Effects of Lock and Dam Number Six on Aquatic Ecosystems in Mammoth Cave National Park

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Abstract

Lock and Dam No. 6 was built in 1905-06 for barges carrying natural asphalt from mines at Kyrock on the Nolin River. Petroleum based asphalt replaced this natural tar sand for paving, and the decline of the mines resulted in the Lock being decommissioned in 1951. Normal flow of 16 miles of the Green River and 7 miles of the Nolin River in the park is retarded by the dam. Habitat for the endangered Kentucky cave shrimp has been degraded through loss of cave stream sediment variation due to siltation. Habitat for six species of freshwater mussels listed as endangered are seriously degraded through reduction of natural flow velocity and inundation of riffle habitat. Because of this, Lock and Dam No. 6 is the most severe ecosystem management issue in Mammoth Cave National Park. Green and Nolin Rivers possess one of the most diverse fish (82 species) and invertebrate faunas (51 species of mussels alone) in North America, and these populations would benefit from restoration of free flow.

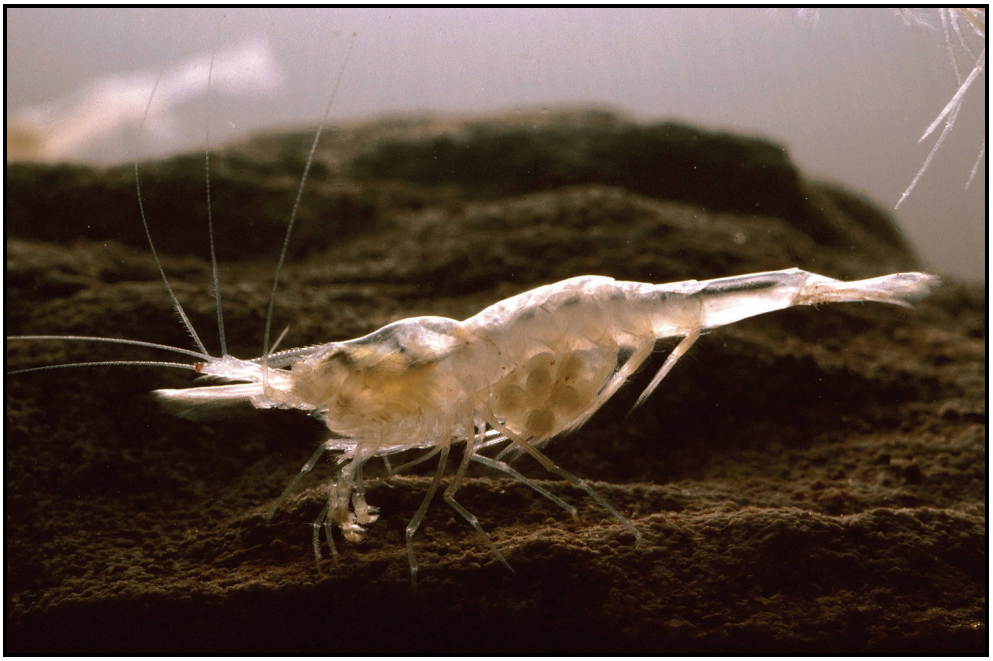

Figure 1. The Kentucky Cave Shrimp (*Palaemonias ganteri*) is found only in the Mammoth Cave vicinity and is listed as endangered. Habitat degradation due to the Lock and Dam No. 6 impoundment is considered a prime causative factor in the decline of this species. (Photo courtesy of Chip Clark)

There are many reasons to remove the dam and preserve the lock at Brownsville. U. S. Fish and Wildlife Service has concluded that habitat for seven aquatic endangered species, six mussels and the Kentucky Cave Shrimp, will be restored. As well, conditions for many species in decline can be improved, and future listings prevented. The U. S. Army Corps of Engineers has agreed that such restoration is the best option for the needs of both wildlife and people, and that removal of the dam is the best way to save the lock from being undermined and destabilized.

Both ferries on Green River in the park will continue operations if the dam is removed, and a dredged channel will enable ferries to cross the river during periods of low water that currently prevent people from crossing the river. With restoration of free flow, the ability of river biota to clean water will be enhanced, and therefore water quality at the intake for the City of Brownsville will improve. Marginal sedimentation in the currently impounded portions of the Green and Nolin rivers will cease, smallmouth bass fishing will improve, and populations of rough fish such as carp and gar will decrease. Recreational opportunities, particularly canoeing, will increase with significant economic benefits for Edmonson County. With the dam removed and the lock stabilized, the history of navigation on Green and Nolin rivers could be shared with public through interpretive waysides.