

# Impacts of 2001 Migration Conditions on Adult Returns

Evidence that Flow & Spill are more  
Important than Direct Survival  
Estimates (like SIMPAS) Indicate

by

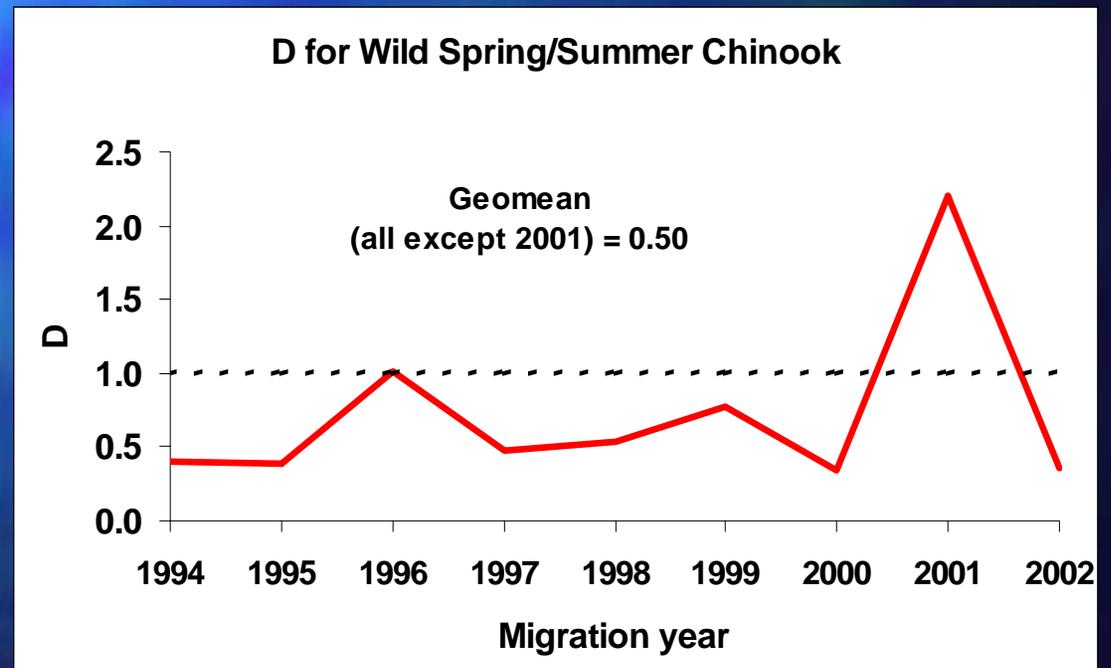
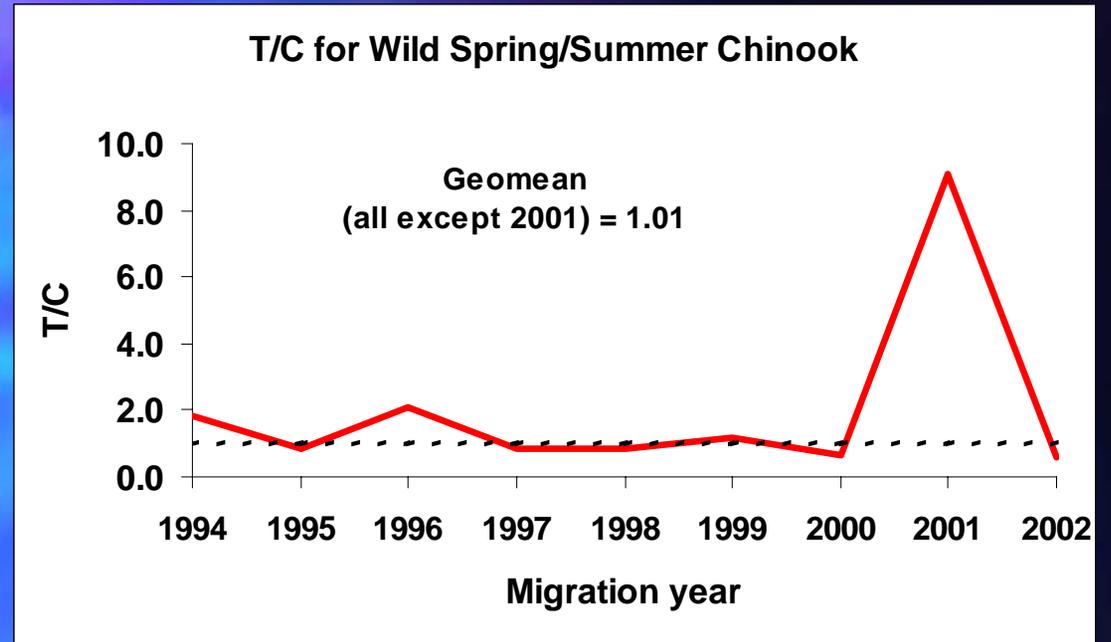
Russ Kiefer

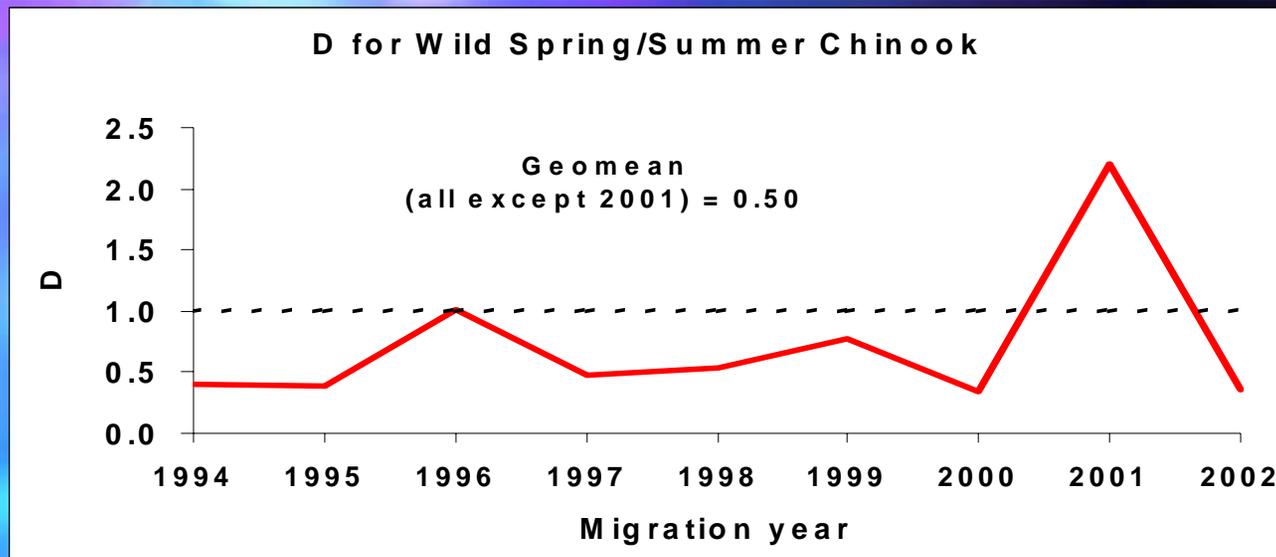
Idaho Department of Fish & Game

Little to no benefit of transport to wild spring/summer chinook (except in low flow years)

**T/C = 1.0**

**D = 0.50**





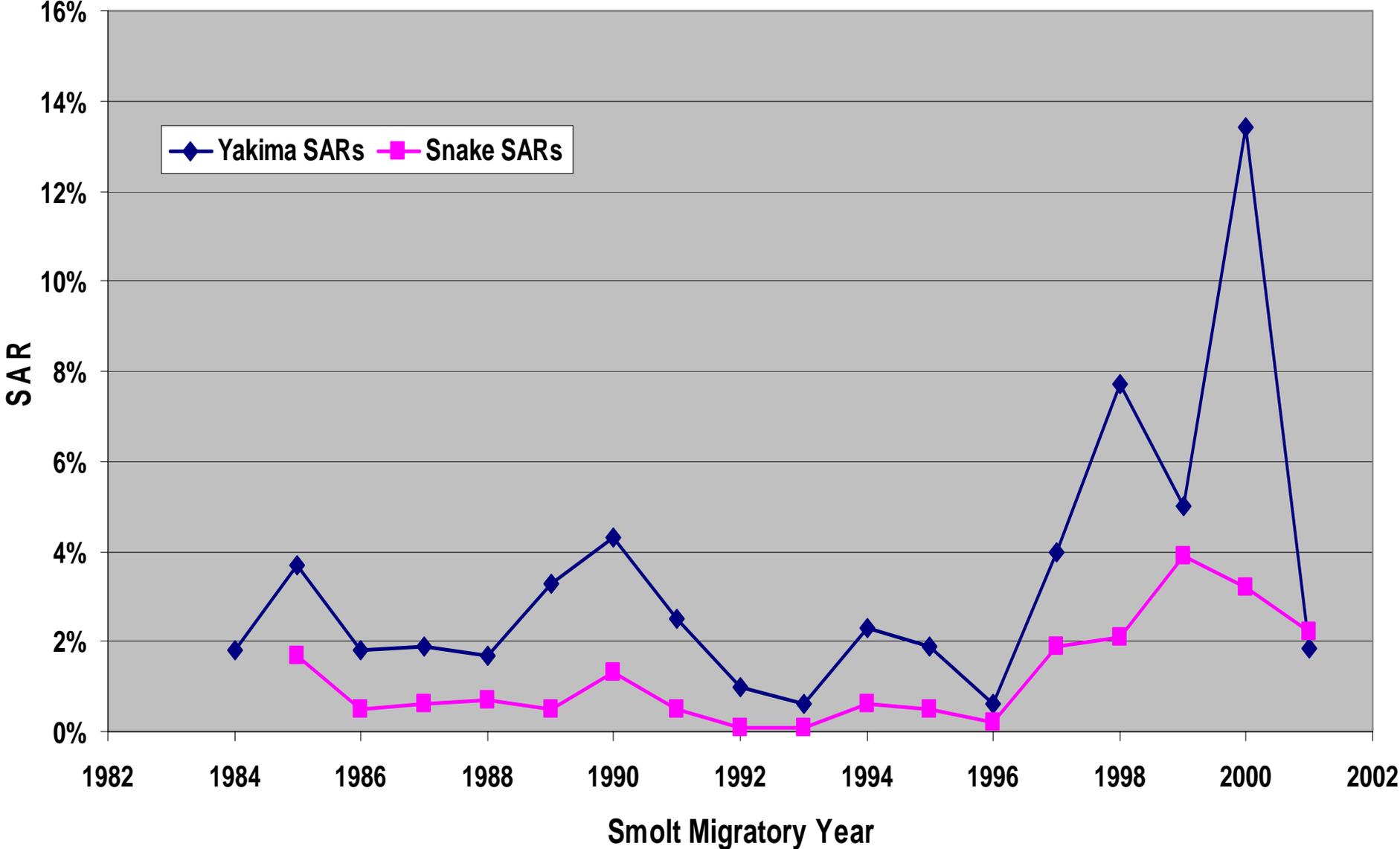
D-values measure the relative SARs of transported and in-river smolts estimated to have survived to below BVD

The relative SAR of MY 2001 in-river smolts declined by about 4-fold compared to the average of MY 1994-2002 (excluding 2001)

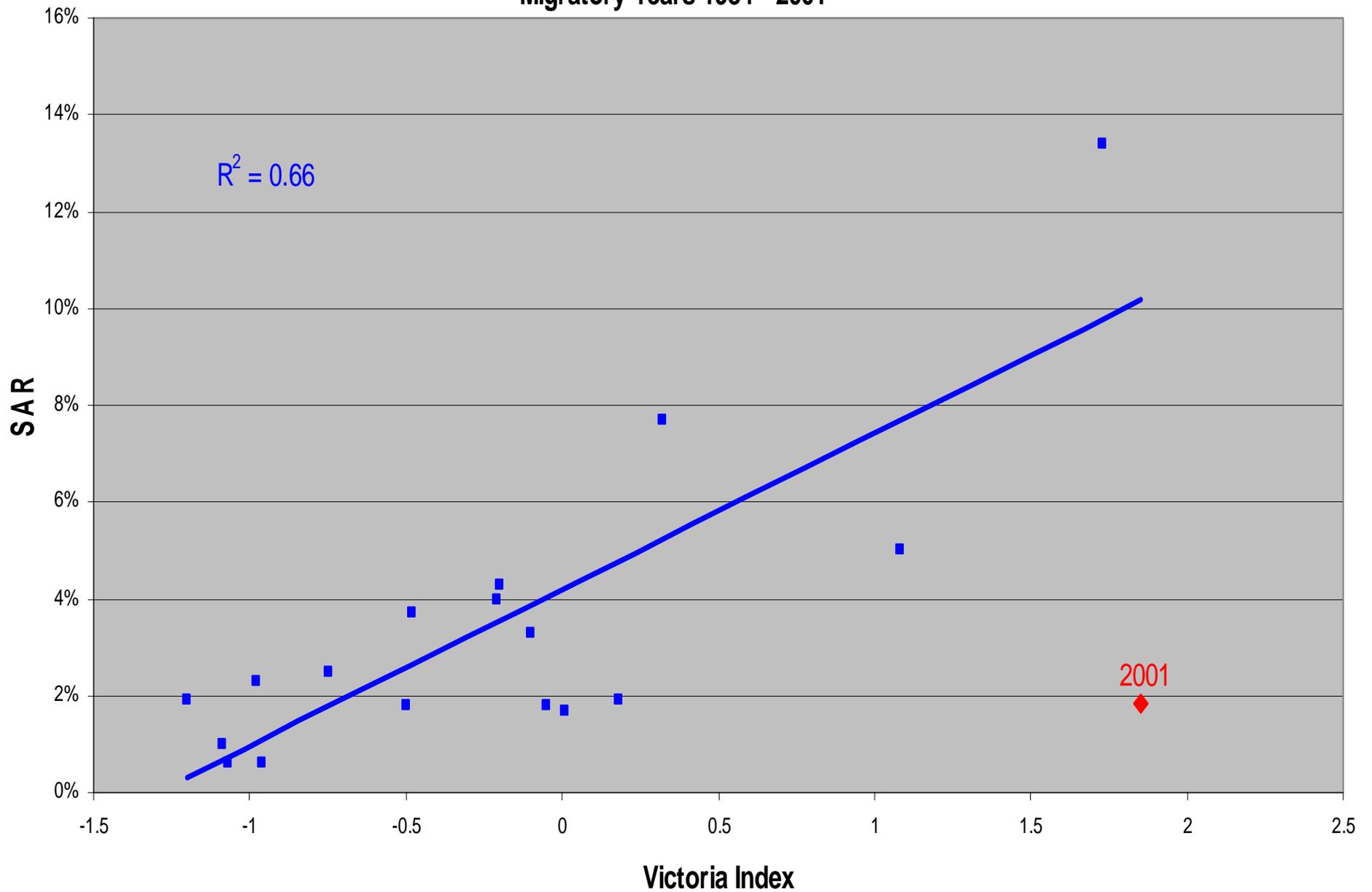
The most plausible explanation is that increased migration delay, turbine passage, and bypass passage caused a dramatic increase in latent mortality of in-river smolts

SAR impacts of MY 2001 conditions on in-river smolts were approximately 4 times greater than direct survival estimates indicate

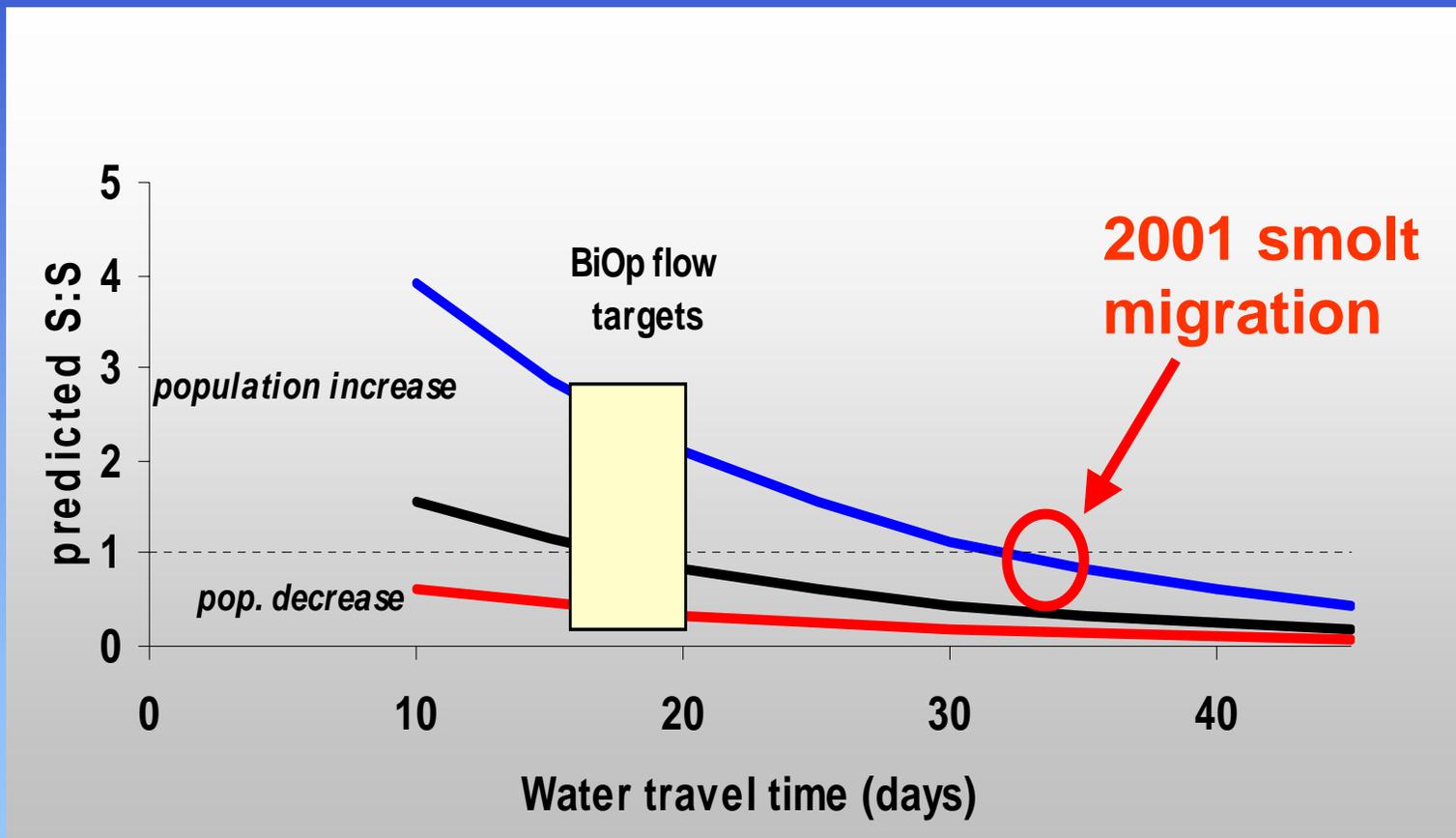
### Yakima River & Snake River Wild Chinook SARs



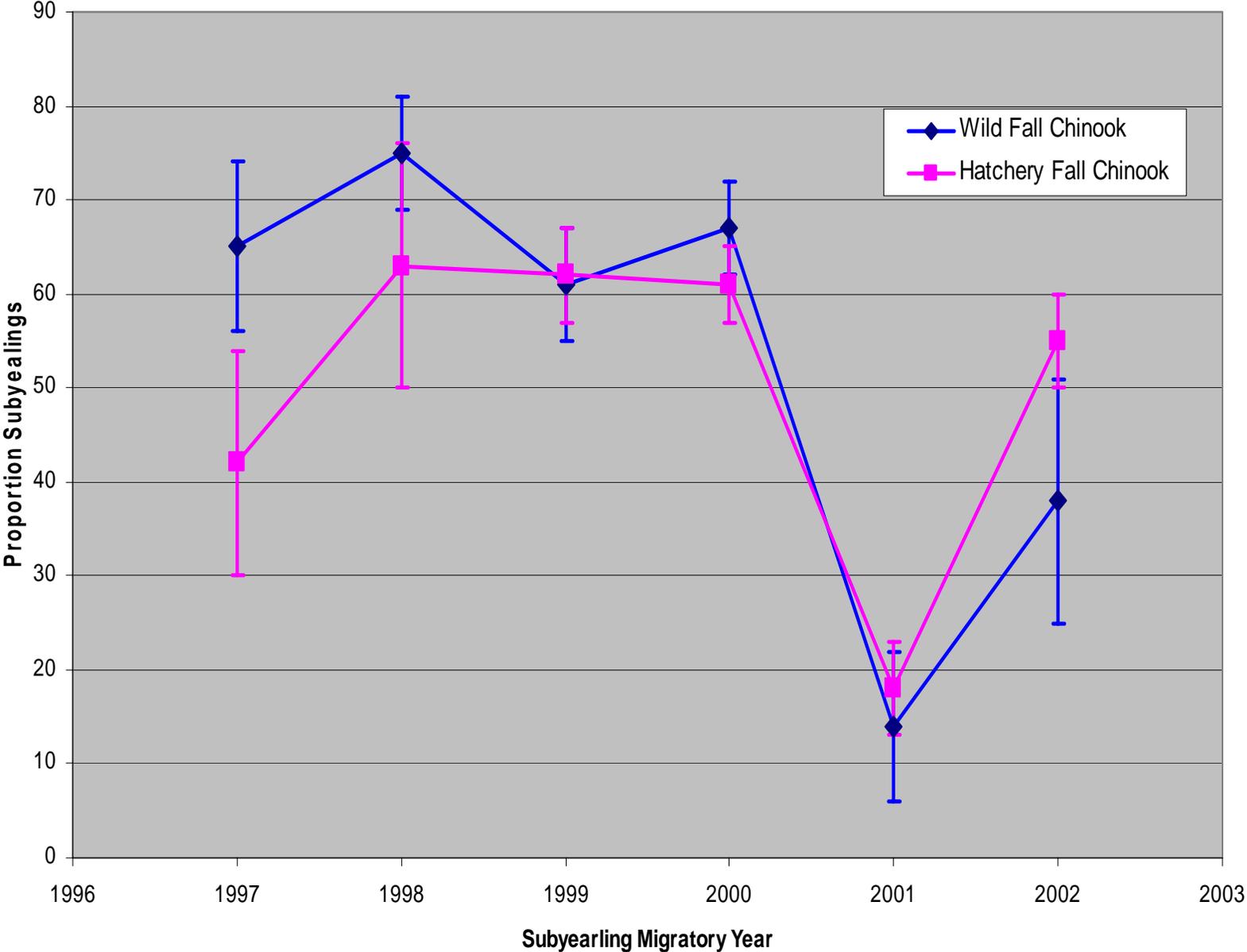
# Yakima River Wild Chinook SARs & Ocean Productivity Migratory Years 1984 - 2001



# 2001 smolt migration, poor flows but good ocean. States, Tribes, & USFWS model predicted poor to mediocre returns



### Snake River Fall Chinook Adult Returns



## So What Do the Adults Tell Us!

Transportation only provides a benefit to wild chinook in low flow years

Dams cause significant latent mortality that flow & spill reduce

The Victoria Index may be useful in predicting ocean productivity

Direct Survival Models greatly underestimate the benefits of flow & spill on adult return rates

