

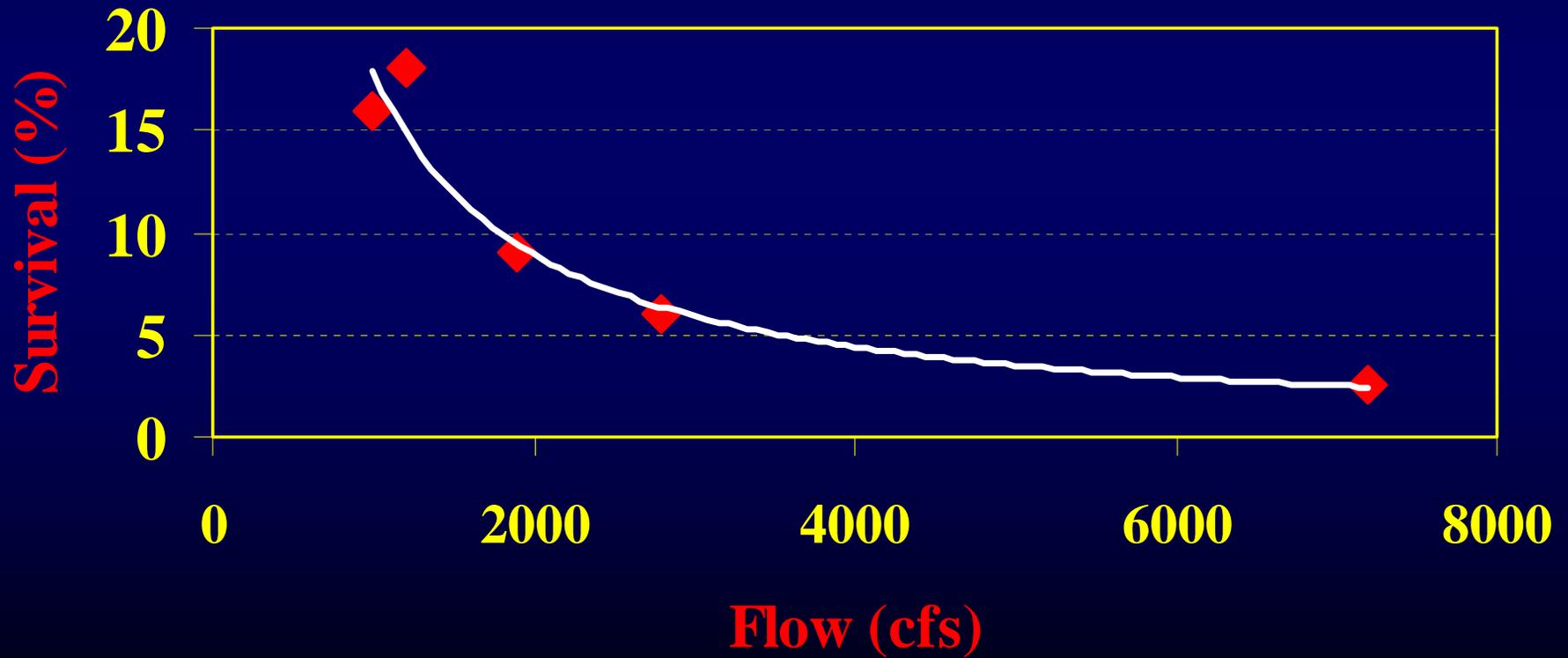
**Stability of Chinook Salmon  
Spawning Habitat in the Cedar  
River**

**Roger Peters, David Low, Paul  
Bakke, Brian Missildine,**

# Objectives

- **Determine the influence of floodplain width on the stability of chinook salmon spawning habitat.**
- **Evaluate the influence of potential restoration activities on the stability of chinook spawning habitat.**

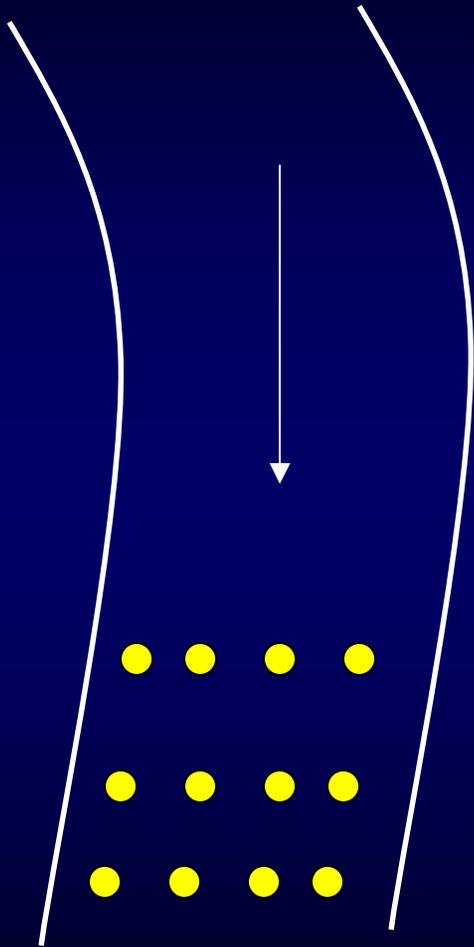
# Cedar River Sockeye Incubation Survival



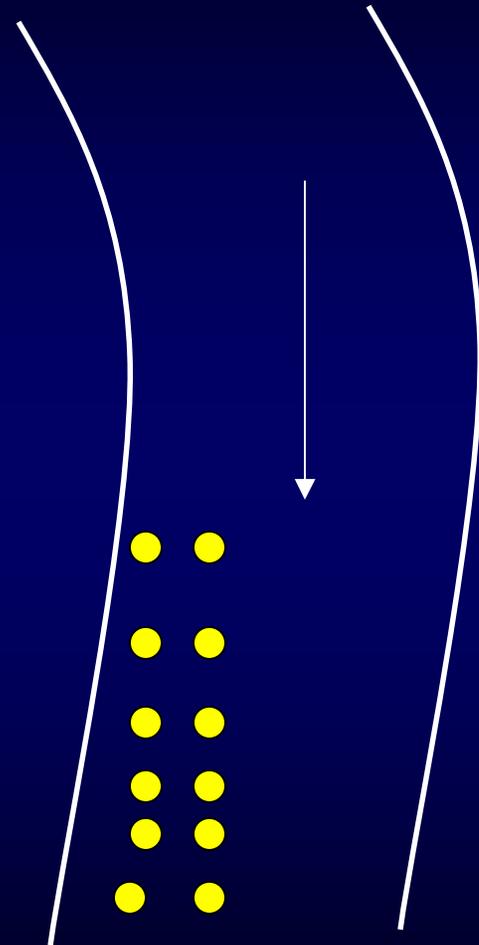
# Study Design

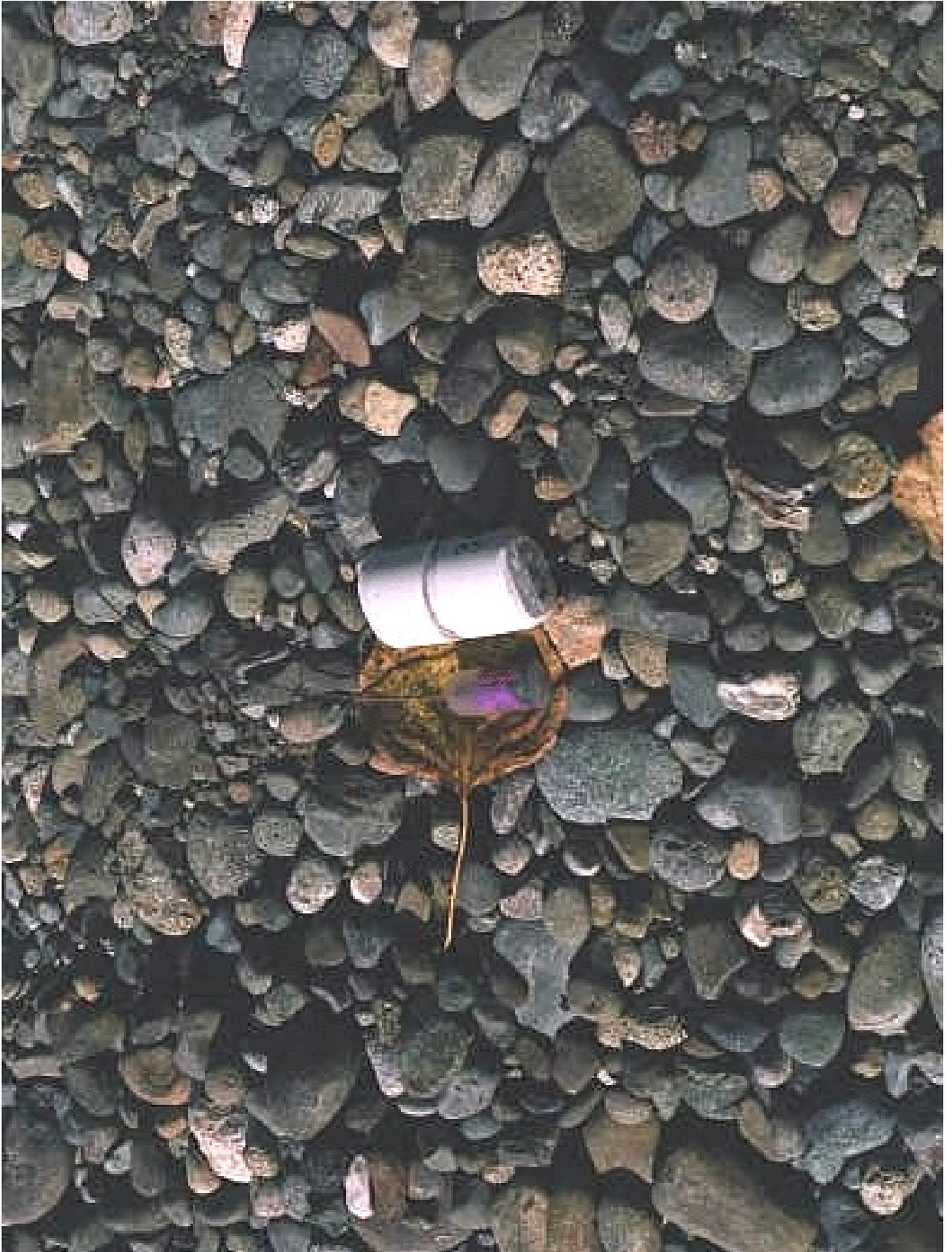
- **Eight study sites (Four confined by levees, four unconfined).**
- **Three to six transects at each study site, each with two to four scour monitors buried 20 cm deep.**
- **Survey cross-sections at each transect, longitudinal profiles, sample substrate.**
- **Monitor scour tags during high flows.**

1999



2000



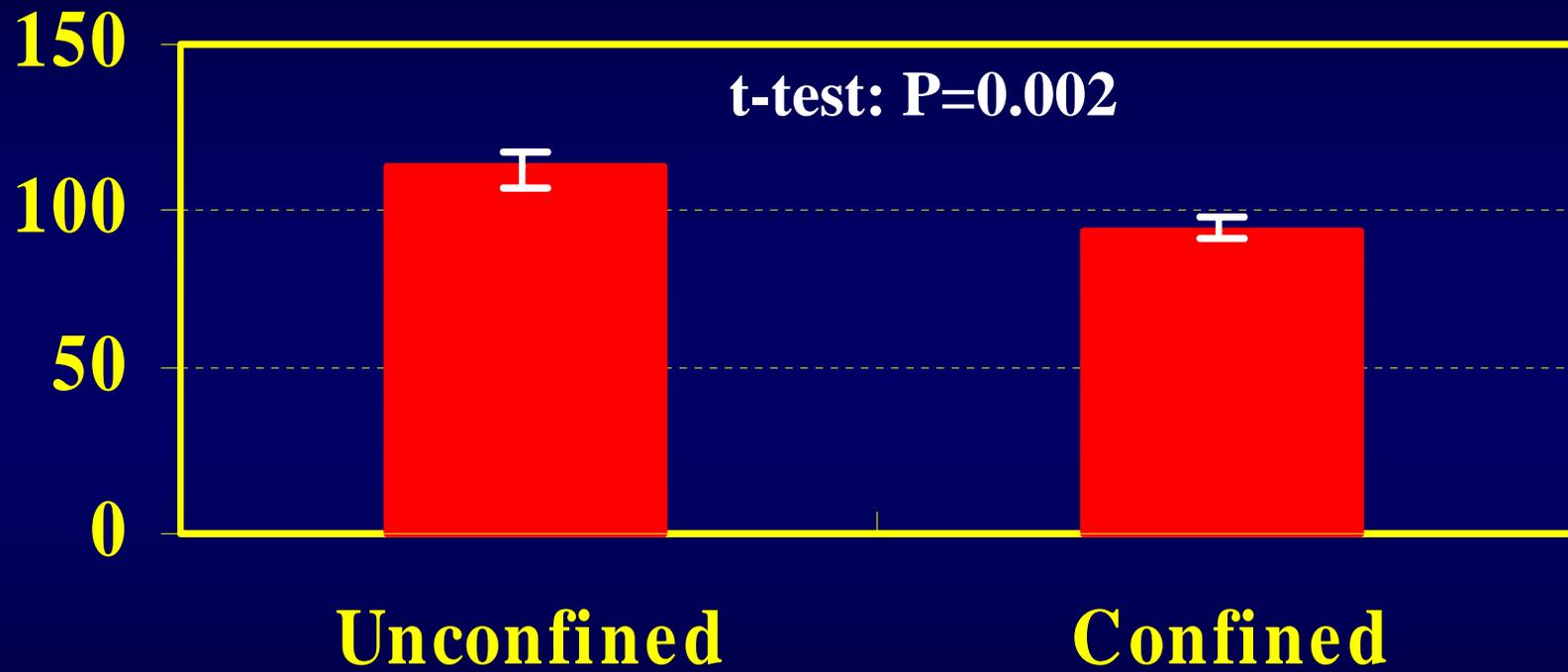








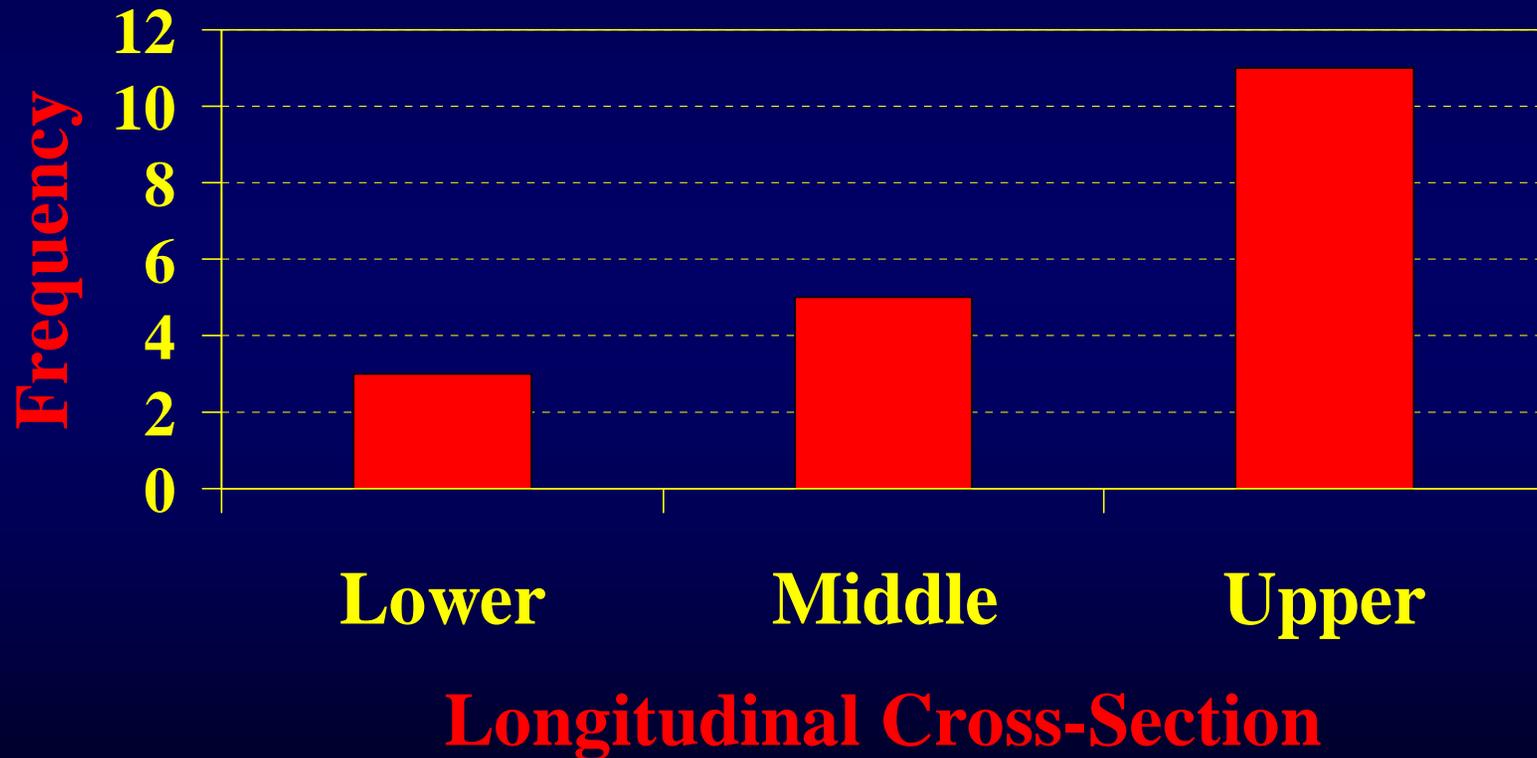
**Bankfull Width (ft)**



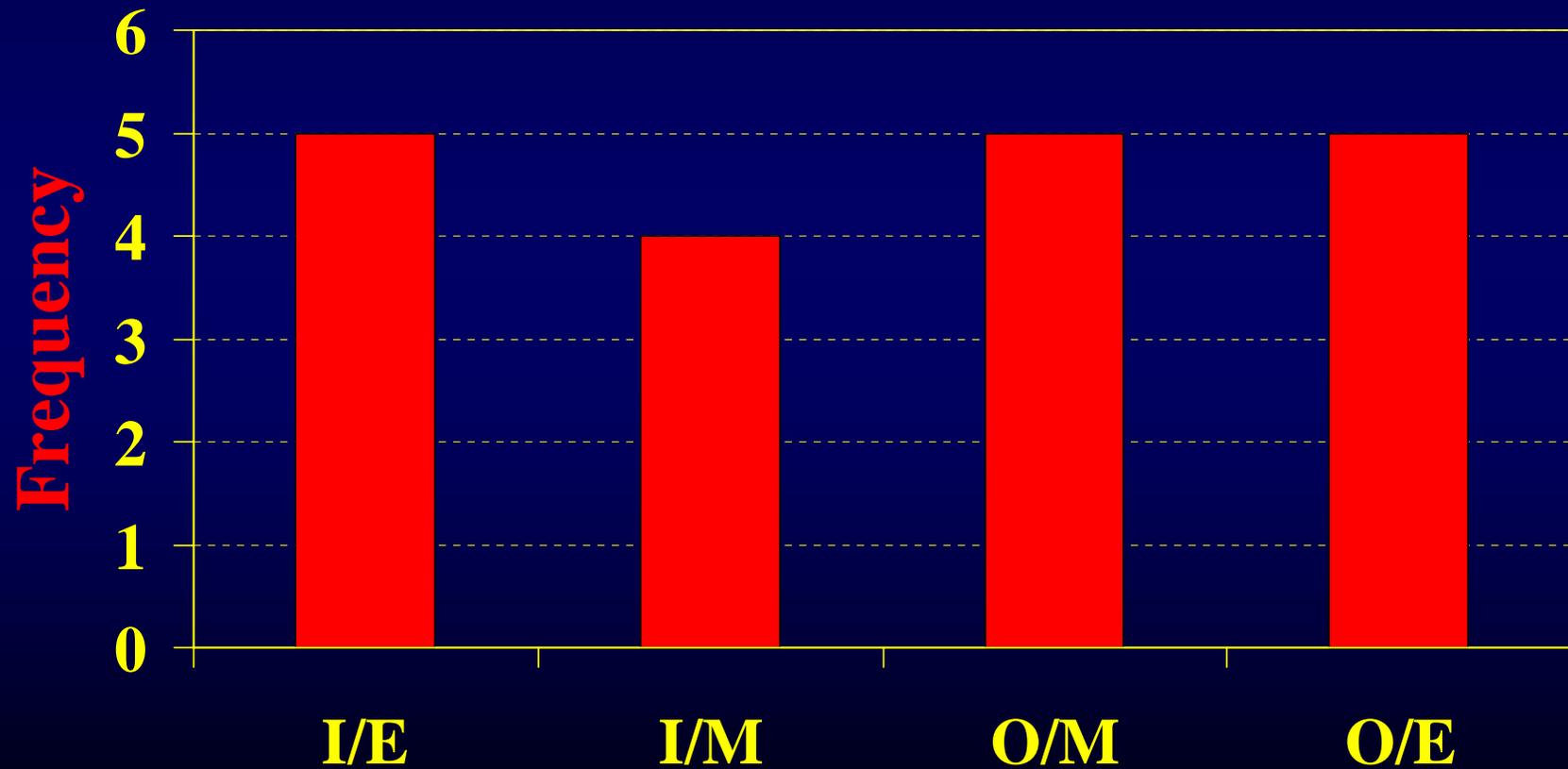
# Results - 1999

- **Two minor freshets occurred**
  - 11/24 – approx. 2,500 cfs; 12/15 – approx. 3,000 cfs
- **96 scour tags placed along 24 cross-sections at 8 study sites**
  - 18 tags scoured (13 from unconfined areas and 5 from confined areas)

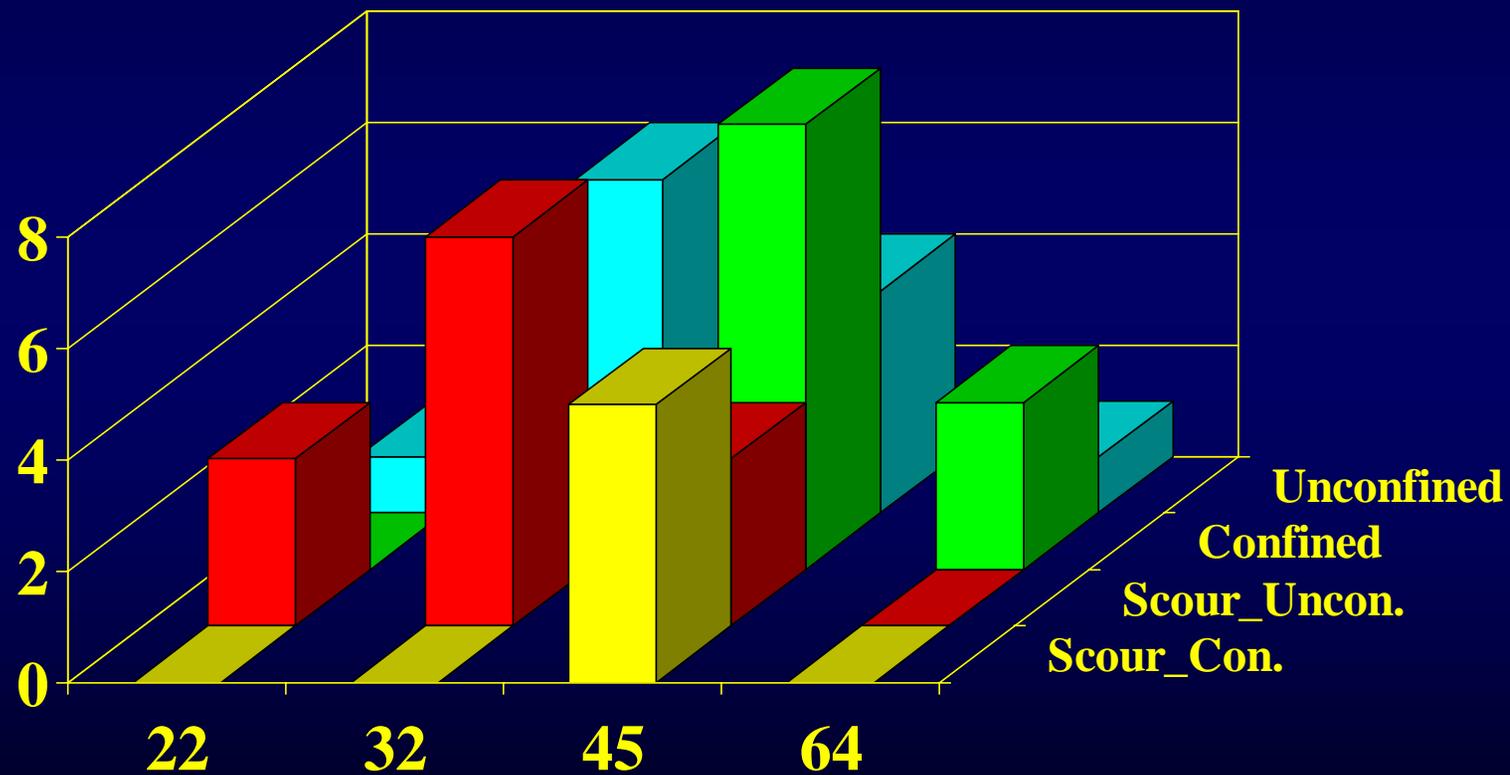
# Longitudinal Scour Frequency



# Cross-sectional Scour Frequency



# Substrate Size



# Results - 1999

- **9 scour tags placed adjacent to chinook redds**
  - 1 tag scoured
- **10 scour tags placed for method comparison**
  - 5 “fin” tags scoured (Approx. 2,000 cfs)
  - 3 “pounder” tags scoured (Approx. 2,500 cfs)

# Results - 2000

- **No high flow events**
- **23 tags lost**
  - **Tags apparently removed by spawning sockeye**
  - **5 lost as a result of flooding associated with the earthquake.**

# Conclusions

- **Limited data**
- **Unconfined reaches have wider bank full areas**
- **Unconfined reaches have smaller substrate size**
- **More scour occurred in unconfined reaches –  
due to smaller substrate size**
- **More scour occurred in upstream cross-  
sections than in downstream cross-sections**

# Problems/Questions

- **Lack of high flow events.**
- **Transects did not reflect habitat selection by adult chinook salmon.**
- **Question - What is the influence of larger substrate on egg depth and/or predator access?**