MDC Resource Science

Hellbender Recovery Actions in Missouri

Science Notes

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Hellbender Recovery Actions in Missouri

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SUMMARY

Both eastern and Ozark hellbenders have experienced marked population declines averaging 77% since the 1970s in Missouri. Data reveal a shift in age structure of hellbender populations, with larger, mature individuals being most prevalent and young age classes being virtually absent. Due to the decline of hellbender populations in Missouri, research and survey efforts have been increased over the past several years. It appears that there are multiple reasons for the decline of hellbenders that are being addressed on a priority basis. Below I have highlighted some of the current recovery actions being undertaken to address the decline of hellbenders in Missouri.

Surveys of Hellbender Streams: Overall, the number of hellbenders continue to decline throughout Missouri, especially in the core historical areas. In the majority of rivers, hellbender recruitment is extremely low or non-existent, and metapopulations appear to be at risk of isolation.

Investigations of the Presence of Chytrid Fungus: One emerging threat that has received increased attention is the prevalence of amphibian chytrid fungus around the world. This invasive, non-native fungus was found on hellbenders in five of the eight rivers surveyed in 2006 and 2007. Positive animals tended to be isolated to a few locations on each river and frequency of infection was between 2% and 25% of hellbenders tested.

Investigations of Hellbender Abnormalities: There have been an alarming number of abnormalities (missing toes, legs, sores, eyes, tail notches, etc.) observed in hellbenders over the past few years. Comparison of these data show that Ozark hellbender populations are more likely to contain abnormalities compared to eastern hellbender populations.

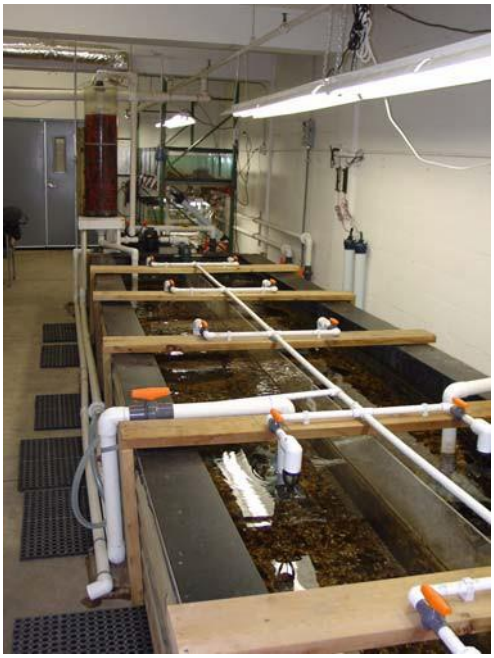
Determine General Health Conditions, Hormones, and Selective Heavy Metal Levels in wild adult hellbenders: Understanding the health conditions, reproductive hormones, and heavy metal levels in hellbenders is important in determining if this aging population can successfully reproduce in Missouri's rivers, or if hellbenders can be removed from the wild for long-term propagation efforts. In collaboration with Missouri University of Science and Technology (Rolla), blood samples have been collected and are currently being analyzed.

Determine the Survival and Movement of Released, Captive-raised Hellbenders: In collaboration with University of Missouri-Columbia and the St. Louis Zoo, we are investigating the feasibility of releasing and radio tracking juvenile hellbenders currently reared at the St. Louis Zoo back into the wild. Release of juvenile hellbenders is scheduled for spring 2008.

Investigate the Potential Interaction of Hellbenders with Native and Non-native Fishes: In collaboration with Missouri State University-Springfield, we are currently investigating the behavioral response of hatchling hellbenders to native and non-native fish and the behavioral response of native and non-native fish to hellbender slime.

Investigation of Hellbender Genetics in Missouri: Tissue samples have been collected from hellbenders throughout Missouri to examine the genetic diversity and gene flow of hellbenders within and among rivers. This information will be vital to future propagation efforts and releases of captive hellbenders.

Investigation of Captive Propagation Programs: The St. Louis Zoo and Shepherd of the Hills Hatchery are working on propagation techniques to acquire hellbender eggs and raise young for future releases. In 2007, four complete or partial egg clutches were found in two Missouri streams. Hatchlings are currently being raised at the hatchery. Additional success occurred at the St. Louis Zoo where captive-held hellbenders successfully deposited eggs in an artificial raceway.



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