

Effects of Asian Carp on sport fish in oxbow lakes of the Lower Mississippi River

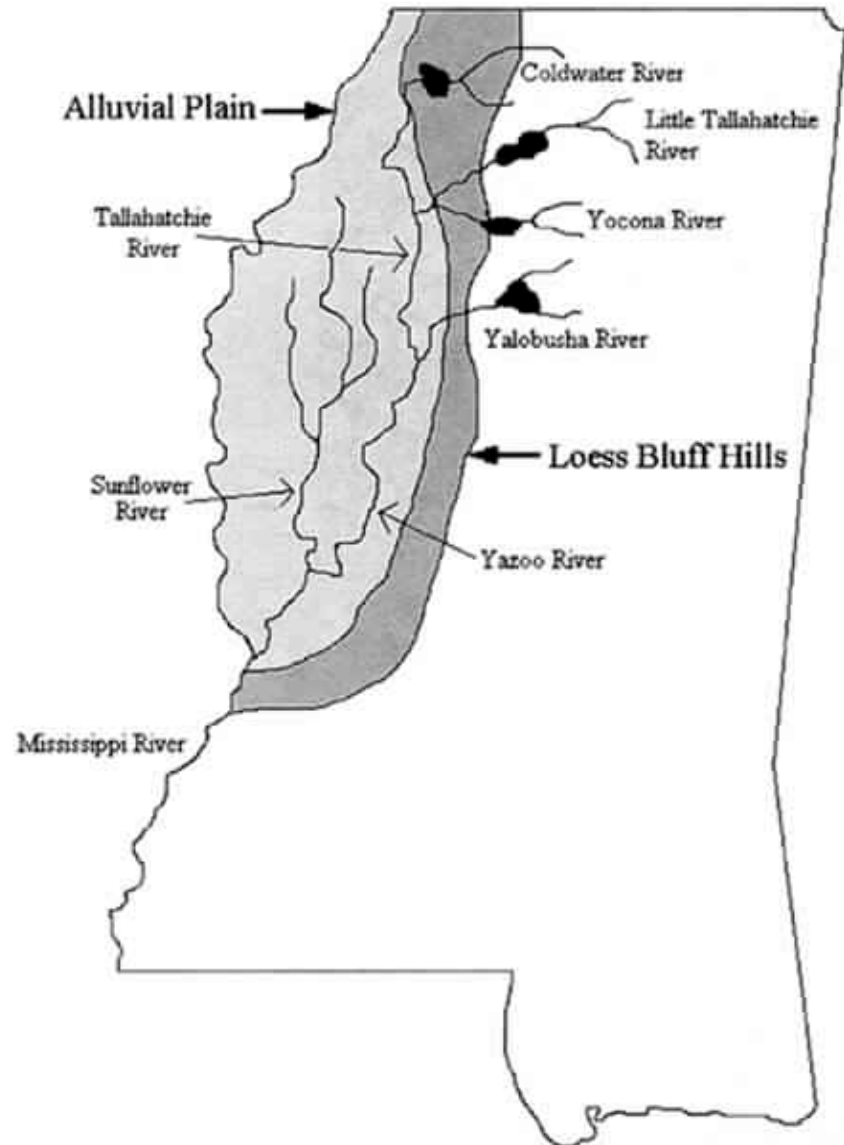
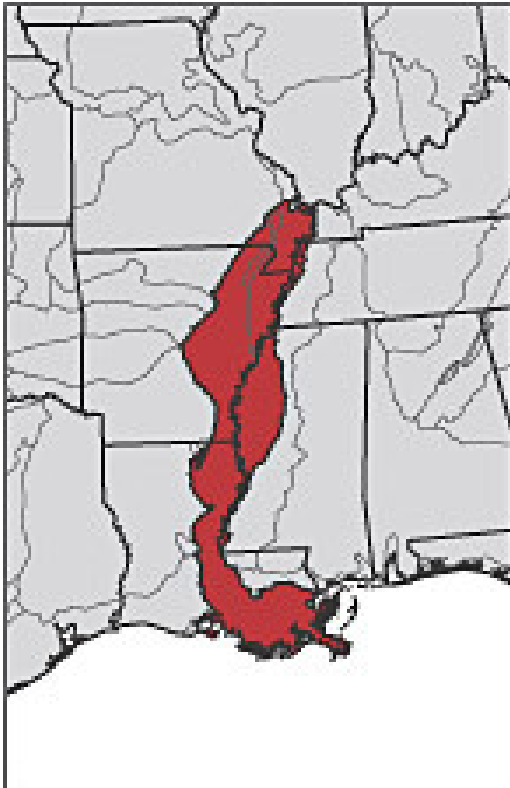


Nathan Aycock
MDWFP

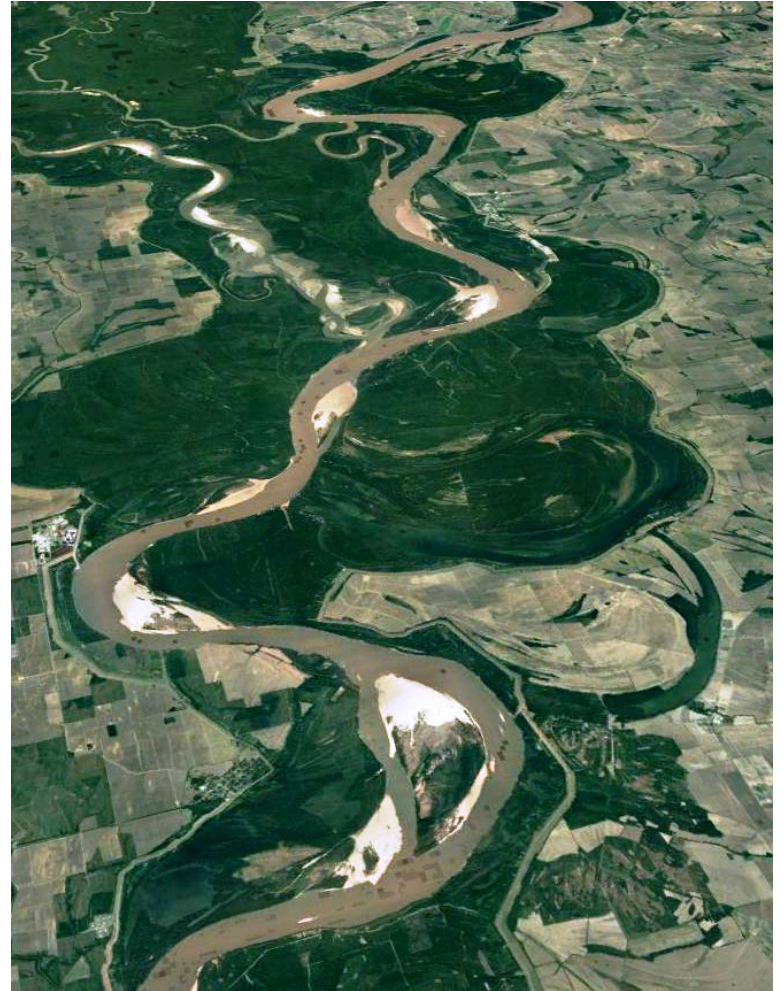


Yazoo River Basin (MS Delta)

Mississippi River Alluvial Plain



Mississippi River Oxbow Lakes



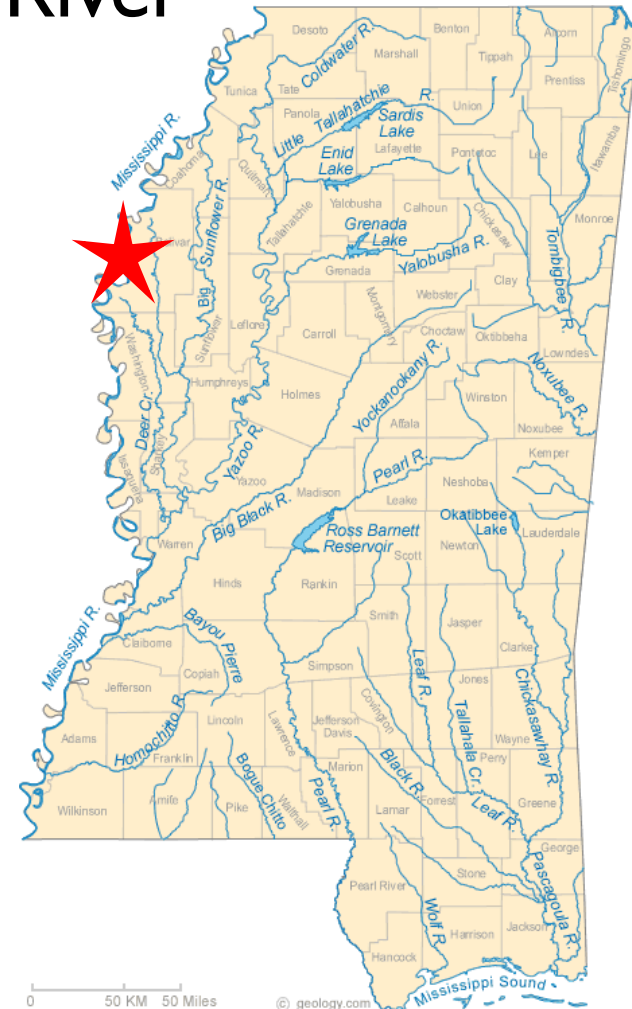


Question:

*How do Silver and Bighead
Carp effect game fish?*

Study Site – Lake Whittington

- 3,000 acre oxbow of MS River
- River connected
- Asian carp



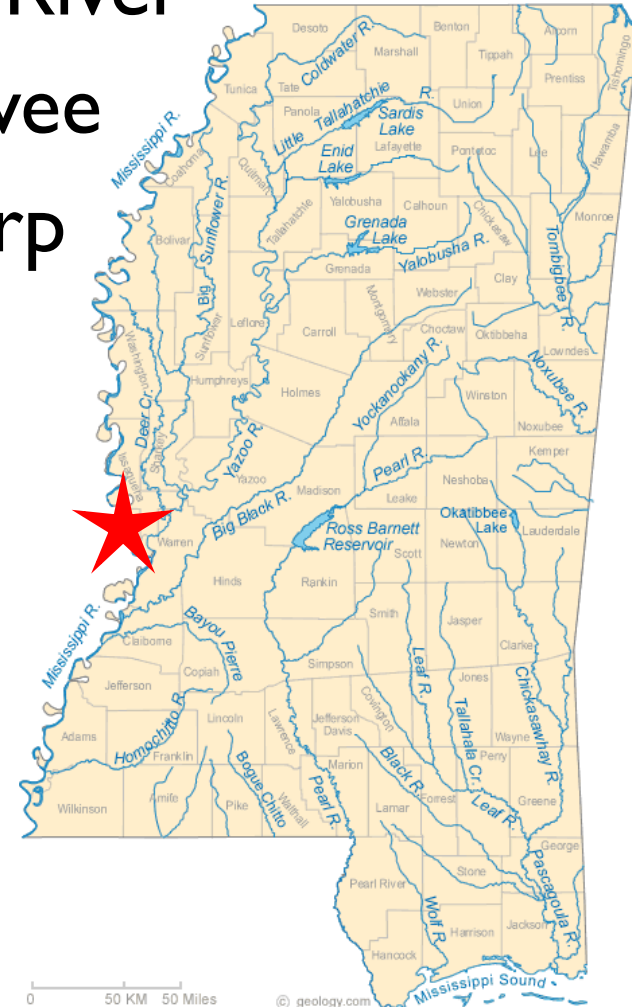
Study Site – Tunica Cutoff

- 3,800 acre oxbow of MS River
- River connected
- Asian carp



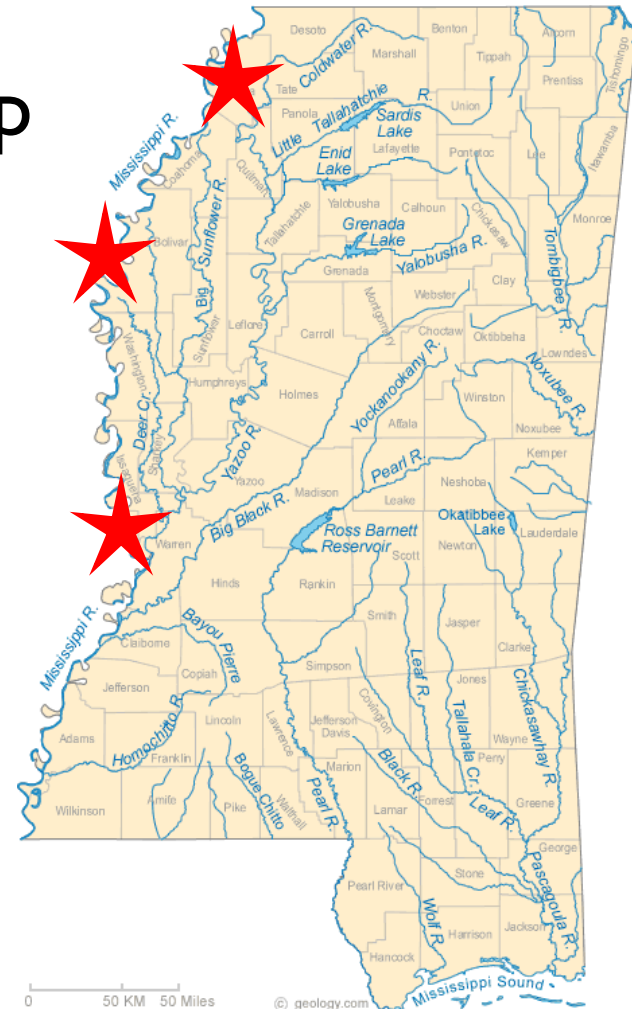
Study Site – Eagle Lake

- 4,700 acre oxbow of MS River
- Disconnected; outside levee
- No reproducing Asian carp



Study Sites

- 3 large MS river oxbows
- 2 connected w/Asian carp
 - Whittington
 - Tunica
- 1 disconnected w/no Asian carp
 - Eagle



Methods

- Determine current fish community composition by rotenone sampling
- Compared to past samples prior to Silver and Bighead Carp introductions
- Old Samples:
 - Whittington – 1984, 1991, 1992
 - Eagle – 1991, 1992, 1993, 1994
 - Tunica - 1991

Methods

- Same methodology as old sampling:
 - 4 sites, 1 acre each
 - Late summer (July/August)
 - 8 man crew
 - Day 1 – set net, apply rotenone, fish pick up
 - Day 2 – fish pick up
 - Length and weight on all fish collected
- Whittington – 2016
- Tunica & Eagle - 2017

Lake Whittington

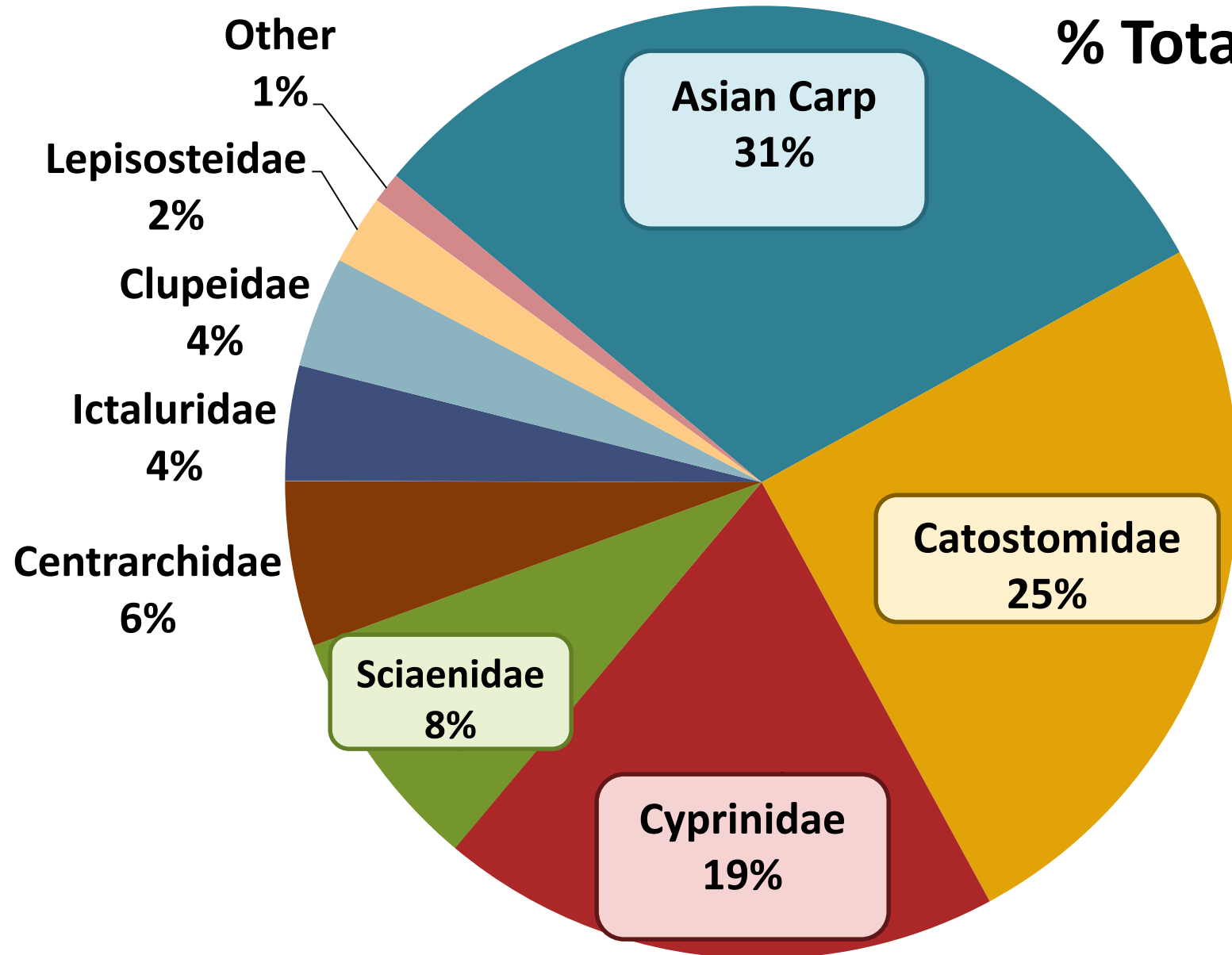




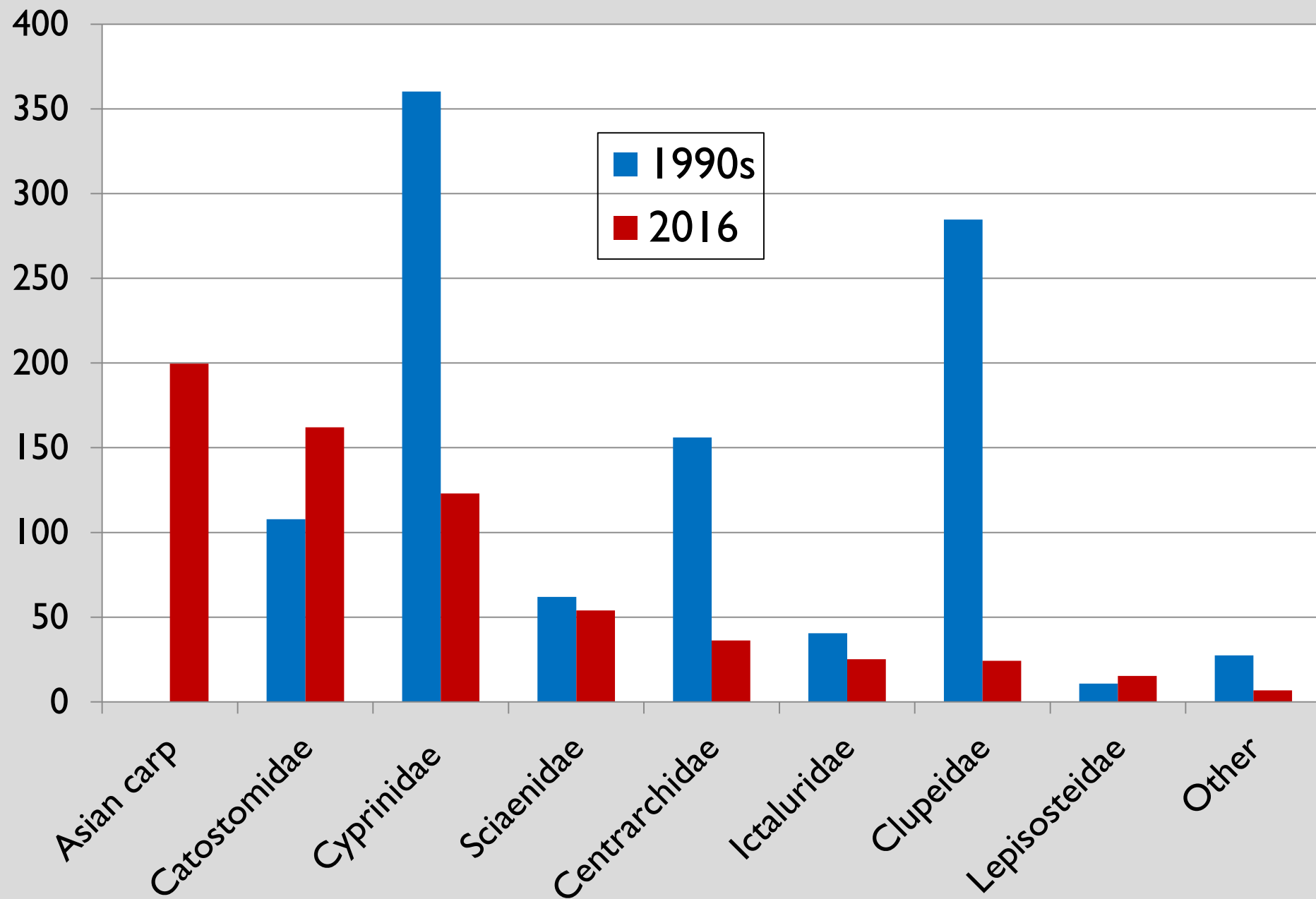


Whittington results

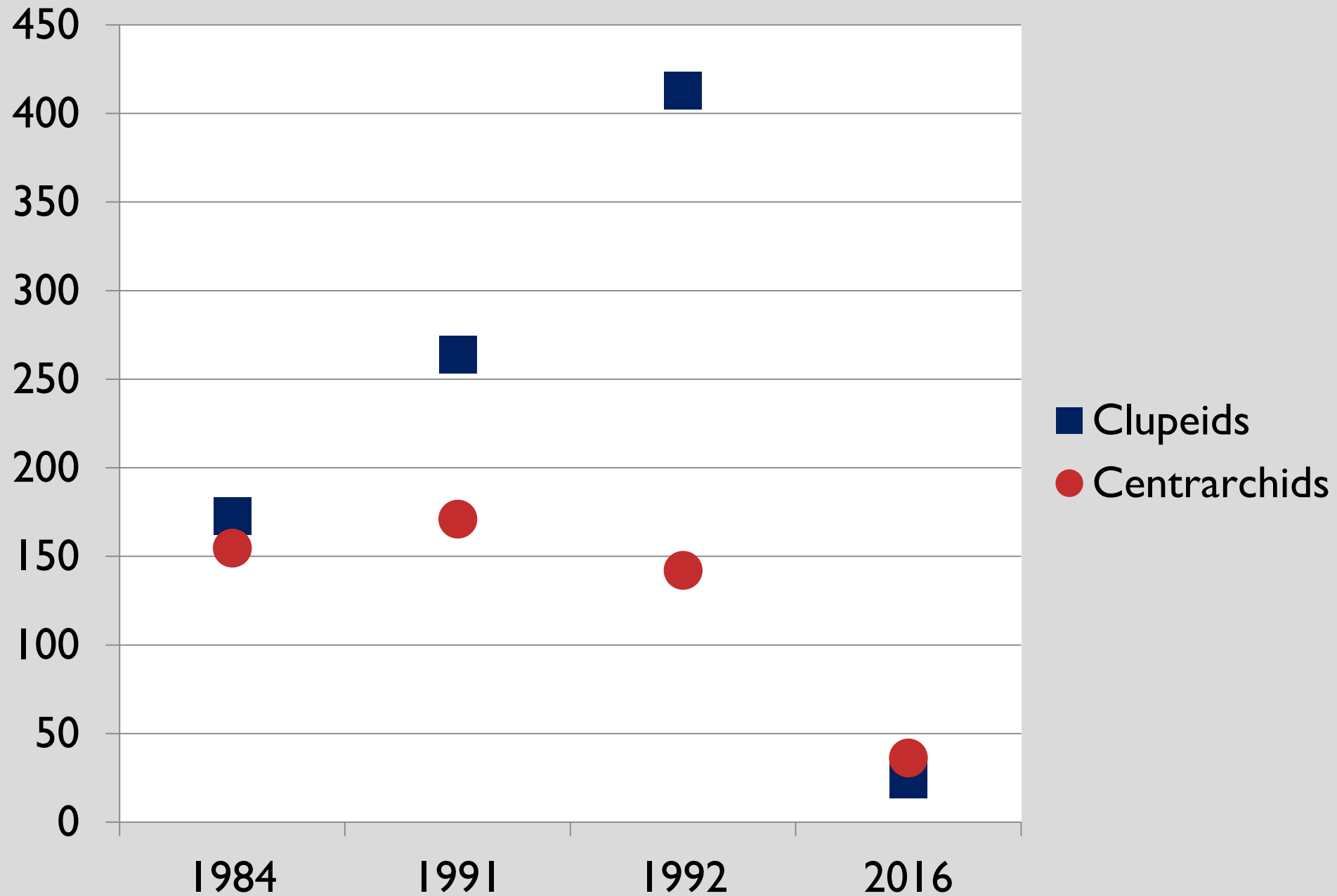
% Total Weight



Whittington - pounds per acre



Whittington – pounds per acre

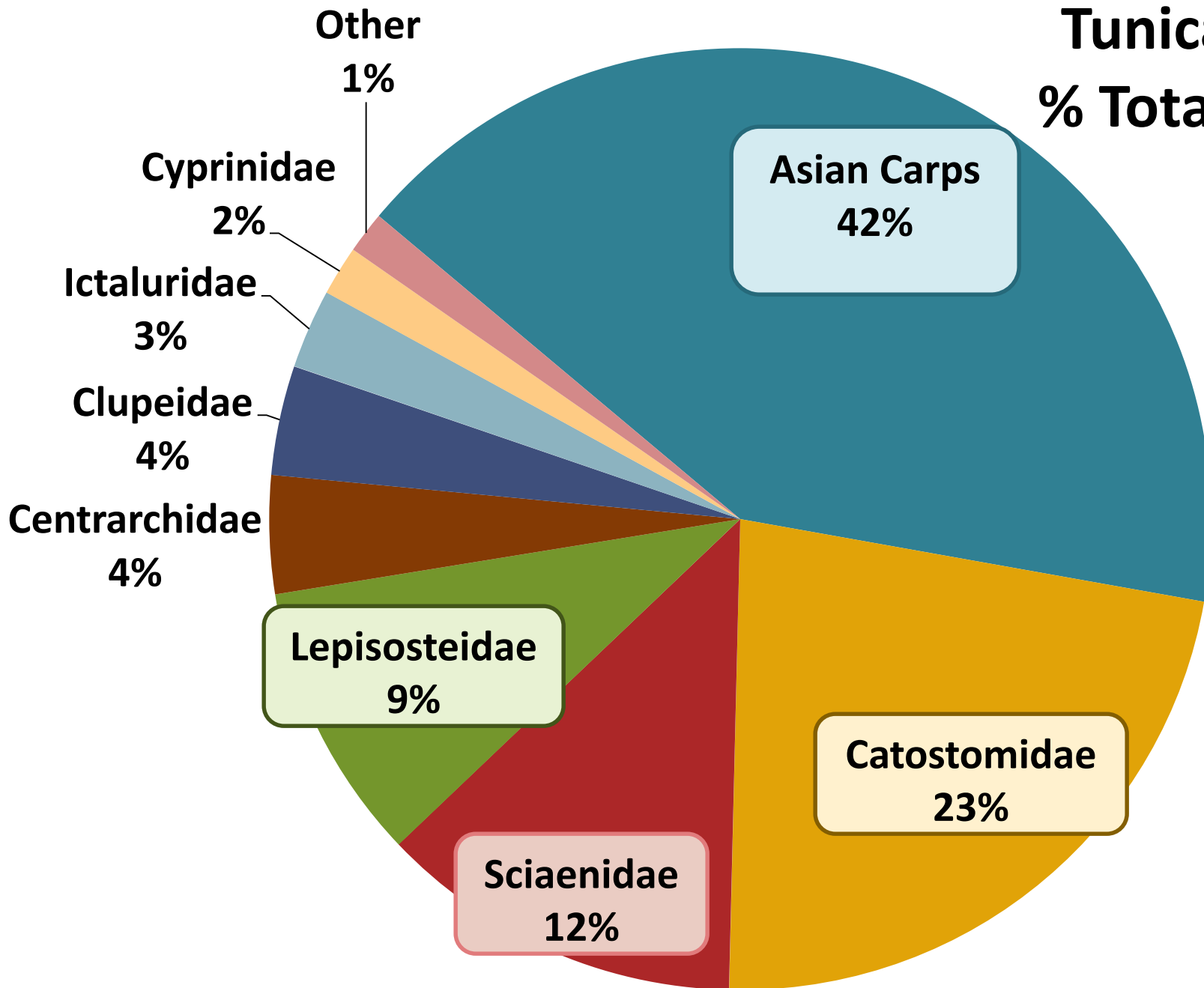


Tunica Lake

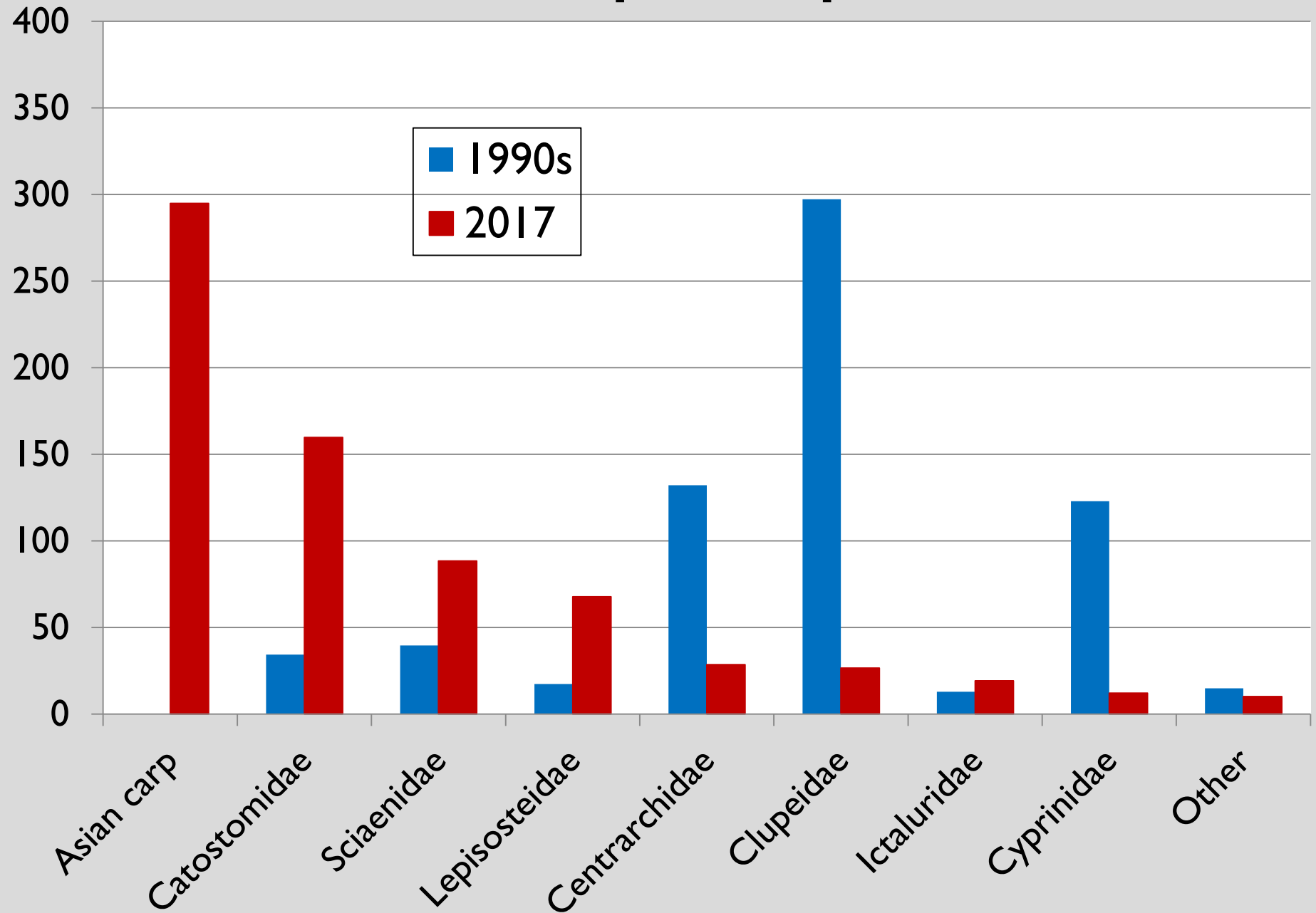




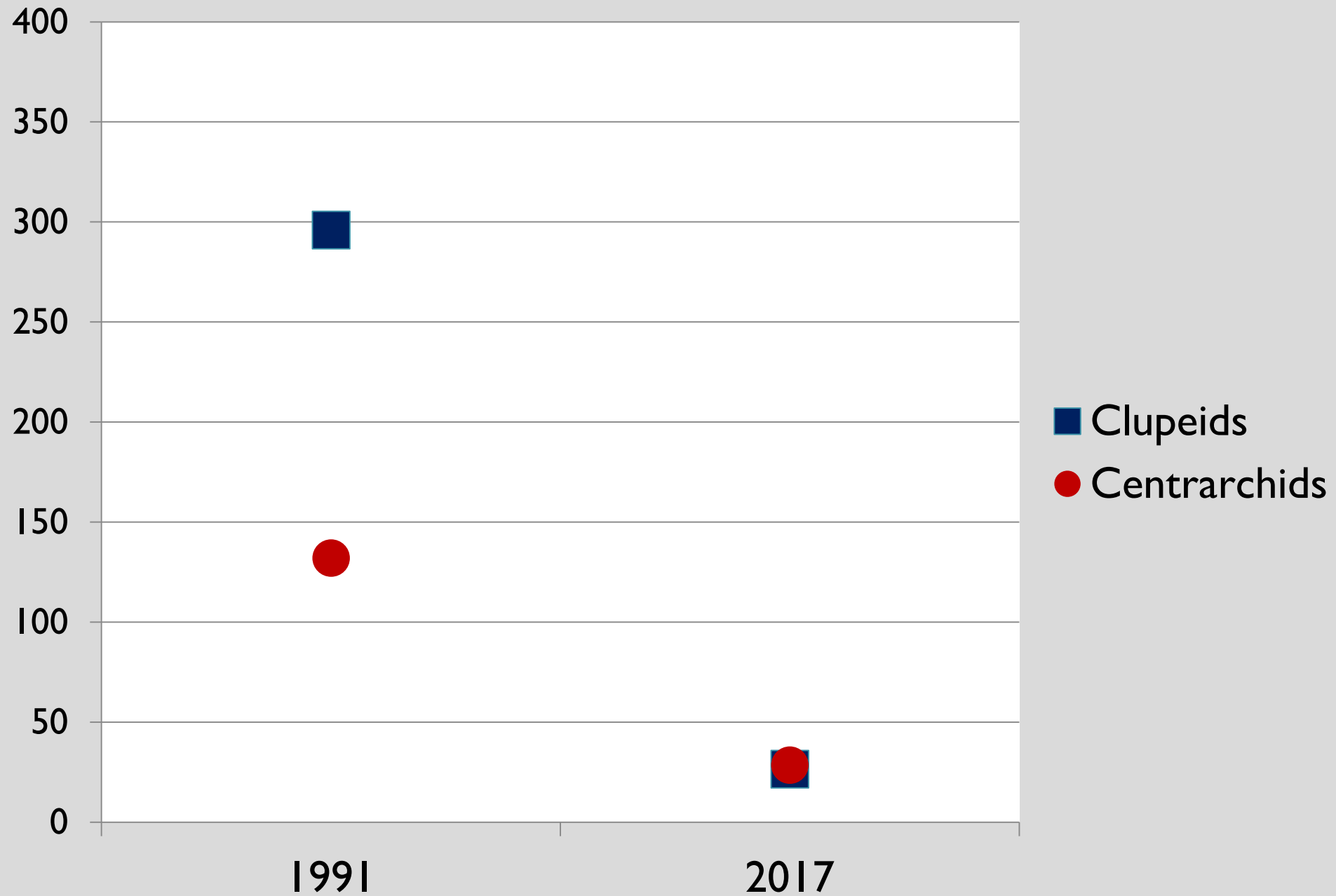
Tunica results % Total Weight



Tunica - pounds per acre



Tunica – pounds per acre



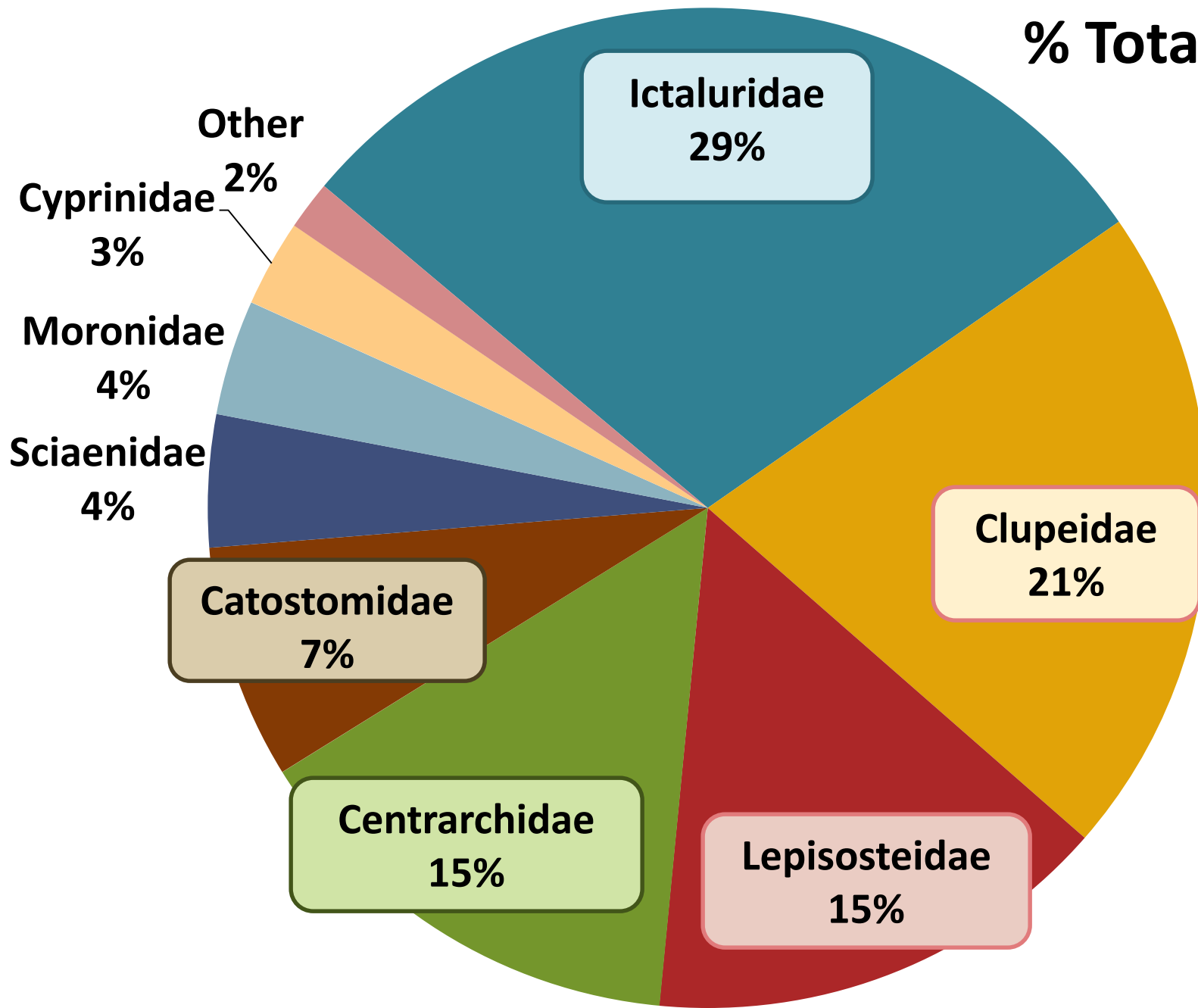
Eagle Lake



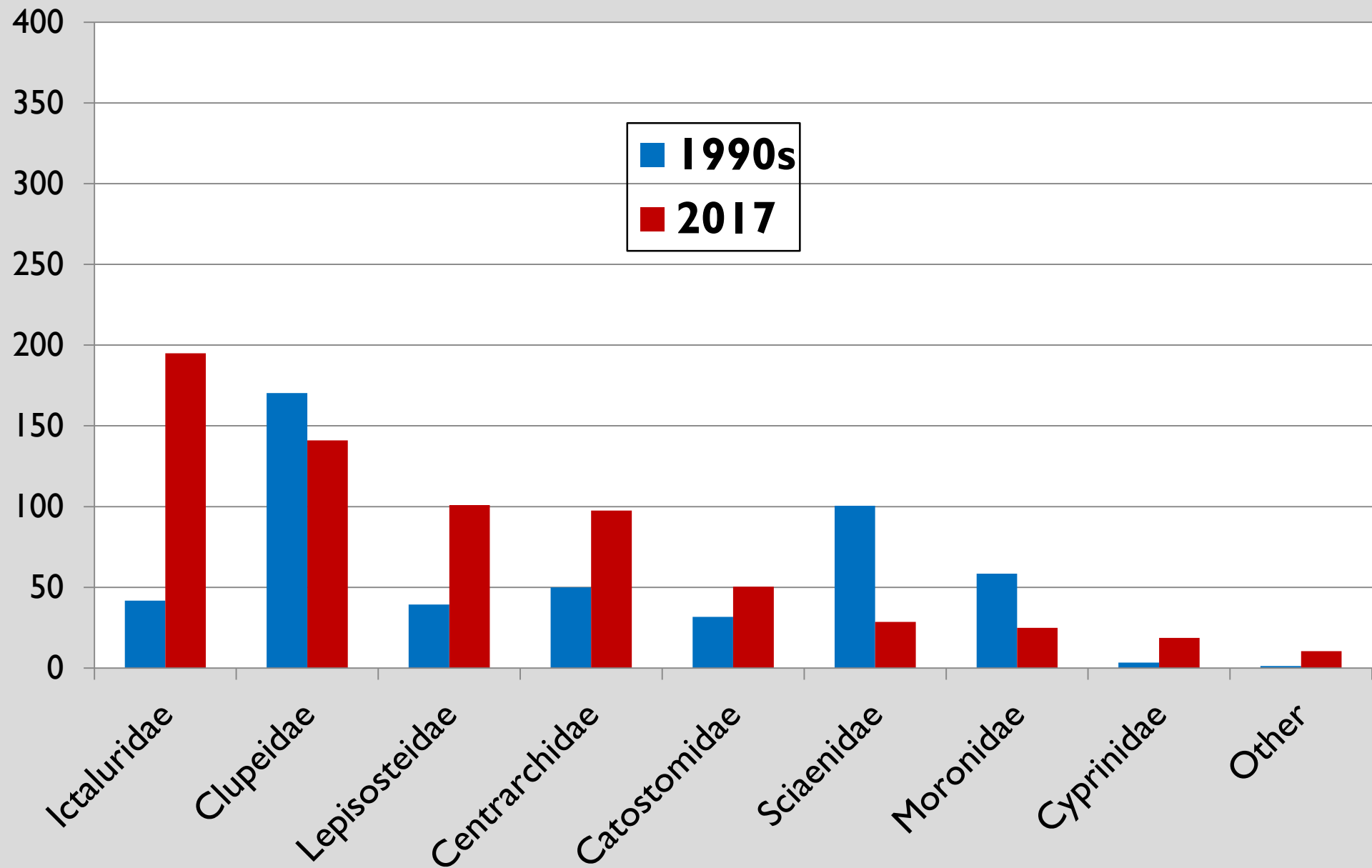


Eagle Rotenone results

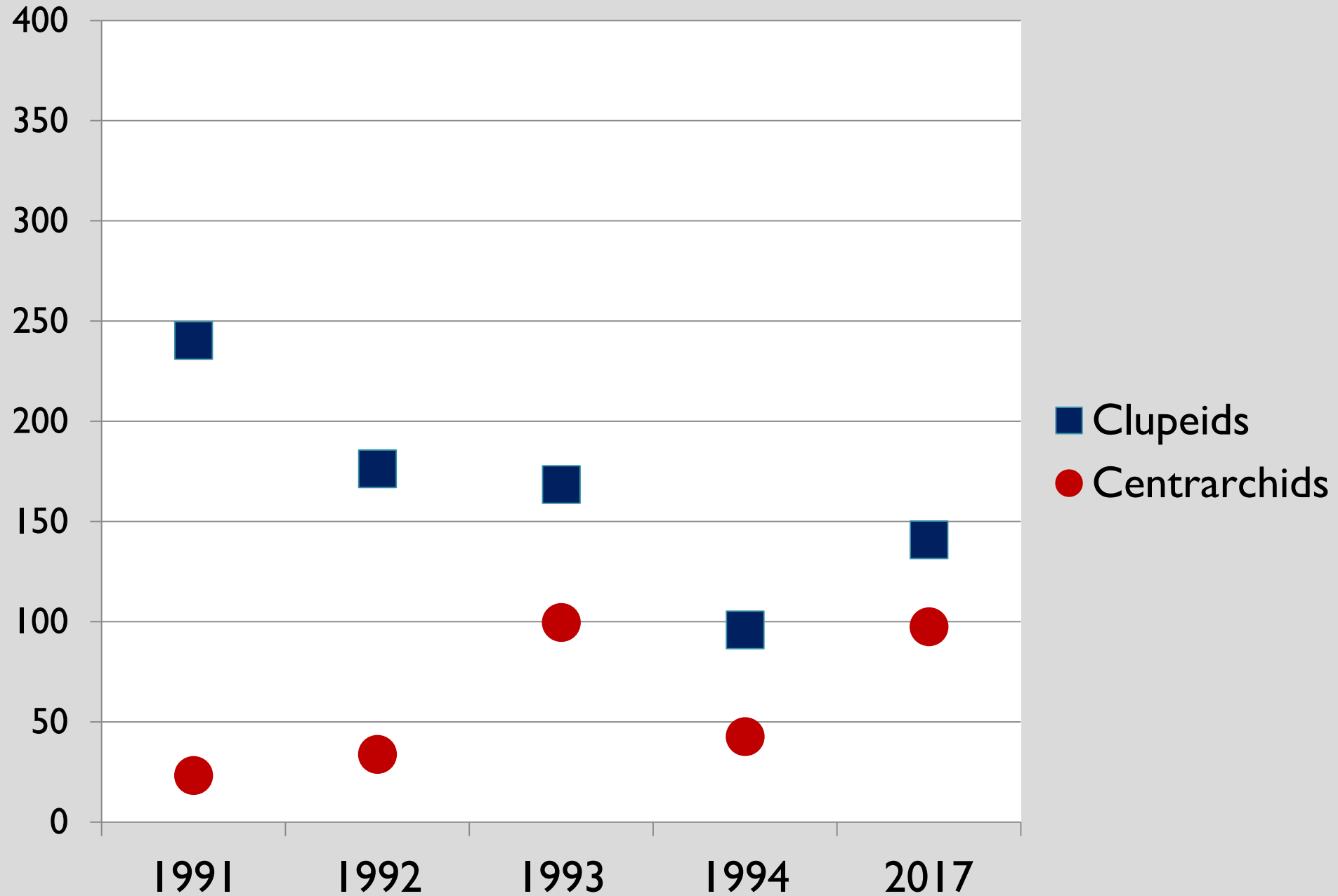
% Total Weight



Eagle - pounds per acre



Eagle – pounds per acre



Species Richness

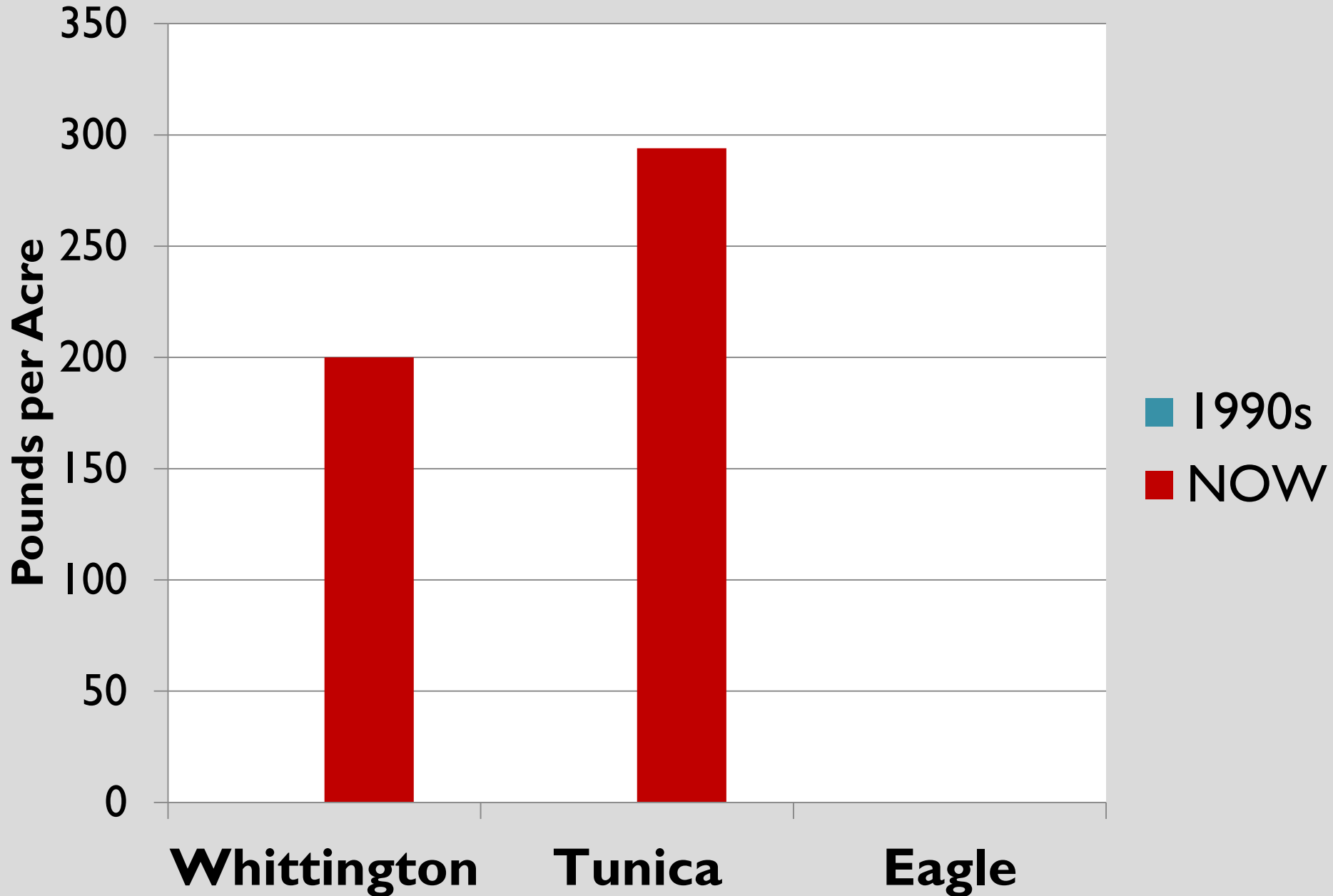
Lake	Avg # species 1990s (range)	Avg # species Now (range)
Whittington	29 (24-35)	26 (23-31)
Tunica	27 (22-30)	30 (28-31)
Eagle	22 (18-26)	23 (18-27)

- No change in species richness

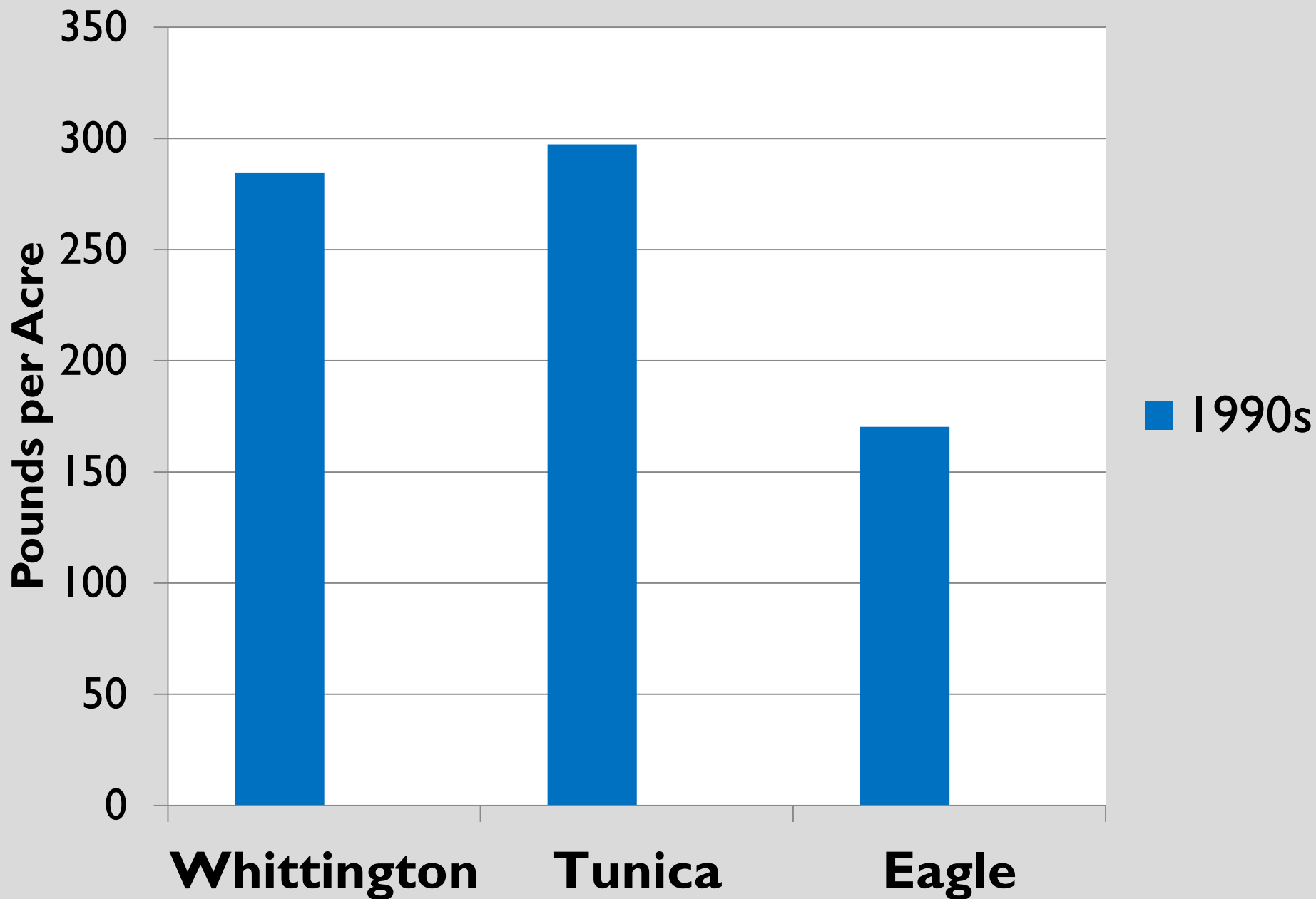
Asian Carp



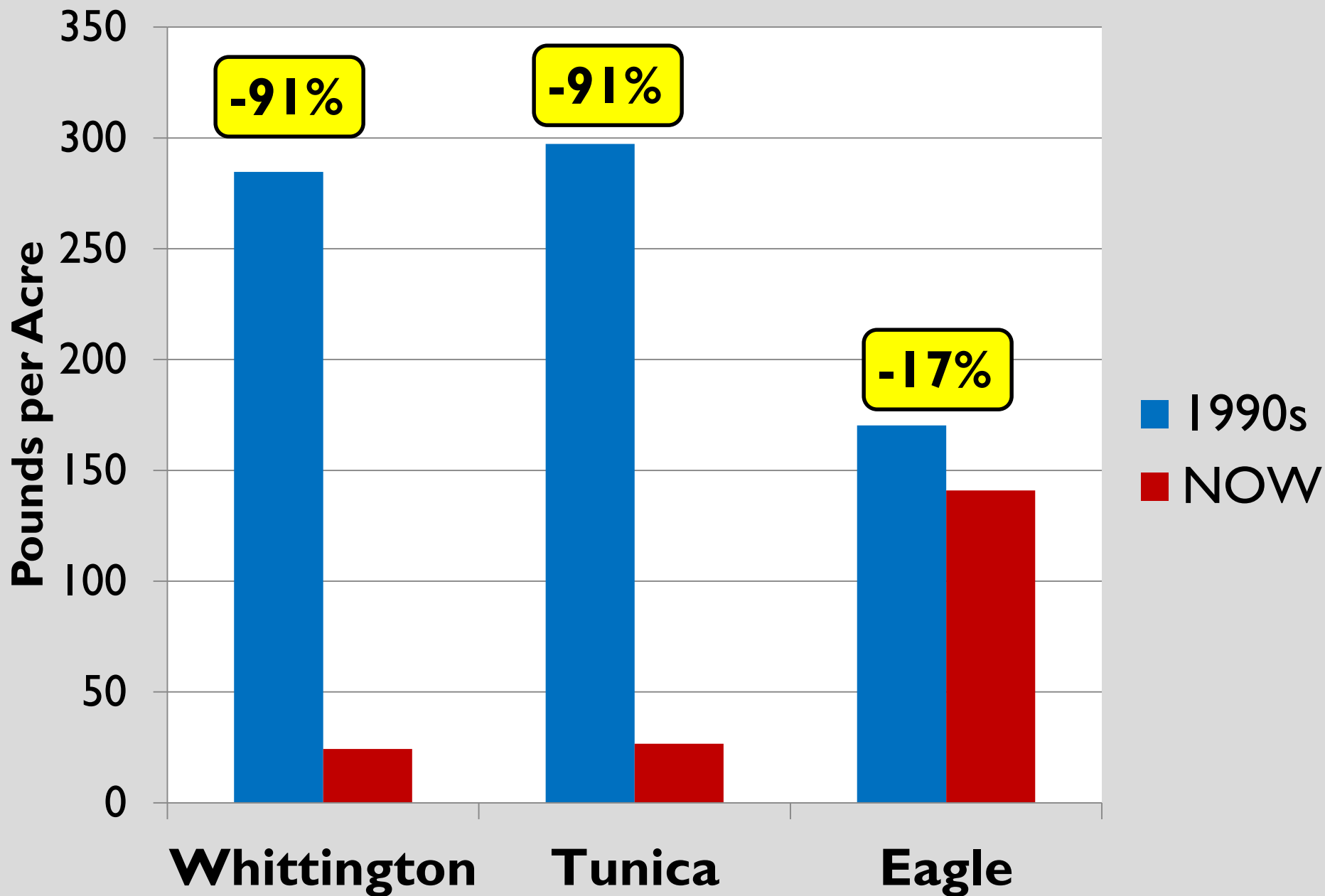
Asian Carp



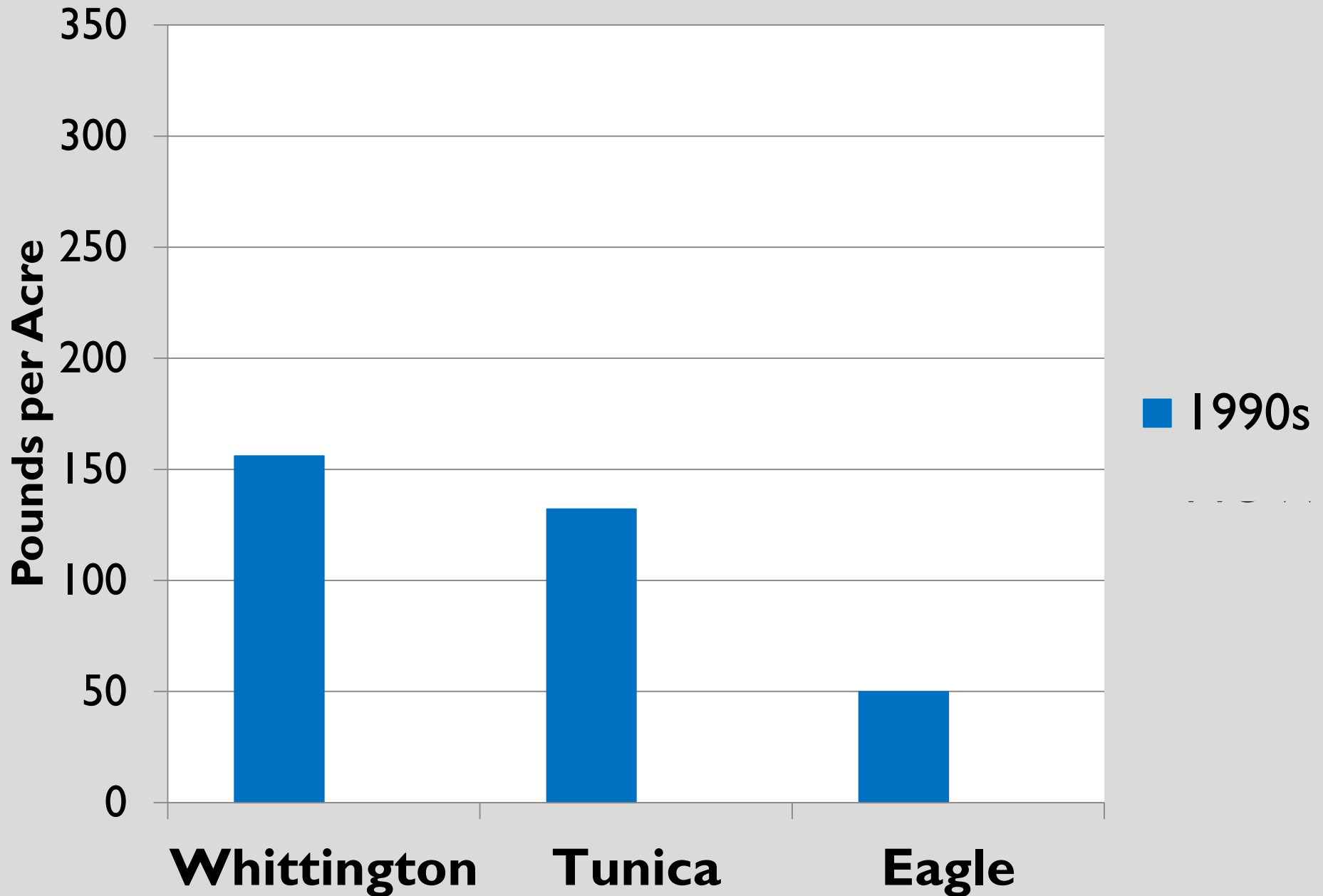
Clupeidae



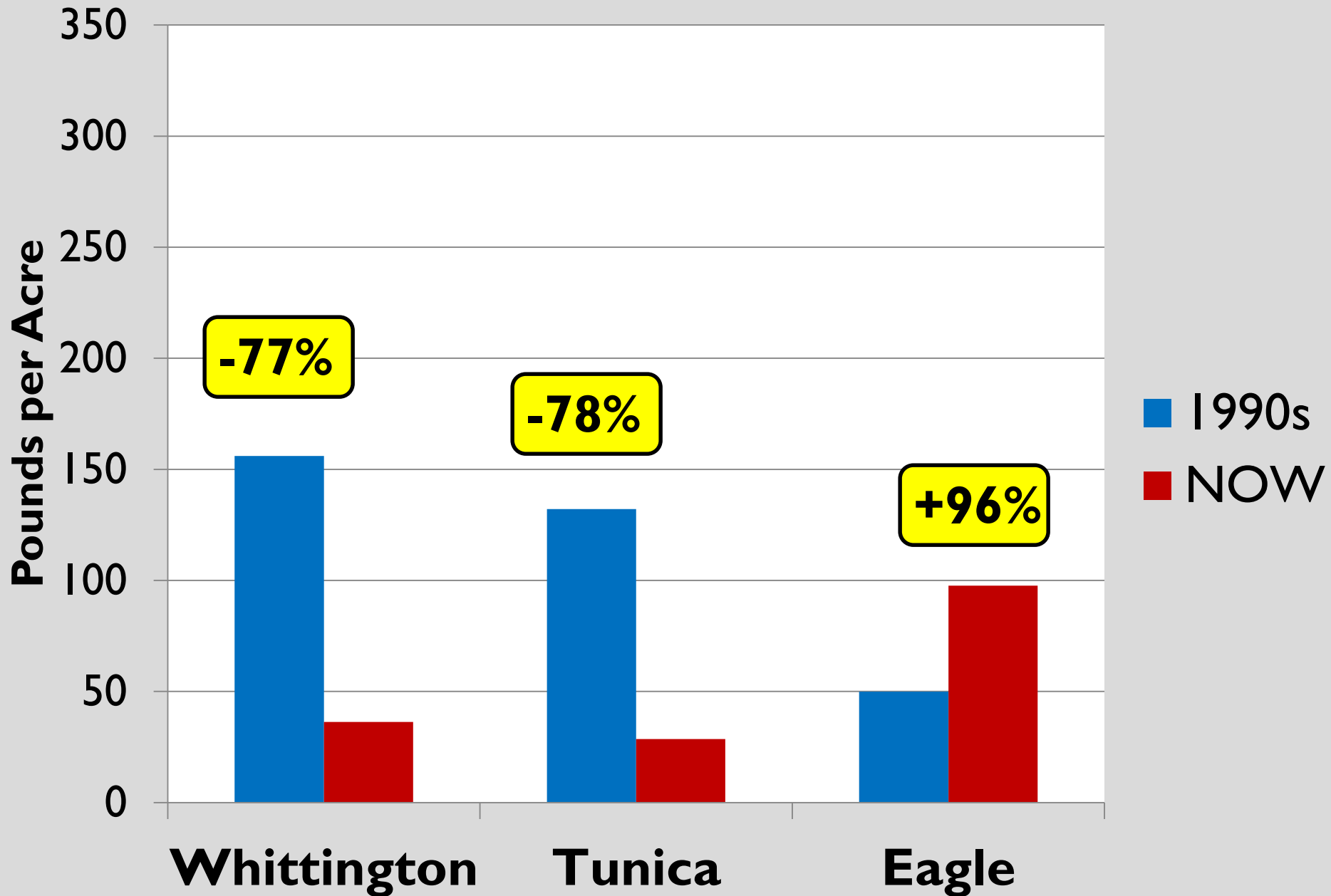
Clupeidae



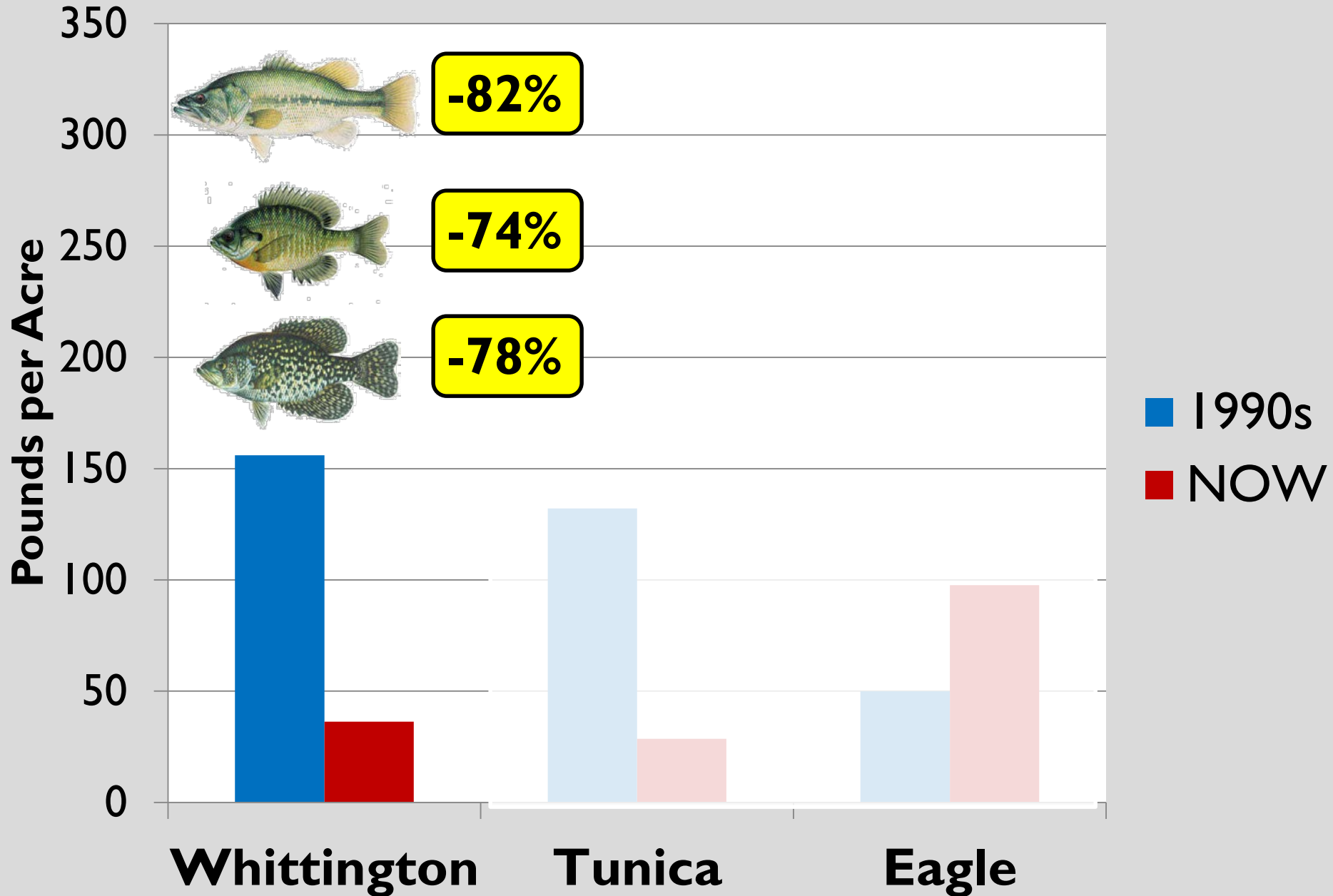
Centrarchidae



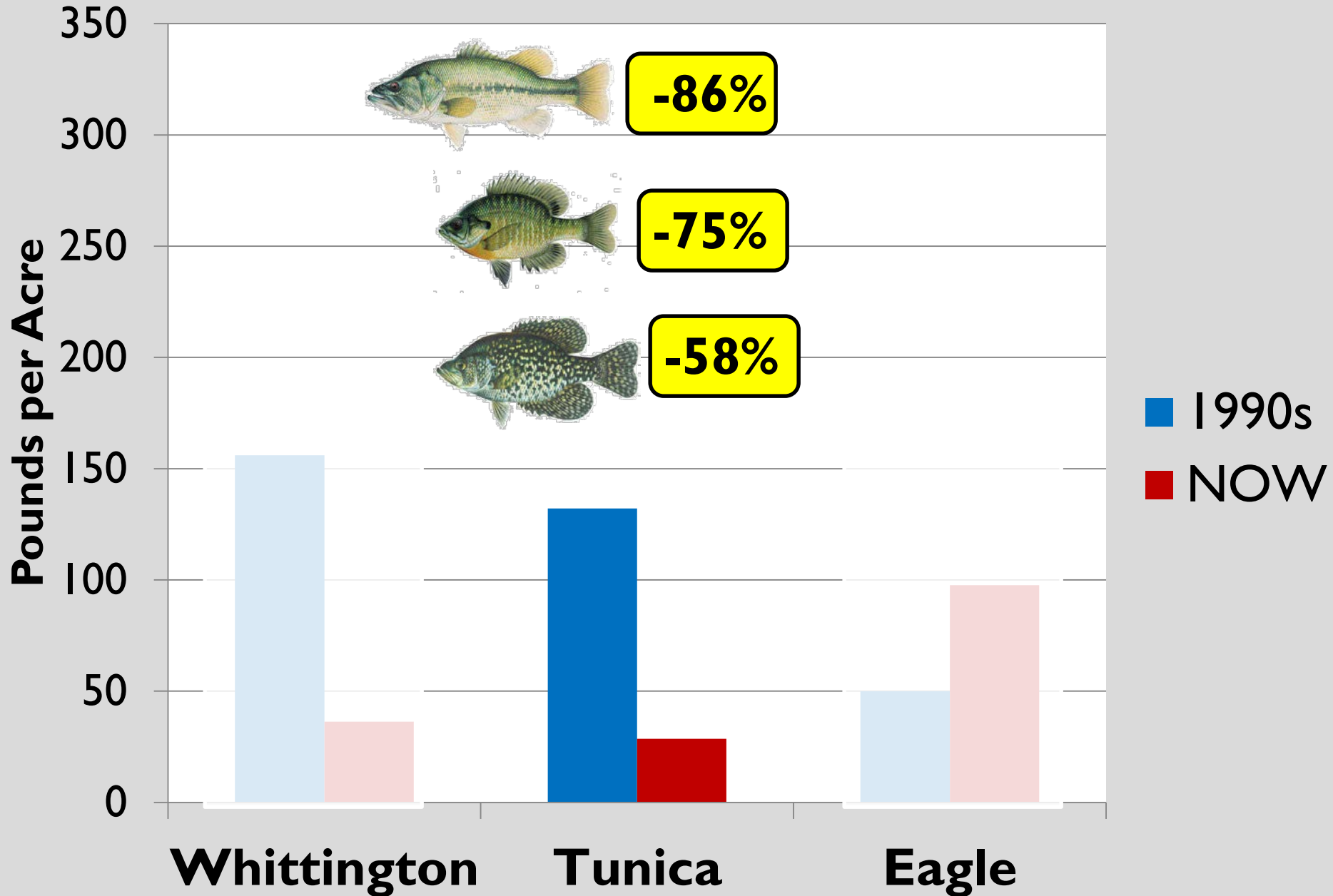
Centrarchidae



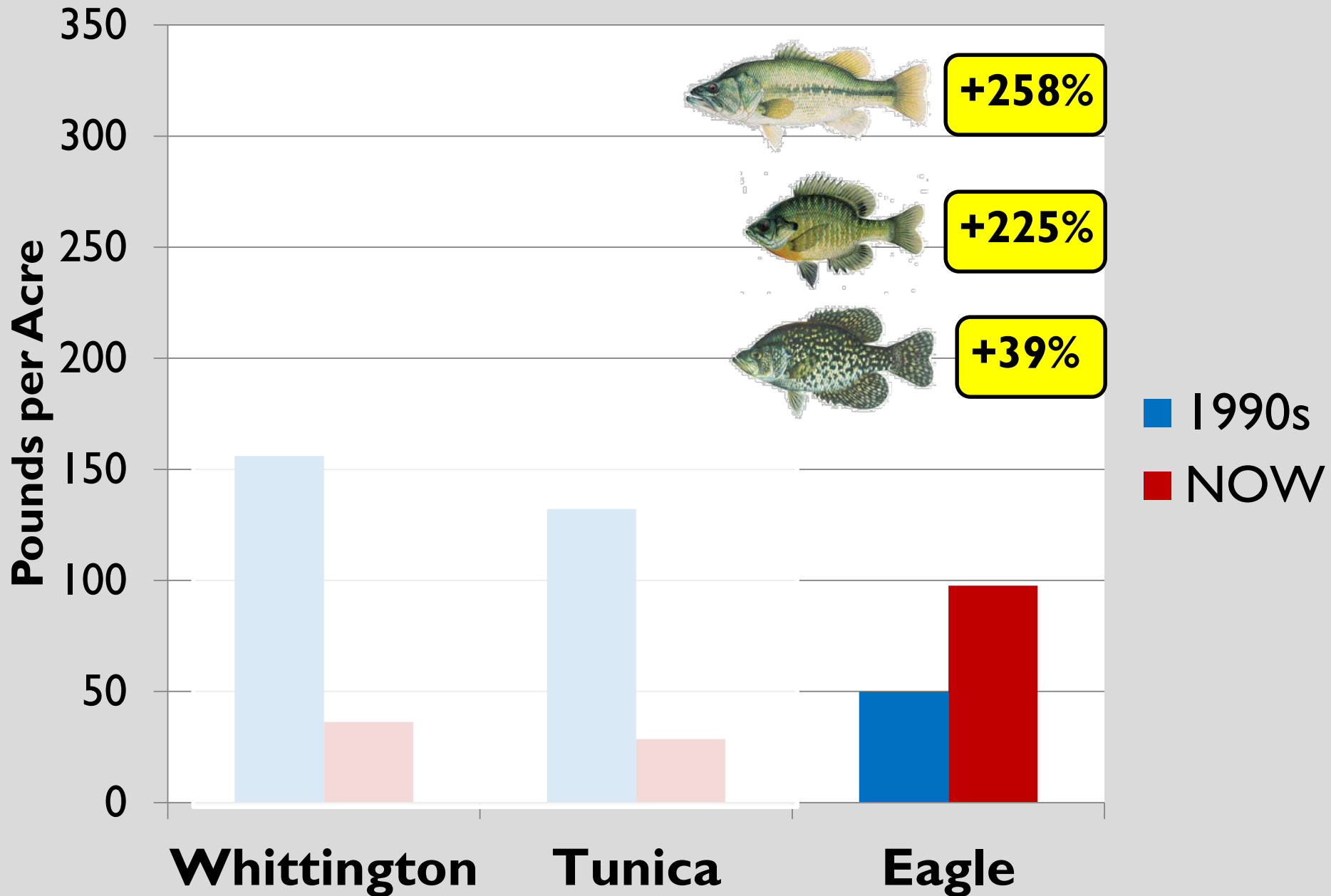
Centrarchidae



Centrarchidae



Centrarchidae



Conclusions

- When silver carp are present and reproducing, they dominate
- Dramatic decline in shad and game fish numbers after silver carp are established



Conclusions

- Rotenone sampling highly variable
- Still fisheries at
Whittington and Tunica



Going forward...

- How to best manage sport fish?
 - Stocking?
 - Regulations?
- How to decrease Asian carp abundance in river connected oxbows?
- Work to prevent Asian carp expansion into MS reservoirs.
- Replicate sampling at Lake Whittington next summer.

Questions?



Thanks to all the
Rotenone Crew!

