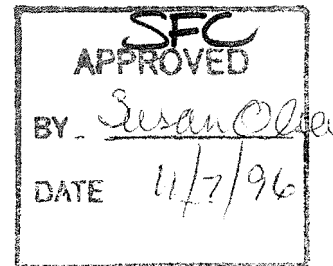


UNITED STATES
DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Region
State, Federal & Constituent Programs Division



FINAL REPORT

Grantee: PENNSYLVANIA FISH AND BOAT COMMISSION

Project No: N/A

Grant No: NA56FU0365

Project Title: SUSQUEHANNA RIVER ANADROMOUS FISH
RESTORATION COORDINATION, PHASE II

Period Covered: 07/01/95 - 06/30/96

Prepared by: ROLAND S. CARNEY

Approved by: _____

Date: SEPTEMBER 11, 1996

Statutory Funding Authority: Anadromous Fish Conservation Act
(P.L. 89-304)

- ☒ Chesapeake Bay Studies
- ☐ Endangered Species Act
- ☐ Interjurisdictional Fisheries
Act (Title III of P.L. 99-659)
- ☐ Magnuson Act
- ☐ Oyster Disease Research
- ☐ Saltonstall-Kennedy
- ☐ Unallied Industry Projects
- ☐ Unallied Science Projects

Final Report

Susquehanna River Anadromous Fish Restoration Coordination, Phase
II

July 1, 1995 to June 30, 1996

NOAA Award Number NA56FU0365

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September 11, 1996

Objectives:

Objectives of this project are to coordinate anadromous fish restoration activities within the Susquehanna River and its tributaries. It is a continuation of the partnership with the U.S. Fish and Wildlife Services' Susquehanna River Fisheries Coordinator. The functions of this project are to compliment and supplement, but not replace, those of the U.S.F.W.S. and N.M.F.S. Deliverables as outlined by the original grant proposal include:

Deliverables

1. Report on efforts to develop support for accomplishing restoration of migratory fish to tributaries of the Susquehanna River including educational and promotional forums, public workshops, and contacts with agency staff, cooperating agencies, local governments, institutions, news media and private parties.
2. Report on results of contacts with owners of upriver and tributary priority blockages regarding the need for cooperation and support in providing fish passage.
3. Maintain and manage EPA compatible electronic database of Susquehanna River Basin blockages.
4. Report on activities to acquire funding and implement biomonitoring studies to assess survival and/or reproduction of stocked fry and adult alosids.
5. Report on progress for fish passage at upstream and tributary blockages including priority blockages that need to be addressed and a schedule for addressing them.
6. Three quarterly reports and one final report on the Susquehanna River Anadromous Fish Coordination Project accomplishments.

Efforts:

Efforts concentrated on a variety of coordination activities and projects. They included: representing the Pennsylvania Fish and Boat Commission (PFBC) in a number of strategic planning and technical advisory committees and work groups involved with or related to the Chesapeake Bay Program and migratory fish restoration activities in the Susquehanna River Basin; developing an EPA compatible electronic data inventory of Susquehanna River tributary blockages and coordinating activities for provisions of fish passage; managing contract with vendor for bio-monitoring of alosids using grant funding from Atlantic Coastal Fisheries Cooperative Management Act; developing and expanding public relations and education activities with regard to the Chesapeake Bay Program and migratory fish restoration in the Susquehanna River Basin; and operation of Van Dyke Research Station for anadromous fish.

Progress:

Job 1. Anadromous Fish Restoration Coordination

Coordination activities involved efforts of PFBC task force to develop and implement strategies and address issues related to the removal of blockages to fish migration and expanding migratory fish restoration efforts within the Susquehanna River Basin. Staff continued initiatives with existing federal, state and private interest groups currently involved in restoration efforts and participated in a number of related committees and work groups. This included meetings held by, or in conjunction with, the Pennsylvania's Chesapeake Bay Advisory Committee to the State Conservation Commission, EPA Interstate Fish Passage Work Group, National Marine Fisheries Service, U. S. Fish & Wild Service, Chesapeake Bay Foundation, Susquehanna River Basin Commission, and Alliance for the Chesapeake Bay.

Efforts to expand public education and awareness activities with regard to the Chesapeake Bay Program and migratory fish restoration in the Susquehanna River and its tributaries continue. Slide presentations were given to the York Chapter Isaak Walton League of America, PA Association of Conservation Districts, Elizabethtown High School, Dillsburg Lions Club. Anadromous fish restoration display was exhibited at "A Day on the River" celebration in Easton and Susquehanna River Celebration in Harrisburg. A tour of Van Dyke Anadromous Fish Restoration Station was given to educators in association with the Chesapeake Bay Foundation and Alliance for the Chesapeake Bay.

Multiple media events were held by the PFBC and involved stocking of uniquely marked shad fry into West Branch of Susquehanna River, North Branch of Susquehanna River, Standing Stone Creek, Conodoguinet Creek, and Conestoga River. These stockings are a continuation of studies to determine relative survival of shad stocked in tributary waters and attempt to expand distribution of American shad throughout the basin. The events were attended by local television news stations, public radio, local newspapers and various citizen groups.

The 16 page glossy booklet on migratory fish restoration in Pennsylvania has been completed (see attachment). Contributors included the USFWS, PFBC, SRBC, Pennsylvania Department of Environmental Protection, Alliance for the Chesapeake Bay, and the Chesapeake Bay Foundation. Publication included 40,000 issues inserted in the February 1996 issue of the PFBC's PA ANGLER magazine and an additional 20,000 overrun which is being distributed separately as an informational brochure.

A video program on migratory fish restoration in the Susquehanna River is being produced by Commonwealth Media. Completion is expected in 1997/1998.

The PFBC is promoting American shad restoration through the production of a commemorative patch that celebrates the 130th anniversary of the PFBC and its commitment to American shad restoration. The patch is available to the public for a fee of \$5.00. Sales are brisk. Plans also include the production of a limited edition commemorative knife that advertises the same theme. The Knife will be available this Fall. Preliminary discussions on the format and scope of a possible Pennsylvania fish passage conference similar to the one held in Maryland and Virginia continue.

Susquehanna River Basin Blockage Inventory (NA46FU0218)

During the period July 1, 1995 to June 30, 1996 the remaining proportion of Phase II and the field work for Phase III of the blockage inventory was completed. Phase III addresses the following tributaries:

Yellow Breeches,	Cumberland County
Conodoguinet Creek,	Cumberland/York Counties
Swatara Creek,	Dauphin County
Sherman's Creek,	Perry County
Fishing Creek,	Perry County
Fishing Creek,	York County

Phase III of the survey will identify and characterize blockages on all tributaries which meet sample criteria and located upstream of York Haven Dam to the confluence of the Juniata River. Final report for Phase III is expected in October, 1996.

Conowingo Dam Fish Lift Catches/Alosid Truck and Transport

In 1995, fish lifts at Conowingo Dam collected 37,513 American shad: The second highest total to date. High flows and mechanical breakdown hampered the operation of both the east and west lift. The east lift operated a total of 49 days and the west lift a total of 28 days. By the season's end the East lift had taken 26,040 shad and the West lift 11,473. Average catch rates were 708 shad per day. Overall sex ratio was 1:1. Over 270 transport trips were required to move 33,279 pre-spawn adults upstream to spawning waters. Most fish were stocked at Middletown and Columbia and total observed mortality was less than 1%.

The west lift, primary source for river herring, alewife and hickory shad, experienced mechanical problems during most of the run. As a result, only 1132 blueback herring, 4 alewife and zero hickory shad were collected. A total of 410 blueback herring were transported to upstream spawning areas. Blueback herring and hickory shad were abundant this year but could not be captured because of the west lift being down for repairs.

Otolith Analysis of Adult American Shad Captured at the Conowingo Fish Lift

A total of 383 adult American shad were sacrificed for otolith analysis at the Conowingo Dam fish lift in 1996. Based on tetracycline marking and otolith microstructure, of the 378 readable otoliths 45% were identified as wild and 55% hatchery. Estimates of hatchery contribution to the population of adults entering the lifts was in 1995 was 90%.

Holtwood, Safe Harbor and York Haven Facilities

Construction of the fish lift at Safe Harbor Dam is 90% complete and expected to be finalized by October 1996. Fish lift construction at Holtwood dam is progressing and expected to be completed by the 1997 spring run. Flooding and high river flows during the 1995/96 winter resulted in damage and delays in fish lift construction.

GPU Energy is considering the option of developing the East Channel of Three Mile Island as a natural corridor as an alternative to fish lift construction at York Haven Dam. The proposal to remove the East Channel Dam (Red Hill Dam) and replace it with a steel gate dam that would be lowered during fish migrations is under review. Concerns about the impact of the open channel concept on upriver water levels and velocities have been expressed by Tri County Marina and other boating interests. Hydraulic modeling to determine the impact of the open channel concept continue. Negotiations with the Tri County Marina on acceptable flow regimes are underway. If flows under the open channel concept prove to be unacceptable to boating interests, alternative methods for fish passage will need to be investigated. One suggested alternative under consideration is a permanent fishway with enhanced attraction flows. The year 2000 target date for fish passage at York Haven remains.

Fabri dam at Sunbury, PA

U.S.D.I. Fish and Wildlife Service completed design for a vertical slot fishway for the east shore at the Fabri dam. The Pennsylvania Department of Conservation and Natural Resources has agreed to appropriate funding for construction.

Rock Hill Dam, Conestoga River, Lancaster County, PA (Separate report filed under NA56FU0395).

Bids from contractors to remove Rock Hill Dam have been collected and the contract awarded to Irvin Allott Construction Company. The

contract has been signed by the contractor and is in Harrisburg awaiting endorsement by the Commonwealth. PFBC has scheduled a 10:00 am, July 16th, pre-construction conference to be held at Rock Hill with the contractor, federal and state regulatory agency representatives. Breaching, demolition and disposal of Rock Hill Dam is tentatively scheduled to begin late July or August providing final grant approval by NOAA. A proposal for Chesapeake Bay Program Habitat Restoration Challenge Grant for FY 1997 to support restoration of inundated riparian areas upstream of Rock Hill Dam has been submitted to the Bay Program.

City of Lancaster Water Supply Dam, Conestoga River, Lancaster County, PA.

The Lancaster Water Authority has declined our invitation for Bay Program assistance for the implementation of fish passage at their water supply dam on the Conestoga River. The design was viewed as "non-practical" due to the uncertainty that exists with regard to future operation of the water treatment plant. The PFBC informed the Water Authority that when migratory fish are documented at the base of the dam, fish passage will be mandated as outlined in 30 PA Consolidated Statutes section 4501(a) which addresses provisions for fish passage at dams. The PFBC remains optimistic that Lancaster Water Authority will address provisions for fish passage once the future of the facility is determined.

American Paper Products Co. Dam, Conestoga River, Lancaster County, PA.

The American Paper Products Company is in the process of selling their property along the Conestoga River which includes a dilapidated mill dam. The potential purchaser, Manheim Township, plans to develop the property for public recreation which includes a canoe launch facility. The PFBC meet with Manheim Township on July 29, 1996 to discuss habitat restoration and provisions for fish passage at the dam. Discussions were very encouraging and the township is willing to breach and remove the remaining portion of the dam. The PFBC is seeking additional funding through a challenge grant from the Bay Program to assist the township in development of the riparian areas and park infrastructure.

Hammon's Dam (Castle Fin Station Dam), Muddy Creek, York County, PA.

Due to the presence of a significant natural blockage downstream of the Hammon's Dam, the project has been cancelled and grant amended to address fish passage at another impediment.

Castle Fin Dam, Muddy Creek, York County, PA (Separate report filed under NA56FU0460).

Engineering design for the breaching, demolition and disposal of Castle Fin Dam is progressing slightly behind schedule. Final engineering design expected to be completed by the end of July. Invitation to bid package is being drafted by PECO Energy. It may be necessary to request an extension on the project end date which is currently scheduled for September 30, 1996 depending on progress

with the IFB process and availability of contractors to perform the work. Higher than normal summer flows and contractual delays has postponed the breaching demolition and disposal of Rock Hill Dam until summer 1997. The PFBC has requested an extension of the grant (NA56FU0395) activation period until June 30, 1997 to secure adequate funding for the project.

Marietta Gravity Water Company Dam, Chickies Creek, Lancaster County, PA.

Negotiations with the Marietta Gravity Water Company for the implementation of fish passage at their dam on Chickies Creek continue without significant progress to date. The PFBC will meet with the Board of Directors from the Marietta Gravity Water Company to continue discussions on the proposal to breach and remove the dam with grant funding provided by the Chesapeake Bay Program.

Williamsburg Station Dam, Frankstown Branch of Juniata River, Blair County, PA.

The Pennsylvania Electric Company (Penelec) contracted the services of Morgantown Excavating of West Virginia to breach, demolish and dispose of the water supply dam located at the former Williamsburg Power Generating Station. Removal of the dam and associated activities are scheduled to begin in mid-July with completion by mid-August. The dam will be completely removed to the level of the former stream bed and the debris from its demolition used for stream bank stabilization and erosion control.

Cave Hill Dam, Conodoguinet Creek, Cumberland County, PA

No activities to report.

Huntingdon Water Authority Dam, Standing Stone Creek, Huntingdon County, PA.

The Denil fishway for the Borough of Huntingdon Water Supply Dam is 90% complete. Higher than normal summer flows prevented completion of the project during the 1996 summer. Flows permitting, project completion is anticipated for fall 1996. A media event will be scheduled to recognize the borough's efforts and contribution.

Job 2. American Shad Egg Collections

Approximately 14.4 million eggs (460 liters) were collected and delivered to Van Dyke during the 1996 season. Of these, 8.3 million (253 liters) came from Delaware River sources and 6.1 million (217 liters) from Hudson River sources. Egg viability for the Delaware and Hudson Rivers were 62% and 68%, respectively.

Job 3. American Shad Hatchery Activities

The PFBC Van Dyke Research Station for Anadromous Fish received and incubated over 460.5 liters (14,410,632 eggs) of American shad eggs

from Hudson and Delaware Rivers in 1996. Egg viability averaged 62.7% resulting in 8,458,500 fry stocked into the Susquehanna River Basin.

Distribution of fry was as follows: Juniata River - 5.7 million; Lehigh River - 990,000; West Branch of Susquehanna - 560,000; North Branch Susquehanna - 680,000; Conestoga River - 280,000; Conodoguinet Creek - 170,000; and Standing Stone Creek - 43,000. Shad fry stocked into the Juniata River received a single tetracycline mark and were released at seven days of age. Fry stocked elsewhere in the Susquehanna drainage were retained past seven days of age and received unique multiple tetracycline marks to evaluate relative survival specific to each stocking site.