

DEPARTMENT OF LIFE SCIENCES

Eric Hyslop, BSc (Hons.) *Aberdeen*, PhD *Open University*
– Head of Department

WORK OF THE DEPARTMENT

During the 2009/10 academic year the Department of Life Sciences was able to achieve a number of important successes.

Undergraduate Enrolment and Curriculum Reform

The number of students enrolling in level 1 Life Sciences courses remained high in the 2009/10 academic year as a result of the drive to attract students to UWI. While, as would be expected, numbers declined in level 2 and 3 courses, all undergraduate offerings were more than adequately subscribed. Resource shortfalls were less of an issue than in previous years but some gaps were evident. In a number of level 3 courses more students enrolled than could be accommodated in the existing single lab stream and a second stream had to be added.



There was progress in curriculum reform as the Level 1 courses in Life Sciences were successfully reconstituted as 3 credit courses, 2 per semester, which it was envisaged would add to the quality of academic content offered at level 1 as well as introducing a level of flexibility not previously available in the existing 6 credit courses. Plans were also finalized for the implementation of the first of the agriculture based B.Sc. degrees; that of Tropical Horticulture, in the 2010/11 academic year. This was part of the Department/ Faculty response to the country's needs in this area.

Undergraduate Teaching

The Department maintained its high standard of teaching for the most part with 78% of lecturers in Semester 1 and 62% in Semester 2 scoring 4.0. Only one lecturer and one course (both in Semester 2) recorded scores in the 2.0 – 2.9 range. Several staff members were honoured at the Faculty of Pure and Applied Sciences awards ceremony for the quality of their teaching. The first year courses continue to have high failure rates, 31 and 38%, respectively, indicating the need for special intervention for these students.

Postgraduate research and teaching

The now merged and modified MSc programme Marine and Terrestrial Ecosystems (MaTE): Assessment and Monitoring was run for the first time with an intake of 10 students. Concomitantly, a new cohort of 17 students was admitted to the MSc in Plant Protection and Production (PPP). Student assessments were conducted on these programmes for the first time in 2009/10 and the results indicated scores ranging from 3.7- 3.9 for courses and 3.8 – 4.0 for lecturers.

Plans for the implementation of a new Faculty programme, MSc in Agricultural Entrepreneurship, to be housed in the Department of Life Sciences were drawn up and it was expected that this programme would start in the 2010/11 academic year.

In contrast the number of students entering new MPhil/PhD programmes (3) was lower than in previous years. There were a number of successful transfers from MPhil. to PhD (3) during the academic year as well as PhDs successfully completed(5). Perhaps necessitated by staff movements/absences and stricter application of GS&R regulations, the number of completing M.Phil. students (20 submitted) was also large in comparison to previous years.

The following graduated with post graduate qualifications during 2009/10

MSc MERS/TEAM

Loderick Brown

Nichole Sang

Omar Spence

MPhil Zoology

Tovia Elliott Supervised by Dr. Mona Webber

Cheridah Todd Supervised by Prof. Ralph Robinson

MPhil Marine Sciences

Peter Gayle Supervised by Dr. Mona Webber

PhD Botany

Emma Ranston Co-Supervised by Prof. Dale Webber

Philip Rose Supervised by Prof. Dale Webber

Nickeisha Reid Supervised by Dr. Jane Cohen

PhD Marine Sciences

Ava Maxam Supervised by Prof. Dale Webber

Dayne Buddo Supervised by Dr. Mona Webber

Summer School

The 2008/9 summer school was successfully mounted in July to August (a month later than the regular Summer School period) so as to facilitate the High School teachers participating in the Ministry of Education Youth and Culture (MOEYC) Project which offers High School teachers the opportunity to do first and second year Biology courses towards obtaining a degree. Summer school continues to be an important source of income generation for the Department.

Infrastructure and equipment

Several improvements to infrastructure were achieved during the academic year, these included completion of the upgrade of the academic staff, postgraduate and undergraduate computing facilities with superior desktop machines, the provision of a new black and white as well as a new colour printer.

One lab was upgraded in terms of the seating arrangement and a new 25 capacity seminar room was created by internal partitioning of a foyer area. 40 additional new microscopes were purchased for use in undergraduate labs and the department also purchased a new 16 capacity bus for use on field trips with smaller classes such as MSc courses.

Outreach activities

The official opening of the UWI/EFJ Biodiversity Centre based at the Port Royal Marine Laboratory (PRML) took place in January 2010 and this facility has since been heavily utilized by students from local schools and colleges. Since the opening numbers of visitors to the PRML has increased by over 60%. Also in the area of outreach the department undertook a programme of visits to those community colleges offering our Preliminary Biology course with a view to improving delivery and to promoting communication between the various institutions involved.

The number of overseas users accommodated at the Discovery Bay Marine Laboratory (DBML) increased by nine from 233 to 242 with 3 of the 9 being individual researchers.

The Pan-Caribbean Reef Restoration workshop (hosted by Dr. Judith Mendes) was held at DBML from June 20-25. There were 24 participants from 14 countries around the Caribbean (The Bahamas, Barbados, Belize, Bermuda, The Cayman Islands, Colombia, Costa Rica, Curacao, Grenada, Jamaica, Puerto Rico, Trinidad and Tobago, Turks and Caicos Islands) as well as the USA and Israel, with 2 days of talks and two days of hands on demonstrations of the latest reef restoration techniques. Funding was provided by USAID.

Discovery Bay Marine Laboratory

Eight UWI courses were facilitated at DBML along with three UWI graduate students and two Post Doctorial students. One Life Sciences MSc course was run out of the Laboratory (mounted by Dr. M. Webber and Dr. D. Buddo). The Invasive Species Laboratory with its new National Lionfish project has attracted four applications for graduate research. So far one graduate student has been accepted to be supervised by Dr. D. Buddo, with co-supervision by Dr. K. Aiken. The DBML had one UWI 'graduate student in residence' in 2008/2009 co-supervised by Dr. M. Webber and Dr. D. Buddo funded by the EFJ Ballast Water Project. In addition, three overseas graduate students and five overseas Post Doctorial researchers were facilitated at the DBML.

Staff developments and Research activity highlights

The department was proud to support the promotion of Dr. Dale Webber to the rank of Professor. Life Sciences academic staff were heavily involved in the administration of the Faculty of Pure and Applied Sciences with three members; Professor Ralph Robinson, Professor Dale Webber and Dr. Mona Webber holding the posts of Deputy Dean and Associate Deans respectively.

Dr. Nouredine Benkeblia continued publishing extensively in his research area and was recognized internationally by his appointment to the editorial board of several international journals. Dr. Byron Wilson also maintained a substantial international profile through his work on Jamaica's threatened herpetofauna and was successful in attracting funding from a variety of sources to support this.

Dr Paula Tennant was the recipient of the Principal's Research Day award in the category of Best Researcher and Dr. Judith Mendes received the award for the Research Project attracting the most funds titled "Caribbean Reef Education and Training Initiative", Research Day 2010.

Achievement of 2008/9 targets

Three of the four targets set in the last report were achieved or partially achieved. As already stated the MATE MSc programme was successfully

implemented. The opening of the Biodiversity Centre at PRML helped to expand facilities there and as outlined above changes were made to improve infrastructure in the Department of Life Sciences. In addition, it is clear that throughput of graduate students registered for research degrees has markedly improved this academic year.

Research Output

In 2009-2010 the research output of the department consisted of 22 referred publications, 1 patent, 8 conference presentations (a number of which were given at international conferences overseas) and 8 technical reports/non-refereed articles. The publication rate of a few individuals is particularly impressive, but some persons are not publishing as they should. The crude average, based upon 16 academic staff at Mona and 4 at Scientific Officer level or above, a total of 20 staff, gives an average of 1.85 publications per staff member when all categories of publications are considered. This is comparable to the 1.8 recorded in the 2008-9 Departmental report. The research output in terms of refereed journal papers of 0.85 in 2008-9 has also improved to 1.15 in 2009-10.

Course Development

The Department was again not able to continue the curriculum development to the Level 2 and 3 courses. However, the Level 1 courses were re-visited with the resultant creation of four 3-credit courses across the two semesters.

Research based targets

The number of research based Journal articles did not increase significantly in 2009-10 but the quality of publications and the numbers of staff involved showed improvement, with papers appearing in Journals like *Estuarine, Coastal and Shelf Science* (JIP= 2.462) and 15 of the 20 staff producing the articles.

Targets for 2010-11

- To conduct curriculum reform of the entire advanced programme in the DLS.
- To review and revise the existing Graduate programmes so as to improve teaching and learning as well as income generation.
- To improve the quality of the infrastructure and increase space in the DLS for the delivery of quality teaching and research.
- To increase the quantity and quality of staff publications
- To continue to conduct research of national importance and ensure that the general populace is made aware of its significance by engaging in outreach activities.

PAPERS PRESENTED

- Passley, D., **Aiken K.A.** & G-A. Perry. First characterisation of the Jamaica spearfishing sector. 62nd Annual Gulf & Caribbean Fisheries Institute, Cumana, Venezuela, 5-10 Nov. 2009; 7pp
- Steen, Sanya, **Jane Cohen** and **Noureddine Benkeblia**. Effects of the Plant Growth Regulator ‘StimulateTM’ on some Postharvest Qualities of Tomato Grown in Tropical Greenhouse. VI International Postharvest Symposium, 8-12 April 2009, Antalya, Turkey.
- **Peter Gayle**. DBML Coral Gardening, USAID Pan Caribbean Reef Restoration Workshop, Jun 2010
- Lindo JF, Waugh C, Todd C, Brown P and **Robinson RD** (2010). The emergence of *Angiostrongylus cantonensis* as a cause of eosinophilic meningitis in Jamaica: Progress and pitfalls. Proceedings of the International Symposium on Angiostrongylus and Angiostrongyliasis. (April 8-9, 2010), Bangkok, Thailand. p. 12.
- **Robinson RD** (2010). Teaching Ethics: Incorporating Ethics into an Undergraduate Science Curriculum. 4th Annual Forum

of the Bioethics Society of the English-Speaking Caribbean, Georgetown, Guyana (May 27-28, 2010). *Bioethics Caribe* 4: 2pp.

- Olarte Castillo XA, Rojas Y, **Tennant P**, Fuchs M, Sierra R, Bernal AJ, Fermin G and S. Restrepo S (2010) Origin, evolution and molecular epidemiology of *Papaya ringspot virus*. Plant Viruses Exploiting Agricultural and Natural Ecosystems. 11th International Plant Virus Epidemiology Symposium and 3rd Workshop of the Plant Virus Ecology Network. Cornell University, Ithaca, New York, June 20-24, 2010.
- **Wilson, B. S.**, and R. van Veen. 2009. Taxon report for Jamaican Iguana, Annual meeting of the IUCN Iguana Specialist Group, in Dominica.
- **Robinson, R.**, and **B. S. Wilson**. 2009. Conservation – an ethic of resource use, allocation, and protection. 3rd Annual Bioethics Forum, Bioethics Society of the English-Speaking Caribbean. St. Augustine, Trinidad (UWI), June 5, 2009.
- **Robinson, R.** 2010. Teaching ethics: Incorporating Ethics into an Undergraduate Curriculum. “An Ethical Pathway to Universal Access to Health: The Role of Rights, Citizens and Science” 4th Annual Bioethics Forum, George Town, Guyana, May 2010.

PUBLICATIONS

- * **Aiken, K.A.** & G-A. Perry. 2009. “Fish nurseries in Kingston Harbour - do they still exist?” *Proceedings 61st Annual Gulf & Caribbean Fisheries Institute*, Guadeloupe, French West Indies, Nov. 2009; Fort Pierce, Florida :303-313
- * **Tennant, P.** and **Benkeblia, N.** (Guest Editors) (2009). *Citrus 3. Tree and Forestry Science and Biotechnology*. GSB Publisher, Isleworth (UK), 3(2), Pp. 1-142.
- * **Benkeblia, N.** and Shiomi N. (2009). 6th International Fructan Symposium Proceedings. *Dynamic Biochemistry, Process Biotechnology and Molecular Biology*, GSB Publisher, Isleworth (UK), Pp. 1-101.

- * Yojiro, I, Shuichi, O, **Benkeblia, N.** and Shiomi, N. (2010). Variation of sucrose hydrolase, 1-kestose hydrolase, inulin hydrolase, 1-SST and 1-FFT in burdock root stored under different temperatures. *Postharvest Biology and Technology* 52: 232-238.
- * Yojiro, I, Shuichi, O, Taiki, Y, Shinichi, K, **Benkeblia, N.** and Shiomi, N. (2010). Variation of 1-kestose, nystose and higher fructooligosaccharides in burdock root stored under different temperature regimes. *Agriculture and Biology Journal of North America* 1(4): 491-494.
- * **Boyd, F.** & DeviPrasad, P.V., 2009. The Effects of *Anabaena variabilis* on the Development of Rice plants in Jamaica. *Jamaican Journal of Science and Technology* 19-20: 20-30. ISSN: 1016-2054.
- * **Boyd, F; Tennant, P.; Robinson, D.;** McLaren, I., 2008. Student Perceptions and Outcomes of a WAC Intervention Exercise in an Introductory Biology Course. *Caribbean Journal of Education* 30(2):217-247. ISSN: 0376-7701
- * **Boyd, F.** & DeviPrasad, P.V., 2008. Effect of Cyanobacterial Inoculation and Inorganic Fertilizer on Rice Yields in Jamaica. *Tropical Agriculture, (Trinidad)* 85(2): 112-119.
- * **Gayle, P.M.H.,** B.H. Charpentier, O. Spence 2010. The Jamaican CARICOMP Site: using a temporal data set to assist in managing coastal resources. *Revista Biol de Tropical*, Vol. 58: 63-69.
- * Chai, S.L., E.V.J. Tanner & **K.P. McKLaren** (2009). High Rates of Forest Clearance and Fragmentation Pre- and Post-National Park Establishment: The Case of a Jamaican Montane Rainforest. *Biological Conservation*, 142: 2484 - 2492.
- * **Robinson RD** (2009). What to look for under the sea. Ramsay PA, Harding VA, **Cools JA & McLaren IA** (2009) "Blooming with the pouis: a rhetorical reader for Caribbean tertiary students." Chapter 20 (pp. 95-97). Ian Randall Publishers.

- * Bennett S, **Tennant** P, Mc Laughlin W (2010) First report of *Hop stunt viroid* infecting citrus orchards in Jamaica. *Plant Pathology* 59: 393
- * Fisher L, **Tennant** P, Mc Laughlin W (2010) Detection and characterization of *Citrus tristeza virus* stem pitting isolates in Jamaica. *European Journal of Plant Pathology* 127: 1-6.
- * Powell M, Wheatley A, Omoruyi F, Asemota H, Williams NP, **Tennant** PF (2010) Comparative effects of dietary administered transgenic and conventional papaya on selected intestinal parameters in rat models. *Transgenic Research* 19: 511-518.
- * Maxam, A.M. and **D.F. Webber**. 2010. The influence of wind-driven currents on the circulation and bay dynamics of a semi- enclosed reefal bay, Wreck Bay, Jamaica. *Estuarine, Coastal and Shelf Science*. Vol. 87 pp 535-544.
- * McLaren, I. and **D.F. Webber**. 2009. Writing right: Enhancing student engagement and performance in an Ecology course. *International Journal of Environmental and Science Education*. Vol.4 (4) pp.365-380.
- * Maxam, A.M. and **D.F. Webber**. 2009. Using the distribution of physicochemical variables to portray reefal bay waters. *Journal of Coastal Research*. Vol. 25 (6) pp.
- * Persad, G. and **Webber, M.** (2009). The use of Ecopath software model trophic interactions within the zooplankton community of Discovery Bay, Jamaica. *The Open Marine Biology Journal*, 2009, 3:95-104.
- * **Wilson, B.S.**, Koenig, S.E., van Veen, R., Miersma, E., and D.C. Rudolph. 2010. Cane toads a threat to West Indian wildlife: mortality of Jamaican boas attributable to toad ingestion. *Biological Invasions*, June 2010.

- * Lewis, D.S., van Veen, R., and **B.S. Wilson**. 2010. Conservation implications of small Indian mongoose (*Herpestes auro punctatus*) predation in a hotspot within a hotspot: the Hellshire Hills, Jamaica. *Biological Invasions*, May 25, 2010.
- * Newman, M.E., **K.P. McLaren** and **B.S. Wilson**. 2010. Use of object-oriented classification and fragmentation analysis (1985 - 2008) to identify important areas for conservation in Cockpit Country, Jamaica. *Environmental Monitoring and Assessment*, February 10, 2010.
- * Rheubert, J.L., **Wilson, B.S.**, Wolf, K.W., and K.M. Gribbins. 2010. Ultrastructural study of spermiogenesis in the Jamaican Grey Anole, *Anolis lineatopus* (Reptilia: Polychrotidae). *Acta Zoologica*, February 26, 2010.
- * Gribbins, K.M., J.L. Rheubert, E.H. Poldemann, M.H. Collier, **B. Wilson**, and K. Wolf. 2009. Continuous spermatogenesis and the germ cell development strategy within the testis of the Jamaican Gray Anole, *Anolis lineatopus*. *Theriogenology* 72:484-492

Patents Awarded

United States Patent #7,709,534 awarded May 4, 2010

“Medicaments for the treatment of Strongyloides stercoralis infections”

Inventors: Wayne Forbes, **Ralph Robinson** & Paul Reese

Assignee: The University of the West Indies, Mona

Technical reports and Non-refereed Articles

- * **Benkeblia, N.** (2010). Horticulture in Jamaica. *Chronica Horticulturae* 50: 25-29
- * **Creary, M.** 2010. Coastal and Marine Environment: UWI Thesis Inventory. A review of the theses on the Jamaican coastal

and marine environment. Centre for Marine Sciences, UWI.
54pp

- * **M. Creary**, T. Edwards 2010. Status of coral reefs in the Drivers River Watershed, East Portland, Jamaica. March 2010. Prepared for the National Environment and Planning Agency/Global Environment Facility-Integrating Watershed and Coastal Areas Management Project (NEPA/GEF-IWCAM). 74 pp
- * **M. Creary**, T. Edwards 2010. Status of coral reefs in the Drivers River Watershed, East Portland, Jamaica. March 2010. Benthic community identification for The Driver River Watershed. Prepared for the National Environment and Planning Agency/Global Environment Facility-Integrating Watershed and Coastal Areas Management Project (NEPA/GEF-IWCAM). 22pp
- * **D. Buddo** and D. Lee 2009. Baseline Survey of the Fisheries Sector in *CARICOM – 13 Participating Countries – Final Report* sent to the CARICOM Regional Fisheries Mechanism (CRFM), December, 2009.
- * **D. Buddo** 2009. Marine Ecological Assessment of Little Bay, Montserrat as part of an EIA for the development of a new port post-destruction of the volcano
- * **D. Buddo** 2010. Assessment of Capacity-Building Needs for the Convention on Biological Diversity Capacity and Needs for Taxonomic Knowledge – Final Report submitted April, 2010 to the National Environment and Planning Agency.
- * **D. Buddo** and D. Lee. 2010. Expansion, Consolidation and Strengthening of Marine Protected Areas Network in the Organization of Eastern Caribbean States – Draft Report: July, 2010

Income Generation

Dr. Karl Aiken secured a consultancy for the project “Improving Jamaican Agricultural Production (IJAP)” Ministry of Agriculture & Fisheries with IICA Jamaica, 5TH Workshops in Fisheries Management, May, 2010.

Mr. Peter Gayle, Principal scientific officer, DBML has secured a Project funded by the UWI under the New Initiative Grant “South Coast Diving Fisher DCS Project” (J\$1.8M)

Ms. Marcia Creary Environmental Data Officer in CMS analyzed data and prepared reports on the “Status of coral reefs in the Drivers River Watershed, East Portland, Jamaica” for the NEPA/GEF-IWCAM project. (US\$7,400)

Dr. Dayne Buddo and Dr. Karl Aiken secured funding to make CMS the Lead Agency for the 4-year National Lionfish project (US\$431,000.)

Dr. Dayne Buddo, Academic coordinator, DBML with Dr. Ava Maxam, has secured a Project funded by the UWI under the New Initiative Grant. “Ballast Water Risk Management” Project is endorsed by the International Maritime Organization. (\$1.5M)

Dr. Dayne Buddo secured a World Bank and The Nature Conservancy consultancy: – Marine Protected Areas (MPA) Project for five countries in the Organization of Eastern Caribbean States (OECS) (US\$ 23,500)

Dr. Byron Wilson

- MacArthur Foundation (\$340,000U.S; Co-PI, with PI. **K. McLaren**).
- Environmental Foundation of Jamaica (\$3,349,300JA; PI with Co-PI **K. McLaren**)
- Mohamed bin Zayed Conservation Fund (\$25,000U.S.; submitted through IUCN-ISG)
- Forest Conservation Fund (\$12,372,000JA; Co-PI with PI **K. McLaren**)

- Mohamed bin Zayed Species Conservation Fund (\$4,981U.S.; Co-PI with PI M. Welsh)
- Beneficia Foundation (\$10,000U.S.; Co-PI with R. Hudson)
- Global Environmental Foundation (\$178,245U.S.; PI with Co-PI K. McLaren; project implemented through UNEP, CABI, and NEPA)

Dr. Dale Webber

- Caribbean Community Centre for Climate Change grant to initiate a International Coral Observatory Network Station at the Discovery Bay Marine Laboratory. Value US\$105,000
- Discovery Bay Marine Laboratory has secured US\$135,000 to replace the Crews (environmental monitoring) station with an ICON station.

PUBLIC SERVICE

Dr Karl Aiken

- Member of Board of Directors & Chair, Caribbean Maritime Institute (CMI), CMI Academic Council)
- Member, CITES Scientific Authority of Jamaica
- Board Member, Fisheries Advisory Board of Ministry of Agriculture & Fisheries
- Member & Chair, Fish Sancturries sub-committee

Dr. Nouredine Benkeblia

- Member, Editorial Board of the Journal:
- *Serial Editor* of Potato Issues
- *Serial Editor* of Citrus Issues
- Chairperson, SERT (Roots and Tubers Section), **ISHS**

Mr. Frederick Boyd

- Member, Standards Subcommittee, Jamaica Organic Agricultural Association (JOAM)

Dr. Dayne Buddo

- National coordinator, Marine Invasive Group NEPA

Dr Jane Cohen

- Member, Scientific Authority (CITES) of Jamaica
- Member, Alien Invasive Species Working Group of Jamaica

Ms. Marcia Creary

- President, Jamaica Institute of Environmental Professionals
- Member, Caribbean Academy of Sciences
- Member, International Society for Reef Studies
- Node Coordinator, Northern Caribbean and Western Atlantic Node, Global Coral Reef Monitoring Network (GCRMN)
- Vice-Chairperson, Jamaica Clearing House Mechanism (JaCHM) Steering Committee
- Member, Steering Committee, Biodiversity Add-on Project
- Member, National Ambient Marine Water Quality Standards Committee

Mr. Peter Gayle

- Member, Diving sub-group of the working group on Fisheries Management and related matters of the National Council on Oceans and Coastal Zone Management.

Dr. Kurt McLaren

- Member, Board - Forestry Department.

Professor Ralph Robinson

- Board of Directors, Jamaica Agricultural Development Foundation
- Member, National Committee to Develop Guidelines for the Aquaculture Industry in Jamaica
- Member, National Shrimp Aquaculture Policy Sub-Committee
- Scientific Member, The National Bioethics Committee of Jamaica

Dr. Kisan Vaidya

- Member, Gene Bank Committee, Jamaica
- Member, Review Committee (Agriculture related articles) of the Jamaican *Journal of Science and Technology*

Dr. Dale Webber

- President, Tornadoes Swimming Club.
- Deputy Chairman, Mona Preparatory School Board of Governors.
- Chairman and NGO Member, Board of Directors, Environmental Foundation of Jamaica.
- Council Member, The Jamaica Institute of Environmental Professionals (JIEP)
- Reviewer, Elsevier Science Publishing (Environmental Science and Policy)
- Member, National council on Ocean and Coastal Zone Management (NCOCZM) Ministry of Foreign Affairs and Foreign Trade.
- Member, Editorial Board of the Jamaica Institute of Environmental Professionals (JIEP)

Dr. Mona Webber.

- Member, CITES (NEPA) committee on endangered species.
- Member, Caribbean Academy of Sciences, Jamaican Chapter.
- Member, National Ramsar committee (NEPA).
- Member, Association of Marine Laboratories of the Caribbean.
- Member, Science and Technology Advisory Committee of the Jamaica National Commission for UNESCO.
- U.W.I. representative, National Environmental Education Committee.

Dr. Byron Wilson

- Member, Working Group on Invasive Species, NEPA
- Member, IUCN SSC Iguana Specialist Group
- Member, IUCN SSC Amphibian Specialist Group

Income

Activity/Programme	Earning
Lab space rental	\$ 644,000.00
Sale of lab manuals	\$ 848,555.00
Summer School	\$4,000,111.00
DLS consultancy	\$ 16,240.00
Grants and donations	\$ 62,240.00
Port Royal consultancy	\$ 67,800.00
Documentation Centre	\$ 291,000.00
MSc Programmes	\$2,380,345.29

CATEGORIES OF STUDENTS

Undergraduate numbers:

Preliminary (Year 0)	–	72
Introductory (Level I)	–	566
Advanced (Level II)	–	175
Advanced (Level III)	–	103

Class of Degrees 2009/2010 Graduates

I 0

II i 14

II ii 49

Pass 21

Total 84

Types of Degrees 2009/2010 Graduates

1 Botany Major 4

2 Zoology Major 19

3 Marine Biology Major 5

4 Experimental Biology Double Major 18

5 Environmental Biology Double Major 25

6 Biology with Education 2

7 Microbiology major 9

Total 84

Student Prizes

Preliminary Biology Prize

Ms. Te'Anne Chisholm

First Year Biology

Ms. Nashokia Guyah

(2 candidates)

Mr. Canute Ricketts

Dr. Devi Prasad Prize

Ms. Tiffany Campbell

Avinash Potluri Prize

Mr. Isaac Morrison

Second Year Zoology Prize

Ms. Dominique Fearon

LB Coke Prize in Plant Physiology

Mr. Brahim Diop

Dr. Sasikala Potluri Prize

Mr. Brahim Diop

Vincent Hugh Wilson McKie award

Ms. Kimberly Salmon