

Exploiting Dietary Differences to Develop Species-Specific Control of Common Carp Using Toxic Food Pellets



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Current Control

- Winter Seining, Barriers, Water Draw-downs, Rotenone
- There is a need for more practical and broadly applicable strategies



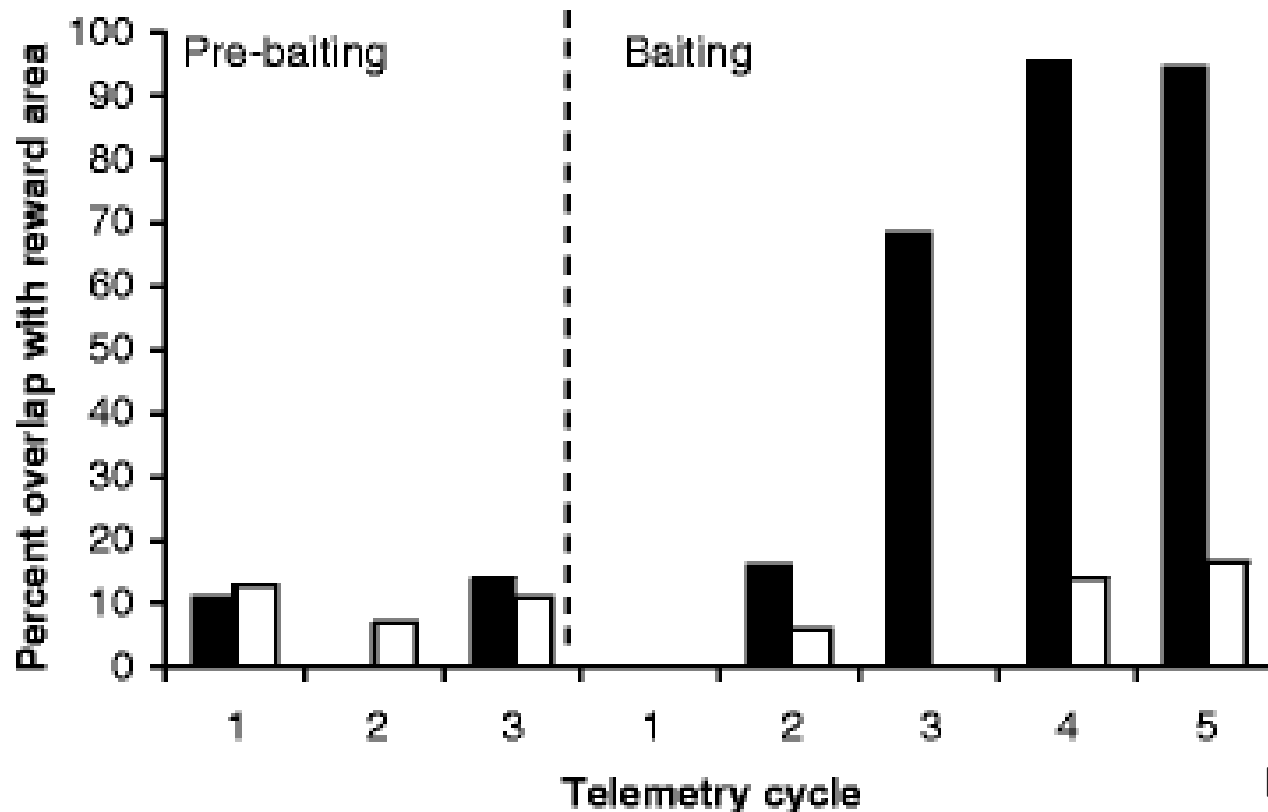
Carp-specific Toxins

- Carp can be trained to aggregate at locations baited with corn
- Carp eat foods many native species won't
- Bait and switch might be possible



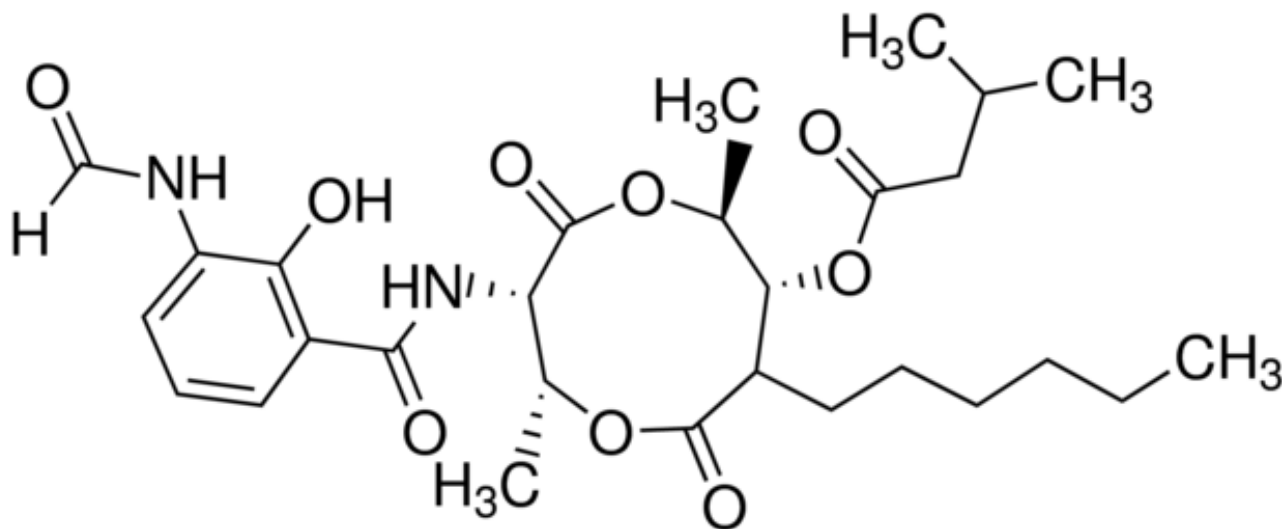
Carp can be Trained

- Tracked carp using radio telemetry
- Baited a site in the lake with corn
- Used underwater cameras to examine specificity



Antimycin-A

- Restricted use pesticide
- “Very highly toxic” to fishes
- Short half-life, non-toxic metabolites
- Carp can’t detect it!



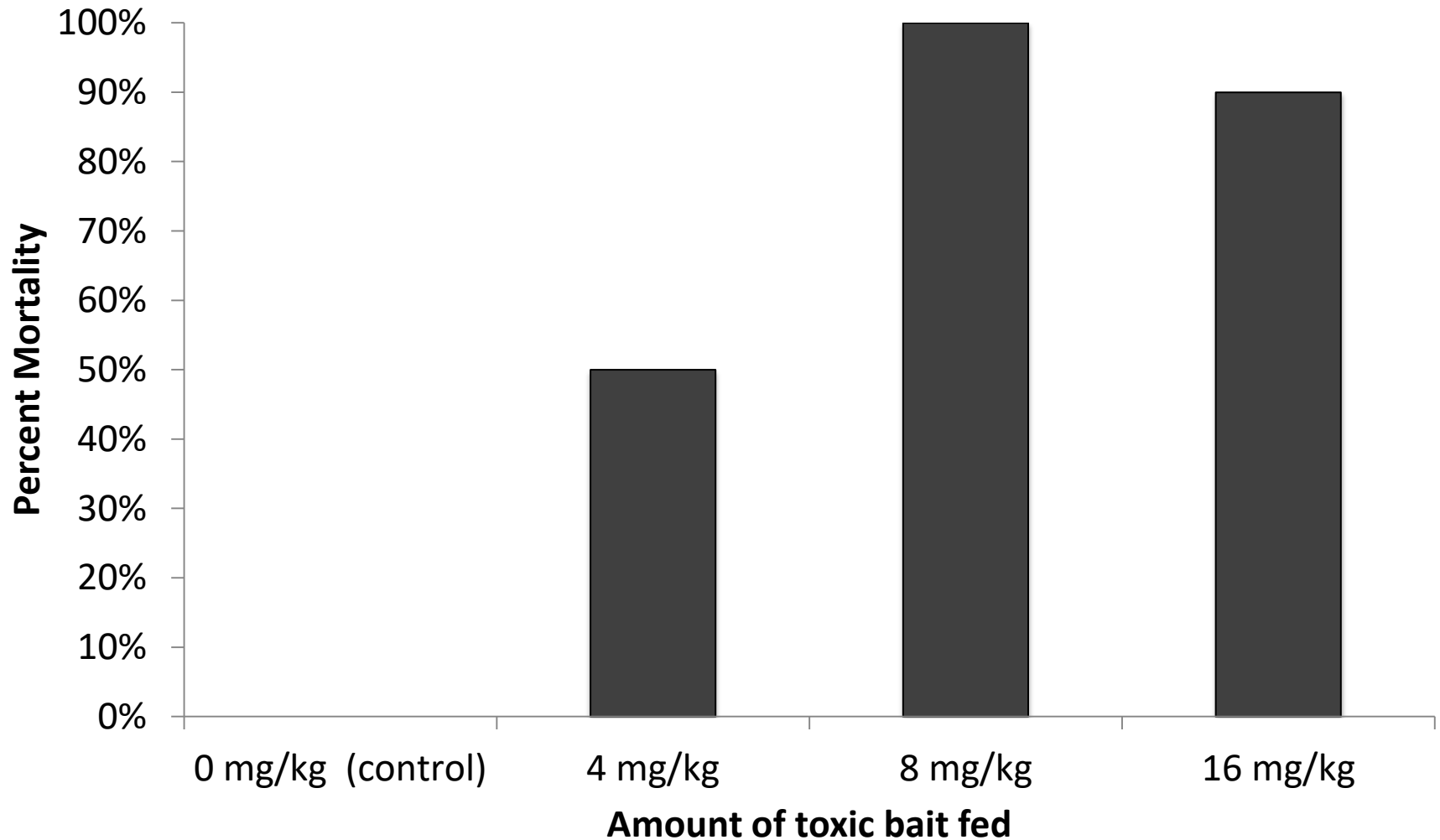
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Experiments

- Bait Formulation
- Four Experiments
 1. Verify toxicity
 2. Examine leaching
 3. Test species specificity in tanks
 4. Test species specificity in ponds



Results: Gavage (LD50):

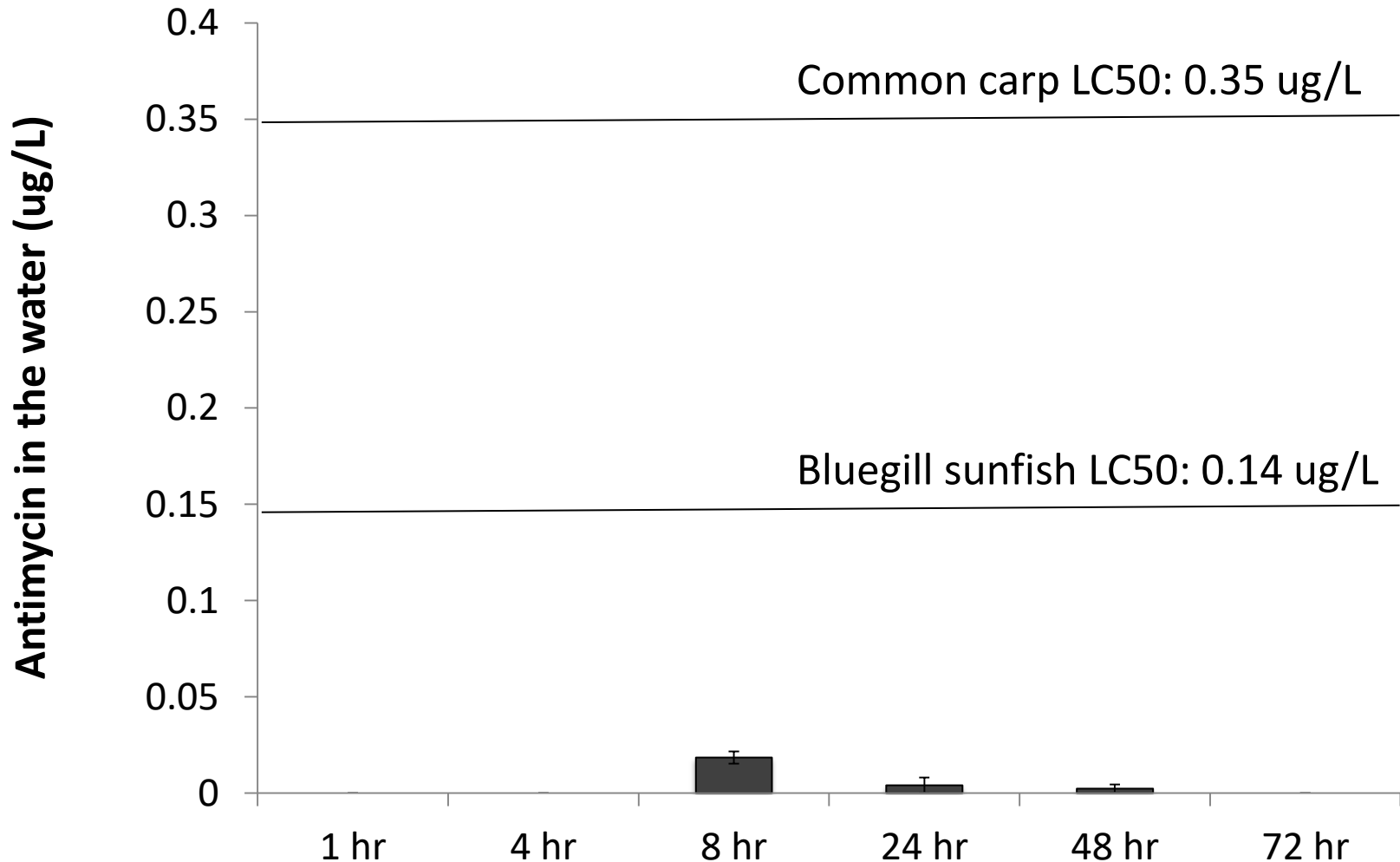


Methods: Leaching

- 1 g of toxic bait inaccessible to fish
- Carp & Bluegill
- 72 h
- Static system



Results: Leaching

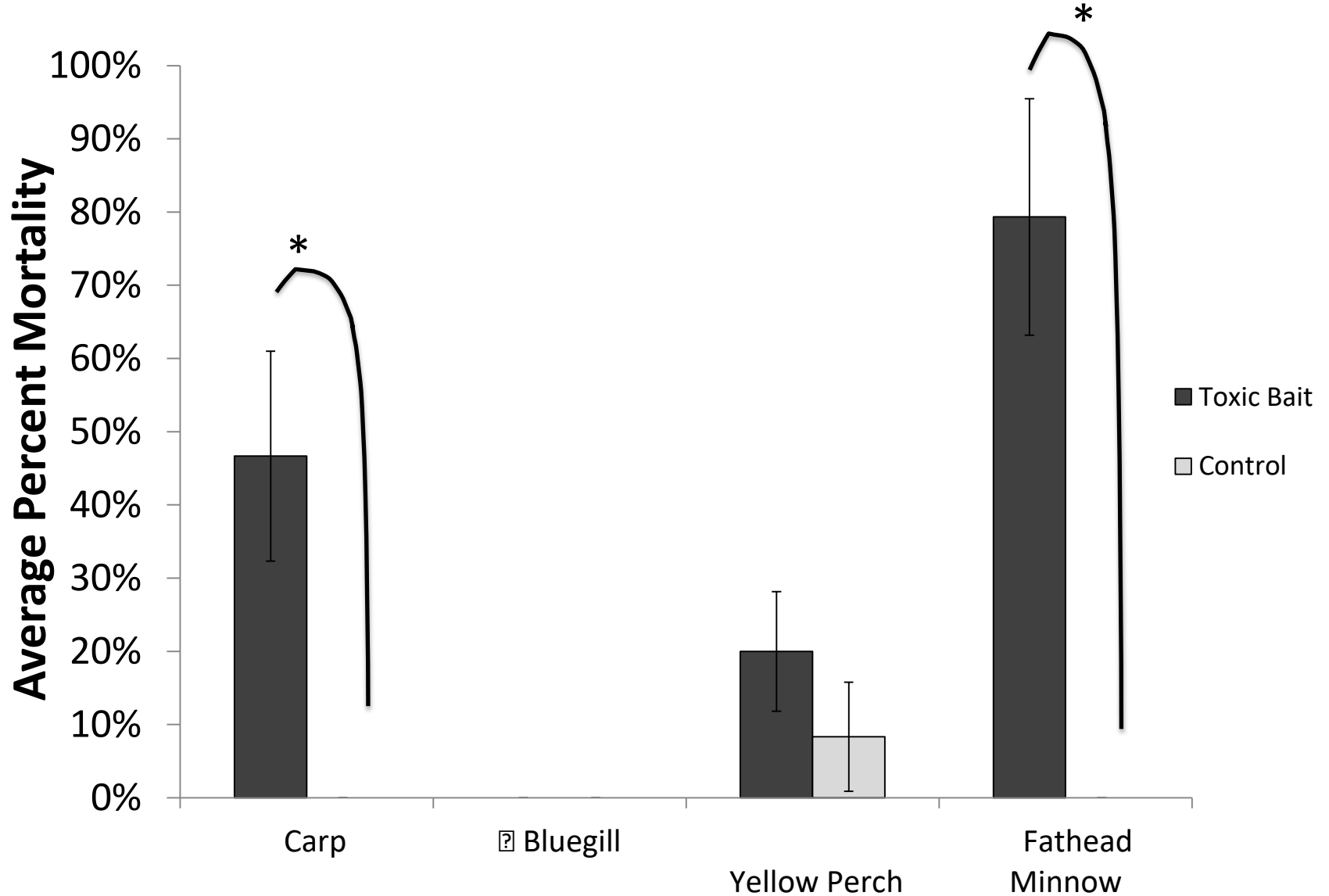


Methods: Specificity test in lab

- 227 L tanks
- Stocked
 - Carp
 - Bluegill
 - Perch
 - Fatheads
- Trained for 1 week
- Fed with pellets
- Mortality 24 h



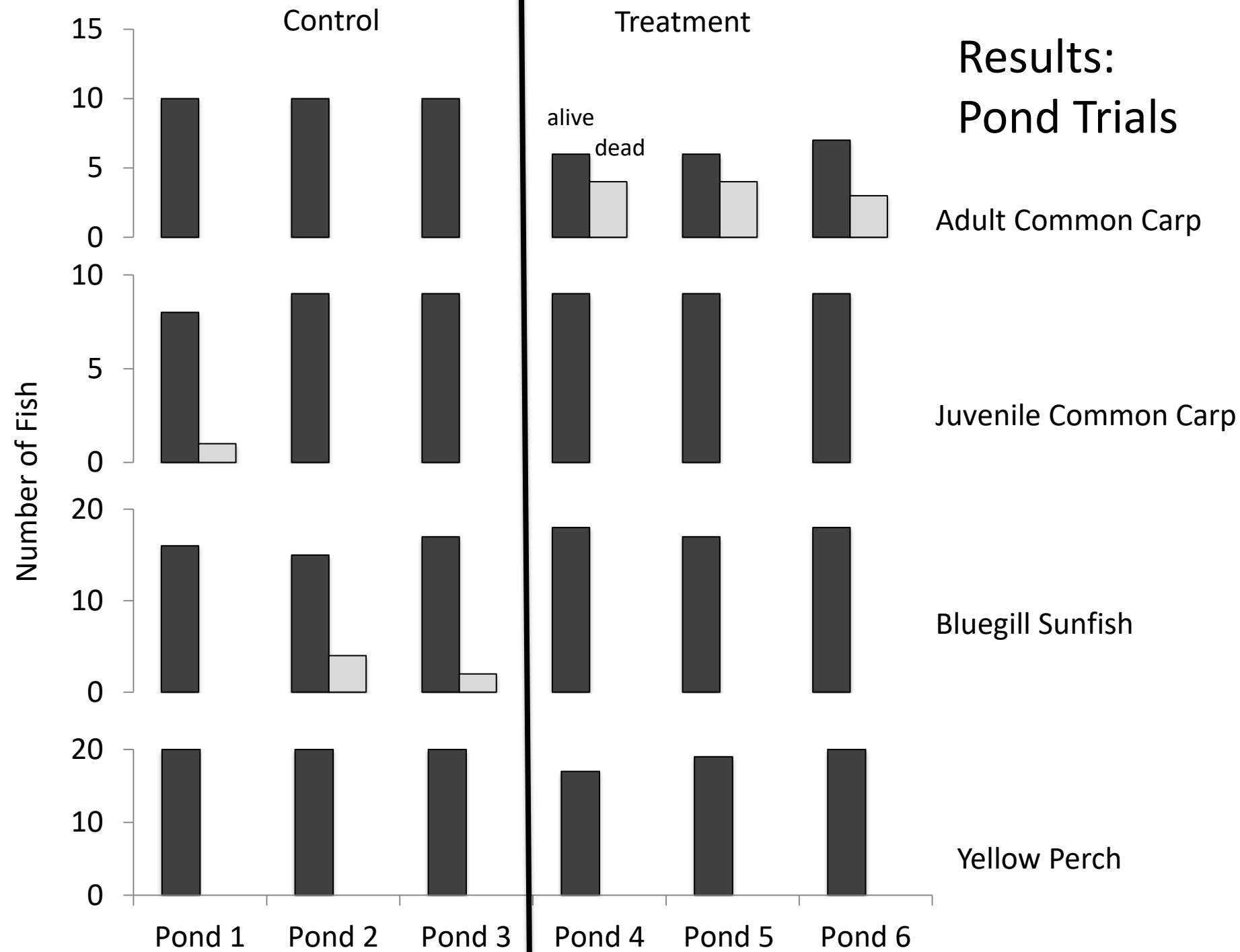
Results: Specificity in lab



Specificity in ponds

- Six 0.01 acre ponds
- Stocked with
 - Carp
 - Bluegill
 - Perch
- Acclimated for 1 week
- Fed with toxic pellets
 - 3 treatment ponds
 - 3 controls





Conclusions

- Carp readily consumed corn pellets containing lethal amounts of Antimycin A
- Bluegills and perch not affected
- Fathead minnows affected
 - Need to improve species-specificity to exclude native cyprinids
 - Suckers?
- Next steps (2017, 2018)
 - Larger, more natural ponds
 - A lake (pellets without antimycin A)

How this could be applied

1. Train carp using blank bait
2. Examine specificity using cameras
3. Switch bait with one containing a toxin
4. Remove bait after carp have fed
5. Monitor area, remove dead fish if necessary



Thank You



Questions??



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