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Implementation Committee Meeting News

Implementation Committee (IC) meetings were held on November 6, 1997 and December 18, 1997, at the Chesapeake Bay Program Office (CBPO) in Annapolis, Md. Announcements and highlights from these meetings included:

- To close the gap toward the 40 percent nutrient reduction goal, the IC plans on accelerating improvements for wastewater treatment plants scheduled for upgrades after the year 2000, implementing low cost modifications to wastewater treatment plants, encouraging voluntary efforts from major upgraded plants that have the potential for further reductions, and seeking nutrient reductions from private sector facilities.
- Airborne nitrogen will be included in Virginia's Tributary Strategy program.
- The Chesapeake Bay Program obtained a $19.6 million budget for fiscal year 1998. The program was also given additional money to focus on the Small Watershed Grant Program, the National Institute for Environmental Renewal, wastewater treatment plant upgrades, air deposition research, and Pfisteria research.
- The results from the 1997 nutrient reduction reevaluation will be published on the Bay Program's homepage.
- Thirteen of Pennsylvania's wastewater treatment plants have installed biological nutrient removal (BNR). The commonwealth is also conducting a number of BNR workshops, making the Conestoga watershed a priority area, putting source water initiatives under the Drinking Water Act, and reorganizing the Office of Water Management to incorporate watershed-based initiatives.
- The State of Maryland is reviewing additional nitrogen reductions initiatives for the Back River in the Patapsco watershed, planning to attain ½ of its riparian forest buffer goal by the year 2000, planting cover crops, conducting urban nutrient management initiatives, and reducing commercial airport deicers.
- Governor Allen of Virginia has proposed a $60 million program that has both point and nonpoint source pollution reduction components. These initiatives include more wastewater treatment plants with BNR, funds for private plant operators, increasing the number of trained personnel, and helping Washington, D.C. improve Blue Plains wastewater treatment plant.
- Bay Program representatives are meeting with New York representatives on January 9th to discuss potential reductions in the state's point sources discharges.

State of the Bay: Oysters

At the December 18, 1997, IC meeting, Steve Jordan from the Cooperative Oxford Laboratory and Jim Wesson from Virginia Marine Resources Commission reported on the status of oyster stocks in Maryland and Virginia. According to Jordan, Maryland maintains 64 oyster monitoring sites in the Bay. Data from these sites indicate that spat (juvenile oysters) have been at high levels in recent years (1980, 1991, and 1997). Larger oysters of 4 to 5 inches have also been found. Jordan attributed these positive findings, in part, to the current non-lethal levels of DERMO and MSX (oyster diseases) in the Bay. With another dry summer, however, MSX could come back.

Wesson reported that oyster conditions in Virginia are not as positive. He said that the Chesapeake Bay oysters could evolve to grow resistant to MSX and DERMO except that the ones that grow to market size (3 inches) and show resistance to the diseases tend to get harvested. In protected reefs where oysters are not harvested, 856 spat were found per meter in 1997. In unprotected reefs, oyster spat averaged 2 per meter.

The Bay goal for oysters is to designate 5,000 acres each in the Maryland and Virginia portions of the Chesapeake Bay and 1,000 acres in the Potomac River as protected oyster habitat. The states have also agreed to create new oyster reef habitat by the year 2000.

Federal Agency Committee Meeting Highlights

A Federal Agencies Committee (FAC) meeting was held on December 11, 1997, at the CBPO in Annapolis, Md. Announcements and highlights from this meeting included:

- The U.S. Geological Survey (USGS) is initiating a National Coastal Assessment Program to map, monitor, research, restore, and preserve the vital coastal zone habitat. The program will consist of national and regional efforts. These teams will draw on expertise from a variety of federal agencies, USGS divisions, and universities.
- Fort Meade will conduct a BayScapes planting on May 20, 1998.
- The Army will host a DoD-wide stormwater management workshop in June 1998.
- The Chesapeake Bay Program is participating in the preparation of a national Clean Water Action Plan that is a part of Vice President Gore's non-point source pollution reduction effort. The three primary areas of the report include protecting public health, preventing polluted runoff, and ensuring community based watershed management.
- The Nutrient Reduction Workgroup is trying to determine federal facility point source reductions. So far, data reveal that Bay federal facilities have reduced point source nitrogen loads by 60 percent and point source phosphorus loads by 69 percent. With further initiatives, such as the implementation of BNR, these facilities could achieve further reductions by the year 2000 deadline.
- The Chesapeake Information Management System (CIMS) program has developed a memorandum of agreement for Bay Program partners to sign that will help the CBPO create a

user interface that maintains all inter-agency Chesapeake data in a compatible format.

Fort Belvoir Stabilizes Stream with Bendway Weirs

Fort Belvoir recently used a low-cost, long-term stream restoration technique, called Bendway weirs, to realign a stream channel, save a bridge, stabilize erosion, and provide more habitat for area wildlife.

From an outsider's point of view, Bendway weirs seem like a simple technology. They are basically horizontal piles of large rocks that extend from the stream's bank to the deepest part of the stream channel. Learning more about weirs, however, one finds that they are a unique blend of engineering and environmental disciplines that require precise measurements and placement. Once established, Bendway weirs are a system that capture, control, and redirect the current of a stream and its energy away from the streambank, where erosion occurs, to the center of the channel.

The Virginia installation learned of this methodology when a streambank erosion control project was required for Accotink Creek. The post was planning to designate Panther Bridge, which crosses the creek, as the main thoroughfare to the Davison U.S. Army Airfield. The bridge's stability, however, was threatened by the stream's flow that was directed at one of the bridge's support structures.

Fort Belvoir's engineering staff initially proposed a traditional approach that included dredging the stream and cementing boulders (grouted rip rap) along the stream channel as it passed under the bridge. Although this approach would have channelized the flow away from the bridge's abutment, it would have done little to stop the erosion that was occurring immediately upstream. It would also have reduced the habitat in and around the stream, making it less suitable for fish and other aquatic life.

The concept for Bendway weirs was developed at the U.S. Army Corps of Engineers' Waterways Experiment Station. Since its inception in 1988, the methodology has been used to realign and stabilize a number of streams and rivers across the United States, including the Mississippi River.

In December 1996, a Corps representative arrived at Fort Belvoir to assess the stream and its characteristics. Using such instruments as a tape measure, tile probe, and aerial photographs, the Corps representative gathered information on the physical characteristics of the creek, the amount and direction of flow, the creek's history, and flooding events. This information was used along with the goals of the project to design a Bendway weir system for Accotink Creek.

Through careful analysis, the length, height, width, and spacing of each weir was determined. The upstream angle for each weir in the streambed was also identified. This measurement is particularly important since it has the most impact on directing the stream flow. Other factors included the type and amount of material the weirs are composed of. Fort Belvoir used stones weighing 200 pounds each for its weirs. Other weir materials include trees and geobags (polypropylene bags filled with sand).

In September 1997, five Bendway weirs were installed in Accotink Creek. To ensure the stability of the project, the weirs were anchored into the streambank with "keys." Keys are rock extensions of the weirs that are entrenched into the streambank. They prevent the stream from flowing behind the weirs and eroding a new channel behind the weir system. Another technique that was used with the weirs was longitudinal peaked stone toe protection. This technique involved strategically placing a low wall of rocks at specific points along both sides of the streambank to prevent erosion by stabilizing the streambanks and helping redirect the stream flow.

Combined together, the weirs, the keys, and the toe protection are capturing the Accotink Creek's flow and diverting it away from the outer bend of the bank toward the center of the stream. As the flow passes through the stream bend, the weirs control the flow and slow its erosive force. The last weir at the end of the system is aiming the stream's flow under the center of the bridge, away from the abutment.

Over time, the weirs will do more than save the bridge. They will help improve the overall health of the stream and increase streambank stability by encouraging sediments to deposit on the outside bend of the stream where erosion is greatest. The weirs will help reduce the erosion of the streambank by breaking up the strong currents of the stream and diverting the flow away from the outer bend to run parallel to the streambank. This will ensure that the deepest part of the channel is in the center of the stream and not at base of the streambank. The weirs will provide a diversity of habitat for fish and other aquatic life that may help increase their populations and diversity. A weir's effects can be predicted for 100 feet downstream of the last weir. They blend well with other bank protection techniques and usually cost the same or less than traditional engineering methods.

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