



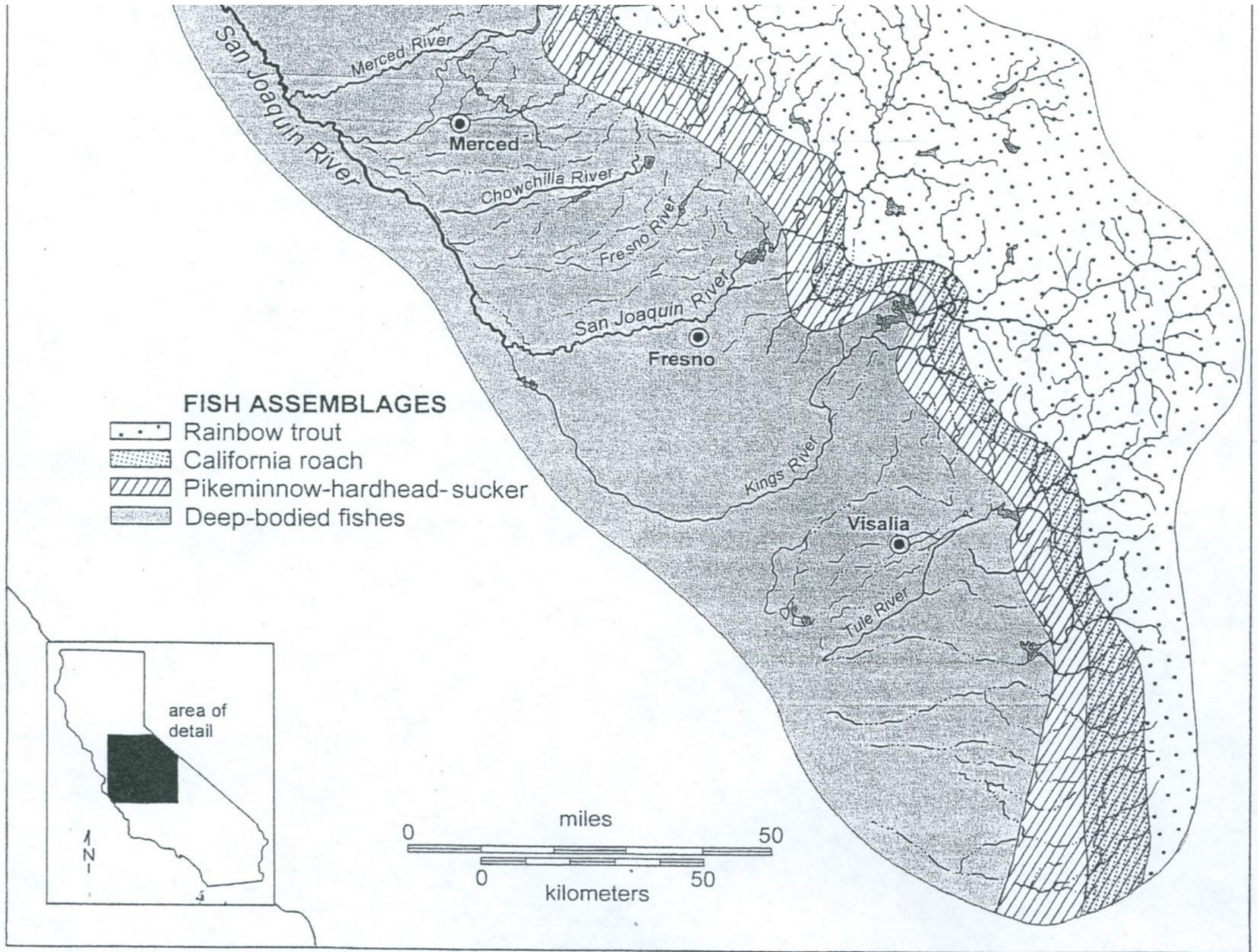
California Department of Fish and Wildlife  
Ken Johnson

- Lower Kings River historic fishery
- CDFW stocking practices past and present
- Wild trout populations & hatchery influence

## Trihey – 1992 Kings River Fisheries Investigations

### **Perceived decline of fishery in late 1980's– coincided with power plant, drought and change in CDFW stocking**

- The excellent fishing for which the Kings River was famous existed upstream from the present day location of Pine Flat Dam
- Below Piedra, rainbow trout occupied the river seasonally when flow were high and stream temps low (DFG R4 notes and D. Christianson)
- Resident trout are thought to have migrated downstream as far as Fresno Weir during periods of high streamflow or cool water temperatures.
- Year round resident rainbow trout inhabited the Kings River upstream from Pine Flat Dam.
- Permanent populations of resident rainbow trout existed upstream of the town of Piedra (3.5 miles below Dam).
- **Prior to the construction of Pine Flat Dam, permanent populations of resident trout were negligible.**



## Peter Moyle – Inland Fishes of California

### **Deep-bodied fishes assemblage zone**

- Moyle drew the upper boundary line for the Deep-bodied fishes assemblage upstream of foothill reservoirs because the artificial habitats they create downstream contain alien fishes – bass, bluegill, carp, catfish, etc.
- Sacramento Perch, Thick-tail Chub, Tule Perch, Hitch, Blackfish, Splittail
- Large Pikeminnows and Suckers in abundance

## Peter Moyle – Inland Fishes of California

### **Pikeminnow-hardhead-sucker assemblage**

- Summer temperatures 19°C – 22°C
- Sacramento pikeminnows and suckers are most abundant fishes of this assemblage
- Other fishes that may live here are California roach, riffle sculpin and rainbow trout

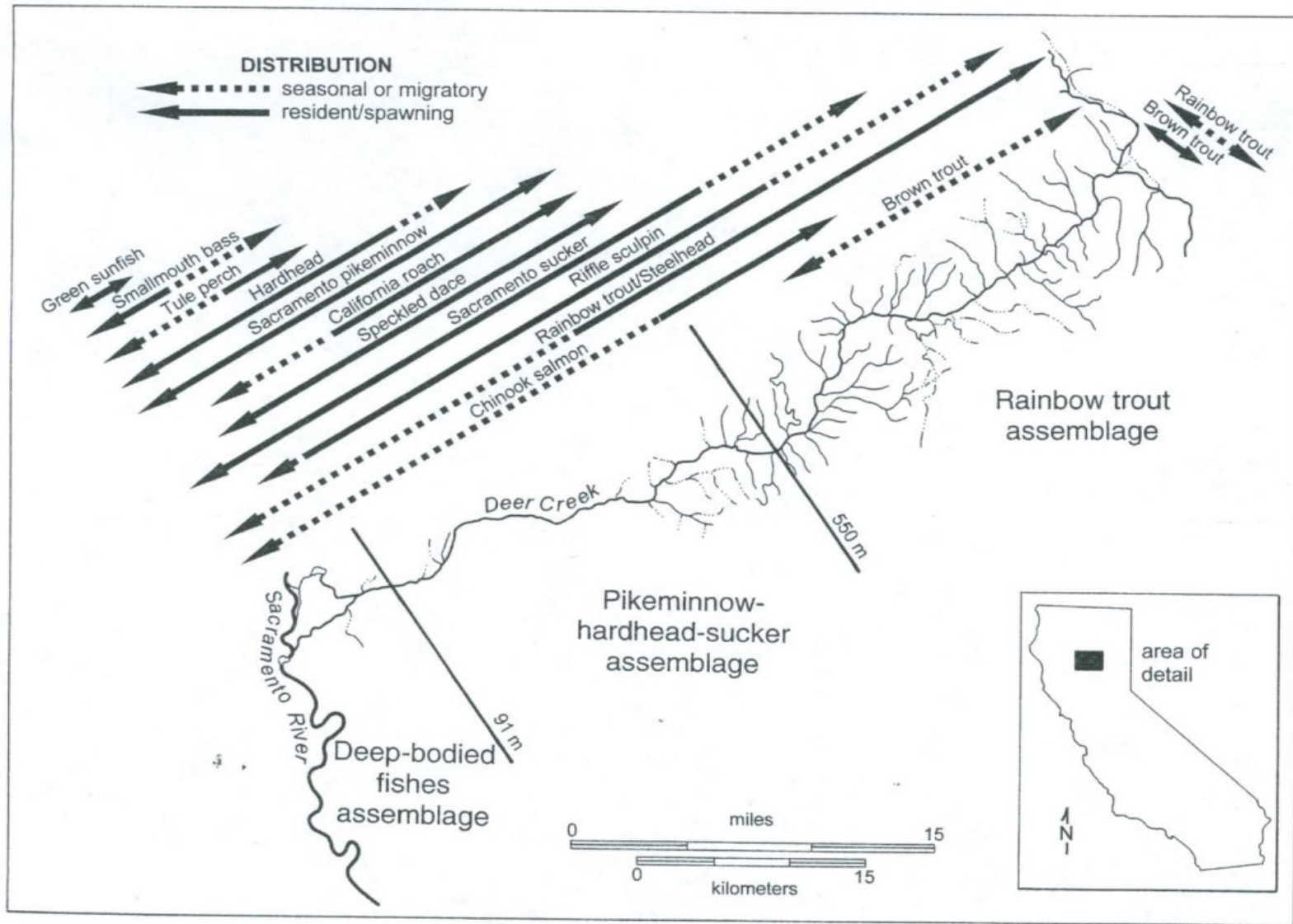


Figure 5. Distribution of fishes in Deer Creek, Tehama County, the largest tributary to the Sacramento River without a major dam in its upper reaches. The different fish assemblages are regions of overlap of the distributions of different sets of native species. Note that introduced species are present in abundance in only two highly disturbed areas: Deer Creek Meadows in the upper reaches, and the lowermost reaches, where water has been diverted for irrigation.

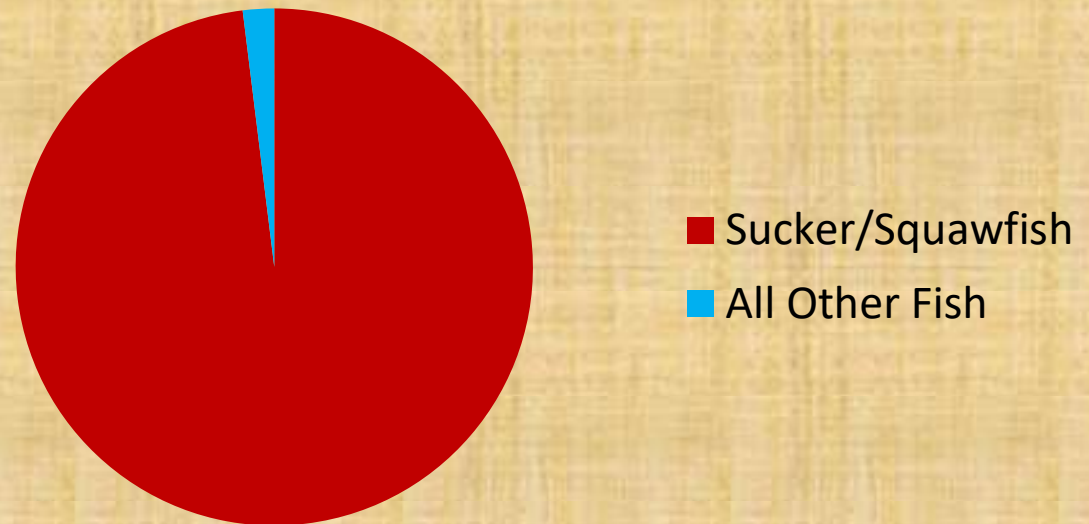
## Trihey – 1992 Kings River Fisheries Investigations

- Post dam construction (1954), a substantial fishery developed in the lower Kings River.
- Anglers perceived two fisheries:
  - A put and take hatchery driven fishery
  - Wild trout fishery:
    - naturally produced wild trout
    - planted fingerlings, subcatchables and holdover catchables.

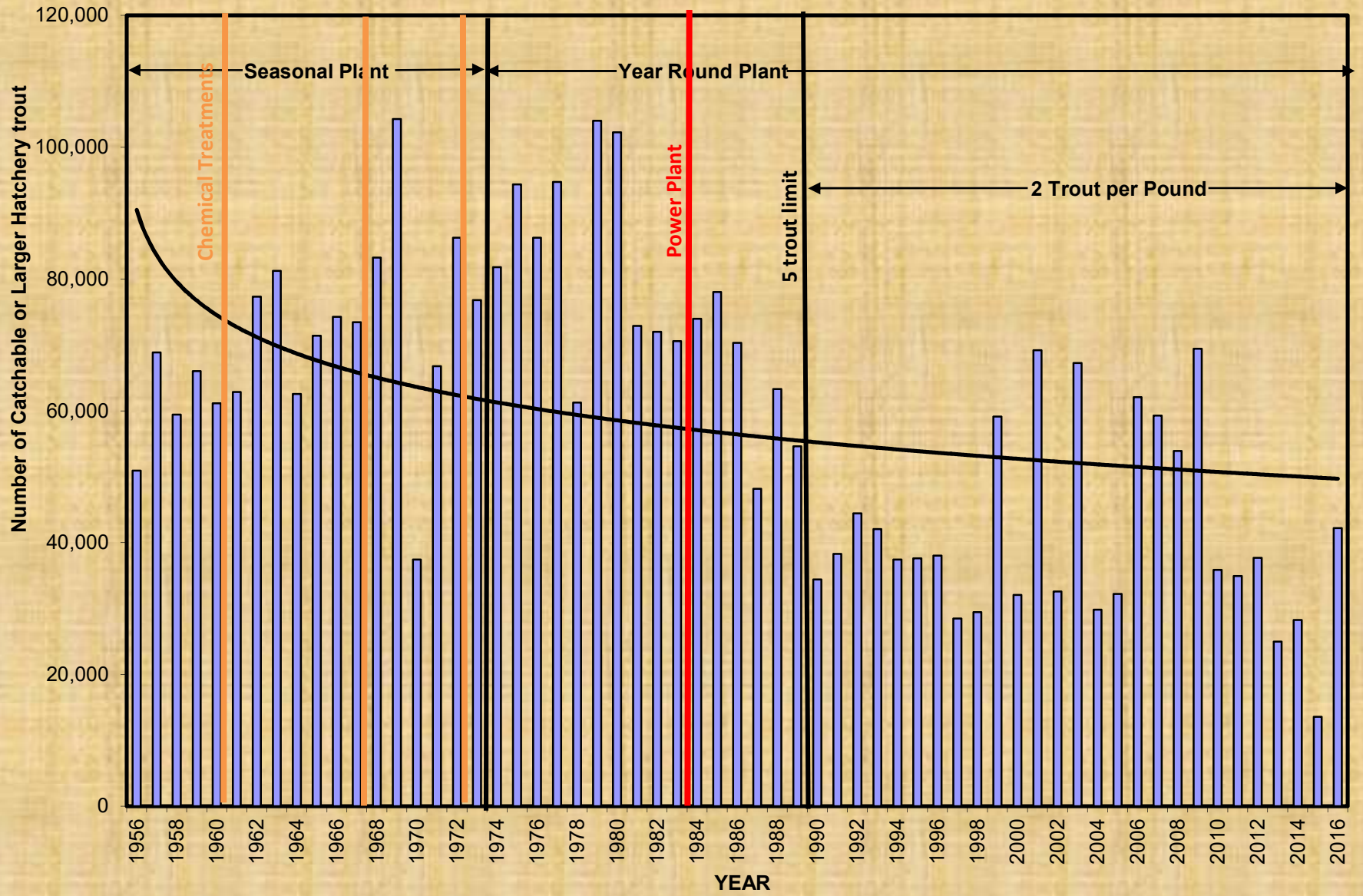
# Trihey – 1992 Kings River Fisheries Investigations

## 1961 DFG survey

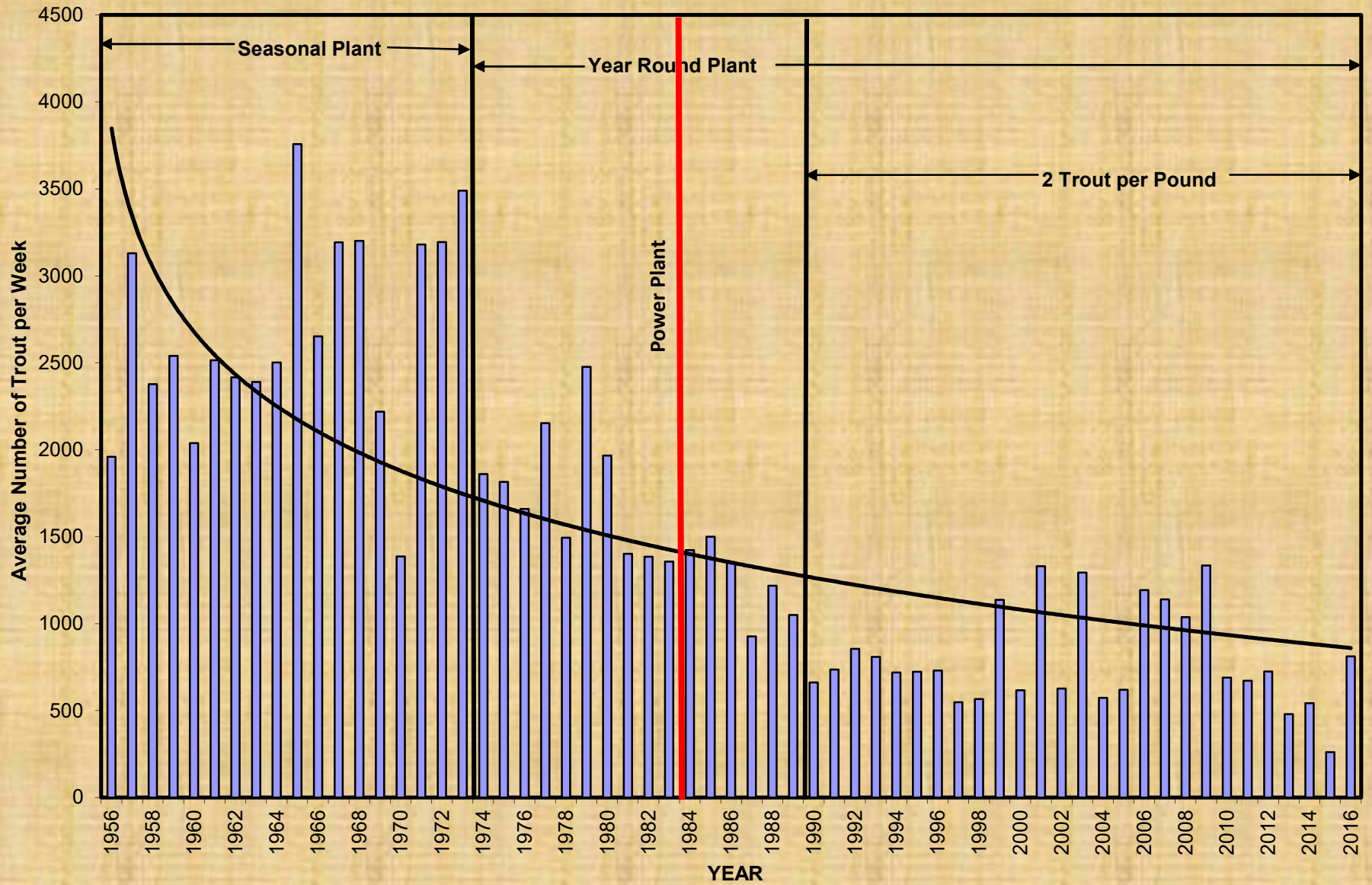
- Suckers and Squawfish were most abundant species
- Ratio of Suckers and Squawfish to all other fish was 50:1
- Other fish observed in order of decreasing abundance:
  - Sculpin
  - Hardhead
  - Roach
  - Carp
  - Rainbow trout
  - White catfish
  - Largemouth bass
  - Blue gill
  - Green sunfish
  - Brown trout







# Stocking Density



# Kings River Conservation District In-House Report 99-004

- CDFG Creel Surveys
  - 1968-69 – 50% return to creel
  - 1980-81 – 63% return to creel
  - 1996 – 50% return to creel

## Catch Rates:

CDFG 1964-69 – 1.22 trout/hour

CDFG 1973 – 0.46 trout/hour

KRCD – 1990-1995 – 0.12 trout/hour

Tagging Studies – 1-3% return more than 1 year later

## **KRCD In-House Report 32003-003**

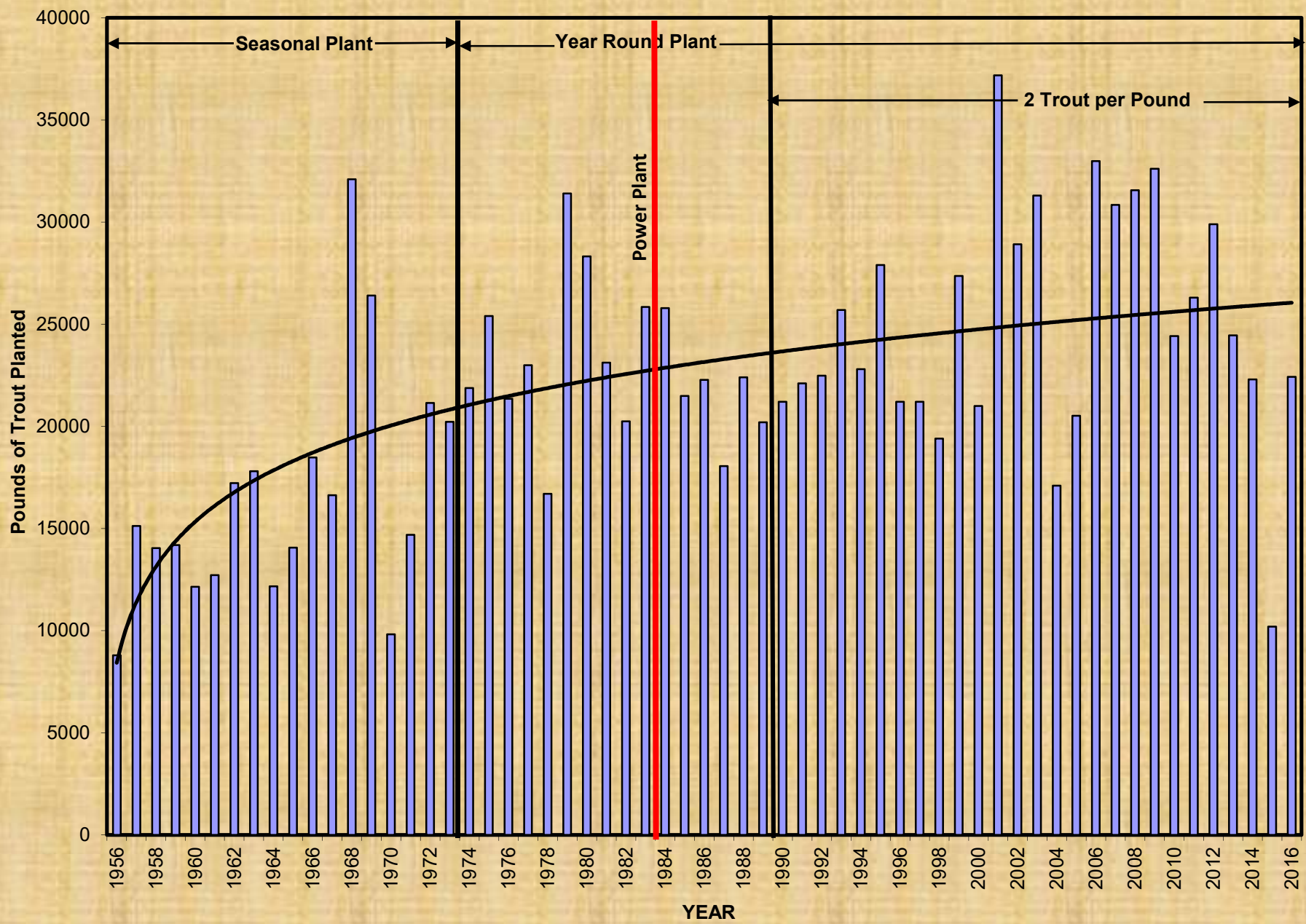
1995-2001 – 0.06 - 0.22 trout/hour

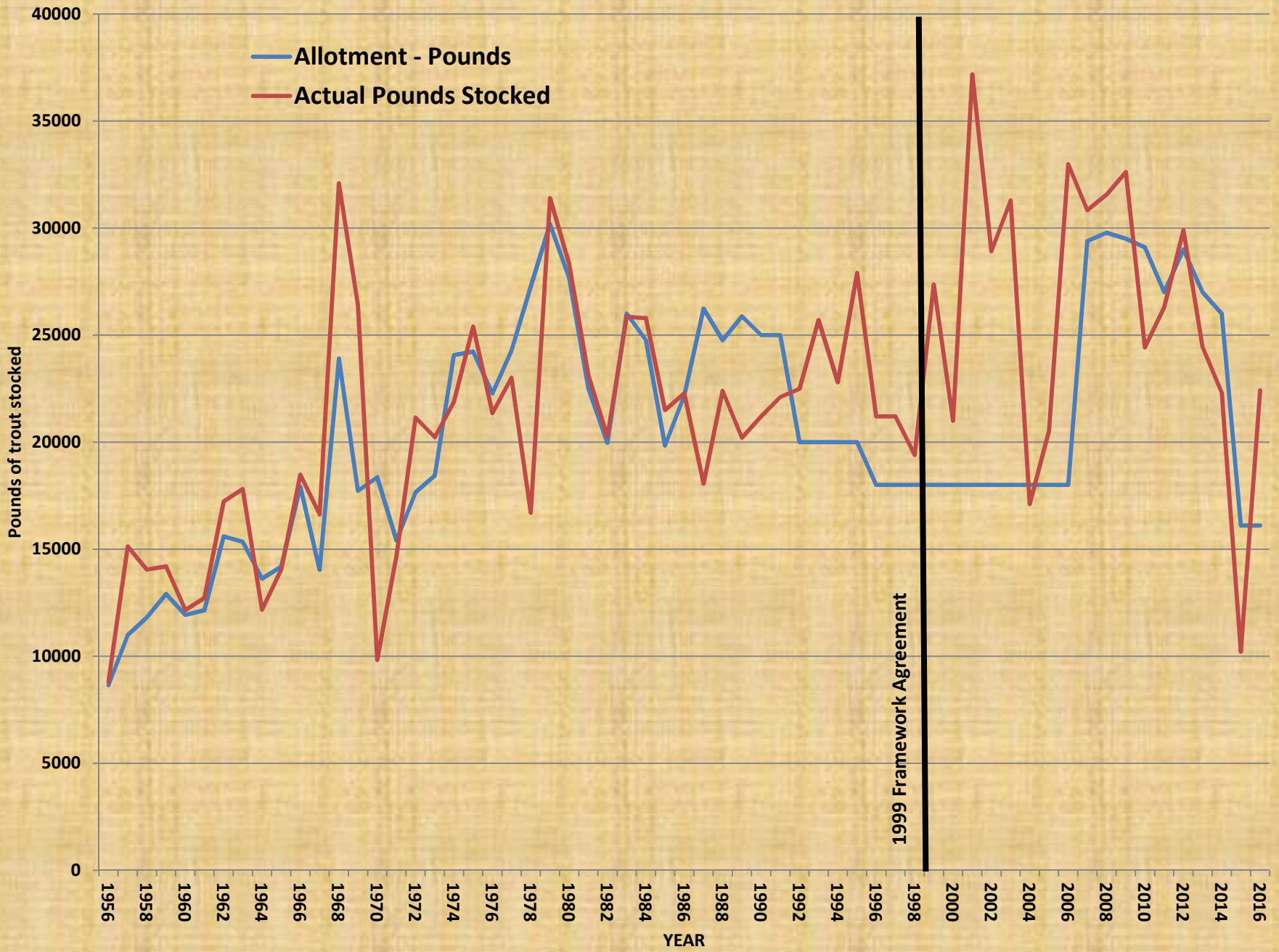
## **CDFW 2006 (Draft)**

0.11 - 0.24 trout/hour

# Fishing was better in the past

- Stocking densities were higher pre-powerhouse
  - Stocking Densities were twice as high (2500+ trout/week) a decade before the powerhouse came on-line – seasonal plants
  - 1400 trout/week in mid 1980s to 1000 trout per week in the late 1980's.
  - 750 trout/week in 1990s (often less) – two fish/pound
  - 260 trout/week in 2015 – budget cutbacks

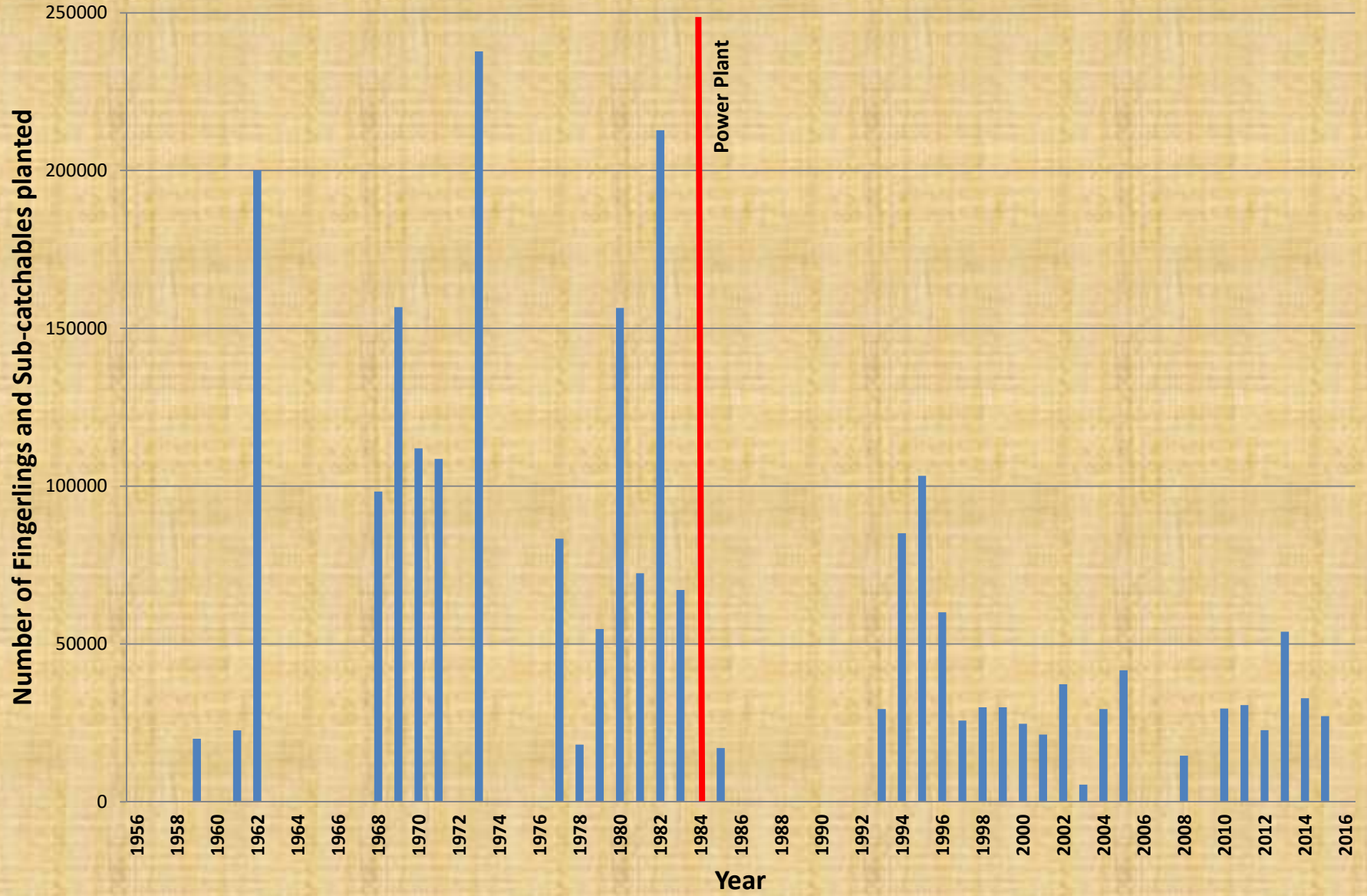




# What is a wild trout?

- Naturally produced wild trout
  - Historically negligible in number
  - Presently negligible in number
- Perceived wild trout
  - Fingerlings
  - Incubator fish
  - Subcatchable and catchable hatchery holdovers
  - Hatchery wash-overs from Pine Flat Lake

# Fingerling and Sub-catchable Plants





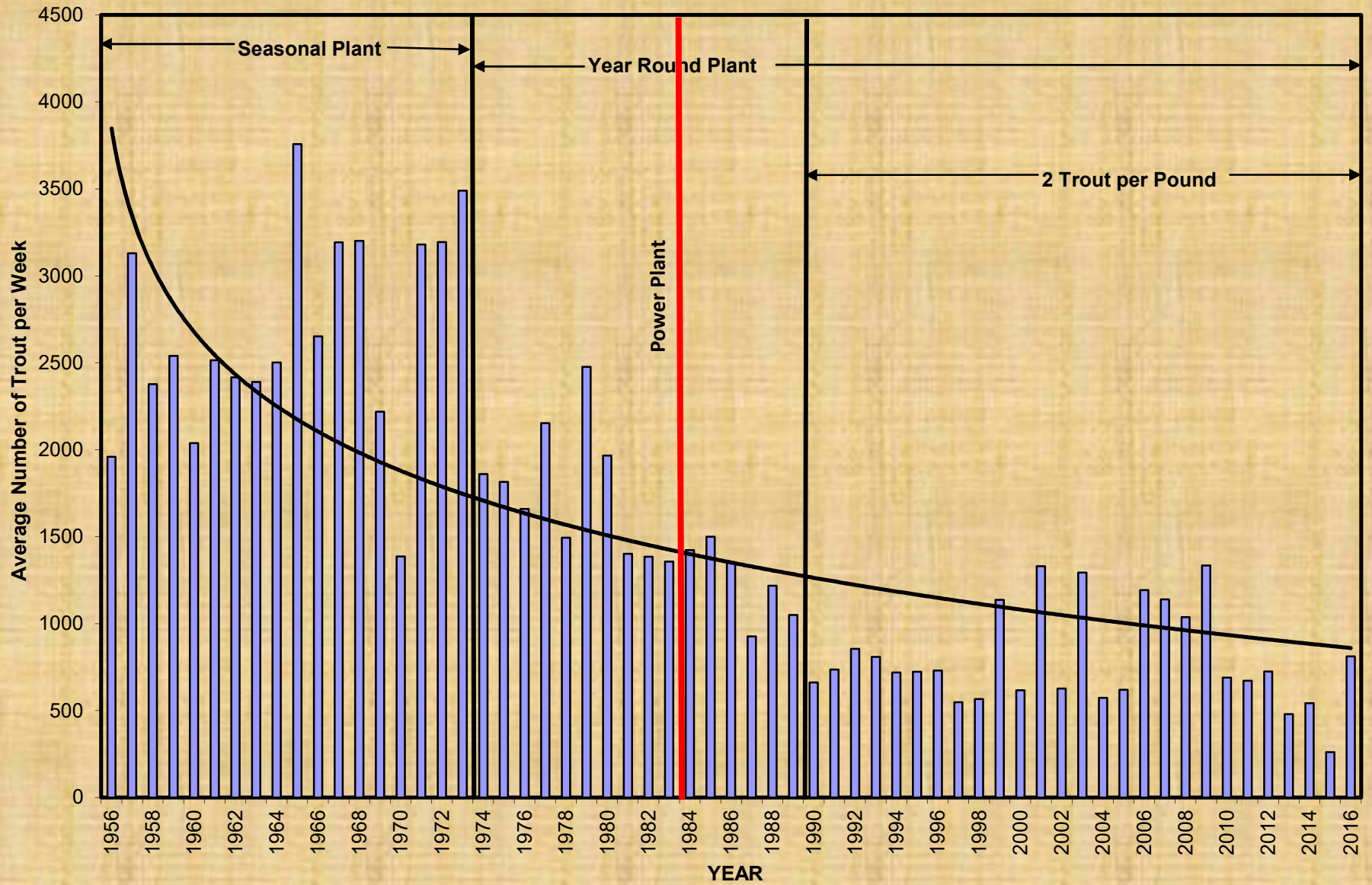
## KRCD In-House Report 99-004

Wash-over pre-powerhouse estimates = 4.5%, post powerhouse = 0.8%

1990 stocking levels of Pine Flat Reservoir were 42,800 trout which equates to 1,926 wash-overs pre-powerhouse and 342 post powerhouse.

The number of estimated wash-overs from Pine Flat are negligible when compared to the nearly 40,000 plus catchables currently stocked annually. This number does not include sub-catchables, fingerlings and incubator fish.

# Stocking Density



# Conclusion

The perceived wild trout fishery is two parts:

- Wild trout:
  - Historically negligible and presently negligible in numbers.
  - Current management focuses on increasing the natural wild trout component and has not been successful – low gradient habitat supports the native Sucker – Pikeminnow fish assemblage.
- Hatchery Trout:
  - Stocking Densities much higher in the past with variations in Open Season
  - Hatchery trout contributions to the perceived wild trout fishery have not been considered for management.

**Recommend considering changes in stocking densities, sizes and/or timing of stocking to increase catch rates.**