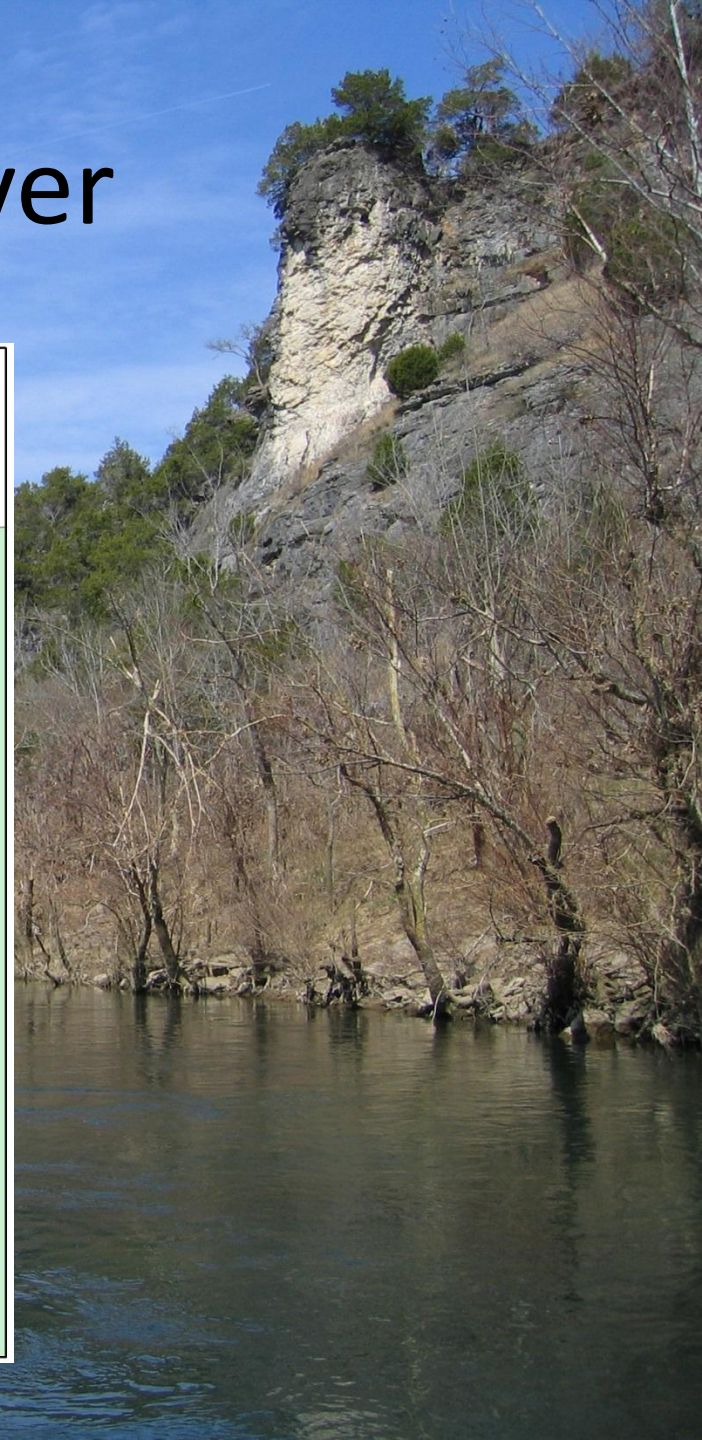
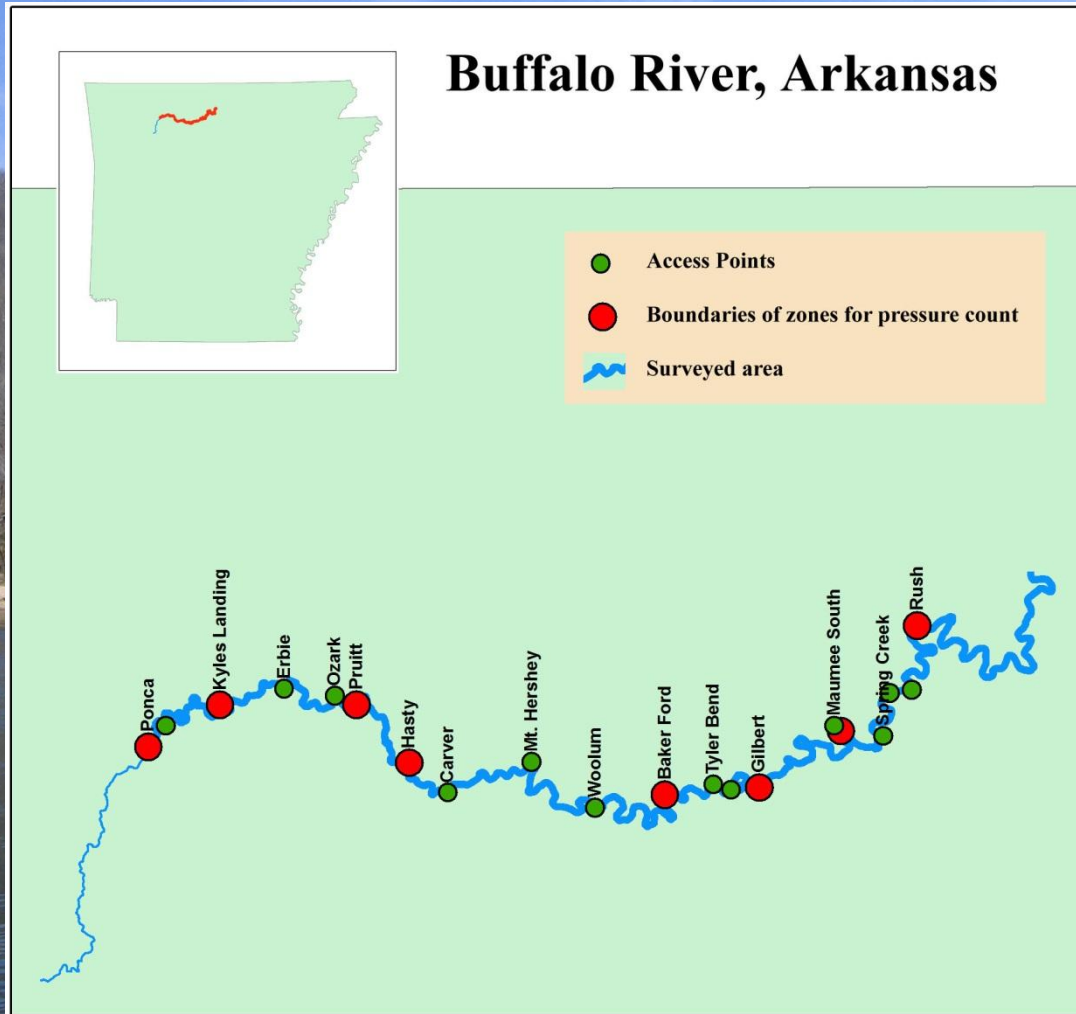


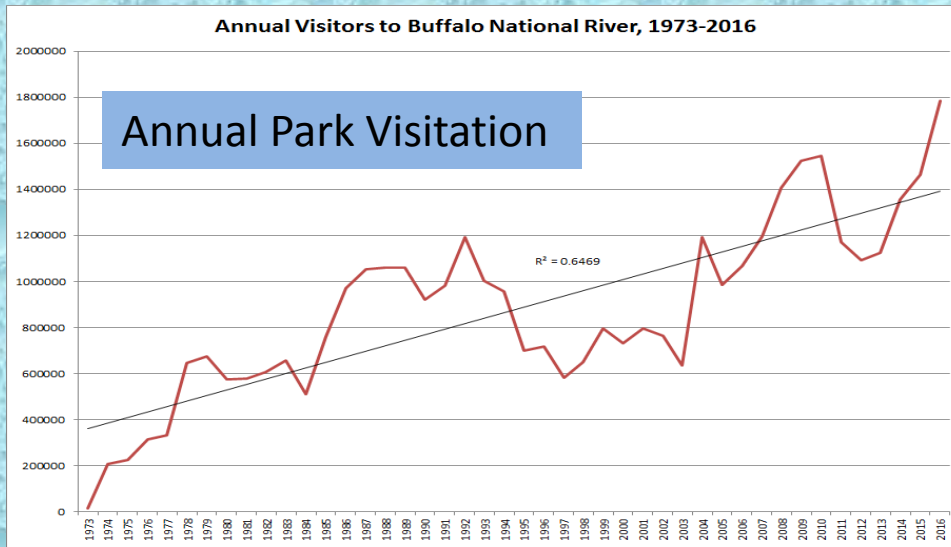


A survey of recreational angling and floating
use on the Buffalo River, AR from
September 2013 through August 2014

Stan Todd, AGFC
Shawn Hodges, NPS

The Buffalo National River





Smallmouth Bass A. Mortality

Period of study	Total Annual Mortality
1977	0.36
1984	0.42
2003-4	0.47
2008-2014	0.56

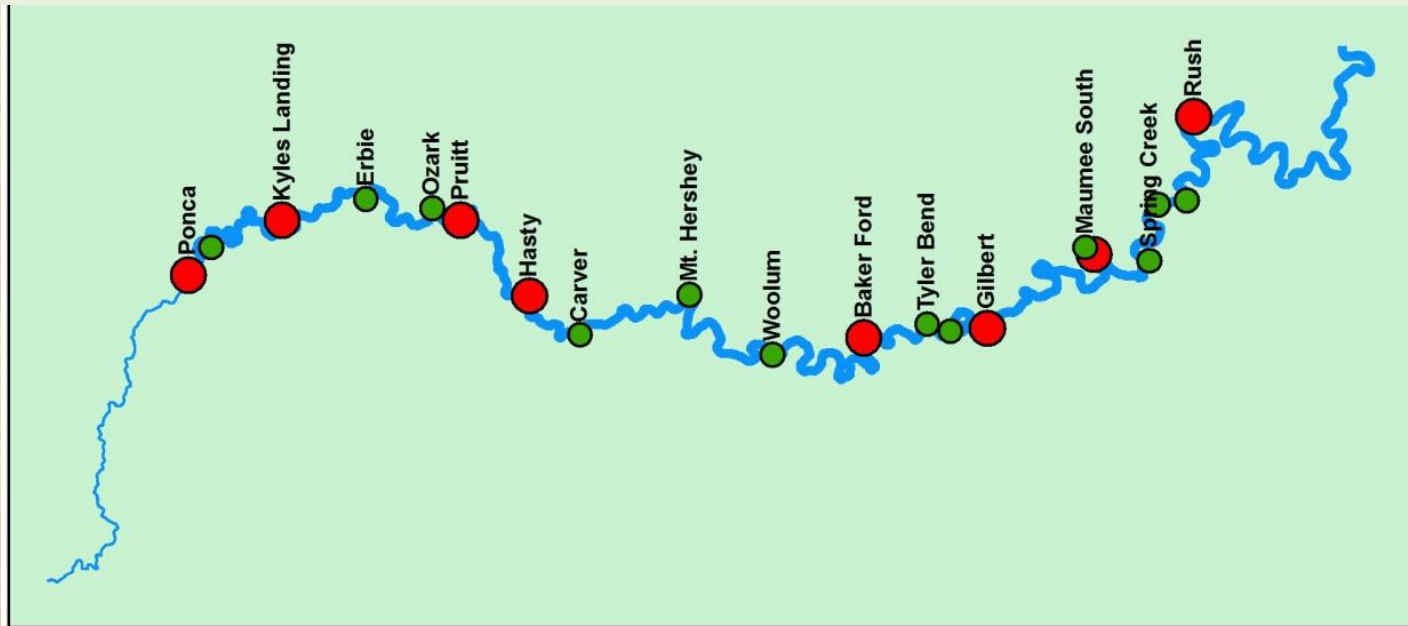
- **Concerns**
 - Increasing use.
 - Increasing Smallmouth Bass mortality rates.
 - Potential fish nest disturbance by recreational floaters.
- A floater survey and angler creel was developed to:
 - Describe current floating use.
 - Evaluate fish harvest as a source of mortality.
 - Create a document that could be used in future management decisions.

Floater Use

- 18 time lapse cameras spaced approximately 11 km apart from Ponca to White River.
- Mid-stream length was calculated for each camera view.
- Photos taken every 10 seconds during daytime.
- For each boat passing a camera, we recorded floater and angler numbers and time within the viewed stream segment.
- At each camera site, we calculated floater and angler hours per km daily.
- All weekend/holidays and even numbered weekdays were assessed.

Floater Use

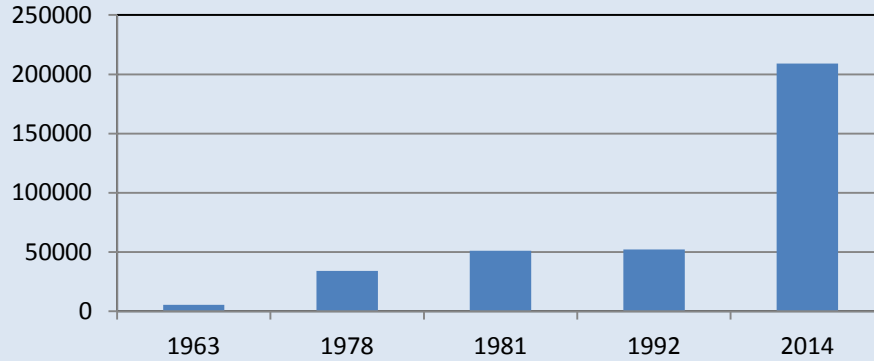
- In each of 8 stream reaches, data were stratified by weekdays or weekend/holidays and floater/angler hours calculated for the creel period.
- Estimates in each of the 8 reaches were summed through mean square successive differences to yield total hours for the creel period.



Floater/Angler interviews

- Seventeen days per month were randomly selected for interviews. 12 weekdays and 5 weekend/holidays.
- Each interview day, clerks were allowed to roam within 7 randomly selected areas.
- A 5-hour interview period was randomly selected from either 8:00 – 13:00 or 13:00 - 18:00.
- Data collected included: number floating and fishing, time spent floating and fishing, fish caught and released, primary purpose, trip ratings, trip length, and trip expenses.

Buffalo River, Annual Boat Count



Floater Use

- 2.8 million Floater hours
- 360,000 Floater trips
- 209,000 boats annually.
- Peak daily boat count over 700 at busiest location.

Floater/Angler characteristics

- 231 floater parties containing 1,348 floaters were interviewed.
- 70% were from Arkansas and most of the rest were from surrounding States.
- 70% of floaters were primarily floating while 21% were primarily fishing; 54% of parties contained at least 1 angler, and 22.4% of floaters were anglers.
- 79% of floater use occurred in 26% of the stream.
- \$29 million dollars annually in expenditures.

Angler use



- Angler effort was underestimated by camera observations. We calculated angler hours from floater hours, percentage of anglers, and angler estimates of time spent fishing.
- 321,000 Angler hours
- 81,000 Angler trips
- \$7 million dollars annually in expenditures.

Catch and Harvest Rates

- Overall catch rate of fish was 0.95 fish per hour including Smallmouth Bass, Ozark Bass, and Longear Sunfish. Annual catch was 305,000 fish.
- Harvest rate was low at 0.004 fish per hour and only 1,300 fish harvested.
- Over half (55%) of anglers were targeting Smallmouth Bass.

Catch and Harvest Rates

Smallmouth Bass

- Overall catch rate of SMB was 0.45 fish per hour. Annual catch was 146,000 fish.
- Harvest rate was low at 0.001 fish per hour and only 321 SMB harvested annually.



Efficacy of current SMB regulations

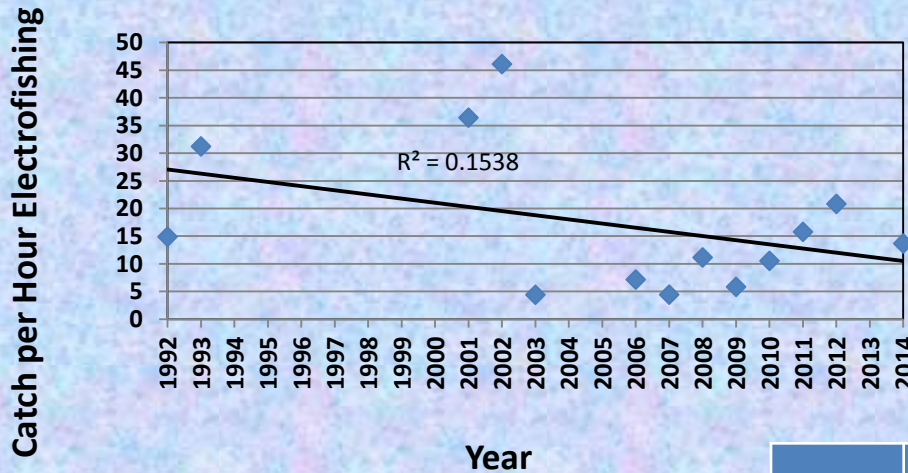
- All Smallmouth Bass regulations have been placed on the Buffalo River to correct a perceived overharvest of larger older fish.
- None are currently effective in controlling mortality. Sources of mortality other than harvest are more significant.
- There remains a high and increasing mortality rate.
- One likely cause could be increased pressure and post hooking mortality.



Potential for SMB nest disturbance

- There is weak evidence that fall YOY SMB abundance is declining.
- Growth of YOY Smallmouth Bass has increased.

Lower Buffalo River Smallmouth Bass YOY Electrofishing Catch Rate



	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	Age 7	Age 8	Age 9
1977	109	177	221	259	313	347			
1980-81	115	169	222	268	344	367	411	439	
2011	190	255	295	347	391	447	456	463	522

Further study is needed.

Summary

- The Buffalo River is a heavily used system that's economically important to the area.
- Use of the system will likely continue to increase and management should adapt to accommodate change.
- Factors influencing the system are complex.
- NPS, AGFC, other agencies, and organizations need to cooperatively develop a flexible management plan to conserve the resource into the future.

