

Catfish and Smallmouth Buffalo Populations in Commercially Versus Non-commercially Harvested Pools of the Illinois River

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Illinois Natural History Survey
Illinois River Biological Station

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- Co-authors
- Technicians
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Commercial Fishing in Illinois

- Mainly large rivers
 - Illinois River
 - Kaskaskia River
 - Mississippi River
 - Ohio River
 - Wabash River
 - Select tributaries of above rivers
 - Some reservoirs (buffalo and carps)
- Hoop, dip, trammel, gill nets, basket traps, trot lines, seines



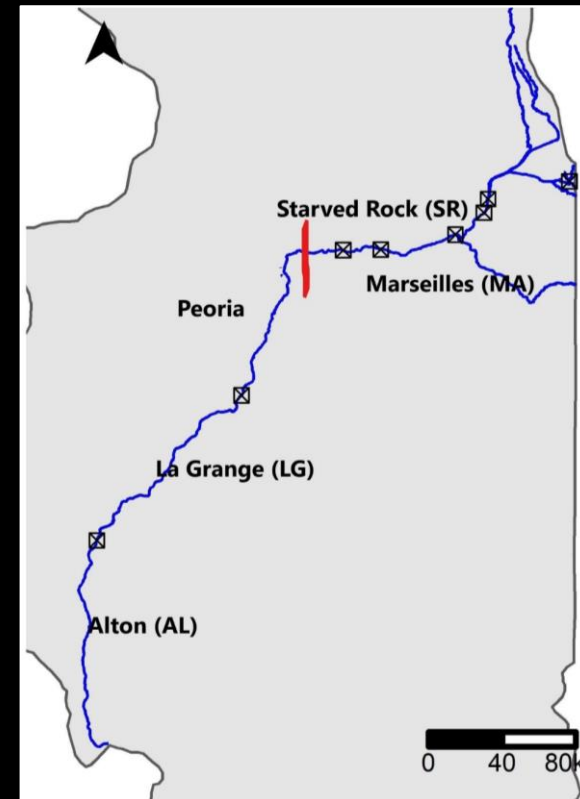
Commercial Fishing in Illinois

- Legally harvestable fishes
 - Carps
 - Buffaloes
 - Freshwater Drum
 - Catfishes
 - Suckers
 - Paddlefish
 - Shovelnose Sturgeon



Illinois River

- Commercial fishing only allowed downstream of Route 89 highway bridge
 - Other than special use invasive carp permits
 - Contaminants



Illinois River (2018)

- Most harvested IL waterway
 - 5.5 million lbs
 - \$880,000
- Bigheaded and Grass Carp most harvested
- Buffalo spp. and catfish most harvested natives
 - Buffalo: unlimited harvest
 - Catfish: unlimited >15 inches
 - ~700,000 lbs
 - \$213,000



Multi-Agency Monitoring

- Began in 2019
- Collaboration between IDNR, INHS, and USACE
- Sampling each pool of Illinois River
- Detection and monitoring of bigheaded and grass carp
- Evaluation of native fish response to carp removal
- Allows comparison of pools





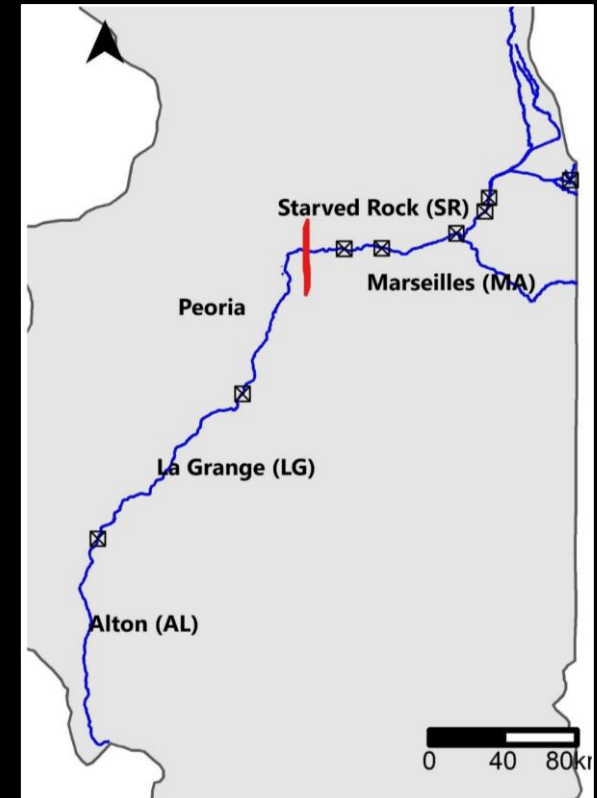
Objective

- Assess differences in Channel Catfish, Flathead Catfish, and Smallmouth Buffalo populations between commercially harvestable and non-harvestable pools



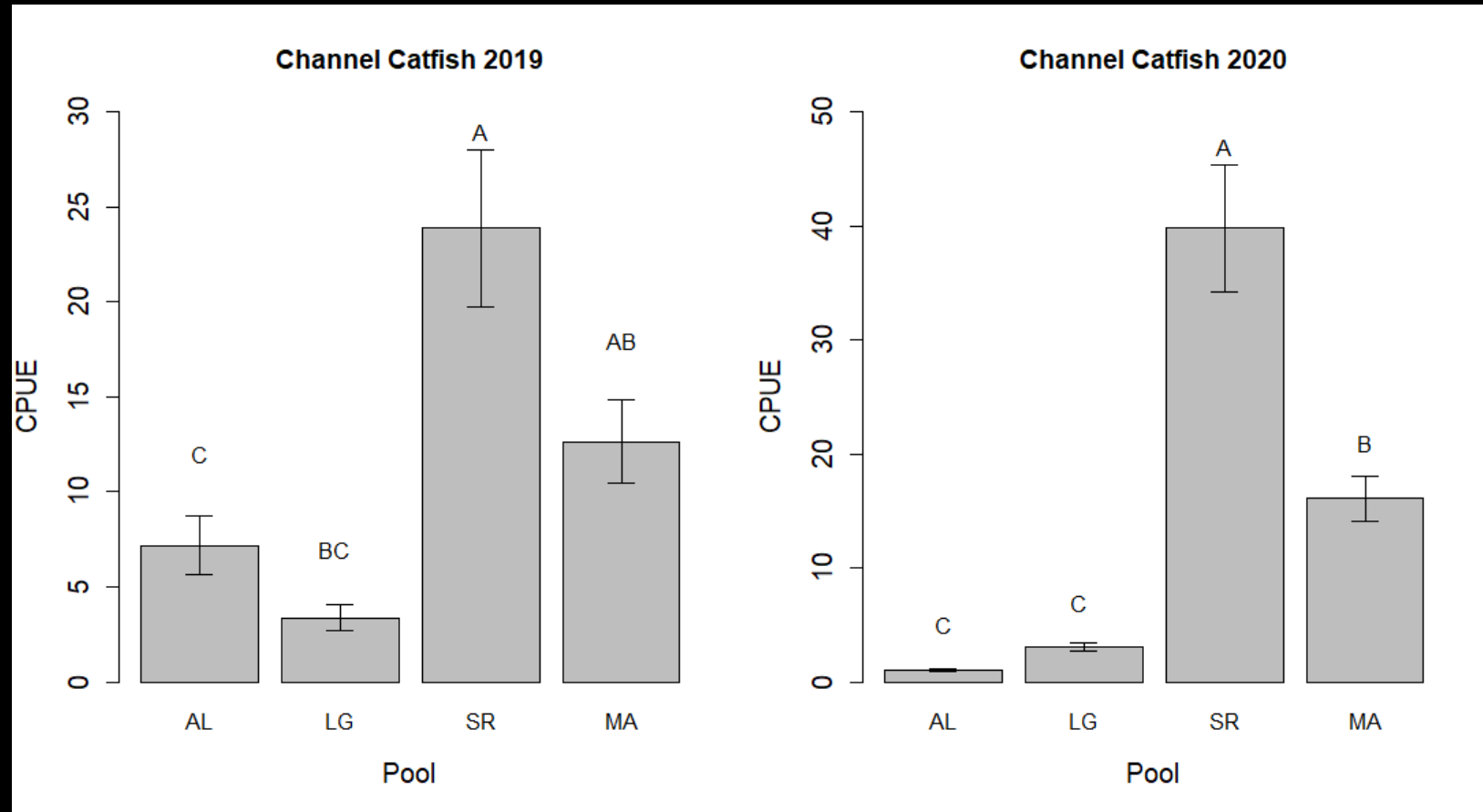
Methods

- Tandem large and small hoop nets baited with soybean cake
 - ~48 hour sets
- Main channel and side channel borders
 - 2019 and 2020
- Alton, La Grange, Starved Rock, Marseilles Pools
 - Peoria Pool removed as buffer
- CPUE -> Fish/Net set
 - Removed sub stock-length fish
- PSD (Gabelhouse 1984)
- Condition (W_r)
- ANOVAs

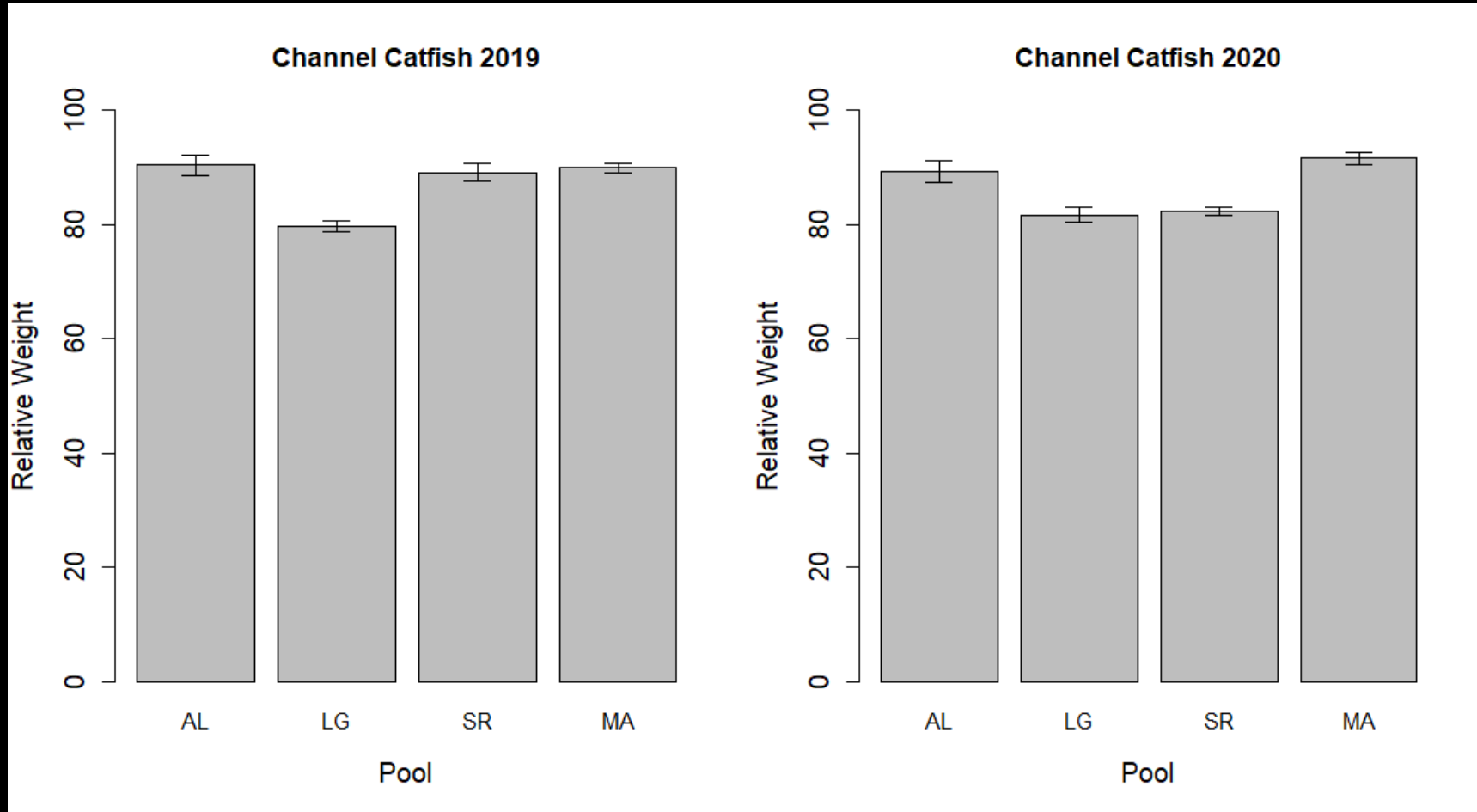


Channel Catfish

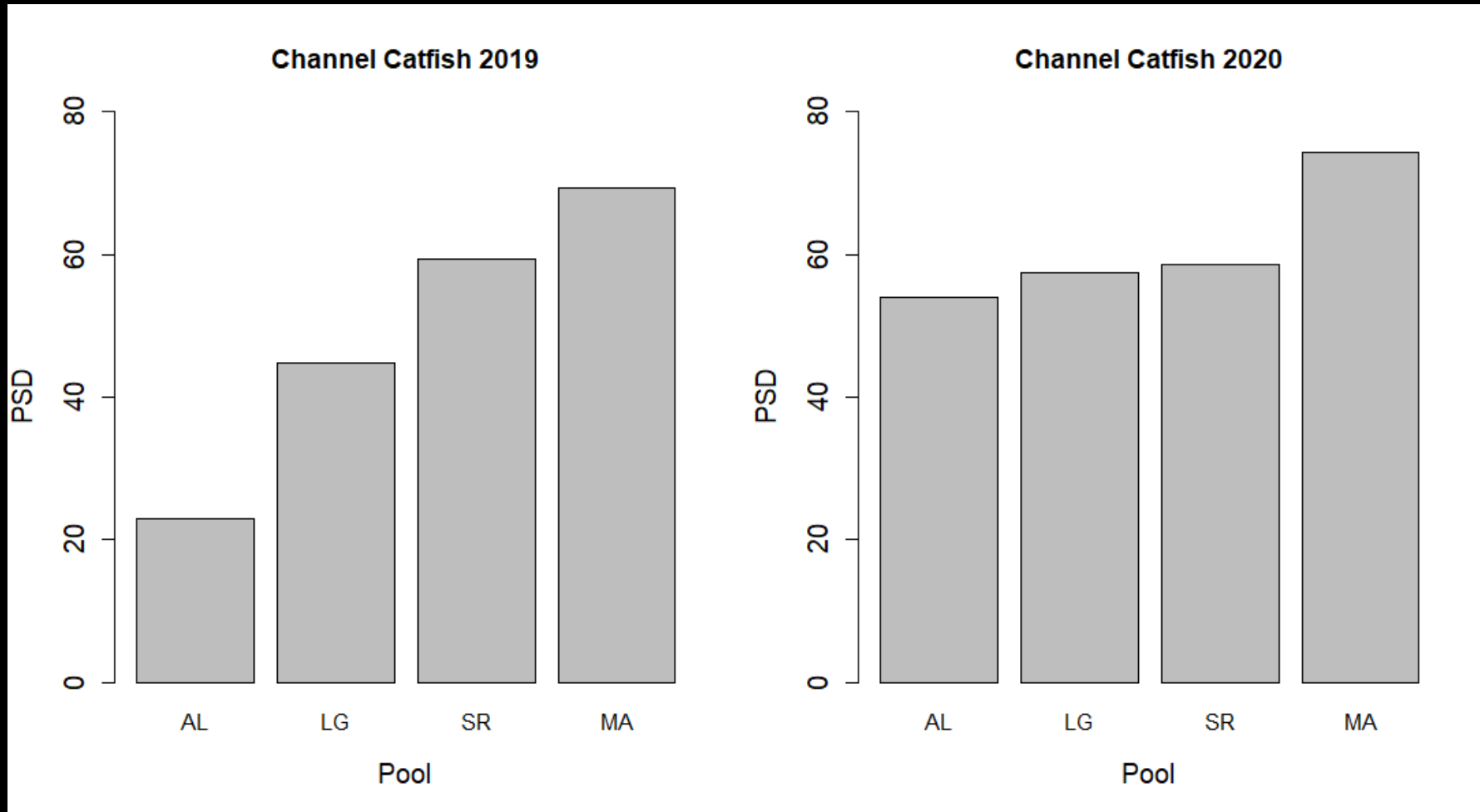
- Most abundant catfish species in Illinois River



Channel Catfish

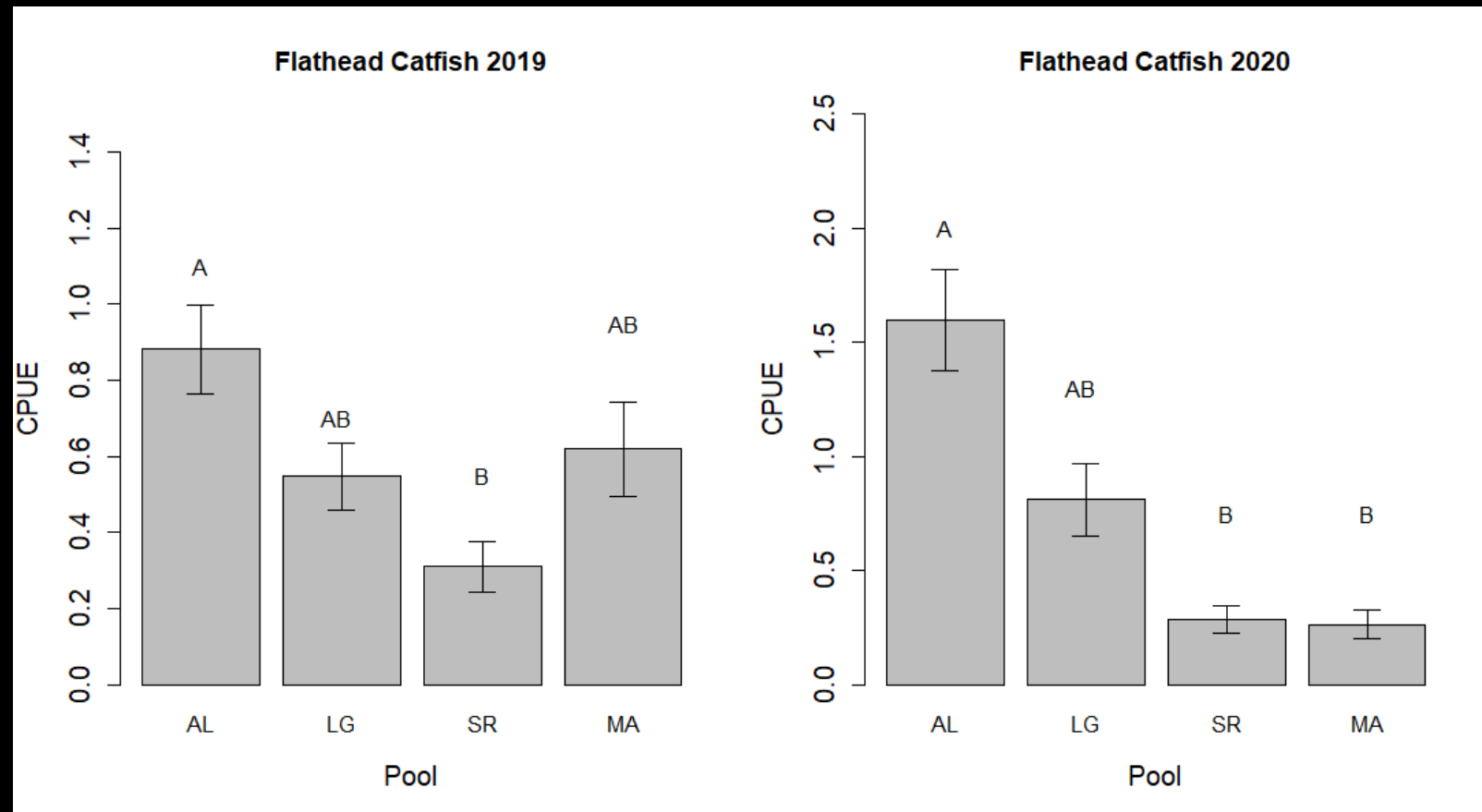


Channel Catfish

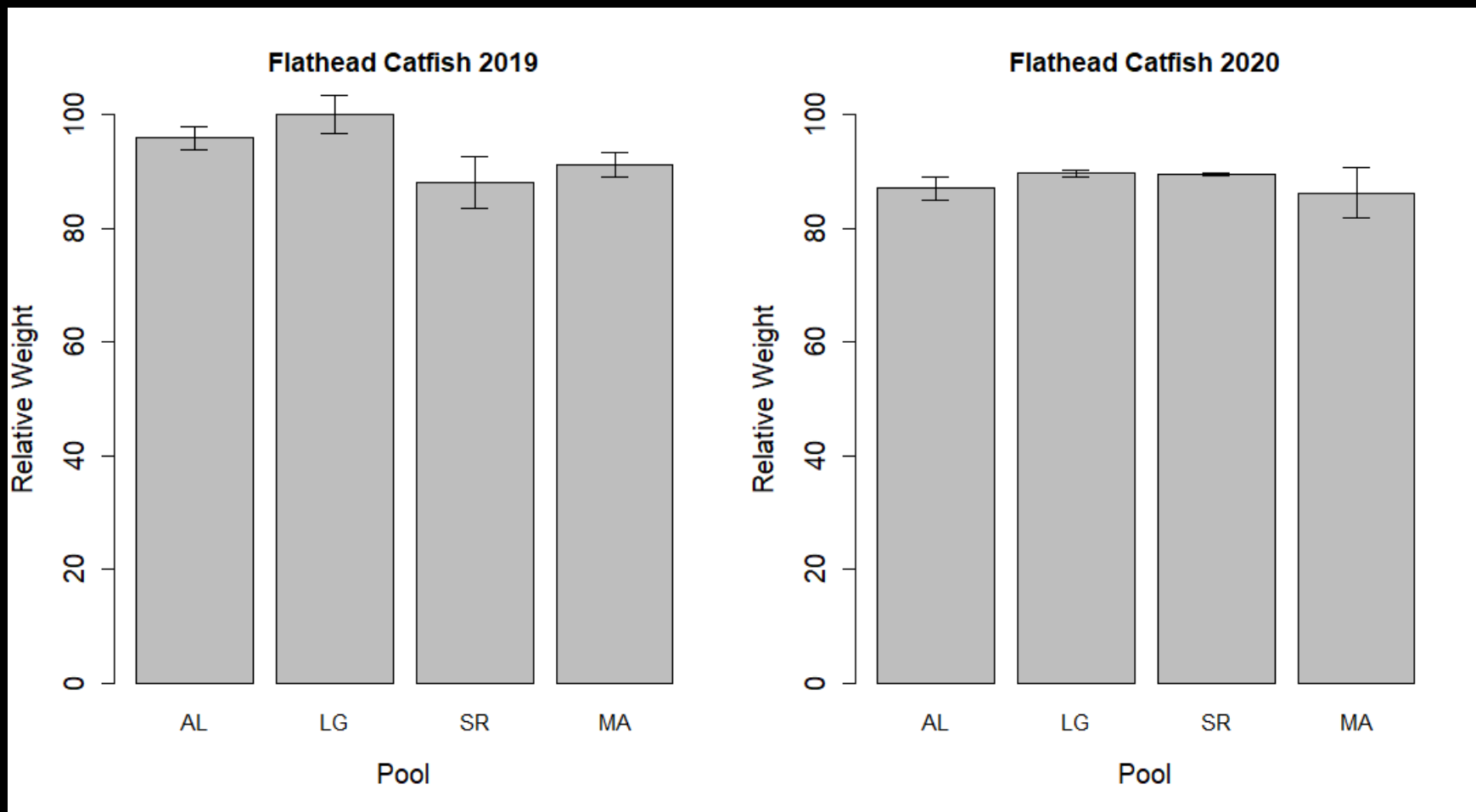


Flathead Catfish

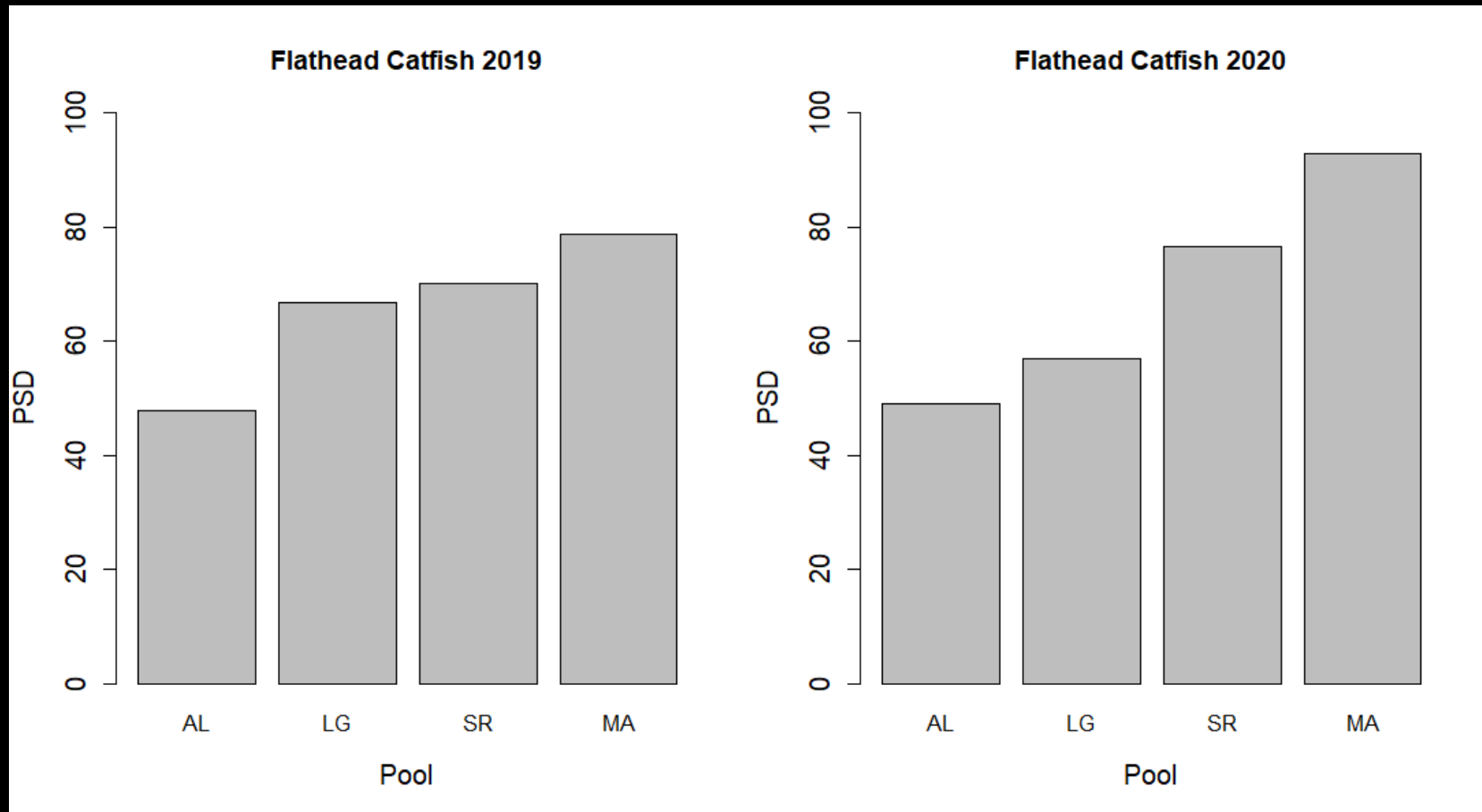
- Largest piscivore in Illinois River



Flathead Catfish

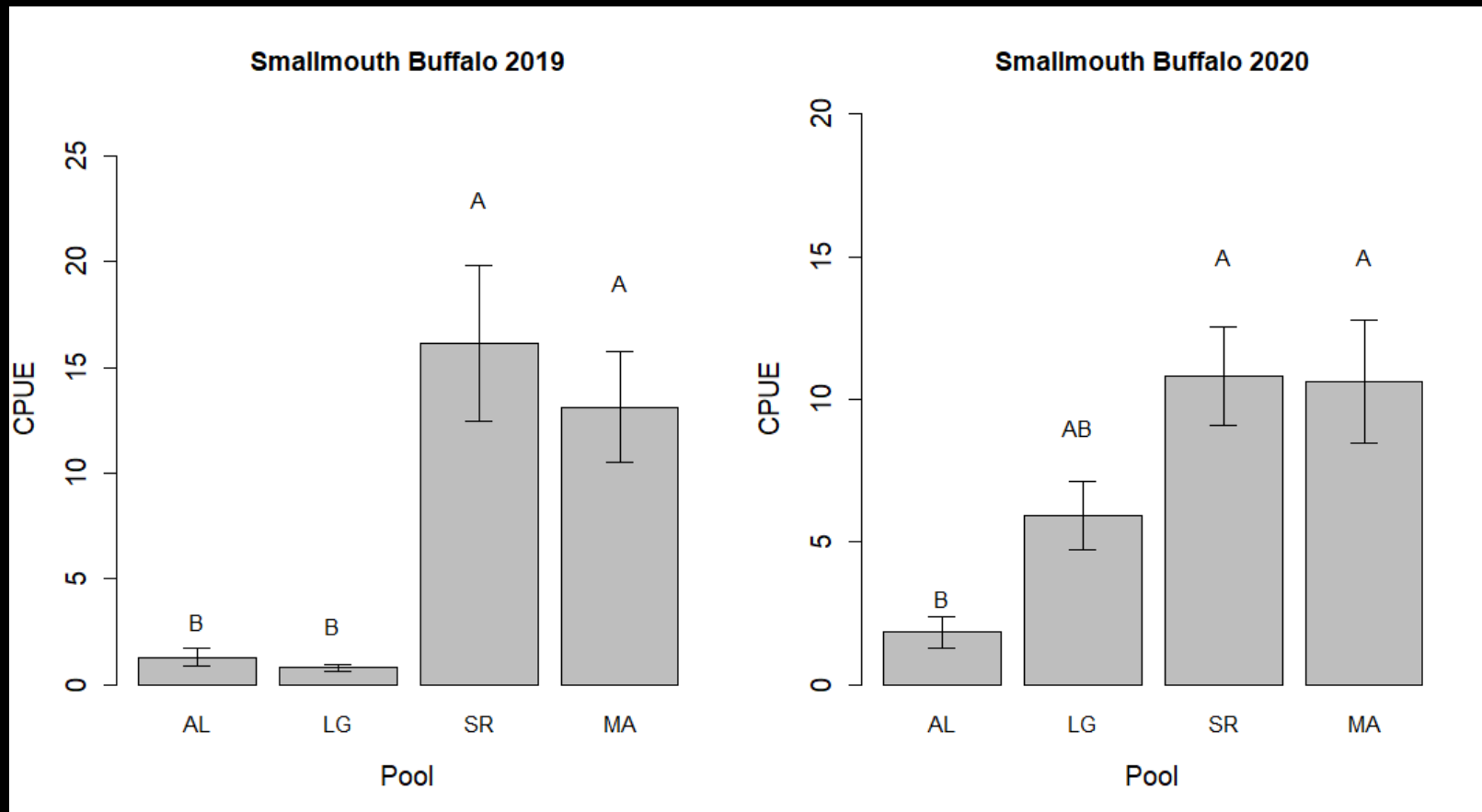


Flathead Catfish

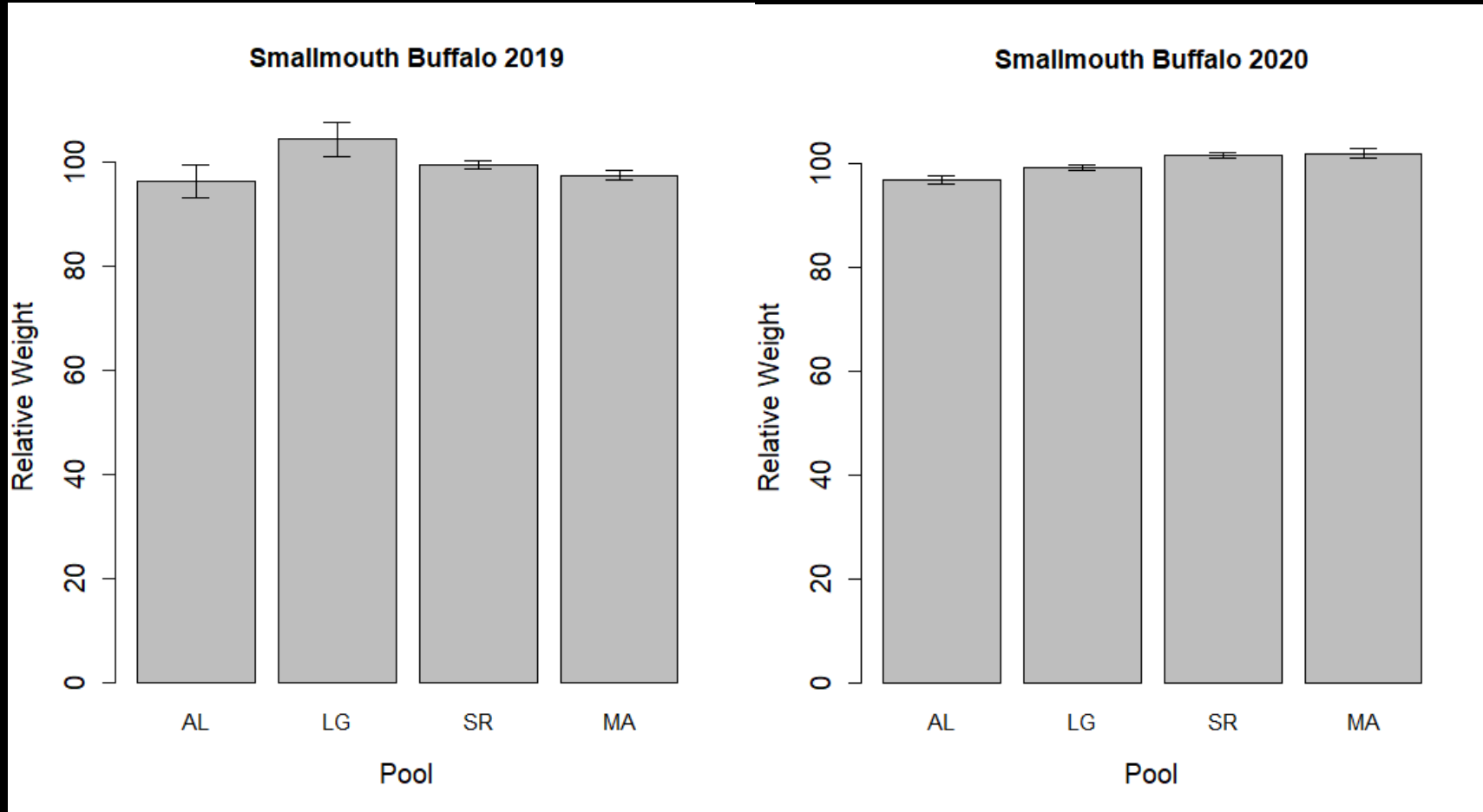


Smallmouth Buffalo

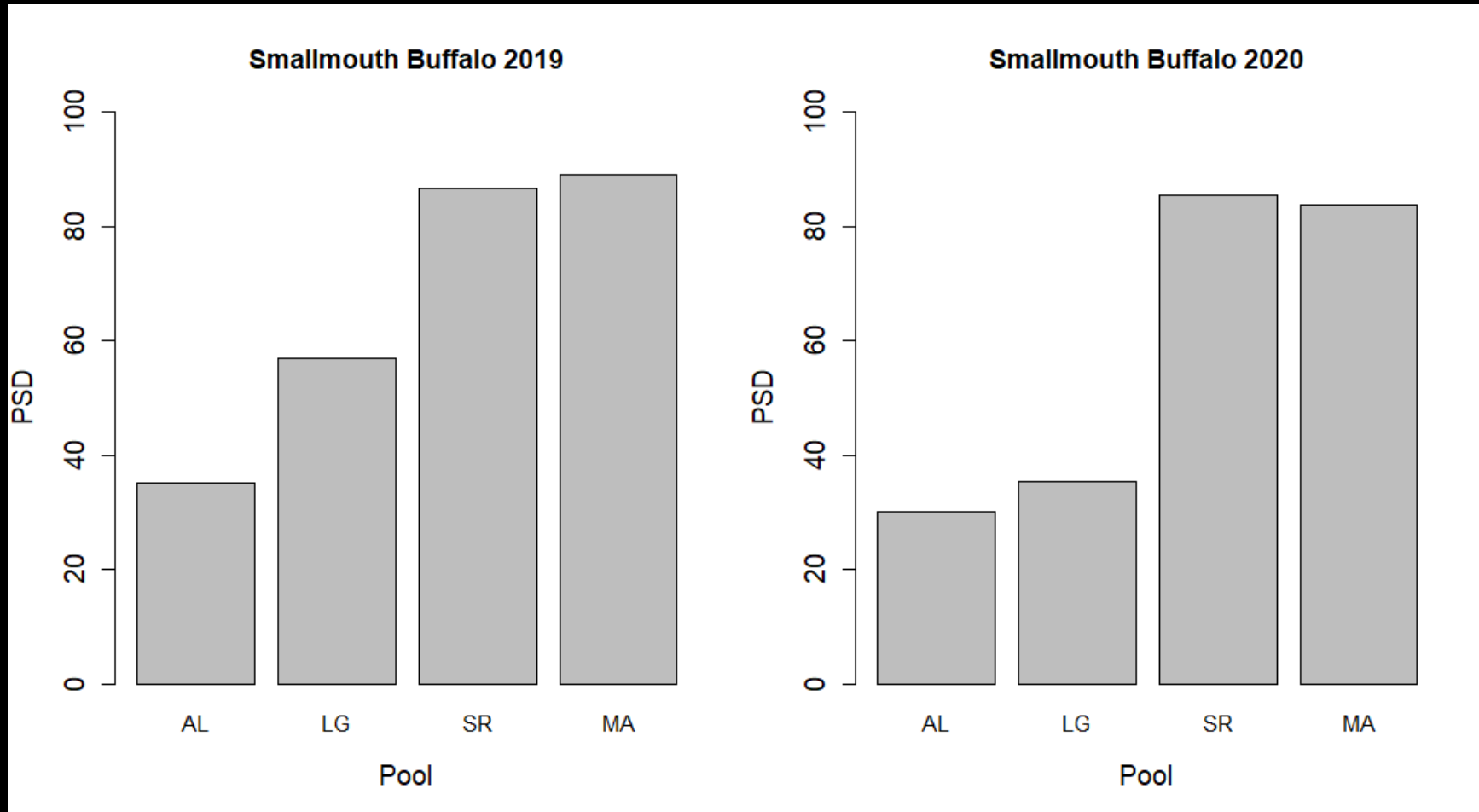
- Most abundant Buffalo species in Illinois River



Smallmouth Buffalo



Smallmouth Buffalo



Conclusions

- Channel Catfish and Smallmouth Buffalo
 - More abundant in NCH pools
- Flathead Catfish
 - More abundant in pools
- All three species
 - Similar condition and greater size structure in NCH pools



Implications/Future Direction

- Impact of commercial fishing?
 - Habitat?
- Aging work
- Otolith microchemistry
- Continued sampling
- Further Analyses

