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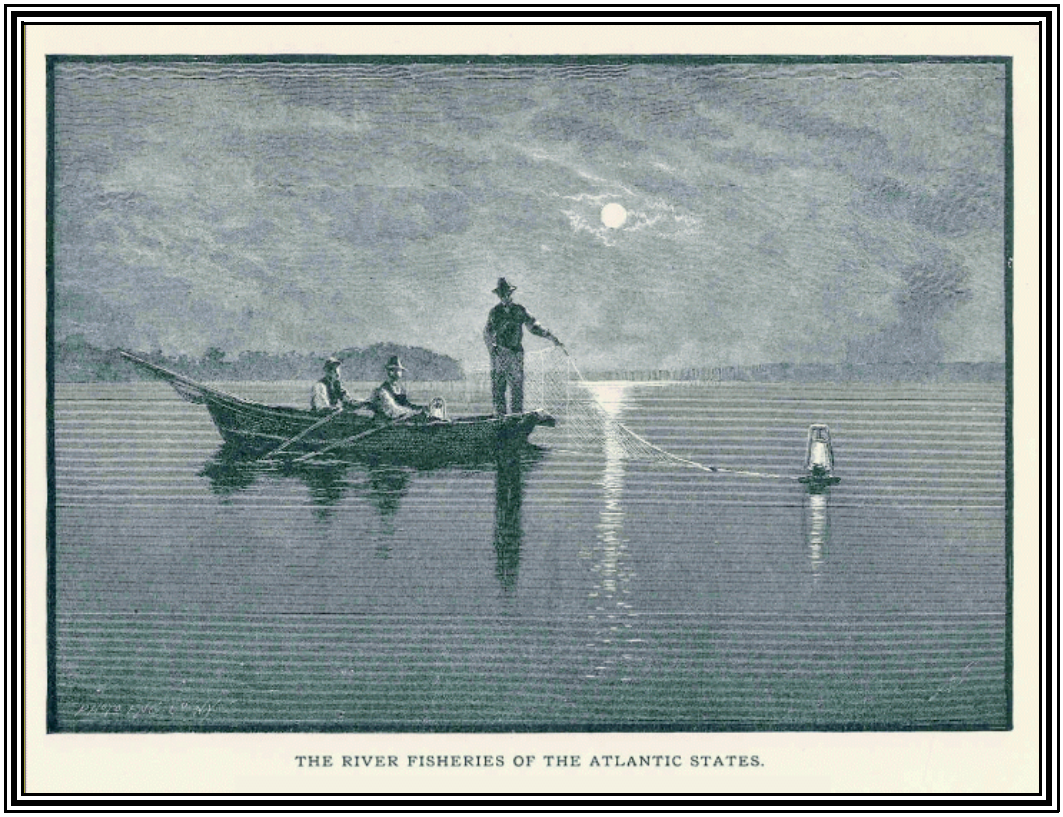
THE POTOMAC RIVER AMERICAN SHAD RESTORATION PROJECT
2003 SUMMARY REPORT



By James D. Cummins

Conducted in cooperation with:
U.S. Army Corps of Engineers, Baltimore District
U.S. Fish & Wildlife Service
District of Columbia Fish and Wildlife Program
Virginia Division of Game and Inland Fisheries
Chesapeake Bay Foundation
Living Classrooms
Anacostia Watershed Society

ICPRB REPORT #03-05

THE 2003 POTOMAC RIVER AMERICAN SHAD RESTORATION PROJECT

Figure 1: The Little Falls Fishway, nearing completion in January 2000, the 28' notch and "W" shaped weirs are visible. The USCOE pumping station and Maryland shoreline are in the background. Photo by Nancy Jedziniak, USCOE.

Figure 2: Some students were able to come out during the night-time brood shad collections. These students are being shown the specialized gill-rakers which the shad use to capture plankton. Photo by Sandy Geddes

Background

American shad, once the most abundant and commercially important fish species in the Potomac River and Chesapeake Bay, were close to fishing in 1980 in Maryland and 1982 in the Potomac River. An American shad stocking project for the Potomac River began in 1995 as part of an effort by a coalition of federal, state, regional and local agencies and nonprofit groups, organized as a Task Force[1], to open historic spawning and nursery habitat for native and anadromous fishes. An important milestone for this project was accomplished in January of 2000 with the completion of the fishway at the Little Falls (Brookmont) Dam by the US Army Corps of Engineers (USCOE). **During the eight year stocking phase of the project, which concluded in 2002, over 15.8 million shad fry were stocked into the Potomac River.** The project's current focus is monitoring restoration progress. Hundreds of volunteers helped, many of them spending very late-night hours during the springtime collections of adult brood shad. The Schools-in-Schools partnership with the Chesapeake Bay Foundation, with assistance from the Earth Conservation Corps' Living Classrooms and the Anacostia Watershed Society, has successfully involved many area schools and thousands of students have participated, both on the river and raising shad fry in the classroom. Through the student's efforts an estimated 153,000 fry were released.

Since the stocking program started in 1995 the number of adult American shad collected during the Spring brood-stock collections has more than doubled. Young shad have also become substantially more numerous, the numbers of young fish captured in Maryland's bay-wide shore haul-seine monitoring surveys have surpassed historical records for five of the last six years (See Appendix I.). American shad numbers in the Potomac River should be significantly increasing each year for at least the next seven years (foreseeable future) and for the first time in decades there is optimism that the harvest moratoriums on the Potomac River can be gradually lifted. Monitoring and keeping track of restoration progress are more important than ever in order to re-open the commercial and recreational American shad fisheries that were once so valuable to our economy and way of life. This report summarizes the results of the 2003 monitoring effort.

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[1]Members of the Little Falls Fish Passage Task Force come from Virginia, Maryland, the District of Columbia, the Interstate Commission on the Potomac River Basin, the Potomac River Fisheries Commission, the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, the National Biological Survey, the U.S. Environmental Protection Agency, the National Park Service, the National Marine Fisheries Service, Montgomery County, Maryland, the Chesapeake Bay Foundation, and The Potomac Conservancy.

Figure 3 The Potomac River at Great Falls, 6/05/03. In 2003, the river was characterized by such high flows during most of the shad spawning season. Photo by Brent O'Neil, National Park Service

2003 Activities

Monitoring: From 1995 to 2002, the ICPRB and the U.S. Fish & Wildlife Service (USFWS) have conducted a cooperative monitoring program to assess the progress of the project. In 2003, due to budget constraints, the USFWS was unable to continue their previous level of support for the field component of this project. The ICPRB became the primary monitoring entity but were fortunate to have some continued help from the USFWS during adult monitoring at Great Falls and to obtain summer-time assistance from the District of Columbia's Fish and Wildlife Program. Springtime monitoring of the strength of the adult American shad runs were conducted in two ways: 1) by gill-net surveys near Fort Belvoir, VA., and 2) monitoring of the Little Falls fishway by dip-net collections at Great Falls. Summer monitoring for young-of-the-year (YOY) American shad, conducted by push-net surveys with the USFWS in the tidal freshwater Potomac River since 1997, were conducted in the District of Columbia portions of the river.

Results: As a general note, unusually high flows during 2003 were a constraint during all elements of work, especially during the spring spawning season (See Appendix II).

1. Adult gill net collections: Gill-net collections, conducted just off shore from Fort Belvior, started April 15 and concluded May 20th. An additional brood-stock component of this monitoring program was added in 2003 at the request of the Virginia Division of Game and Inland Fisheries (VDGIF). VDGIF was initiating an American shad stock enhancement program for the Rappahanock River, was not finding enough shad in the Rappahanock necessary for egg supply, and sought assistance in the form of adult shad collections and eggs source. Despite the high flows, American shad were abundant enough that 1,494 shad were captured (See Table 1, page 3.) and 240 of these were used as an eggs source. Virginia was able to stock over 1.4 million American shad fry into the Rappahannock River. On May 6, the first batch of fry were stocked at Kelly's Ford Landing in the Phelps Wildlife Management Area, near Goldvein, VA. A ceremony to commemorate the occasion was held, presided over by Charles G. McDaniel, Chairman, Board of the Game & Inland Fisheries and William L. Woodfin, Jr., Director.

Table 1: Results of Adult Gill-net Collections near Fort Belvoir Dates of Collections, Number of American Shad Captured in 2003

Date[1]	4/15	4/16	4/22	4/23	4/27*	4/29	4/30	5/06	5/08	5/20	Total
Shad Captured 1st net	93	230	38	86	60	90	99	42	41	44	823
Shad Captured 2nd Net	64	NA	192	148	NA	94	63	45	NA	NA	606
Total Females	7[2]	36	43	92	38	79	53	38	34	10	495
Total Males	150	194	187	152	22	95	109	49	7	34	999
Water Temp.	13	14	14.5	14.5	16	17	17.5	18	19	15	
Tidal Stage/Time	H8	H9	L7	L9	H6.5	H8	H9	L6.5	L8	L7	

The catch-per-unit-effort (CPUE), calculated as 1494 total fish/16 nets set, was 93.4 shad/net-set. Using the same method, the CPUE in 2002 was 50. In 1995, when the project started, the number of adults captured was 294, with 22 net-sets, and the CPUE was 13.4. Of the 1494 shad captured in 2003, most were released. Approximately 240 ripe females produced 2,6323,000 eggs yielding 1,400,000 fry stocked in the Rappahannock River. If 1 in 337 (.26%) return[2], the 2003 stocking should result in an estimated 3640 shad returning.

2. Adult Dip-Net Collections at Great Falls: Dip-net collections started off well with five shad being captured on May 1st, but shortly thereafter the river levels rose to well above the median May flow of approximately 10,000 cfs (See Appendix I.). Collections can be made up to 14,000 cfs, unfortunately May 8 was the last date in the Spring that the flows were below 20,000 cfs. Therefore, much information on the abundance of shad at Great Falls in the spring of 2003 was not able to be collected.

3. The push-net survey for young-of-the-year (YOY) shad: Monitoring for YOY American shad in the Potomac River helps assess potential stock recovery fish passage effectiveness. A 4' wide x 3' deep bow mounted pushnet (1/4" mesh) has been used since 1997 to sample nine stations in the tidal river between Chain Bridge and Fort Belvoir. Sampling is performed at night, typically from 9:30 p.m. to midnight, but sometimes later. In 2003, several problems of a

[2]Based on monitoring data from the Conowingo Dam fish lifts (Hendricks 2000) which found that it takes 373 hatchery fry stocked in the Susquehanna River to get one returning adult shad.

different nature than high flows hampered this element of monitoring. For reasons stated earlier, the USFWS was not able to provide their specially outfitted collecting boat, rigged with a push net, from which these surveys have been performed since 1998. Fortunately, the District of Columbia's Fish and Wildlife Program decided to adopt this technique as part of their monitoring efforts and were graciously willing to use their new push-net boat for this task. Unfortunately, delays in construction of the push-net prevented it's deployment until August 11, well past the normal start-date of mid-July. From August 11 until September 30, a series of 11 push-net collections were made within the District of Columbia, the section historically sampled from the Woodrow Wilson Bridge to Ft. Belvoir could not be done by the District staff. In 2003, 469 young-of-year shad were collected, but, due to the change in collecting dates and the reduction in spacial coverage, this data is not directly comparable to previous data.. In 2002, which set a project record for YOY, 1044 shad were collected, compared to 486 in 2001, 111 in 2000, 12 in 1999, and 148 in 1998 and zero in 1997.

4. The Schools-in-Schools. This component of the project went very well, in large part to the new participation of the Living Classrooms organization. In 2003, 17 schools and 1421 students participated and released approximately 10,400 shad fry.

Discussion

Since this project started in 1995, the number of adult American shad collected during the Spring brood-stock collections has more than doubled, during the stocking phase the number of fry stocked more than tripled. Young-of-the-year shad have also become substantially more numerous, setting records in Maryland surveys (See Appendix I), **American shad numbers in the Potomac River should significantly increase each year for the next seven years (foreseeable future).**

The ICPRB and the USFWS have successfully completed an eight-year American shad stocking program, the fishway at Little Falls has been constructed by the U.S. Army Corps of Engineers, and our understanding of the shad in the Potomac River continues to expand. Interest in angling for American shad is growing rapidly thanks to a strong public outreach and participation component. The efforts of the multi-state, multi-agency/organization Little Falls Task Force are coming to fruition.

Future Needs

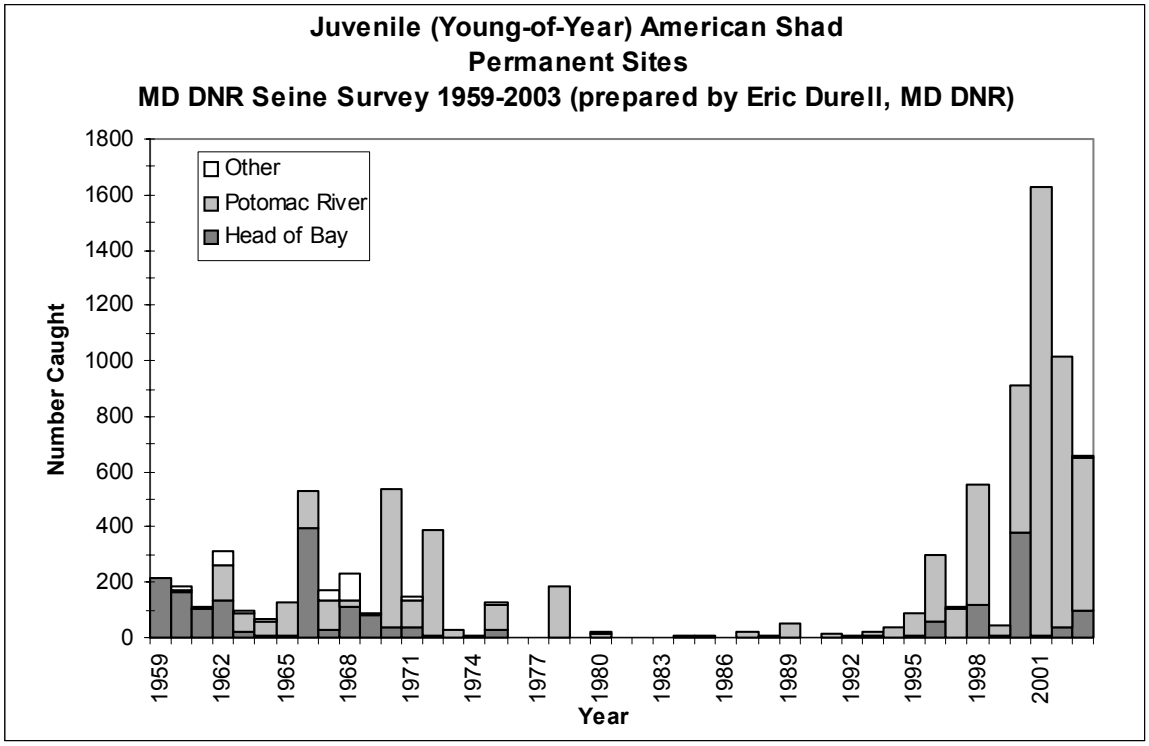
The need to monitor and keep track of the restoration progress still remains. In addition, due to the long time that this fishery has been closed and changes in tastes since they were abundant, more education is necessary to restore public interest in this remarkable fish, not only as a delicious food and exciting gamefish, but also because of its importance in river and coastal ecosystems and its significance in the history of this country.

Past Funding Support

Since the project's inception in 1995 it has been supported by a number of collaborating agencies and organizations including the Virginia Chesapeake Bay Restoration Fund, the Maryland Chesapeake Bay Trust, the Potomac River Fisheries Commission, the National Fish and Wildlife Foundation, the U.S. Fish & Wildlife Service, the US Army Corps of Engineers, the US EPA's Chesapeake Bay Program, Maryland's Department of Natural Resources, and private donations from members of the Congressional Sportsmens Caucus.

Appendix I.

Young-of-the-Year shad captured by the Maryland Department of Natural Resources' Shore Haul-seine Survey, 1958-2003, with a comparison of the those captured in the Potomac with those captured in all other Maryland systems surveyed (Prepared by Eric Durell, MD DNR).



Appendix II.

Flows recorded at Little Falls, Potomac River, during peak spawning times for the American Shad.
Graph prepared by the U.S. Geologic Service