

# Age Structure and Growth of Common Carp Populations in Malheur National Wildlife Refuge

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**Goals and Objectives:**

- Evaluate dorsal spines and otoliths to estimate age in common carp populations
  - Estimate growth of common carp populations
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## Progress:

Structures were received in 2011 and processing began in September 2011. All structures were processed and age estimated by December 2011. Analysis of structure bias and age and growth is ongoing. A manuscript entitled: "Comparisons of common carp (*Cyprinus carpio*) dorsal spine and otoliths for estimating age and growth" is nearing completion and targeted for publication in North American Journal of Fisheries Management. A second manuscript entitled: "Age and growth of common carp (*Cyprinus carpio*) in Malheur National Wildlife Refuge: implications for population management" is in preparation and targeted for publication in the Journal of Fish and Wildlife Management.

## Conclusions and Recommendations:

Age estimation.—Dorsal spines were biased for common carp greater than 5 years of age. If there are no concerns with lethal sampling, otoliths should be used to estimate age.

Age and growth.—Age and growth varied for carp populations within the refuge management units. The Silvies River population contained fast growing young fish while the remaining populations sampled were older, slow growing fish. Estimated instantaneous mortality rates ( $Z$ ) varied among populations, indicating that management may need to be done on a population basis.