

DEPARTMENT OF LIFE SCIENCES



Professor Paula Tennant BSc *UWI*, PhD *Cornell University*
Head of Department

WORK OF THE DEPARTMENT

Undergraduate Programmes

The numbers of students enrolled in Level 1 Life Sciences courses in 2014/15 were maintained at the high levels we have been experiencing over the past six years. In all, 571 students were enrolled in the Biology courses offered in semester 1 and 557 in courses offered in semester 2. Enrolment at Level 2 decreased by up to 30% and by 20% in the environmental courses. The Level 1 courses saw decreased passes in the 2014/15 academic year. Semester 1 courses (BIOL1017 and BIOL1018) averaged 49 and 56% pass, respectively, while semester 2 courses (BIOL1262 and BIOL1263) averaged 62% and 40%. Passing rates in previous years have fluctuated around an average of 60%-70%. The performance of students at Level 2 improved or was close to the historical precedent (45-100%). Percentage passes of 62% and higher were obtained with most the courses (78%) at level 3. While the distribution of

percentage passes across the courses is comparable to that under the previous GPA scheme, faculty and students are still accommodating the revised GPA scheme. As regards the 2014-15 graduating class, 108 graduated with BSc degrees in Biology– 5 with first class honours and 22 with upper second class honours.

This past year DLS offered the amended B.Sc. single majors and minors including a new minor in Coastal Ecosystems and two courses, BIOL3410 Water Pollution and Vertebrate Biology ZOOL3405, which were developed under the 2010/11 curriculum reform. The Department continued its curriculum review process in 2014/15; this in an effort to strengthen the programmes and provide students greater flexibility in completing their courses of study. The core courses and electives of the single major in Horticulture were reviewed and additional electives were added to the BSc Environmental and BSc Experimental Biology. Approvals are to be acquired for first offering in 2016/17.

Summer School

The DLS summer school was efficiently managed by our summer school coordinator, Dr. Gale Persad. A total of 332 students registered for and sat 39 courses. All courses were ‘MEX exams-only’ sittings of previously offered courses. Summer School continues to provide the opportunity for students to recover from failure, thus completing their degree in a timely manner and has also become a source of income generation for the Department. Overall performance at levels 1 (40-59% pass), 2 (50-100% pass) and 3 (60-100% pass) was found to be similar to that of students in the normal semesters. The summer semester facilitated the offering of the courses, Diving for Scientists and Internship. Some 26 students, registered in the latter course, were placed in organizations across the island as well as in Trinidad and the Bahamas. The programme was coordinated by Dr. Eric Garraway, who did an excellent job along with Dr. Persad and Mrs. Debbie Ann Brown. Five students registered for research projects over summer.

Taught Graduate Programmes

Cohorts of 3 and 29 (2013/14, 2012/13, 2011/12) students are pursuing MSc Degrees in MaTE and Agricultural Entrepreneurship, respectively. As in 2012/2013, the revised MSc in Plant Production and Protection (PPP) was not offered due to low enrolment. The department is in the process of reorganizing the programme which will involve a change in the name to improve marketability and a change in the structure of the programme to increase its compatibility with other MSc programmes offered in the Faculty.

Graduate Research Programmes

One new PhD and 4 new MPhil students joined the department at the start of the 2014/15 academic year. Two MPhils successfully upgraded to PhDs and four PhD and 3 MPhil students completed degrees. The Department was recognized by the Mona Research and Publications and Graduate Awards Committee and the Office of Graduate Studies and Research for outstanding performance in the development of Research Students in the academic year 2013-2014.

Research Output

During 2014/15, DLS' research output consisted of 31 conference presentations 34 referred publications, and 1 non-refereed article/technical report. The crude average, based on 14 academic staff and 4 at Principal Scientific Officer level or above, a total of 18 staff producing in these categories, gives 3.7 publications per staff member when all categories of publications are considered (total = 66). Last year 2013/2014, the average was at 2.7 and the year before 2012/2013, 2.2. Of note, the impact factors for the journals published range up to 2.73.

Six oral presentations and six posters were presented by graduate students at the 10th Faculty conference. Research projects of our undergraduate students were also recognized at the Faculty conference. Five posters were presented. The prize for the Best Undergraduate Poster went to

Zoe Gordon who was supervised by Dr. Eric Hyslop. Nasheika Guyah was given honourable mention on her oral presentation at 38th Annual Larval Fish Conference, in Canada, by the judging committee for the Sally-Richardson Award which is given to the best student oral presentation. Nasheika competed against 29 students from across the United States, Canada, Asia and Europe, and placed second. She is supervised by Dr. Mona Webber. In total, there were ten graduate student publications in peer reviewed journals during the reporting period. Minke Newman was recognized as producing the Best Research Publication (Article) (Jointly with Supervisors) from The Mona Research and Publications and Graduate Awards Committee in collaboration with the Office of Graduate Studies and Research. Dr. Newman was supervised by Dr. Kurt McLaren and Professor Byron Wilson.

Staff Matters

The Department continues to struggle to maintain the necessary complement of permanent, full-time lecturing staff in the face of losses due to retirement, resignation and secondment. Staff including scientific officers, technicians, gardeners and other ancillary staff must be commended for rising to this challenge and that of increased numbers of students coupled with curriculum changes.

The 2014/15 academic year saw the promotion of Dr. Dwight Robinson to the rank of Senior Lecturer. Drs. Mona Webber and Kurt McLaren returned from their sabbatical year in August 2014. The department said farewell to Ms. Joan Evans, Senior Laboratory Technologist, who retired in April 2015 after 35 years of service to the University. Six members of staff were recognized for their long service to the UWI in December, 2014. Ms. Daphne Cooper, Annmarie Hosang, Theresa Fuller and Suzette Robinson for 15 years of service, Dr. Margelette Ellis-Tabanor for 21 years, and Mr. Windell Christie for 30 years.

Special awards were presented to Prof. Dale Webber, Dr. Mona Webber, and Dr. Karl Aiken at the Faculty Awards ceremony held in March 2015. Dr. Mona Webber and Prof. Dale Webber (along with Dr. Kevon

Rhiney from the Department of Geography & Geology) were among the outstanding researchers recognised for the Research Project with the greatest business/economic development impact. Congratulations were extended to Dr. Aiken on his being awarded a Silver Musgrave Medal by the Institute of Jamaica for distinguished eminence in the field of Science. The award was presented by the Institute in October 2014. Mr. Garcia Gayle and Ms. Patrice Francis were presented special awards in recognition of their outstanding service and contributions to the Port Royal Marine Laboratory and the Centre for Marine Sciences, respectively. Dr. Webber's contributions to wider Jamaica were recognized on International Women's Day. Dr. Webber was among nine women awarded the Women's Leadership Initiative 2015 International Women's Day Award. The ceremony 'Paying it forward' was held in March 2015. Prof. Byron Wilson received the 2014/2015 Vice-Chancellor's Award for Excellence.

Port Royal Marine Laboratory (PRML)

The Port Royal Marine Laboratory (PRML) continued to support teaching, research and outreach on the Campus by hosting UWI undergraduate and MSc classes, research students and staff from various departments. More than half of the courses offered in Life Sciences were provided with specimens for laboratory classes confined to the campus due to size or the need for specialist equipment. In addition, PRML hosted the course BIOL2408 (Diving for Scientists) in June 2015 and accommodated three Interns registered in the Internship course BIOL3412. More than six researchers or research students were supported during the period. PRML research projects focused on baseline surveys of vulnerable and impacted mangrove forest areas around Jamaica. Workshops on mangrove assessment and replanting techniques were conducted for NGO groups in the areas adjacent to the forests and basic sampling equipment (purchased under the project) were given to the NGOs for future monitoring. Replanting of 6,396 mangrove and 50,000 sand dune plants along the Palisadoes roadway was conducted under the Palisadoes Vegetation Restoration Project. Another project with The US

Dept of the Interior saw to the installation of renewable energy systems at PRML in July 2015. PRML participated in 24 onsite or offsite outreach activities for the year reaching over 3,000 members of the public including the annual Marine Mania Summer camps over two weeks to children during the summer period (July 13–24, 2015). Forty children from ages 5–9 and 10–14 were hosted in successive weeks. Other outreach activities included setting up a display at Caribbean Maritime Institute for Maritime Awareness Week (September 24 & 25, 2014), World Wetlands Day activities with Port Royal Primary school and Mico Practising Primary & Junior High School, and a beach clean-up with JMMB at the Port Royal bathing beach on Labour Day (May 23, 2015).

Centre for Marine Sciences (CMS)/Discovery Bay Marine Laboratory (DBML)

The Centre for Marine Sciences (CMS)/Discovery Bay Marine Laboratory (DBML) continued to fulfil its mission of engaging in research, training and outreach in Caribbean Marine Sciences. The CMS/DBML experienced a highly productive year with 1 book chapter, 11 journal articles and 1 technical report based on work from in-house science staff and graduate students. The research programme continued to develop with some pre-existing projects such as the monitoring of NORANDA Maintenance Dredging activities, establishing a Seagrass Nursery and Phase 1 of the Palisadoes (mangrove and sand dune) Rehabilitation project being brought to completion. Others such as Coral and Mangrove Nurseries and Coastal Ecosystem Rehabilitation projects were expanded to generate an increased number of seedlings/fragments or to accommodate more sites around the island. A variety of new projects/consultancies were implemented – monitoring of an artificial reef (ECOREEF) installation (J\$6.5M); Coral Resilience studies (IDB- J\$39M); and the US Dept. of the Interior Renewable Energy Project J\$23M) which provided for the greening of DBML by the installation of a photovoltaic system, wind turbines and solar water heaters that immediately reduced the electricity bill by 36%. Teaching duties continued with the delivery of the courses, Principles of Ecology (BIOL2403), Diving for Scientists (BIOL2408),

Sustainable Use of Fisheries Resources (ZOOL3408), Caribbean Coral Reefs (BIOL3409) and Marine Invasive Alien Species (BIOL6420) - for both undergraduate and post graduate students. More than 6,000 individuals benefited from the Lab's Outreach programme through site visits or offsite displays organized by the Scientific Officers. Eco Camp 2015 recorded the greatest number of campers to date. One hundred and twelve youngsters spent 3 weeks learning about sources of alternative and renewable energy.

PAPERS PRESENTED

- Aird R, J Cohen. "Benefits to maize grown in pots with nitrogen-fixing mucuna or cowpea rhizobial associations". 10th conference of the Faculty of Science and Technology. Mona, Kingston, June 9–11, 2015. Poster.
- Benkeblia N. "Free radical scavenging capacity and antioxidant properties of ribena (*Syzygium cumin*) during ripening". 29th International Horticultural Congress in Brisbane, Australia, August 17–22, 2014. Oral.
- Benkeblia N. "Free radical scavenging capacity and antioxidant properties of collie plum (*Ziziphus mauritiana*) during ripening. 29th International Horticultural Congress in Brisbane, Australia, August 17–22, 2014. Poster.
- Benkeblia N. "Logistics challenges for small and medium scale food processing units (SMS-FPU)". Workshop on Technologies shaping the future of value addition and reducing food losses at small and medium scale level: Sharing experience through South-South Cooperation, Stellenbosch University, Cape Town, South Africa, July 27–28, 2015. Oral.
- Benkeblia N. "Variation of starch, total phenolics contents, and reducing and total sugars in unripe and ripe jackfruit (*Artocarpus heterophyllus*) and West Indian locust (*Hymenaea corbarol*) fruits". 29th International Horticultural Congress in Brisbane, Australia, August 17–22, 2014. Poster.

- Brown R, S Lyew, G McCook, **D Robinson**. “The efficacy of a local strain of *Beauveria bassiana* against a Blue Mountain, Jamaica population of the coffee berry borer, *Hypothenemus hampei* (Ferrari)”. 25th International Conference on Coffee Science. Armenia, Colombia, September 8–13, 2014. Poster.
- Commock T, **P Rose**, J Francisco-Ortega, B Jestrow. “Conservation status and taxonomic updates for the Jamaican endemic genus, *Dendrocousinsia* (Euphorbiaceae)”. 10th conference of the Faculty of Science and Technology. Mona, Kingston, June 9–11, 2015. Poster.
- Dale R, M Taylor, **J Cohen**, A Coy, T Stephenson, L Simpson. “Towards Enhancing Sustainable Agriculture in the Caribbean in a Changing Climate.” 51st Annual Caribbean Food Crops Society Meeting, Paramaribo, Suriname, July 19–24 2015. Oral.
- Dale R., M Taylor, **J Cohen**, A Coy, T Stephenson, L Simpson. “Climate change and future Food Security: The Impacts on Root and Tuber Crops.” Climate Smart Agriculture Symposium, Jamaica Rural Economy and Ecosystems Adapting to Climate Change (JaREEACH), Kingston, Jamaica, July 16, 2015.
- Franklin T, **E Hyslop**. “The effect of variations in salinity on the composition of the benthic macroinvertebrate community of Salt River, Clarendon, Jamaica”. 10th conference of the Faculty of Science and Technology. Mona, Kingston, June 9-11, 2015. Poster.
- Gayle P, A Thorhaug. “Jamaica: Persistence of Seagrass restoration sites in the Tropics”. Joint meeting of Restore America’s Estuaries: 7th National Summit on Coastal & Estuarine Restoration and 24th Biennial Meeting of The Coastal Society. Washington. DC. November 1–, 2014.
- Gayle P, A Thorhaug. “Jamaica: Persistence of Seagrass restoration sites in the Tropics”. Joint meeting of Restore America’s Estuaries: 7th National Summit on Coastal & Estuarine Restoration and 24th Biennial Meeting of The Coastal Society, Washington. D.C., November 1–6, 2014.

- Golaub N, **P Rose**. “Knowledge, attitude and practices survey regarding safety in the laboratory among undergraduate students in the Department of Life Sciences at the University of the West Indies, Mona Campus. 10th conference of the Faculty of Science and Technology. Mona, Kingston, June 9–11, 2015. Poster.
- Goodwin S, **E Hyslop**. “A study of the benthic macroinvertebrate fauna of high altitude rivers in central Jamaica”. 10th conference of the Faculty of Science and Technology. Mona, Kingston, June 9-11, 2015. Poster.
- Gordon Z, R Robinson, P Ricketts, M Voutchkov, **E Hyslop**. “Analysis of metal and radionuclide content of the muscle of three species of fishes”. 10th conference of the Faculty of Science and Technology. Mona, Kingston, June 9–11, 2015. Poster.
- Gray A, **K Vaidya**. “The effect of inorganic nitrogen on the yield of pak choy, *Brassica rapa* L”. 10th conference of the Faculty of Science and Technology. Mona, Kingston, June 9–11, 2015. Poster.
- Guyah N, **M Webber**. “Baseline survey of ichthyoplankton in coastal marine reserves: implications for Jamaica’s fish stock”. 38th Annual Larval Fish Conference. Quebec, Canada, August 17-21, 2014. Oral.
- Henry D, C Trench, P Gayle. “Seagrass Stabilization: A Technique for Coastal Zone Rehabilitation”. Association of Marine Laboratories (AMLC) Scientific Meeting, Curacao, May 18–22, 2015. Oral
- Johnson J. “Host-Parasite and Diet Relationships in the Invasive Cane Toad, *Rhinella marina* (Anura: Bufonidae) in Jamaica”. 10th conference of the Faculty of Science and Technology. Mona, Kingston, June 9–11, 2015. Oral
- Kitson-Walters K, M Roye, **M Webber**. “Assessing the Genetic Connectivity of the Queen Conch, *Strombus gigas* in the Jamaican Fishery”. 10th conference of the Faculty of Science and Technology. Mona, Kingston, June 9–11, 2015. Oral
- Lewis P, **J Cohen**. “Floristics of Four Jamaican Dry Limestone Forests”. 10th conference of the Faculty of Science and Technology. Mona, Kingston, June 9–11, 2015. Poster.

- Lindo A, **D Robinson**, **P Tennant**. “Characterization of genetically unique cocoa (*Theobroma cacao*) genotypes located at Orange River germplasm collection, St. Mary using quantitative pod traits”. 10th conference of the Faculty of Science and Technology. Mona, Kingston, June 9-11, 2015. Oral
- Myrie A, **P Rose**. “A historical review of the flora of Peckham woodland, Clarendon, Jamaica. 10th conference of the Faculty of Science and Technology. Mona, Kingston, June 9-11, 2015. Poster.
- O'Connor A, **D Robinson**, T Dasgupta, K Drouillard. “Bioaccumulation of persistent organic pollutants in oysters and green mussels from southeastern Jamaica”. 10th conference of the Faculty of Science and Technology. Mona, Kingston, June 9-11, 2015. Oral
- O'Connor A, **D Robinson**, T Dasgupta, K Drouillard. “Steady state bioaccumulation of polychlorinated biphenyls in Atlantic sea bream (*Archosargus rhomboidalis*)”. 10th conference of the Faculty of Science and Technology. Mona, Kingston, June 9-11, 2015. Poster
- Oliphant Z, **E Hyslop**. “Determination of biomass and productivity, population dynamics and functional feeding categories of Benthic Macroinvertebrates in eight high altitude ponds (St. Ann, Jamaica)”. 10th conference of the Faculty of Science and Technology. Mona, Kingston, June 9-11, 2015. Oral
- **Rose P**, D Webber. “The Development and Future of the Jamaican Virtual”. Annual Museums Association of the Caribbean General Meeting and Conference. Mona, Kingston, November 16-19, 2014. Oral.
- Sewell S, **K Vaidya**. “The influence of plant density on the yield of red pea, *Phaseolus vulgaris*. 10th conference of the Faculty of Science and Technology. Mona, Kingston, June 9-11, 2015. Poster.
- Smith T, F Murray, **J Cohen**. “Rapid multiplication of cassava planting material: preliminary use of the multiple shoot removal technique on improved varieties new to Jamaica”. 10th conference of the Faculty of Science and Technology. Mona, Kingston, June 9-11, 2015. Oral

- Thomas L, **P Tennant**. “Diversity of pathogens associated with pumpkin (*Cucurbita pepo*) during commercial production”. 10th conference of the Faculty of Science and Technology. Mona, Kingston, June 9–11, 2015. Poster.
- Thomas S, C Trench, **M Webber**. “Assessment of Initial Seedling Growth, Survival and Natural Seedling Recruitment at a Mangrove Restoration Site in West Falmouth, Trelawny, Jamaica. 10th conference of the Faculty of Science and Technology. Mona, Kingston, June 9–11, 2015. Poster.
- Welch M, R Carreras De Leon, G Colosimo, G Gerber, T Grant, C Knapp, J Martin, A Rasberry, **B Wilson**. “The costs of small population size in Caribbean Iguanas and anticipating long-term threats to species persistence”. International Union for Conservation of Nature, Iguana Specialist Group, Puerto Ayora, Santa Cruz Galapagos, Ecuador, October 25–27, 2014. Oral.

PUBLICATIONS

Books, Book chapters & Monographs

- **Benkeblia N** (Ed). *Agroecology, Agrosystems and Sustainability*. CRC Press, Boca Raton, FL. 2014, 369 pp.
- **Benkeblia N** (Ed). *Omics Technologies and Crops Improvement*. CRC Press Taylor and Francis Group, Boca Raton, FL. 2014, 370 pp.
- **Benkeblia N**, CA Francis. “Agroecology Application in Tropical Agriculture Systems”. In: *Agroecology, Agrosystems and Sustainability*. N Benkeblia (Ed.). CRC Press, Boca Raton (FL). 2014, 201–220.
- **Benkeblia N**. “Advances in Omics for Improved Onion and Potato Quality”. In *Omics Technologies and Crops Improvement*. Ed N Benkeblia: CRC Press Taylor and Francis Group, Boca Raton, FL. 2014, 253–270.
- **Cohen J**, D Clarke-Harris, A Khan, W Isaac. “Sustainable Management of Invasive Species for Small Island Developing States under Changing

- Climates". In *Impacts of Climate Change on Food Security in Small Island Developing States*. Eds W. Ganpat and W. Isaac. Hershey, Pennsylvania: IGI Global, 2014, 312-360.
- Tripathi S, L Castro, G Fermin, **P Tennant**. "Advances in Papaya Genomics". In *Omics Technologies and Crops Improvement*. Ed N Benkeblia. CRC Press Taylor and Francis Group, Boca Raton, FL. 2014, 219-252.
 - **Webber M, D Webber**, C Trench. "Agroecology for Sustainable Coastal Ecosystems: A Case for Mangrove Forest Restoration". In *Agroecology, Ecosystems, and Sustainability*. Ed N Benkeblia. CRC Press, Boca Raton (FL). 2014, 239-264.

Refereed Journal Articles

- Ainsworth P, **D Webber**. "Breeding Success of the Masked Booby (*Sula dactylatra dactylatra*, Pelecaniformes: Sulidae) at Middle Cay, Pedro Bank, Jamaica". *Revista de Biología Tropical* 62, Suppl 3 (2014):159-167.
- **Benkeblia N**. "Metabolomics and Postharvest Sciences: Challenges and Perspectives". *Acta Horticulturae* 1047 (2014):303-308.
- **Benkeblia N**. "Plant Science: Challenge or Dilemma". *Plant Science Today* 2 (2015):1
- **Benkeblia N**. "Respiration Rate, Ethylene Production and Biochemical Variations of Ackee Fruit Arils (*Blighia sapida* Koenig) Stored Under Three Temperature Regimes". *Postharvest Biology and Technology* 97 (2014): 36-43.
- **Benkeblia N**. "Variation of Total and Reducing Sugars, Total Phenols and Total Anthocyanins in Custard Apple (*Annona reticulata*) During Three on Tree Ripening Stages" *Acta Horticulturae* 1047 (2014):147-151.
- **Boyd F, N Benkeblia**. "*in vitro* Evaluation of Antimicrobial Activity of Crude Extracts of *Pimenta dioica* L. (Merr.)". *Acta Horticulturae* 1047 (2014):199-205.

- Chin D, D Webber, M Webber. "Status of the Coral Reefs in Foul and Folly Bays, Morant Wetlands, South-eastern Jamaica, with emphasis on corals and macroalgae". *Revista de Biologia Tropical* 62, Suppl 3 (2014):39-47.
- Creary Ford M, L Jones Smith, S Green. "The Results of Long Term Coral Reef Monitoring at Three Locations in Jamaica: Monkey Island, Gorgo City and Southeast Cay". *Revista de Biologia Tropical* 62, Suppl 3 (2014):65-73.
- Diop B, Benkeblia, N. "Correlation between Colour, Firmness, Dry Matter, Sugars And Maturity In 'East Indian' Mangoes (*Mangifera indica*)". *Acta Horticulturae*. 1047 (2014):121-126.
- Ellis-Tabanor M, D Robinson, E Hyslop. "Bioactivity of the Alkaloids, Norharman and L-NMethylcrotonosine/Linearisine". *OnLine Journal of Biological Sciences* 15 (2015):30-35.
- Ennis Z, K Aiken. "Spearfishing as a Potential Threat to Fishery Sustainability in Jamaica: a Survey of 23 Fishing Beaches". *Revista de Biologia Tropical* 62, Suppl 3 (2014):141-149.
- Francis P, S Maxam, M Webber. "Rapid Reassessment of the Eutrophication Status of Kingston Harbour, Jamaica, Using the Zooplankton Community". *Revista de Biologia Tropical* 62, Suppl 3 (2014): 231-239.
- Grey O, D Webber, S Setegn, A Melesse. "Application of the Soil and Water Assessment Tool (SWAT Model) on a Small Tropical Island (Great River Watershed, Jamaica) as a tool in Integrated Watershed and Coastal Zone Management". *Revista de Biologia Tropical* 62 Suppl 3 (2014):293-305.
- Liu H, S Broomfield, A Duncan, L Grant, P Francis, D Webber, M Webber. "The Phytoplankton and Water Quality of Kingston Harbour and Hellshire Coast, Jamaica, after the Implementation of a Waste Water Treatment Facility". *Revista de Biologia Tropical* 62, Suppl 3 (2014): 241-248.
- Mitchell A, M Webber, D Buddo, D Webber. "Development of a

- Protocol for Sampling and Analysis of Ballast Water in Jamaica”. *Revista de Biología Tropical* 62, Suppl 3 (2014):249-257.
- Niño L, **K McLaren**, H Meilb, M Lévesque, **B Wilson**, M McDonald. “Long-term Changes in Above Ground Biomass after Disturbance in a Neotropical Dry Forest, Jamaica”. *Plant Ecology* 215 (2014):1081-1097.
 - Okoro C, **B Wilson**, J Lorenzo-Morales, **R Robinson**. “Gastrointestinal Helminths of Wild Hogs and Their Potential Livestock and Public Health Significance in Jamaica”. *Journal of Helminthology* (2015) 1-5.
 - Pienkowski T, S Williams, **K McLaren**, **B Wilson**, N Hockley. “Alien invasions and livelihoods: Economic benefits of invasive Australian Red Claw crayfish in Jamaica”. *Ecological Economics* 112 (2015):68-77
 - Prospere K, **K McLaren**, **B Wilson**. “Plant species discrimination in a tropical wetland using *in situ* hyperspectral data”. *Remote Sensing* 6 (2014): 8494-8523.
 - Rankine D, **J Cohen**, M Taylor, A Coy, L Simpson, T Stephenson, J Lawrence. “Parameterizing the FAO AquaCrop Model for Rain-fed and Irrigated Field Grown Sweet Potato”. *Agronomy Journal* 107 (2015):1-13.
 - Richards R, **N Benkeblia**. “Investigation of Some Maturity and Ripening Parameters of West Indian cherry (*Malpighiae marginata*)”. *Acta Horticulturae* 1047 (2014):159-164.
 - **Robinson D**, W Williams. “Toxicity of Endosulfan to the Red hybrid Tilapia”. *OnLine Journal of Biological Sciences* 15 (2015): 6-9.
 - Ross A. “Genet and Reef Position Effects in Out-Planting of Nursery-grown *Acropora cervicornis* (Scleractinia: Acroporidae) in Montego Bay, Jamaica”. *Revista de Biología Tropical* 62, Suppl 3 (2014): 95-106.
 - Small H, K Lue, **D Webber**, **M Webber**. “The Planktonic Communities

of the Jamaican South-East Coast; A Comparison of Harbor, Shelf and Oceanic Areas”. *Revista de Biologia Tropical* 62, Suppl 3 (2014): 259-272.

- Steen S, N **Benkeblia**. “Variation of Reducing and Total Sugars during Growth of Onion Tissues”. *Acta Horticulturae* 1047 (2014):51-55.
- Trench C, H Small, L Morrison, **D Webber**, **M Webber**. “Coral and Algal Community Primary Succession on New Vertical Substrate at Rackham’s Cay, Port Royal, Jamaica”. *Revista de Biologia Tropical* 62, Suppl 3 (2014):107-114.
- **Webber M**, G Persad, N Harris, I Wilmot, **D Webber**. “An Ecological Assessment of Foul and Folly Bays, Morant Wetland Area, Jamaica Using Ecopath and Ecosim”. *Ocean and Coastal Management* 105 (2015): 127-137.

Technical Reports

- Gayle P, H Small, C Trench, D Henry. A rapid (Post-Dredging) environmental assessment of Discovery Bay, Jamaica. DBML Technical Report 01 (2015). Prepared for the Noranda Bauxite Company.

INCOME GENERATION

- **Aiken K**, J-F D’Orville (Department of Physics), 2014. Friends of Japan & Caricom: Green, efficient Aquaculture for Fish Farmers. US\$63,469.00
- **Buddo D**, 2015. Caribbean Utilities Company: Benthic Baseline Survey & Monitoring. US\$77,395
- Gayle P, 2015. NORANDA Bauxite Jamaica: Monitoring of an artificial reef (ECOREEF) installation. J\$6,500,000
- **Webber D**, 2015. Consultancy for the Inter-American Development Bank: Coral Reef Restoration Programme. US\$350,000

- **Webber D**, 2015. United States Department of Interior: Renewable Energy and Energy Efficient Project. US\$197,333.
- **Webber M (PI)**, C Campbell, C Trench, H Small, 2014. National Works Agency-Palisadoes Shoreline Vegetation rehabilitation contract. US\$454,545.
- **Webber M (PI)**, C Trench, H Small, 2015. Forest Conservation Fund Grant: Re-forestation of critical coastal forest areas around Jamaica, Phase 2. US\$144,456.
- **Webber M (PI)**, **K McLaren**, **D Buddo**, **D Webber**, 2014. Biodiversity Conservation Specialist Contract: Pedro Bank & Black River assessment towards achieving protected area status. US \$213,000.

PUBLIC SERVICE

Dr. Karl Aiken

- Board Member & Chair of Fish Sanctuaries, Sub-committee Fisheries Advisory Board of Ministry of Agriculture & Fisheries
- Member, Aquaculture Industry Advisory Board, Ministry of Agriculture & Fisheries.
- Member, Board of Directors of the Caribbean Coastal Area Management Foundation (CCAMF)
- Member, CITES Scientific Authority of Jamaica- NEPA
- Member, Pool of Experts, United Nations World Ocean Assessment Programme 2010 – 2015.

Professor Nouredine Benkeblia

- Editor-in-Chief, Plant Science Today journal
- Editor-in-Chief, Journal of Food, Nutrition and Dietetics journal
- Editor, Agricultural Science Research journal
- Member of the Agronomy Society of America
- Member of the Crop Science Society of America

Department of Life Sciences

- Member of the Regional Commission of Experts, Agence Universitaire de la Francophonie
- Member, IUCN Commission on Ecosystem Management (CEM)
- Member of the International Tropical Fruits Network
- Assessor, University Council of Jamaica (UCJ) Examination
- External Examiner, Agricultural Programme, Montego Bay Community College (MBCC)

Mr. Frederick Boyd

- External Examiner, Joint Board of Teacher Education (JBTE), Institute of Education, UWI, Mona.
- Member and Institution contact, Society for Economic Botany
- Member, International Association for Plant Taxonomists
- Member, International Society for Horticultural Science
- Member, Liaison for Department of Life Sciences for the Nature Preservation Foundation
- Member, Phycological Society of America
- Member, Research & Development and Seed Production Subcommittee, National Organic Agriculture Steering Committee (NOASC), Ministry of Agriculture
- Member, Standards Subcommittee, Jamaica Organic Agricultural Association (JOAM)

Dr. Dayne Buddo

- International Maritime Organization: Expert Task Force for Ballast Water Management Training
- Member, Regional Lionfish Committee
- Resource Scientist, Regional Ballast Water Task Force
- Member, National Fish Sanctuaries Committee
- Member, National Steering Committee for the Regional Invasive Species Project

- Member, National Invasive Species Working Group
- Board of Advisors, Ocean Foundation

Dr. Jane Cohen

- Member, CITES Scientific Authority of Jamaica
- Member, Caribbean Food Crops Society
- Member, Education & Research Sub-Committee for the Hope Royal Botanic Gardens
- Member, Jamaica Organic Agricultural Association
- Member, Jamaican Society for Agricultural Sciences
- Member, Natural History Society of Jamaica
- Member, Plant Conservation Group, National Environment and Planning Agency (NEPA)

Mrs. Marcia Ford

- Chairperson, National Biodiversity Clearing House Mechanism Steering Committee
- Secretary, The Jamaica Statistical Society
- Member, Global Coral Reef Monitoring Network -Caribbean Steering Committee
- Member, University Sub Aqua Club
- Member, International Society for Reef Studies Member
- Member, Caribbean Academy of Sciences

Mr. Peter Gayle

- Chairman, Association of Marine Laboratories of the Caribbean (AMLC) Planning Subcommittee
- Member, Diving sub-group of the working group on Fisheries Management and related matters of the National Council on Oceans and Coastal Zone Management
- Member, National Fish Sanctuaries Network
- Reviewer, *Revista de Biología Tropical & Wildlife Biology in Practice*

Dr. Eric Garraway

- Advisor, Vincentian Students Association
- Member, Advisory Board, National History Division, Institute of Jamaica
- Member, Association of Tropical Lepidoptera
- Member, Natural History Society of Jamaica
- Member, Jamaican Iguana Working Group, NEPA

Dr. Eric Hyslop

- Jamaica Clearing-House Mechanism Steering Committee, Institute of Jamaica
- Member, CSEC Subject panel in Biology
- Member, NEPA Endangered Animals Recovery working group
- Member, Jamaican Iguana Working Group, NEPA

Dr. Kurt McLaren

- Member, National Invasive Species Working Group, NEPA

Dr. Dwight Robinson

- Chairman, Jamaica Organic Agricultural Association (JOAM)
- Chairman, National Organic Agriculture Steering Committee, Ministry of Agriculture
- Member, Board of Directors- Greencastle Tropical Study Centre, St. Mary
- Member, National coordinating committee for Agricultural Research and Development, Jamaica

Professor Ralph Robinson

- Board of Directors, Jamaica Agricultural Development Foundation
- Executive Member & Regional Rep, Bioethics Society of the English-Speaking Caribbean

- Justice of the Peace, St. Andrew, Jamaica
- Member, American Society of Parasitologists
- Member, Lay-Magistrates' Association of St Andrew, Jamaica
- Scientific Member, The National Bioethics Committee of Jamaica

Dr. Philip Rose

- Member, National Invasive Species Working Group, NEPA

Professor Paula Tennant

- Member, American Phytopathological Society
- Member, Caribbean Academy of Sciences, Jamaica Chapter
- Member, Jamaica Society of Scientists and Technologists

Dr. Kisan Vaidya

- Member, Gene Bank Committee, Jamaica
- Member, Review Committee, *Jamaican Journal of Science and Technology*

Professor Dale Webber

- Chairman, Board of Directors-Environmental Foundation of Jamaica
- Chairman, CL Environmental Company Limited
- Deputy Chairman, National Council on Ocean and Coastal Zone Management (NCOCZM)
- Chair, Diving Sub-Group of the National Council on Ocean and Coastal Zone Management
- Member, Board of Trustees-Jamaica National Park Trust Fund
- GraceKennedy Representative, Recycle Partners Jamaica

Dr. Mona Webber

- External Examiner for University of Technology BSc Degrees in Biological Sciences
- Member, Association of Marine Laboratories of the Caribbean

Department of Life Sciences

- Member, Caribbean Academy of Sciences, Jamaica Chapter
- Member, National Fisheries Policy Steering Committee
- Member, CITES, Scientific Authority of Jamaica
- Member, National Ramsar committee, NEPA

Professor Byron Wilson

- Invited Member, Crocodile working group, NEPA
- Invited Member, IUCN SSC Amphibian Specialist Group
- Invited Member, IUCN SSC Boa and Python Specialist Group

Number of Graduates by majors and class of degree (before Summer School 2014/15)

| 2013/14 | Majors | Minors | Options |
|------------------------------------|--------|--------|---------|
| Animal Biology | 24 | | |
| Applied Plant Sciences | 7 | | |
| Biology with Education | | | 6 |
| Botany | 1 | | |
| Botany & Zoology | | | 16 |
| Environmental Biology | | | 13 |
| Experimental Biology | | | |
| Horticulture/Tropical Horticulture | 6 | | |
| Marine Biology | 32 | | |
| Terrestrial and Freshwater Biology | 2 | | |
| Zoology | 1 | | |
| Botany | | 5 | |
| Conservation Biology | | 10 | |
| Human Biology | | 11 | |
| Plant Sciences | | 7 | |

Numbers / Class of degree

| 2014/15 | First | Upper-2 | Lower- 2 | Pass |
|------------------------------------|----------|-----------|-----------|-----------|
| Animal Biology | | 3 | 14 | 7 |
| Applied Plant Sciences | | 2 | 4 | 1 |
| Biology with Education | | 2 | 3 | 1 |
| Botany | | | 1 | |
| Environmental Biology | 2 | 4 | 8 | 2 |
| Experimental Biology | 1 | 1 | 10 | 1 |
| Horticulture/Tropical Horticulture | 1 | 1 | 1 | 3 |
| Marine Biology | 1 | 9 | 12 | 10 |
| Terrestrial and Freshwater Biology | | | 1 | 1 |
| Zoology | | | 1 | |
| Total (108) | 5 | 22 | 55 | 26 |

DEPARTMENTAL PRIZES TO STUDENTS

Alexander, Shanice

Sasikala Potluri Prize

McDonald, Nadia

Don Skelding Prize

Robinson, Semoi

Devi Prasad Prize

Deidrick, Reneique

Vincent Hugh McKie Prize

Brown, Marco-Dean

Lloyd Coke Prize

Howell, Shonee

Avinash Potluri Prize

Foster, Dione

Charlotte Goodbody Prize