

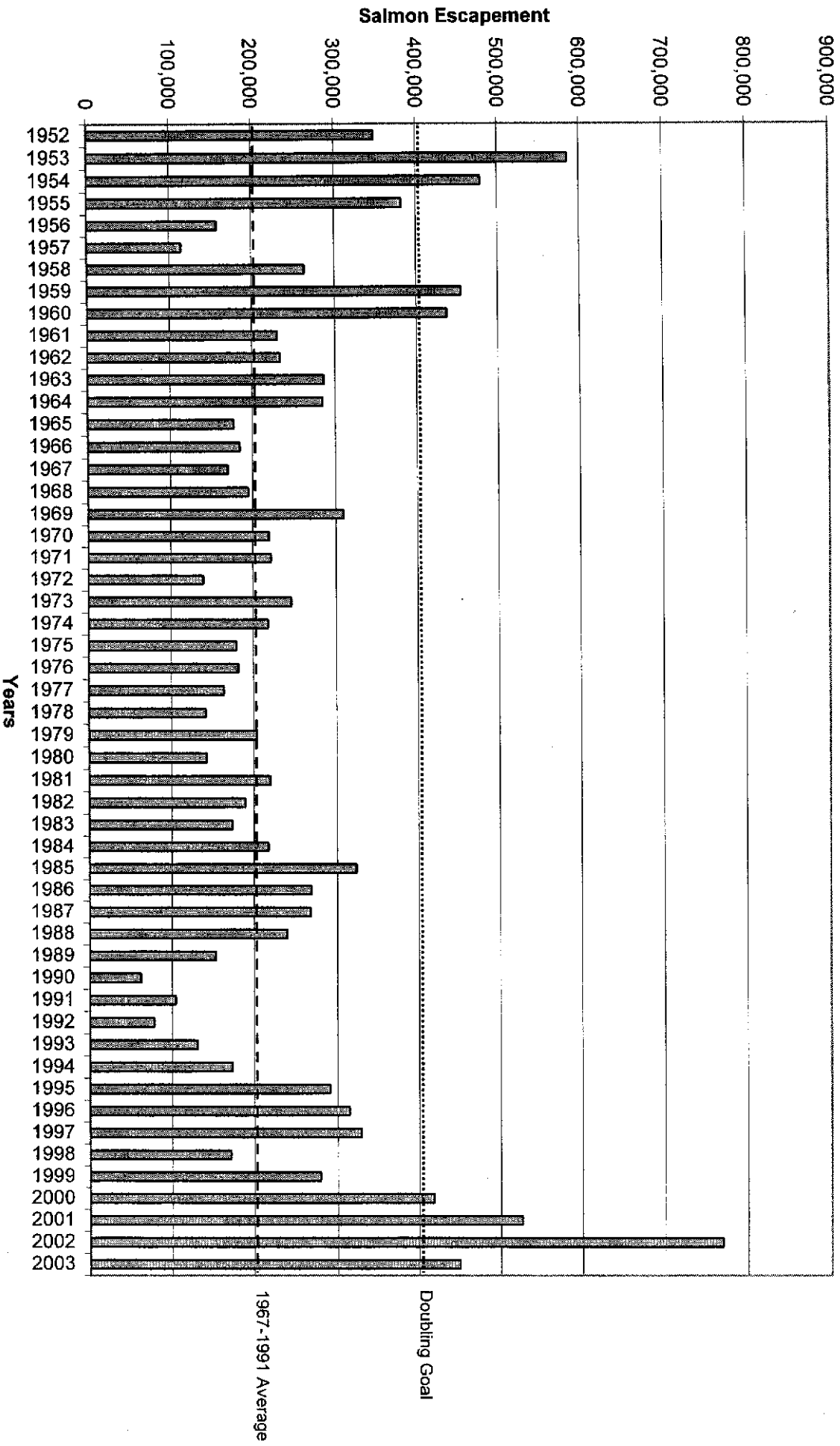
# **Trends in Central Valley Chinook Salmon In-River Escapement**

**Charles Hanson, Ph.D.**

**State Water Contractors**

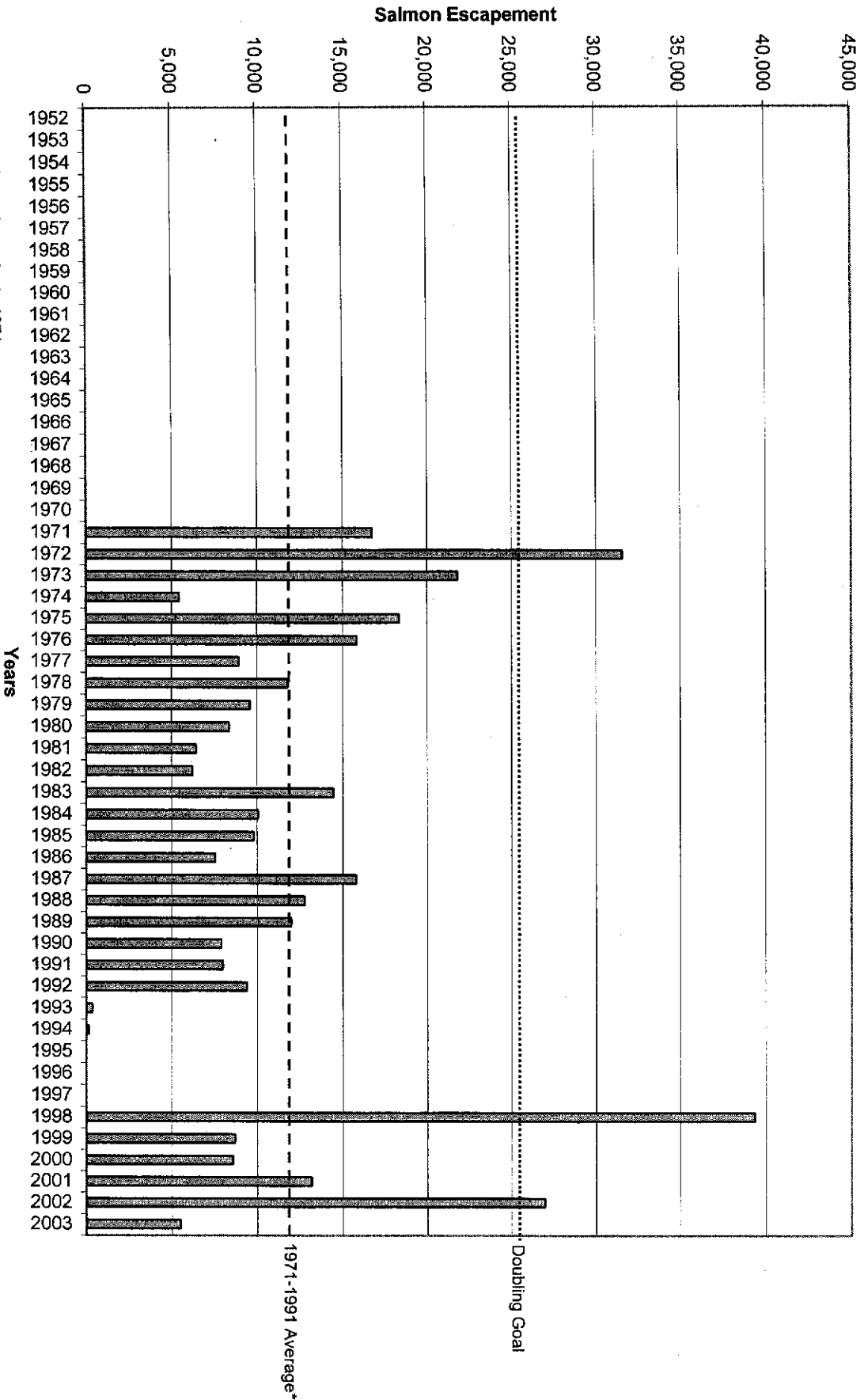
**October 2004**

# IN RIVER FALL-RUN CHINOOK SALMON



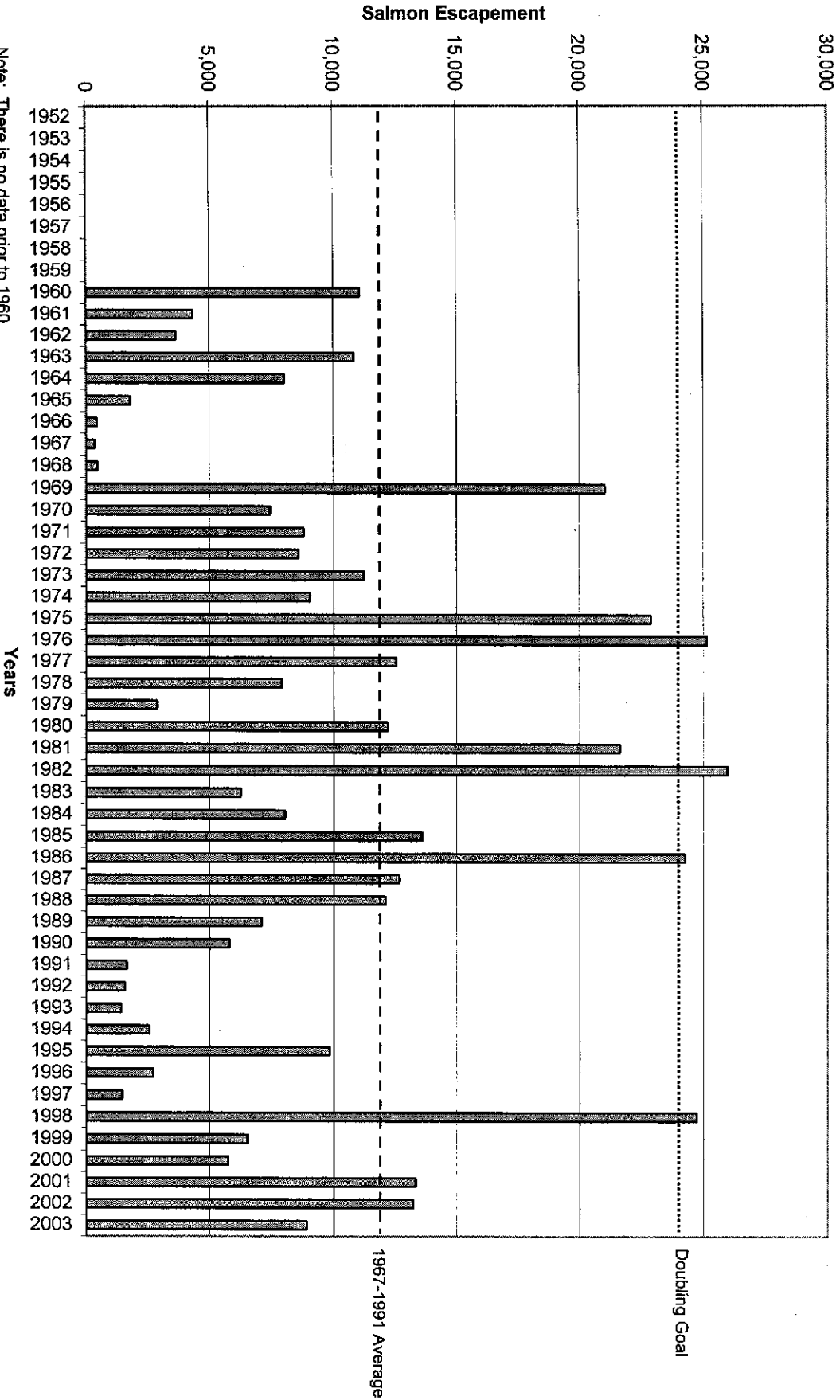
Source: CDFG 2004 unpublished data.

# IN RIVER LATE FALL-RUN CHINOOK SALMON



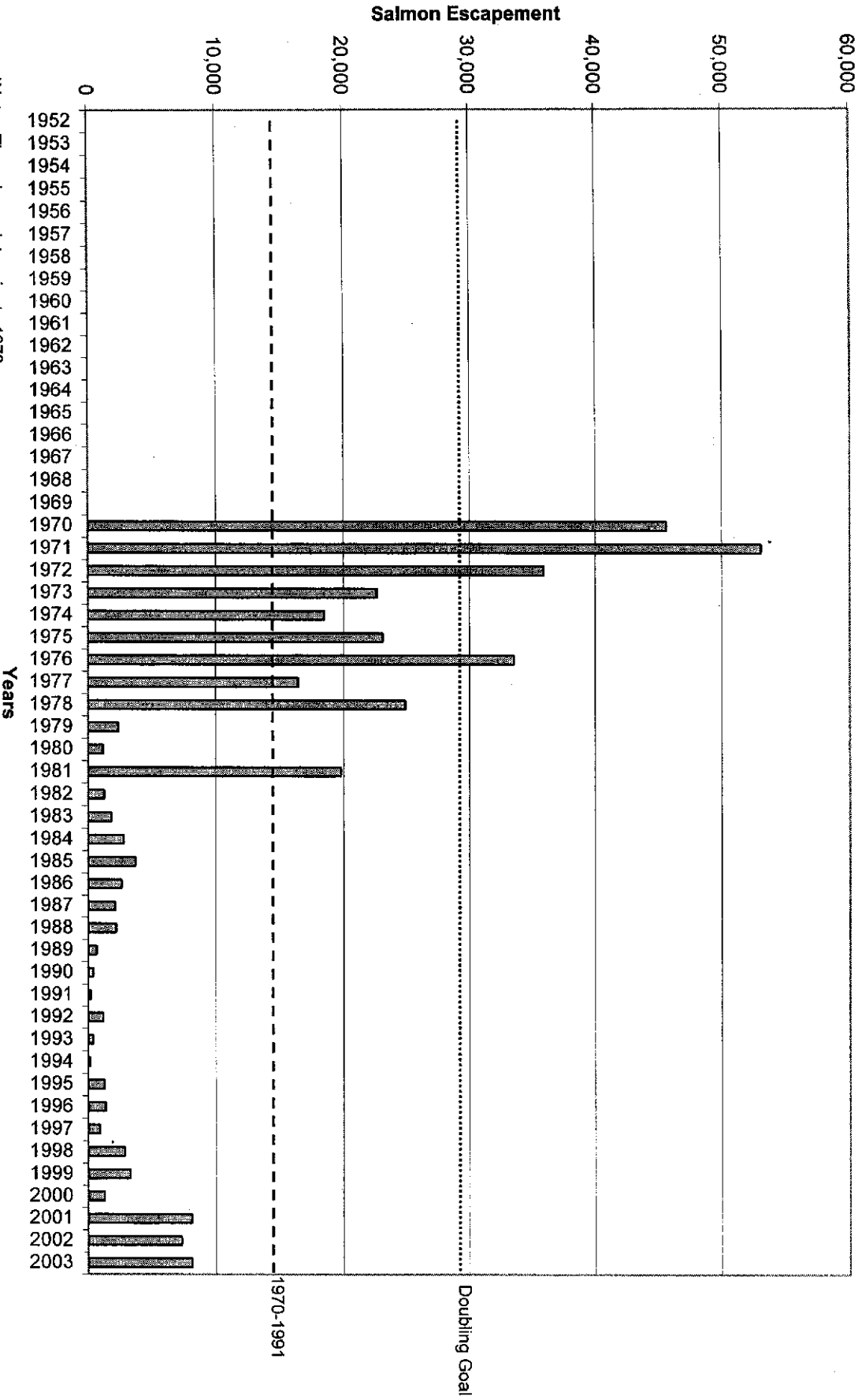
\*Note: There is no data prior to 1971.  
 Source: CDFG 2004 unpublished data.

# IN RIVER SPRING-RUN CHINOOK SALMON



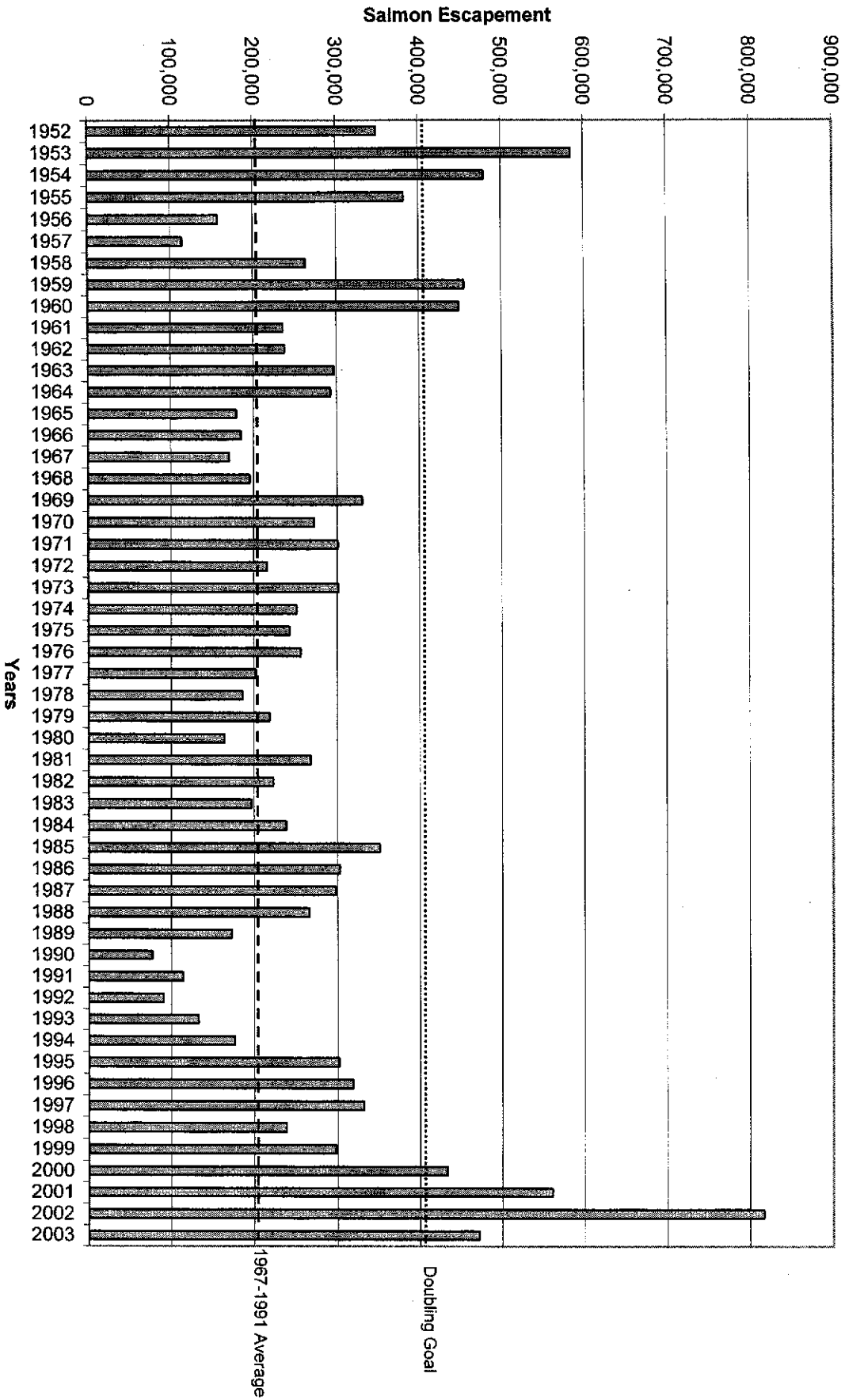
Note: There is no data prior to 1960.  
 Source: CDFG 2004 unpublished data.

# IN RIVER WINTER-RUN CHINOOK SALMON



\*Note: There is no data prior to 1970.  
 Source: CDFG 2004 unpublished data.

# IN RIVER TOTAL ALL RACES OF CHINOOK SALMON



Source: CDFG 2004, unpublished data.

# INCREASING TREND IN ADULT ESCAPEMENT

- Fall-run
- Late fall-run
- Spring-run
- Winter-run

- **FALL-RUN CHINOOK  
ESCAPEMENT EXCEEDED  
DOUBLING OBJECTIVE OVER  
PAST 4 YEARS**



■ **WINTER-RUN COHORT  
REPLACEMENT RATES GREATER  
THAN 1.0 IN RECENT YEARS**

- **NOAA proposal to downgrade listing  
from *endangered* to *threatened***

- **SPRING-RUN IMPROVING  
BUT HAVE NOT YET MET  
DOUBLING GOAL**

- **LATE FALL-RUN MET GOAL  
IN 2 OUT OF LAST 6 YEARS**

# ■ VARIETY OF FACTORS CONTRIBUTE TO TRENDS

- Restoration/enhancement actions in Delta and tributaries
- Favorable hydrology
- Favorable ocean rearing
- Management changes (reduced ocean harvest)

- **CHANGES IN HATCHERY  
MANAGEMENT**

# ■ ONGOING MANAGEMENT INVESTIGATIONS

- Delta cross-channel
- VAMP
- Late fall/winter Sacramento River survival
- Contributing to scientific foundation for improved protection/management