

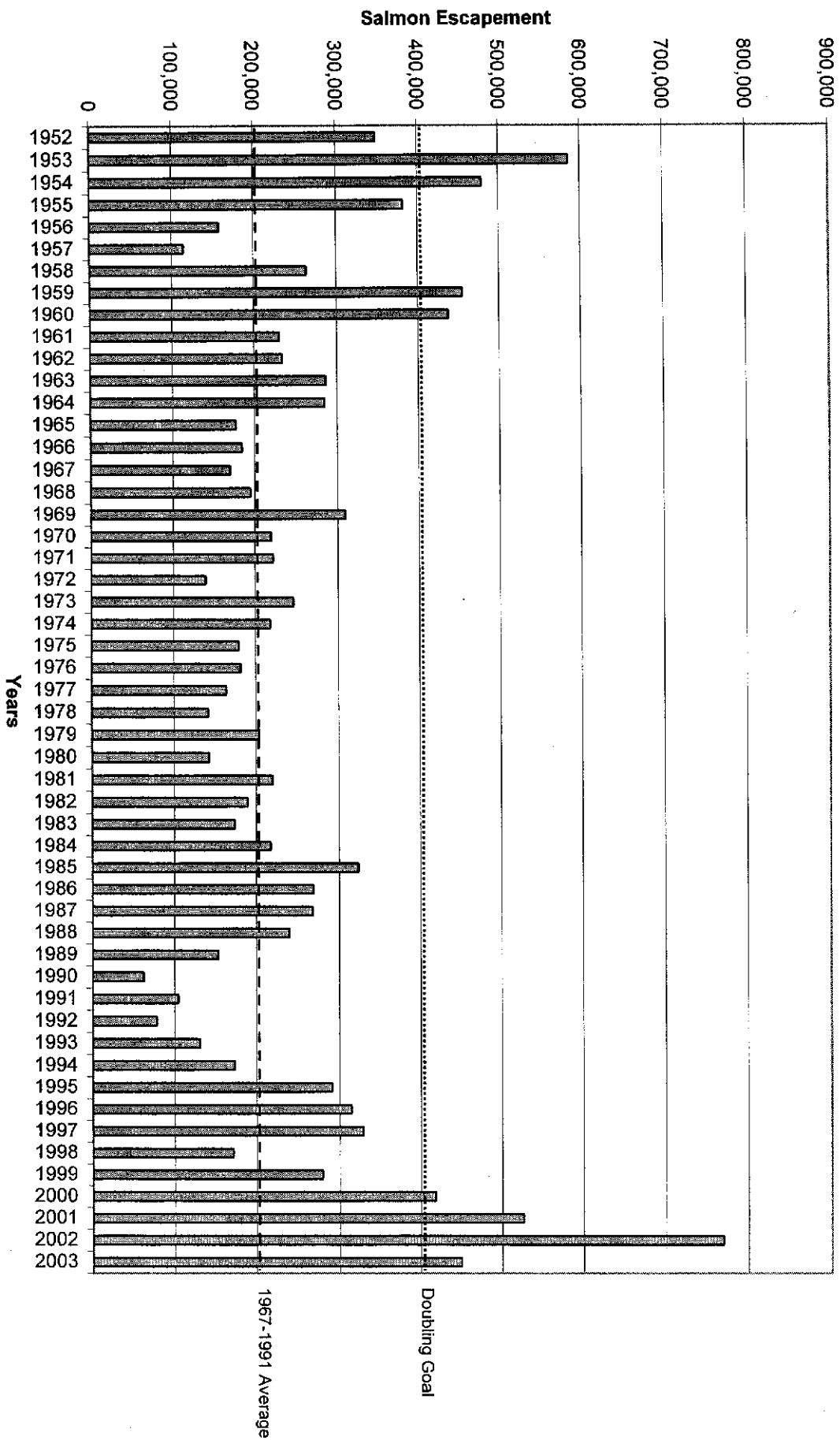
Trends in Central Valley Chinook Salmon In-River Escapement

Charles Hanson, Ph.D.

State Water Contractors

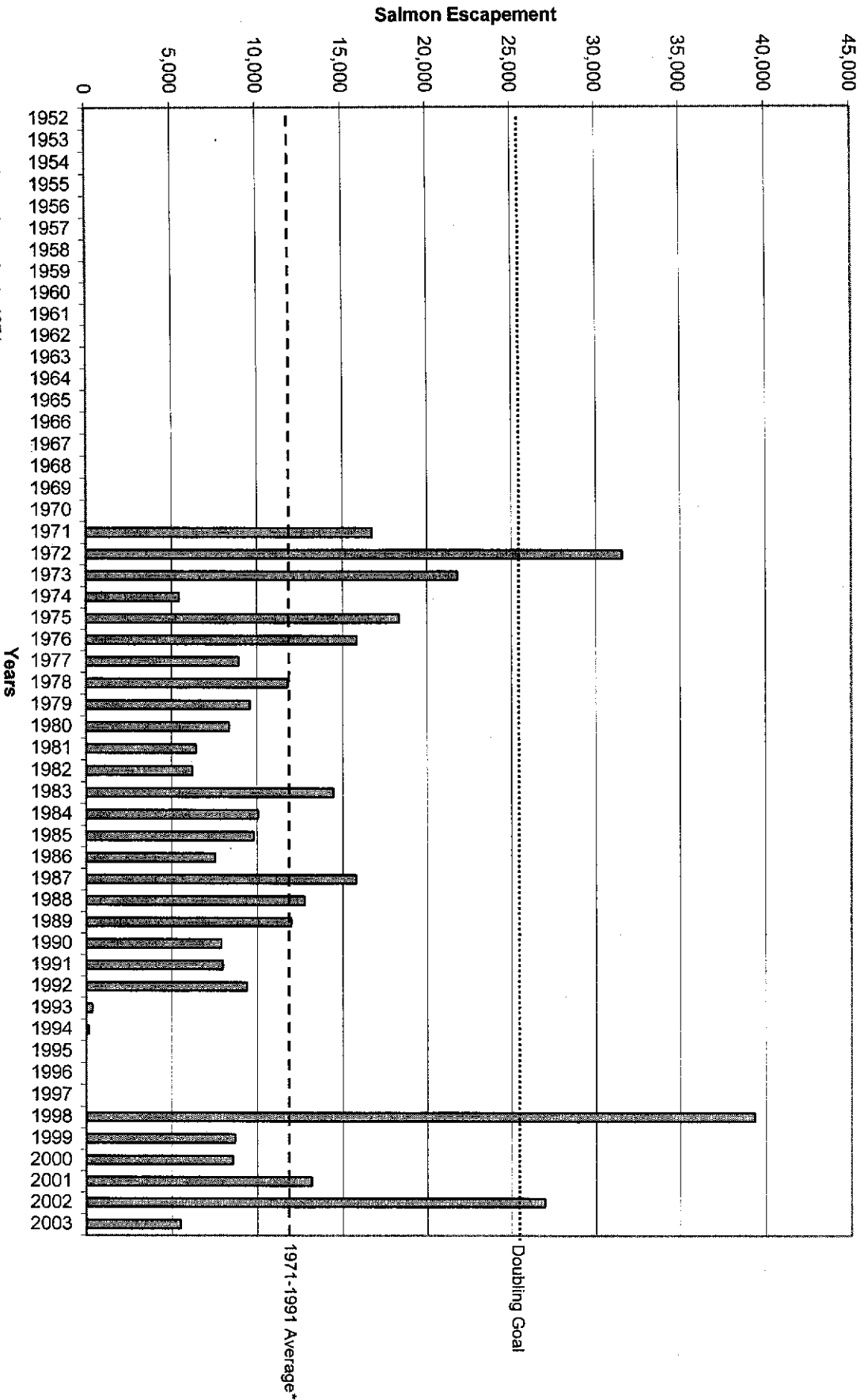
October 2004

IN RIVER FALL-RUN CHINOOK SALMON



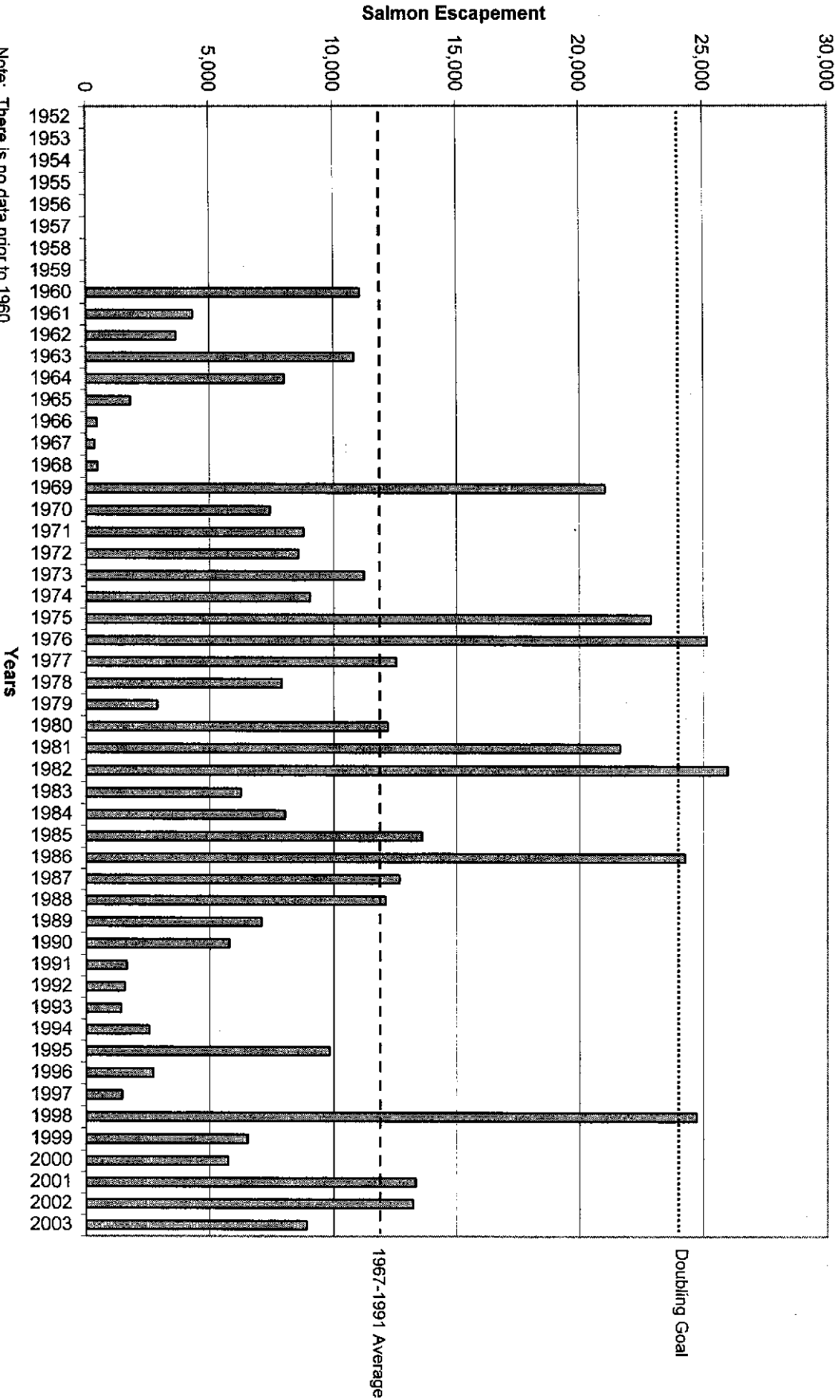
Source: CDFG 2004 unpublished data.

IN RIVER LATE FALL-RUN CHINOOK SALMON



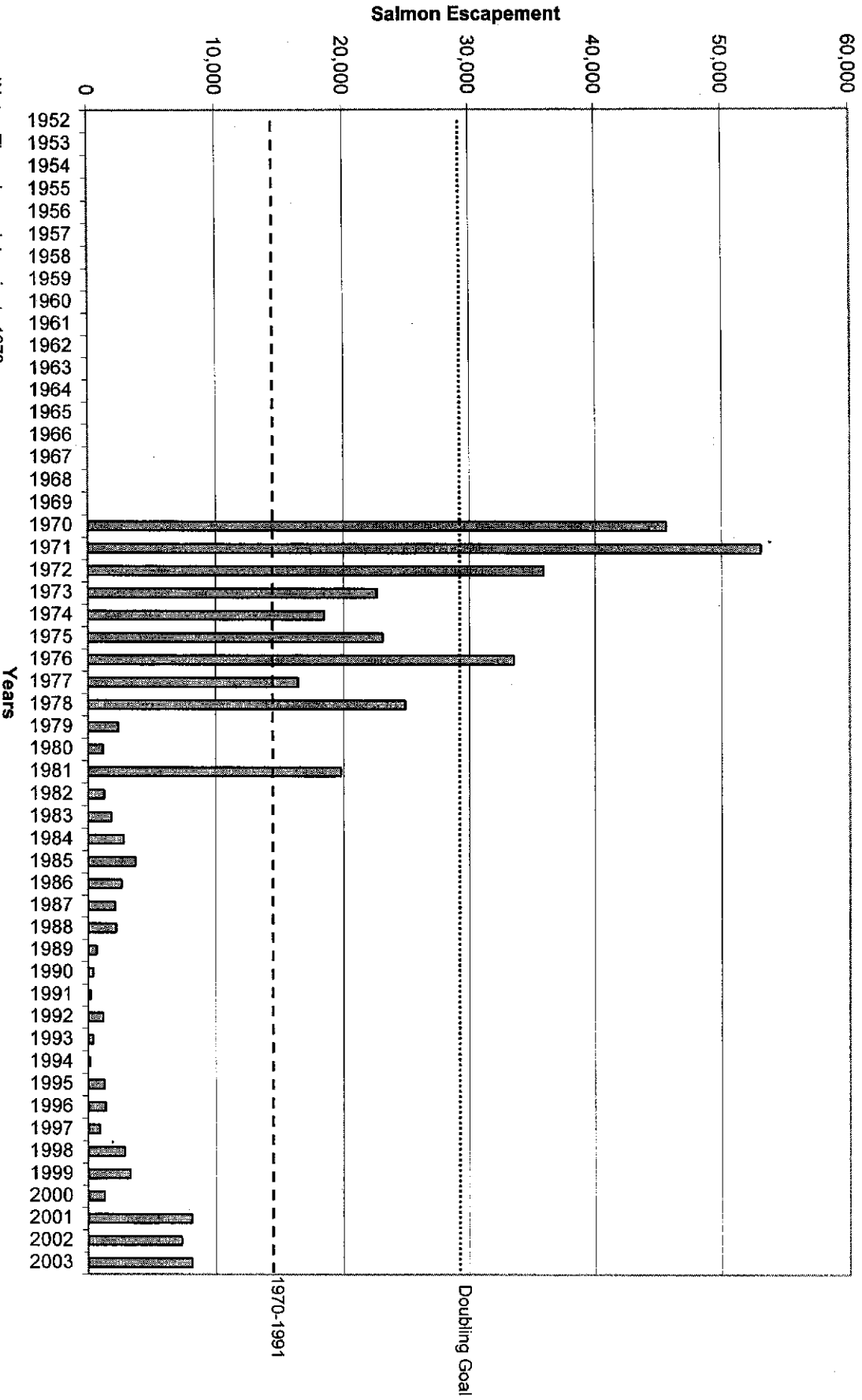
*Note: There is no data prior to 1971.
 Source: CDFG 2004 unpublished data.

IN RIVER SPRING-RUN CHINOOK SALMON



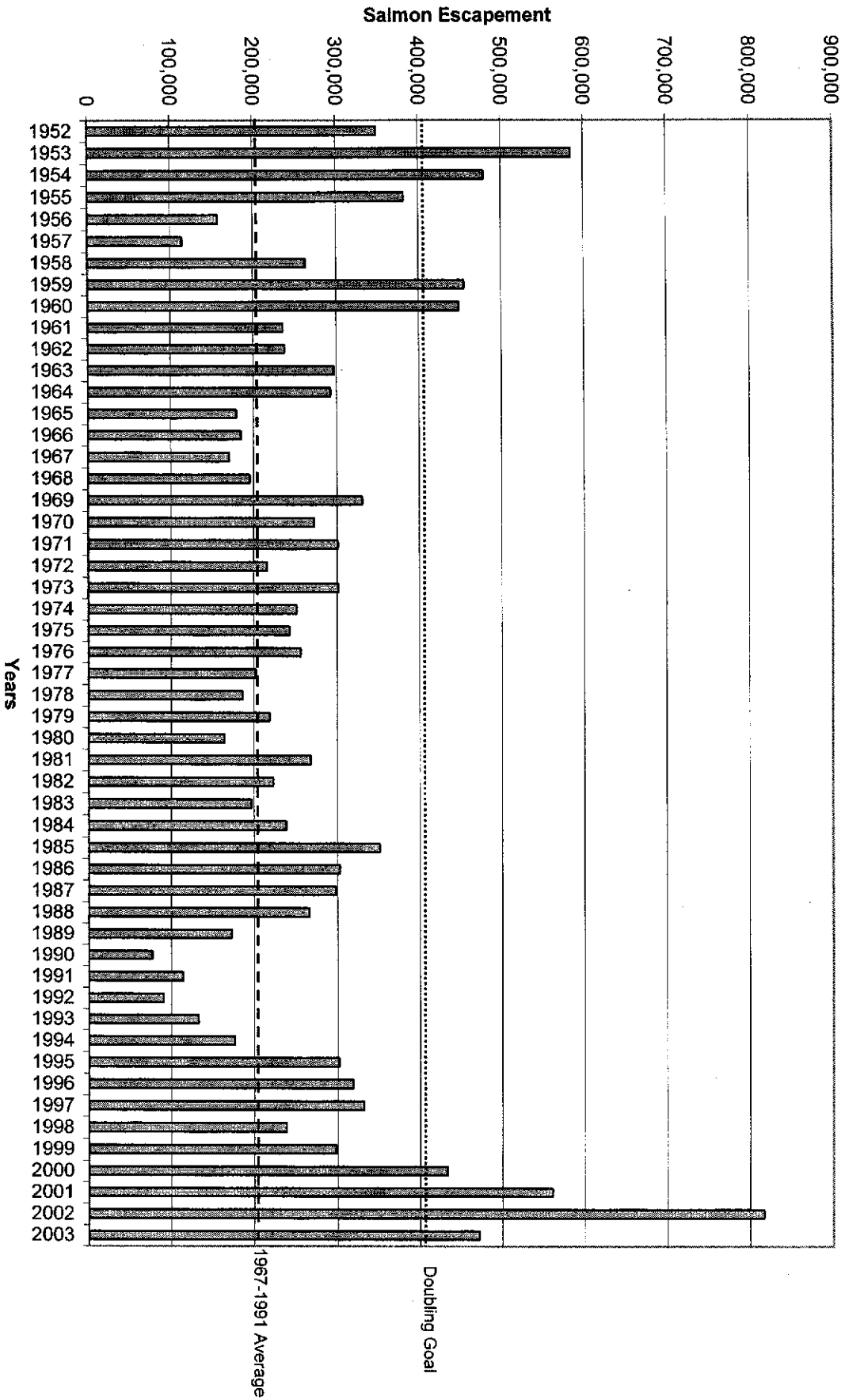
Note: There is no data prior to 1960.
 Source: CDFG 2004 unpublished data.

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 Source: CDFG 2004 unpublished data.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Source: CDFG 2004, unpublished data.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