

DEEP RIVER DAM

FEASIBILITY STUDY

DAM FACTS

- YEAR BUILT: 1930'S
- PURPOSE: BUILT BY ARMY CORP / RECREATIONAL
- HEIGHT: ~14'
- OVERFLOW WIDTH: ~100'
- DAM STYLE: SHEET PILING, TIMBER CRIB
- BACKWATER LENGTH: 6 -- 6.5 MILES
- SEDIMENT BEHIND DAM: ~1 MILLION CYS (±20%)
- ACTION PRIORITY FOR USFWS? NO
- ACTION PRIORITY FOR IDNR? YES

SUMMARY OF ANALYSIS

- HISTORY OF THE DEEP RIVER
- UNDERSTANDING RIVER DYNAMICS
- PUBLIC INPUT
- ECOLOGICAL ANALYSIS
- SEDIMENT SAMPLING/ANALYSIS
- EARLY COORDINATION W/ PERMITTING AGENCIES

WHY TAKE ACTION?



INCREASED SAFETY

- LOW HEAD DAMS CREATE DANGEROUS CURRENTS THAT CAN TRAP WATER USERS
- OVER 400 DEATHS HAVE BEEN RECORDED NATIONWIDE DUE TO LOW HEAD DAMS SINCE 1960
- <https://goo.gl/1kb3Sr>



RECREATIONAL ACCESS

- INCREASED FISH SPECIES AND QUANTITIES THROUGHOUT RIVER REACH
- MILES OF RIVER OPENED TO CANOEING, & KAYAKING



INCREASED ECOLOGICAL DIVERSITY

- IMPROVED HABITATS CREATE HAVENS FOR DIVERSE FORMS OF FLORA, FAUNA, & AQUATIC SPECIES



INCREASED CULTURAL CONNECTIVITY

- GREATER SENSE OF CONNECTION WITH NATURE & THE ECOSYSTEMS SUPPORTED BY THE RIVER



ECONOMIC DRIVER

- RIVER RESTORATION/DAM MODIFICATION CAN DELIVER SHORT AND LONG TERM FINANCIAL GAIN FOR INDIVIDUALS AND THE COMMUNITY; FROM THE CONSTRUCTION CREWS TO THE SUSTAINED TOURIST REVENUE

DAM OPTIONS

OPTION 1 -- NO ACTION

- PROS: NO MONEY SPENT
- CONS: CONTINUED DETERIORATION OF DAM POTENTIAL FOR LARGE RELEASE OF SEDIMENT COMMUNITIES FORCED INTO ACTION
- WHY /WHAT? LACK OF DESIRE TO ACT BY DAM OWNER COST OF PROJECT BECOMES PROHIBITIVE TO ACT DAM FAILURE LIKELY TO PROGRESS SLOWLY

OPTION 2 -- FISH LADDER (DAM MODIFICATION)

- PROS: INCREASED FISH PASSAGE OPPORTUNITIES RELATIVELY CHEAP OPTION
- CONS: NO PASSAGE FOR BOATS/KAYAKS DOES NOT ADDRESS DETERIORATION OF DAM
- WHY/WHAT? MAINTAIN CURRENT BACKWATER POOL & WETLANDS TYPICALLY BUILT TO ONE SIDE OF DAM CAN BE MADE OF CONCRETE, AND OR STONE CREATING A BYPASS CHANNEL IS ANOTHER OPTION

OPTION 3 -- CONSTRUCTED RIFFLE (DAM MODIFICATION)

- PROS: INCREASED FISH PASSAGE OPPORTUNITIES IMPROVE RECREATIONAL PASSAGE (KAYAKS, CANOES) PROVIDE STRUCTURAL SUPPORT FOR DAM
- CONS: NO PASSAGE FOR BOATS
- WHY/WHAT? MAINTAIN CURRENT BACKWATER POOL & WETLANDS LARGE BOUDLERS (3-5' DIA) PLACED IN 'ARC' SHAPE BUILT AT ~3-5% SLOPE SERIES OF 'FALLS & POOLS'

OPTION 4 -- DAM REMOVAL

- PROS: INCREASED FISH PASSAGE OPPORTUNITIES IMPROVE RECREATIONAL PASSAGE RESTORATION OF RIPARIAN CORRIDOR INCREASED RIVER HEALTH
- CONS: MOST EXPENSIVE OPTION ELIMINATION OF LAKE STATION CULTURE
- WHY/WHAT? ADD FLOODPLAIN BACK TO 37TH ST CROSSING (NO EFFECT ON 100 YEAR FLOOD MAP, HOWEVER) 3 OPTIONS TO HANDLE SEDIMENT
 - 1) COMPLETE REMOVAL (MOST EXPENSIVE)
 - 2) PARTIAL REMOVAL (MODERATELY EXPENSIVE)
 - 3) NO REMOVAL (LEAST EXPENSIVE)

CHOSEN METHOD

CONSTRUCTED RIFFLE

PERMITTING AGENCY FEEDBACK

- AGREE IN PRINCIPAL TO PROJECT APPROACH
- WILL VALUE PUBLIC INPUT DURING PERMITTING PROJECT
- PROJECT WILL BE FIRST OF ITS KIND/SCALE IN STATE

COST ESTIMATE

ENGINEERING/PERMITTING:	\$30 - 50K
RIFFLE CONSTRUCTION:	\$975K - 1.13 MIL
BANK RESTORATION:	\$25 - 40K
MONITORING:	\$10 - 20K
CONTINGENCY (20%):	\$200 - 250K
ESTIMATED TOTAL:	\$1.25 - 1.5 MIL

PRECEDENT STUDIES



CASS RIVER | FRANKENMUTH, MI | FALL 2015



CAPE FEAR RIVER | RIEGELWOOD, NC | FALL 2012



RED LAKE RIVER | CROOKSTON, MN | FALL 2015



SPECIAL THANKS TO

