

VI NPS Update

Nonpoint Source Pollution Committee Newsletter

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STORMS CAUSE TERRITORY-WIDE FLOODING, EROSION AND ROAD DAMAGE

Recently the territory has been overwhelmed by severe flooding, erosion and rain damage caused by a series of heavy rain storms. While flooding and damage to our roadways is expected after hurricanes and severe storm events, the damage was greatly compounded by non-existent or poorly planned and designed drainage systems; clogged drainage channels, swales and culverts; and over-zealous clearing of roadside vegetation. With proper planning and maintenance, we can minimize the flooding and road damage experienced from extreme storm events.

Hurricane Lenny, a strong category 4 storm, battered the south and east coasts of St. Croix with hurricane force winds for hours. The storm also pounded the west end of the island with heavy surf and dumped large volumes of rain across the territory. In addition to wind and surf damage, St. Croix residents emerging from their homes after the storm were confronted by roads blocked with trees, debris and mud; flood waters 1-5 feet deep; and gaping potholes. Severe flooding in Prosperity created a lake that was over a mile long, as wide as the roadway and over five feet deep - even humvees got stuck. Beaches were closed due to pollution from contaminated stormwater runoff and wind and water-borne debris.

On St. Thomas, Magens Bay Road was severely damaged. Recently-cleared roadsides lost valuable topsoil and a lack of drainage channels caused stormwater to run down the road, creating potholes, wash-boarded areas, a clogged culvert, and slumped roadsides. A giant pothole that opened up on Bolongo Bay Road below Donkey Hill swallowed more than one vehicle. The Bolongo Bay area has been experiencing severe flooding problems for a few years now due to alteration and blocking of the primary gut through the area. Smith Bay Road in front of the Renaissance Grand Beach Resort flooded with a two-foot-deep lake that covered the entire roadway for days and impeded traffic. Again, a blocked drainage culvert under the road contributed significantly to the flooding. Runoff entering the mangrove ponds behind Magens Bay breached the sea berm and contaminated the bay with sediment and bacteria-laden stormwater. Many other sediment plumes could be observed surrounding the island.

As if Lenny wasn't bad enough, a cold front that hit the territory two weeks later dumped more heavy rains on our already-saturated soils, causing more severe floods, erosion, land-slides and road wash-outs. On St. Thomas, flooding gridlocked traffic for over an hour on Harwood Highway between Addelita Cancryn Junior High School and Banco Popular, where cars were disabled in water over their bumpers. Severe flooding at the entrance to the Renaissance Grand Beach Resort in Smith Bay also slowed traffic to a crawl and created a lake that has remained for weeks. Fireburn Hill road turned into a raging channel carrying torrents of water almost one foot deep (the road has no drainage channels or swales), and the road through Litton's Fancy was flooded by a blocked gut and culvert. A section of Crown Mountain Road in Dorothea flooded and caved in due to blockage of the channel that routes the gut under the road.

These and many other road washouts and flooding problems could have been reduced or even prevented. Many of our roads need to have properly-sized swales, drainage channels and



Crown Mountain Road wash-out from clogged culvert after December 2nd rainstorm.

culverts installed to transport stormwater along roadsides and under roadways to guts. Existing drainage swales, channels and culverts also need routine maintenance to prevent clogging and reduce flooding frequency and severity.

Finally, retention of plant cover along our roadsides will help hold soil in place so that it does not erode and block lanes of traffic, road cut slopes do not cave in onto the roads, and road fill slopes are not undercut. Low-growing grasses and ground covers effectively hold soil in place, minimizing erosion and landslide potential, while not blocking lanes and impairing visibility.

For information on proper erosion and storm water control, contact the UVI Cooperative Extension Service at (340) 692-4080 on St. Croix or (340) 693-1080 on St. Thomas.

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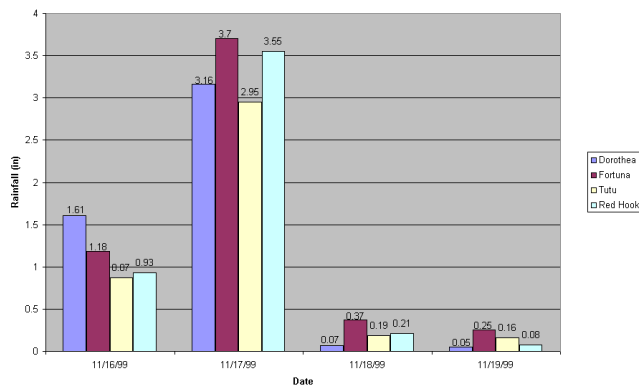
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RAIN AND WIND DATA FROM LENNY

Hurricane Lenny brought heavy rains and winds to the Virgin Islands as it passed through November 17th-19th. The UVI Water Resources Research Institute's (WRRI) automated weather station on St. Thomas captured wind speed and direction and rainfall data during the storm with its expanded weather monitoring program.

The highest recorded wind gusts on St. Thomas were clocked at 59.67 mph 18th and 57.28 mph November 19th. WRRI's automated tipping bucket rain gauges, located in Dorothea, Fortuna, Tutu, and Red Hook, recorded rainfall volumes on November 17th of up to 3.7 inches in Fortuna. The graph below depicts rainfall amounts on the days before, during and after the hurricane.

Daily Variations in Rainfall on St. Thomas During Hurricane Lenny



EPA RELEASES NEW RULES TO CONTROL POLLUTED RUNOFF

The U.S. Environmental Protection Agency recently published new rules designed to protect America's drinking water and waterways by curbing one of the greatest remaining sources of water pollution - stormwater runoff.

EPA announced that the new rules will reduce stormwater runoff from construction sites between one and five acres and municipal storm sewer systems in urbanized areas with less than 100,000 people. The new stormwater rule builds on an existing program that controls stormwater runoff from municipalities with populations over 100,000 and 11 industrial categories, including construction disturbing over five acres. The existing program did not apply to the Virgin Islands. **However, the new rule does apply to stormwater systems and construction projects here in the V. I.**

According to EPA Administrator Carol M. Browner, "The Clinton-Gore Administration is committed to reducing one of the largest remaining sources of water pollution, stormwater runoff. Today we are taking a major step to protect public health and the environment for America's families - increasing the safety of the water they drink, and the rivers, lakes and beaches they enjoy."

Stormwater is rain water that runs off of streets, parking lots, construction sites and residential yards. It can carry sediment, oil, grease, toxic chemicals, pesticides, bacteria and other pollutants into nearby storm drains. Once this polluted runoff enters the sewer

system, it is discharged - usually untreated - into guts and waterways and into the sea. Stormwater runoff can contaminate drinking and recreational waters, and cause beach and shellfish bed closures. Runoff washes 20 to 150 tons of sediment per acre from dirt roads, construction sites, and other cleared areas into the sea each year. Sediment has been identified as the single largest cause of water pollution in the Virgin Islands.

The new stormwater regulations will minimize stormwater runoff impacts by issuing discharge permits under the Clean Water Act. Permits are expected to be issued for at least 110,000 additional construction sites and over 5,000 municipalities across the country.

The Phase II permitting program is structured to be flexible. The program focuses on best management practices (BMPs). Each permittee should select BMPs that create the most common sense, cost-effective plan to reduce stormwater runoff on a case-by-case basis. Examples of BMPs include silt fences, storm drain inlet protection, and temporary mulching and seeding for construction sites, as well as public education programs, storm sewer inspections and local stormwater ordinances.

Incentives are also provided for industrial facilities to protect their operations from stormwater exposure. EPA developed the rules with extensive public outreach and communication, including consultation with a wide cross-section of interested stakeholders.

The final stormwater Phase II rule is available on the Internet at: <http://www.epa.gov/owm/sw/phase2> along with additional information. The Rule is effective on February 7, 2000. EPA has submitted a Report to Congress on the new rule and its impact on municipalities. The report is available through the Internet at: <http://www.epa.gov/owm/sw/phase2>. Hard copies may be obtained by contacting the U.S. EPA Water Resource Center, 401 M Street, S.W., Washington, D.C. 20460; telephone: (202) 260-7786 (24-hour voice mail), fax: (202) 260-0386, e-mail: center.resource@epa.gov.

DPW TO TEST SEWER LINES IN DOWNTOWN CHRISTIANSTED

The Virgin Islands Department of Public Works has received a grant to conduct sewer line smoke testing in the downtown Christiansted area. This testing will help to identify leaks into and out of the public sewer system. The methods used during the testing will also reveal defective or illegal connections to the public sewer system. Property owners are advised to have their plumbing systems checked for proper water traps and possible improper connections to the public sewers. Those persons owning abandoned buildings or lots are advised to make sure that all sewer connections not in use at this time are properly capped off. Vacant buildings with existing plumbing fixtures that are not currently in use, but will be used in the future, should have the water traps for all fixtures filled and maintained at all times. Failure to properly address defective or illegal plumbing will result in smoke entering buildings during testing operations. Failure to remove or obtain proper permits for illegal connections may also result in fines or other actions by the government. For further information on this project, please contact Earl Haas, DPW, at (340) 773-1290, x. 2254.

ONSITE SEWAGE DISPOSAL SYSTEM RULES & REGULATIONS REVISED

D PNR-CZM has prepared and is conducting final review of new rules and regulations governing onsite sewage disposal systems (OSDS) that treat domestic wastewater. They anticipate that the new rules and regulations will be ready to go to public hearing in early 2000. The rules and regulations are fairly comprehensive and cover the following types of OSDS: conventional septic systems; alternative (constructed wetland) OSDS; graywater systems; holding tanks; abandoned septic tanks; alternative toilets; and experimental systems. For a copy of the new rules and regulations, or for further information on septic systems and other domestic wastewater treatment systems, contact Bill Rohring, DPNR-CZM, at (340) 774-3320 x. 5107.

DRAFT V.I. 1998 WATER QUALITY INVENTORY AVAILABLE

D PNR has released its draft Virgin Islands Water Quality Inventory for 1998 (305(b) report). The Clean Water Act requires each state and territory in the United States to conduct water quality surveys to determine a waterbody's (gut, stream, pond, lagoon, bay or coastal water) overall health, including whether basic uses are being met. State and Territories define appropriate uses for a waterbody and incorporate these uses into water quality standards for approval by EPA. Water standards and uses include those for protecting aquatic life, eating fish and shellfish, drinking water, swimming, boating, and fishing.

States and territories conduct water quality surveys and report their findings to EPA every two years. EPA then prepares a Report to Congress that provides the most complete and up-to-date snapshot of water quality conditions around the country. For information on the draft V.I. 305(b) report or to obtain a copy, contact Syed Syedali, DPNR-DEP, at (340) 773-0565 or visit http://www.irf.org/vidpnr/305b_vi.htm.

UVI-VIMAS TO PUBLISH BOATER S HANDBOOK

The Virgin Islands Marine Advisory Service (VIMAS) is publishing an informational handbook for boaters entitled "**Pocket Guide to Boating in the V.I.**" This handbook will provide boaters with valuable information for safe and environmentally-responsible boating in the Virgin Islands. The handbook includes information on Clean Vessel Act (CVA) requirements for boats, marine sanitation devices (MSDs), fishing regulations in USVI waters, tropical marine ecology (fish species, seagrasses and coral reefs), and contact numbers for assistance or further information. The booklet is being printed with funding from the Clean Vessel Act and Nonpoint Source Pollution Management Program, and should be available in February. For more information or a copy of the handbook, contact Mayra Suarez-Velez, UVI-VIMAS, at (340) 693-1392.

GRANT WRITING PROFESSIONAL SEMINARS

The Virgin Islands Resources Conservation & Development Council, Inc. (RC&D) is sponsoring two grant-writing seminars to be held this spring:

*** March 13 - 17, 2000 (St. Croix)**

*** March 20 - 24, 2000 (St. Thomas)**

If you are an individual, government agency or non-profit organization interested in learning how to prepare grant proposals to tap into private foundation monies, proposals to tap into private equity funds, or proposals to tap into private pension funds, please contact VI RC&D at (340) 773-9146 ext. 101 or fax (340) 692-9607 to register today! Plan to be there !!!

GRANT FUNDING AVAILABLE

Higher Education Challenge Grants Program. This program "promotes excellence in undergraduate teaching programs in the food and agricultural sciences." Projects are selected competitively and must "address state, regional, national, or international education needs." For more information, visit the USDA-CSREES homepage at <http://www.reeusda.gov/serd/hep/hep.htm> or contact Dr. Jeffrey Gilmore at (202) 720-1973 or jgilmore@reeusda.gov.

"Special Competition" for grants on Biocomplexity in the Environment. The National Science Foundation (NSF) has announced a special competition to award \$50 million in grants under the Biocomplexity in the Environment (BE) initiative launched by NSF Director Rita Colwell. "Biocomplexity in the Environment" is now the title of the full program of environmental science and engineering at NSF. The fiscal year 2000 grants represent the beginning of an additional \$1 billion/year that the NSF hopes to receive as a result of the recently adopted report *"Environmental Science and Engineering in the 21st Century: the Role of the National Science Foundation."* The deadline for letters of intent is January 31, 2000 and for proposals March 1, 2000. The anticipated award date is September 2000. Visit the NSF website at <http://www.nsf.gov/pubs/2000/nsf0022/nsf0022.htm> for further information.

UPCOMING EVENTS

January 15, 2000. **Ninth National Symposium on Individual and Small Community Sewage Systems Call for Papers.** Forward proposals to David M. Gustafson, Assistant Extension Engineer - Onsite Sewage Treatment Systems, Water Resources Center, Suite 146 Classroom Office Building, 1994 Buford Ave., St. Paul, Minnesota, (800) 955-8636, (612) 624-9282.

January 30 - February 3, 2000. **National Association of Conservation Districts (NACD) 54th Annual Meeting**, Broadmoor Hotel, Colorado Springs, CO. Hotel Phone: (800) 634-7711.

February 7-10, 2000. **Tools for Urban Water Resource Management & Protection**, Westin Michigan Ave., Chicago, IL. Contact (847) 835-8365 or (847) 835-6837 or visit <http://www.chicago-botanic.org> for information.

February 19-21, 2000. **St. Croix Agriculture Fair: Agriculture 2000 & Beyond - No Farming No Food.** Call UVI-CES at (340) 692-4080 or the V.I. Dept. of Agriculture at (340) 778-0998 for information.

February 21-25, 2000. **International Erosion Control Association (IECA) 31st Annual Conference and Expo**, Palm Springs, CA. Visit <http://www.ieca.org/> or call (800) 455-4322 or (970) 879-3010 for information.

April 25-27, 2000. **NW QMC National Monitoring Conference: Monitoring for the Millennium**, Hyatt Regency, Austin, TX. Visit <http://mwqmc.site.net> or call (405) 516-4972 for information.

June 11-13, 2000. **The Ecology of Urban Soils: Designing and Managing Soils for the Living Landscape**, St. Paul, MN. Visit <http://www.scisoc.org/opae/shortcourse> or call (651) 454-7250 for information.

July 9-12, 2000. **The Coastal Society 17th International Conference**, Portland Marriott, Portland, OR. For full conference details, contact Laurie Jodice at (541) 737-1340 or visit the website at <http://www.oce.orst.edu/mrm/tcsl7/confhome.html>.

January 7-9, 2001. **Integrated Decision - Making for Watershed Management Symposium: Processes and Tools**, National 4H Conference Center, Chevy Chase, MD. Visit the symposium website at <http://www.vt.edu/watershed.htm> or contact Dr. Darrell Bosch at (540) 231-7417 (fax) for further information.

March 11-14, 2001. **Ninth National Symposium on Individual and Small Community Sewage Systems**, Radisson - Fort Worth, TX. For information, contact Dr. James Converse, (608) 262-1106 or jconver@facstaff.wisc.edu.

VI NPS Update is a quarterly newsletter published by the University of the Virgin Islands Cooperative Extension Service, Kwame Garcia, State Director, and produced by the Virgin Islands Nonpoint Source Pollution Committee to inform the public about projects funded by U.S. EPA Nonpoint Source Pollution Management (\$319) grants and other NPS pollution control/prevention projects in the territory, and to provide information and material regarding the control/prevention of NPS pollution. No endorsement of products or firms is intended, nor is criticism implied of those not mentioned. Issued by the Virgin Islands Cooperative Extension Service and the U.S. Department of Agriculture in furtherance of the acts of May 8 and June 30, 1914. Extension programs and policies are consistent with federal and state laws and regulations on non-discrimination regarding race, color, national origin, religion, gender, age, disability or gender preference. *Funding for VI NPS Update provided by the U.S. Environmental Protection Agency, Nonpoint Source Pollution Management Program through the Virgin Islands Department of Planning and Natural Resources, Dean Plaskett, Commissioner.*

To have your event included in VI NPS Update, send the event title, date and time, location, contact person and other relevant information to the Editor at the address listed in the box below.

Nonpoint source (NPS) pollution results from rain water flowing over and through the ground, picking up pollutants and depositing them into guts, salt ponds, beaches, coastal waters, and ground water.

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