NATIONAL FISH HABITAT ACTION PLAN
EASTERN BROOK TROUT JOINT VENTURE COST SHARE PROGRAM
2007 FEDERAL FUNDING CYCLE

- **Project Title:** Raven Rock Dam Removal
- **Amount of NFHAP funding requested:** $50,000
- **Project Location:** City of Hagerstown, Washington County, Maryland
- **Congressional District:** Congressional District 6, Representative Roscoe G. Bartlett
- **Applicant Organization:** Maryland Department of Natural Resources (DNR)
- **Street:** 580 Taylor Ave B-2
- **City, State, Zip:** Annapolis, Maryland 21401
- **Project Officer:** George Herlth
- **Telephone Number:** 410-260-8282
- **Facsimile Number:** 410-260-8279
- **Electronic Mail Address (if available):** gherlth@dnr.state.md.us
- **Date Submitted:** 10/17/2006

B. Sponsoring Fish and Wildlife Service Fisheries Office

- **Fish and Wildlife Service Office:** Chesapeake Bay Field Office
- **Street:** 177 Admiral Cochran Drive
- **City, State, Zip:** Annapolis, MD 21401
- **Project Officer:** Steve Minkkinen
- **Telephone Number:** 410-573-4506
- **Facsimile Number:** _410 263 2608_
- **Electronic Mail Address (if available):** steven_minkkinen@fws.gov

II. EXECUTIVE SUMMARY (1 page)

A. Purpose and Content

To facilitate application data processing in the U.S. Fish and Wildlife Service Fisheries Operational Needs System database (FONS) and to help ensure the accuracy and completeness of your application information, please fill in the executive summary (which does not replace other required parts of the application) exactly as instructed below.

- Applicants must consult with a sponsoring FMA office prior to submitting application. A list of offices by state or watershed can be found in Appendix A. A map outlining major watersheds can be found in Appendix C. Please contact the office listed for your state.
- Information placed in this summary must be based on and refer only to the immediate proposal, and not to any larger-scale project of which it may be a part, with the exception of years of funding requests anticipated and the number of years the project will take place.
- Numbers in the summary must agree with corresponding data occurring in other parts of the application.

PROJECT SUMMARY

Field priority (information provided by Fish and Wildlife Service sponsoring office):

*Please do not exceed the maximum number of characters (including spaces) allotted for the following inquiries.

Title of the project: (max chars: 100. Title must contain the initials NFHAP (National Fish Habitat Action Plan) and EBTJV (Eastern Brook Trout Joint Venture))

NFHAP & EBTJV Raven Rock Dam Removal Restoration

State the proposed accomplishment in summary: (max chars: 500. Summary must contain the initials NFHAP (National Fish Habitat Action Plan) and EBTJV (Eastern Brook Trout Joint Venture))

DNR would like to partner with the National Fish Habitat Action Plan (NFHAP) and the Eastern Brook Trout Joint Venture (EBTJV) to restore brook trout access to nearly 1 mile of quality habitat in Raven Rock Creek by removing the Raven Rock Dam. Removal of the dam will provide ecological benefits by restoring the connectivity and improving the quality of aquatic resources in Raven Rock Creek and, will provide economic benefits by increasing valuable sport fishing opportunities, and provide social benefits by raising awareness of brook trout populations and riverine functions.

Description:
State the importance of the project to the resource. (max chars: 350)

Removal of the Raven Rock Dam is necessary if brook trout are to expand into the upper reaches of Raven Rock Creek.

State the problem and the specific cause of the problem. (max chars: 350)

Currently, Raven Rock Dam serves as a diversion device for the City of Hagerstown, tertiary water supply. The dam diverts river flow to the Edgemont Reservoir through an underground pipe and the downstream reach is left dry. Water is then diverted back into the stream through a second pipe, nearly 1 mile down stream.

State the objective of the project with reference to the problem. (max chars: 350)

The objective of this project is to remove the Raven Rock Dam and restore water flow to the down stream reach. This will reconnect Raven Rock Creek and increase the available habitat for brook trout. Removal of the dam will also improve water quality downstream by lowing water temperatures, reducing siltation, increasing dissolved oxygen and increasing the diversity of benthic macroinvertebrates.

State the method applied to accomplish the objective. (max chars: 350)

The majority of stream flow will be temporarily diverted around the dam while a trackhoe is used to dismantle and remove the dam in pieces. Once the dam is removed to the natural bed of the stream channel, natural shoreline stabilization techniques will be used to ensure the project site remains stable.

State additional information pertinent to adequately describe the importance and/or urgency of completing the project. (max chars: 1250)

The Raven Rock Creek project is vital to protect and expand brook trout habitat in the Little Antietam Creek watershed. Raven Rock Creek and nearby reaches of Little Antietam Creek support a healthy and diverse population of trout. John Mullican, Regional Inland Fisheries biologist responsible for this area writes:

> "An established electrofishing station was surveyed (2005) adjacent to Rt. 491 to assess the brook trout population. The standing crop of adult brook trout has increased since 2001 with density decreasing in 2004 (Table 1). The decline in trout abundance during 2004 was attributed to drought conditions in 2002. However, the 2004 survey documented the largest brook trout collected from this steam, 276mm in total length. Stable water levels during the past two years have resulted in strong yearclasses and improved brook trout densities. Brook trout physical condition (K) has remained within the optimal range of 0.9 – 1.1 suggested by Lagler, 1952. The mean condition factor recorded for brook trout collected during 2001, 2004 and 2005 was 0.91, 0.98, 1.06, respectively."

John Mullican is in support of this project (see attached letter of support) as it will expand habitat for the current population of brook trout, reduce thermal impacts associated with the dam, increase dissolved oxygen, increase macroinvertebrate diversity and restore connectivity between populations. In a region where brook trout habitat is being degraded and populations have been reduced, this project will help improve and protect a healthy population and act as an educational tool to help promote the awareness of brook trout restoration.

Fish passage barriers to be removed by this project: (If none, so state)

Barrier name: Raven Rock Dam will be removed, opening 1 mile of brook trout habitat.

Decimal degree longitude: (NAD-1983) 77.54081 W

Decimal degree latitude: (NAD-1983) 39.66198 N

Funding Information

Estimate FWS funding for up to five years (in 2007 dollars):

Fund	Year					Total
	1	2	3	4	5	
NFHAP	$50,000					$50,000

What is the estimated duration of the project? (1 to 5+ years)

The project is expected to be completed within 1 year.

Record anticipated first year partner contributions:

Partner	Cash Matching	In Kind
USFWS – Chesapeake Bay Field Office	$36,000 (Design and Const. Mang.)	
MD DNR – Fish Passage Program	$32,000(Construction)	
MD DNR – Fisheries Service		$4,000 (Monitoring)
USFWS – Maryland Fisheries Resource Office		$4,000 (Monitoring)
Total	**$68,000**	**$8,000**

Record anticipated new FTEs (information provided by Fish and Wildlife Service sponsoring office):

	Manager		Administrative Office / Assistant
	Biologist		Outreach Specialist
	Other Specialist / Scientist		Maintenance Worker
	Technician / Fish Culturist		

Record Congressional District(s):

State of Maryland – District 6 – Roscoe G. Bartlett

III. PROJECT DESCRIPTION, SCOPE OF WORK, AND PARTNER INFORMATION (2 pages maximum)

A. Project Description and Scope of Work

Provide short summaries containing the following project information:

- **Need for the project:**

This project is needed to restore river flow to the downstream reach of Raven Rock Creek. Doing so will increase the available habitat to brook trout already established upstream of the Raven Rock Dam and restore connectivity in the watershed.

- **Purpose, goals, and objectives:**

The purpose of this project is to restore water flow to Raven Rock Creek.
The goal of this project is to increase the productivity of the Raven Rock Creek brook trout population.
The objectives of this project are:

1. Restore flow to 1 mile of Raven Rock Creek
2. Improve the habitat of Raven Rock Creek by removing the Raven Rock Dam
3. Increase recreational fishing opportunities

- **Work to be done and by whom:**

Design work will be completed by Conor Shea of the USFWS, Construction work will bided out by Western Maryland RC&D and will be monitored by FWS.

- **Who owns or will own and manage affected lands:**

Washington County, Department of Public Works owns the land where the project work will take place.

- **Duration of benefits, including length of any land or management contracts, easements or other agreements:**
- **Expected results and how they will be monitored:**

DNR expects to see the down-stream reaches of Raven Rock Creek being used by Brook Trout immediately upon completion of the project. These results will be monitored by DNR staff during annual surveys of Raven Rock Creek.

- **A timetable for accomplishment of major activities during the one-year performance period:**

A design is expected to be completed by spring of 2007 using FWS funds. Once construction funds are received through EBTJV/NFHAP, bids will be sought. Actual construction of the project should not take more then 2 weeks.

NOTE: In completing section A, address the overall purpose of the immediate project, the number of miles of stream, acres of riparian buffer and other associated uplands that will be affected and how they will be affected, and any other information necessary to convey an understanding of what the project involves and will accomplish. If part of a broader effort, explain how this project fits into the larger project. Identify how the project will move the EBTJV toward meeting its goals.

B. Partner Information

Provide general information about each project partner that includes:

- Organization name, affiliation, role(s), and contributions (financial and otherwise) to the project.
- How many partners are contributing more than the grant request?
- What is the ratio of the partner contribution of the total project cost vs. the grant request?
- What is the benefit (in acres or miles) to the grant request?
- How many partner categories are identified in the partnership?

Partner Categories	
Federal Agency	State Agency
Local Government	Local Conservation Group
Conservation Group (National)	Native American Tribe
Private Landowners	Corporations

Project Partners:

Organization Name: MARYLAND DEPARTMENT OF NATURAL RESOURCES
Fish Passage Program
Affiliation: State Agency
Role: Project Coordination, Grantee
Contribution: Grant Management

Organization Name: MARYLAND DEPARTMENT OF NATURAL RESOURCES
Inland Fisheries Service
Affiliation: State Agency
Role: State fishery management agency,
Contribution: Project oversight, monitoring

Organization Name: UNITED STATES FISH & WILDLIFE SERVICE

Chesapeake Bay Field Office
Affiliation: Federal Agency
Role: Project Partner
Contribution: Design oversight, project partner.

Organization Name: UNITED STATES FISH & WILDLIFE SERVICE
Maryland Fisheries Resources Office
Affiliation: Federal Agency
Role: Project oversight, monitoring
Contribution: Grant Submission

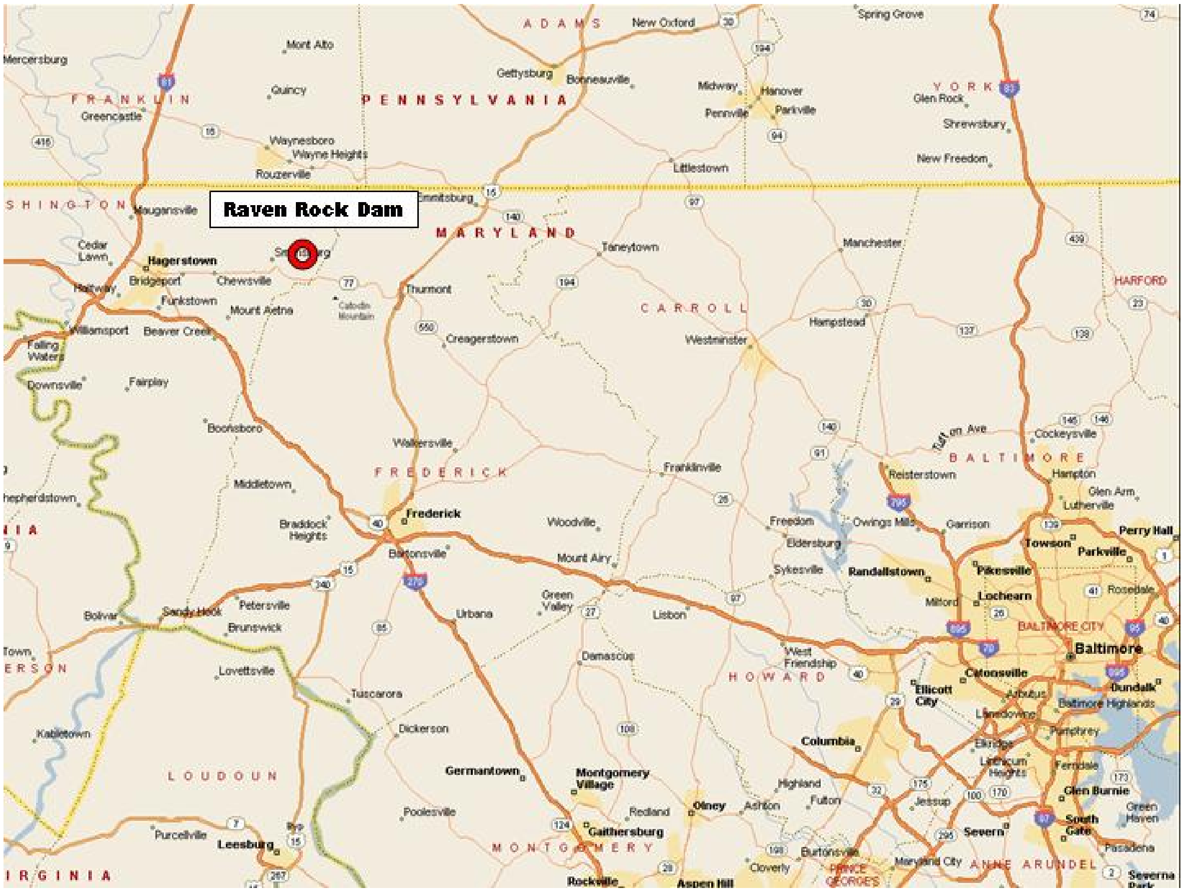
Organization Name: Western Maryland RC&D
Affiliation: Conservation Group
Role: Project Partner, Project oversight
Contribution: Bid project

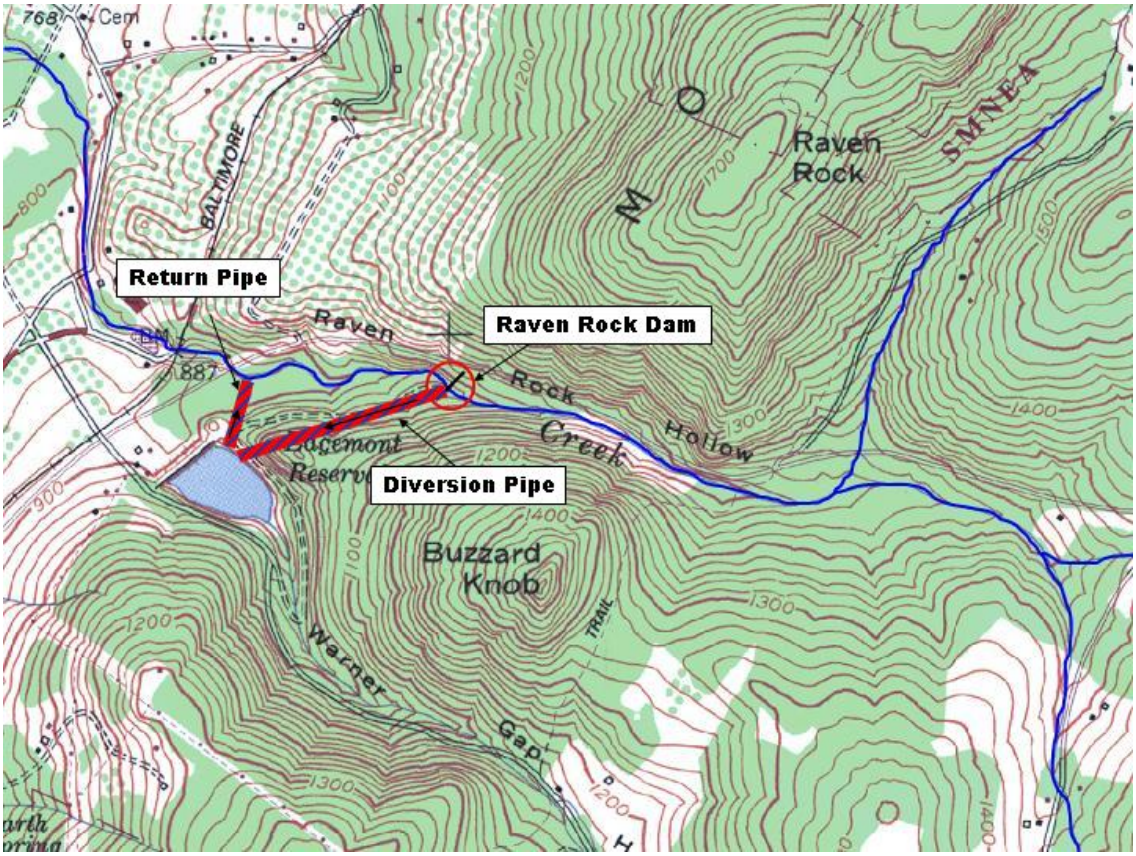
NOTE: A letter from the state fishery management agency responsible for the project area must accompany the proposal. The letter must show support for the project, identify how the project meets goals and objectives for the state and address the recreational value of the population that will be affected.

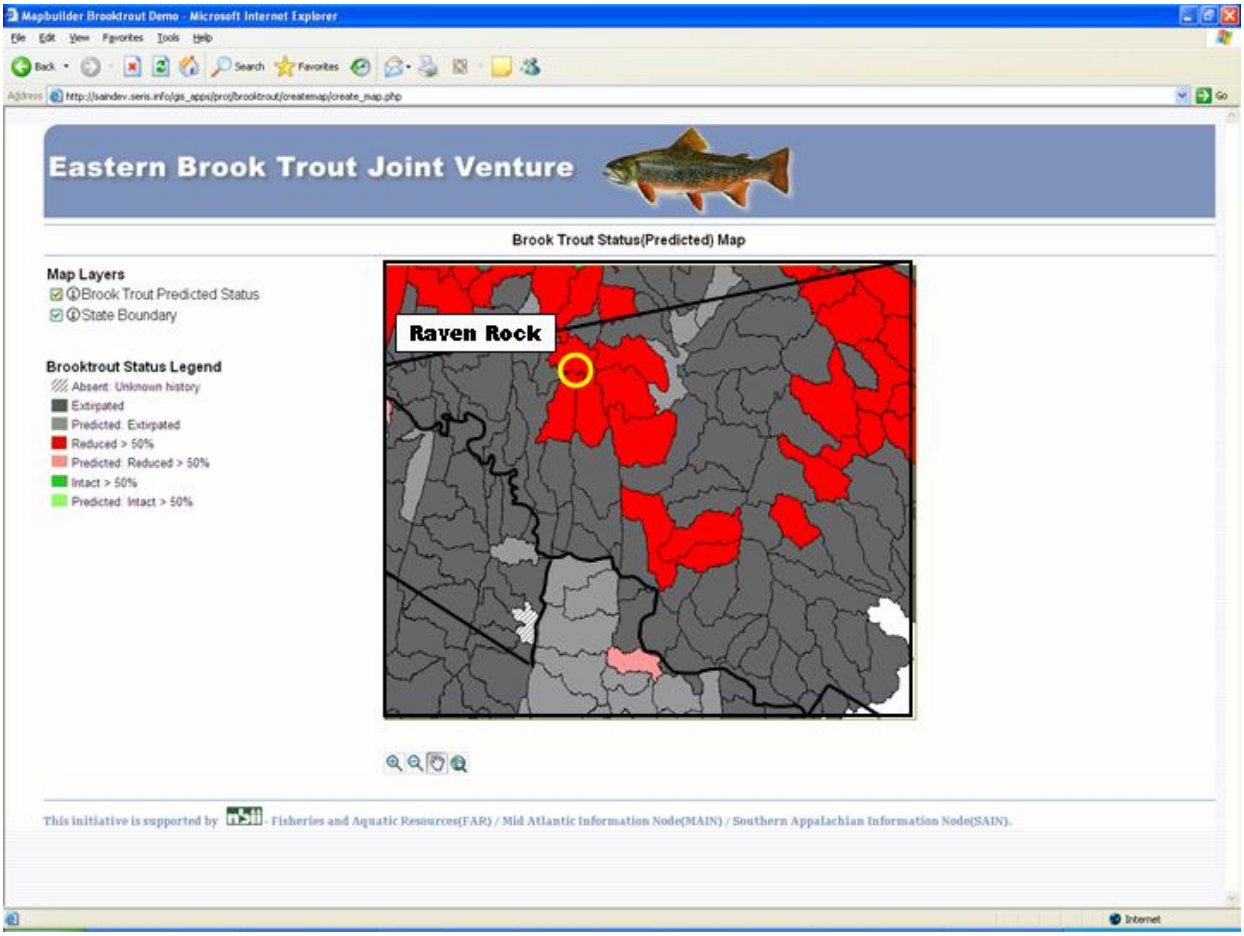
IV. MAP OF PROJECT AREA (one, minimum)

Provide at least one map of the project area in the following format:

- Color (preferred) or black and white (acceptable);
- Large-scale detail (e.g., 1 inch = 1 mile, or greater), clearly showing the scope and location of the project.
- Must be in JPG or bitmap format. Shapefiles may be requested if project is funded.
- Provide GPS coordinates for a center point of the project area using UTM NAD 83.
- Identify the HUC6 level watershed(s) the project is located in. (see the status and distribution map at http://saindev.seris.info/gis_apps/proj/brooktrout/index.php)


Raven Rock Dam
PENNSYLVANIA
MARYLAND
ADAMS
FRANKLIN
YORK
CARROLL
FREDERICK
BALTIMORE
HARFORD
HOWARD
LOUDOUN
MONTGOMERY
ANNE ARUNDEL
PRINCE GEORGE'S
BALTIMORE CITY
Mercersburg
Mont Alto
Quincy
Greencastle
Waynesboro
Wayne Heights
Rouzerville
Gettysburg
Bonneauville
New Oxford
Midway
Hanover
Pennville
Parkville
Littlestown
Spring Grove
Glen Rock
Shrewsbury
New Freedom
Emmitsburg
Maugansville
Cedar Lawn
Hagerstown
Bridgeport
Chewsville
Funkstown
Mount Aetna
Thurmont
Taneytown
Manchester
Hampstead
Westminster
Williamsport
Beaver Creek
Falling Waters
Downsville
Fairplay
Creagerstown
Boonsboro
Walkersville
Middletown
Braddock Heights
Frederick
Woodville
Franklinville
Reisterstown
Cockeysville
Hampton
Glen Arm
Lutherville
Perry Hall
Towson
Parkville
Freedom
Eldersburg
Owings Mills
Garrison
Sykesville
Randallstown
Pikesville
Lochearn
Milford
Rosedale
Baltimore
Dundalk
Catonsville
Ellicott City
Arbutus
Baltimore Highlands
Lansdowne
Pumphrey
Elkridge
Linthicum Heights
Ferndale
Glen Burnie
Green Haven
South Gate
Pasadena
Severna Park
Severn
Jessup
Maryland City
Columbia
Highland
Fulton
Burtonsville
Cloverly
Ashton
Olney
Redland
Gaithersburg
Montgomery Village
Germantown
Rockville
Aspen Hill
Poolesville
Dickerson
Tuscarora
Urbana
Ballenger
Green Valley
Mount Airy
Lisbon
Damascus
West Friendship
Petersville
Brunswick
Sandy Hook
Bolivar
Lovettsville
Kabletown
Purcellville
Leesburg
Shepherdstown
VIRGINIA


Return Pipe
Raven Rock Dam
Diversion Pipe
Raven Rock
Buzzard Knob
Warner Gap
Raven Rock Creek Hollow
BALTIMORE
SMNEA
TRAIL


Mapbuilder Brooktrout Demo - Microsoft Internet Explorer
Eastern Brook Trout Joint Venture
Brook Trout Status(Predicted) Map
Map Layers
Brook Trout Predicted Status
State Boundary
Brooktrout Status Legend
Absent: Unknown history
Extirpated
Predicted: Extirpated
Reduced > 50%
Predicted: Reduced > 50%
Intact > 50%
Predicted: Intact > 50%
Raven Rock
This initiative is supported by Fisheries and Aquatic Resources(FAR) / Mid Atlantic Information Node(MAIN) / Southern Appalachian Information Node(SAIN).

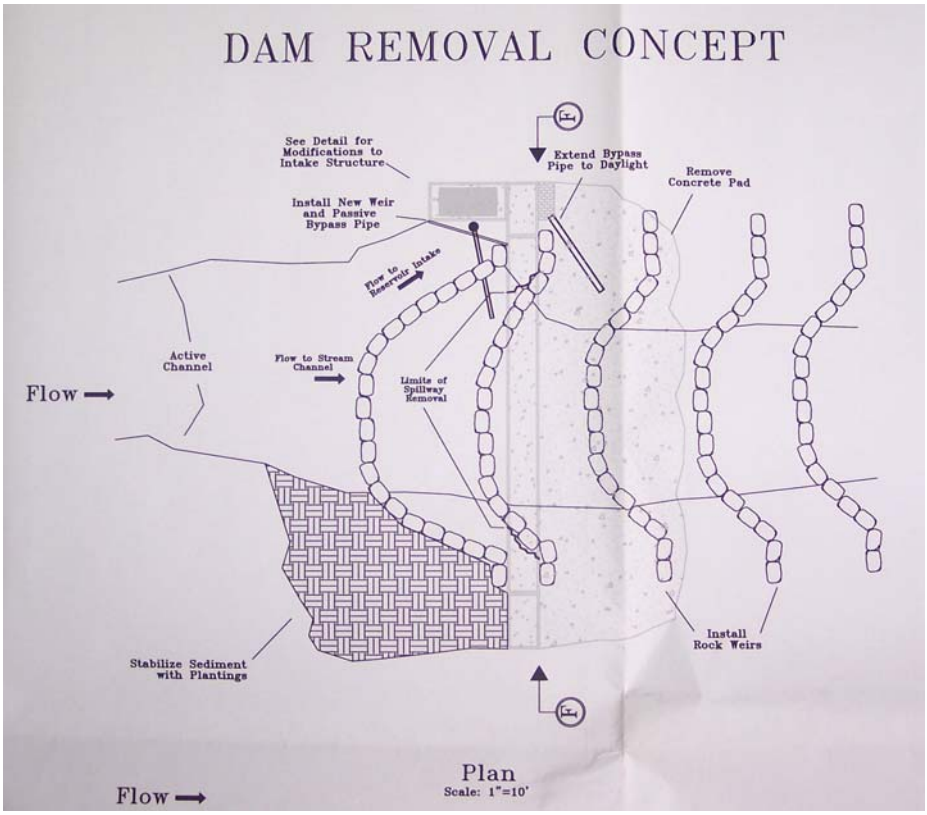
V. PHOTOGRAPH(S) OF PROJECT AREA (1-2 page(s), optional)

Photographs of the project area are desirable, but not required. If included, each photo should in JPG format and be accompanied by:

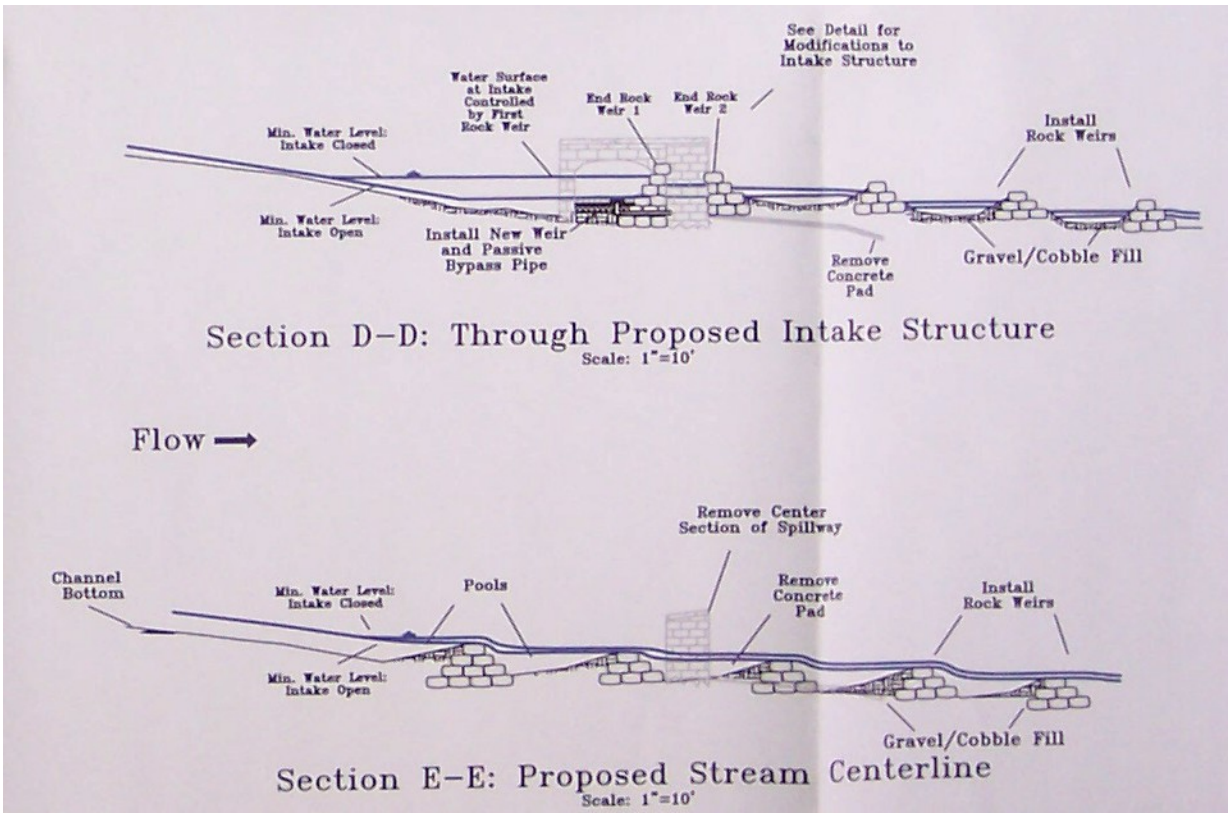
- A short, descriptive caption;
- Photographer's name/organization; and
- Any copyright restrictions that may apply.


Raven Rock Dam
photo by Jim Thompson MD DNR


Collage of photos showing habitat in Raven Rock Creek
Photos by Jim Thompson, MD DNR



PRELIMINARY DESIGN DRAWINGS ~ 30%



VI. PROJECT BUDGET (1 – 2 pages)

A. General Requirements

The proposal should contain a detailed budget table showing total project costs in the following manner:

- List the total cost per project activity (e.g., acquisition, restoration) and apportion these costs between grant dollars, matching partner dollars, and, if applicable, Federal (or Federal-source) partner dollars provided by each partner.
- Budget categories must be line items that specifically describe project costs, including, "salaries," "contractor services," "equipment," or "supplies", “monitoring”, and “travel”.
- In a separate column, where applicable, provide the number of acres/hectares to be affected by the monies expended in each project activity.

B. Budget Table

Partner	Activity	NFHAP Request	Non-Fed. Contribution	Federal Contribution	Total
USFWS Chesapeake Bay Field Office	Project Design	$0	$0	$36,000	$36,000
MD DNR Fish Passage Program	Construction	$0	$32,000	$0	$32,000
USFWS MD Fisheries Resource Office	Monitoring	$0	$0	$4,000 (Inkind)	4,000
MD DNR Inland Fisheries	Monitoring	$0	$4,000 (In-kind)	$0	$4,000
NFHAP/ EBTJV	Construction	$50,000	$0	$0	$50,000
Grand Total		**$50,000**	**$36,000**	**$40,000**	**$126,000**

NOTE: This is not a Federal Grant program and therefore does not exclude non-federal match used here from being matched to other Federal Grant sources to leverage funds for the project. Indicate if partnering contributions are in-kind or new cash. NFHAP requests should illustrate how the dollars will be spent and by what organization. Overhead such as utilities, office space, and salary to prepare applications and develop partnerships will not be funded with NFHAP funds and should not be a line item or built into the project. Activities that directly relate to completion of the project such as travel and salary to do design work let and/or monitor contracts are allowable expenses with NFHAP funds but should not constitute more than 10% of the funding request.

VII. EVALUATION QUESTIONS (3 pages maximum)
Briefly explain how your proposal addresses the following elements in each category.

A. Conservation of Sustainable Brook Trout Populations:

- **Does the project currently protect habitat to support eastern brook trout through easement of fee title ownership by a conservation organization?** No, the project is located on land owned by Washington County
- **Does it include purchase in fee or of easement sufficient to protect brook trout habitat?** The project does not include the purchase or easement of any lands – the project will be completed on lands owned by Washington County.
- **Does the project address specific objectives outlined in either a state, regional, or range-wide brook trout conservation strategy?** Yes, the Maryland Brook Trout Fishery Management Plan specifies a goal to restore and maintain healthy brook trout populations in Maryland's freshwater streams and provide long-term social and economic benefits from a recreational fishery. This project meets that goal by extending an existing high quality brook trout fishery downstream an additional .75 mile through property open to public fishing.
- **Does the project address objectives and goals outlined in state conservation management plans other than those specific to brook trout?** Yes, the project will help to fulfill goals outlined in the Chesapeake Bay Agreement by reopening habitat to resident fish species.

B. Endangered Species:

- **Will the completed project benefit any Federally listed threatened or endangered species?** No
- **Will the completed project benefit any state listed species of concern that are not also Federally listed?** No

NOTE: Address only those project activities that will contribute directly to a Federally listed threatened/endangered species recovery plan or will provide critical habitat for Federally or State-listed threatened or endangered species. Indirect, minor, or unknown benefits related to such species which may use the project area should not be included by may be included und state listed species as appropriate. The list of Federally endangered or threatened species, maintained by the U.S. Fish and Wildlife Service, can be found at the Endangered Species Program's Web site, located at http://www.fws.gov/endangered/wildlife.html#Species.

D. Economically important species not also listed as threatened and endangered species:

No

E. Special Considerations:

Are there any special considerations, outside of sections A-D above, that you feel should be factored into project evaluation, e.g., threats, historical record, opportunities, trends or outstanding resource values, or benefits not represented elsewhere?

The headwaters of Little Antietam Creek (Raven Rock Creek) supports one of only two remaining brook trout resources in Washington County. Upstream of the diversion dam, standing crops and abundance estimates have been excellent. Completion of the proposed project will open an additional mile of suitable habitat and expand this high quality resource and fishery. The Appalachian Trail crosses Raven Rock Creek in the vicinity of the proposed project. Protecting this resource will enhance the natural experience of many of the trail users

F. EBTJV Habitat Restoration Priority:

- **What is the restoration priority of the subject watershed?**
  This watershed is listed as GREATLY REDUCED

NOTE: This map is currently being developed by the Eastern Brook Trout Joint Venture and may not be available by the application deadline. See http://www.easternbroktrout.net to answer this question. If information is unavailable please state.

G. Habitat Connectivity and Enhancing Population Mobility

- **Does the project connect to a watershed identified as intact or reduced?**
  Yes

NOTE: Use the status and distribution map found at http://saindev.seris.info/gis_apps/proj/brooktrout/createmap/create_map.php

- **Does the project expand habitat availability of existing native brook trout populations?**
  Yes. The project will open 1 mile of high quality habitat to native brook trout in Raven Rock Creek. This project targets a tributary that needs restoration to expand a stable population of brook trout.

NOTE: Describe if the project targets a main stem with healthy populations in tributaries or tributaries that need restoration to connect habitat to the main stem. Identify if the project is adjacent to currently protected lands such as National Forests, state parks, or Nature Conservancy lands. This should be expressed as a percentage of the watershed above the project area that is in long-term protection.

- **What is the probability of long-term success in supporting a sustainable fishable brook trout population in the project area.**
  The probability of long-term success in supporting a sustainable fishable brook trout population in the project area is very good. In addition, this project could increase or extend the area for sustainable fishing.

NOTE: The narrative should address any attempts at securing land protection for the project area such as USDA program easements or fee title purchase. You must identify the projected longevity of any structures or other practices conducted to improve brook trout populations. Address whether or not the root causes of habitat destruction have been addressed and to what extent. To the extent possible reference standardized restoration practices and research that identifies the longevity of these practices.

H. MANAGEMENT ASSETS:

- **Is there an adaptive management component to the project?**

  The Raven Rock Creek watershed is managed under Maryland's statewide trout regulations that include: a year-round season, no minimum size restriction, a two trout daily creel limit, and no special bait or tackle restrictions. Adult brook trout standing crops and densities measured in Raven Rock Creek were comparable to those measured in other high quality brook trout streams in Frederick County. The brook trout population upstream of the project site has historically been monitored every other year using the Zippin three-pass depletion method to obtain population estimates for adult and young-of-year trout. Standing crop (lbs/acre) and density (trout /acre, trout/mile) values are derived from these estimates. An additional survey site was added in 2005 downstream of the project area to document the re-establishment of brook trout in the re-watered section and monitoring is now conducted annually. Annual monitoring will continue for several years after project completion to fully evaluate the response of the brook trout population to the restoration project.

NOTE: Identify all monitoring including references to protocols.

- **Will the project area be accessible to public fishing?**

Yes. Year-round fishing is allowed free of charge along the entire stretch of Raven Rock Creek within the Hagerstown watershed property.

NOTE: Identify to what extent fishing access is available including to what sectors of the public and during what time frames and whether a fee will be charged.

- **Will the project have an educational component or is it being developed as a demonstration project for the Eastern Brook Trout Joint Venture?**

  There are several very active watershed groups in the area that will use this project as an example for future small dam removals in the area. Fisherman and citizens in the area will see how dam removal projects can not only increase recreational fishing opportunities, but also improve the water quality and production in existing areas.