Steelhead Kelt Reconditioning Program Update

Presented by:

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Acknowledgements:

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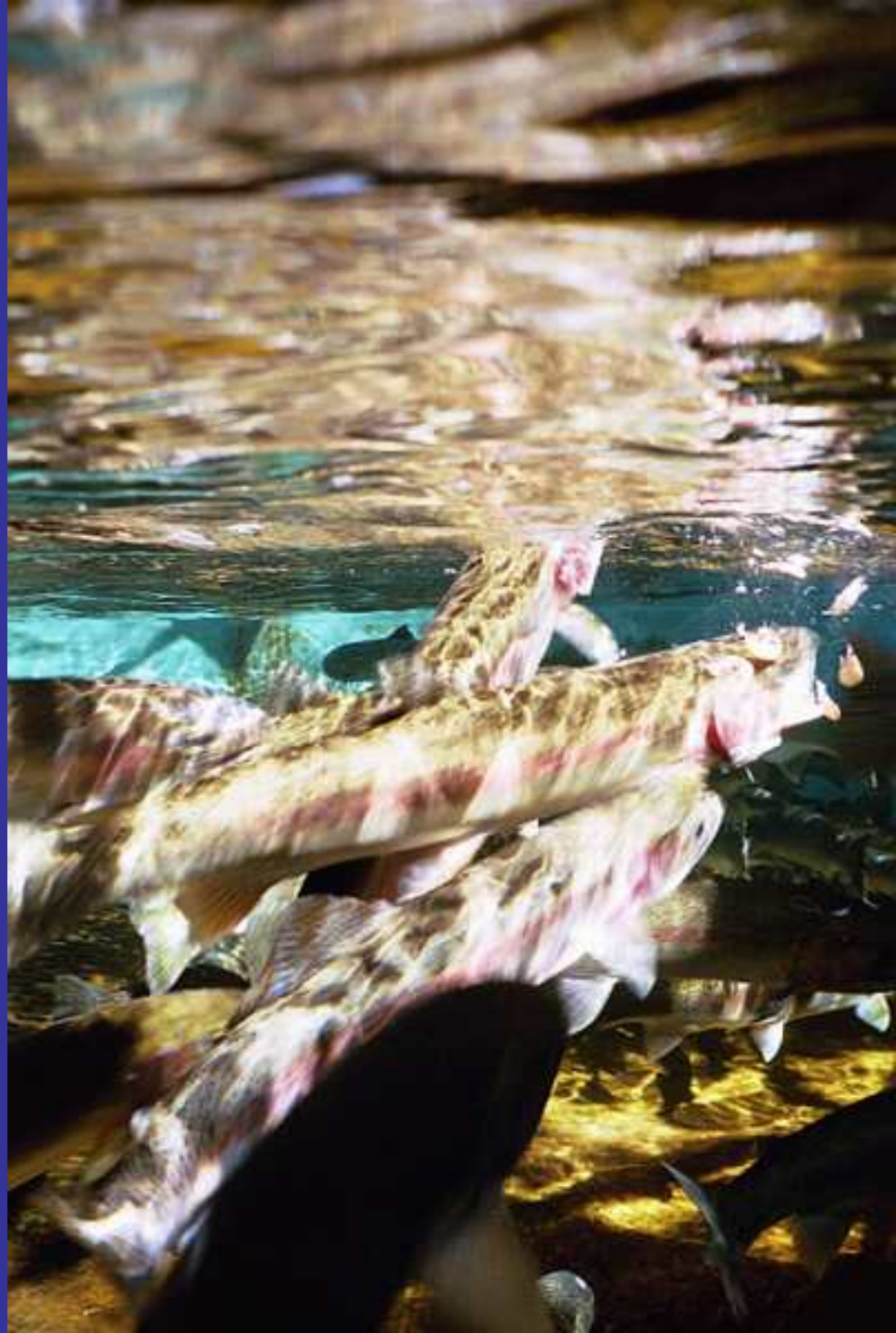
Prosser Hatchery Crew

Columbia River Inter-Tribal Fish Commission

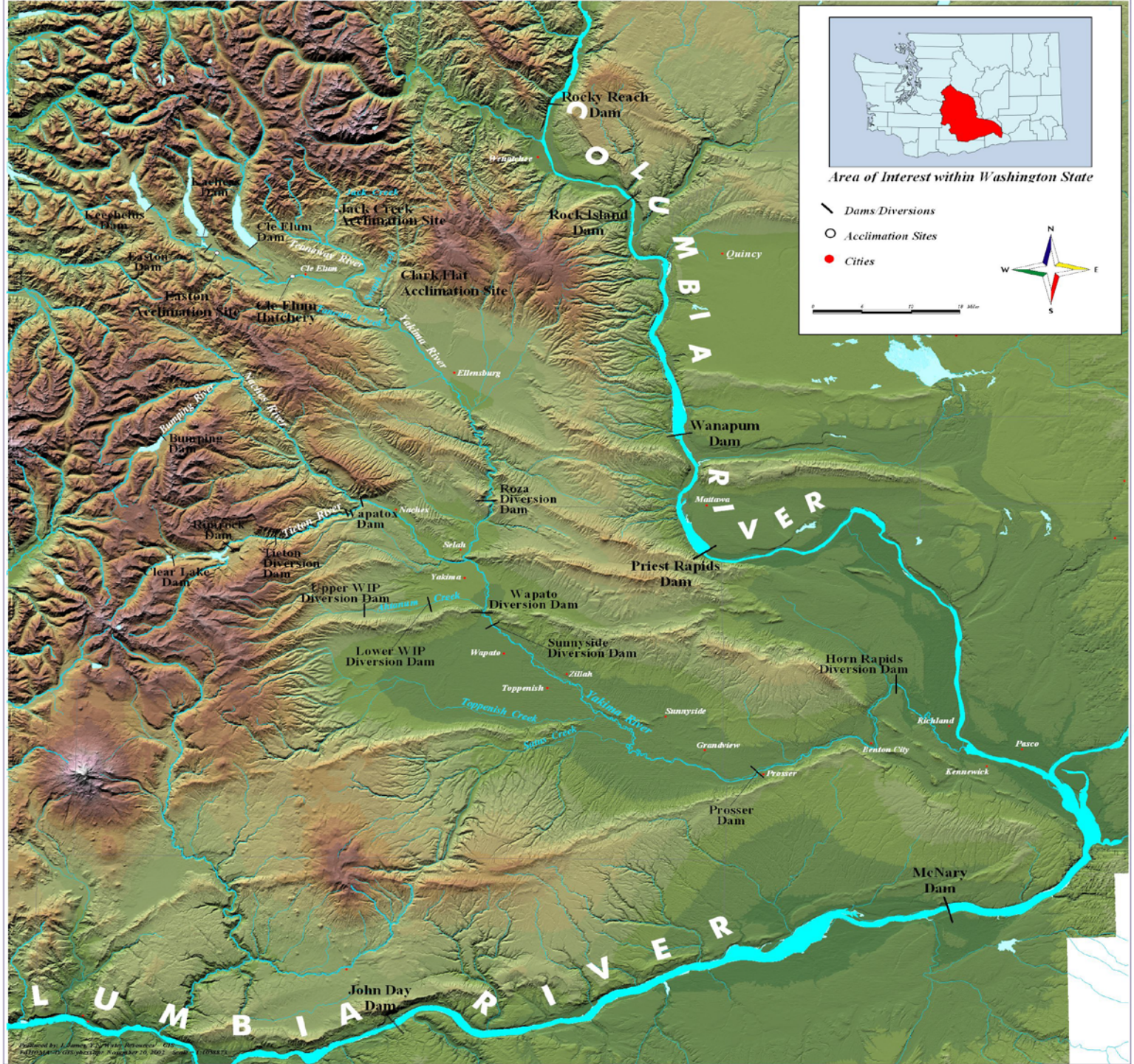
Bonneville Power Administration

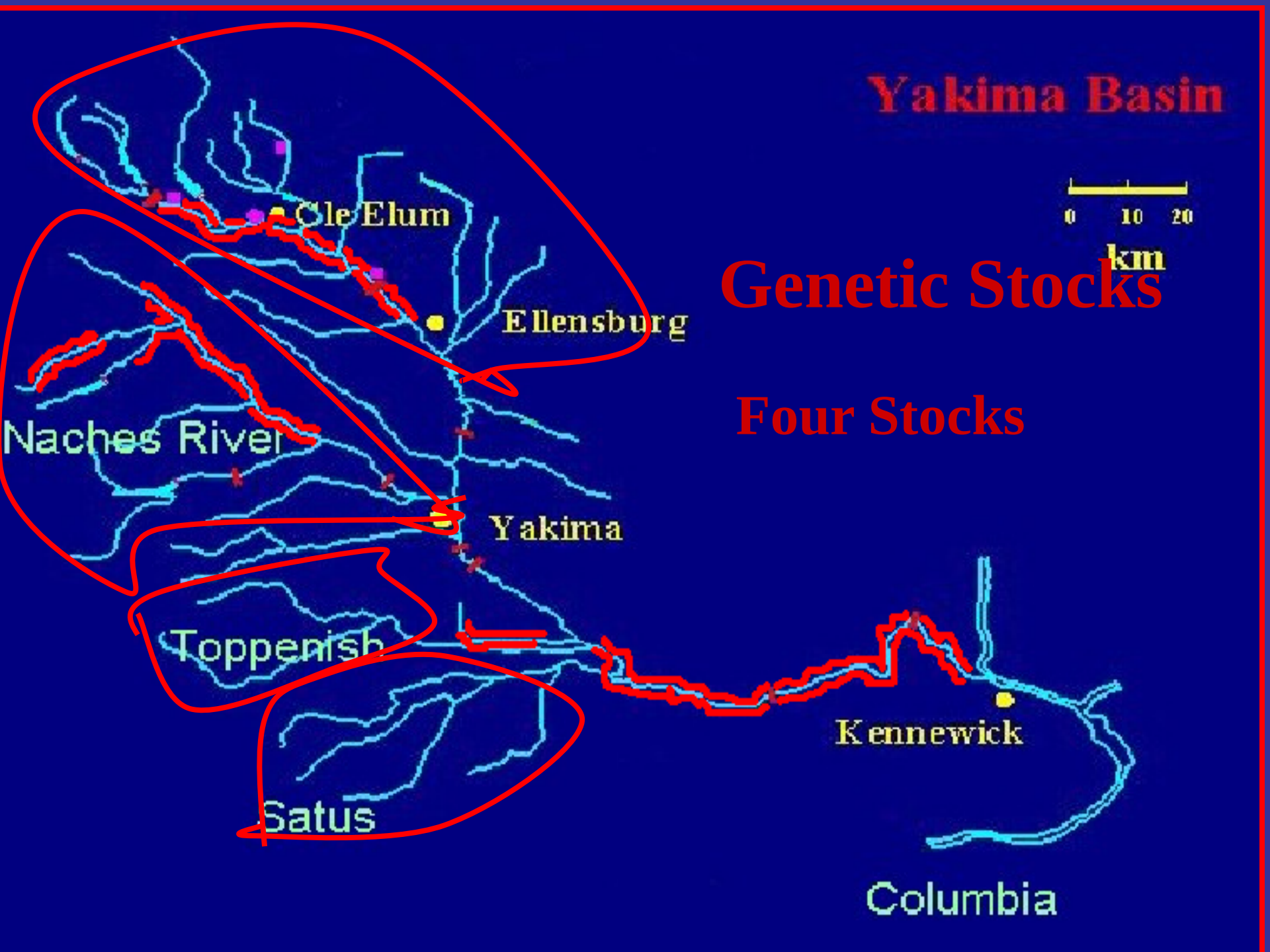
Pacific States Marine Fisheries Commission



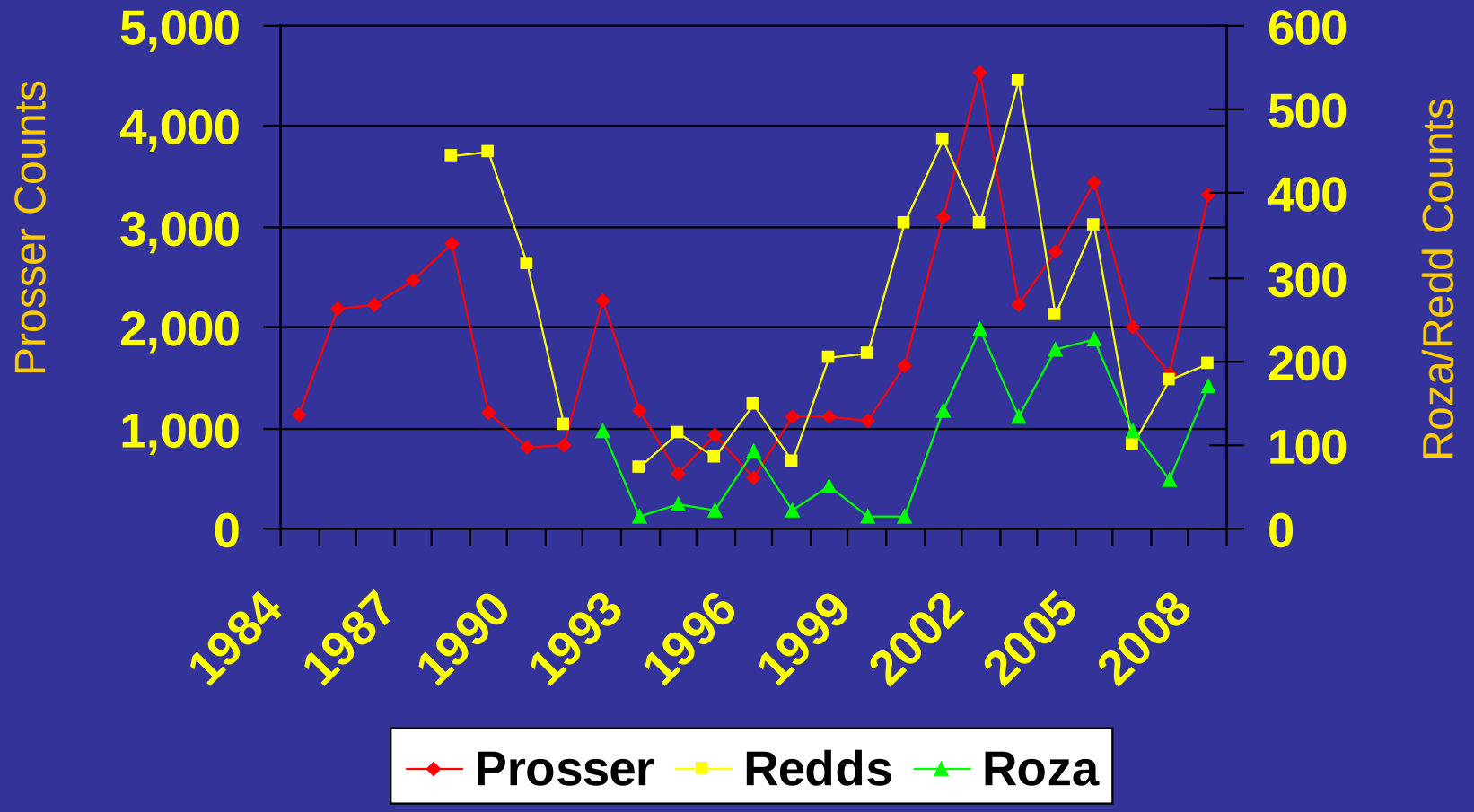
Kelt Reconditioning:

A Research Project to Enhance Multiple Spawning in the Yakima Basin Steelhead (*Oncorhynchus mykiss)*


Area of Interest within Washington State
Dams/Diversions
Acclimation Sites
Cities
N
S
E
W
Rocky Reach Dam
Rock Island Dam
Wanapum Dam
Priest Rapids Dam
Roza Diversion Dam
Wapato Diversion Dam
Sunnyside Diversion Dam
Horn Rapids Diversion Dam
Prosser Dam
McNary Dam
John Day Dam
Lower WIP Diversion Dam
Upper WIP Diversion Dam
Tieton Diversion Dam
Wapatox Dam
Bumping Dam
Clear Lake Dam
Keechelus Dam
Easton Dam
Cle Elum Dam
Jack Creek Acclimation Site
Clark Flat Acclimation Site
Easton Acclimation Site
Cle Elum Hatchery
COLUMBIA RIVER
Yakima River
Naches River
Bumping River
Tieton River
Teanaway River
Cle Elum
Ellensburg
Yakima
Selah
Naches
Wapato
Zillah
Toppenish
Sunnyside
Grandview
Prosser
Benton City
Kennewick
Pasco
Richland
Mattawa
Quincy
Wenatchee
Toppenish Creek
Satus Creek
Ahtanum Creek

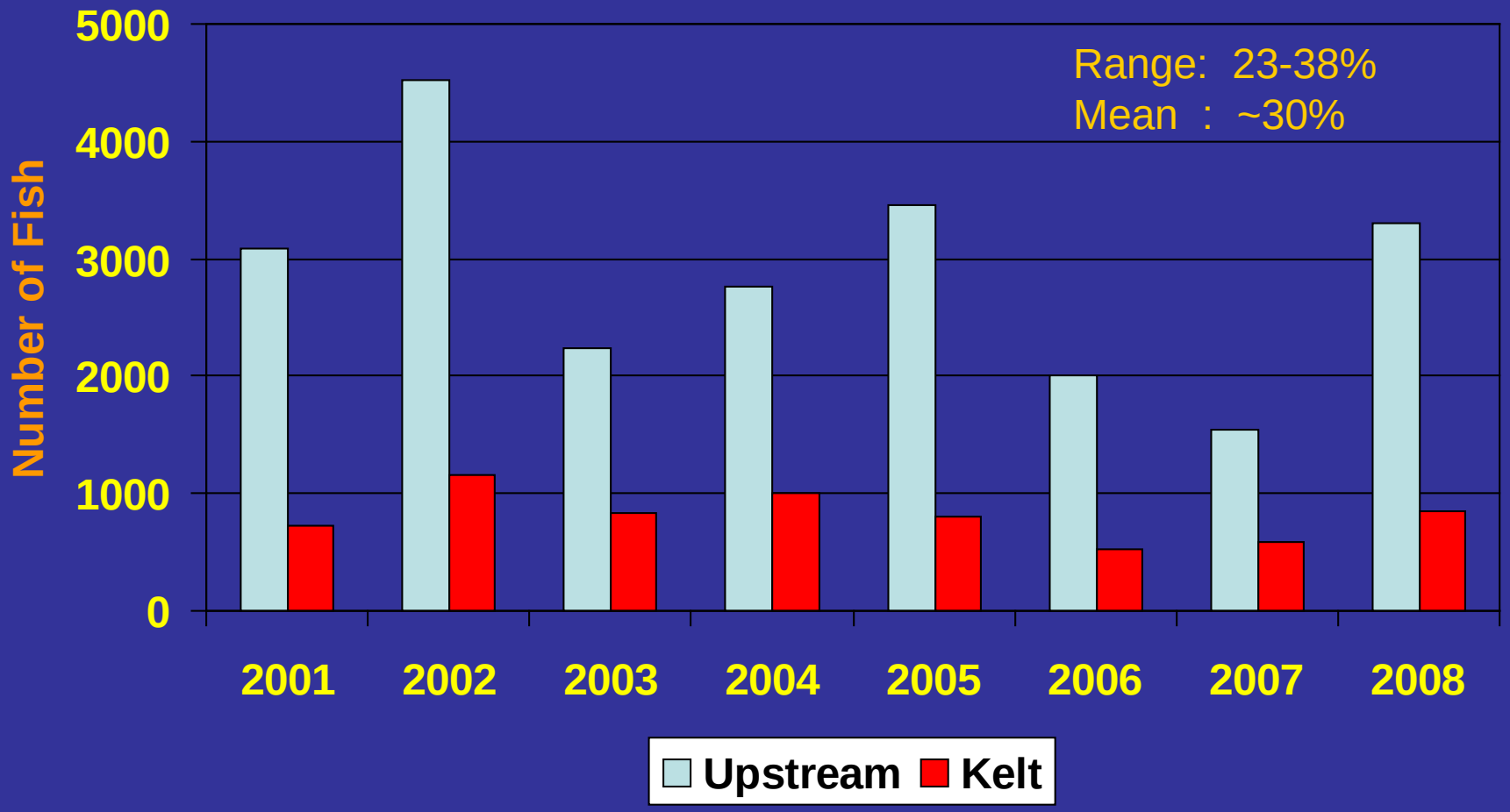

Yakima Basin
0 10 20
km
Genetic Stocks
Four Stocks
Cle Elum
Ellensburg
Naches River
Yakima
Toppenish
Satus
Kennewick
Columbia

Yakima Steelhead Escapement Trends, 1984 – Present



Can Kelt Reconditioning be used to increase abundance and productivity?

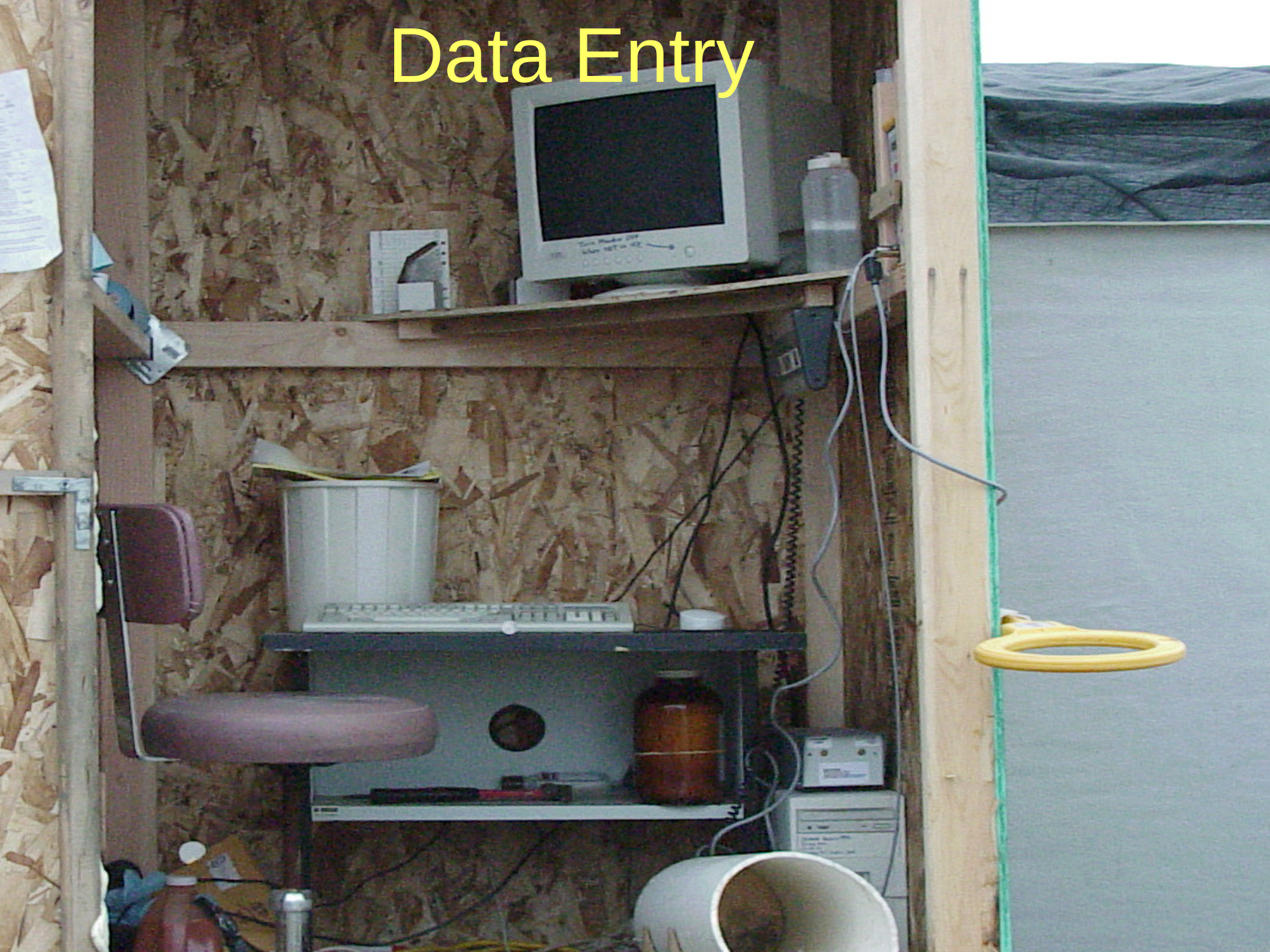
Chandler Kelt Collection, 2001-08

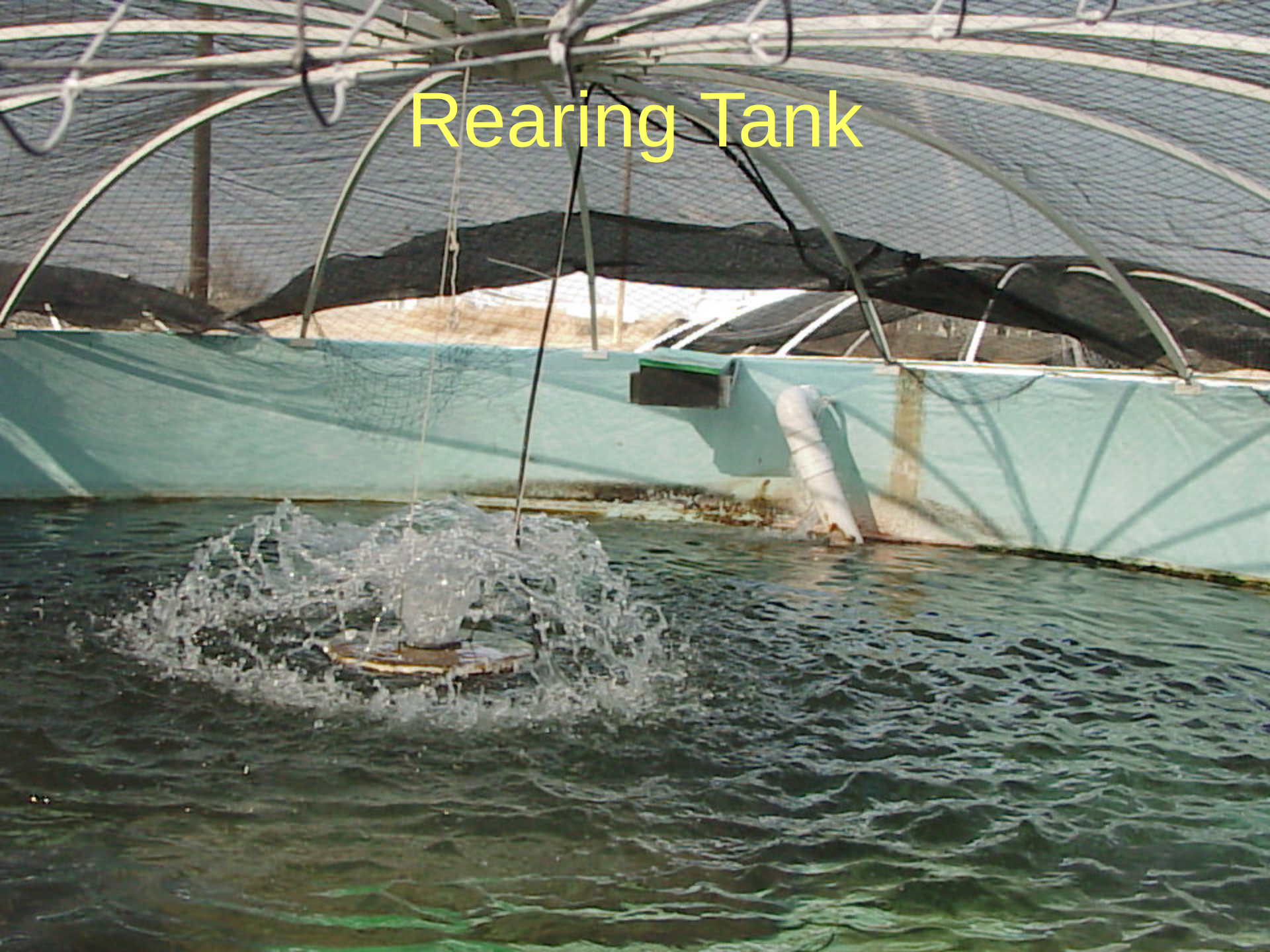


Existing Conditions
C4
C1

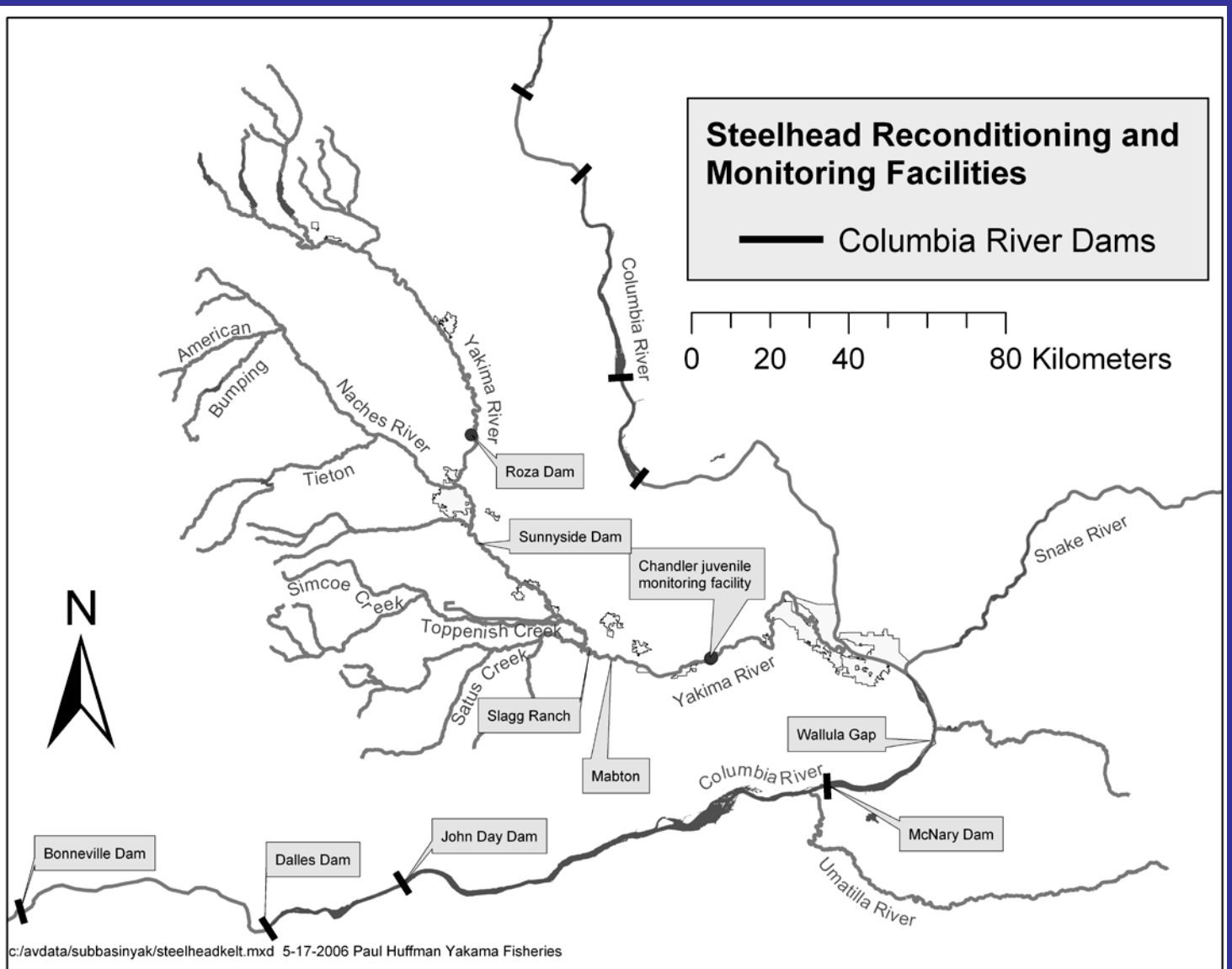
Desired Future
Conditions

Data Entry




Rearing Tank

Management Scenarios

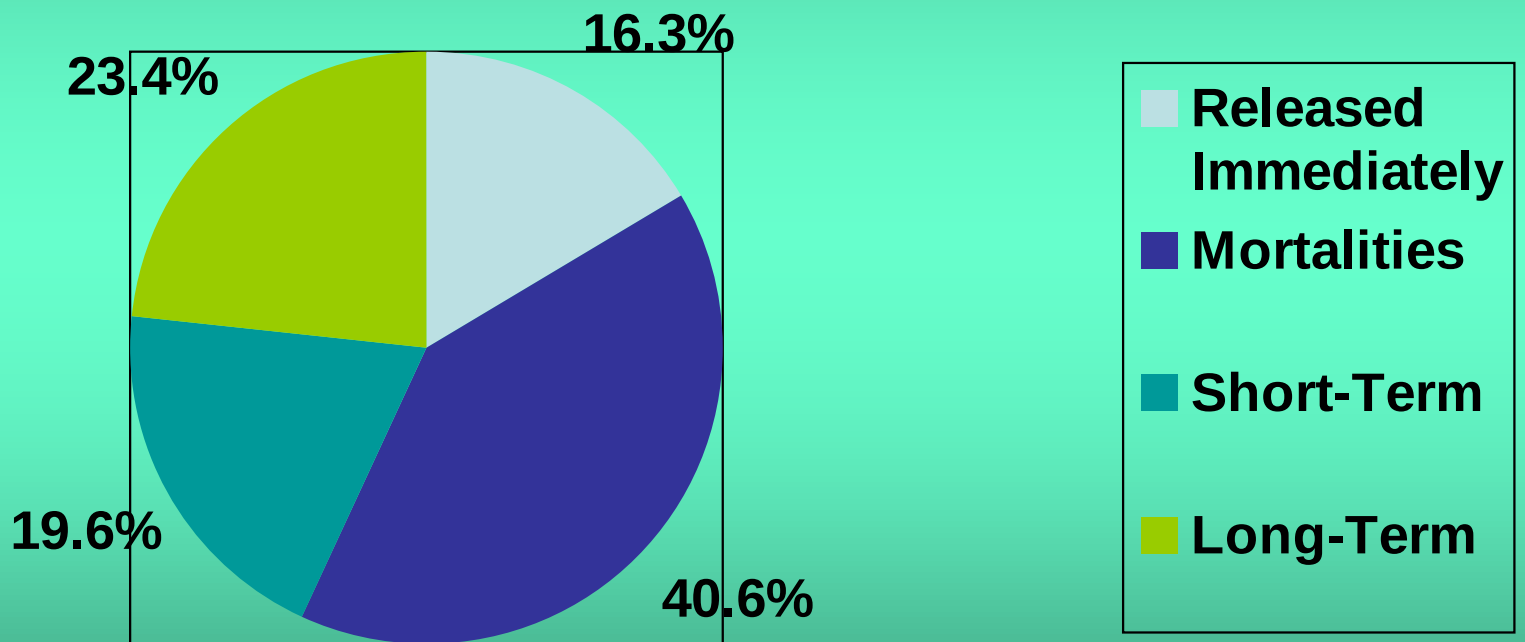


1. Direct Release
2. No-Term
3. Short-Term
4. Long-Term

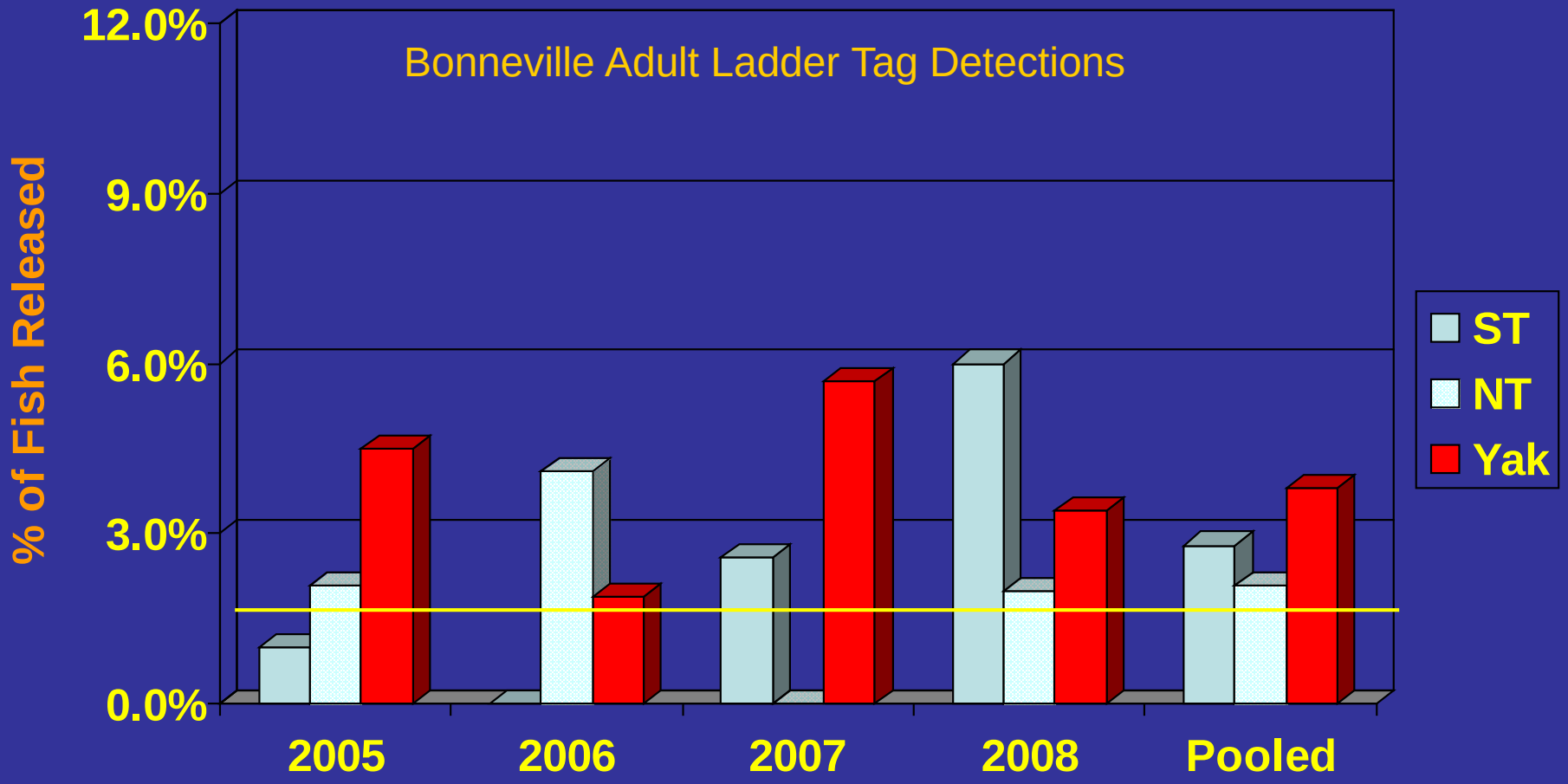
CURRENT KELT RESEARCH PROGRAM

- DIRECT - IMMEDIATE RELEASE
- NO TERM – TRUCKED NO FOOD
- SHORT TERM – TRUCKED BELOW BONNEVILLE DAM W/FOOD
- LONG TERM – RELEASE IN YAKIMA
- REPRODUCTIVE SUCCESS

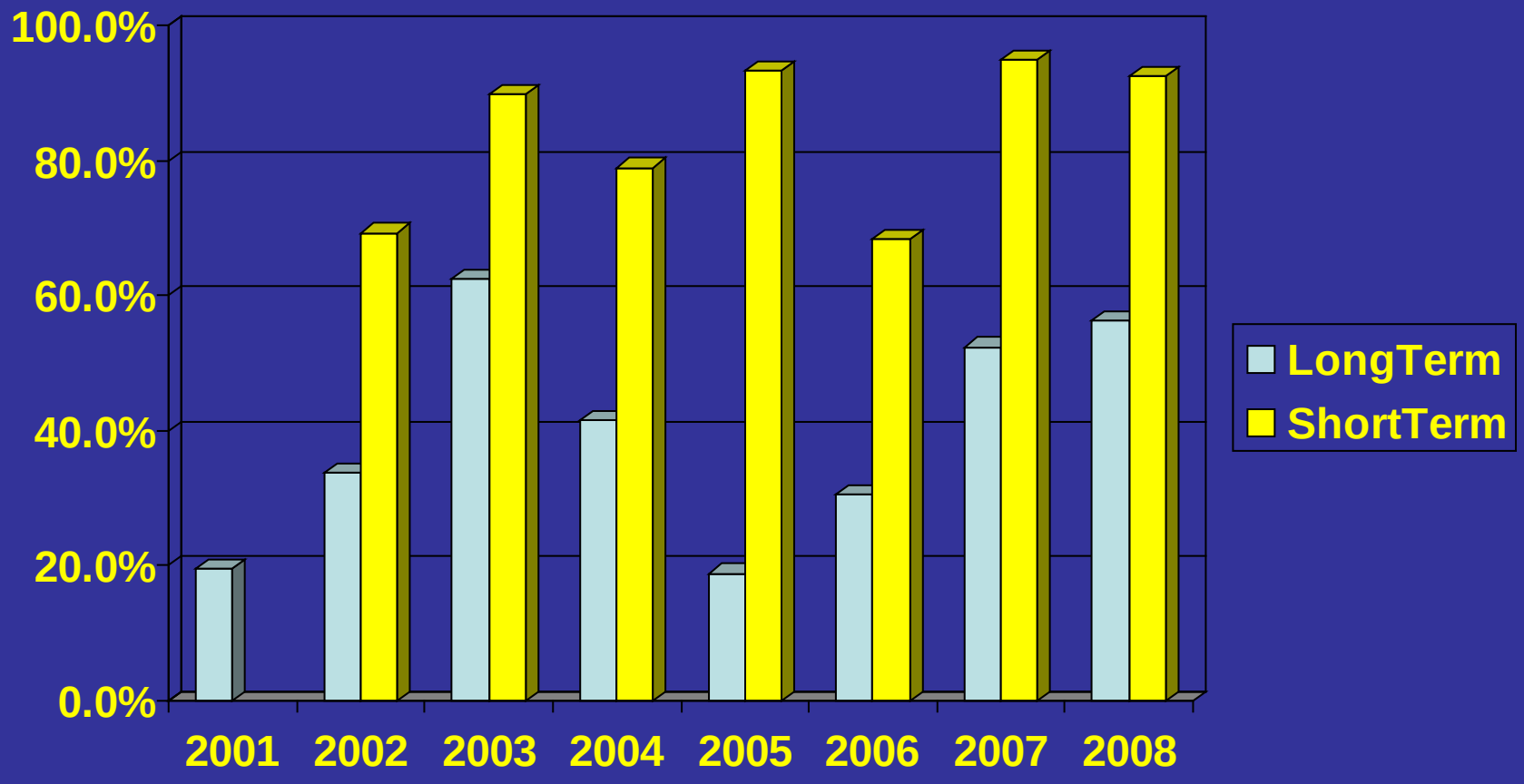
Kelt Disposition, 2001-08



Survival Comparison of Short- and No-Term Reconditioned Kelts to 'Baseline' Iteroparity

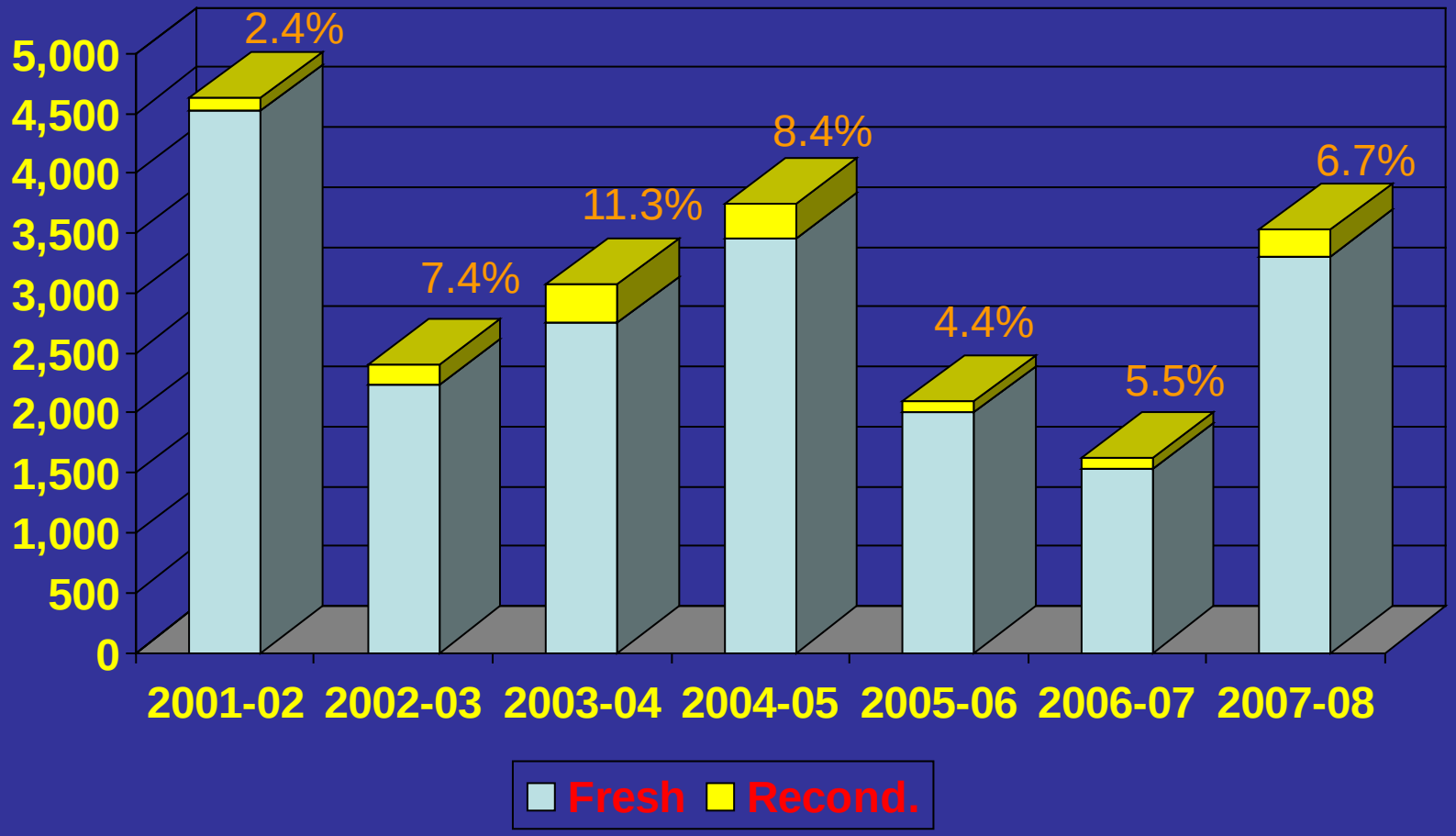


Short- and Long-Term Survival of Reconditioned Kelts to Release



GLACIER
GLOVE

Yakima R. Steelhead Escapement with Reconditioning



Percentage increase in escapement due to reconditioning.

Summary of Knowns

- Kelts in poor condition don’t survive
- Shrimp krill – starter feed; pellets for maintenance
- Long-term reconditioning can greatly increase survival (~40%) vs. in-river (~3%)
- Short-term reconditioning can improve kelt survival *in some years*

Summary of Unknowns

- Relative reproductive success rates
- Long-term gonad re-maturation and viability
- What environmental cues are necessary and sufficient for repro. success?
- Factors affecting survival of short-term fish

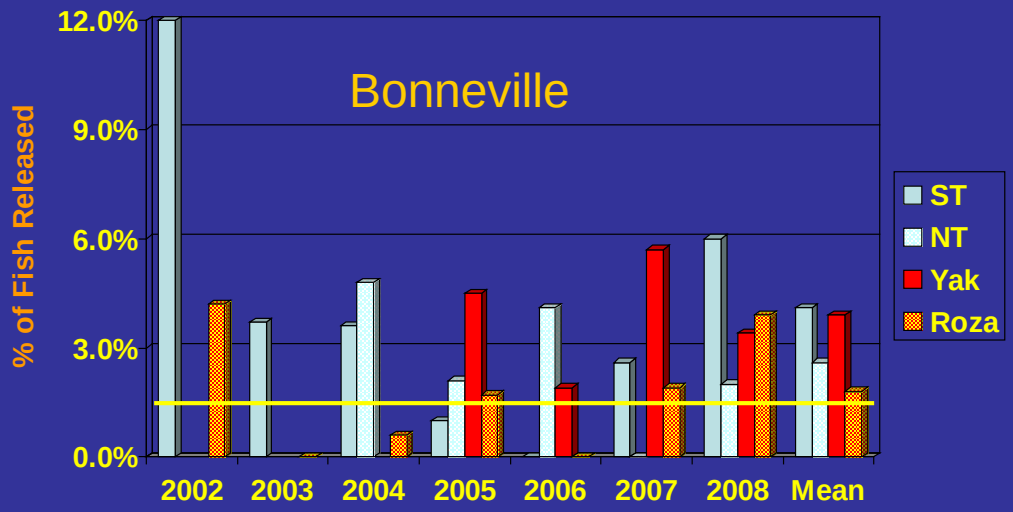
QUESTIONS?
YKFP.ORG

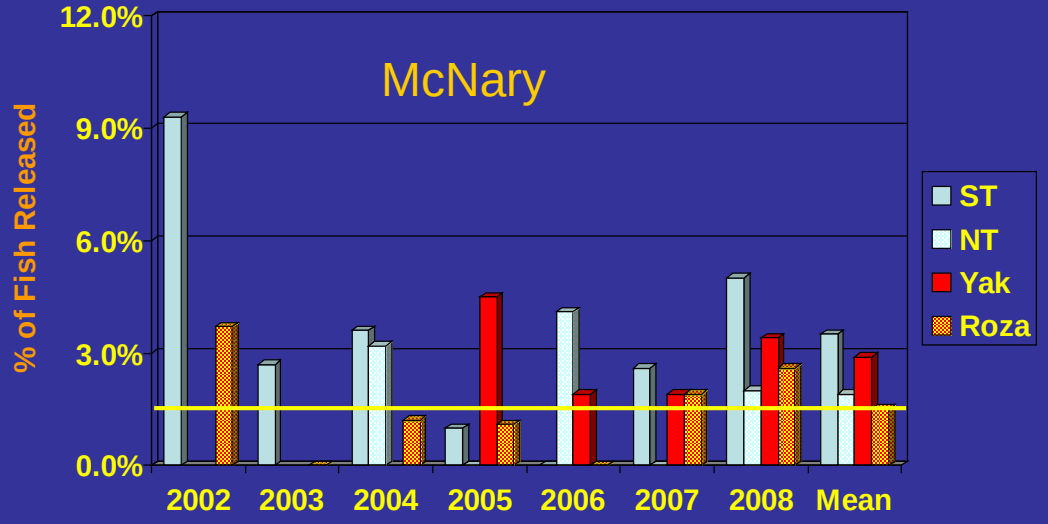
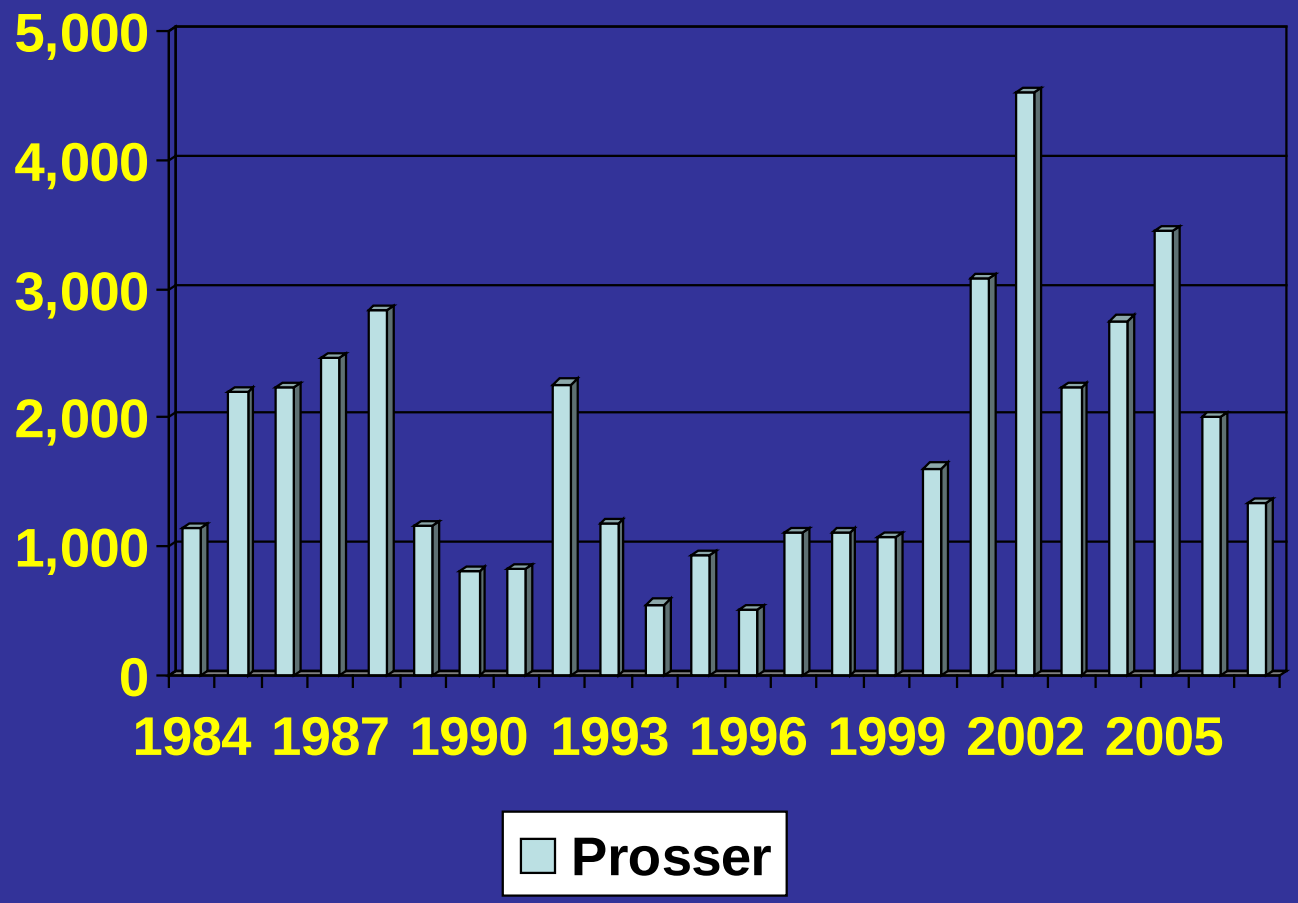
Steelhead Biologist

Bonefish Biologist

Existing Steelhead Reconditioning Area

Survival Comparison of Short- and No-Term Reconditioned Kelts to 'Baseline' Iteroparity





Yakima River Steelhead Returns, 1984 – Present