



RESTORING THE PHENOMENON OF MIGRATORY SHAD TO THE BRANDYWINE RIVER

MEETING NOTES Old First Presbyterian Church June 6, 2018

Attendees:

- Jerry Kauffman, UD Water Resource Center
- Martha Narvaez, UD Water Resource Center
- Andrew Homsey, UD Water Resource Center
- Adrian Leary, USACE
- Brian Bogle, USACE
- Mike Stangl, DNREC Fish and Wildlife
- David Shields, Brandywine Conservancy
- Kathleen McCaig, Brandywine Conservancy
- Jim Jordan, Brandywine Red Clay Alliance
- Hunter Lott, Old Brandywine Village & Brandywine Shad 2020
- Jim Shanahan, Old Brandywine Village & Brandywine Shad 2020

Meeting Notes:

1. Hunter Lott opened the meeting by stating the objective of the Brandywine Shad 2020 Committee is to have initiated a significant portion of the remediation of all 11 dams on the Delaware side of of the Brandywine by the end of 2020.
2. Mike Stangl provided an update on the removal of Dam #1
 - Still on track for removal this fall, but some approvals are still needed
 - Next step is to get USACE and SHPO to sign MOU prepared by the City and SHPO
 - SHPO wants a plaque identifying the historic nature of the remains of circa 1740 dam approximately 100 feet downstream of Dam 1, and area cleared and maintained for the public.
 - Brian Bogle said he will assist in getting USACE to sign off
3. Mike Stangl reported that DNREC signed a letter of interest with the City of Wilmington indicating that they were willing to co-sponsor a feasibility study with USACE if a new study could be initiated and funded. The draft plan is for a bypass or natural fishway. USACE has requested new studies through both the Continuing Authorities Program and General Investigation processes.
4. Mike Stangl presented partial results of 2017 and 2018 fish sampling in tidal Brandywine
 - 2017 results very positive, 34 species identified and 400 shad fingerlings, Index of 4.74
 - 2018 top line results of study just conduct showed 17 shad, 15 blueback herring and 5 striped bass.
 - Detailed results of from 2017, 2018 and previous years in Attachment B
5. Adrian Leary spoke about the 3 kinds of support that USACE can provide:
 - a. GI Study (General Investigation)
 - Plan, design and implement
 - For projects greater than \$15 million



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- Difficult to obtain approval, needs congressional approval, competes nationally

b. CAP Program (Continuing Authorities Program)

- Plan, design and implement
- For projects up to \$15 million
- Easier to obtain as the decision is made within the northeast region
- USACE can fund up to \$100,000 of the **Study** costs with full Federal funds. Costs over \$100,000 are cost shared 50/50 with a non-Fed Sponsor.
- Permitting process and design done in house
- Design and construction phase requires sponsoring agency to provide 35% of the **Project** cost.
- Adrian and Brian are recommending the shad project be selected as a new-start study.
- If selected as a new start, the study could receive funding in the 3rd quarter of 2019

c. Planning Assistance to States

- Help on engineering evaluation and solutions only
- Does not include detailed specs for solutions nor water flow impact
- Cost typically in the range of \$100,000 (\$50K Fed/\$50K non-Fed), but could be less.
- Need request letter from an Agency

6. Discussion of Next Steps and Role of USACE

- General agreement to proceed on dual track approach in order to keep the project moving in case approval cannot be obtained for a CAP
- Track 1 would be to request approval by the USACE for a CAP program which would include both planning and implementation. A decision would be made in mid-2019.
- Track 2 would be to have the USACE move forward concurrently with Planning Assistance that would provide engineering evaluation and recommended solutions. This would need a non-Fed Sponsor for a 50/50 cost share. The UD Water Resource Center could assist in providing data and other information.
- If Track 1 is not approved, the UD Water Resource Center would be able to assume responsibility for detailed engineering solutions building on output of Track 2 Planning Assistance and overall project implementation.
- General agreement to engage appropriate agencies, particularly SHIPPO and the City, in the study of Dam #2 options, as this is not only the next dam upstream but one of the most difficult to address.

7. The meeting attendees then proceeded to on-site inspection of the dams. Pictures were taken and general discussions were had as to the potential remediation solutions and potential costs. A brief summary of these discussions is in Attachment A.

Based on the site inspection it was further discussed that perhaps Brandywine Shad 2020 should be conducted in two phases:

Phase I - Dams 2, 3, and 4 This would restore fish passage inland to 4.2 miles above the mouth of the Brandywine to 60 feet above sea level.

Phase II - Dams 5, 6, 7, 8, 9, 10, 11 This would restore fish passage inland to 7.2 miles above the mouth of the Brandywine to 140 ft above sea level. After Dam 11, the fish can



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then spawn all the way into Pennsylvania to 15.7 miles above the mouth of the Brandywine to 180 ft above sea level at Brintons Bridge in Chadds Ford, PA.

Attachment A

<u>COMMENTS REGARDING POTENTIAL REMEDIATION OPTIONS</u>	<u>POTENTIAL COST *</u>
Dam 1 Demolition 10/18. However, early indications of delays from DNREC. We need to be vigilant and in contact w/ our sources to insure date is kept.	Funded by City
Dam 2 Redesign and construction of an existing fish passage on north bank.	\$200,000
Dam 3 Breached	
Dam 4 Has large cavity, mid-dam, downstream. May self-destruct or not. Existing 1970s fish ladder could be rehabbed if collapse is delayed.	\$100,000
Dam 5 Given the sound structural condition and lack of access to 10 ft high Brandywine Falls Dam No. 5, it appears that this dam will be a significant challenge to remove or partially breach. Therefore, significant funds may be required to restore fish passage here.	\$1,000,000
Dam 6 Create fish passage w/ resting pools on south bank. Easy machine access along existing path.	\$50,000
Dam 7 Create fish passage as in #6. Machine access from parking lot.	\$50,000
Dam 8 Hagley. Close to Visitor Center. Creation of viewing station for public to see shad passage may be possible at great cost.	\$500,000
Dam 9&10 Create fish passage on north bank. Apparently easy fix.	\$100,000
Dam 11 Breached	
	Total \$2,000,000

* *Costs are rough estimates only and need to be finalized based on detailed feasibility and engineering studies identifying the optimal solution for each dam*



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Attachment B

Delaware Fish & Wildlife Fish Surveys

DE F&W Fish Surveys - Brandywine Creek									
Time Period	Project Title	Station Location	Alewife	American eel	American shad	Blueback herring	Hickory Shad	Striped bass	Menhaden
Feb. 1, 1986 - April 30, 1991	Stream and Inland Bays Fish	At Rd 221 crossing (Woodlawn) -		112					
Feb. 1, 1986 - April 30, 1991	Stream and Inland Bays Fish	At Hagley Museum - NON-TIDAL		15					
	Stream and Inland Bays Fish	Brandywine Creek near Market St. -	20	7		16		7	
Feb. 1, 1986 - April 30, 1991	Stream and Inland Bays Fish Survey	Brandywine Creek fish ladder 1 near Market St. - TIDAL	86	80					
Feb. 1, 1986 - April 30, 1991	Stream and Inland Bays Fish	At railroad crossing - TIDAL				5		3	
Feb. 1, 1986 - April 30, 1991	Stream and Inland Bays Fish	near the mouth, 7th St marina - TIDAL		22		5			
Feb. 1, 1986 - April 30, 1991	Instream Flow Analysis of Streams in NCC	Total # of fish caught from 8 - 100' Sections between Augustine Cutoff to		403					
August 1, 1995 - July 31, 1996	Smallmouth bass Assessment	City Dam to Van Buren							
August 7 and August 13, 1997	Smallmouth bass Assessment	Van Buren Riffles to Market (West) Street Dam_NONTIDAL							
August 15 and September 4,	Smallmouth bass Assessment	City Dam to Van Buren			9				
June 3 and June 19, 1998	Smallmouth bass Assessment	Van Buren Riffles to Market Street							
April 6, 18, 27, May 9 and May 23, 2016	Dam removal upstream fish survey	Upstream of Damn 1 to Dam 2	1	4	3	5	2	28	1
June 1, 2016	Dam removal downstream fish	Downstream of Dam1 to end of North		15	6				
April 24 and May 31 2017	Dam removal upstream fish	Upstream of Damn 1 to Dam 2		2	5		6		
April 27 and May 11 2017	Dam removal downstream fish	Downstream of Dam1 to end of North		14	9				
April 9 and May 7 2018	Dam removal downstream fish	Downstream of Dam1 to end of North			17	15		5	