

UVI R&PS

Linking Research & Community 2011



The University of the Virgin Islands Research & Public Service

Agricultural Experiment Station (AES) • Center for Marine and Environmental Studies (CMES) • Cooperative Extension Service (CES) • Eastern Caribbean Center (ECC) • Office of Sponsored Programs (OSP) • Research Publications Unit (RPU) • Virgin Islands Small Business Development Center (VI SBDC) • Virgin Islands Experimental Program to Stimulate Competitive Research (VI-EPSCoR) • Water Resources Research Institute (WRI)



University
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Office of the President

MESSAGE FROM THE PRESIDENT OF THE UNIVERSITY OF THE VIRGIN ISLANDS

Every time I see tangible evidence of the University of the Virgin Islands reaching out to and having an impact in the community, I am reminded of what a special place UVI is and, as President, I am thrilled to know that. As such, it is a particular pleasure to lend my voice in support of this publication which showcases the University's Research and Public Service (RPS) area, which has as its central foci, research and community engagement. This volume of the RPS Magazine is written to provide just a glimpse of the work that is being done, on a daily basis, by the faculty and staff within RPS to help improve the lives of residents across the Territory.

This RPS Magazine highlights the work of the various units within this area, specifically, the Research Publications Unit; the Agricultural Experiment Station; the Center for Marine and Environmental Studies and the Virgin Islands Experimental Program to Stimulate Competitive Research; the Cooperative Extension Service; the Eastern Caribbean Center; the Small Business Development Center; the Office of Sponsored Programs; and the Water Resources Research Institute. These nine units have, over the years, had a significant impact on the people of the Territory, to include the students in the K-12 school system; farmers; senior citizens; various V. I. government agencies; members of the community who are desirous of sharing their spoken words with others, entrepreneurs and small business owners, and researchers in the Territory, across the Caribbean, and beyond.

The articles featured represent just a bird's eye view of the vast array of the work being done within Research and Public Service to ensure that you, as a member of the U.S. Virgin Islands' community, can benefit and do benefit, directly or indirectly from the work that is done each day. Know that UVI is here to serve the community. I also take this opportunity to recognize the entire RPS staff for their professionalism and commitment. Finally, I invite you to contact the University if we may be of service to you.

A handwritten signature in blue ink that reads "David Hall".

David Hall, S.J.D.
President



MESSAGE FROM THE PROVOST



Every university has education as its primary mission. Every university seeks to offer its students the knowledge that will lead them to productive careers and a better life. American universities with Land-Grant status, however, take the educational mission several steps further. Since 1972, when the then College of the Virgin Islands was granted Land-Grant status, a central mission of this university has been conducting research of local and regional significance and providing research-based, practical information and education to all of the people of the U.S. Virgin Islands.

As this magazine illustrates, that research varies from crops and farm animal to erosion and fisheries studies. Dissemination and education projects range from supporting local businesses to teaching elders how to communicate using computers. Current UVI students have opportunities to learn research methods and build portfolios working side by side with research faculty. And the results of UVI research impact our neighbors in the wider Caribbean.

I am proud of the University of the Virgin Islands' accomplishments, and I am pleased to recognize the many contributions of the Research and Public Service component's programs to those accomplishments.

Karl S. Wright, Ph.D.
Provost



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Office of the Vice Provost for Research and Public Service

Welcome to the inaugural issue of the University of the Virgin Islands' Research and Public Service's magazine entitled *Linking Research and Community*. This magazine provides a very brief glimpse of some of the many exciting, varied and meaningful activities that are currently taking place in RPS units.



As the home of the Land-Grant programs and other extra-mural programs at UVI, RPS is committed to serving the needs of the U.S. Virgin Islands community.

Our service may be in the form of research intended to provide answers to protecting some aspect of our fragile environment, outreach to children about nutritious vegetables they can grow in their yards or training to budding entrepreneurs on developing business plans.

These articles provide just samples of the work being done on a regular basis in order to serve residents from all walks of life in the USVI.

We hope that you will find these articles informative and also that your interest in participating in our programs will grow as a result. Our success is largely based on our being responsive to your needs. Contact information is provided for all of our programs and we welcome your feedback, inquiries and suggestions.

Thank you for taking the time to read this inaugural issue, and we look forward to increasing our service to you.

Henry H. Smith, Ph.D.,
Vice Provost

Contents

- 5 Agricultural Experiment Station: “Using Biotechnology to Enhance Production of Sweet Potato and Sorrel”**
- 7 Center for Marine and Environmental Studies/Virgin Islands Experimental Program to Stimulate Competitive Research: “Interdisciplinary Team uses Novel Technology to Shed Light in Black Box of Grouper Spawning and Larval Dispersal Patterns”**
- 9 Cooperative Extension Service: “Introducing the Community to the World Wide Web”**
- 11 Eastern Caribbean Center: “The Socioeconomic and Spatial Impact of an 8 Percent Government Salary Cut on the U.S. Virgin Islands”**
- 14 Research Publications Unit: “Milestone 25th Anniversary issue of *The Caribbean Writer* is dedicated to Haiti/Ayiti”**
- 16 Virgin Islands Small Business Development Center: “Small Business Week 2011, May 23-27”**
- 18 Water Resources Research Institute: “A Focus on Soil Erosion: A Threat to the Coral Reefs of St. Croix, U.S.V.I.”**

Preview:

Agriculture and Food Fair of the U.S. Virgin Islands, Feb. 18-20, 2012



Billed as “Agrifest,” the Agriculture and Food Fair of the U.S. Virgin Islands is the largest agricultural exposition in the territory. The 41st annual fair, with the theme “Youth in Agriculture: Growing Our Future,” will be held Feb. 18-20, 2012, on the grounds of the Rudolph Shulterbrandt Agricultural Complex in Estate Lower Love, St. Croix. Attended by approximately 50,000 people each year, the fair is a showcase for locally produced agricultural products, livestock, arts and crafts and native cuisine. The fair is co-sponsored by the V.I. Dept. of Agriculture, the UVI Cooperative Extension Service and the V.I. Dept. of Tourism. For more information, go to www.viagrifest.org

2011 Agrifest poster

Using Biotechnology to Enhance Production of Sweet Potato and Sorrel

The Biotechnology & Agroforestry program of the Agricultural Experiment Station conducted research on two locally important crops using tissue culture, virus testing and field trials. The objective was to limit the spread of viruses in sweet potatoes and provide year-round production of sorrel, which is usually a seasonal crop. UVI students Chinaemere Igwebuike, Noel Burnett, Khalid Matthew and Kenya Emanuel assisted with this research and were supported by funds from USDA-NIFA Resident Instruction in the Insular Areas grant program and USDA Specialty Crops Block Grant administered through the V.I. Department of Agriculture.

Viruses in sweet potatoes reduce growth and production over time. Because sweet potatoes are propagated asexually by cutting or slips, if the sweet potato plant is infected, the virus remains in the new plant. To determine the extent of sweet potato virus

infection on St Croix, sweet potato leaves were collected from local growers and evaluated through ELISA (Enzyme Linked Immunosorbent Serological Array) which detects specific proteins produced by an infecting virus. Most of the 41 sweet potato leaf samples on the island of St. Croix were positive for at least one virus. The ELISA tests indicated that 15 samples were positive for Potyvirus, 12 samples were positive for Cucumber Mosaic Virus, 22 samples were positive for Zucchini Yellow Mosaic Virus and 16 samples were infected with multiple viruses.

Virus-free sweet potato plantlets, obtained from the USDA Germplasm Repository, are being grown in culture to supply clean plantlets to local growers. However, because

Kenya Emanuel discussing his sorrel pigment research project with UVI Board of Trustees Vice Chair Henry Smock at the 2011 Spring Research Symposium.



of the high demand for plant material a system was needed to control growth and increase the intervals between normal monthly transfers. Long-term in-vitro maintenance, on tissue culture medium containing 0-12% sucrose, was used to evaluate shoot growth over time on four sweet potato cultivars. Sucrose levels from 2-12% had no influence on controlling in-vitro growth and development over time. Having no sucrose in the medium resulted in minimal growth but was lethal to 50% or more of the cultures. The rate of root growth and leaf development was greatly reduced on sucrose levels from 0.1-0.3%. These low sucrose levels controlled the rate of growth and extended the interval between transfers from monthly to yearly. Long-term maintenance for a year on low sucrose medium does not influence growth after transfer to fresh medium. These results indicate that sweet potatoes can be successfully maintained for a year on low sucrose medium to reduce growth and revitalized on fresh medium with 3% sucrose to regain active growth for micropropagation.

Sorrel (*Hibiscus sabdariffa*) is popular for its colorful fleshy calyces during the Christmas season. Sorrel is normally planted at two-foot spacing during July and August. We evaluated late September sorrel planting and the influence of 8, 16 and 24 inches in-row spacing. The results indicated that the day-neutral variety can be grown with 8-24 inch spacing with no effect on branching or production. However, 8 and 16 inch row spacing can result in taller plants and fewer branches on traditional red December bearing varieties. Planting sorrel in September at 16 inches can increase production per length of row.

Sorrel is sensitive to high pH calcareous soils found in areas of St. Croix. A study was conducted to grow and evaluate 17 sorrel varieties, from the Caribbean and Africa, for tolerance to high pH caliche soils. For caliche tolerance, plant leaves were ranked from 1-5, with (5) being the normal healthy green and (1) being severely bleached white (chlorotic) and having dead (necrotic) leaf margins. Generally, the varieties from Africa had better tolerance to the high pH soil, with scores greater than 2.5, than the Caribbean varieties which scored



Khalid Matthew explains his research project on sorrel to UVI Board of Trustees Chair Alex Moorhead and Trustee Luz Suarez de Highfield at the 2011 Spring Research Symposium.

below 2. Five varieties appeared to be photoperiodically day neutral by producing flower buds and flowers in May. From these results, a breeding plan will be developed to combine tolerance to calcareous soils with a day-neutral photoperiod to enhance year-round production.

The sorrel is important to the culture of the Virgin Islands for its use in making a healthy red beverage from the calyx. The calyx of sorrel varies in the intensity of redness between cultivars. We determined the concentration of the red pigment in the calyces from fourteen sorrel cultivars and used paper chromatography to resolve the pigments. Sorrel calyces were ground 1/1 (w/v) in either ethanol or water. Following centrifugation, the solute was read in a spectrophotometer at 535 nm. Ethanol was found to be better for extracting the anthocyanin pigment. Paper chromatography, utilizing polar and nonpolar solvents, was used to separate the anthocyanin pigmented compounds. Red and purple bands were observed in the paper chromatography which relates to cyanidines and delphinidines, respectively.

These results indicate that our locally grown sorrel has similar nutraceutical bioflavonoid compounds as found in cranberries and blueberries. Plant breeding has begun to increase the bioflavonoid content and develop a day-neutral caliche tolerant variety for year-round production.

Interdisciplinary Team uses Novel Technology to Shed Light in Black Box of Grouper Spawning and Larval Dispersal Patterns

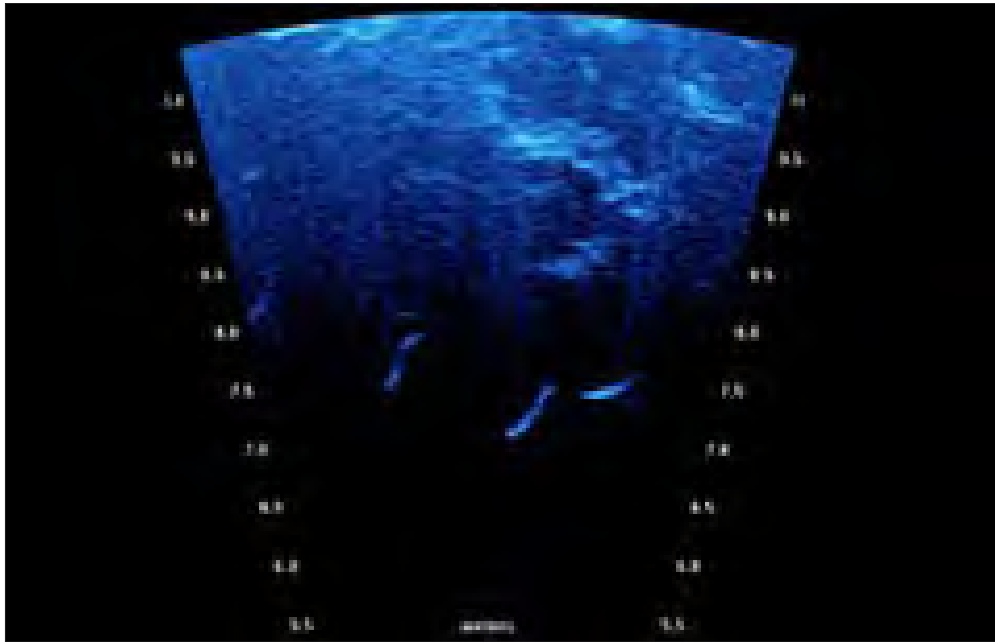
A multi-disciplinary group of scientists captured yellowfin grouper on video during their elusive spawning aggregation activity in the United States Virgin Islands in March and April, 2011. Dr. Richard Nemeth from the University of the Virgin Islands' Center for Marine and Environmental Studies, Dr. Claire Paris and Dr. Laurent Cherubin from the University of Miami (UM) Rosenstiel School of Marine & Atmospheric Science and Dr. Shahriar Negahdaripour from UM's College of Engineering joined forces and used high tech equipment to better understand grouper spawning behavior and the fate of fertilized eggs.

Due to poor visibility and low light conditions deep underwater, and the fact that most groupers spawn at dusk or after dark, observing and capturing this event has traditionally been very difficult. Using a remotely operated vehicle (ROV), mounted with a high definition video camera and an acoustic imaging system, the researchers recorded grouper spawning in a non-intrusive way, more than 250 feet below the ocean's surface.

The ROV and high definition video camera were used to locate and film the grouper aggregation before sunset and a Didson acoustic imaging system was used to document spawning after dark. Although scuba divers have been able to observe a few

spawning events in the past at depths less than 130 feet, this study was able to capture many spawning rushes in which one female and 5 to 12 male groupers rapidly swam upwards and released eggs and sperm at the apex of the rush. The resulting white cloud of fertilized eggs could be seen clearly at depths down to 250 ft.

“The video footage is extremely informative. It is the first time such a combination of technology was used to observe mass spawning in the open ocean. We could follow the fish from initial courtship behavior through to the apex of the spawning rush. The instruments allowed us to determine the time and depth at which this occurred and to discover what



Images:
 Top: Video Image of groupers at apex of spawning rush showing white gamete cloud just below group
 Bottom: Photo from Didson acoustic imaging system showing aggregating groupers after dark
 Credit: UVI-CMES; Images provided by: rnemeth@uvi.edu

ocean current conditions the fish are targeting,” said Dr. Laurent Cherubin.

The film will help scientists to understand the grouper spawning behaviour, the depths at which they spawn and the fertilized egg’s initial dispersal patterns in accordance to the ocean’s environmental conditions. This in turn will help determine the fate and transport of the larvae and where they settle, a problem which has perplexed scientists for decades.

Data from these observations will be plugged into oceanographic models to predict levels of retention and assist fishery managers to determine the potential for local spawning aggregations to rebuild grouper stocks in the U.S. Virgin Islands.

Richard Nemeth acknowledges support for this Grouper spawning research, through VI-EPSCoR’s RII –NSF Grant No. 0814417, 09/01/2008-08/21/2013. PI: Henry H. Smith, Ph.D.

CES

Cooperative Extension Service

Introducing the Community to the World Wide Web

Among its long list of programs and services to the St. Croix community, the Cooperative Extension Service of the University of the Virgin Islands introduced a Basic Computer Training workshop about seven years ago.

The objectives of the computer training are to equip people with new skills to improve their lives, increase their knowledge and usage of computers, get jobs in a changing economy, and make them computer literate according to UVI Standards. So far CES has trained 651 persons in basic computer technology and other related programs.

Initially, the computer training was introduced to complement the sewing, arts and crafts program,

which had 15 individuals. During this time, CES initiated a media advertising blitz of its programs on both television and radio, which led to the increase of inquiries to our programs especially for the computer training class. At the end of the first computer training, there was a waiting list of over 100 individuals, which necessitated the addition of another class. The following year, the waiting list grew to over 200, and a third class was added. The growing demand of the class required a fourth session, with classes being held at 10 a.m., 1 p.m., 5 p.m. and 7 p.m.

Attendees of the computer training were primarily interested in improving their computer skills for enhanced marketability, and job promotions, but that focus soon changed. Retirees have been attending the training to learn computer skills to enable them to communicate with their grandchildren. These individuals have enthusiastically



Marthious Clavier, CES Extension Specialist, instructing participants on the basic functions of the computer.



Group 4 Basic Computer class proudly displaying their certificates. Also included are Dr. Karl Wright, Provost; Dr. Henry Smith, Vice Provost; Kwame Garcia, Sr., CES State Director; Kofi Boateng, CES Associate Director; Marthious Clavier, instructor; and Gerald Felix, student worker.

complimented the “patient,” “caring,” and “respectable” demeanor of the trainer, Mr. Marthious Clavier, and his student workers, who have made the process non-threatening for them. Some of the highlights of the training have been the shouts of proud grandparents when they sent their first emails and received not only responses, but pictures of their grandchildren as well.

Josephine E. Arthur, a member of Session 1, said that she heard the announcement for the computer class at the Extension Service a year ago while driving her taxi, and decided to check it out. “I started on May 10th and now here I am at the end of the course. It was a fun learning class with our teacher, Mr. Clavier. I learned how to hook-up and set up the computer and everything else. I will no more call myself a computer dummy. Now I can get on the internet, send emails, and do many other things.”

Claudette V. Hamilton participated in Session 4 – the 7-8:45 p.m. class. “The computer class I took has been a very good help to me in my workplace here at the Bureau; I learned so much in many ways because technology is so advanced and the teacher was the best. I want to thank the University of the

Virgin Islands Cooperative Extension Service for giving us this opportunity to be able to advance ourselves as older people in the workplace; an added bonus was that it was free to us. I hope they will be able to continue these free classes for people like me who are slow in learning but get the opportunity to learn in a class where we can understand and be productive.”

In addition to the basic computer training, Clavier has added other programs such as The Usefulness of the Internet, where individuals learn to use Skype, eBay, PayPal and other programs to enable them to pay their WAPA and other bills online.

Other workshops train individuals in creating PowerPoint presentations and using the Excel program. These programs eliminate the initial fear of the technology and equip the participants with skills to engage in 21st-century knowledge, which enables them to explore the World Wide Web as well as enhance their work.

CES continues to cater to the community by educating its members in 21st-century skills. Training in the superfast information highway improves participants’ skills while simultaneously enhancing communication and family connectivity.

The Socioeconomic and Spatial Impact of an 8 Percent Government Salary Cut

Since the beginning of the U.S. recession in December 2007, some 8.9 million jobs have been lost. Although the national economy regained 1.8 million of these jobs since 2010, there are 6.9 million jobs yet to be regained. Most of the job losses have occurred in the private sector, but the public sector has also experienced the scourge of layoffs as declining tax revenues and budget deficits have forced layoff of government workers.

State and local governments have eliminated more than 400,000 jobs since 2008 (U.S. Bureau of Labor Statistics). The five largest states—California, Florida, Michigan, New York and Illinois—account for half of the public-sector job losses. In California, for example, the government laid off more than 22,000 employees, and in New York, some 8,000 government employees were dismissed.

The government of the U.S. Virgin Islands, like many states and local governments, is experiencing declining tax revenues—a projected \$17.4 million budget deficit in fiscal year 2011, and \$90.1 million in fiscal year 2012—and is faced with the difficult decisions of pay cuts and/or looming layoffs. Governor de Jongh announced a plan to lay off 600 government employees beginning in July, 2011. The Legislature of the Virgin Islands, in order to avoid layoffs, passed Act No. 7261 with an alternative 8 percent cut in wages and salaries of government employees—including UVI and other semi-

autonomous agencies—who earn over \$26,000 annually.

The Bureau of Economic Research compared the economic impact of an 8 percent cut in government workers' wages and salary with the alternative layoffs of 600 workers in FY (fiscal year) 2011 and 1,400 workers in FY 2012 as has been proposed. The Bureau estimates that an 8 percent cut would result in the following impact:

- \$32.6 million direct savings in government wages and salaries
- \$20.7 million drop in economic output (spending in the economy)
- A loss of 195 jobs, and a drop of \$9.5 million in secondary income.
- The loss of \$0.9 million in gross receipts, \$1.1 million in individual income, \$0.2 million in trade and excise taxes and \$0.6 million in corporate income tax.

Comparatively, the termination of 600

government employees will result in:

- \$29.4 million savings in government wages and salaries
- \$97.5 million drop in economic output
- A loss of 318 additional jobs throughout the economy.
- A loss to the government of an estimated \$4.4 million in gross receipts, \$5.2 million in individual income, \$0.9 million in trade and excise taxes and \$2.8 million in corporate income tax.

In order to cover the budget shortfall in FY 2012, it was suggested that it may require the termination of 1,400 government employees. If this were to occur, the impact would include the following:

- \$68.6 million savings in wages and salaries
- \$227.4 million drop in economic output
- A loss of 742 additional jobs throughout the economy
- Loss of \$10.2 million in gross receipts, \$12.2 million in individual income, \$2.1 million in trade and excise tax and \$6.5 million in corporate income tax.

The Bureau concluded that an 8 percent cut in employee wages was less severe than the alternative of layoffs and that although pay cuts may not be popular, the layoffs would be far more economically and socially painful.

The Social Implications

The recent government-mandated reduction in wages and salaries will influence all aspects of daily living for a large percentage of Virgin Islanders. According to the 2008 Virgin Islands Community Survey (VICS), 11,680 of the total 50,265 employed civilian workers in the Territory were classified as local or territorial government workers. Therefore, about one out of five employed civilians in the Virgin Islands was a government worker. This estimate includes employees of semi-autonomous government agencies, such as the University of the Virgin Islands. For many, the past security of working for the government or university has been replaced by present uncertainty that earners can provide for their families.

In 2008, the median household income for all residents of the Virgin Islands was \$35,542. Fifty percent of all residents with income earned more than

\$35,542, and half earned less than this amount. This income cut by 8 percent equals \$32,698.64, i.e., a reduction of \$2,842.36. A salary diminution of nearly \$3,000 annually constitutes a financial hardship for many individuals and families. According to the Internal Revenue Service (IRS), a financial hardship occurs when there is an immediate and heavy financial need to pay for medical, educational, funeral expenses, or maintaining a home (e.g., mortgage or rent payments).

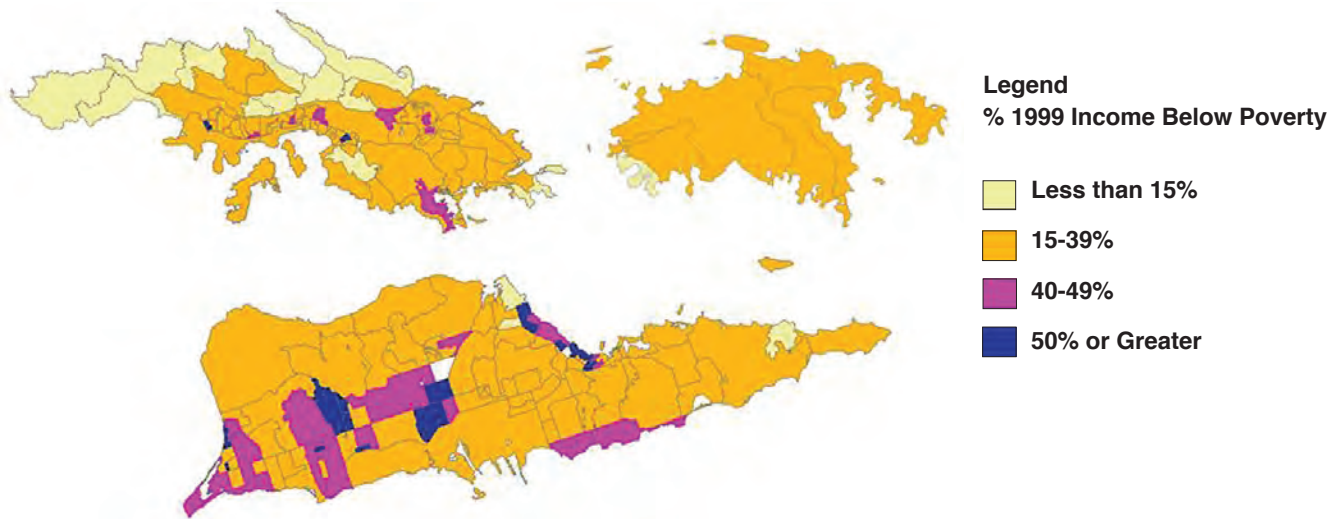
Employees with lower incomes will withstand the worst outcome of the cut, and the effects would be significantly more negative than among higher wage earners. Even workers whose pay is unaffected by the salary cut—government employees earning less than \$26,000 annually and private sector employees—will ultimately be impacted by the consequence of the reduction of revenue within the local economy (i.e., less discretionary money will be available to purchase goods and services). In reality, the impact will be widespread and especially significant in areas with higher percentages of residents already living at or below the poverty level [See the accompanying map of higher poverty areas, next page].

Work-related Stress and its Negative Impact on Social Relationships

Economic depression can lead to mental depression. Research shows that rates of mental depression increase with work-related stress. The Centers for Disease Control analyzed the Behavior Risk Factor Surveillance System (BRFSS) survey data from 2006-2008 and found that among 235,067 adults (in 45 states, the District of Columbia, Puerto Rico and the US Virgin Islands), 9 percent met the criteria for major depression. Within the sample of 2,649 USVI residents, 1.7 percent met the criteria for major depression, 7.4 percent were classified as having other depression, and 9.1 percent were experiencing current depression. We are often unaware of the mental suffering of others, especially during times of financial strain.

Married couples affected by the salary cut may notice that financial stress can lead to increased marital dissatisfaction. Research of the relationship between financial problems and divorce supported the notion that those who have low incomes will have

Higher Poverty Areas, U.S. Virgin Islands



more difficulty dealing with financial problems than couples with higher incomes. There is also evidence that lower wage earners suffer greater negative outcomes in times of economic depression. Indeed, at times, couples have disagreements concerning money. Therefore, couples whose household income is lessened are more likely to sustain strained or damaged relationships as a result.

Related Impact on Health

A study in the American Journal of Medicine cites that illness or medical bills contributed to 62.1 percent of all bankruptcies in 2007, where three-quarters of those persons had health insurance. The cost of health care can readily render a stable situation unsettled in a relatively short period of time. From the results of the 2009 Virgin Islands Health Insurance Survey, 12.5 percent of employees with employer health insurance or self-purchased health insurance delayed seeking medical care due to the cost. This problem is further exasperated by the eight percent decrease in salary.

In a recent poll by the Kaiser Family Foundation that surveyed Americans on the consequences of health care costs it showed several accommodations that households make in regards to health care in the midst of financially challenging times. Thirty-five percent of households reported that they rely

more heavily on over-the-counter or home remedies instead of visiting with a doctor. Thirty-four percent skipped dental care or checkups. Twenty-seven percent put off or postponed getting the health care needed. Twenty-three percent skipped a medical test or treatment and 15 percent cut pills in half or skipped doses to avoid filling prescriptions or seeking refills at the doctor's office. All of these accommodations can have negative effects on a person's health.

At this point, one may well ask if there is anything positive to be derived from the current economic recession. In a rather harsh way, while the option would significantly trim the government's labor force, many residents would consider that the public sector is oversupplied and the Territory would benefit from a leaner work force with a better service record. In another vein, lessons from the past tell us that when faced with challenges in the past, our forbears rose above the situations and recognized what was important, and protected it. One survivor of the U.S. economic depression of the 1920s spoke to the virtues of hard work and of valuing others. The moral is that those who worked hard during the depression did not receive large monetary reward, but their small rewards opened up a wide range of opportunities for their future generations to be productive. And so it may well be for later generations of Virgin Islanders.

Milestone 25th Anniversary issue of *The Caribbean Writer* is dedicated to Haiti/Ayiti

The *Caribbean Writer* is going places, and Volume 25 has taken readers to Haiti, originally known as Ayiti, land of high mountains. The idea to focus the 2011 special, silver anniversary issue on Haiti was based on two reasons: first, to pay homage to Haiti's survival of the January 2010 earthquake that devastated the country and killed over 100,000 of its people. And secondly, to commemorate their role as freedom fighters, they being the first to wage war and win their freedom in 1803.

The Caribbean Writer, an international, literary, refereed journal published by the Research Publications Unit of the University of the Virgin Islands, showcases the literary production and visual works by Virgin Islanders as well as others from the greater Caribbean region.

In addition to providing readers with glimpses of both of the above mentioned historical events, Volume 25 featured prose and poetry by some of Haiti's local as well as internationally celebrated writers such as Edwidge Danticat, winner of the 2009 Fellow 'Genius Award,' Évelyne Trouillot, novelist and professor at Haiti's State University and Marilène Phipps-Kettlewell, winner of the Iowa Award for short fiction. It also showcased the works of emerging Haitian-American voices such as Michelle Y. Remy and Wilna Julmiste.

Volume 25 also marked a new epoch in the



journal's trajectory as being a seminal publication in the Caribbean region. With this first bilingual issue, English and French, *The Caribbean Writer* forged ahead in attracting a wider readership in the Caribbean region, as well as positioned itself for a more diverse international market. The volume opened with congratulatory remarks by Governor John P. de Jongh, Jr., UVI's President David Hall, Provost Karl Wright, Vice Provost for Research and Public Service Henry H. Smith, founding editor Erika J. Waters and an introductory overview by editor

Opal Palmer Adisa, who referenced her January 2011 trip to Haiti to bear witness. This 640-page edition featured 70 pages of poetry by some of the leading Caribbean poets, including Kamau Brathwaite, Jennifer Rahim, Ernest Pépin and Sonia Sanchez, plus 100 pages of prose, a special section on Haitian Art and interviews with Earl Lovelace, who recently won the

2011 Caribbean Literary Prize, and Trinidad-American writer, Elizabeth Nunez. The next section of the journal (pages 403-594) was in French, and editor Adisa, in the acknowledgement section, called on colleagues and friends from various universities and other sites around the country to make this dream of a bilingual issue a reality. Volume 25 is historical and a collector's item for three reasons, its emphasis on Ayiti/Haiti, its assemblage of many of the most important Caribbean writers today and its bilingual edition to celebrate being 25 years old.

The cover art work for this special issue featured the painting of Pasko "Easter Rock" Mérisier, renowned Haitian painter who resides between Haiti and France. Interior art included works by Sam Doudou, André Eugène, Chéby, and Evelt Romain, some of the most innovative artists in Haiti today.

Local writers who were included in this collector's volume are Arnold R. Highfield, writer, historian and professor emeritus of UVI; Daisy Holder Lafond; Maud Pierre-Charles; and Winifred "Oyoko" Loving. Book reviews were by current UVI professors such as Simon Jones-Hendrickson, Gillian Royes, Lomarsh Roopnarine, Valerie Knowles Combie and Lucia R. DiMeo. To maintain its credentials as a referred journal in the academy, works were selected blind by the local editorial board comprised of Edgar O. Lake, President of the Society of Virgin Islands Historians; Alscess Lewis-Brown, Director of the Human Resources Bureau of the V.I. Police Department; and Kenny Hendrickson and Dolace Mclean, professors from both UVI campuses.

The Silver Anniversary/Volume 25 of *The Caribbean Writer* is currently available at local bookstores on St. Thomas, St. Croix and St. John, as well as UVI bookstores on both islands. Copies are \$25.00 and can also be ordered directly from *The Caribbean Writer's* office by calling (340) 692-4152, emailing orders@thecaribbeanwriter.org or visiting www.TheCaribbeanWriter.org.

The Caribbean Writer is currently accepting submissions for Volume 26, dedicated to the environment and focusing on nature and ecology. As we move into the 21st century we have to be mindful of our environment, how we care for it, what kinds of expansions (developments) we allow to take place, how do we preserve and maintain its pristine beaches, lush mountains and diverse, extraordinary bird/insect and animal life.

The Caribbean Writer seeks works that celebrate as well as explore our relationship to nature, how tourism and cruise ships impact our environment, the role nature plays in our lives, the names of our trees and flowers, the rich fauna, etc.

Women writers will also be celebrated, and interviews, essays and personal narratives on Sylvia Wynter, Olive Senior, Paule Marshall, Claire Harris, Lorna Goodison, Nancy Morejon, Velma Pollard, Erna Brodber, Zee Edgell and other leading Caribbean women writers are welcomed.

Submission guidelines and all other information on *The Caribbean Writer* can be viewed at our new and improved website: www.thecaribbeanwriter.org.



Interior artwork included photographs of masques by Chéby, images one and two; and sculptures by Jean Herard Celeur and André Eugène, images three and four, respectively.

Small Business Week 2011, May 23-27

Almost 400 people participated in the Virgin Islands Small Business Development Center's 2011 Small Business Week celebration! During the course of the week the SBDC accomplished the following goals: (1) provided exposure for local businesses that are contributing to the economy of the Virgin Islands, (2) enhanced community access to information and expertise related to starting and growing a business, and (3) increased visibility of the VI SBDC brand.

The success of the events held on both St. Thomas and St. Croix, was the result of team effort, a strong marketing campaign, quality training programs and collaboration with community partners.

A comprehensive marketing campaign, developed to create awareness of the week of activities, was initiated in April and included the following activities:

- A Save the Date and formal invitations sent to key stakeholders and resource partners such as: UVI staff, the legislature, Board of Trustees, the media, financial institutions, government agencies, business/ community organizations and the VI SBDC database of entrepreneurs.
- A series of ads in the Daily News, Island Trader and Avis publications.
- Public service announcements on several radio stations; plus live in-studio interview on Radio One AMVI.
- A press release to local media outlets.

The success of the marketing effort is reflected in the number of individuals who participated during the week of activities. There were a total of 218 attendees for the series of training programs. The training schedule consisted of the following programs:

- The Leap: Going From Income to Wealth: presented by author, entrepreneur and nationally-syndicated columnist, Rhonda Abrams
- COPE Caribbean Conference: VI SBDC co-sponsor in partnership with Events in Paradise; St. Croix only
- Credit: A Key to Empowering Your Personal Life and Business: presented by First Bank
- How to Start a Business in the US Virgin Islands: presented by Mary Joe Williams (VI SBDC staff)
- Estate Planning: presented by attorney Ana Paiewonsky

Small Business Week culminated with award ceremonies May 26 on St. Croix at the UVI Great Hall/Albert Sheen Campus and May 27 on St. Thomas at the Riechhold Center. The events were strongly supported by the community with 154 people sharing in the celebration.

UVI President Dr. David Hall served as the keynote speaker for the St. Thomas awards program and Mr. David Zumwalt, Executive Director, RT Park/ UVI, for St. Croix. Special remarks were made by the following key stakeholders and community partners:



St. Thomas award winners with Dr. Hall and Dr. Smith.



St. Croix award winners with Dr. Smith.

- Mr. Jose R. Sifontes, U.S. Small Business Administration/District Director for Puerto Rico & the USVI
- Dr. Henry H. Smith, Vice Provost for Research and Public Service, UVI
- Barbara Petersen, St. Thomas Administrator, Office of the Governor
- Regina DeChabert Petersen, representative from the Office of the Senate President
- Mr. Kevin Hughes, Director of Business Sales and Customer Care, Choice Communications
- Dodson James, St. Croix administrator, Office of the Governor.

The VI SBDC highlighted the outcome of its work through a video presentation that communicated the success story of each honoree.

The 2011 Small Business Week honorees were:

St. Thomas Service Center

- Small Business Person of the Year: Jonice Hughes, L & C Milliner
- Service Company of the Year: Jerry Meyers, Jamec Wiring
- Small Business Advocate of the Year: Ivanne Farr, Rare Earth Studio
- Financial Advocate of the Year: Percival Clouden, Government Development Bank

St. Croix Service Center

- Small Business of the Year: Jack Bishop, Armrey Industries Inc
- Farmer of the Year: Grantley Samuel, G.L.G. Plants and Produce
- Woman-Owned Business of the Year: Jennifer Parris, Parris Tee's & Novelties
- Financial Advocate of the Year: Zoritsa Rivera,

Marketing Small Business Finance Corporation
U.S. Small Business Administration

- Small Business Person of the Year (St. Thomas): Sinclair Crabb, Atlantic Seafood & Internet Café
- Small Business Person of the Year (St. Croix): Dr. Robert F. Centeno, St. Croix Plastic Surgery & Spa
- Financial Institution of the Year: Joseph Hosie, First Bank Virgin Islands

In addition to the 2011 Small Business award, each honoree received a special gift presentation which included a one-year phone subscription from Choice Communications, *The Caribbean Writer* 2011 Calendar, and a copy of *The Caribbean Writer*, Vol. 24.

Through collaboration, the VI SBDC was successful in soliciting sponsorships from the following community partners to make the 2011 effort a success: Choice Communication, First Bank Virgin Islands, the Gumbs Group LLC and MLB Creative.

The 2011 Small Business Week Planning Committee consisted of the following individuals from the VI SBDC service centers: Lucy Holifield (Chair), Leonor Dottin, Daryl Edwards, Mary Joe Williams, Karen Jones and Emmett Hansen; plus Mr. Carl Christensen (U.S. Small Business Administration - Virgin Islands Branch Manager).

The VI SBDC Small Business Week 2011 program was a major undertaking that produced big results! Moreover, it serves as a great example of the R&PS mission "at work": meeting the needs of the community through cooperation and collaboration.

The Virgin Islands Small Business Development Center is a partnership program of the U.S. Small Business Administration and the University of the Virgin Islands.

A Focus on Soil Erosion: A Threat to the Coral Reefs of St. Croix, USVI

Coral reefs are some of the oldest and most diverse ecosystems on Earth and throughout time, they have always played a vital role in the world’s economy. According to the National Oceanic and Atmospheric Administration, coral reefs currently provide a global “net benefit of \$9.6 billion per year from tourism and recreation revenues and \$5.7 billion per year from fisheries.”

Unfortunately, some 60-75% of coral reefs worldwide are threatened by human activities, such as overfishing, coastal development and sedimentation. The World Resources Institute have found that over 30% of existing Caribbean reefs are degraded from sediment and other inland sources of pollution.

Coral reef ecosystems of the US Virgin Islands (USVI) are comprised of various habitats including coral and hard-bottom areas, seagrass beds, and mangroves. Healthy reef systems in the USVI are vital to its economy because of the variety of services they provide: habitat for commercial fisheries, shoreline protection from storm surges and tsunamis, and as a unique tourist attraction, among many others. Increased sedimentation in nearshore coastal habitats from terrestrial

soil erosion is very evident and widespread throughout the USVI. Persistent land development, an ever-growing network of unpaved roads and foot trails, and alterations to natural drainage patterns continuously create conditions that increase erosion and enhance



Discharge into Boiler Bay from a severely eroding foot trail.



Resulting beach erosion from discharge into the bay.

the delivery of sediment into the sea. These conditions, combined with rugged topography, seasonally intense rainfall, and unchecked land development practices exacerbate sedimentation issues even further.

In March 2010 the University of the Virgin Islands was awarded a research grant from the United States Geological Survey (USGS) through the Water Resources Research Institute (WRRI) that was aimed at quantifying soil erosion and sediment delivery rates in small watersheds on the eastern portion of St. Croix. The specific objectives of the study were to measure how land use practices affect the processes by which the inorganic and the nutrient-rich organic components of soil get eroded by flowing water and are delivered to sea. The study area encompasses two small watersheds where the only type of obvious human disturbance is in the form of old unpaved roads that are now acting as foot trails. The study sites drain into ecologically-

sensitive coral reef systems that are within marine protected areas (East End Marine Park) and have been established by law as Areas of Particular Concern (APC).

Scientific observations on erosion typically require measuring the mass (that is, weight) of sediment. Therefore, our methods relied on a total of twenty silt fences to collect the sediment being eroded from trail surfaces and undisturbed hillslopes. Each month, sediment was removed from these fences and weighed. Subsamples from the material contained in the traps were taken from the sediment samples and analyzed for the amount of organic matter in them by the loss on ignition method. Rain provides the energy and the medium that enables erosion processes therefore; automatic rain gauges were deployed to measure both the intensity and the total amount of rainfall associated with each of our monthly erosion measurements.



Accumulated sediment from trail surface erosion.

The study results showed that trail surfaces produced sediment at a rate that was just over 20 times faster than the rate at which sediment was produced from undisturbed hillslopes. This difference became more impressive when we considered that the undisturbed hillslopes were more than twice as steep as the trails and hence should have had a higher potential for erosion. We concluded that erosion was closely tied with the density of vegetation cover, i.e., low erosion rates were associated with dense vegetation cover and high rates associated with poor vegetation cover. Sediment from undisturbed hillslopes contained much

higher contents of organic material than did eroding trail surfaces. The disturbed trail surfaces contained the least amount of the high-nutrient organic component of soils and eroded at significantly faster rate. Therefore, it appears that the combination of foot traffic and the loss of organic material combined to reduce the capacity of foot trails to regenerate, and consequently these conditions promote the ecologically undesirable situation in which erosion rates are maintained at a high rate over long periods of time.

Results from the USGS/WRRRI funded study will provide a better understanding of sediment and nutrient transport in small, coastal watersheds being impacted by human activities. These outcomes will provide insight into the linkages between sediment transport, loss of nutrient-rich organic material, and their potential effects on coastal habitat conditions. Knowledge derived from this study will also provide tools to assess and mitigate impacts at other locations where conducting a research study is impractical.

This research was funded by the United States Geological Service through the Water Resources Research Institute at the University of the Virgin Islands. Project Title: Measurement of Particulate Organic Material and Erosion Rates in Small Subtropical Watersheds on the East End of St. Croix, USVI. Project number: 2010VI170B



Disclaimer

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Eroding trail surface.

Research & Public Service Contact Information

Henry H. Smith, Ph.D.,
Vice Provost
Research and Public Service
Telephone: (340) 693-1062
Fax: (340) 693-1065
E-Mail: hsmith@uvi.edu

Robert Godfrey, Ph.D.,
State Director, Agricultural Experiment Station
Telephone: (340) 692-4042
Fax: (340) 692-4035
E-Mail: rgodfre@uvi.edu

Mr. Kwame N. Garcia
State Director, Cooperative Extension Service
Telephone: (340) 692-4093
Fax: (340) 692-4095
E-Mail: kgarcia@uvi.edu

Richard S. Nemeth, Ph.D.,
Acting Director,
Center for Marine and Environmental Studies
Telephone: (340) 692-4042
Fax: (340) 692-4035
E-Mail: rgodfre@uvi.edu

Editor
Research Publications Unit
Telephone: (340) 692-4152
Fax: (340) 692-4026
E-Mail: info@TheCaribbeanWriter.org

Ms. Leonor Dottin
State Director, Virgin Islands Small Business
Development Center
Telephone: (340) 776-3206
Fax: (340) 775-3756
E-Mail: ldottin@uvi.edu

Mr. Dayle Barry
Acting Director, Office of Sponsored Programs
Telephone: (340) 693-1054
Fax: (340) 693-1060
E-Mail: dbarry@uvi.edu

Frank L. Mills, Ph.D.,
Director, Eastern Caribbean Center
Telephone: (340) 693-4042
Fax: (340) 693-4035
E-Mail: fmills@uvi.edu

Henry H. Smith, Ph.D.,
Director, Water Resources Research Institute
Telephone: (340) 693-1062
Fax: (340) 693-1065
E-Mail: hsmith@uvi.edu

Henry H. Smith, Ph.D.
Acting Director
VI-EPSCoR
Telephone: (340) 693-1076
Fax: (340) 692-1425

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Research & Public Service
Dr. Henry H. Smith, Vice Provost
Dr. Robin Sterns, Editor

University of the Virgin Islands

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