"Before the river was changed by the work of man, the rapids had a nearly uniform descent for about a mile... sufficient to give a decided turbulent and wild..."

--1913 Grand Rapids Progress

1931 1868 "Here is plenty of fish and plenty of game, and the greatest country for honey that I ever saw."

"There was that spring an unprecedented catch upon the rapids, of sturgeon, pickerel, bass, suckers, and other members of the finny tribe."

"The rapids provide the best clamming in the state."

--Accounts of early pioneers

The Outdoor Recreation Economy $646 billion annual spending --Outdoor Industry Association 2012

The longest river in Michigan 1883

Benefits to recreation:

• 8 1,000m lanes FISA Masters Rowing Course
• 6 2,000m lanes FISA International Rowing Course
• 2 new riverside parks
• Whitewater wave feature
• 9,400 feet of whitewater rapids
• 400m of International Canoe Federation Local Merit Slalom course

Benefits to restoration:

• 500% increase in fish holding habitat
• 5 times increase in habitat diversity
• 850% increase in lake sturgeon spawning habitat
• Reduction in fine sedimentation
• Propagation of 100,000 mussels
• 275% increase in sport fishing perimeter
• 4 additional acres of native riparian forest

ADJUSTABLE HYDRAULIC STRUCTURE FISH AND BOAT PASSAGE PERSPECTIVE

Created habitat pool with boulders
Existing floodwall w/ placed educational signage
Constructed boulder islands
Whitewater wave feature
Augmented river cobble/gravel bottom
Shaped landscape berm freeboard
Installed habitat boulders
I-196 beyond section cut

SECTION 3 SCALE: 1"=25'

TRIPLE DROP WAVES WITH BOAT AND FISH PASSAGE PERSPECTIVE

Re-aligned bike path
Constructed terraced amphitheater/boulder wall
Exposed bed rock shelf wading pools
Proposed fish passage channel
Connected deep bedrock canyon channel
Modified dock wall
Installed limestone block/eddy boulder channel marker
Exposed bedrock habitat
Connected deep bedrock canyon channel
Proposed fish passage channel

SECTION 2 SCALE: 1"=25'

SECTION 1 SCALE: 1"=25'

DEVOS PLACE PERSPECTIVE

HABITAT BOULDER DETAIL

TYPICAL SECTION

SLAB STONE TERRACE DETAIL

BOULDER WALL DETAIL

REINFORCED RUBBER RESTRAINING STRAP TYP (2) PLACES EACH 10' WIDE GATE

POLYESTER REINFORCED INFLATABLE AIR BLADDER SUPPLIED IN NOMINAL 10' LENGTHS

CONNECTION TO AIR BLADDER TYP (2) PLACES THIS TYPE OF GATE

STAINLESS STEEL ANCHOR BOLT SEE AKSI DWG 05-110-006

TOP OF SLAB ELEVATION E + 0'-0"

TOP OF GATE ELEVATION E + 1'-0"

RESTRAINING STRAP ANCHOR BOLT TYP (4) PLACES THIS SET OF GATES

CLAMP BAR

1" AIR SUPPLY LINE

EPOXY PAINTED GATE PANEL SUPPLIED IN (2) NOMINAL 10' LENGTHS

STEEL GATE PNEUMATIC MODEL

WADING ROUTE PERSPECTIVE AH-NAB-AWEN PARK ACCESS PERSPECTIVE

BEDROCK SPLASH POOL

OCTOBER 2013