

# ANACOSTIA

## CURRENTS

Volume 6 PUBLISHED BY THE ANACOSTIA WATERSHED RESTORATION COMMITTEE 2003

Dear Friends of the  
Anacostia Watershed:

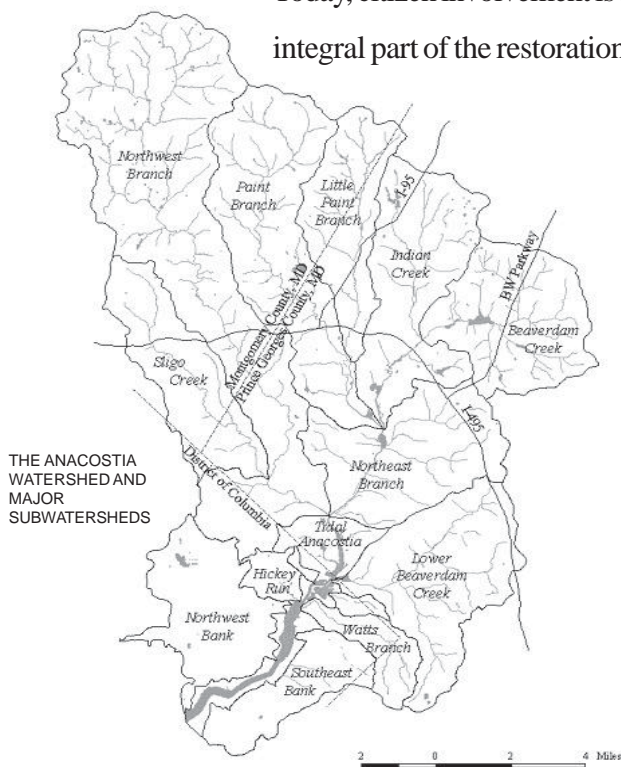


Larry Coffman,  
AWRC Chair

Another year has quickly passed, and once again there is much to report on the restoration accomplishments within the Anacostia River Watershed. In 1998, the *Anacostia Currents* newsletter was first published with the intent to increase the general public's awareness of the ongoing Anacostia restoration effort. Today, citizen involvement is an integral part of the restoration

effort. The Anacostia Watershed Citizen's Advisory Committee (AWCAC) has played a lead role in increasing citizen awareness, and a major accomplishment of AWCAC in 2003 was the successful workshop held in October to urge citizens living within the Northwest Branch subwatershed to form a new citizens group to protect their local treasure, the Northwest Branch. The formation of the "Neighbors of Northwest Branch" citizens group is well underway, following in the footsteps of other subwatershed and watershed groups including the Friends of Sligo Creek, Concerned Citizens to Restore Indian Creek, Eyes of Paint Branch, and the Anacostia Watershed Society (AWS).

One of the most exciting developments this past year was the introduction of the Anacostia Watershed Initiative Act to the United States Congress in November. Senators Sarbanes, Landrieu, Mikulski, and Allen, and Representatives Norton, Hoyer, Wynn, Moran, and Van Hollen presented the bill, which if passed into law would bring together federal, state, District, and local county governments in a program of close cooperation to address the Anacostia's water quality and restoration challenges. The principal obligation of the Anacostia Watershed Council would be to develop an action plan for the "restoration, protection, and enhancements of the environmental integrity and social and economic benefits of



the Anacostia watershed” based on the six goals established by the 1991 Anacostia Watershed Restoration Agreement. Several federal agencies - the U.S. Environmental Protection Agency, Departments of the Interior, Agriculture, Commerce, and Transportation, as well as the Army Corps of Engineers - would be involved in the development and implementation of the Comprehensive Action Plan. Of particular importance is the over \$200 million in funding that the legislation would provide toward various Anacostia watershed restoration activities and priorities, including but not limited to the repair and upgrade of the District of Columbia’s Combined Sewer Overflow system.

As in the past, the individual jurisdictions within the Anacostia watershed have been pursuing multiple avenues to enhance and restore the watershed. Montgomery County is actively engaged in several stream restoration and water quality enhancement projects such as the Northwood stream restoration and Dumont Oaks and April Stewart Lane stormwater management projects underway in the Northwest Branch and Paint Branch. As the nationally recognized leader in the development and implementation of Low Impact Development (LID) techniques for stormwater management, Prince George’s County has been involved in several LID projects in partnership with the University of Maryland, and has also been involved in the creation of both flood warning and automated water quality monitoring systems. The District of Columbia itself has been engaged in the Anacostia Waterfront Initiative, presented to the public by Mayor Anthony Williams in early December 2003. The Initiative seeks to redevelop the Anacostia Waterfront in an

environmentally friendly manner which will reconnect communities to the river. Further accomplishments within the District are the completion of 18 restored acres of tidal fringe wetlands adjacent to Kingman Island, and the development of Total Maximum Daily Load (TMDL’s) criteria for pollutants entering the river, which are expected to be approved by the U.S. Environmental Protection Agency in early 2004.

AWRC affiliated agencies and groups such as the Maryland-National Capital Park and Planning Commission (M-NCPPC) and AWS have been extremely busy as well. Currently, the M-NCPPC is involved in the creation of a pedestrian bridge at Bladensburg Waterfront Park, which will enhance the Anacostia trail system that extends from the District of Columbia. The AWS has spearheaded a project to involve local school children in growing native wetland plants for transplantation in the Anacostia River mudflats.

To the credit of all our partners working to restore the Anacostia watershed, this publication can not cover all of the projects and initiatives ongoing in the restoration effort. We hope that this issue of *Anacostia Currents* will provide the reader with a glimpse of the various activities and collective progress we have made toward our restoration goals. At the same time, we recognize the need to always do more, and we hope to inspire you to join with the thousands of your watershed neighbors who have stepped forward to become involved in the Anacostia watershed restoration effort.

Sincerely,



Larry Coffman, Chairman  
Anacostia Watershed Restoration Committee



*Paint Branch Stream Restoration Site  
Approximately 1,000 feet Downstream of  
Randolph Road*

*Interagency Cooperation Leading the  
Way in Restoration Efforts*

Many readers will remember the successful partnerships that were reported in the 2002 Currents newsletter, and which moved forward the restoration process in the Anacostia watershed. We are proud to report that interagency cooperation continues to lead to positive outcomes in restoring the river and its tributaries. Several projects have been completed or are underway in 2003, with cooperation between the US Army Corps of Engineers (USACE), Maryland-National Capital Park

and Planning Commission (M-NCPPC), and the Montgomery County Department of Environmental Protection (MCDEP) in Maryland, and the Department of Health, Environmental Health Administration (DC-DOH/EHA) and National Park Service (NPS) in the District of Columbia.

*MCDEP-USACE Restoration Projects*

Within the Anacostia watershed, development and associated changes in hydrology have led to an increase in stream erosion, habitat loss and sedimentation. These impacts have been particularly detrimental to stream habitat that was once able to support a high level of biological diversity. In response, MCDEP has been working to restore degraded stream habitat as outlined in their award-winning *Countywide Stream Protection Strategy*. Within the Anacostia watershed, design and construction efforts have included twenty-one stormwater retrofit projects controlling runoff from 2,979 acres of previously uncontrolled developed area (\$6.35 million), forty-one stream restoration projects that will restore 17.3 miles



*Northwest Branch: Northwood Stream Restoration Site*



*River Fringe Wetlands Restoration Project Downstream of Benning Road  
Photos courtesy of P. Hill (DC-DOH/WPD) and C. O'Neil (USACE)*

(\$8.51 million), and watershed hydrologic and restoration studies that will benefit approximately twenty square miles of the Paint Branch watershed (\$1.29 million). Partnerships with the USACE, MWCOG, and M-NCPPC have helped with project design and construction, and MDE, MDDNR, and USACE have provided cost-sharing grants for the projects.

According to Mr. Dan Harper, MCDEP Senior Engineer, more than twenty stream restoration and stormwater retrofit projects are currently underway in 2003. Within the Northwest Branch subwatershed, twenty projects are in design and construction phases. All of these projects include stream restoration components which focus on reducing sediment loads, and improving aquatic habitat and water quality. The Northwood stream restoration project, located in the Wheaton area, is expected to be completed shortly. A stormwater management facility retrofit project in the Dumont Oaks area of White Oak, and a stream restoration project in the Sherwood Forest area of Colesville are set to begin construction in 2004. Within the Paint Branch subwatershed, a stormwater pond

creation project will soon be underway in the April Stewart Lane area of White Oak. All of these projects will serve to reduce streambank erosion from increased stormwater flows, as well as to enhance stream habitat and reduce pollutant loads.

*DC-DOH/EHA and USACE Restoration Projects*

Urban development, together with river channelization and stream enclosure, have had devastating effects within the District of Columbia's portion of the Anacostia watershed. Between 1902 and 1940, the Anacostia River was channelized from the confluence with the Potomac to Bladensburg, and seawalls were constructed by the USACE. The result was improved navigation and parkland creation, but also a loss of more than 1000 acres of wetlands. The 1950's saw more habitat destruction and loss of wetlands through further channelization in the Prince George's County portion of the watershed. In 1992, the USACE began the process of restoring over 85 acres of historic wetland areas. In a cooperative effort between DC-DOH/EHA, the National Park Service (NPS), and USACE, construction of the

River Fringe wetland restoration project was completed in 2003, and restored 18 acres of tidal wetlands on the Anacostia River adjacent to Kingman Island. The Heritage Island wetland restoration project is expected to be completed in 2004, and will result in the creation of six additional acres of emergent wetlands in Kingman Lake adjacent to the RFK Stadium parking lot. Forty acres of freshwater tidal wetlands were restored in the Kingman Lake area in 2000, and continue to be monitored today. These combined projects will both increase the amount of available habitat in the river, and improve water quality through increased filtration of sediment and other pollutants.

Several stream restoration projects are also underway in the District of Columbia to restore habitat and flow conditions to Anacostia River tributaries. The Pope Branch stream restoration project includes reduction of stormwater-related impacts in the headwaters area of the stream, restoring instream habitat, sewer line system replacement, and daylighting areas of the stream which have previously been piped. Feasibility studies for this project were completed in 2003, and construction is expected to begin in 2004.

The Watts Branch, Hickey Run and Fort Chaplin stream restoration projects focus on stabilizing stream banks and reshaping stream channels to reduce sediment loads, and restoring instream aquatic habitat. Feasibility studies are currently underway for these projects.

Further stream restoration efforts include habitat restoration and possible daylighting of a portion of the Fort Dupont tributary. These efforts are all part of a

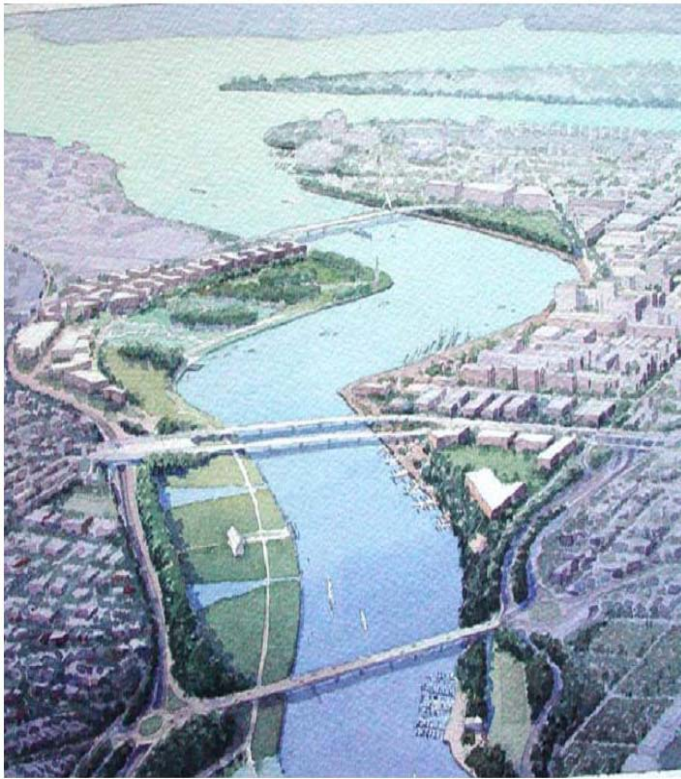
larger project to enhance the NPS's Lower Anacostia Park. Restoration in the park will also include planting native trees to increase the riparian buffer, and restoring both tidal and non-tidal wetlands. Not only will these restoration efforts improve the natural habitat within the park, but will also provide for a more enjoyable experience for park visitors.

Restoration work at Kingman Island is also directed toward improving recreational opportunities. One goal of this project is to restore the southern half of the island to become a natural recreational area. Habitat restoration will also be a component of this effort, and will include the creation and enhancement of vernal pools for native amphibian species such as wood frogs.

These cooperative efforts are just some of the projects taking place through interagency cooperation in the District of Columbia's portion of the Anacostia watershed. Agencies that have partnered in these restoration projects with DC-DOH/EHA and USACE include the National Park Service, US Fish and Wildlife Service, USEPA, and DC-WASA. Major funding has been provided by Mayor Anthony William's administration (\$5 million) and federal cost-share funding granted to DC-DOH/EHA (\$12 million).

### *Anacostia Waterfront Initiative: Keeping the River in Focus*

With the District of Columbia's downtown and northwest areas nearly built out, developers are shifting their focus to the long neglected Anacostia River waterfront and its surrounding neighborhoods. The



*Artists Rendering of the future Anacostia Waterfront- Looking Downstream Toward the Confluence with the Potomac River*

recovery of the waterfront seeks to reinvigorate the area with new residential neighborhoods, improved parklands, increased accessibility between communities along the river through construction of bridges and roads, creation of new museums and monuments, and expanded opportunities to live, work and recreate in the nation’s capital. With this new initiative comes the expectation that a clean and environmentally healthy Anacostia River remains a centerpiece of the effort.

The original framework for building the nation’s capital, a great city to arise between the Potomac and Anacostia Rivers, was created by the 1791 L’Enfant plan. Over a century later, the two river corridors remained a vital part of the 1901 McMillan Plan’s vision for recreational open space and civic areas. In the spirit of

these earlier plans, development is now being refocused to fulfill a new and complementary vision of a thriving corridor along the waterfront of the Anacostia River. The Anacostia Waterfront Initiative (AWI), presented by District of Columbia Mayor Anthony Williams, and spearheaded by the DC Office of Planning, includes the five following elements:

- A Clean and Active River – environmental restoration including pollution mitigation, stormwater runoff management, stream and wetland restoration, and promotion of water-related activities
- Eliminating Barriers and Gaining Access – reconsideration of transportation infrastructure to allow easy access (including pedestrian, bicycle, and Metro) to waterfront lands and neighborhoods, creation of gateways to the river’s parks and amenities.
- A Great Urban Riverfront Park System – creation of a system of interconnected and continuous waterfront parks linked by the Anacostia Riverwalk and Trail
- Cultural Destinations of Distinct Character – restoration of a vibrant waterfront that celebrates the cultural heritage of the river’s neighborhoods, the city, and the nation

*The AWI Boundary stretches from Southwest Washington to the Maryland border*



- Building Strong Waterfront Neighborhoods – promotion of sustainable economic development, and reconnection of the city to the river area by creating opportunities for work and play along the river

The AWI development plan area encompasses 2,800 acres along the Anacostia River corridor, and stretches nearly seven miles from the Maryland border to the Potomac River.

Slow but steady progress is being made toward the goal of achieving a cleaner and more environmentally healthy and recreation friendly river, with restoration work completed at Kenilworth Marsh, and Kingman and Heritage Islands by the USACE, NPS and DC-DOH/EHA. The completed work includes restoration of over 85 acres of freshwater marsh, and the creation of wooden boardwalks, at a cost of over \$7 million. Furthermore, the employment of various Low Impact Development (LID) retrofit techniques to reduce the impacts of stormwater runoff on the river have been incorporated at the Washington Navy Yard over the past five years. These LID retrofits, along with other reinvestments such as restoration of historic structures, have contributed to the AWI. Also, construction of the Anacostia Riverwalk and Trail System Anacostia River Bridge by the M-NCPPC is underway in Bladensburg, Maryland. This project will address the goal of connecting the urban riverfront park system to the extensive suburban stream valley park trail system present in both Prince George’s and Montgomery Counties.

Approximately \$90 million in federal funding has been allocated or is earmarked for projects related to the

Anacostia River. Development of some associated projects is already underway, such as restructuring of the Washington Marina and Fish Wharf, while others could begin in a five to ten year time frame, including the creation of links from the city to the waterfront via a grand civic stairway at L’Enfant Plaza, and pedestrian walkways to the Tidal Basin and East Potomac Park.

During the course of planning and construction, it will be important for watershed residents to keep the focus of development shifted toward promoting a clean and healthy river. With this initiative comes great potential for an improved waterfront area with a plentitude of recreational, residential, and business opportunities.



*Bioretention Area Along Route 1 in Mt. Rainier*

### *Low Impact Development*

One way to reduce stormwater runoff-related impacts associated with uncontrolled impervious surfaces in the watershed is to retrofit these areas using Low Impact Development (LID) techniques. These techniques focus on temporarily retaining and filtering stormwater flows in order to remove contaminants, as well as reducing the volume of runoff and its impact on local streams. LID retrofits, such as bioretention systems, rain gardens and

impervious surfaces enhance filtration and detention. They have been placed in parking lots, improving the health of the environment without significantly reducing the space required for parking. Downspouts from nearby rooftops can and have been redirected to flow into vegetated and/or detention/retention areas, and tree boxes have been placed in sidewalk areas to capture stormwater runoff. All of these strategies seek to decrease the negative impacts of impervious surfaces, and new designs are acting to make these LID projects more aesthetically pleasing.

As previously stated, the Prince George's County Department of Environmental Resources (PGDER) is the nationally recognized leader in developing and implementing LID strategies. With funding assistance from U.S. EPA Region III, PGDER is currently involved in the design, construction and monitoring of a total of seventeen projects throughout the Anacostia watershed.

Within Prince George's County, ten projects are presently underway. These projects include four sites at the University of Maryland College Park campus which were completed in December 2003, at a cost of \$385,000, including a matching fund of \$125,000 from Prince George's County. Other project sites in Prince George's County include Mary Harris Mother Jones Elementary School, and Northwestern High School. Also included in Prince George's County is a monitoring plan to evaluate the effectiveness of these LID installations, which will cost \$200,000.

Within Montgomery County, eleven projects at four sites are scheduled for completion by fall 2004.

These sites include the Burtonsville Fire Station, Dennis Avenue Health Center, White Oak Library, and Sligo Creek Recreation Center. Total cost for these projects is approximately \$400,000, and includes a matching amount of \$125,000 from Montgomery County.

Research is being conducted within the District of Columbia to determine the possibility of incorporating four or five bioretention basins in the Capitol Hill area, which will cost \$100,000 to construct. Also in the District of Columbia, LID construction on two bioretention cells is tentatively scheduled for March 2004 at the Peabody Elementary School.

An additional \$900,000 allocated by Congress to the U.S. Environmental Protection Agency (EPA) has recently been granted to PGDER for continued Anacostia Watershed LID implementation, demonstration, training, research, and outreach. PGDER has also secured \$1 million in EPA funding to create a Community LID and Trash Management Plan as part of the County's new Livable Communities Initiative.

In September 2004, PGDER will partner with the Anacostia Watershed Toxics Alliance and MWCOG to host a National LID Conference at the University of Maryland. Many of the newly installed LID techniques will be showcased to conference participants in an effort to expand the awareness of the availability of options available to mitigate development and urbanization effects on watersheds.





*Recently Completed Little Paint Branch Fish Passage Project at the Beltsville Agricultural Research Center*

## *Woodrow Wilson Bridge Replacement Mitigation*

### *A Major Boost for Anacostia Fish Passage*

As part of the mitigation effort for the Woodrow Wilson Bridge Replacement project, a total of fourteen structures that block anadromous fish, such as River Herring, from swimming upstream are being modified and/or removed from lower portions of Little Paint Branch, Indian Creek, Northwest Branch and Sligo Creek at a total cost of \$15 million. Many of the blockages are sewer and gas pipelines constructed in the 1940's and 50's. The removal of these blockages is being accomplished through the employment of riffle grade control structures located immediately downstream of the existing blockage. This relatively new technique features the placement of large stone (i.e., rip-rap) onto the streambed so as to create a very gently sloping rock ramp. This rock ramp mimics the naturally occurring riffle features present in a stream, thereby effectively causing the stream to backwater, or

pool, at the blockage area, increasing stream depth at the blockage site, and allowing for fish to travel over the pipe or blockage structure.

Within the Northwest Branch, a total of eight fish blockages are slated for removal. Of these, two projects were completed in spring 2003, with slight modification being made currently to one riffle grade control structure to decrease water velocity in order to aid in successful fish passage. A third project was completed in September 2003. Four additional projects within Northwest Branch are expected to be completed by the fall 2004. The high flow volumes in 2003 have caused flooding at project sites, delaying construction and project completion.

Within Indian Creek, the in-stream construction of a project at Greenbelt Road has been completed, effectively providing fish passage and stabilizing eroding streambanks. Landscaping at the site is on-going. Within Little Paint Branch, a project that was completed in spring 2003 is now awaiting permitting from MDE to slightly modify the structure by extending the length of the riffle grade control so as to further aid in the passage of both resident and anadromous fish.

The approved mitigation plan envisioned the opening of a total of approximately thirteen miles of upstream habitat for fish spawning by 2005. However, based on recent stream surveys conducted by COG and ICPRB, there appear to be new/additional blockages in lower Paint Branch resulting from continued channel downcutting. Thus, the final total mileage will, in all likelihood, be lower than the original estimate.



fisheries biologists now must cover much longer stream lengths. The monitoring team is guardedly optimistic that river herring will be found returning to their historic spawning habitat areas by spring 2005.

### *Herring Stocking and Monitoring*

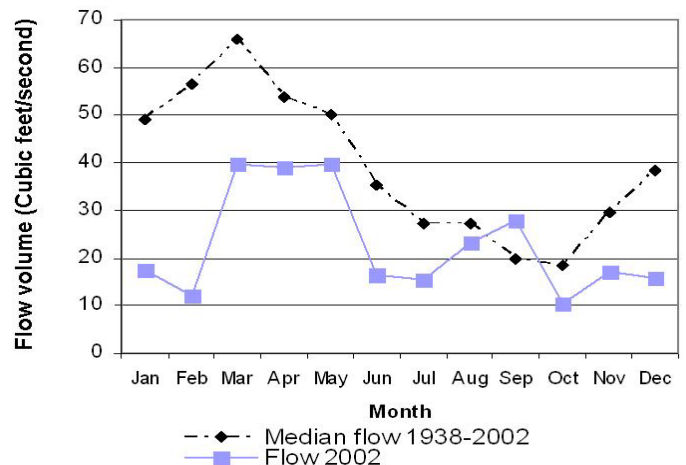
As part of the Woodrow Wilson mitigation efforts, between 2 – 3 million herring have been stocked by Potomac Crossing Consultants (PCC), COG, and the ICPRB each of the last four years in Sligo Creek, Northwest Branch (both priority stocking streams), Little Paint Branch, Indian Creek, and Paint Branch. Since the project’s start in spring 2000, a total of 11.1 million larval herring (both Alewife and Blueback) have been stocked. These streams were chosen by the AWRC’s Anadromous Fish Passage Workgroup for stocking based on both their existing and historical spawning habitat potential. Partners in the monitoring and stocking program include PCC, COG, ICPRB, and MD DNR, which provides facilities for hatching and rearing space for the herring larvae.

Mr. Phong Trieu (COG Aquatic Ecologist) commented that the biggest challenges facing the monitoring and stocking program are future funding and monitoring needs. “As part of the mitigation package, the Maryland State Highway Administration requires five years of monitoring and larval stocking. However there is no funding allocated beyond the five-year period.” As more stream miles are opened by the removal of blockages, monitoring of the annual spring herring runs becomes more challenging, as the same number of

### *The Drought of 2002*

Water levels in streams and rivers throughout the area were greatly reduced in 2002 in response to the extensive drought. Not surprisingly, these historically low water levels negatively impacted aquatic habitats and associated fish communities, including reducing trout populations throughout Maryland. Within the Paint Branch subwatershed of the Anacostia, the 2002 drought impacted the self-reproducing brown trout population in several ways. According to Mr. Charlie Gougeon (MD-DNR Coldwater Fisheries Biologist), the drought led to three different scenarios for trout: 1) low water levels decreased available spawning habitat for trout and other

**2002 Northwest Branch Flow (USGS Hyattsville Gauging Station)**





*Local Anacostia stream during the drought of 2002*

fish species, 2) low water levels made fish passage to spawning areas difficult if not impossible at times, and 3) predators, such as herons, were more easily able to prey upon resident fish populations, thereby decreasing their numbers.

Monitoring of the brown trout in Paint Branch by MD-DNR has been conducted for each of the past twenty-five years. According to Mr. Gougeon, long-term data indicate a noticeable and significant decline in the number of trout. Results from the fall 2003 electrofishing survey revealed that there were no young-of-year brown trout. This represents the first time since monitoring began that there was zero recruitment, strongly suggesting other problems within the stream. In addition to the low water levels, increased stream temperatures may also have added additional stress to the trout in 2002. Groundwater levels decreased significantly as a result of the drought, thereby reducing the flow of cold water from springs into the Paint Branch. During normal flow years, spring water (~55° Fahrenheit) helps to keep stream water temperatures at levels supportive of trout species. The Paint Branch is classified by MDE as a Use III (Natural

Trout Waters) stream. Water temperatures above 68° violate the standard set to protect trout and other cold water dependent biota. According to Mr. Gougeon, during the period of July 6<sup>th</sup>-11<sup>th</sup> 2002, stream temperatures in Paint Branch spiked to ~75°, further increasing the stress that the trout population was under.

Despite the recent set-back that the Paint Branch trout population experienced, fisheries biologists remain guardedly optimistic about their future. For example, the significantly higher base flows experienced in 2003 provided ideal conditions for trout and other fish species. If both stable flow and other aquatic habitat conditions continue to be favorable through the spring of 2004, a good hatch should result. Of importance will be protecting the stream from further stormwater runoff-related impacts. The environmentally sensitive trout population could be detrimentally affected if sediment covers spawning beds, or increased flows wash out buried eggs or larval trout. It will therefore be critical to both reduce hydrologic impacts and to continue monitoring efforts over the next two to



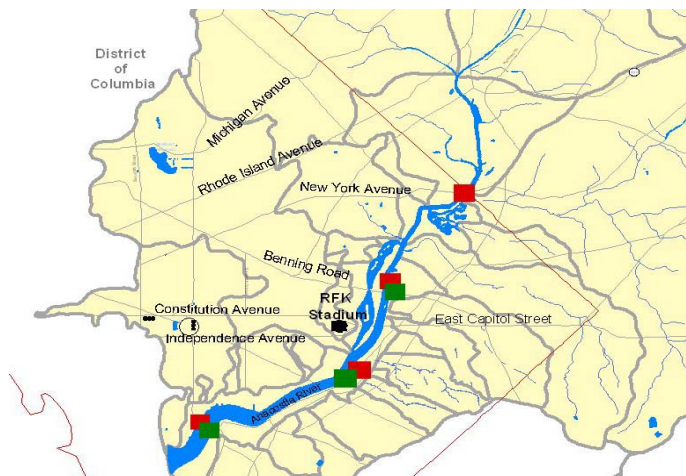
*Paint Branch Brown trout (Salmo trutta)*

three year period during which it is hoped that the trout population will recover.

In contrast, the impact of the drought experienced by tidal portions of the Anacostia River was much different from that of the tributaries. According to Mr. Jon Siemien (DC-DOH/EHA Chief of Fisheries Research), submerged aquatic vegetation in the tidal portion of the Anacostia River experienced increased growth in the low-flow year. This was attributable to less sediment being washed through the system, thereby allowing for clearer water and increased light depth penetration. Importantly, this increased vegetation provided an increase in nursery grounds for fish, allowing them to find cover from predators. In contrast, Mr. Siemien expects to see fewer young-of-year fish, such as shad and striped bass, this year than last. The greatly increased flows of 2003, which delivered increased sediment to the river, led to increased turbidity levels and prevented the aquatic vegetation from getting an early start. This lack of vegetation meant a limited amount of nursery habitat was available for young-of-year fish in 2003.

*Anacostia River Dissolved Oxygen Levels, Monitoring Stations and Swirl Concentrator*

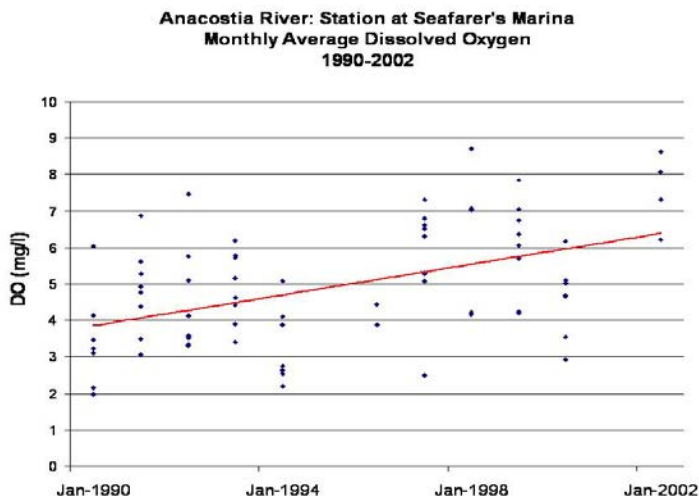
The dissolved oxygen (DO) level within a water body is one of the major determinants of the health of the aquatic community that it supports. Many aquatic macroinvertebrate and fish species are sensitive to low



*Anacostia River Continuous Dissolved Oxygen Monitoring Stations (Red boxes indicate DC-DOH/EHA monitoring stations, green boxes indicate COG stations).*

DO levels, and can only survive and reproduce successfully when levels are at or above a certain minimum concentration (e.g., 5.0 mg/l). One of the goals of Anacostia River restoration effort is to ultimately achieve “fishable, swimmable” conditions. This means that the DO level within the river must be maintained at an average of 5.0 mg/l or higher. In order to maintain that level, the current pollutant loads entering the River will have to be reduced dramatically.

It is widely acknowledged that oxygen depleting pollutants include a myriad of types and sources, including



urban runoff which contains high levels of organic materials. Among the principle contributors to the river’s low DO problems is the District of Columbia’s antiquated combined sewer system (CSS). Dating from the 1880’s, the CSS pipework carries both sanitary waste (to the Blue Plains treatment plant), and stormwater runoff. During most storm events, stormwater flows exceed the system’s limited capacity, thereby flushing stormwater and untreated or partially treated sewage directly into the River. The result is a Combined Sewer Overflow (CSO) event. These pollutants include organic matter that exerts a high oxygen demand.

In response to both the CSO and low DO problems, DC-WASA, in 1988, installed a swirl concentrator. Located near RFK Stadium, the swirl concentrator is designed to reduce the amount of solid-borne pollutants entering the Anacostia River from CSO events. Basically, the swirl concentrator employs

centrifugal force to separate the more solid materials from the water.

In order to better understand river DO levels and fluctuations and the effectiveness of the swirl concentrator, monitoring (using continuous flow monitors) began in 1988. Every thirty minutes, Metropolitan Washington Council of Governments (MWCOC) monitoring stations located at Benning Road, John Philip Sousa, and South Capitol Street Bridges record the DO levels in the Anacostia River. The District of Columbia’s Department of Health/ Environmental Health Administration (DC-DOH/EHA) also conducts similar continuous DO monitoring at four locations along the Anacostia, all in an effort to track improvements in water quality as restoration efforts within the watershed move forward.

According to Mr. TJ Murphy (former COG Water Quality Modeler), between 1990 and 2002, DO levels at both the Seafarer’s Marina and Benning Road monitoring stations exhibited small increasing trends.



*The swirl concentrator facility near RFK Stadium*



*One of three 90 foot diameter separation tanks in the swirl concentrator facility*

Importantly, the data shows that the swirl concentrator is having a positive effect on DO levels in the middle portion of the Anacostia River.

Though the overall trend is positive (i.e., DO levels are improving), the 5.0 mg/l DO standard is not being met. Furthermore, there are large fluctuations in DO that occur seasonally, and especially following storm events. DO tends to decrease following storm events, indicating an influx of oxygen depleting pollutants.

### *TMDL Modeling and Development*

In an effort to limit the amount of harmful pollutants entering the Anacostia, U.S. EPA, DC-DOH/EHA, ICPRB, MDE, DC-WASA, and COG have been working to establish Total Maximum Daily Loads (TMDL's) standards for the river. A TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive per day and still meet water quality standards. Furthermore, a TMDL allocates the amount of pollution that can enter the waterbody from any given source. Under the historic 1972 Clean Water Act (Section 303), TMDL's are required for designated impaired waters.

A draft TMDL for Organics and Heavy Metals in the Anacostia was submitted by DC-DOH/EHA in February 2003. Analysis to determine TMDLs for pollutants in the Maryland portion of the Anacostia River is expected to begin in 2005, after the completion of MDE's bacteria and toxics monitoring in the Anacostia.

Although TMDLs are not the only mechanism for leading restoration initiatives, they can provide a solid

framework for cooperation among agencies toward restoration goals. Once the TMDL reports are released, the key to improving Anacostia water quality will be implementation to reduce pollutant loads.

### *Anacostia Riparian Reforestation Initiative: Plant Survival Evaluation*

As some readers may recall, in the 2002 issue of *Anacostia Currents*, we featured an article entitled, "Future Forests – Making the Anacostia a Little Greener." In the article we pointed out the benefits of reforestation efforts that have been ongoing in the Anacostia watershed since 1989, including providing wildlife habitat, shading streams so as to maintain cooler summer water temperatures, trapping and filtering stormwater-borne sediment and nutrients, and beautifying



*Brian LeCouteur (COG, Urban Forester) surveying a planting site overgrown with invasives.*

the region. Success rates from these tree planting efforts have been highly variable. While the number of trees planted each year helps to move toward the goal of expanded forest cover set forth in the 2001 Anacostia Restoration Agreement, the general lack of maintenance at these sites results in less than ideal survivability.

Since the early 1990's, both MDDNR and COG have been conducting follow-up riparian reforestation surveys in the watershed. These efforts have helped to improve planting and maintenance strategies. For example, when the Anacostia riparian reforestation program first started, volunteers were asked to hand-dig holes, and seedling trees were planted. Success rates from these early plantings were low, and led to changes such as the uniform digging of holes with auguring equipment, and the use of larger container stock. Though the success rates have improved after implementing these changes, there are several factors that need to be altered in order to further improve tree survival. Among the many problems faced are: inadequate watering, deer browse, invasive plants, voles, soil limitations, insects and disease, and vandalism.

It is widely recognized that follow-up maintenance is critical for the first three to five years following a tree planting to avoid planting sites from slowly being overcome by the previously mentioned problems of inadequate watering, invasive plants, pests, etc. Proper maintenance includes as needed watering of plants, applying deer repellents to prevent tree death from over-browsing, and concentrating efforts on the removal of invasive plants that choke out planting sites, among others.



*Invasive species (Porcelain berry) overtaking a reforestation site*

The question that arises from a critical look into these problems is: Why continue to plant more trees when previously planted areas are under stress and generally show low survival rates? Some argue that the answer is to strike a balance between planting at new sites and maintaining previously planted sites. In order to ensure the success of the Anacostia Watershed Agreement's Reforestation goal, additional funding needs to be directed toward maintenance. Without long-term maintenance, the time and effort provided by watershed volunteers is often undermined, and the desired forested riparian buffer is prevented from becoming fully established.

Anacostia Currents is published on behalf of the Anacostia Watershed Restoration Committee (AWRC) by the Metropolitan Washington Council of Governments (COG). Current AWRC members are:

**District of Columbia**

James Collier  
*Department of Health*  
 Hamid Karimi  
*Department of Health*  
 Jerry Johnson  
*DC-Water and Sewer Authority*  
 Michael Marcotte  
*DC-Water and Sewer Authority*  
 Mohsin Siddique  
*DC-Water and Sewer Authority*

**Montgomery County**

Cameron Weigand  
*Department of Environmental Protection*  
 Dan Harper  
*Department of Environmental Protection*

**Prince George's County**

Larry Coffman  
*Department of Environmental Resources*  
 Derek Winogradoff  
*Department of Environmental Resources*

**State of Maryland**

George Harman  
*Department of the Environment*  
 Kenneth Shanks  
*Department of Natural Resources*

**U.S. Army Corps of Engineers**

Wes Coleman  
*Baltimore District, Anacostia Coordinator*

**U.S. Environmental Protection Agency**

Paula Estornell  
*EPA Region III*  
 Pat Gleason  
*EPA Region III*

**National Park Service**

John Hale  
*National Capital Parks – East*  
 Gayle Hazelwood  
*National Capital Parks*  
 Stephen Syphax  
*National Capital Parks*

*Thanks for your help!*

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 Chesapeake Bay Foundation  
 Citizens to Conserve and Restore Indian Creek  
 College Park, Maryland Committee for a Better Environment  
 Concerned Citizens for a Cleaner County (Prince George's County)  
 Coalition for the Metropolitan Branch Trail  
 D.C. Cares  
 D.C. Environmental Education Consortium  
 D.C. Sierra Club  
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 Friends of Northwest Branch  
 Friends of Sligo Creek  
 Gunpowder Citizens Association  
 Greater Colesville Citizens Association  
 Greenpeace  
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 Green Democrats  
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 This issue was written and designed by Christine Vatovec and John Galli.

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ANACOSTIA WATERSHED RESTORATION COMMITTEE  
 Metropolitan Washington Council of Governments  
 777 North Capitol Street, NE, Suite 300  
 Washington, DC 20002-4239

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