

November 21, 2003

## **Mahoning River Consortium Position on Removal of Dams from the Lower Mahoning River**

### **Mission**

The mission of the MRC is to restore and maintain higher environmental quality of the Mahoning River, its corridor and its watershed in order to enhance the social, recreational and economic development of the Mahoning River Valley Communities. The MRC will advocate research, multiple use planning, education, recreation, social and economic activities that positively impact the quality of life along the river.

### **Importance**

The restoration of the Mahoning River is central to the fulfillment of the MRC's mission. The Mahoning River Consortium believes that a restored Mahoning River will benefit the citizens of the Mahoning Valley in excess of the cost of the restoration. Some of the benefits will be direct economic returns resulting from increased property values, economic aspects of recreation, commercial and residential development. The direct economic benefits will exceed the cost for the restoration<sup>1</sup>. However, the indirect benefits may be a more important justification for the River's restoration.

A restored Mahoning River, once again, can serve the best interests of the people of the Mahoning Valley, not by carrying away the waste of industry, but as a symbol of the rebirth of the Mahoning Valley, as a source of community pride and self esteem. The restoration of the Mahoning River, as a natural element in an urban setting, may well serve to enhance the quality of life of the citizens of the Mahoning Valley far more than any other comparable community project.

John Muir recognized the social and intrinsic value of nature when he wrote:  
"Climb the mountain and get their good tidings. Nature's peace will flow into you as sunshine flows into trees. The winds blow their own freshness into you and the storms their energy, while cares drop off like autumn leaves."

A restored Mahoning River that once again invites people to its banks, and functions as an element of a more natural environment in the midst of the urban valley, may serve as the Mahoning Valley's "mountain" of good tidings.

### **Dam impacts**

The toxic sediments lining the shores and underlying the Mahoning River's banks certainly impose a severe constraint on the function and value of the Mahoning River. However, the low head dams are the single greatest impediment to the River's natural function.

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<sup>1</sup> U.S. Army Corp of Engineers. 1999. Mahoning River Environmental Dredging Reconnaissance Study, p 4-26.

## The Dams:

1. Create slack-water pools that:
  - a. Effectively removes suitable habitat for most native riverine organism; of particular importance is the impact on freshwater mussels. (There are more Ohio Mussels extinct or endangered than any other group of animals in Ohio).
  - b. Trap organic matter, reducing dissolved oxygen.
  - c. Provide habitat for exotic undesirable fish e.g. carp and goldfish.
2. Reduce currents that provide the energy for the dynamic geomorphology of free-flowing rivers.
  - a. Decreasing upstream and increasing down stream scouring.
  - b. Overflows gouge tail water pools.
3. Block movement of aquatic organisms – especially fish.
4. Alter the stream banks
  - a. Constraining the dynamics of riverbank habitats
  - b. Encouraging the growth of non-riverine species along the shores of the slack-water pools.
5. Disrupt food chains: Most food for river animals is imported as detritus from the land. Dams, even very small dams, retard the movement of this essential food for river dwelling detritivore animals down stream.
6. Degrade the chemical quality of the river by:
  - a. Increasing water temperature.
  - b. Decreasing dissolved oxygen in the slack water pools.
  - c. Increasing solubility of heavy metals from the sediments of the slack water pools, if anoxic conditions develop.
7. Facilitate sediment accumulation in the slack-water pools; in an urban area these sediments are likely to contain high levels of petroleum products, PAH, heavy metals and other contaminants common to roads and parking lots.
8. Reduce biodiversity by decreasing habitat diversity: drowning of riverine habitats by the slack-water, scouring of sand bars below the dams, modification of shoreline vegetation, alteration of riverine wetlands, removal of bank undercuts.

The negative impact that the low head dams have on the Mahoning River ecosystems is profound. Because dams alter the physical nature of the river, their effect on river ecosystems persists as long as the dams exist. The US Army Corps of Engineers predicted that removal of the low head dams would increase the value of the measures of Mahoning River quality (QHEI, ICI, EPT, IBI and MIwb) by 6-47% compared to treating only the toxic sediments.<sup>2</sup> The slack-water pools behind the ten low head dams on the lower Mahoning River drown 79% of the rivers' course. The remaining 21% of the river is modified by the disruption of river geomorphology, nutrient cycles, organism movements, reduced habitat diversity, and altered water chemistry caused by the low head dams. The low head dams on the Mahoning River adversely affect the entire river ecosystem within the proposed restoration zone.

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<sup>2</sup> Ibid, Appendix E, p 28.

The low head dams also are an impediment to recreational use of the river fishing (except for carp, bull heads and goldfish), canoeing and kayaking. The dams also pose a hazard to people using the river. During recent times, several incidences have occurred that resulted in drowning, or hazardous rescue adventures, all associated with the low head dams.

All of the dams were constructed for direct economic benefits; most functioned to deepen the river in order to facilitate pumping of water for municipal and industrial use. This use of the Mahoning River has almost ended; only two dams, the Warren-Main Street Substation Dam (RM 36.80) and the Girard-Liberty Street Dam (RM 26.97) are currently being used for water supply. The remaining eight dams are no longer used to supply water for industry and have no other direct economic use.

The removal of the low head dams makes:

1. Ecological sense – the dams are an insurmountable obstacle to achieving ecosystem restoration of the Mahoning River.
2. Economic sense – the dams are an impediment to recreational use of the River – (canoeing and fishing) a major direct economic benefit of river restoration.
3. Safety sense – dams are hazards that become ever more significant as the recreational use of the river increases.
4. Pollution prevention sense – removal of the dams is necessary to prevent toxins from re-accumulating in the river following dredging.
5. Psychological sense –
  - (a) The dams are a symbol of past steel industrial glory that is no more and will not return; a clear break from the past will help focus on the future. A free-flowing restored Mahoning River is symbolic of the future potential of the Mahoning Valley.
  - (b) The community will take pride in bequeathing to future generations a free flowing functioning river rather than a sequence of polluted slack-water pools.

The US Army Corps of Engineers Mahoning River Restoration Project is authorized by the Water Resources Development Act of 1990, Section 312 as amended by Section 205 of the 1996 Act to remove contaminated sediments for the purpose of **ecosystem restoration**. If the low-head dams remain in place, then the goal of ecosystem restoration cannot be met.

**For these reasons the Mahoning River Consortium advocates the removal of all low head dams on the main stem of the Mahoning River, providing suitable alternate water supply can be developed for the industries that rely on water from the Warren-Main Street (RM 36.80) and the Girard-Liberty (RM 26.97) Dams. Development of adequate alternative water supplies should be included as part of the USACE Feasibility Study.**

Post note: There are over 70,000 dams in the United States. Until recently, removal of the dams was an anathema. However, in large part due to the leadership of former Secretary of Interior, Bruce Babbitt, dam removal as the primary means for river restoration has become more common. To date over 400 dams have been removed, mostly during the past decade, and the rate of removal is increasing.

The cost of dam removal from the Mahoning River is estimated by the USACE at \$372,000 per dam<sup>3</sup>. This figure seems extra ordinarily great. Removal of small dams, such as those found on the Mahoning River, typically costs less than \$50,000 (calculated from data in American Rivers<sup>4</sup>). The Jacoby Road Dam on the Little Miami River, Ohio was removed for about \$10,000. The dam was 8 ft high; 100 ft long, and constructed from rebar reinforced concrete.

Many of the adverse effects of dams on river ecosystems are not well documented. A current comprehensive study of the effects of dam removal on the river ecosystem is underway on the Manatawny Creek, PA. The study is being done by the Patrick Center for Environmental Research, The Academy of Natural Science, Philadelphia, Pa.

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<sup>3</sup> Ibid, p 4-13.

<sup>4</sup> American Rivers, <http://www.amrivers.org/damremoval/default.htm>