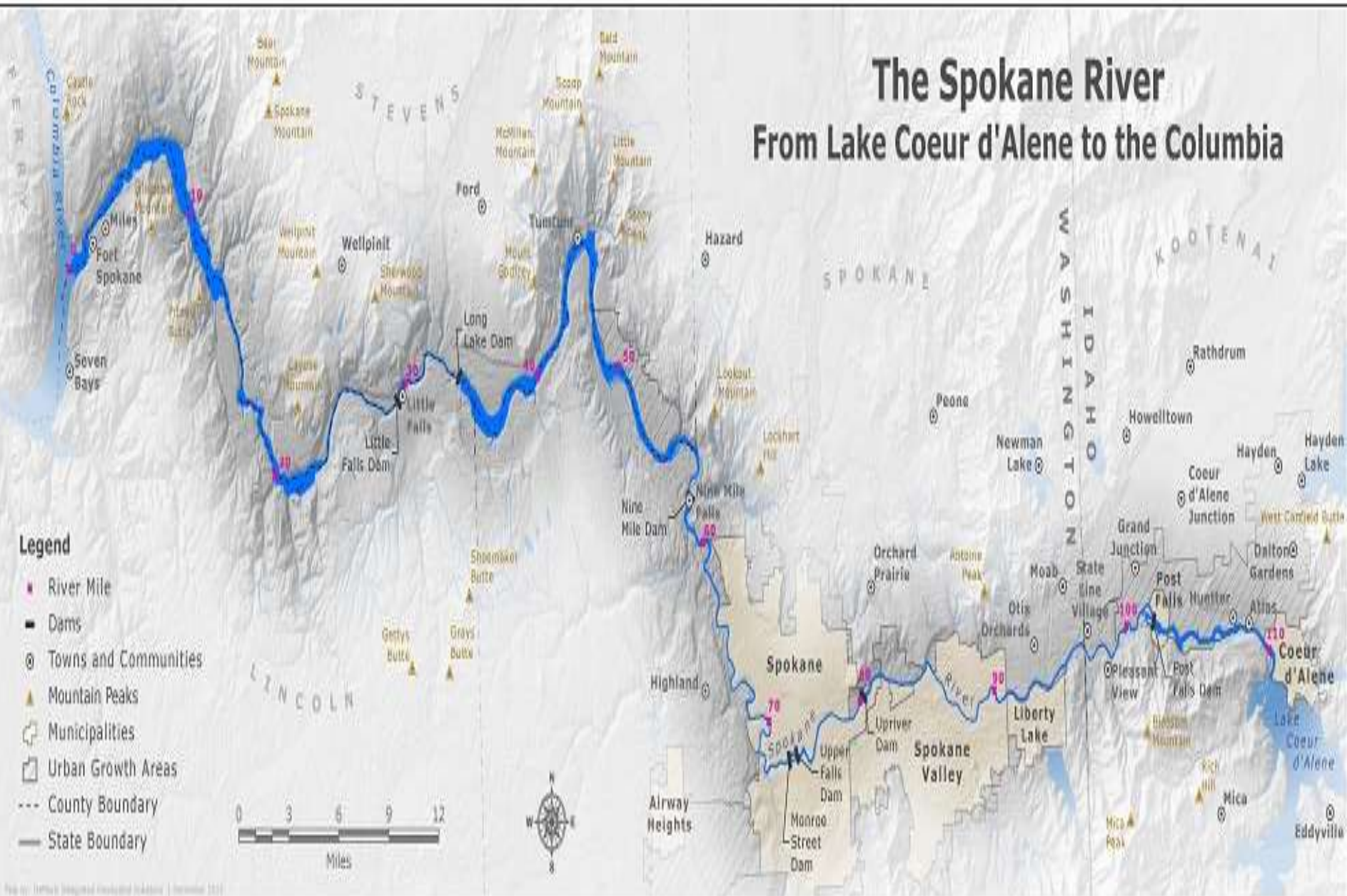


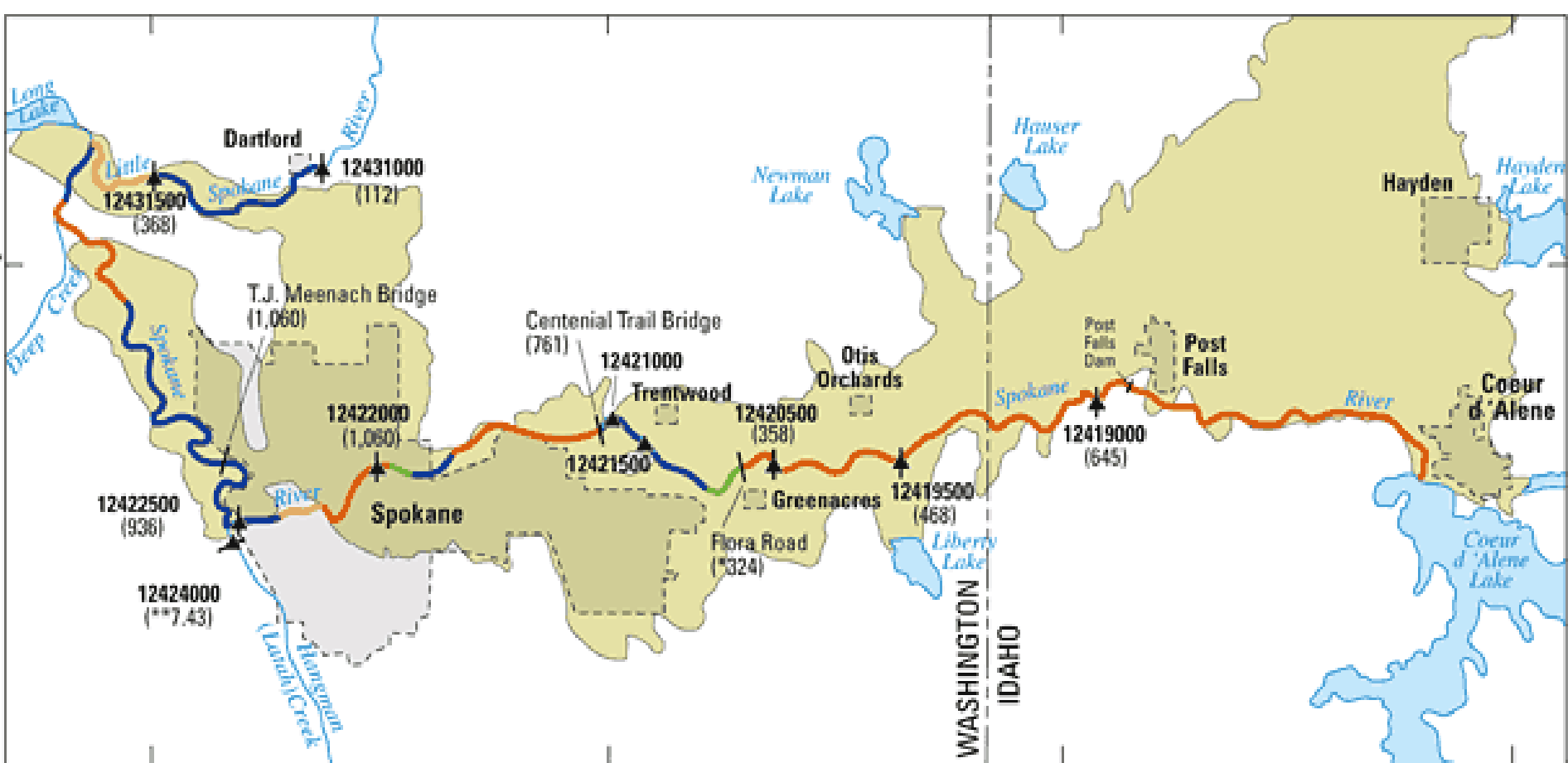
Abundance of Smallmouth Bass in the Upper Spokane River

By Taylor McCroskey

Spokane River

The Spokane River From Lake Coeur d'Alene to the Columbia





EXPLANATION

 2005 REVISED EXTENT OF SPOKANE VALLEY—
RATHDRUM PRAIRIE AQUIFER

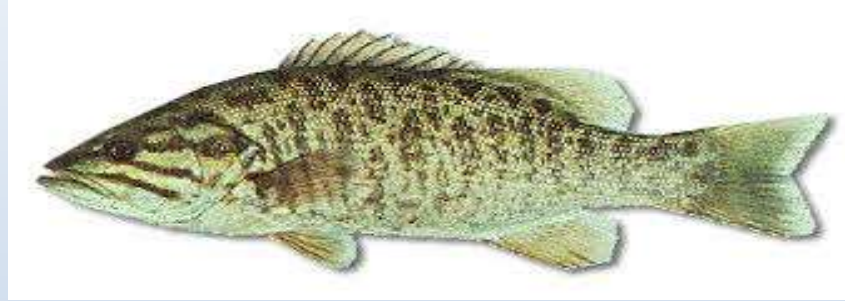
AVERAGE ANNUAL REACH CHARACTERISTICS FROM MacINNIS AND OTHERS, 2004

-  Gaining Reach
-  Losing Reach
-  Transitional Reach
-  Minimal Interaction

 U.S. GEOLOGICAL SURVEY GAGING
STATION AND IDENTIFICATION NO.



Smallmouth Bass *(Micropterus dolomieu)*



- Non-native species to Spokane River
- Shown to be highly predatorial and extremely invasive
- WDFW 2009 estimate in upper Spokane River
 - Abundance estimate (95% C.I.): 908 (524-1691)
 - Density estimate (95% C.I.): 100 (58-186)

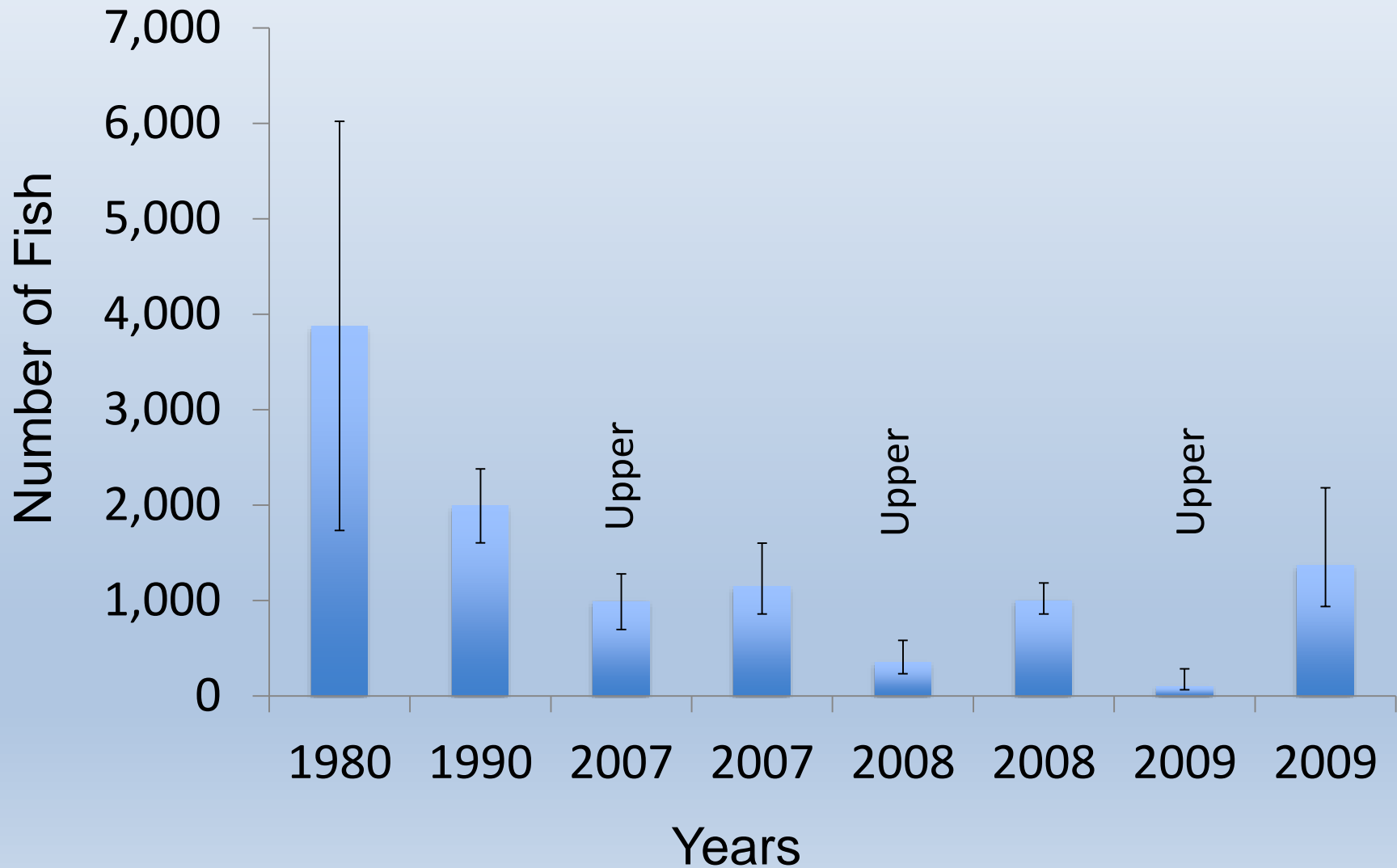
Columbia Redband Trout

(Oncorhynchus mykiss var. gairdneri)

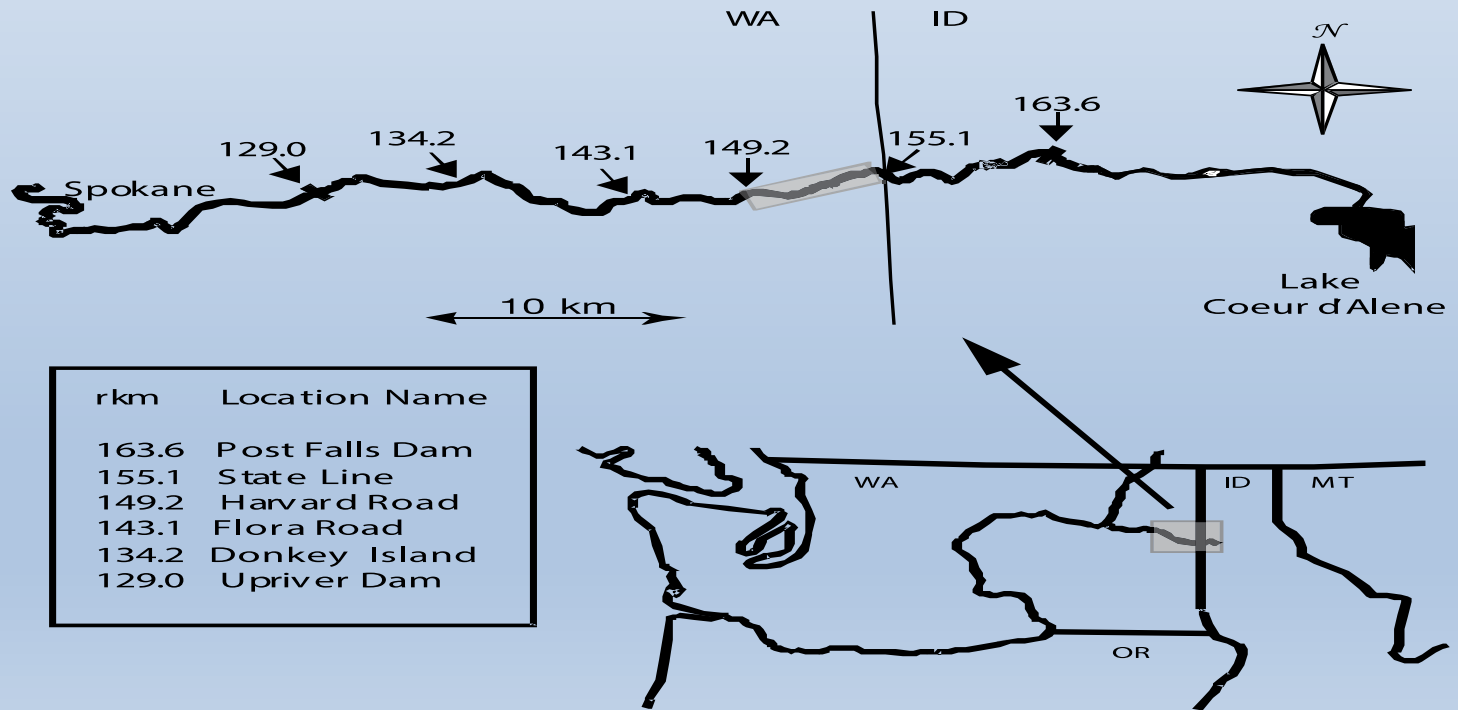
- Native to Spokane River
- Species at risk
- Population decline in Upper Spokane River



Redband Trout abundance in upper Spokane River



Objective: Obtain population and density estimate for Smallmouth Bass from Stateline to Harvard Road



Mark-Recapture

- SMB captured by Electrofishing & Angling
- All SMB were: measured TL (mm), weighed (g), scales taken, and either marked with Floy ($\geq 150\text{mm}$) or Elastomer ($\leq 150\text{mm}$), as well a pelvic fin clip



Data Analysis

Population estimate using Mark/Recap

- POPAN model, open population parameter estimator, in MARK program.
- $\geq 200\text{mm TL}$ and $\geq 150\text{mm TL}$

Density

- Estimated abundance (N) by length of river sampled (km)

Size/Weight

- Frequency of Occurrence

Catch per unit effort (CPUE)

- Number of fish caught (N) by the total effort (hr)

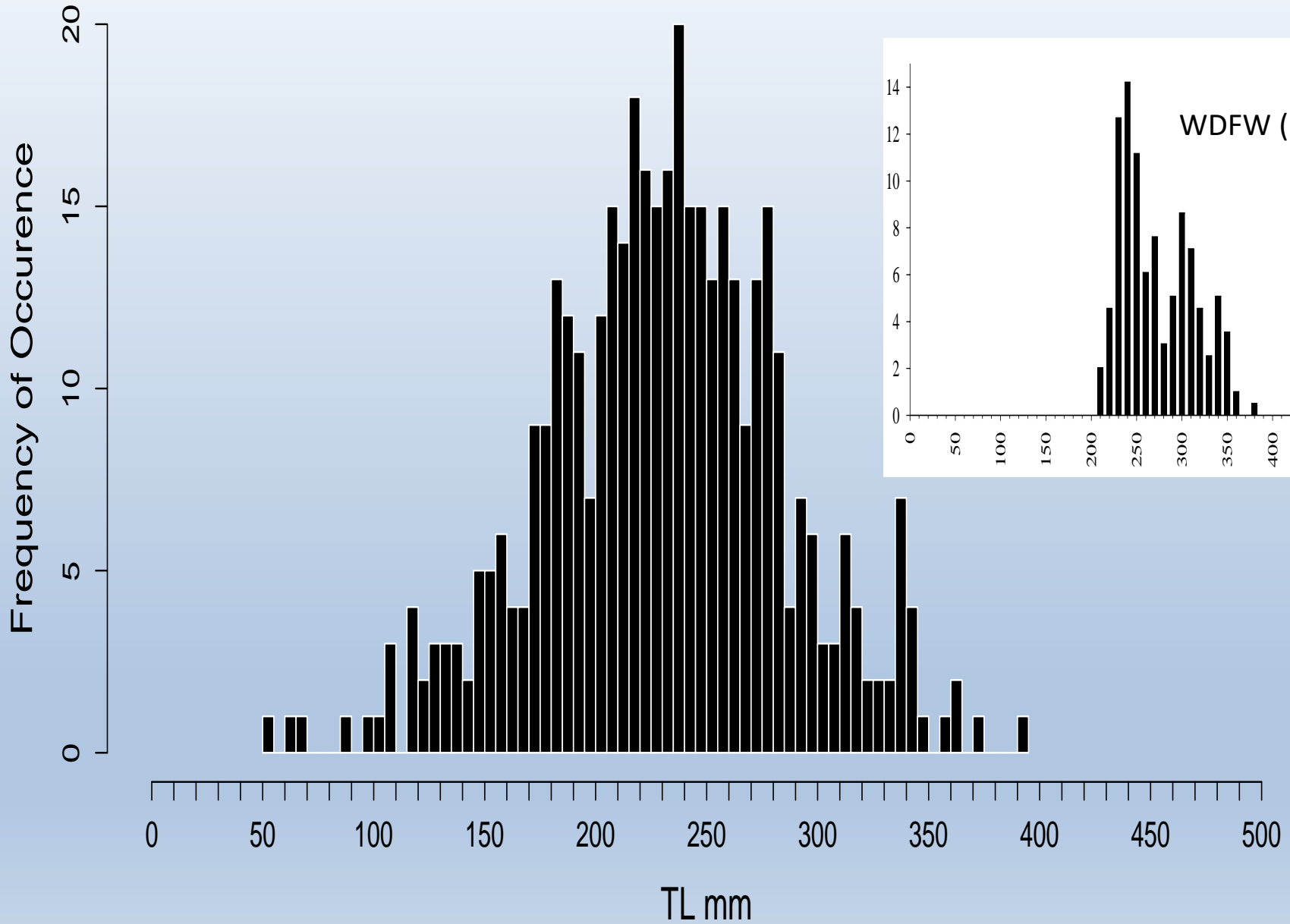
SMB Abundance Estimate

Year	Size Class (TL)	Estimate (N; 95% C.I.)	SE	Denisty (fish/km)
2009	≥ 200mm	908 (524-1691)	284	100
2015	≥ 150 mm	1645 (1,171-2,310)	287	284
	≥ 200mm	1307 (945-1,807)	218	225

Mean TL (\pm SD) and Weight (\pm SD)

		Total Length		Weight	
Date	n	Mean	Range	Mean	Range
2009	190	269 (41)	206-422	255 (134)	108-855
2015	410	232 (55)	63-395	181 (111)	4-607

2015 SMB (EWU)



CPUE 2009 vs 2015

Date	n	Mean Effort (hr)	Mean CPUE (fish/hr)
2009	168	5.4	10.6
2015	422	3.31	13.8

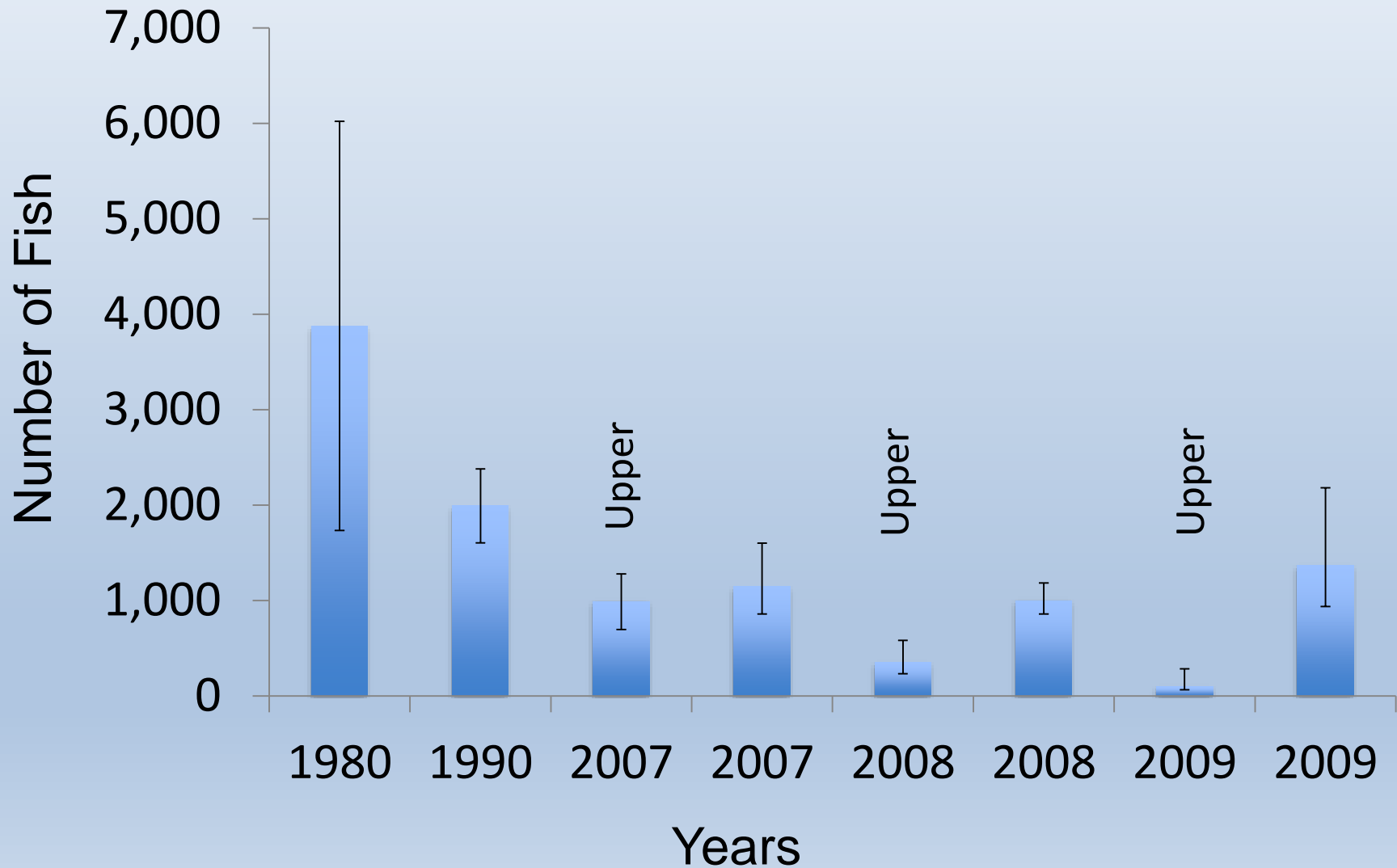
Discussion

- Population estimate: 2009 < 2015
- Density estimate: 2009 < 2015
- Size class: 2009 \cong 2015
- CPUE
 - 2009 < 2015
 - Angling \cong Electrofishing 2015

Management Implications

- Growth in Smallmouth Bass population between 2008 and 2015
 - 44% increase in population
 - 125% increase in density
- Decline of Redband Trout in Upper Spokane River
 - Possible correlation when SMB were introduced and the sharp decline of the redband trout population in Upper River

Redband Trout abundance in upper Spokane River



Thank you to:

- Washington Department of Fish & Wildlife
- Dr. Paul Spruell
- Dr. Allan Scholz
- Chuck Lee (WDFW)
- Graduate Committee Members
- Spokane Falls Chapter of Trout Unlimited
- Clearwater Fly Casters
- SilverBow Fly Shop
- EWU Fisheries Lab
- Kalispel Tribe of Indians
- Oregon Department of Fish and Wildlife





Thank you for your attention

Questions?