Exports limited to <b>200% of Vernalis flow</b> or 35% of total inflow, whichever is lower.

**Recommendation: The current Inflow metric of the Export/Inflow ratio is protective of habitat and fisheries.**

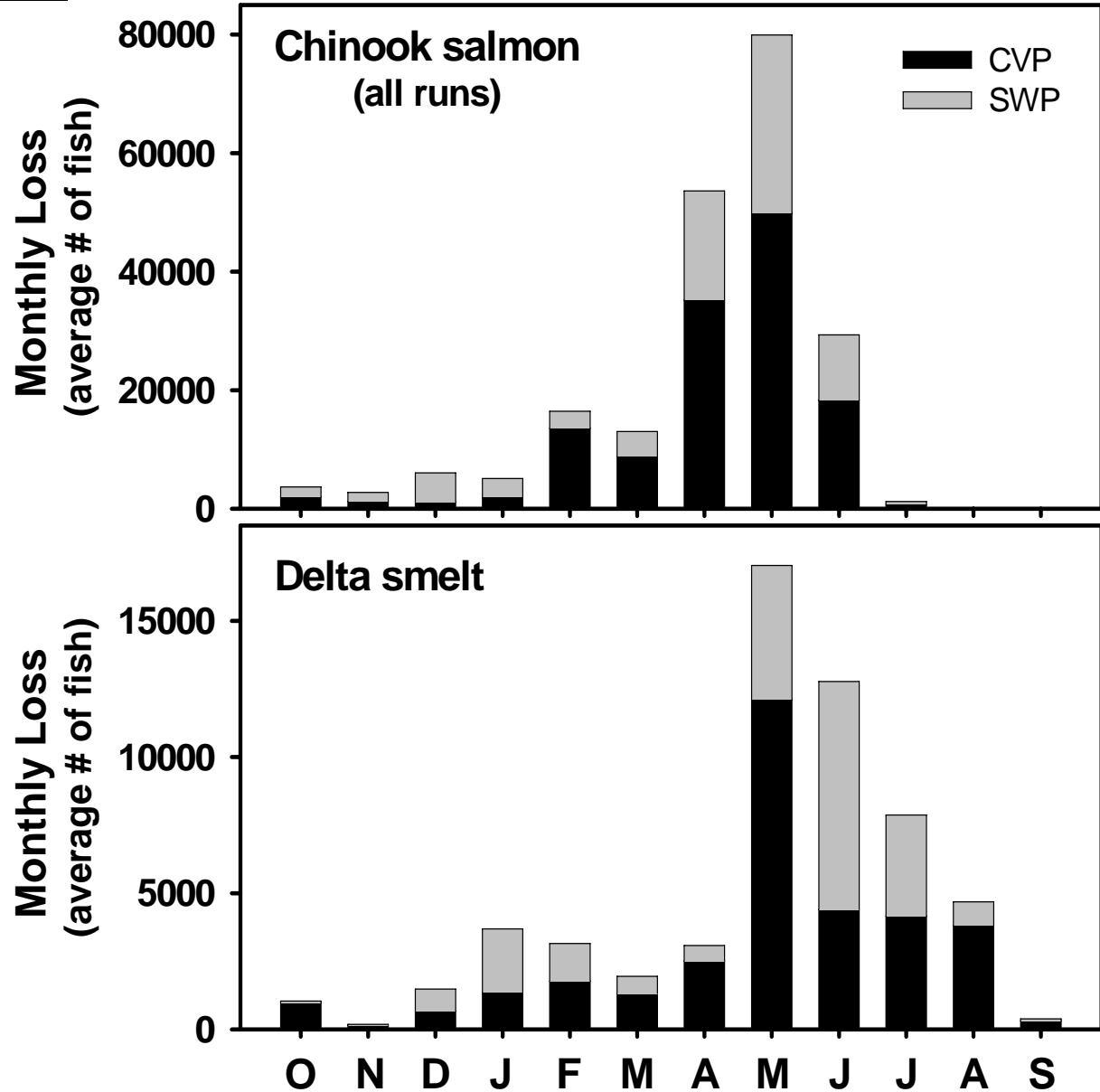


# Recommendations:

**Current fish protective facilities are inadequate.**

**If problems not resolved, revisit current export limits to protect fish.**

**Condition export increases on improved facilities.**



Data from D. Odenweller and CDFG