LOSTINE RIVER SUPPLEMENTATION PROGRAM

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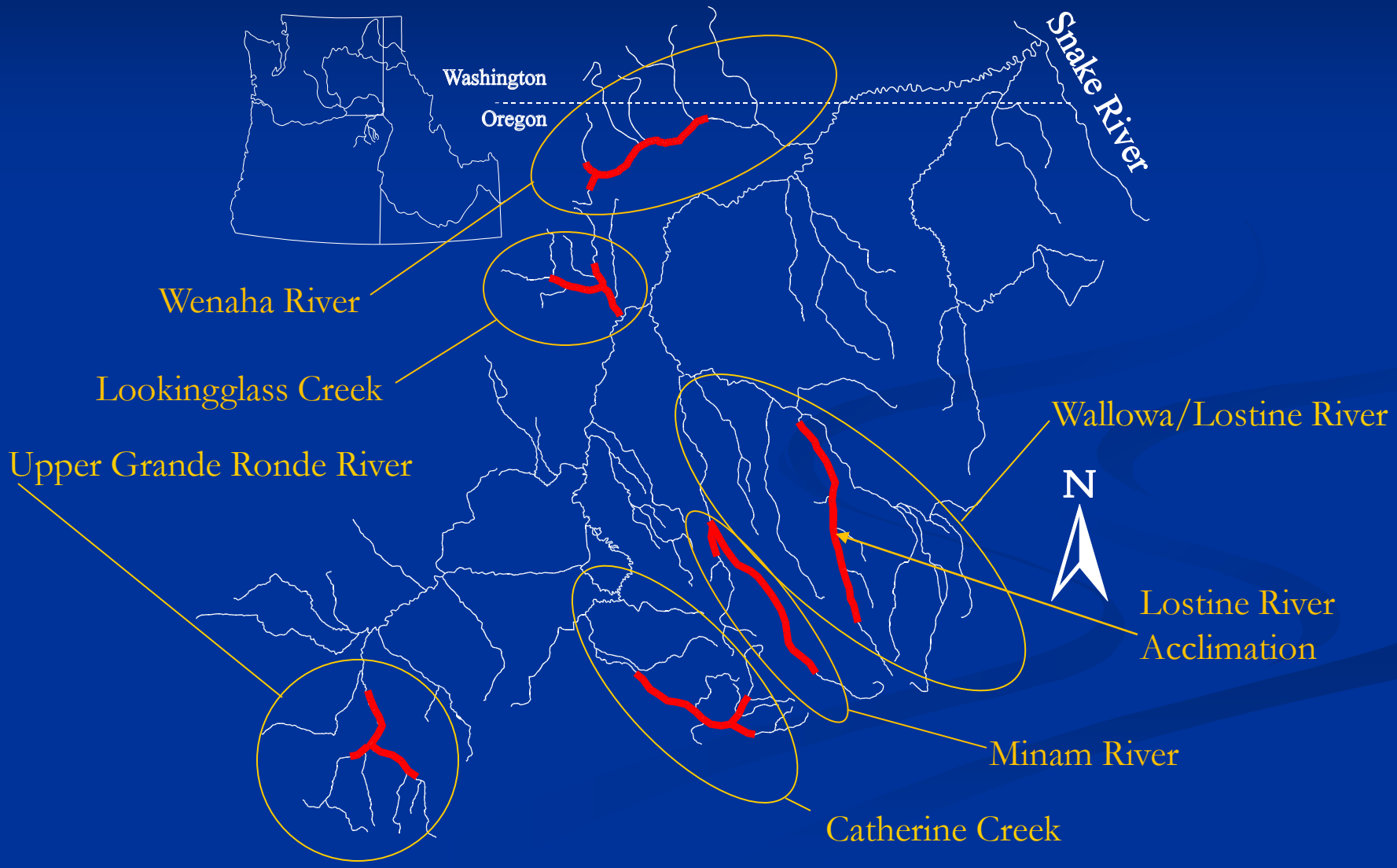
Presented by Peter Cleary

Grande Ronde Basin Spring Chinook Salmon Populations




N
Acclimation Facility
Lostine
Screw Trap
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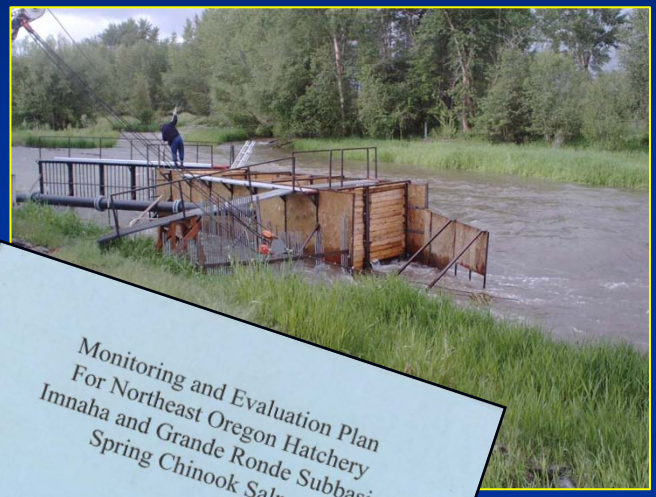
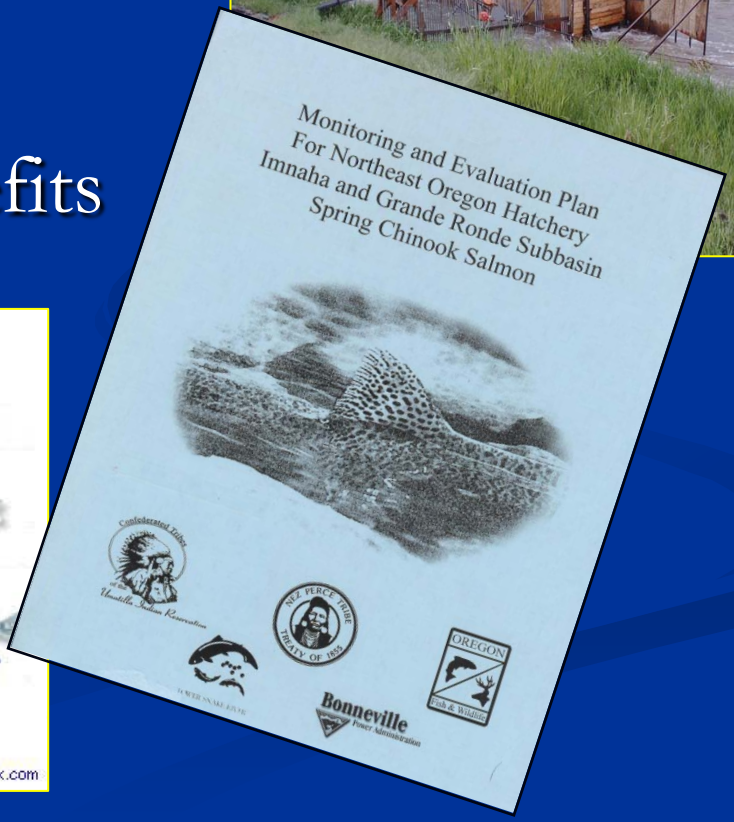
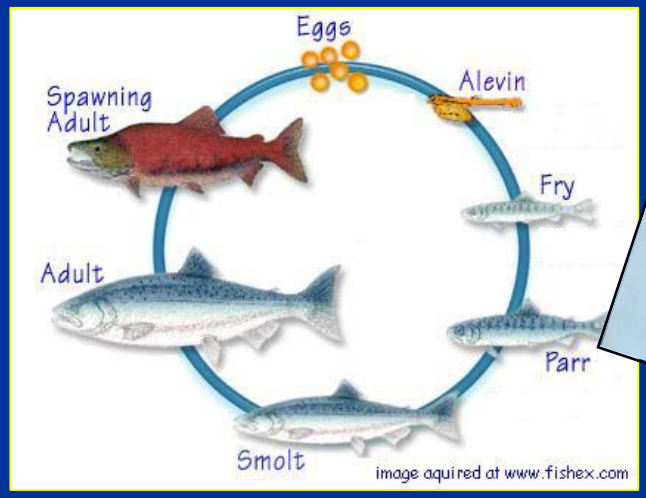
Overview of the Supplementation Program

- Approach to supplementation
- Broodstock strategies
- Program Objectives
- Program Risks and Benefits







Approach to Supplementation

- Two recovery strategies were employed using captive and conventional broodstock approaches.
- Broodstock collection for the captive program began in 1995 with the collection of parr from each of the three tributary streams
- The first collection of natural adults for the conventional program began in 1997 on the Lostine River and in 2001 for Catherine Creek and the Upper Grande Ronde River.

Broodstock Strategies

Captive Program

- Juvenile parr are collected annually from each stream for broodstock
- Broodstock are reared in culture until they reached adult maturation
- Mature fish are spawned and the offspring reared to pre-smolt in hatchery
- Pre-smolts are transferred to acclimation facilities on their respective natal streams, acclimated and released

Conventional Program

- Adult broodstock are collected at weirs and transferred to hatcheries for spawning
- Offspring are reared in hatchery to pre-smolt
- Pre-smolts are transferred to acclimation facilities located on their natal stream, acclimated and released

Program Objectives (Adult Returns)

Short term - Preservation of population

Maintain an annual escapement of 250 adults

Mid term – Restoration of population

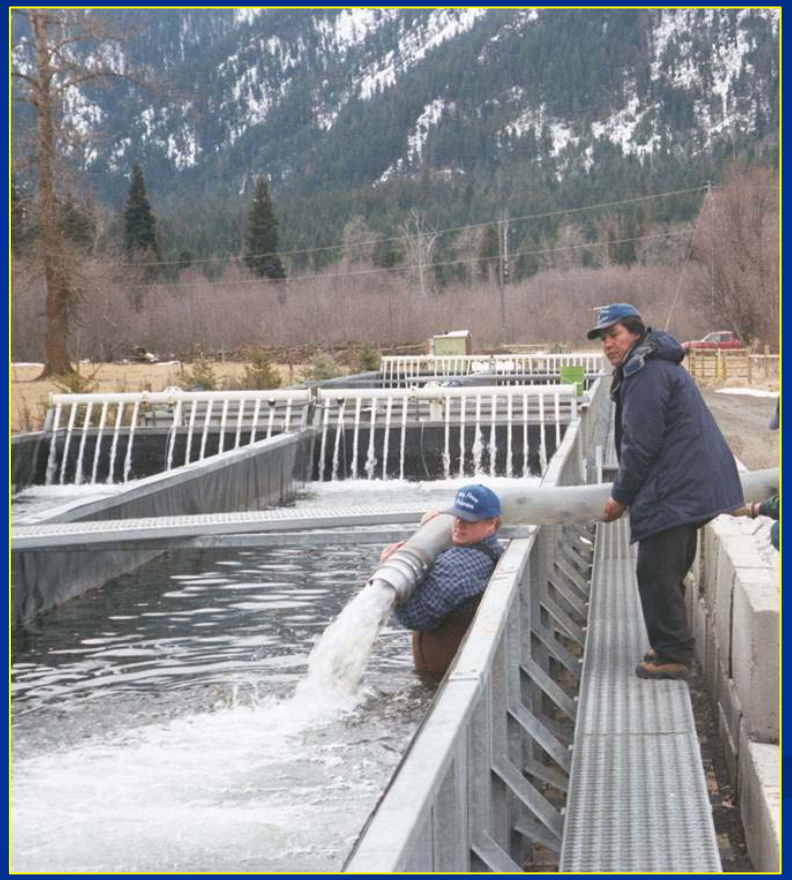
Achieve an annual escapement of 500 natural adults

Long term – Historical escapement/ harvest

Maintain natural self-sustaining population of 1,716 adults and achieve LSRCP hatchery-origin goal of 1,625 adults

Program Objectives (Juvenile Releases)

- Produce 250,000 acclimated smolts at 20-25 fish per pound using only Lostine River fish for broodstock.
- 120,000 captive broodstock (original target)
- 130,000 or more conventional broodstock



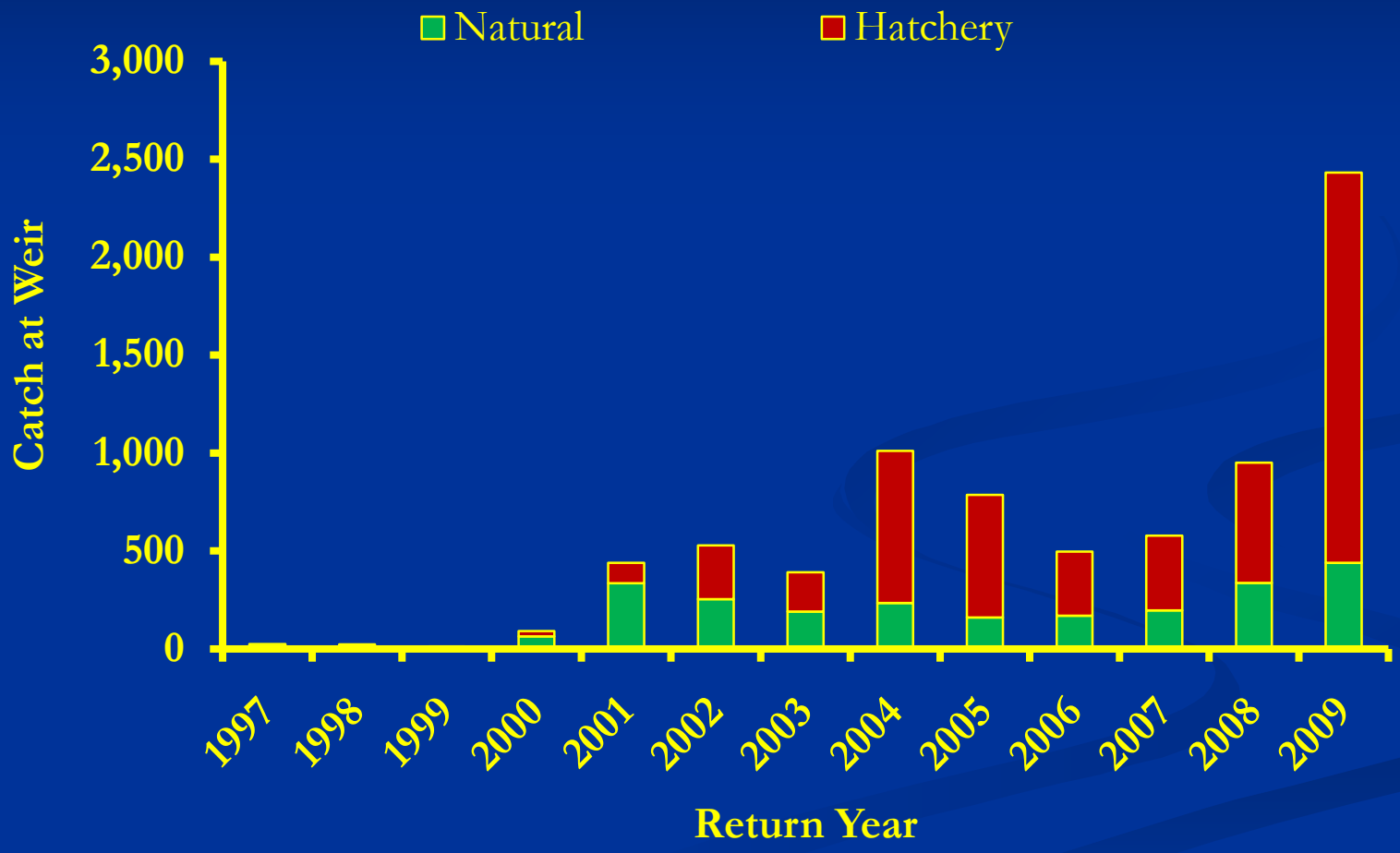
Program Risks and Benefits

- Risk - natural and hatchery life history traits may diverge over time with supplementation
- Risk – natural productivity may decrease with supplementation due to decreased fitness of hatchery spawners
- Benefit – overall abundance may increase with supplementation due to higher egg to smolt survival
- Benefit – excess production of hatchery fish can provide harvest opportunities

Overview of Adult Abundance:

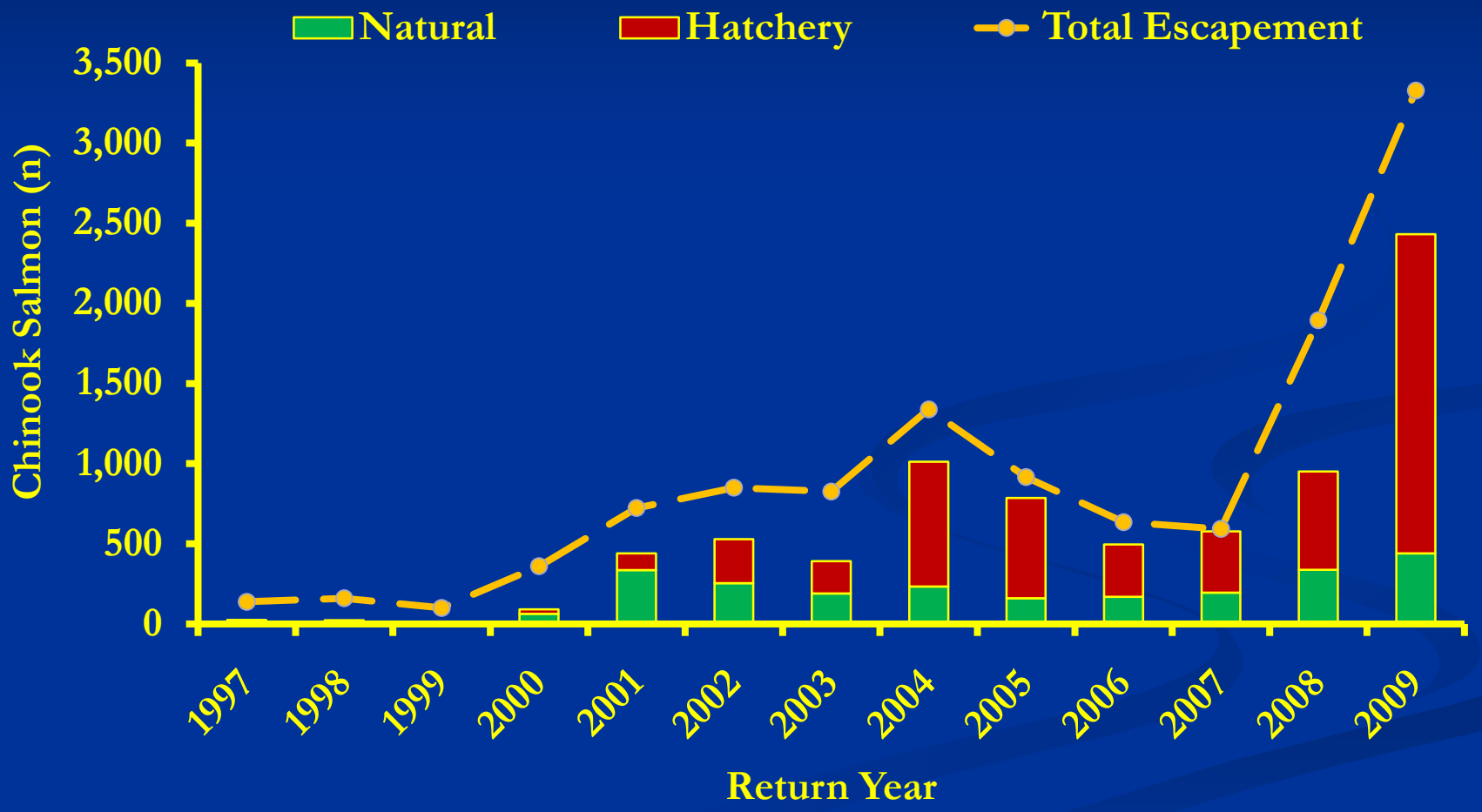
- Estimated Catch
- Estimated Escapement
- Harvest

Results:
Number of Chinook Salmon Captured

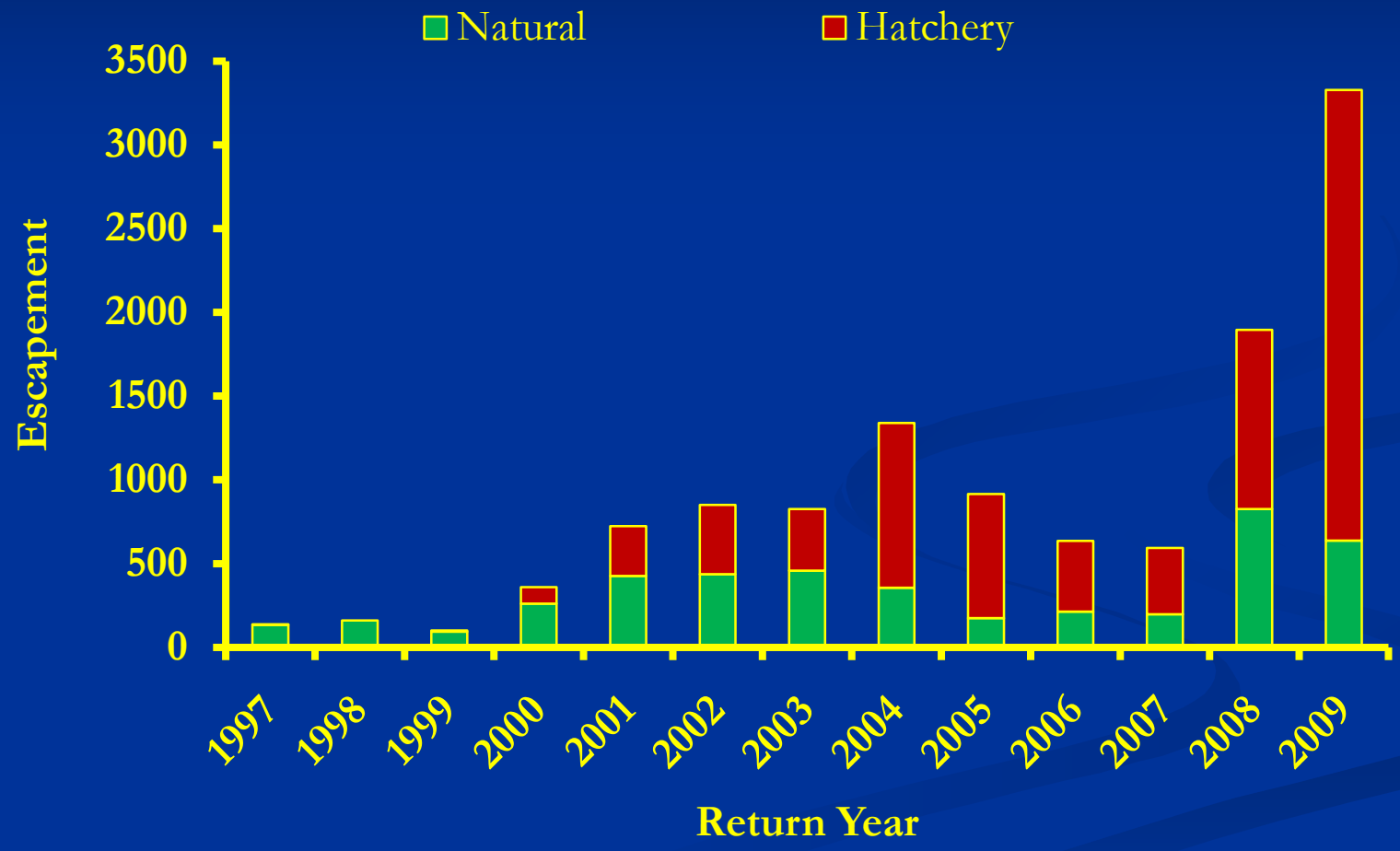


Results:

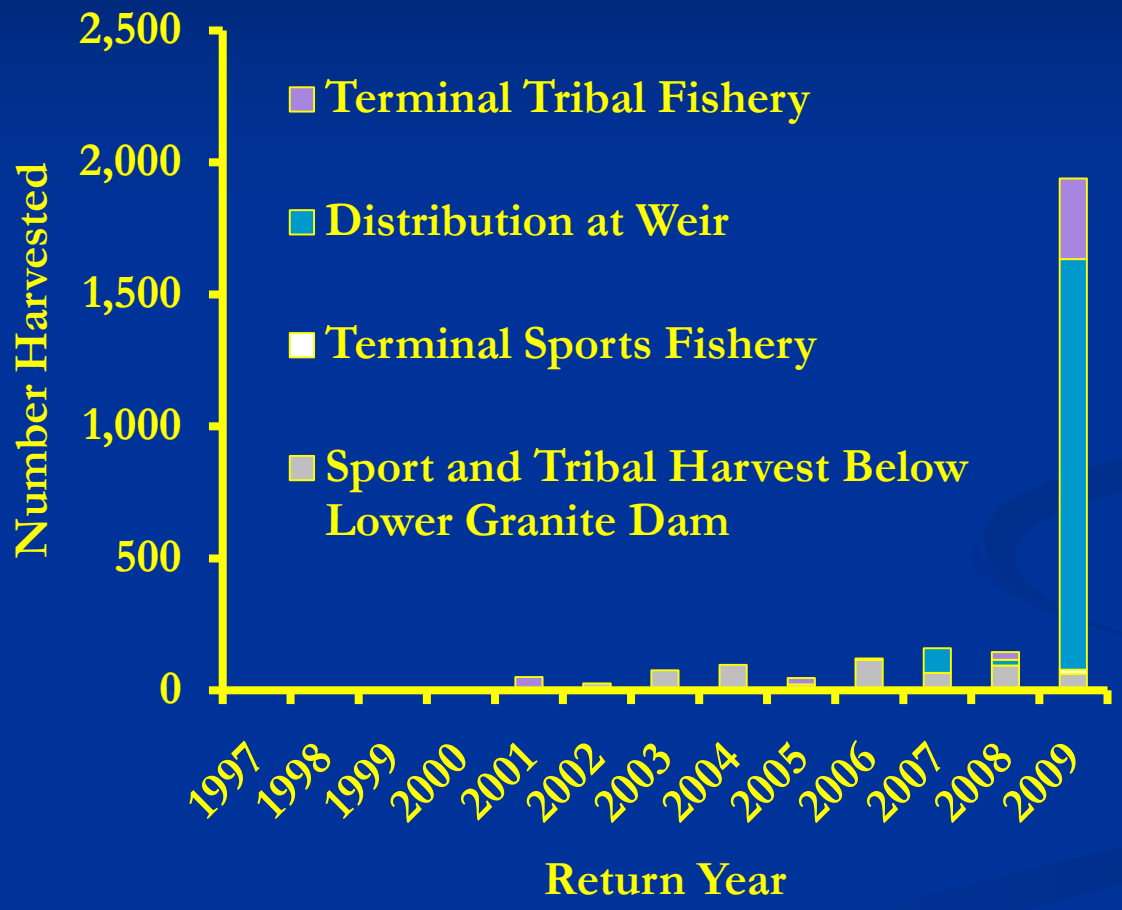
Catch and Estimated Escapement

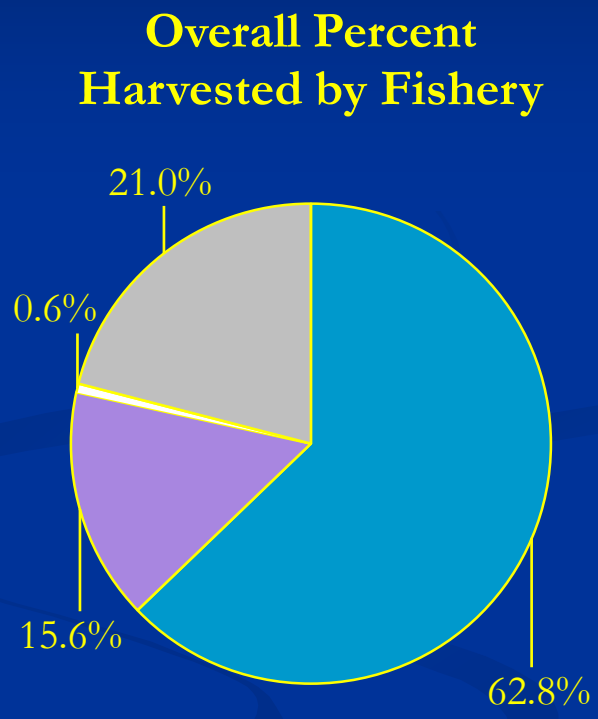


Results:
Estimated Escapement



Results:
Harvest

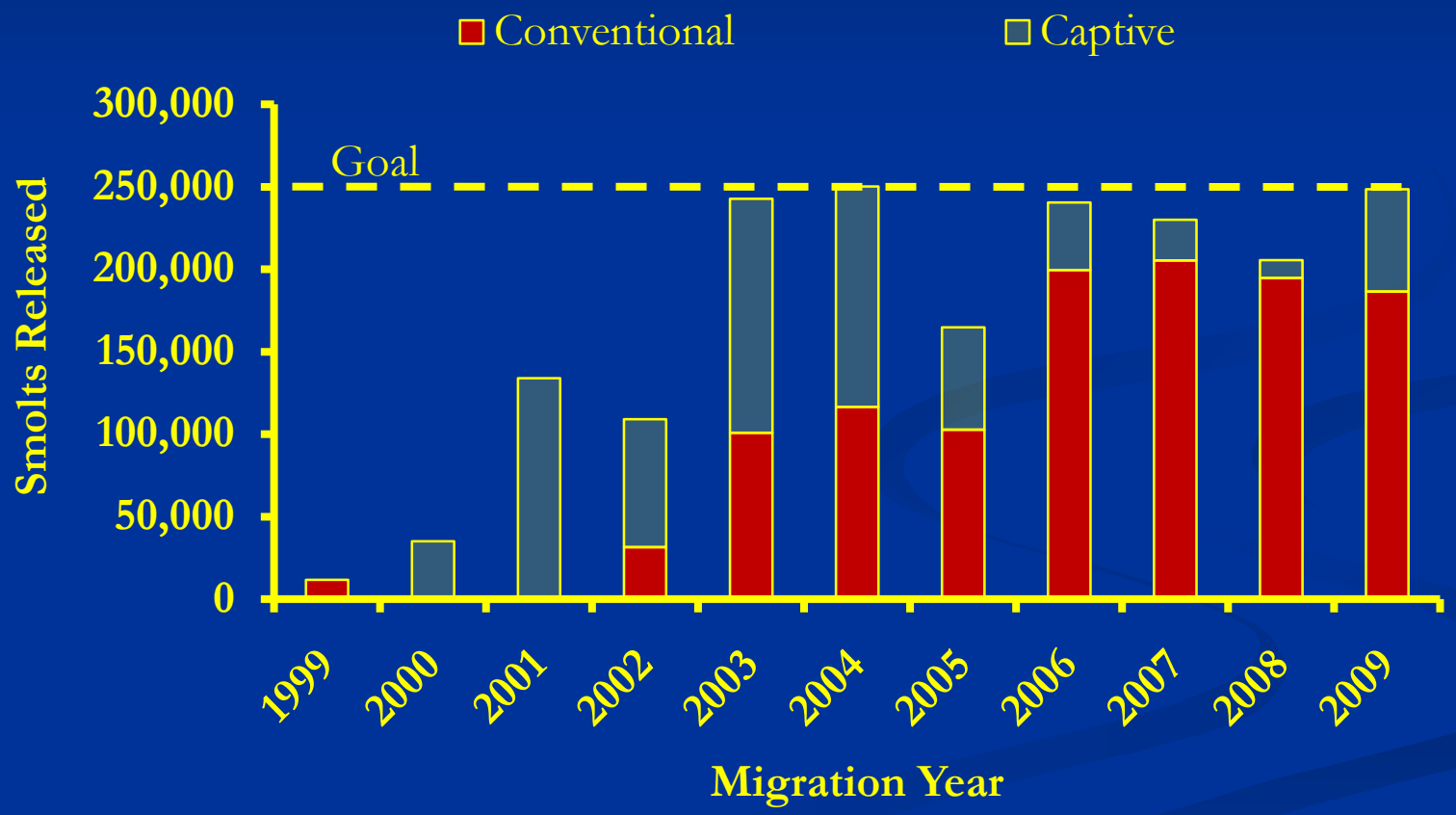




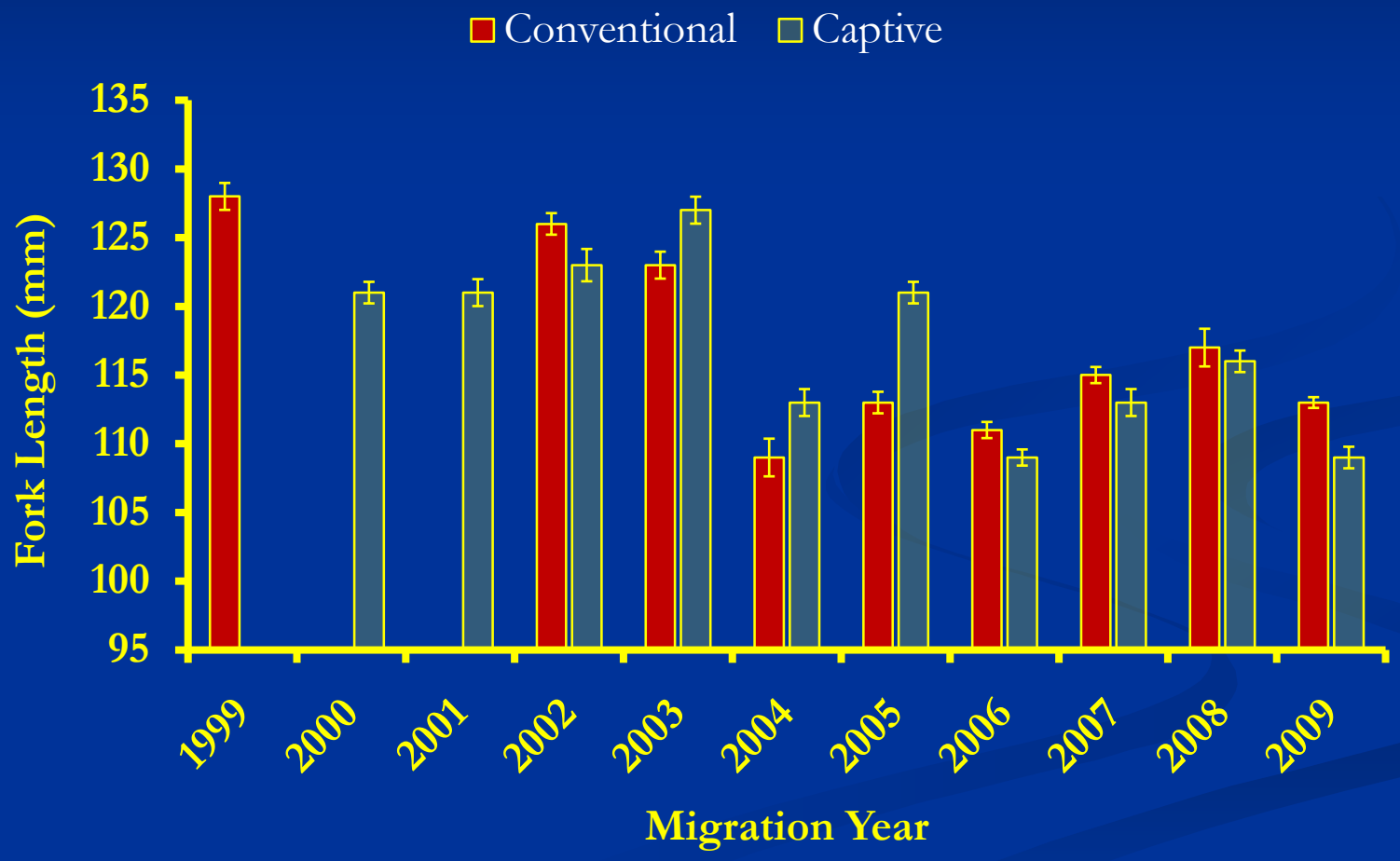
Overview of Juvenile Metrics:

- Annual Goal versus Accomplishments
- Size at Release
- Juvenile Migration Timing
- Juvenile Survival to Lower Granite Dam

Results:
Release Goal vs. Accomplishments



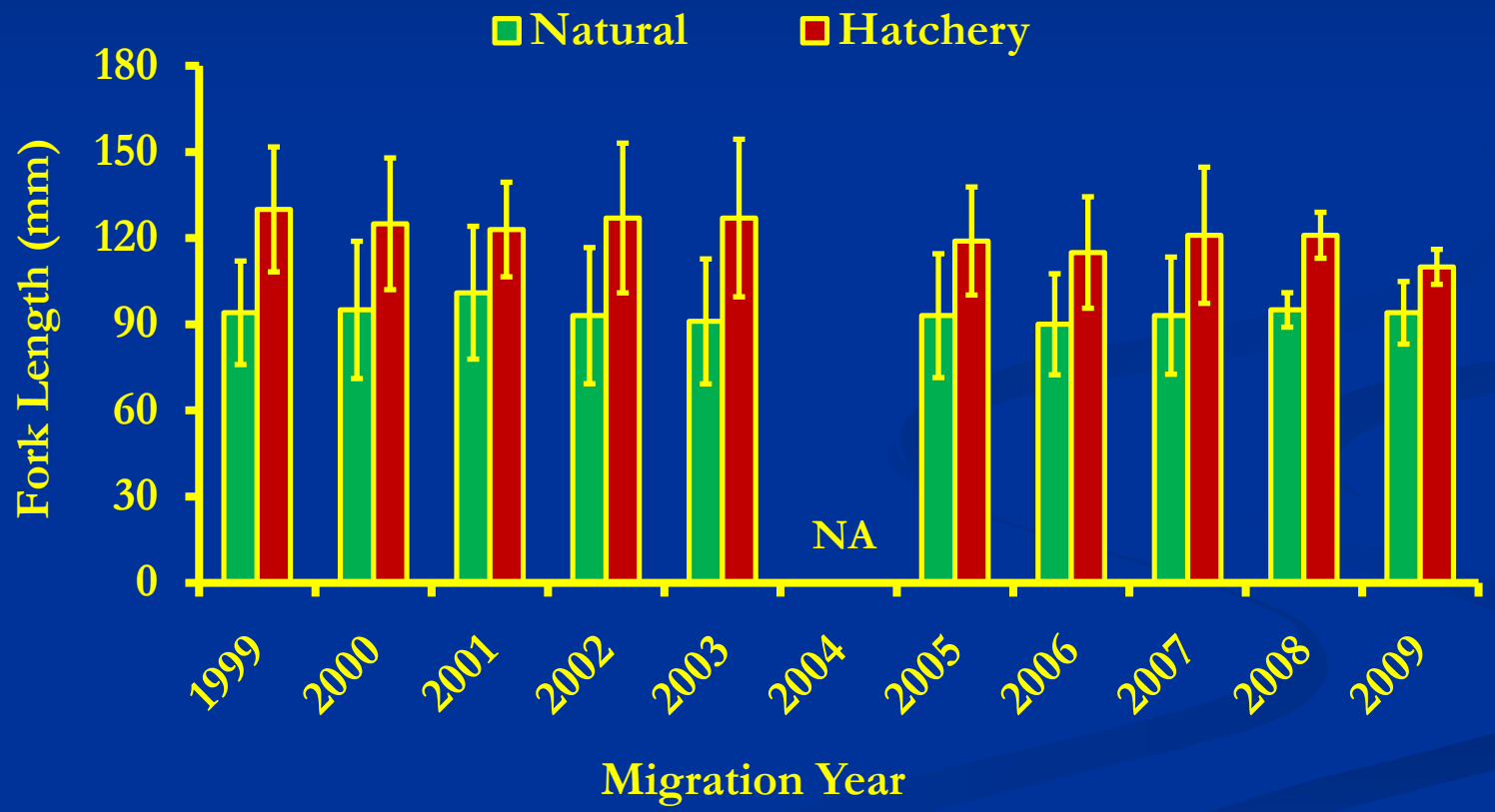
Results:
Size-at-Release



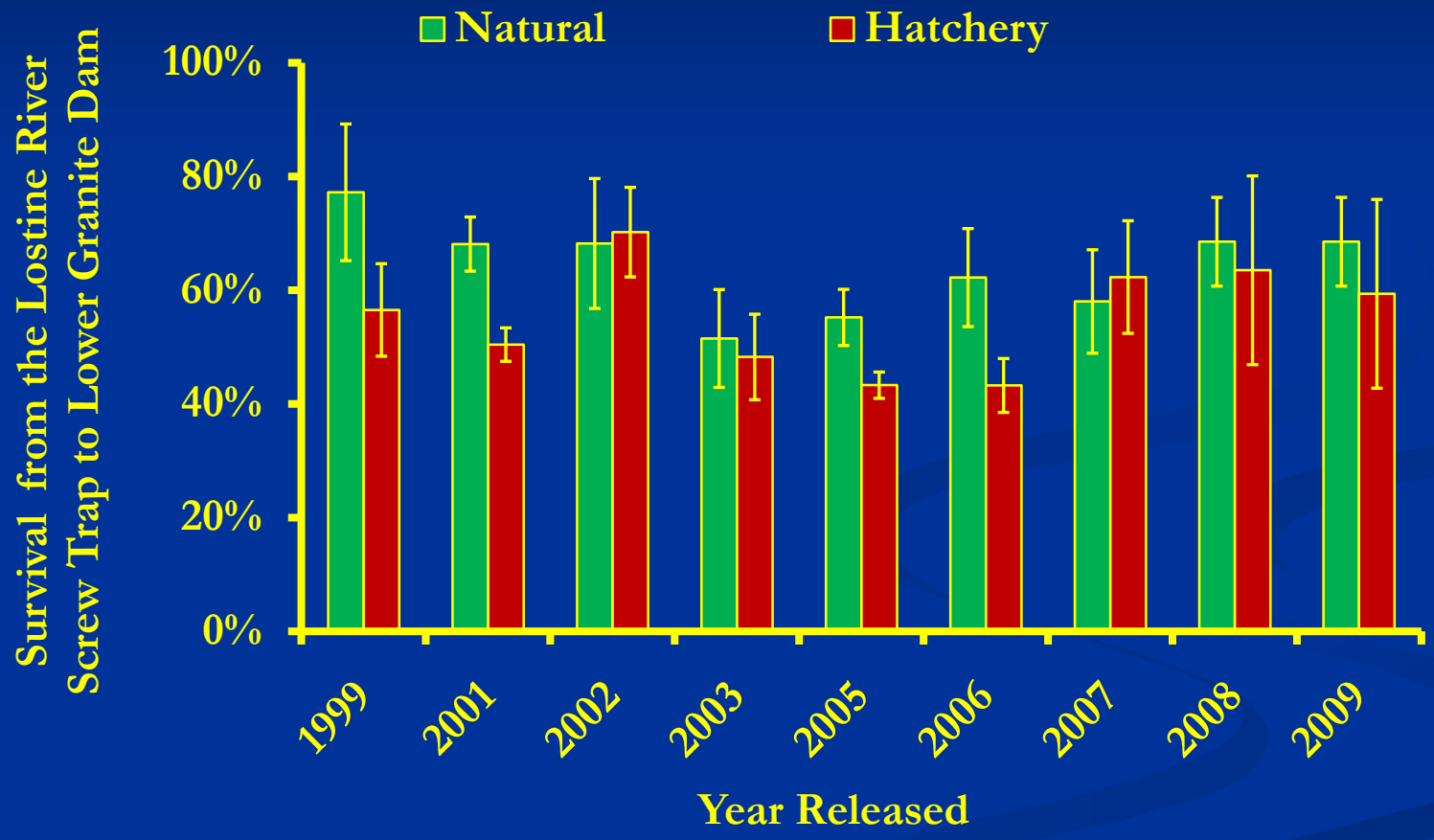

DANGER
OXYGEN IN USE
NO SMOKING OR
OPEN FLAME

Results:

Length at Emigration (Smolts)

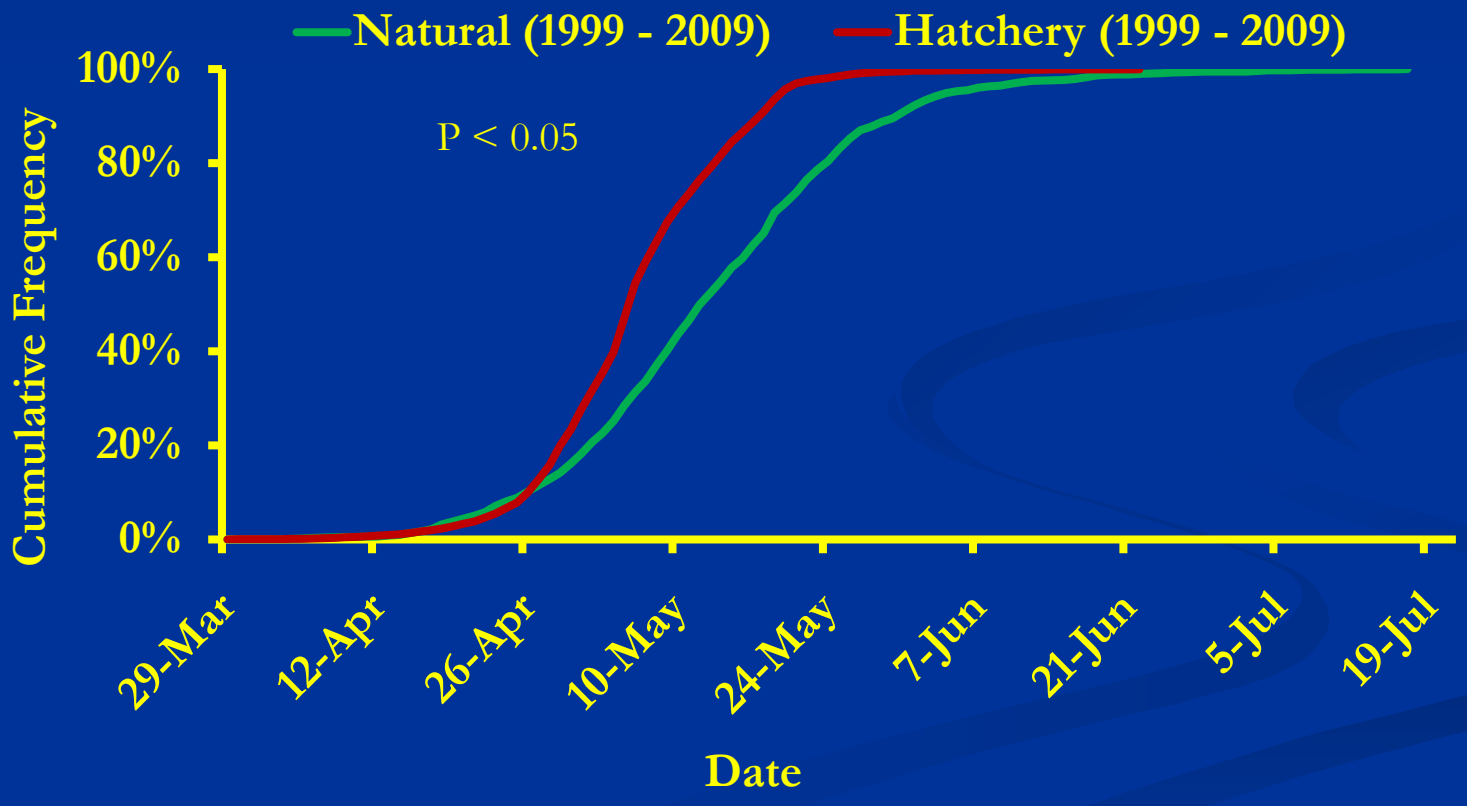


Results:
Juvenile Survival to Lower Granite Dam



Results:

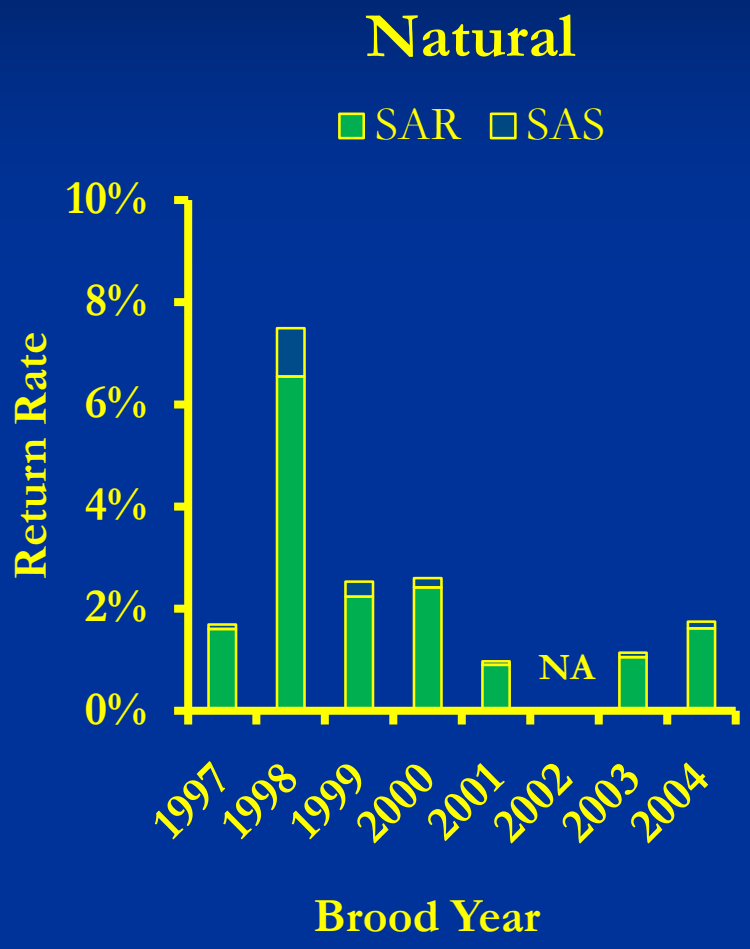
Average Smolt Migration Timing to Lower Granite Dam

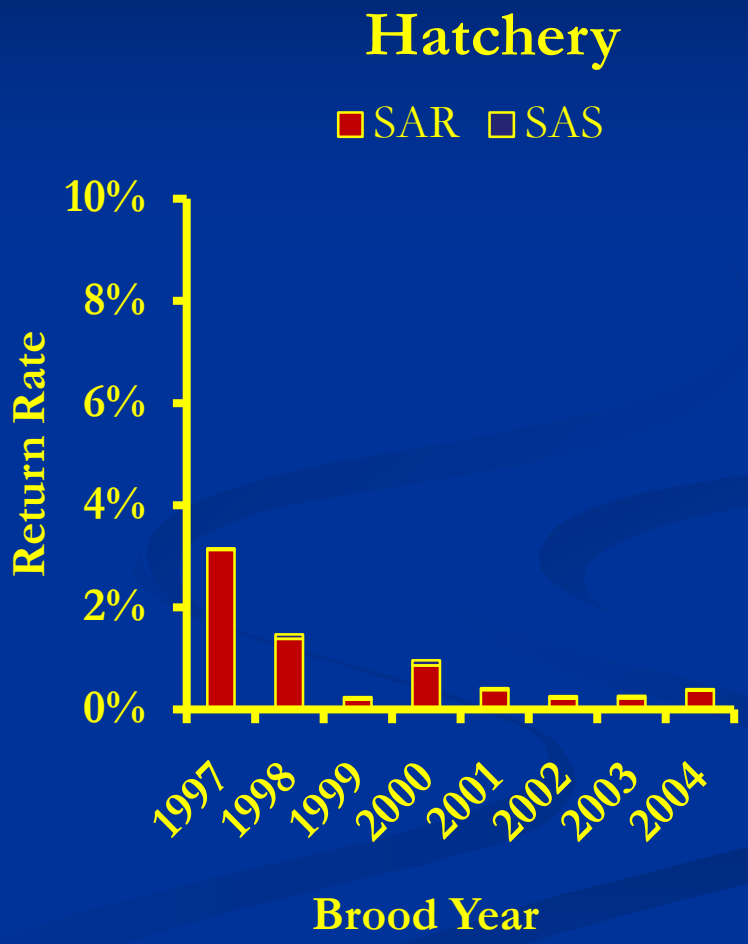


Overview of Adult Survival and Productivity

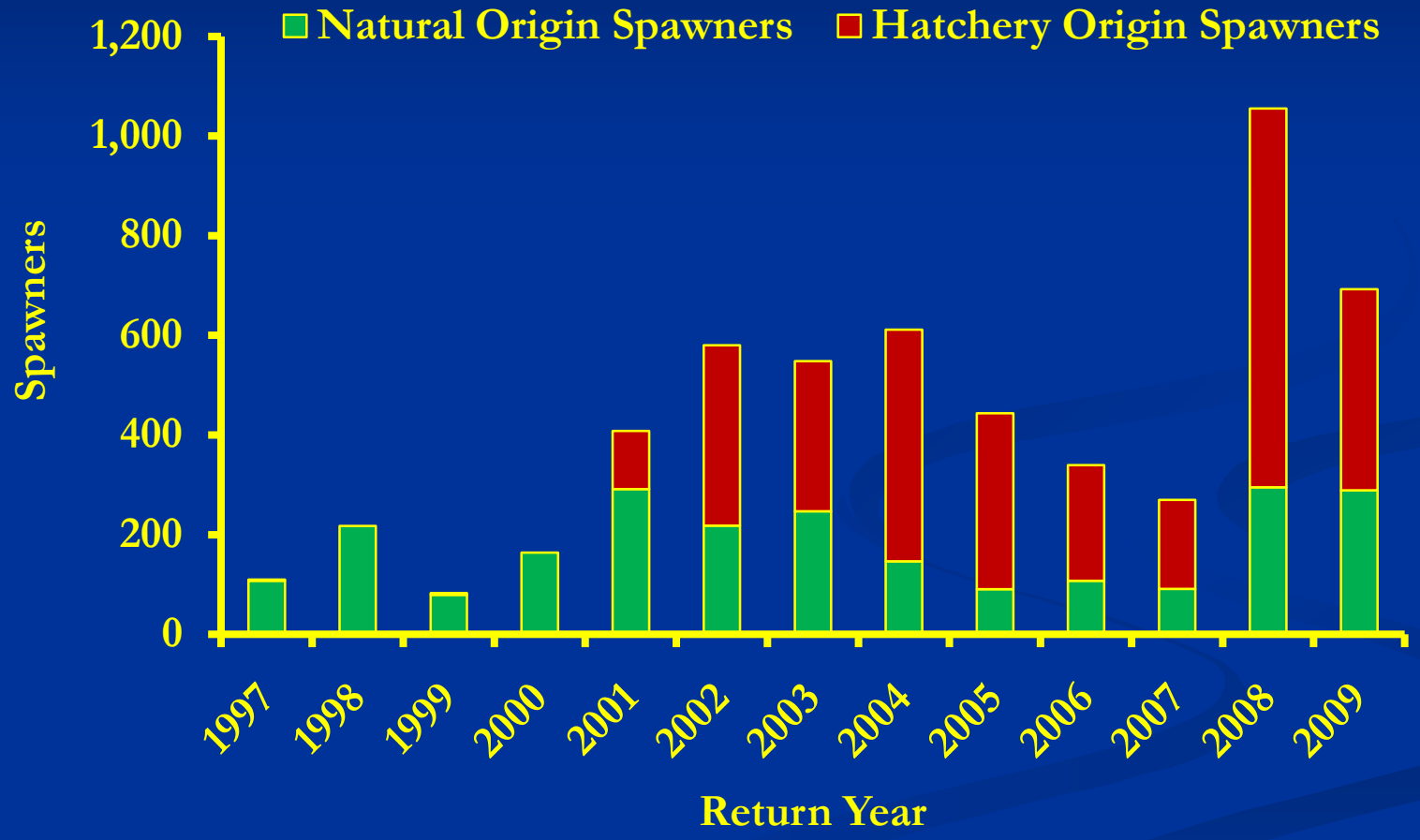
- Smolt to Adult Returns
- Smolt to Adult Survival
- Spawner Abundance
- Natural Smolts per Spawner
- Recruits per Spawner

Results:
SAR and SAS

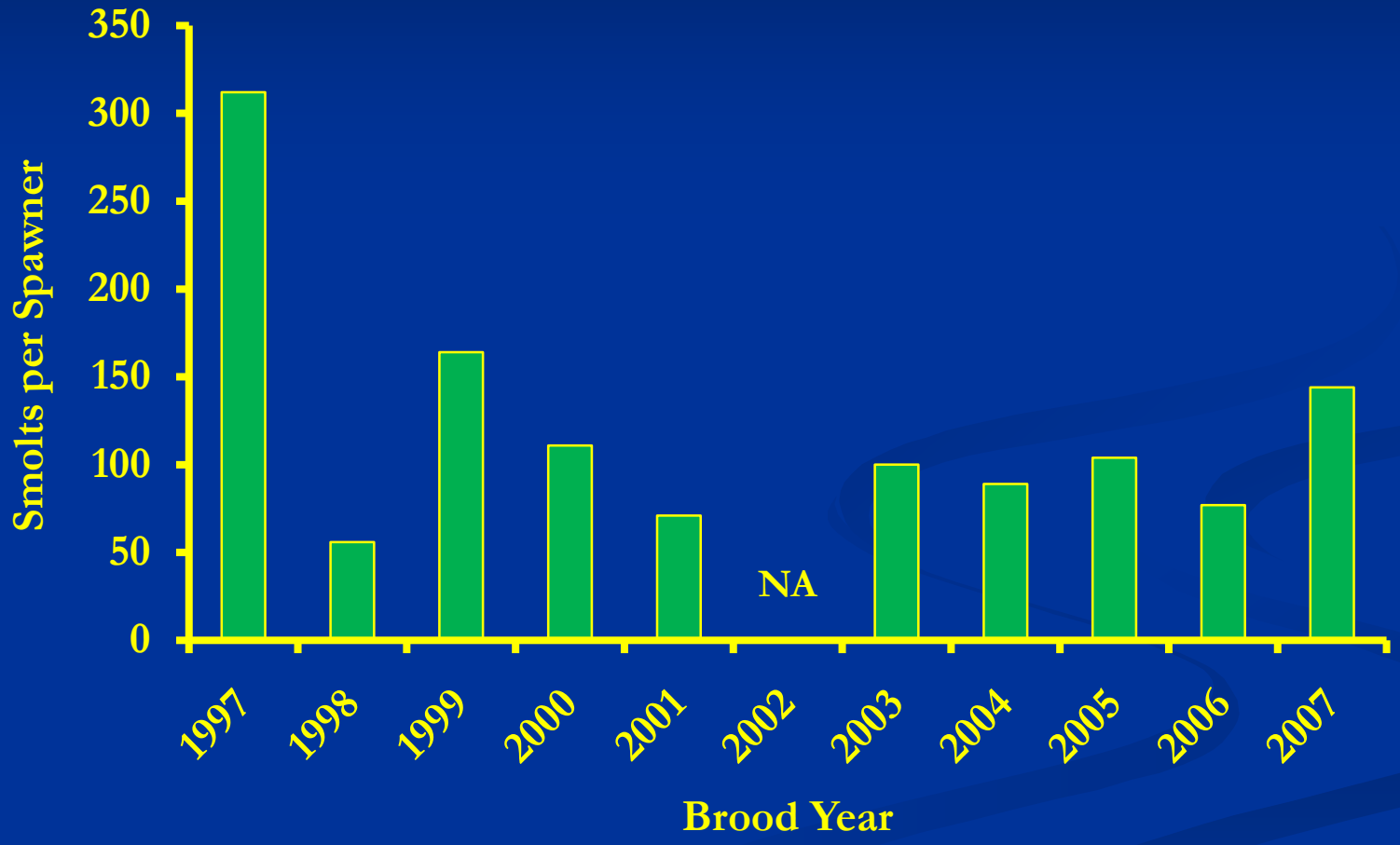




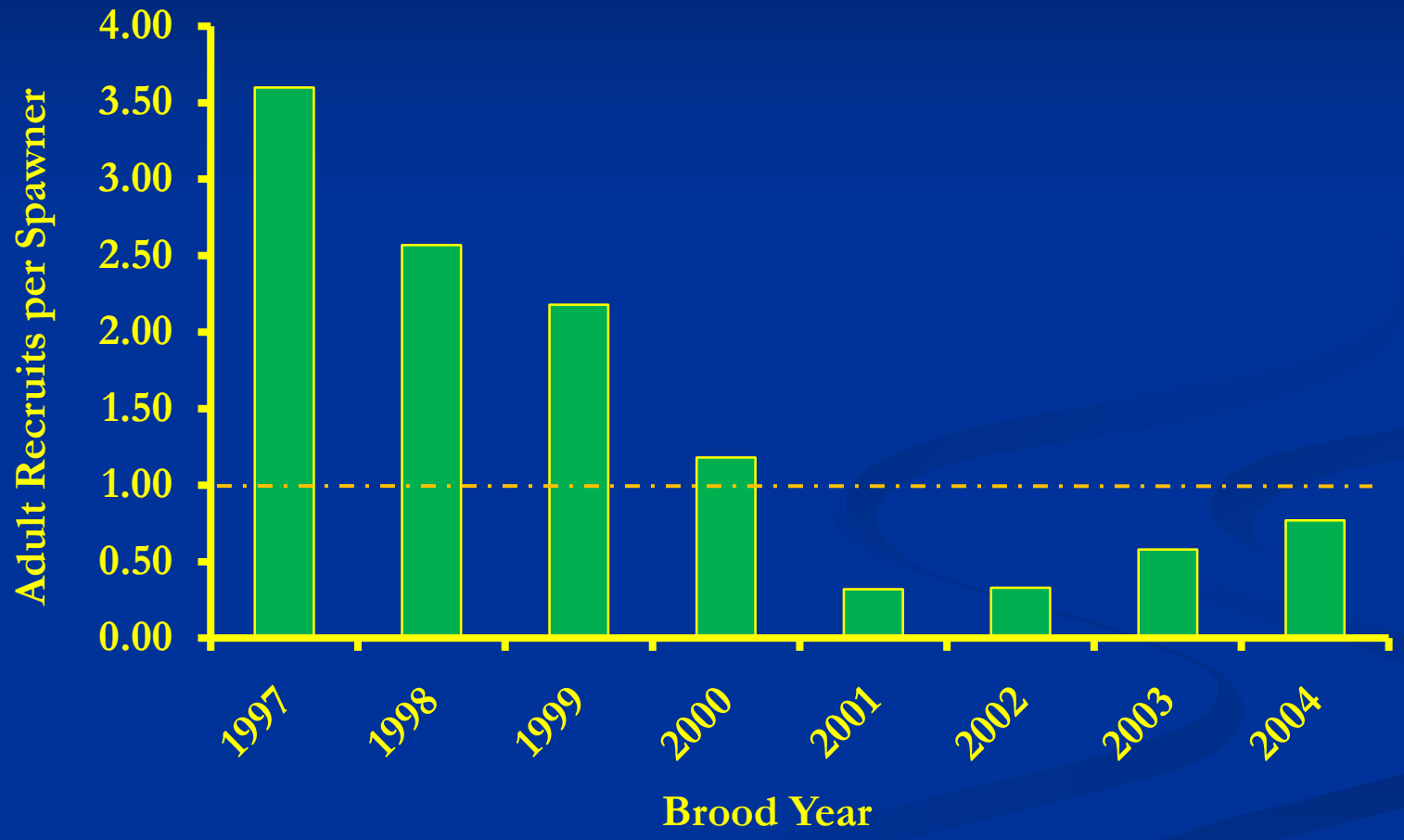
Results:
Adult Age 4-5 Spawner Abundance



Results:
Natural Smolts per Spawner



Results:
Recruits per Adult Spawner

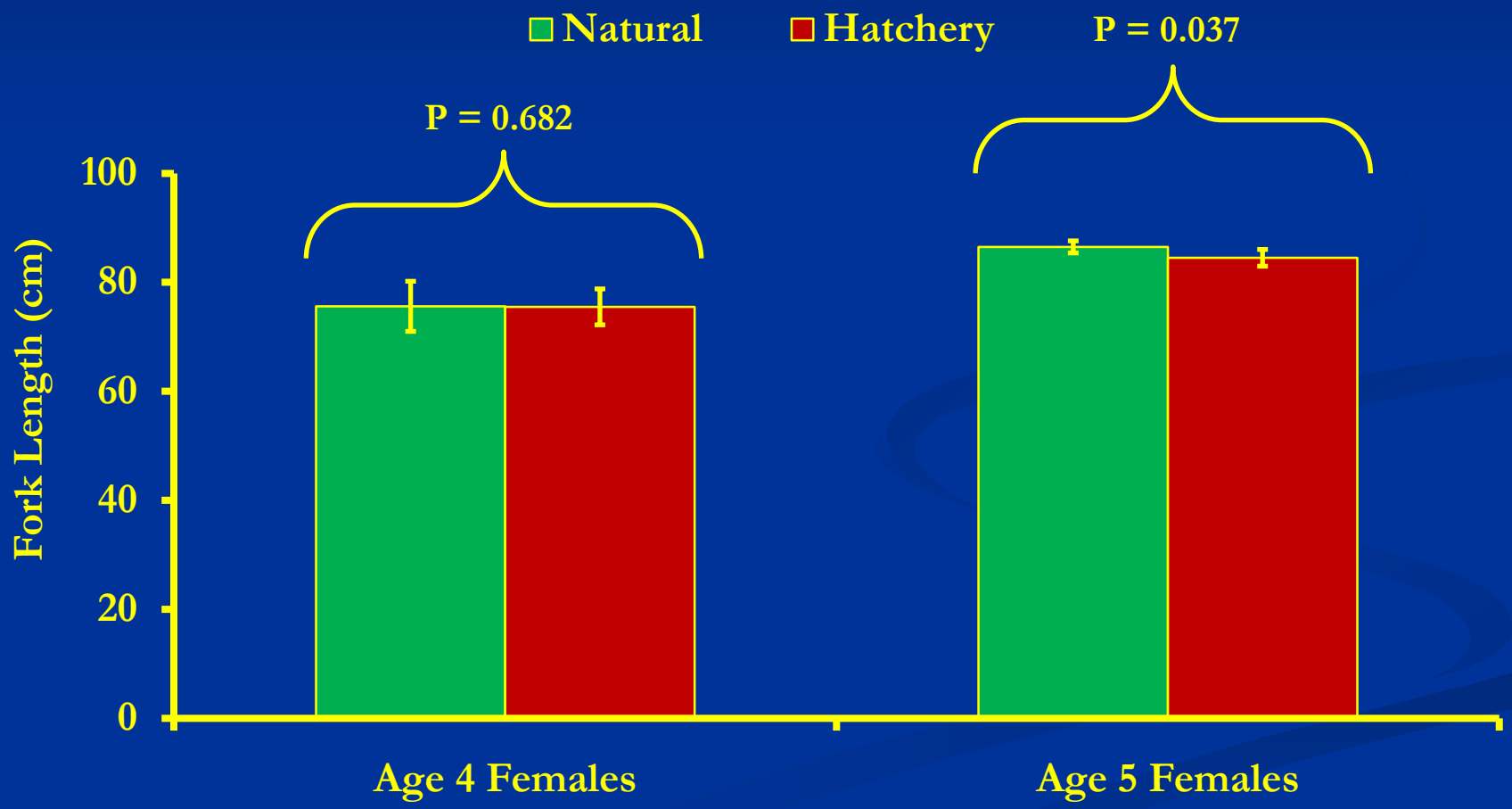


Overview of Adult Life History Comparisons

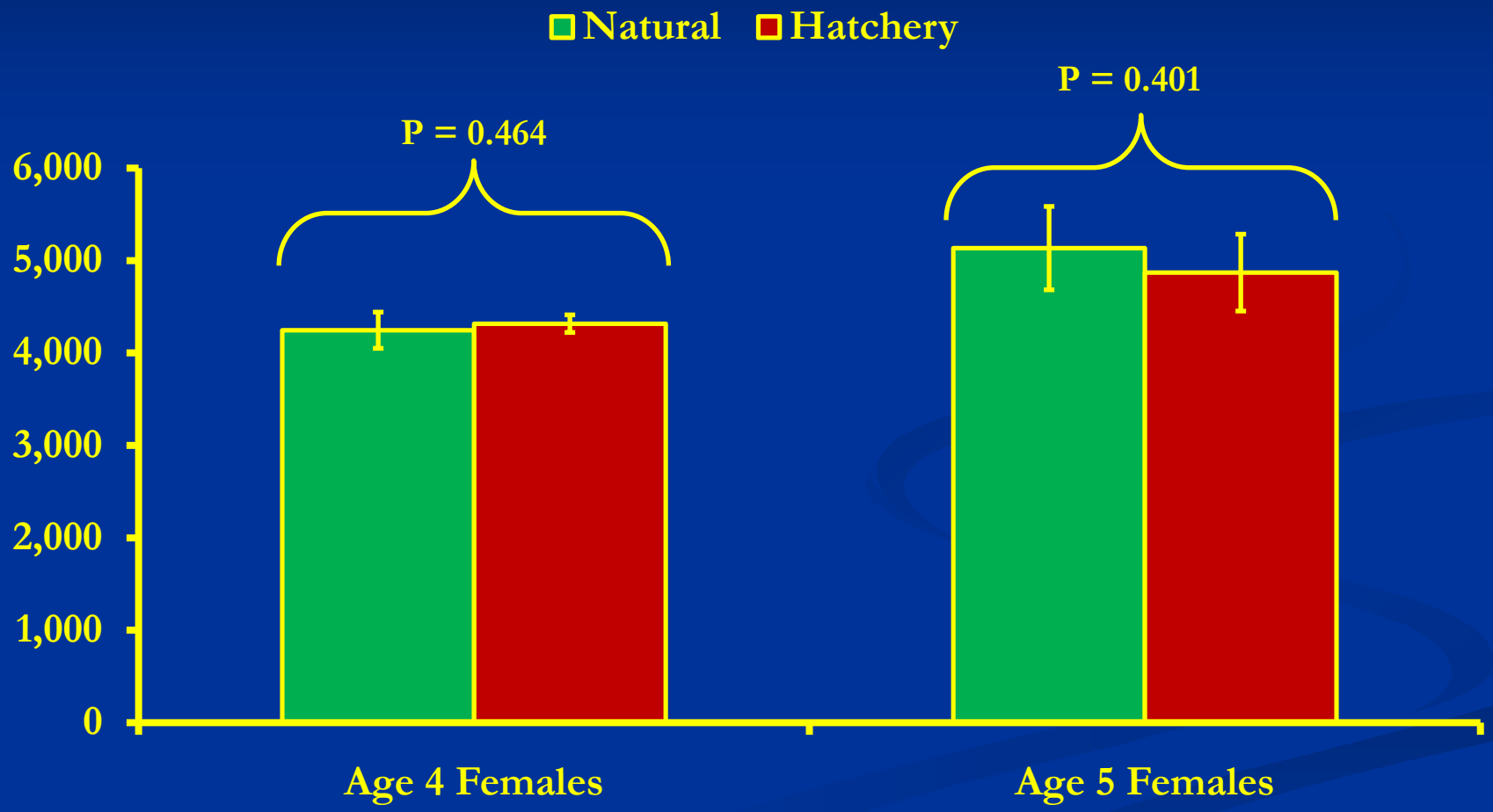
- Size at Return
- Age at Return
- Fecundity
- Spawner Distribution

Results:

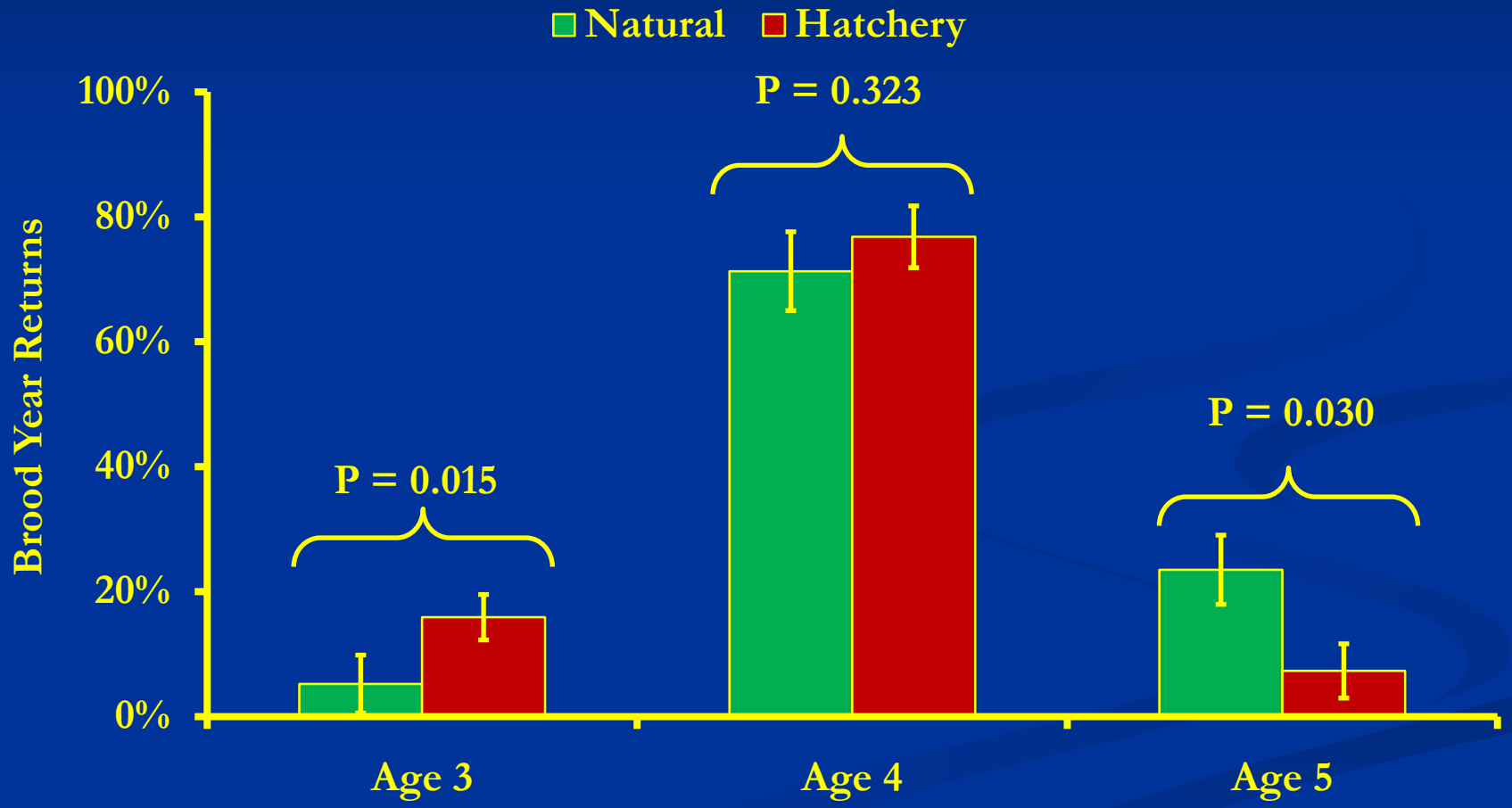
Average Size at Return (brood years 1997–2004)



Results:
Average Fecundity (2004 to 2009)

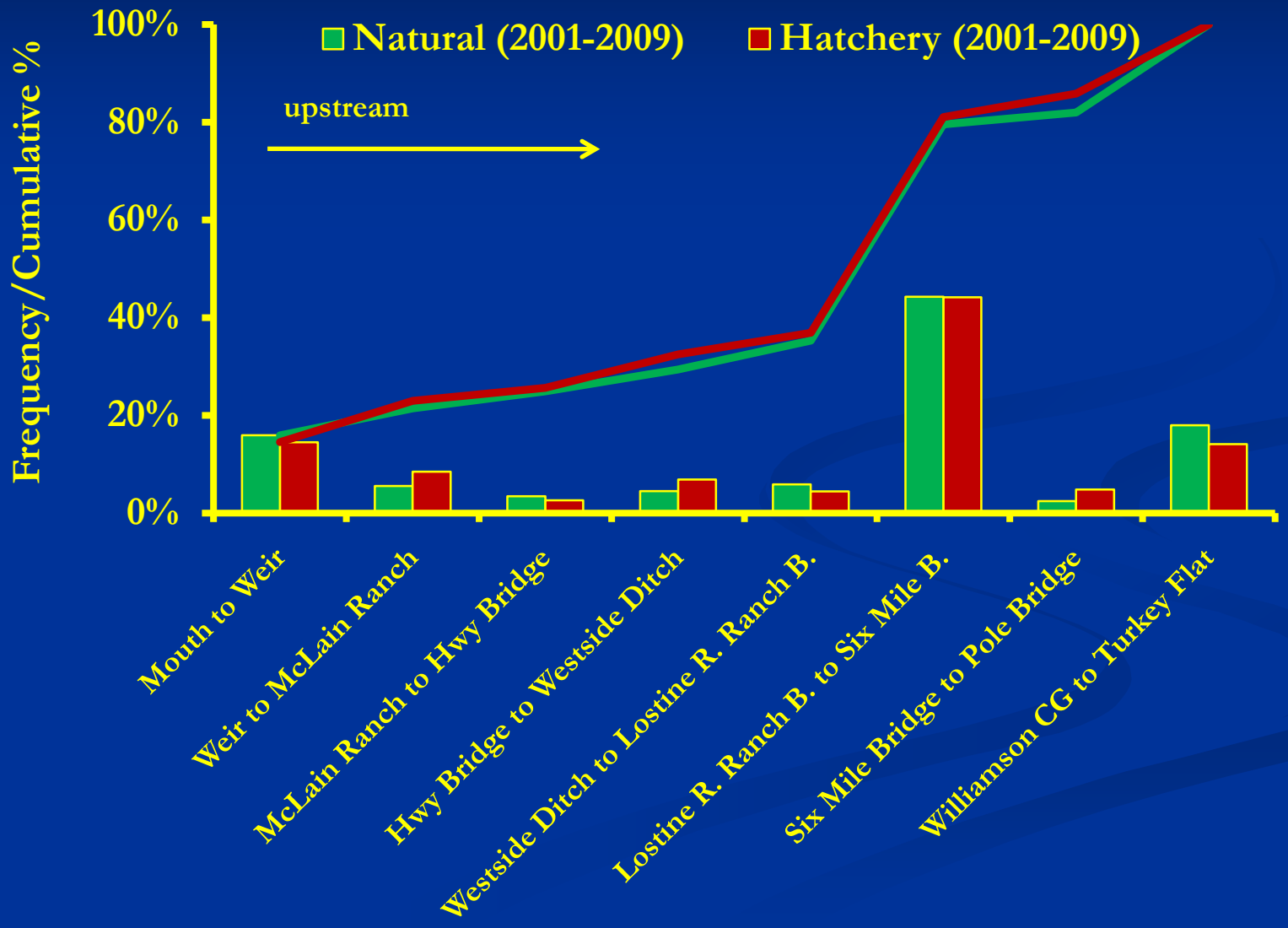


Results:
Age at Return

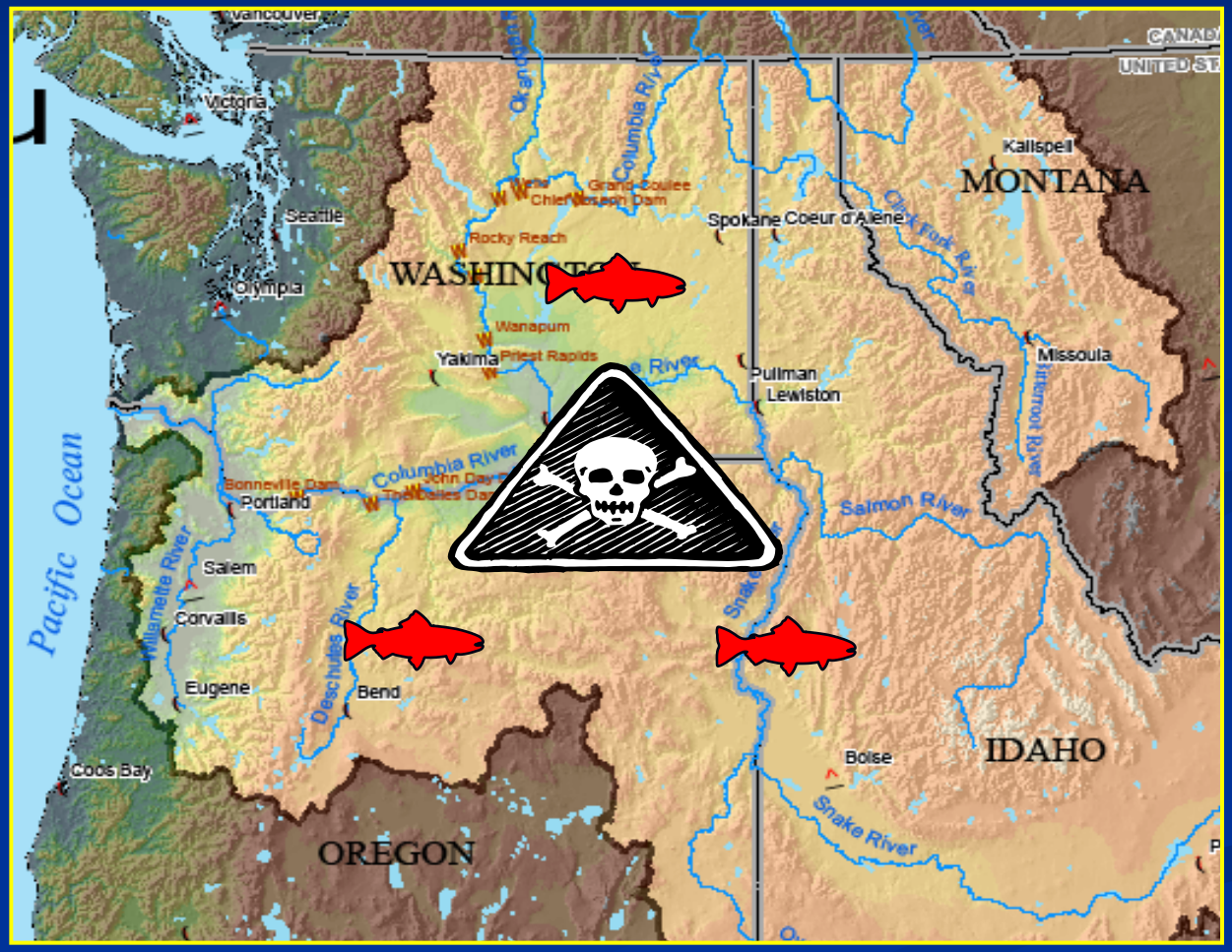


Results:

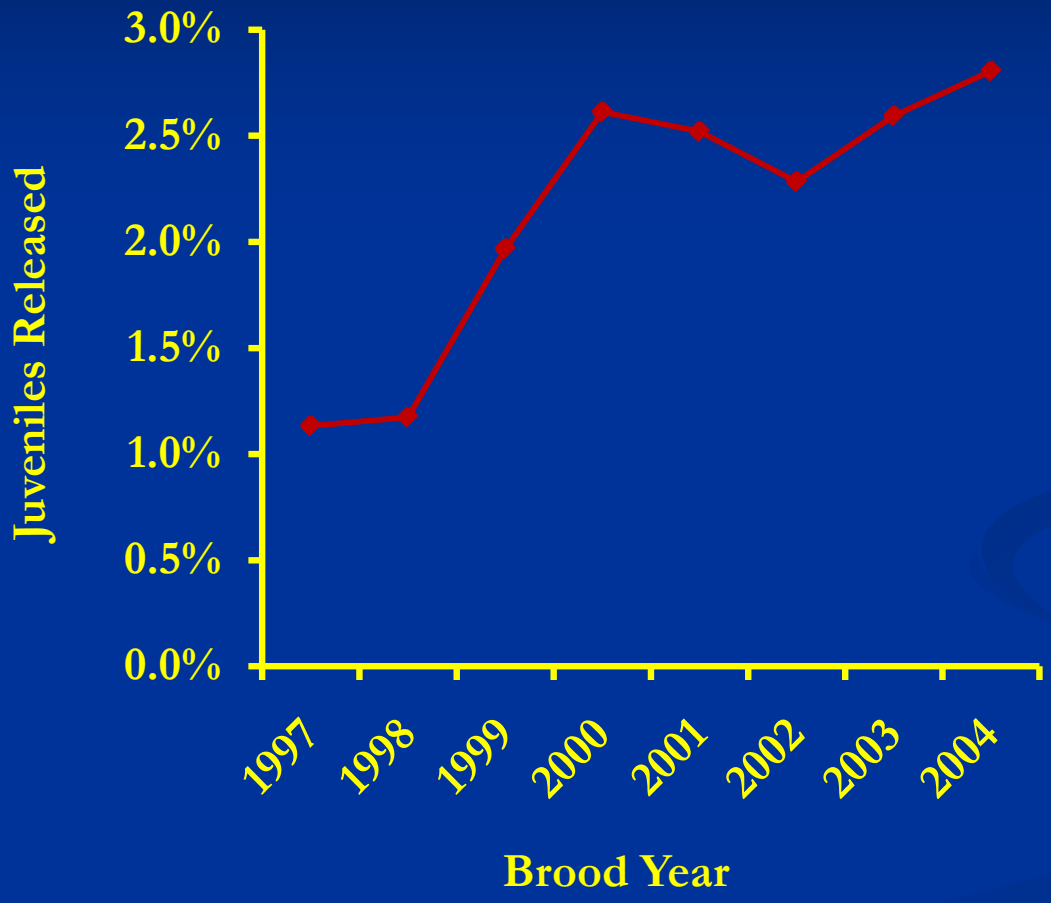
Spawner Distribution

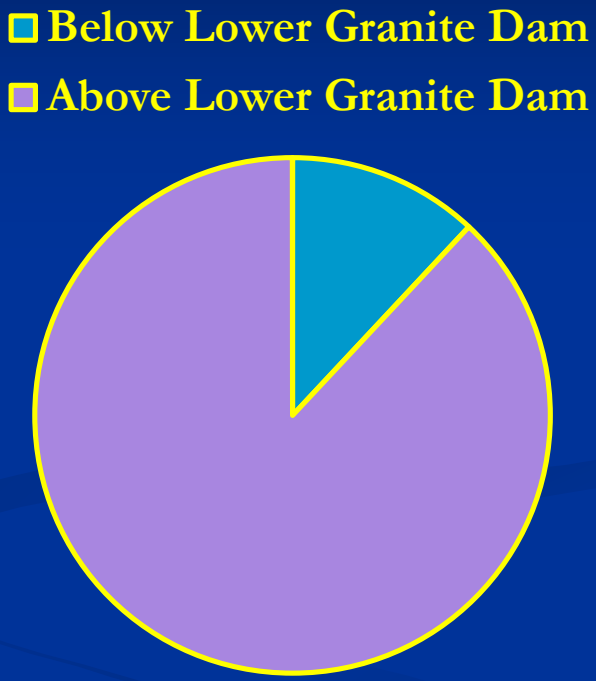


Results:
Straying and Disease

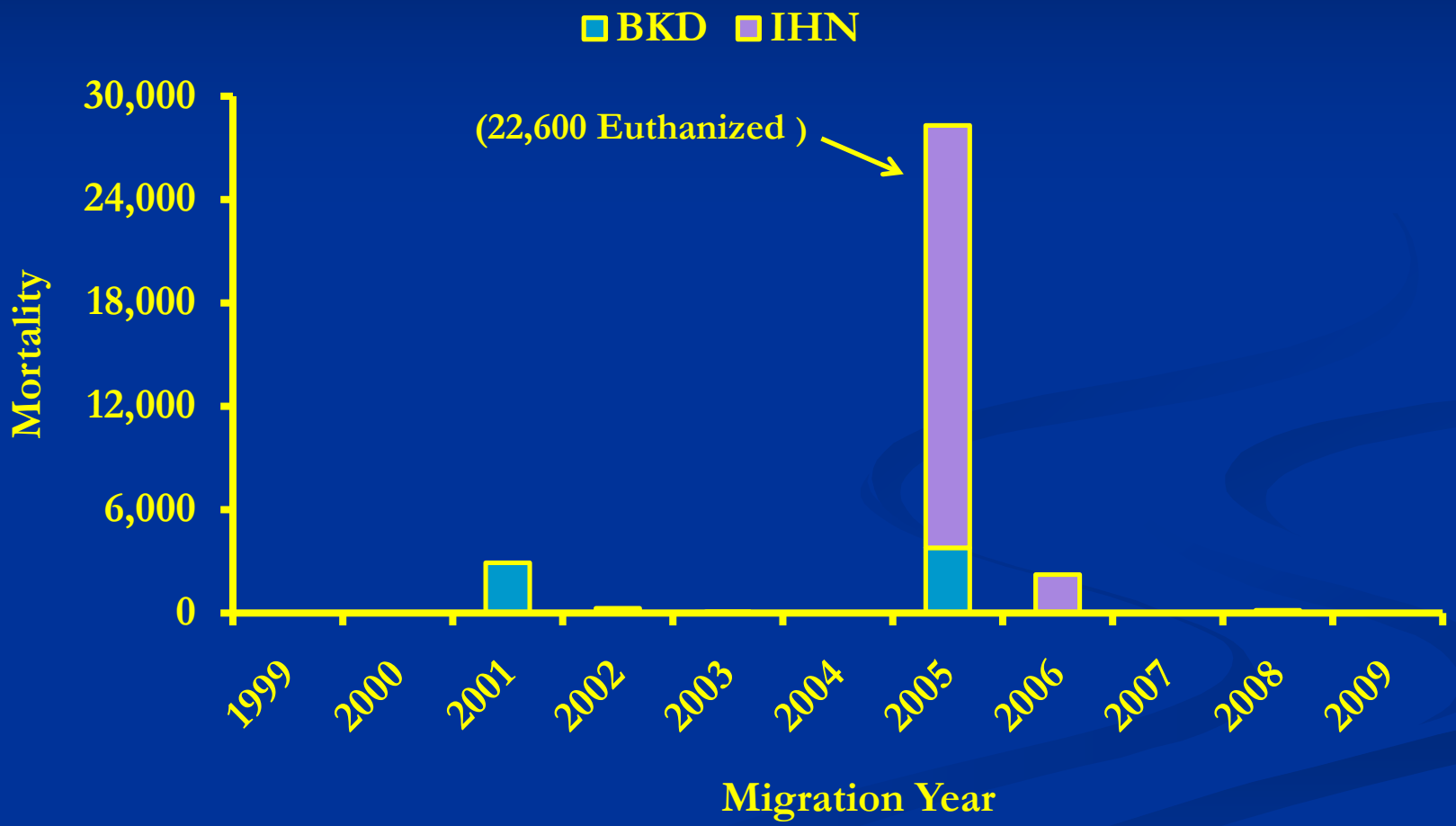


Results:
Straying of Hatchery Fish





Results:
Mortality Due to Disease



Summary of Results

- Supplementation did increase overall abundance and provide harvest opportunities
- Differences in age at return exist between natural and hatchery fish
- Adult recruitment dropped below 1.0 during brood years 2001 to 2004.

Acknowledgements

Resource Co-Managers and Funding Agencies

LOWER SNAKE RIVER COMPENSATION PLAN
Hatchery Program

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OREGON
Fish & Wildlife

Questions