2017

BIGHORN

Fisheries Update

Drought forged this group and created current water plans. Is this an abundant water cycle since the plan has been in effect or is it more?

The reservoir and it's management is vital to the nation.
It serves many purposes including:
flood control, power production, irrigation, fisheries, and recreational opportunities.

FWP Fisheries Management Objective

- Provide for the Stewardship of the Bighorn River and Reservoir fisheries while contributing to the quality of life for present and future generations.

- ❑ **The Bighorn River Fishery is a world-class wild trout fishery.**
  - ❑ **The goal is maintain the fishery as a world-class fishery**
    - ❑ **Flow recommendations**
    - ❑ **Habitat enhancing activities**
    - ❑ **Regulations**

Water management is the largest contributor to the success or failure of the tailwater fishery. Dibble in print, states, "….rainbow trout recruitment was primarily correlated with high winter flow combined with low spring flow, whereas brown trout recruitment was most related to high water velocity.

This study was a review of 29 dams with tailwater trout fisheries with as many as 19 years of data including 17 years of data from the Bighorn River.

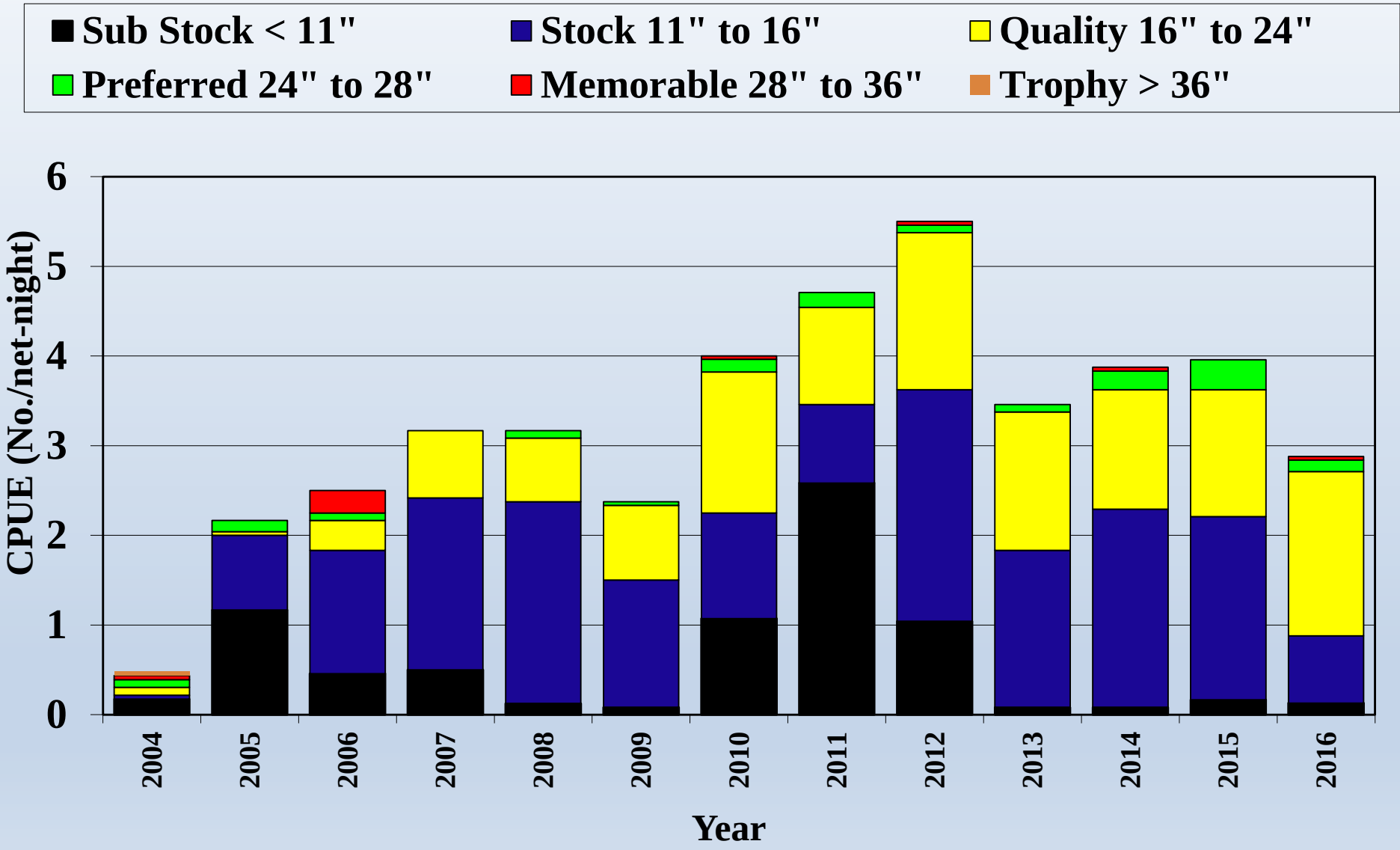
This work supports historic management plans, studies, and the current Management Plan as detailed in the Montana State-Wide Management Plan

Objective's Continued

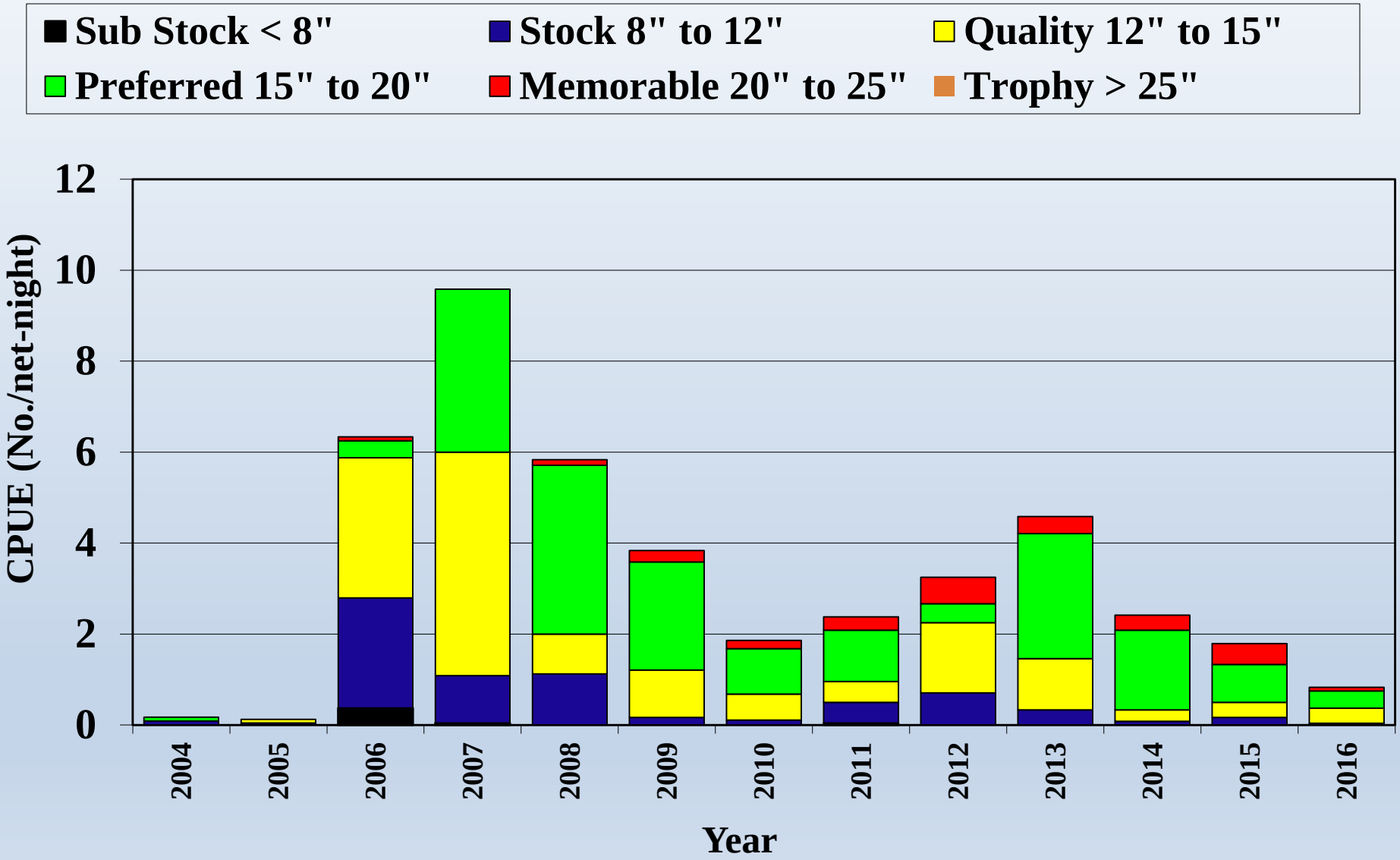
- **Bighorn Reservoir**
  - **Walleye and rainbow trout managed with wild and hatchery production- continue with walleye triploid stocking. Stocked Girard rainbow in 2015 and other strains as available.**
  - **Sauger, ling, catfish, brown trout, crappie, yellow perch, smallmouth bass dependent on wild production.**
  - **Regulation changes increased limit of smallmouth bass 10 daily and 20 possession.**

Bighorn Reservoir Fishery

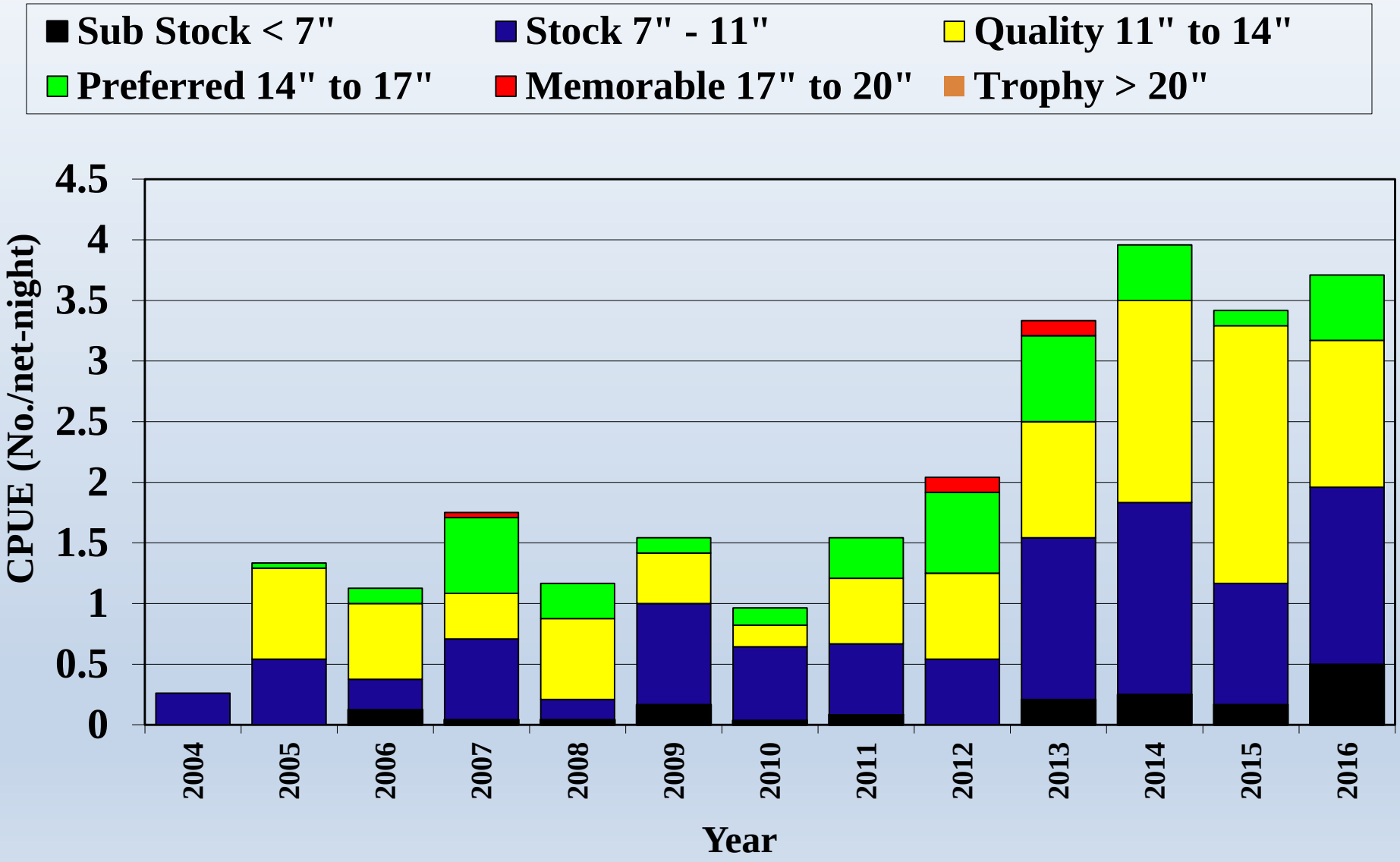
Channel Catfish Catch Rate by Size Category



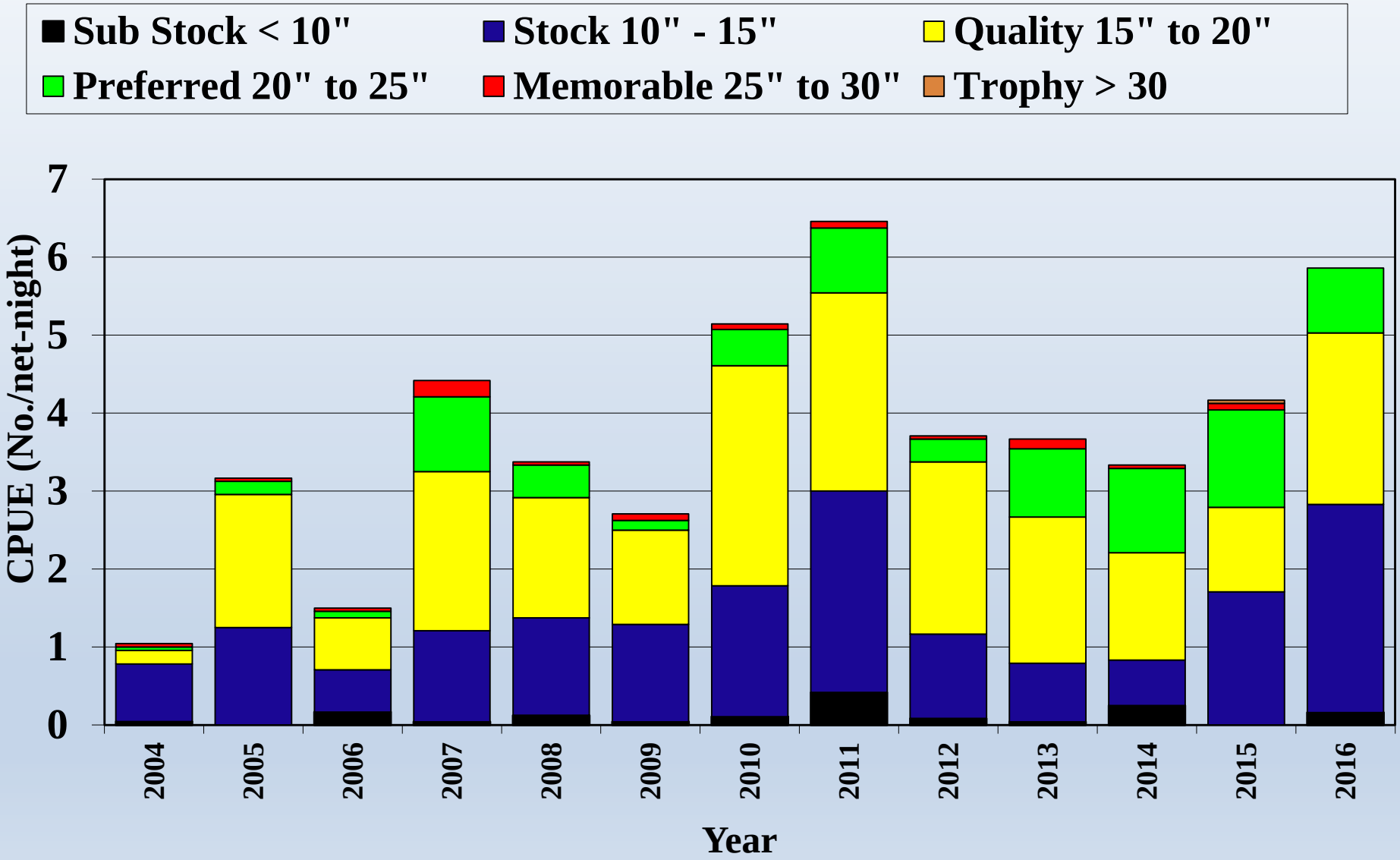
Sauger Catch Rate by Size Category



Smallmouth Bass Catch Rate by Size Category



Walleye Catch Rate by Size Category



Bighorn River

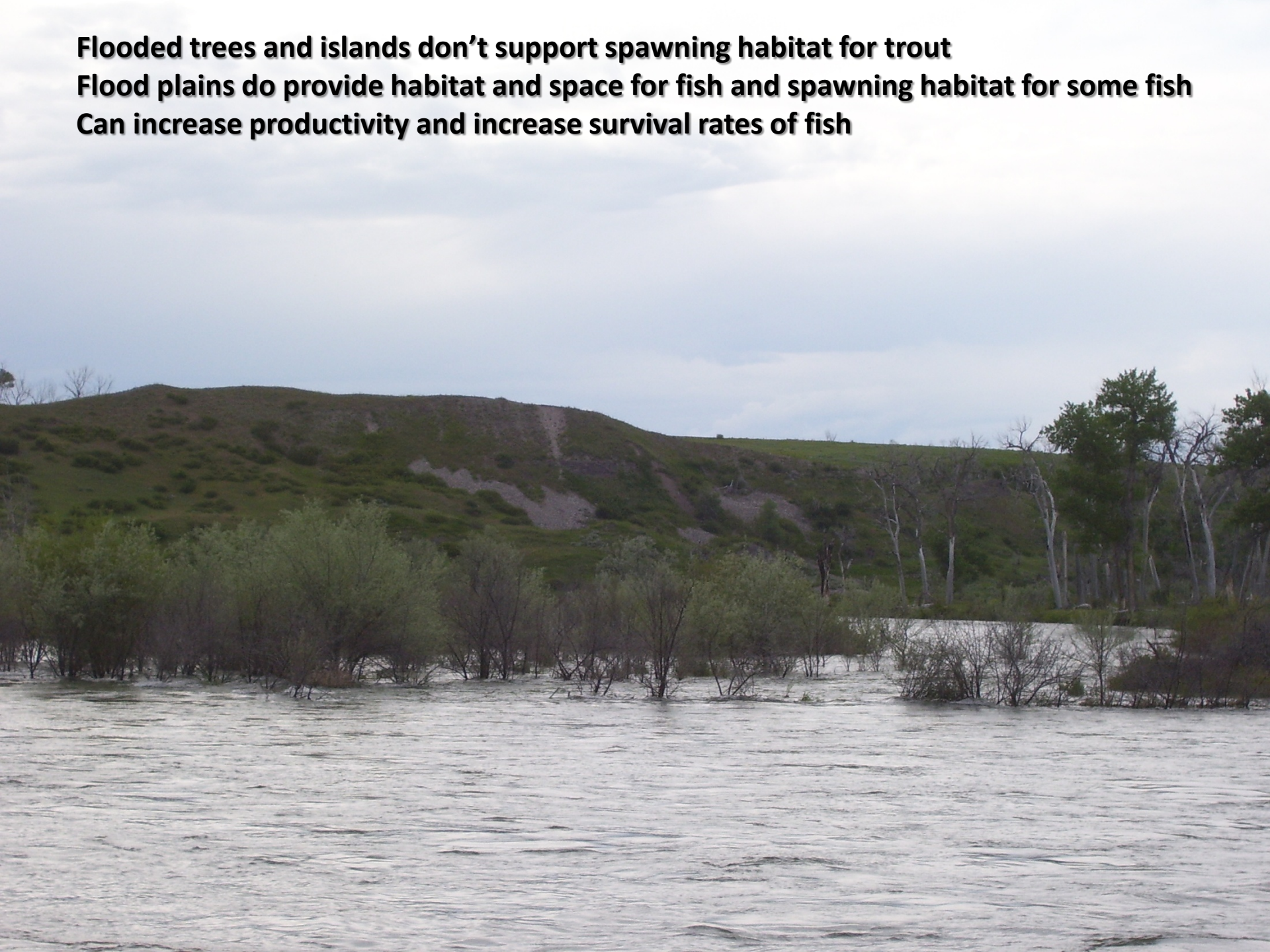
BIGHORN FLOW RECOMENDATIONS

- Flushing flows 6,000 to 8,000 CFS
- Best Fisheries Flow - Greater than 2,500 cfs
- Preferred Minimum Fisheries Flow – 2,500 cfs has maintained the strong Bighorn Fishery
- Water Savings Minimum Flow – 2,000 to 2,500 cfs
- Absolute Minimum Flow - 1,500 to 2,000 cfs

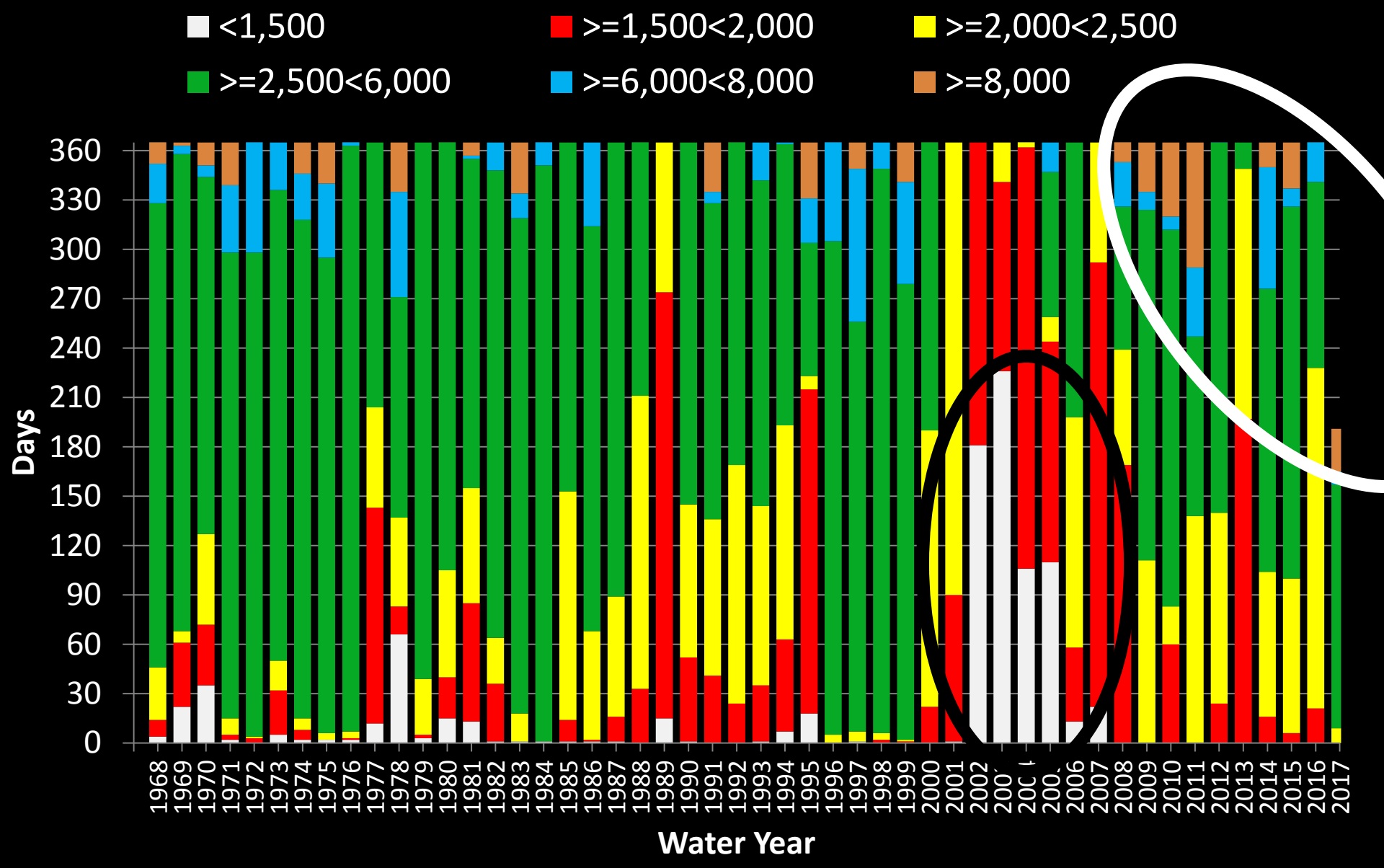
Side Channel at 1,500 CFS
DROUGHT

Side Channel at 1,900 CFS
LESS DROUGHT

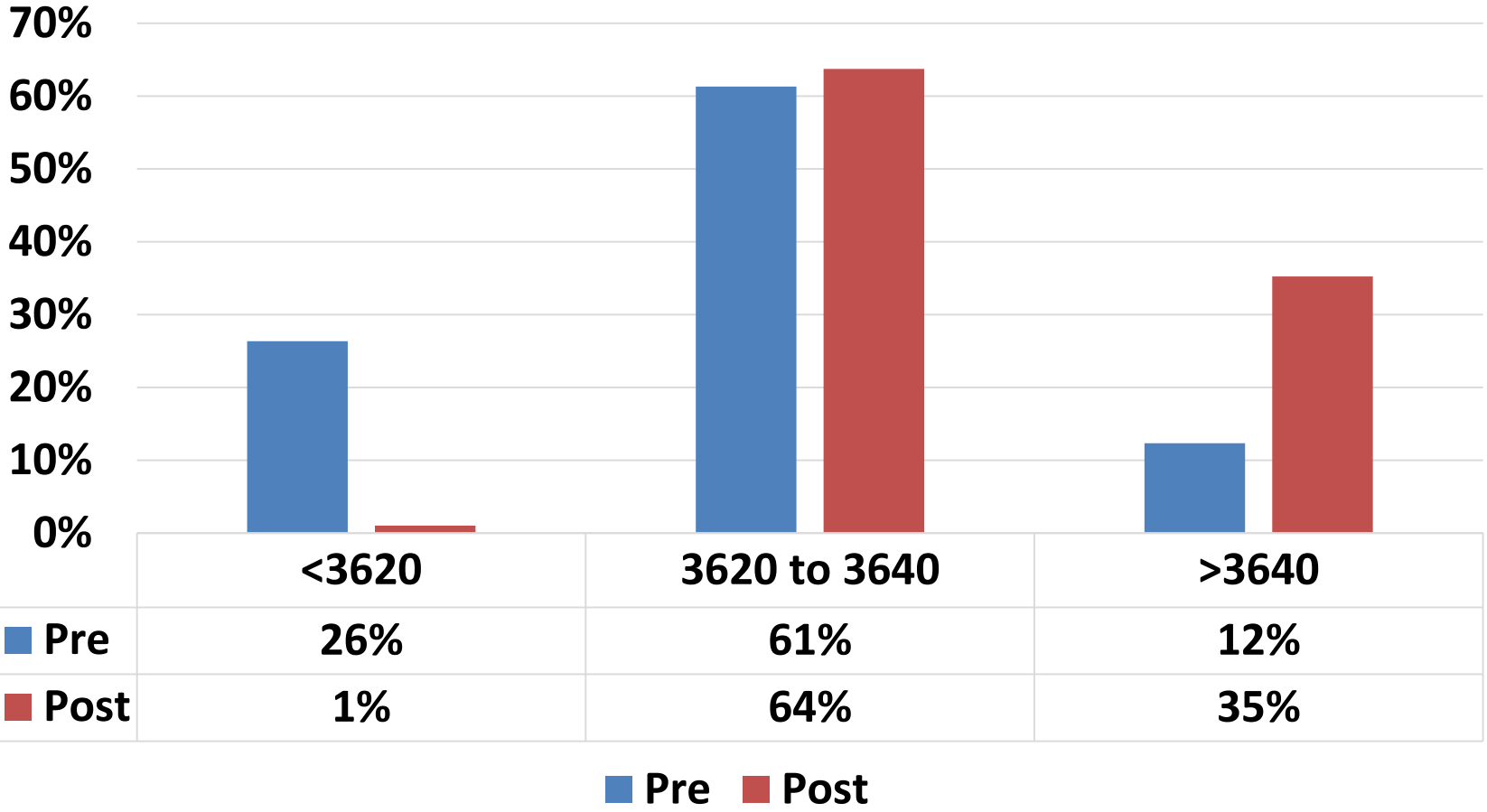
Flooded trees and islands don’t support spawning habitat for trout
Flood plains do provide habitat and space for fish and spawning habitat for some fish
Can increase productivity and increase survival rates of fish



Bighorn River Days at Flow Categories

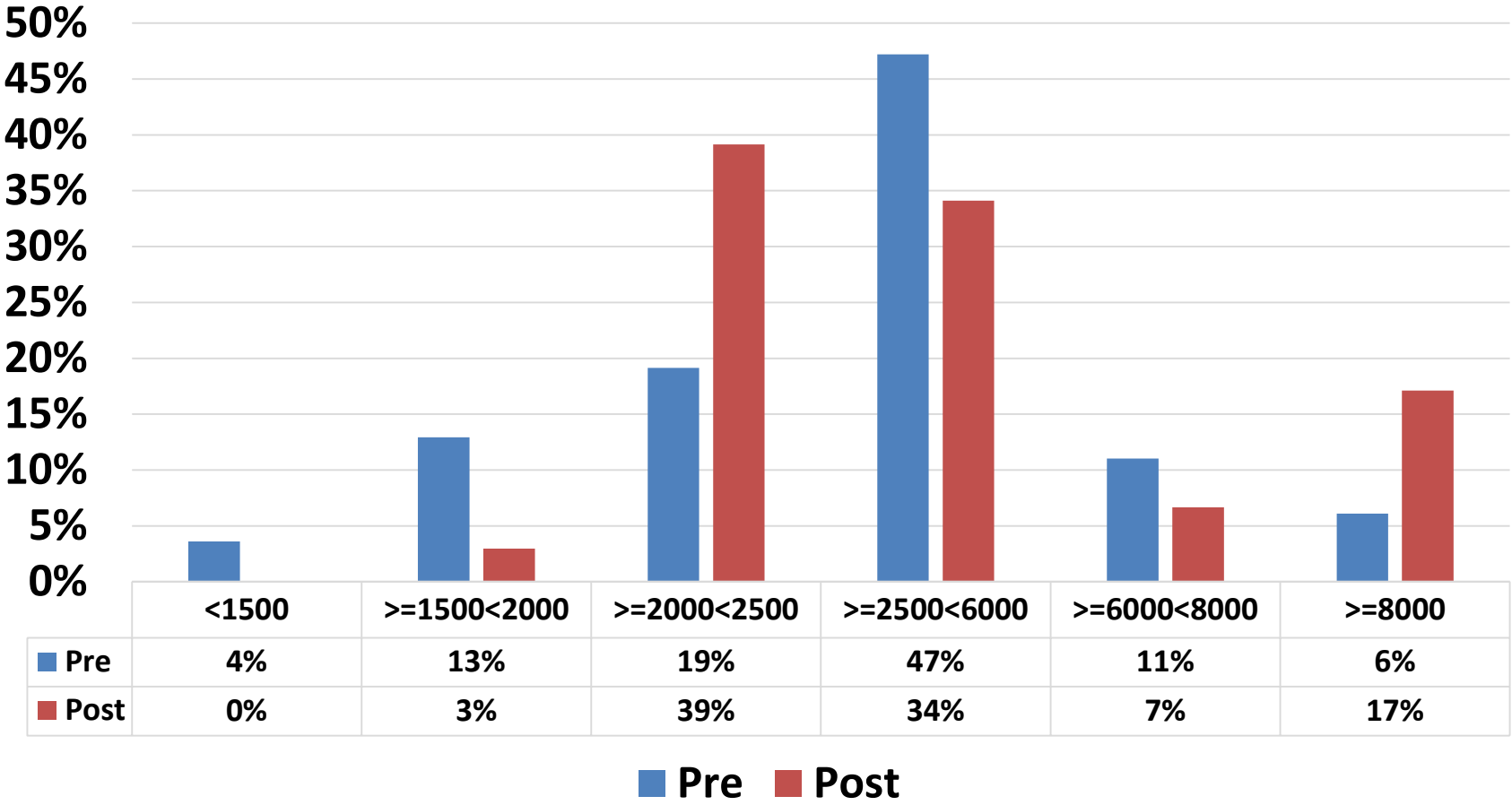


June 1st to September 30th Bighorn Reservoir 1967-2008 Pre and 2009 to 2016 Post Elevation Comparisons.



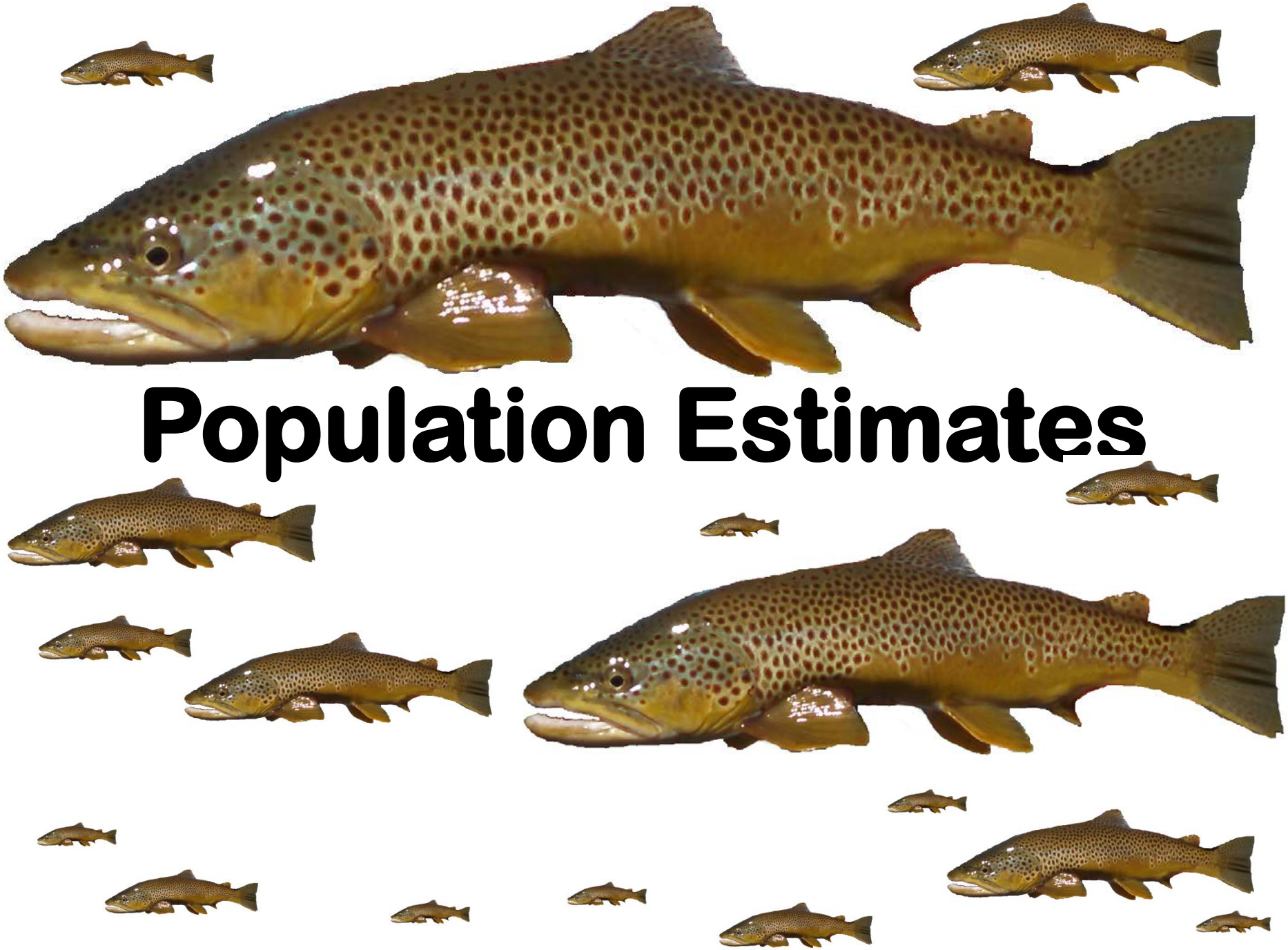
	<3620	3620 to 3640	>3640
Pre	26%	61%	12%
Post	1%	64%	35%

Bighorn River 1967-2008 Pre and 2009 to 2016 Post Flow Comparisons June Through September.



	<1500	>=1500<2000	>=2000<2500	>=2500<6000	>=6000<8000	>=8000
Pre	4%	13%	19%	47%	11%	6%
Post	0%	3%	39%	34%	7%	17%

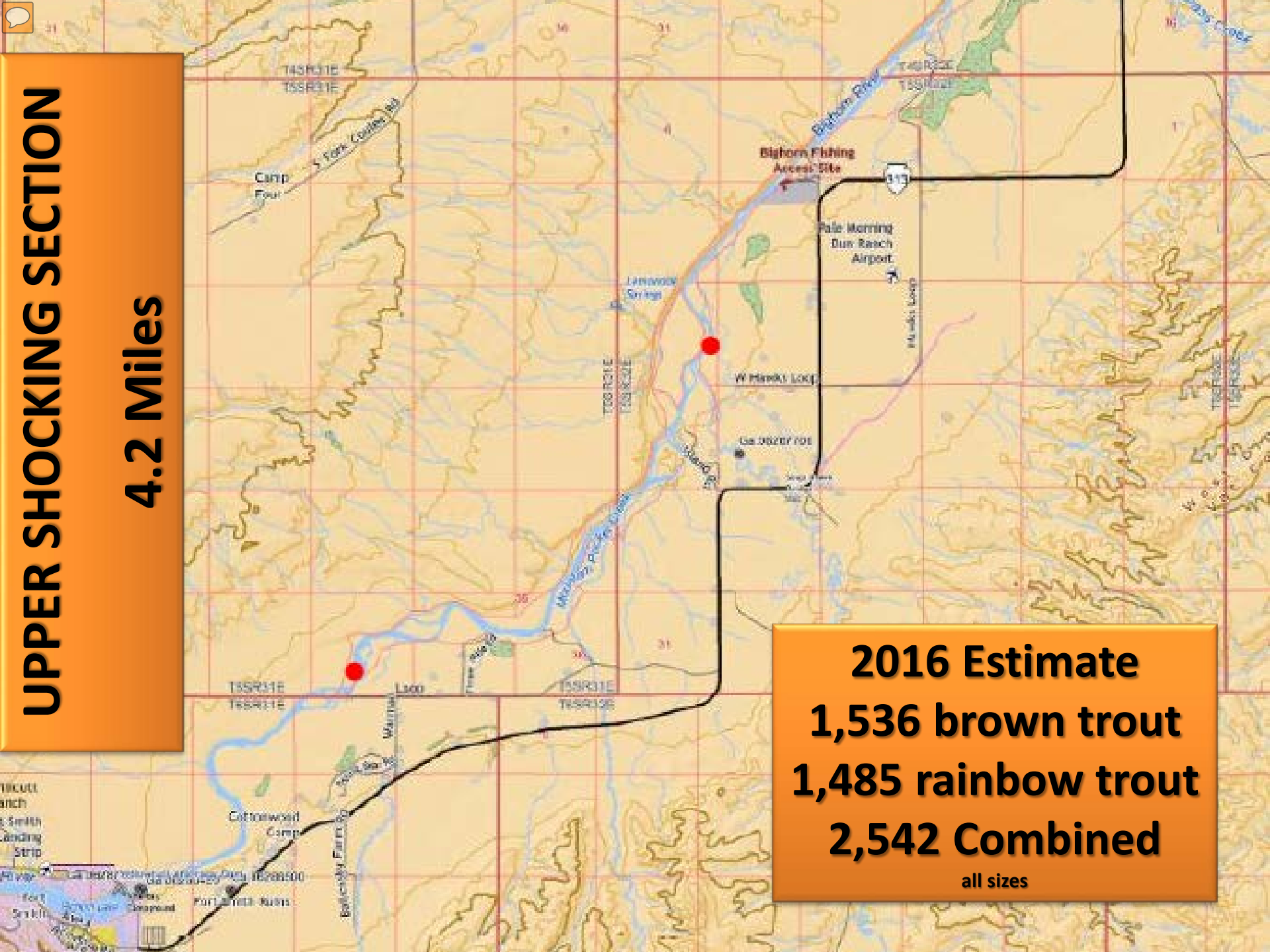
A
B
Remove Fence Post and Sign-BHRA
Removal of Russian Olive - FWP
1996



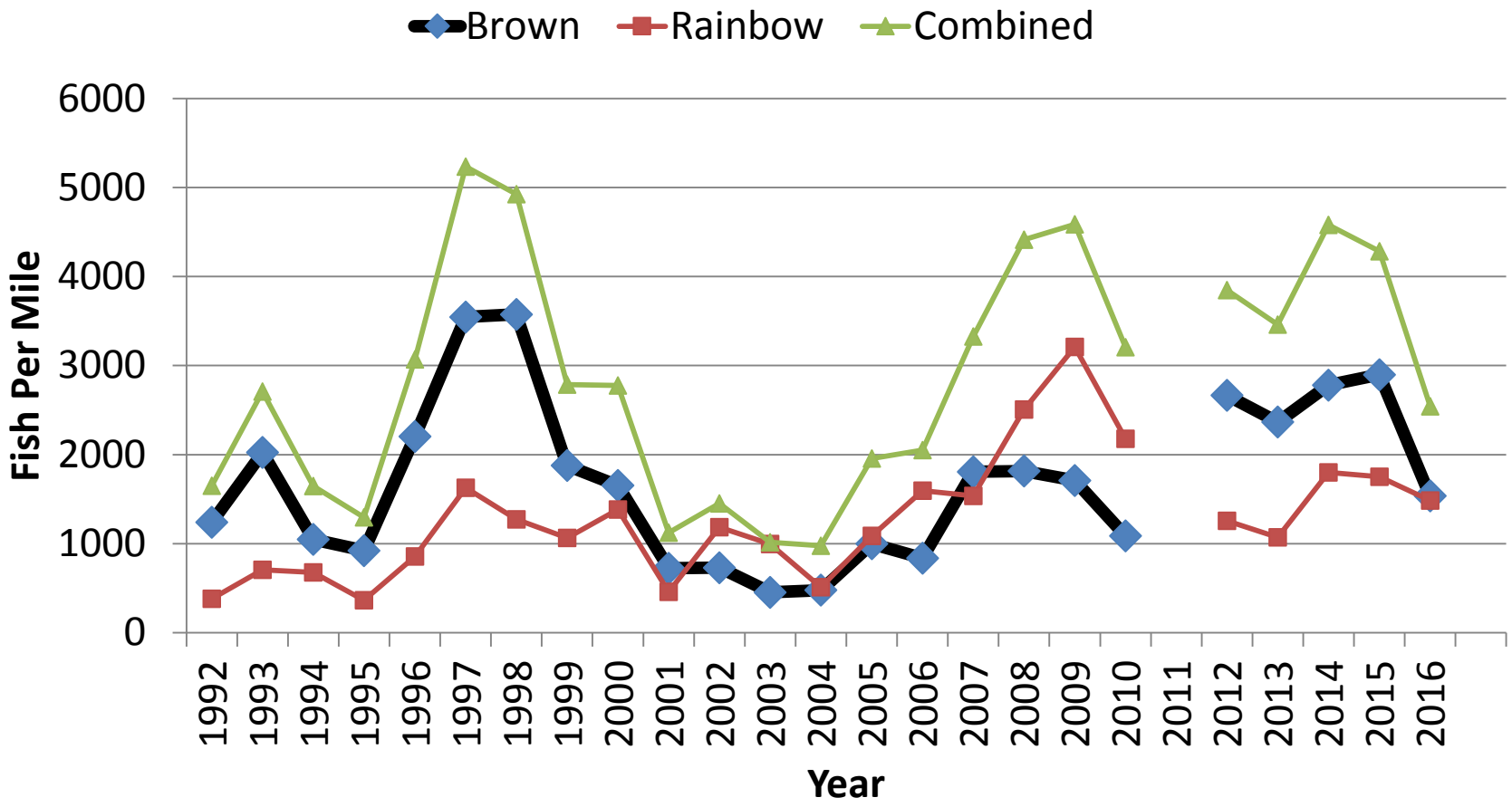
Population Estimates

UPPER SHOCKING SECTION

4.2 Miles

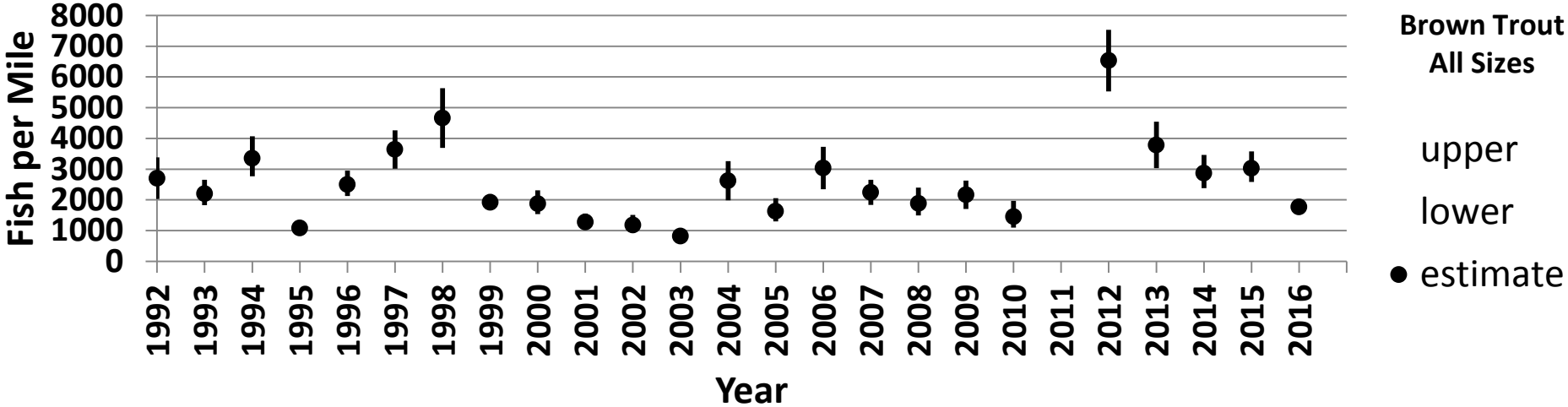


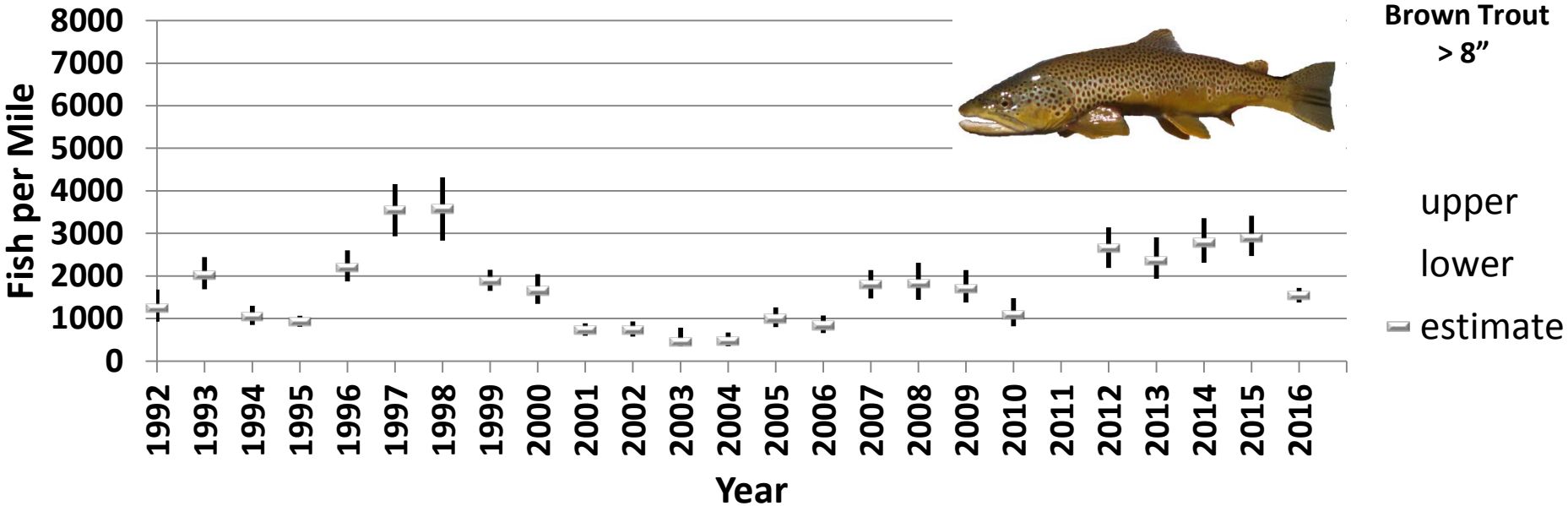
Bighorn River Upper Trout Section Population Estimate for Trout Greater Than Eight Inches



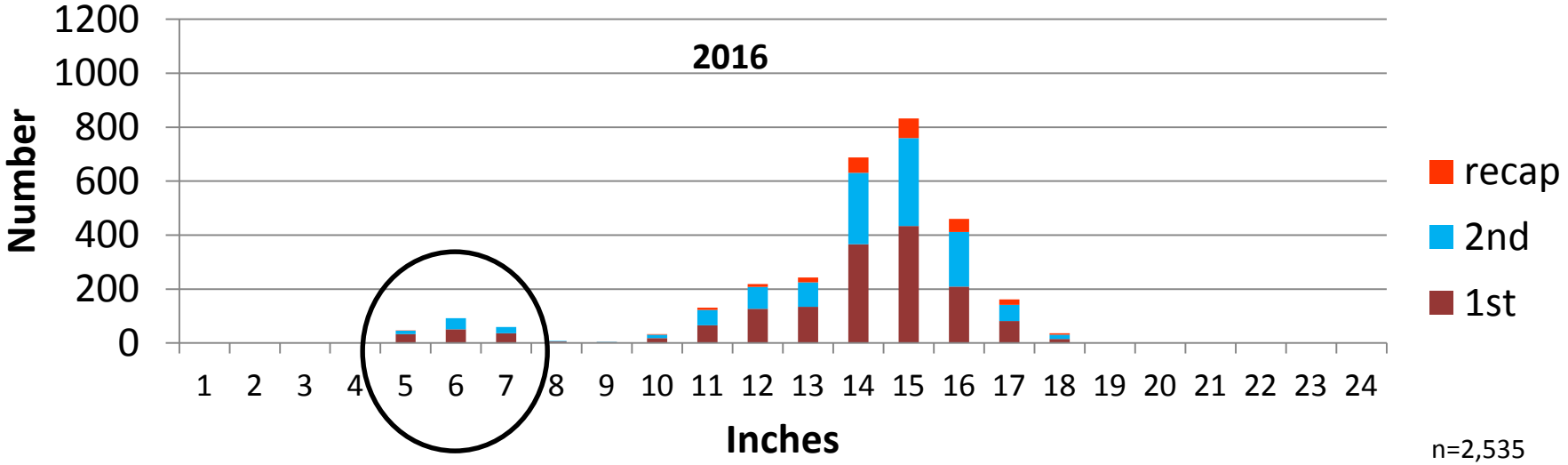
Brown Trout

Brown Trout Upper Section Estimate Per Mile with 95% CI

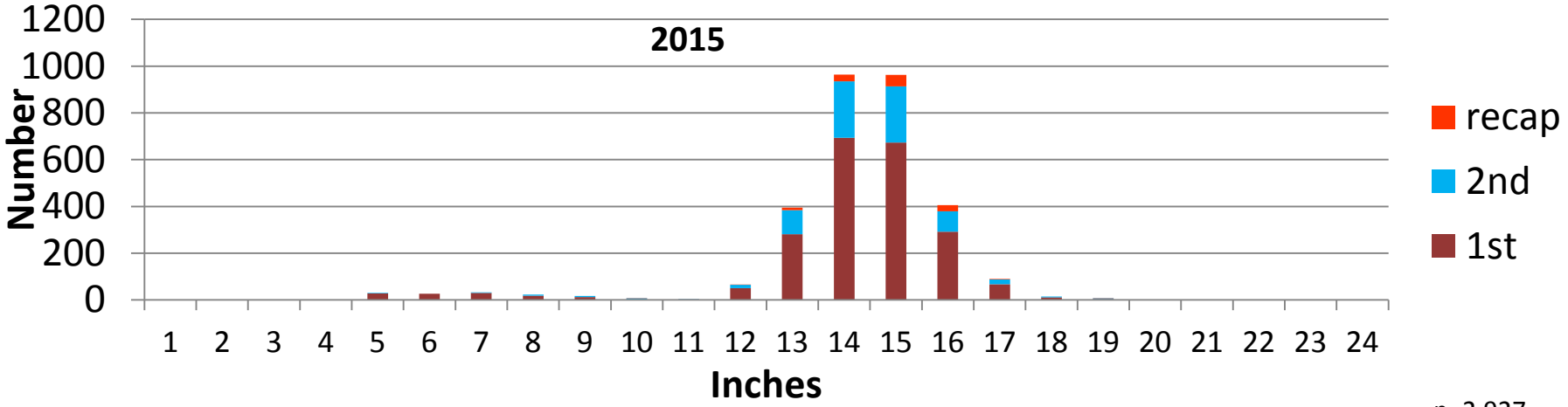




BROWN TROUT-UPPER SECTION LENGTH FREQUENCY



n=2,535



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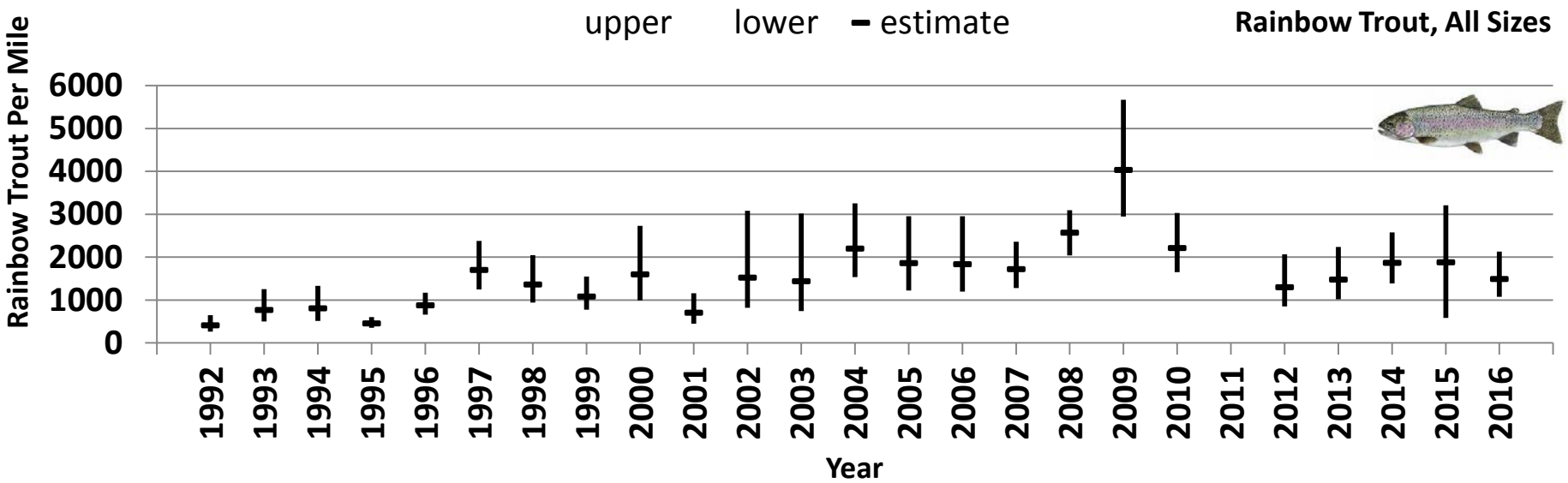
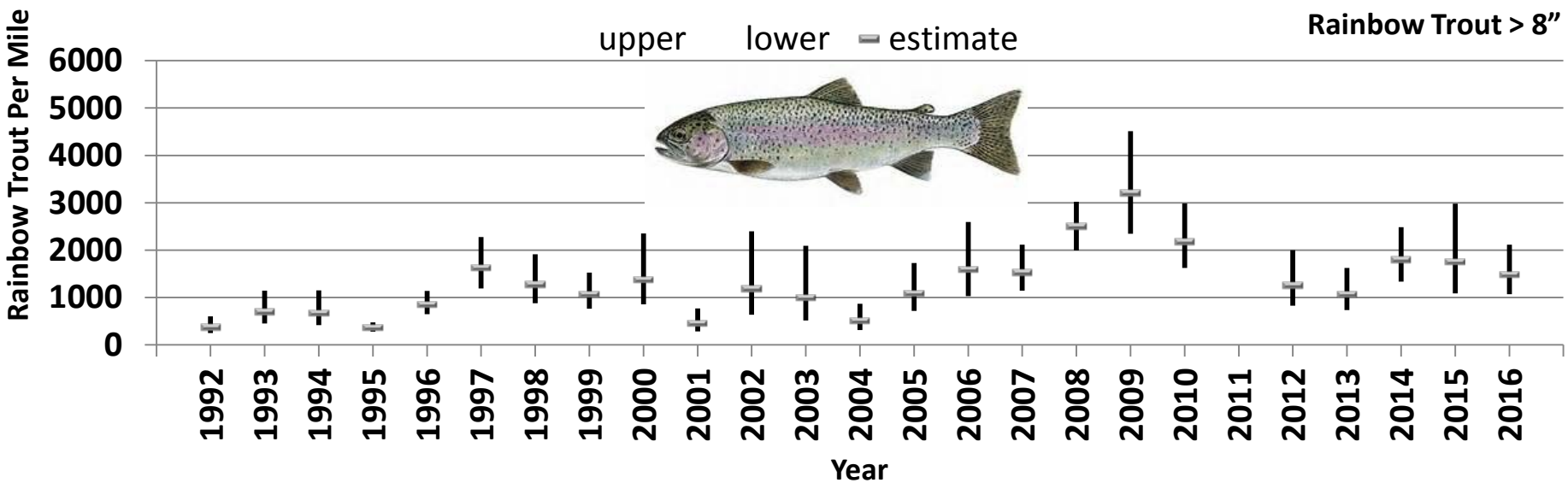
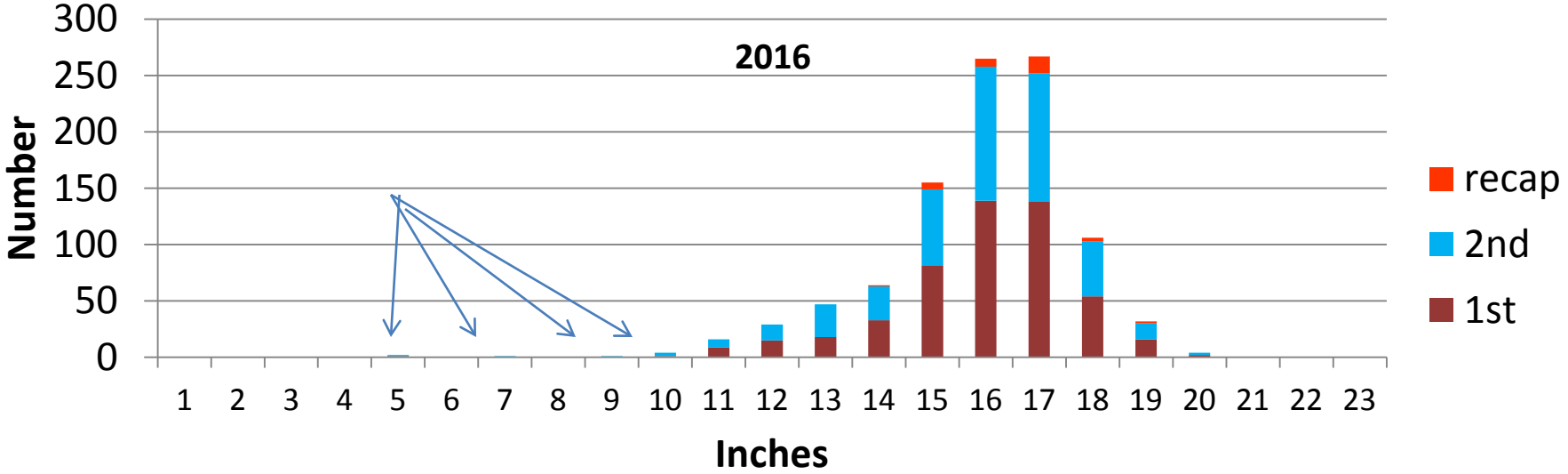
Rainbow Trout

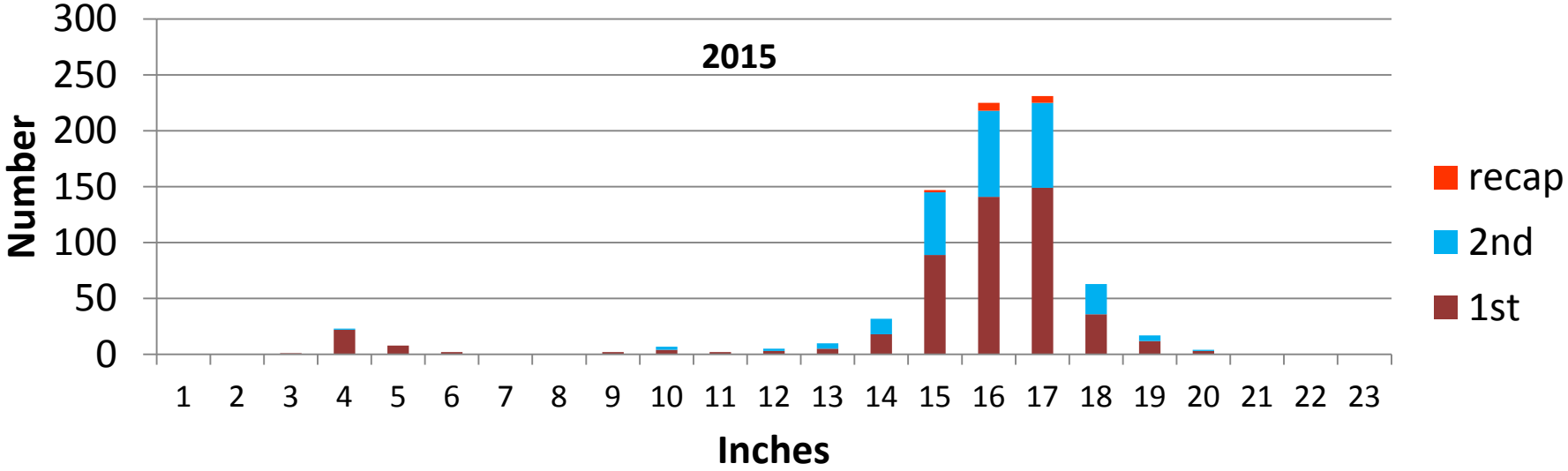
Bighorn River Upper Section Annual Estimate with 95% CI for Rainbow Trout

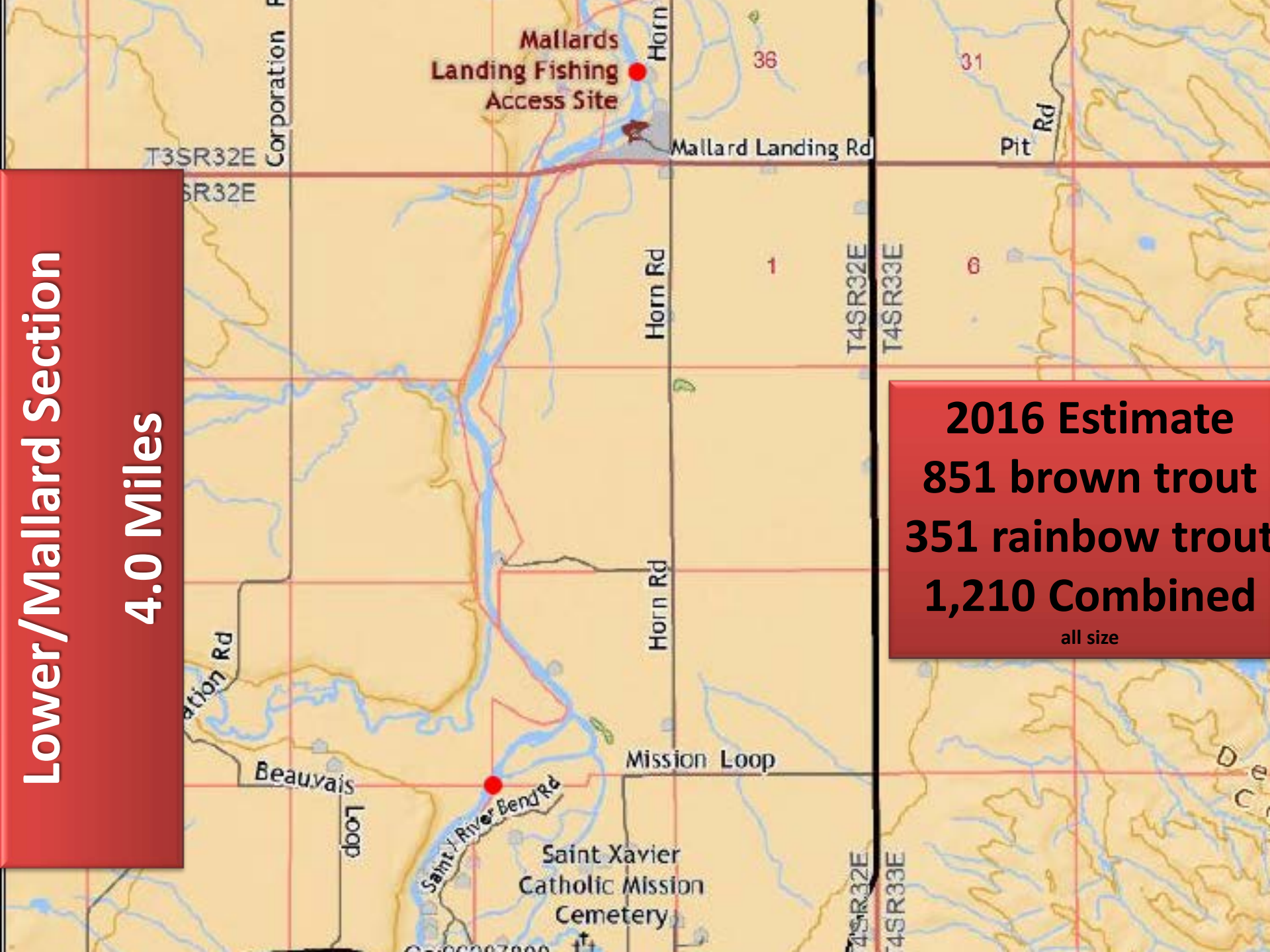




RAINBOW TROUT-UPPER SECTION LENGTH FREQUENCY

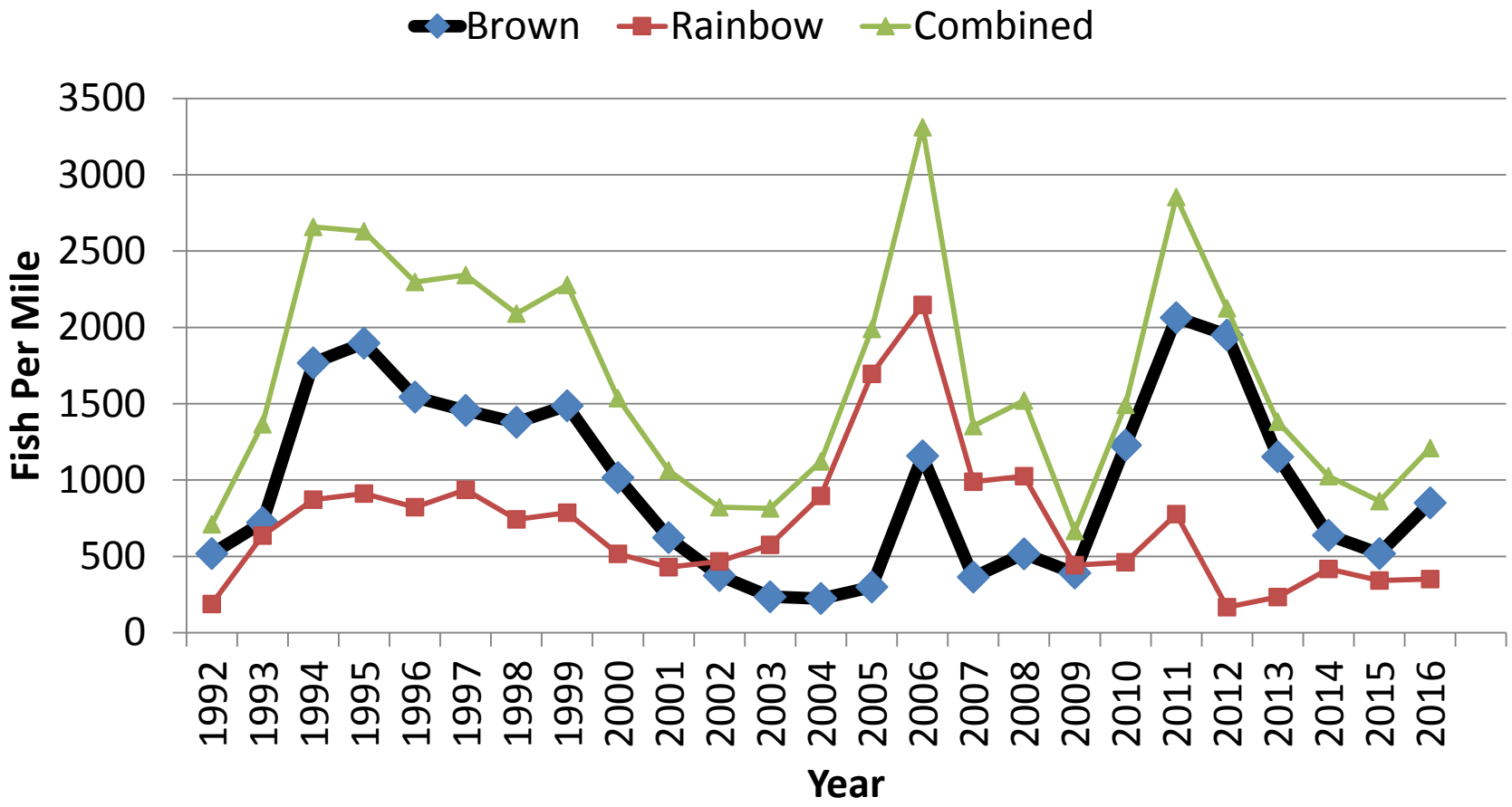






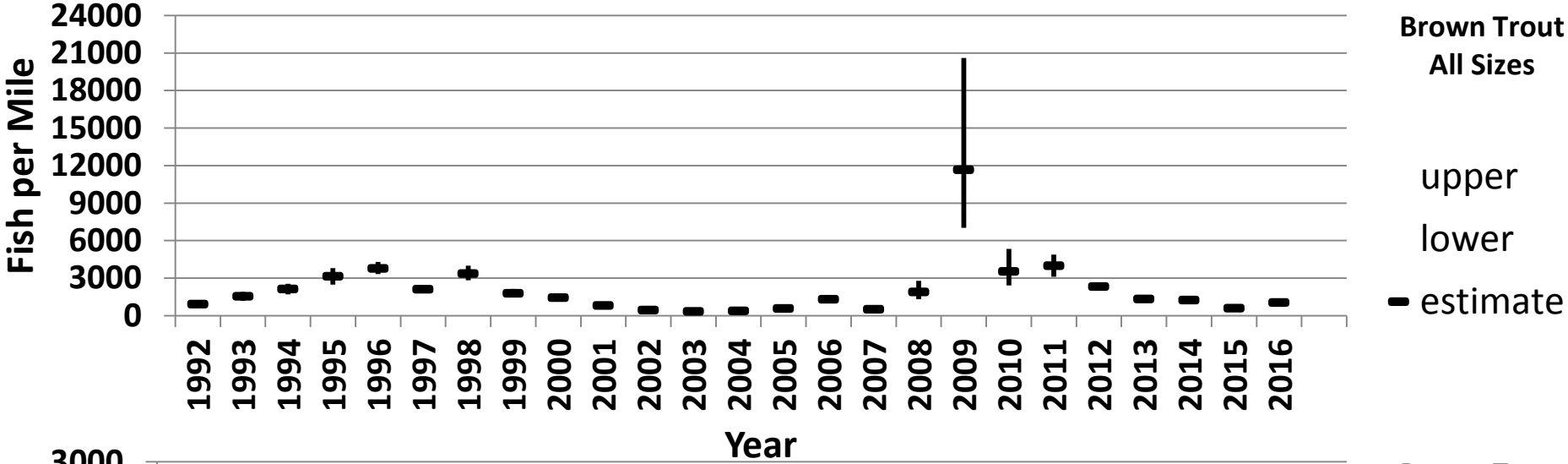
2016 Estimate
851 brown trout
351 rainbow trout
1,210 Combined
all size

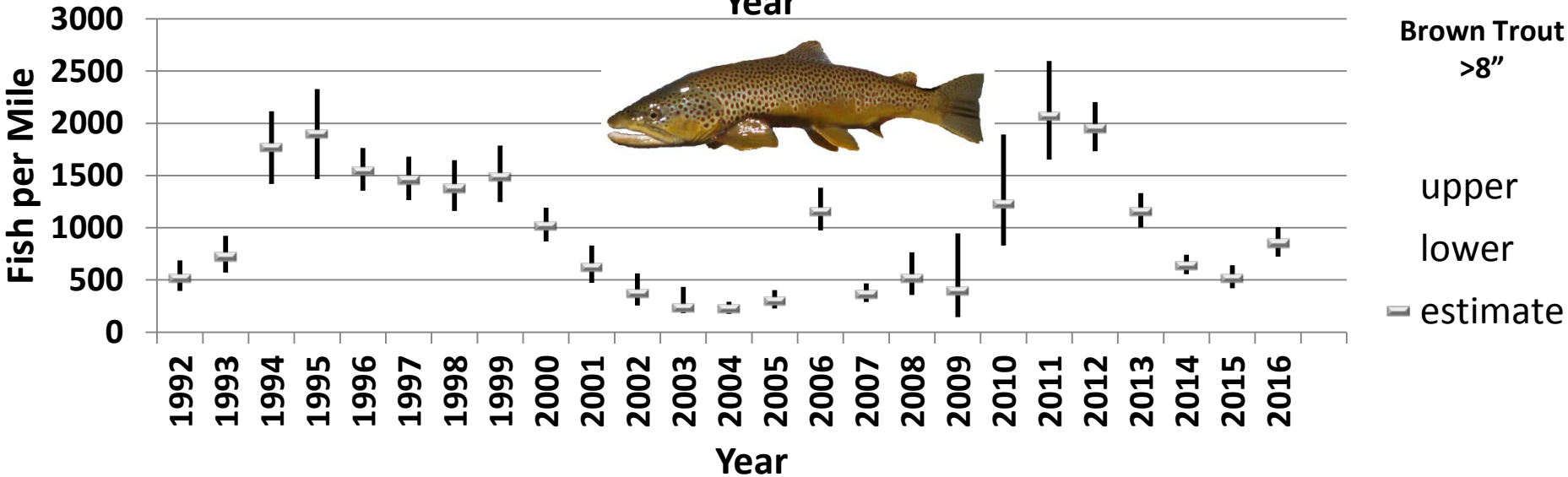
Bighorn River Mallards Trout Section Population Estimate for Trout Greater Than Eight Inches



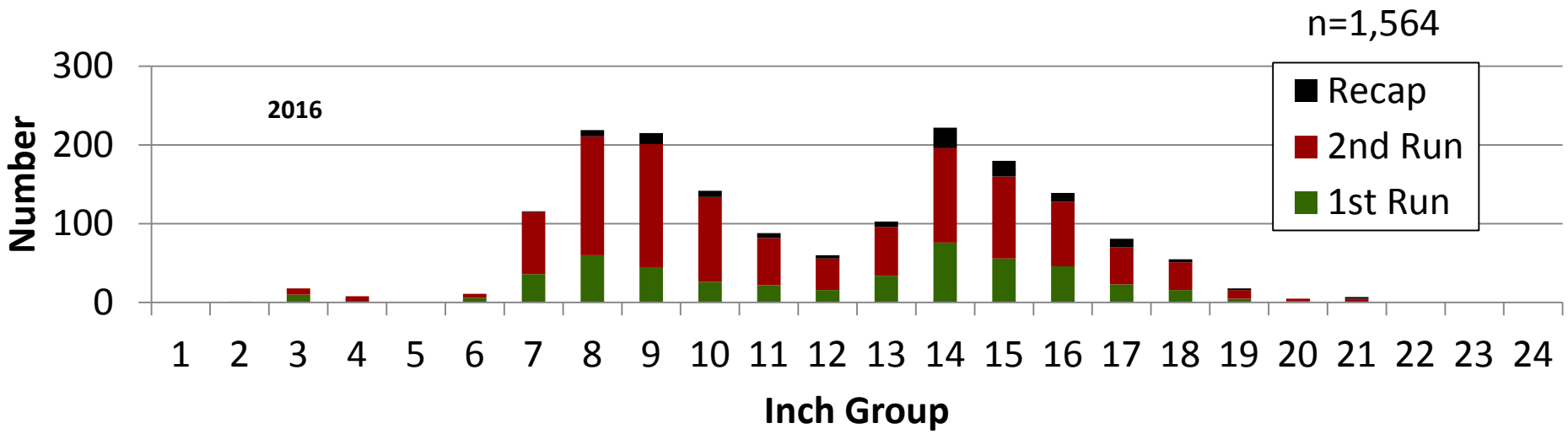
Brown Trout

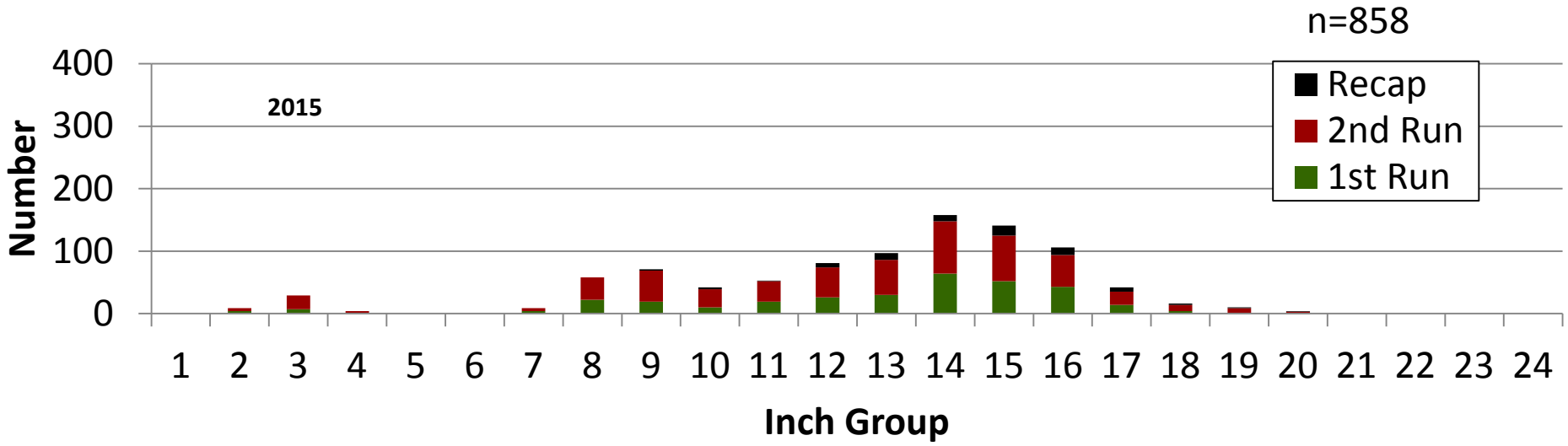
Brown Trout Lower Section Estimate Per Mile with 95% CI





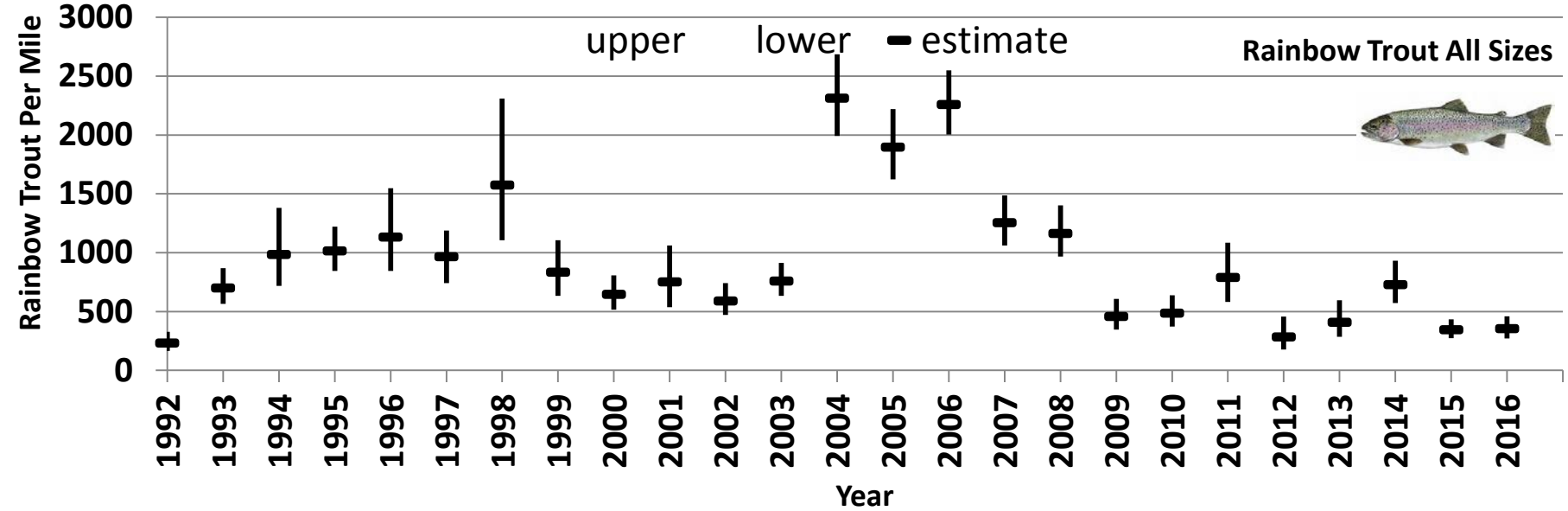
Brown Trout Lower Section Length Frequency

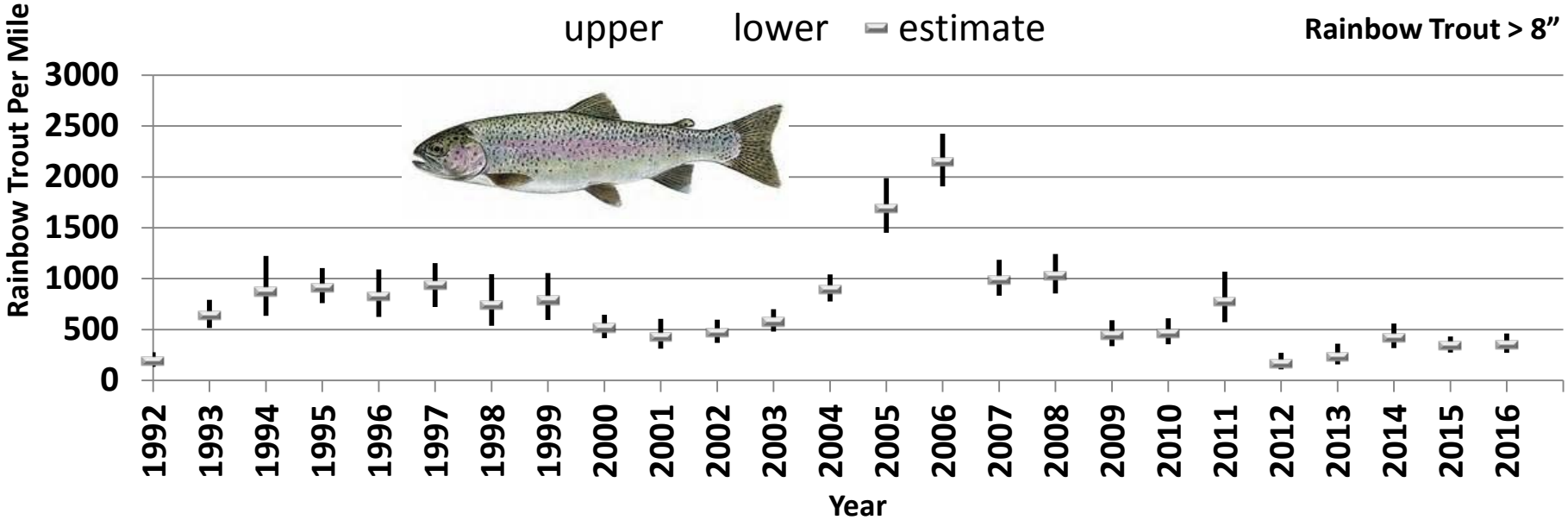




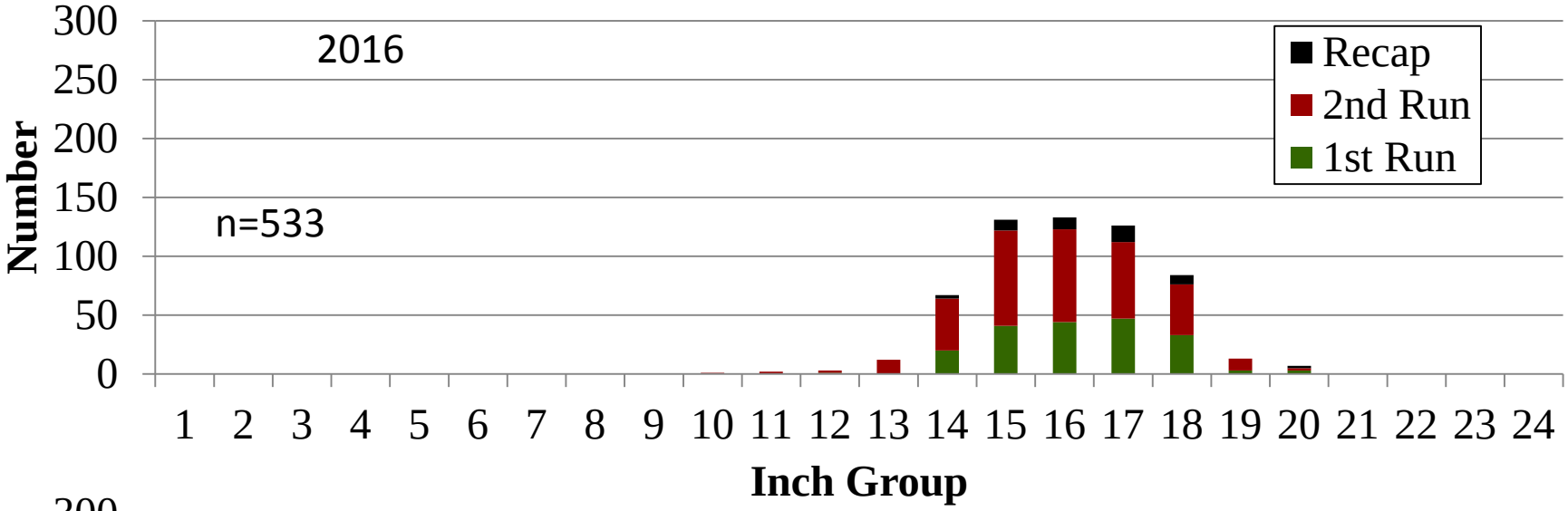
Rainbow Trout

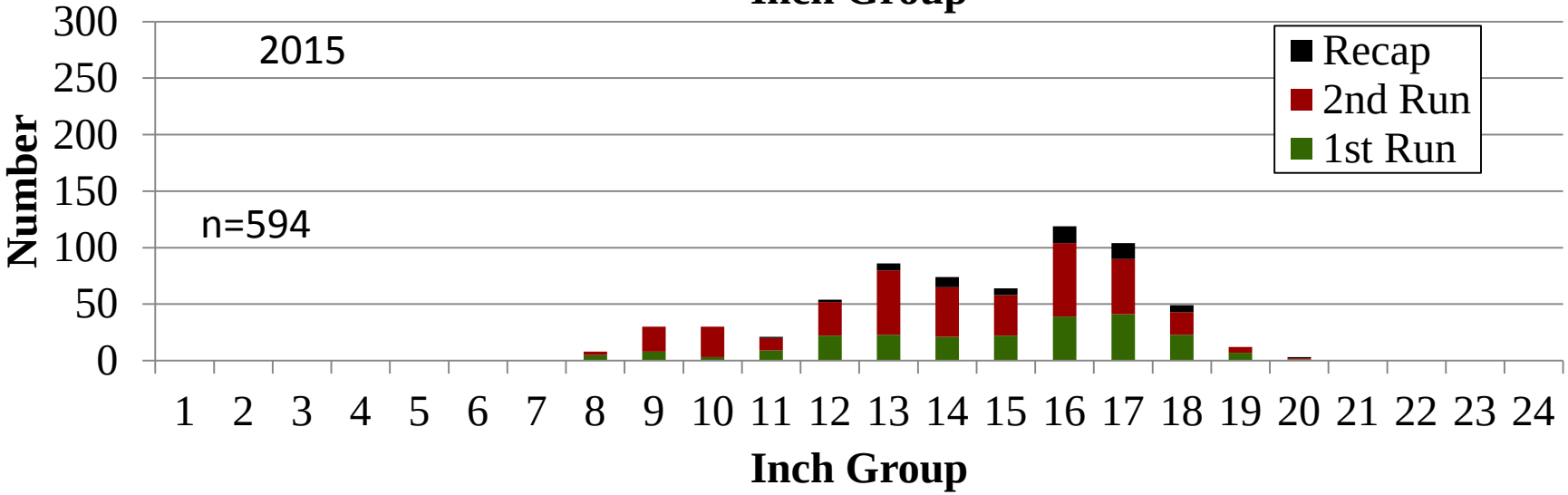
Rainbow Trout Lower Section Estimate Per Mile with 95% CI





Rainbow Trout Lower Section Length Frequency

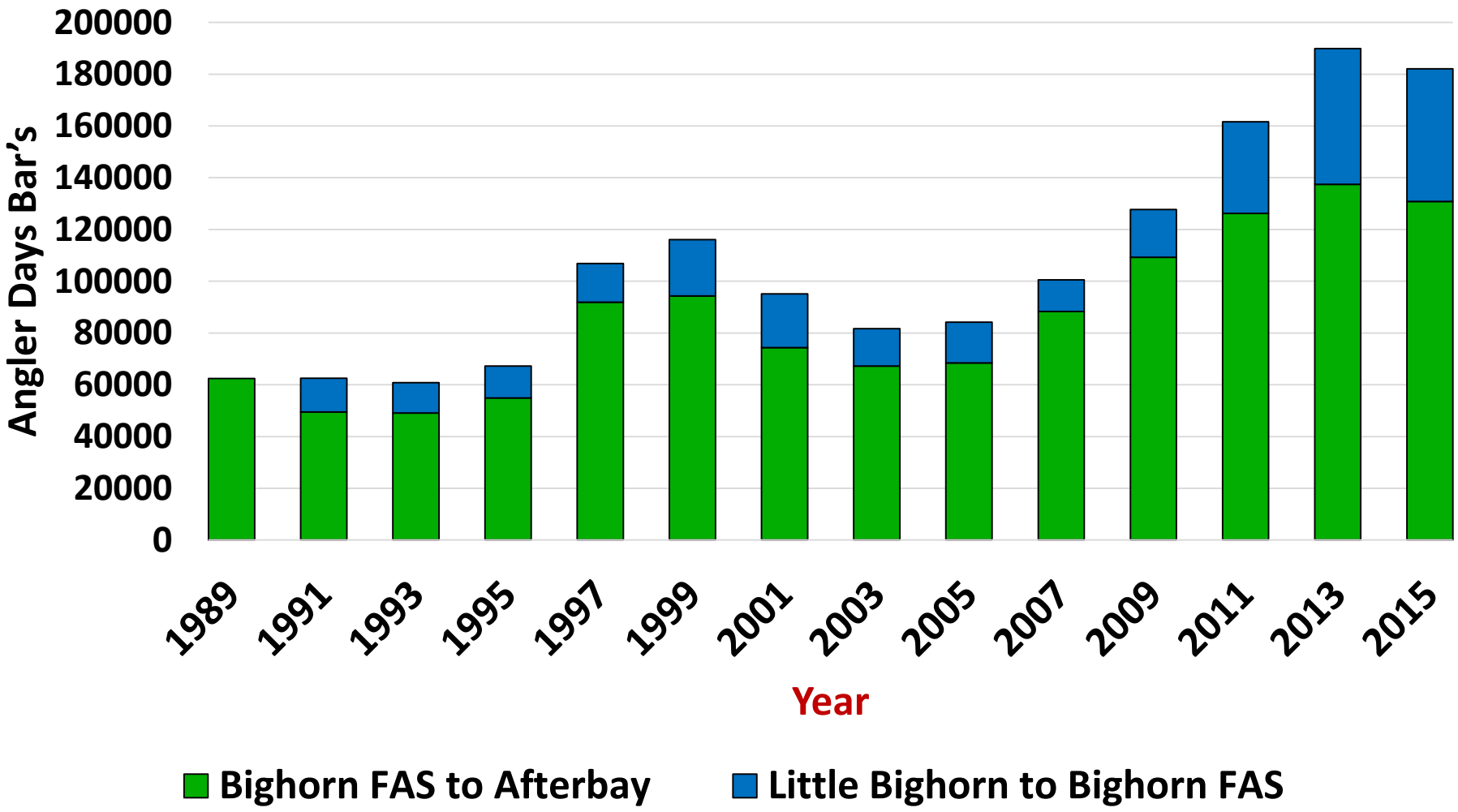




Thank-you
Happy
Fishing

Montana, Bighorn River Trout Section Angling Pressure

by MTFWP Mail Survey



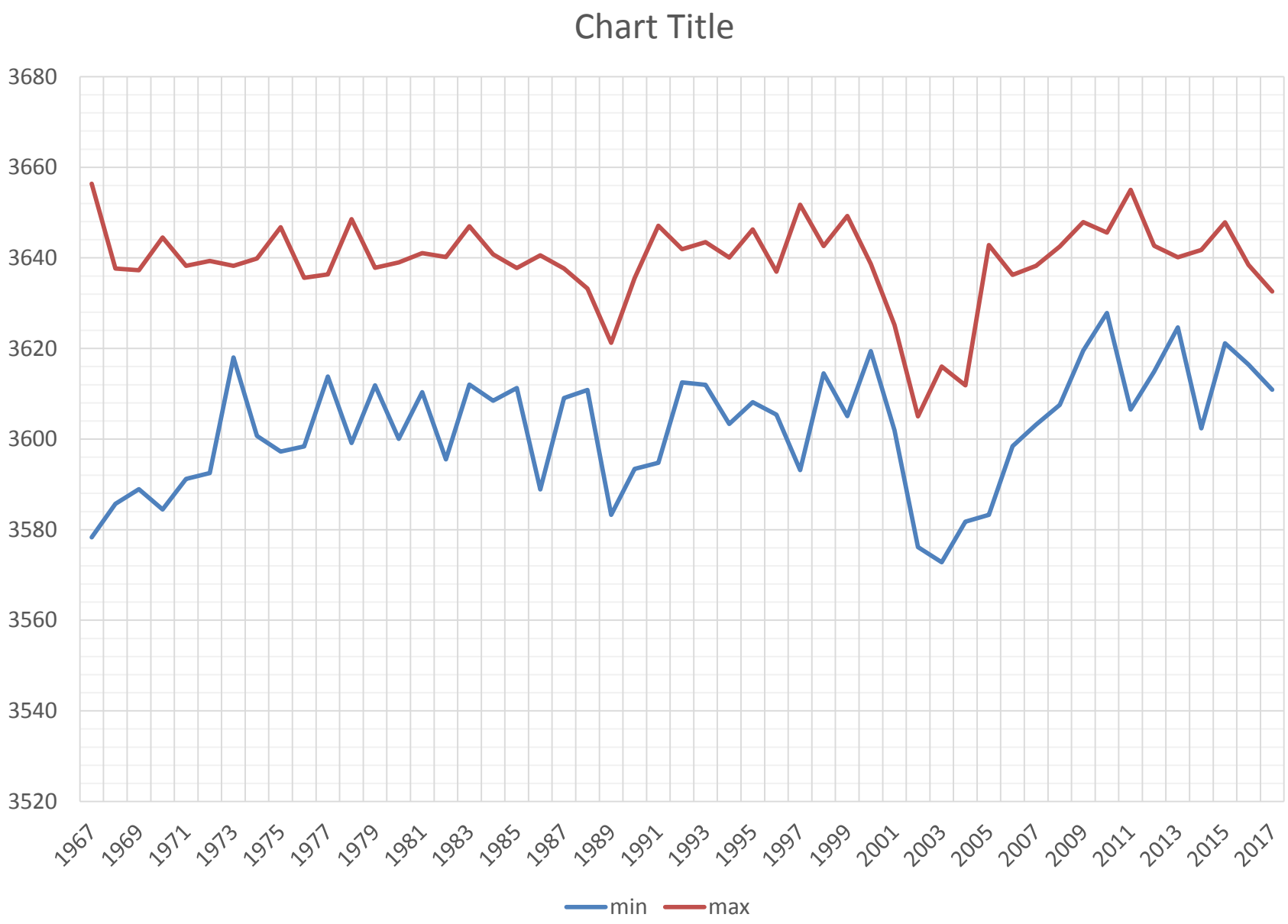


Chart Title
3680
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3640
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1969
1971
1973
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1981
1983
1985
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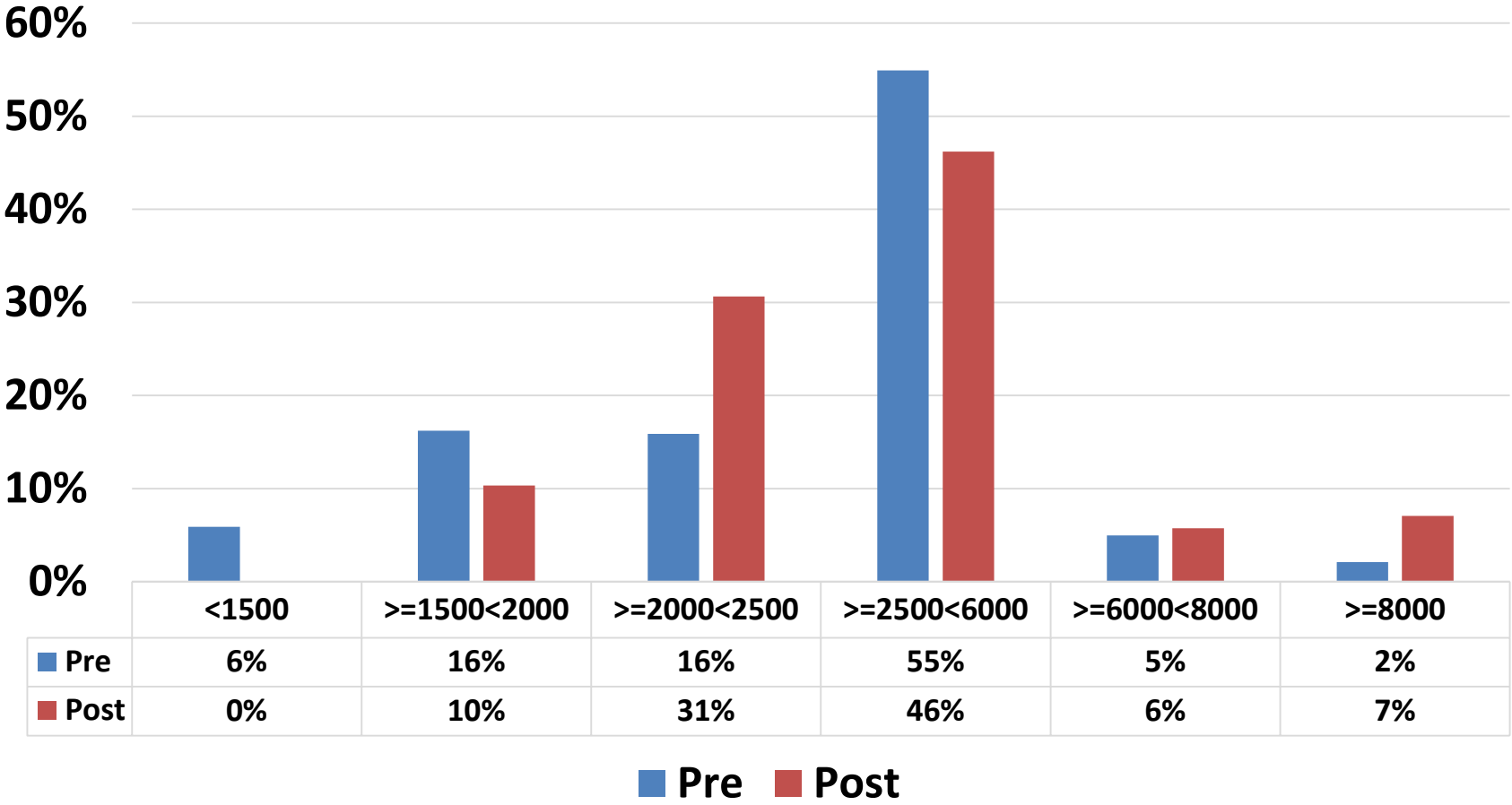
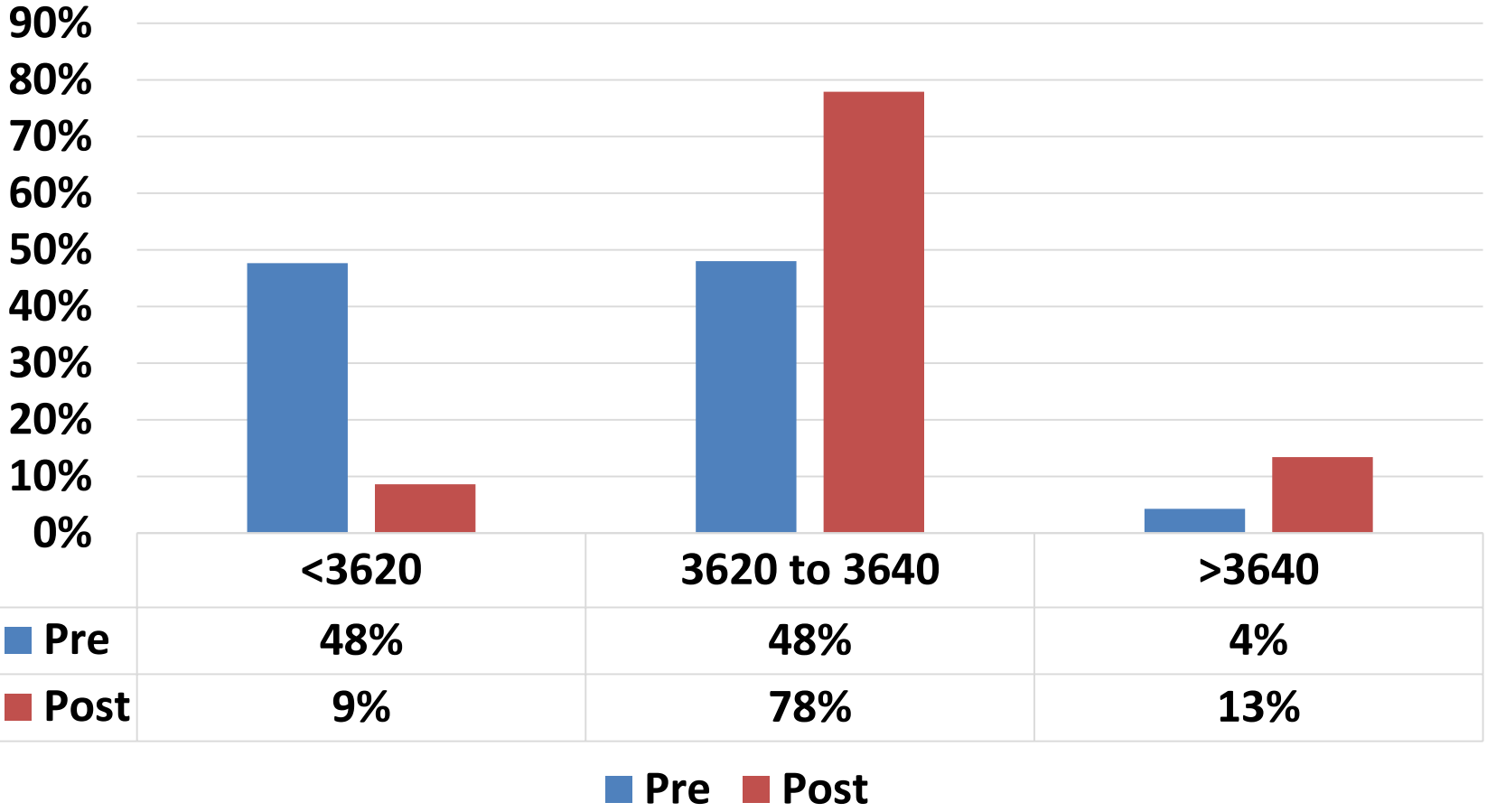
2017
min
max

Bighorn River 1967-2008 Pre and 2009 to 2016 Post Flow Comparisons.



	<1500	>=1500<2000	>=2000<2500	>=2500<6000	>=6000<8000	>=8000
Pre	6%	16%	16%	55%	5%	2%
Post	0%	10%	31%	46%	6%	7%

Bighorn Reservoir 1967-2008 Pre and 2009 to 2016 Post Elevation Comparisons.



	<3620	3620 to 3640	>3640
Pre	48%	48%	4%
Post	9%	78%	13%