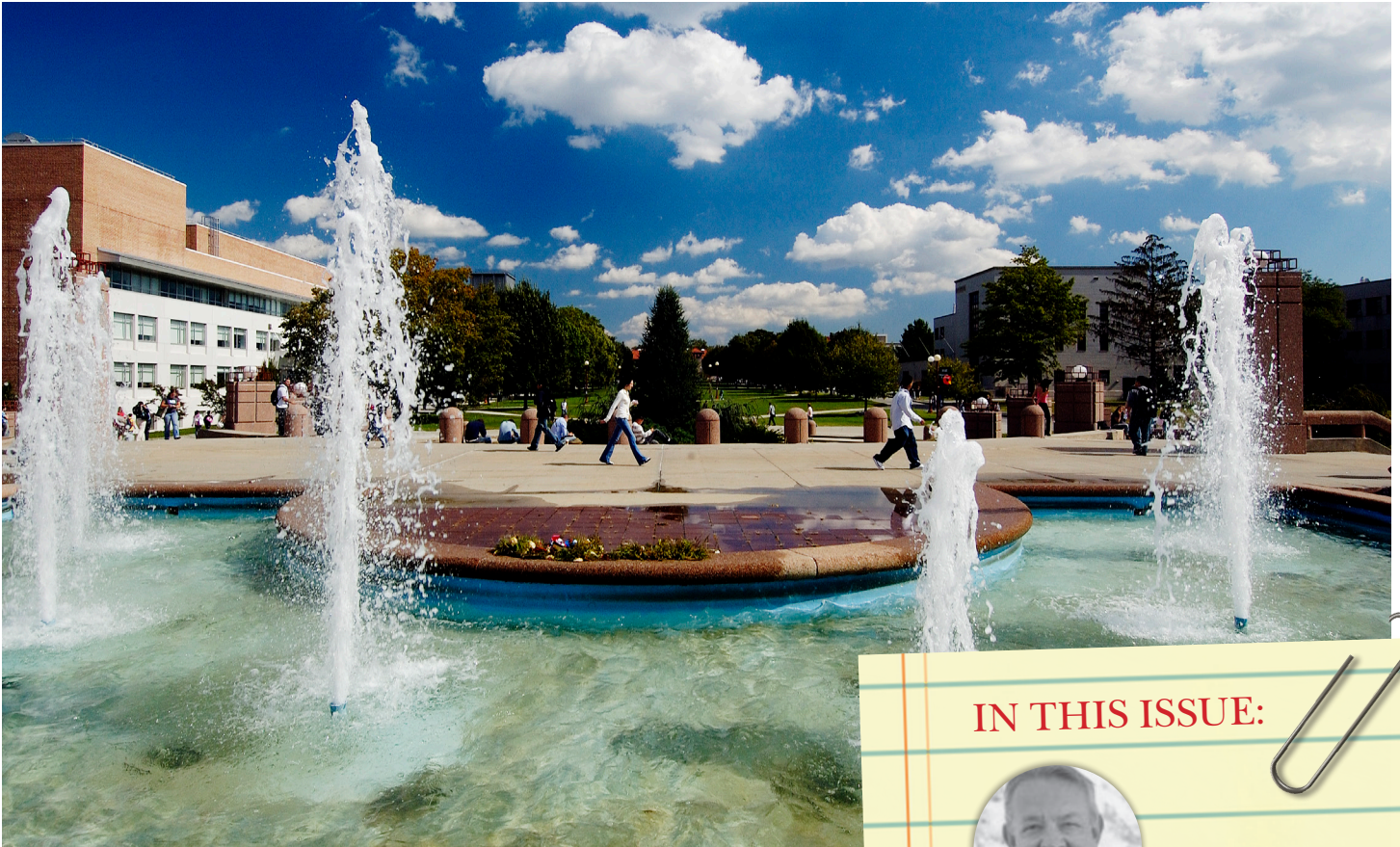


BIOLOGYCURRENTS

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Message from the Chair: Cathy Savage-Dunn



Cathy Savage-Dunn

Greetings, Biology Department Alumni!

As the new chair of the department starting July 2023, allow me to introduce myself briefly.

I joined the department as an assistant professor in fall of 1997 (when Dr. Uldis Roze was chair) after receiving my PhD from Columbia University with now Nobel Laureate Dr. Martin Chalfie and completing postdoctoral work at Rutgers University with Dr. Richard Padgett. My research focuses on the elucidation of cell signaling pathways and their biological functions, including size regulation, lipid metabolism, and host-pathogen response. My group uses genetics, molecular biology, and imaging approaches in the invertebrate system *C. elegans*. I have taught Principles of Genetics, Principles of Cell Biology, and Molecular Biology at an undergraduate level, and Genetics and Developmental Biology at a graduate level. Hopefully some of you were students in these courses! My 25+ years at Queens College have seen many changes. For my first classes, I used the overhead projector for teaching, urgent communications were still sent by fax, and I needed to come into my office to check my email. The department continues to evolve and to be resilient in the face of new opportunities and challenges.

I am very pleased to say that we currently have four junior tenure-track faculty members who represent the future of the department. Two assistant professors, Dr. Sebastian Alvarado and Dr. Maral Tajerian, will undergo

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tenure review in fall 2024. A third assistant professor, Dr. Joanna Coleman, is halfway through the pre-tenure period. Finally, we welcome a new assistant professor, Dr. Timothy DuBuc, who joined the department in fall 2023. Dr. DuBuc is a developmental biologist, continuing in a long legacy of department members with this scientific interest. You can find out more about Dr. DuBuc in the interview on page 3. On a more somber note, we said goodbye to a senior faculty member, Dr. Jon Sperling, who passed away in February 2024. Please see more about Dr. Sperling on page 2.

Our college laboratory technicians (CLTs) are also essential members of the department. We are very fortunate to depend on Chief CLT Xenia Freilich who managed a very difficult year in 2023 with no loss of services to students. Dr. Freilich joined the department as a CLT in 2001, rose to Chief CLT in 2008, and obtained her PhD in 2015. Dr. Freilich oversees numerous budgets and a troupe of CLTs. Due to personnel turnover, a true team effort was required, including monumental efforts by CLTs Salisa Hudson and new hire Jayson Slovak with the assistance of several adjunct CLTs. One of the vacancies was due to the untimely passing of CLT César Castillo, which we announced in last year's *Currents*. César handled many of our field courses. In addition, long-time CLT Michael Tessitore, who prepped major's-level introductory biology labs, retired after 21 years of working for the department.

In happier news, Salisa Hudson announced the birth of her third child, Vincent, in July 2023. Finally, please join us in welcoming Jayson Slovak to his new role as a full-time CLT. Jayson graduated from Queens College in 2014 and did undergraduate research with Dr. Stéphane Boissinot. He had previously served as an adjunct CLT since 2015.

We urge our alumni to keep in touch with the department. We are always happy to hear your news! I also want to acknowledge with gratitude the financial contributions of our alumni. These funds allow us to provide valuable enrichment activities for our students that cannot be funded in any other way. As we continue to move towards a more in-person mode of interaction following the pandemic, the Alumni Funds enable travel and get-togethers. For example, in our fall 2023 Colloquium series, we hosted inspiring

speakers such as Dr. Christine Wilkinson from University of California, Berkeley, who studies human-carnivore coexistence; Dr. Arnaud Martin from George Washington University, who spoke about butterfly wing evolution; and Dr. Nihal Altan-Bonnet from the National Institutes of Health, to hear about "What viruses do to infect you!"

You can contact the chair at chair.biology@qc.cuny.edu and the office at biology@qc.cuny.edu. We have initiated an Instagram account @QCBiology—please follow us as we post news of the department! Wishing all of you success and fulfilling work.

Message from the (New) Editor



John Waldman

I am pleased to become the editor of the Queens College Biology Department's newsletter, *Currents*. I am doing so after a long and successful run by two co-editors, Corinne Michels and Uldis Roze. We are grateful for all their hard work.

Currents serves two main purposes: To better inform our colleagues as to our activities and accomplishments each year and to connect the present-day Biology Department with our alumni.

A bulletin such as this is only as good as the information provided. So please, over the course of 2024 keep *Currents* in mind and send me any items suitable for inclusion in our next issue, from both staff and alumni, including notable achievements, publications, relevant stories, and photos. My email address is john.waldman@qc.cuny.edu.

In Memoriam: Professor Jon Sperling



Jon Sperling

1973, but his Queens College background

Professor Jon Sperling passed away early on the morning of February 3, 2024, peacefully at home, after a struggle with cancer. He was hired as instructor in 1970 and as assistant professor in

extended to his earning a BS here in 1959. This degree was followed by an MS from the University of Massachusetts, Amherst, in 1964, and a PhD from the University of Wisconsin, Milwaukee in 1972. While in school, Jon also taught at Paul Smith College of Arts & Sciences and at the University of Wisconsin.

Jon was one of our department's foremost naturalists and educators for decades, inspiring generations of students to become nature-lovers and teaching favorite field courses such as Natural History, Lower and Higher Plants, and Ornithology. At 87 years old, he was thinking about retirement, but he was not looking forward to it—he never wanted to leave Queens College.

Jon Sperling's influence is perhaps best appreciated by remembrances from faculty colleagues and students:



Professor Sperling displaying a large blue-claw crab.

Distinguished Professor Emeritus Corinne Michels

"Very sad news! Jon and I joined the Biology Department faculty at the rank of instructor in September 1972 and were both promoted to assistant professor in spring 1973. Because my area of expertise was so different, Jon and I did not get to know one another well until decades later in 2003 when Jon, my husband Harold, and I were on a Science Museum of Long Island tour of Patagonia in Argentina. The tour group was about 12 people, and we spent over two weeks driving in a bus, much of it on dirt roads, from Comodoro Rivadavia to Puerto Deseado. The bus kept getting flat tires. While we waited for the driver to do repairs, Jon ran around identifying plants, birds, and anything he could find, which included dinosaur fossil bones and fossilized trees. That's where I realized what a talented naturalist Jon was. We really became good friends that trip. I was biology chair at the time, and Jon's new title for me (yes, he had a lot to drink) was "El Jefe." "Here are a few photos of Jon from the

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Patagonia trip. One of my memories from that trip is that Jon had the decaying carcass of a bird in his luggage. In JFK airport customs, the rest of us were making believe we didn't know him and were waiting for the inspectors to find it. They didn't!!! Jon was a character. Students in his field courses loved him. You can see why."



Professor Sperling cradling a tiny songbird.

Professor Emeritus Andrew Greller
"Jon kindly visited me at my home when I was recovering from smoke inhalation due to a fire in E Building. When he pulled into my driveway, the first thing he did was to lift his car trunk and open a cage. Out of the cage charged a young possum, who literally high-tailed it across my street and into my neighbor's property, never to be seen again. He said something about a Buddhist moment, and we never discussed it again. Jon was proud of his freeing of captive animals. I believe he took credit for introducing Italian Stone Lizards into local open spaces. He regularly brought exotic tropical fish back from Florida to re-captivate them. Jon was a lover of nature and living things. He had a kind heart. I will miss him deeply."



A woodlands field trip

Former Student Katie Paccione
"Taking a class with Dr. Sperling was like having a big magnifying glass held to your face to see nature more clearly. You might

have seen something every day and perhaps even known what it was, but you certainly learned more with Doc teaching you about it. It was a joy having Dr. Sperling as a teacher who regularly got us outside and didn't teach completely by the books."

Former Student George Jackman

"I took every course Dr. Sperling taught at QC. Though he was a bit quirky in a loveable way, he was an awesome professor. I loved every course he taught because Dr. Sperling spoke with passion and a sense of wonder for nature. He cared deeply for wet places and the mostly anonymous organisms that lived in the muck and mire."

Student Nickolas Dubin

"Dr. Sperling was an inspiring naturalist, whose contagious passion for the outdoors radiated from every lesson. He wielded a youthful energy in the field that I pray to have when I reach such an age. I had the privilege of taking his final offerings of the Natural History of New York, and to call it life-changing is accurate—in addition to making friends in the class and learning a great deal, my own research subject was first sparked on one of his field trips! We may never know another professor like him, and he is greatly missed."



Professor Sperling examining kelp in Patagonia.

Former Student Wendy Castillo

"I met Dr. Sperling in 2007. Courses I took with him were Higher Plants, Wetlands Biology, Ornithology, and Flora and Fauna of the Northeast to name a few. His courses were tough and required a lot of becoming familiarized with endless amounts of vocabulary and material. We formed a tight circle of friends who would study for endless hours after our classes, making labels for our pressings and becoming better biologists. Sperling taught us to notice everything. From plants and birds to mushrooms and pond life. Every excursion was an adventure. He made my husband the

ecologist, botanist, and birder he became. I met Cesar through his courses, and I will forever be grateful for that. He became a part of our family, and I am so happy we met."

Professor Esther Muhlbauer

"Dr. Sperling was my freshman year biology professor—he took us on wonderful field trips. I vividly remember low tide in Pelham Bay sorting snails in the mud—and yes, he deeply inspired students to love and understand the natural world!"

"We will continue to build on this."

New Faculty Member



Dr. Timothy DuBuc

DR. TIMOTHY DuBuc joined the faculty of the Department of Biology in Fall 2023. Dr. DuBuc is a developmental biologist who studies stem cells, the remarkable cells that have the ability to self-renew and differentiate into different cell types in the body. His work addresses both fundamental questions about how the animal body plan is set up and potential applications of stem cell biology to human health and fertility. I sat down with him to find out more about his life and professional trajectory.

This interview with Dr. Dubuc was conducted by Department Chair Cathy Savage-Dunn.

Where did you grow up?

I am from a small rural town in Michigan, about 1 hour from Detroit and not far from Ann Arbor.

What most surprised you joining about our department?

I expected New York City to be very cutthroat, but everybody is very friendly and supportive. It has a "small town" feel in an urban setting.

When did you get interested in biology?

Growing up around lakes may have laid a foundation for my future interest in biology, but when I entered college I intended to take a pre-engineering track. I attended Siena Heights University, a liberal arts college in Michigan. As an undergraduate student, I took an introductory biology course and never turned back.

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Why did you get into research?

I had a requirement to do a full-year senior research project. Two biology professors organized a match between students and research projects. My project was to study butterfly speciation. In the summer before senior year, I collected the butterflies, but had no training, so I had to self-teach the butterfly collection. Then during the year, I analyzed proteins to determine the species groups. During this period, I became a McNair Scholar, a program that assists with research experiences and applications to graduate school. I applied to the University of Hawai'i for graduate school, and then took a gap year to do research for the Navy at Kewalo Marine Laboratory.

Going to Hawai'i sounds very exotic! What influenced your decision?

I had attended college very close to home and was ready to experience another location. The research opportunities were good for me. I completed a master's degree in biology with a focus in marine microbiology and then switched labs for the PhD.

How did you first learn about developmental biology?

During my master's, there was a colleague in the building who was a developmental biologist, and I became very interested in the field. My research interests were very broad, including molecular biology, genetics, and cell biology. Rather than specialize in one of these areas, I felt that developmental biology would be the one field in biology that connects these multiple disciplines.

After finishing your PhD, your traveling days were not yet over. Tell us about where you did your postdoctoral fellowship.

I was a European Molecular Biology Organization (EMBO) Fellow for three years in Galway, Ireland at the University of Galway. My work there culminated in a 2020 publication in *Science* that was featured in *Scientific American*.

Following your postdoc you became a visiting assistant professor at Swarthmore. What attracted you to that position?

I wanted more teaching experience, with a liberal arts emphasis.

It sounds like a liberal arts education is important to you. How did you take advantage of the liberal arts when you were a student?

I loved metalsmithing! I took three classes in it, making objects such as fine jewelry. I would like to try glass-blowing, but I've heard that it's very uncomfortable with the high heat. I also performed some supporting roles in the student theater, including playing a soldier in *Cabaret*.

Finally, what advice would you give to recent Biology alumni?

Your interests will change, so try to be flexible with your career path. I didn't know I wanted to be a professor until late in my training.

Student Highlights



J. Alex Domeyko

J. ALEX DOMEYKO

received a coursework master's degree under the supervision of David Lahti. Alex has gone on to become the Director of Development and Partnerships at International Bird Rescue, based in Fairfield, California.



Ritika Nath

RITIKA NATH

earned a research master's degree under the supervision of David Lahti. Her thesis is entitled "A survey of mammalian diversity along the Bronx River." Ritika worked closely with Dr. Bobby Habig, former postdoctoral researcher in the Lahti Lab and now professor at Mercy University. Ritika is a caretaker in the Insectarium and Butterfly Vivarium at the American Museum of Natural History.



Kristina Ames

KRISTINA AMES

received her doctorate degree in 2016 after investigating the role of autophagy, a process of cellular degradation and recycling, in the proliferation and survival of a stem cell population that normally gives rise to the germ cells in *C. elegans*, under the mentoring of Professor Alicia Meléndez. While at Queens College, Dr. Ames received a CUNY Doctoral Student Research Grant, a Fogel PhD Research and Travel Award. Her dissertation work was published in the journals *Current Biology* and *Cell Cycle* in 2017. Dr. Ames joined Kira Gritsman's laboratory at Albert Einstein College of Medicine to study the role of Class 1A PI3K and autophagy in hematopoietic stem cells. She was awarded an F32 Ruth L. Kirschstein National Research Service Award (NRSA) Postdoctoral Fellowship and an Institutional Research and Academic Career Development (IRACDA) award while at Albert Einstein. Dr. Ames is now the assistant director of the Cancer Research Training and Education Coordination, and an assistant professor in the Department of Oncology at Albert Einstein College of Medicine. Dr. Ames work focuses on bridging the existing educational gap in research training for a young generation of students, especially from underserved communities and underrepresented backgrounds in STEM. Dr. Ames' projects include "Beyond Albert," a program that introduces Bronx high school students to scientific research, and the Bronx Oncology Living Daily (BOLD) Internship Program, as she strives to bridge gaps and connect dots to develop multigenerational teams for young biomedical scientists in the evolving STEM fields.

Alumni Highlights: Interview with Dr. George Jackman



George Jackman

GEORGE JACKMAN

earned his PhD at the CUNY Graduate School in 2015 while based at Queens College. He was co-advised by Dr. John Waldman and by Dr. Karin

Limburg at SUNY-Environmental Science and Forestry (ESF). Today he is the Habitat Restoration Director of Hudson Riverkeeper. Below is an interview with him conducted by John Waldman.

Where was your start in life?

I was born in the Hudson Valley in Suffern, NY. From my earliest recollections, I spent time wandering the nearby woodlands, meadows, and farm fields with my dog Barney. Later, we moved to Massapequa, on the south shore of Long Island. It was there I discovered that being in close proximity with woods and water was to be an essential component of my life. We rented a house overlooking Massapequa Cove. This was a paradise for me. I spent countless hours involved with the bay, often fishing off a dock there. But I didn't catch much those days inasmuch as no one in my family was outdoorsy.

How did you first connect with nature?

I became the unofficial inspector of Massapequa Cove's intertidal zone. While I tramped along the shoreline, I was ever on the lookout for waterfowl, unique shells, horseshoe crabs, or other interesting creatures hiding in eel grass wrack piled at the high-tide lines. My peregrinations took me into woodlands, marshlands, and dead-end lots. I even captured an injured duck and nursed it back to health and dragged it around in my wagon filled with water. His name was William, though I had no idea at the time it was a female mallard. It was during those formative years that I developed an abiding love for the aquatic world. I was mesmerized by the rafts of waterfowl, the variety of fish, and the pungent odors of the back bay and nearby salt marshes. Those smells still bring back fond memories. Though I lived in paradise, I was stuck

on shore. Not a single boat motored past me without me scrutinizing it. However, it was the fishing boats and fishermen that really focused my gaze. My father had a pair of binoculars from WWII that I used for my patrols. I intently watched local baymen as they skimmed the surface of the waters in their dull-gray, flat-bottomed Garvey boats. I watched them raking the bay bottom for quahog clams or gigging eels and winter flounder that paved the shallow waters in those days. Once, when I was fishing at a local dead end, some guy asked me to watch his boat while he ran into a house. When he came back, he asked me if I wanted to go out in the bay with him. I sure did and jumped in the boat. Holy cow!!! My parents were angry after I came back with a scallop and stories to tell. They were so worried after I told them about going out in a boat, they beat the heck out of me for my foolishness. Seeing that guy rake clams and catch flounder and then hand me that scallop made up for the punishment. In the winter, I watched ice boats as they flew by on the frozen waters of the bay. Ice boats, cold winters, and deep snows are now a distant memory, as I only remember the bay freezing once in the past 30 years. There were a few freshwater lakes in Massapequa. I fished those too. Those frozen lakes, the ice boats, quahog clams, winter flounder, eel grass and eels are now as scarce as the baymen themselves who plied my waters.

I was four years old when I caught my first bluegill sunfish. I was five when I was given a butterfly net and bucket. So equipped, I scoured the meadows for as many insects as I could capture. Once in kindergarten, I took a bucket full of grasshoppers to school. All the kids had cool stuff for show and tell. I decided to bring my bucketful of grasshoppers. One can only imagine the outcome. I was in trouble...again. When I opened the lid, my grasshoppers exploded all over the classroom, sending the class into chaos. I knew I was terminally unique from an early age. Most kids were interested in sports or comic books and others played ball. Instead, I prowled my neighborhood armed with self-made bows and arrows and slingshots I crafted from crooked sticks. Most important to me was obtaining the latest edition of the *Long Island Fisherman Magazine* to hit the shelves of

the nearby candy store. I studied every page. When I saved enough money from my paper routes, I would beg my mom to bring me to the party boats to fish in the ocean for a day. I had a pet raccoon for a day. My friend found a young one and asked me if I wanted it. I walked all over with the raccoon on my shoulders. Then I took him home to give him a bath because he smelled bad. He loved the running water in the tub and when the ivory soap slid past him he grabbed it and stuffed it into his mouth. I tried to pry his mouth open and he bit me all over my hands. Then he and my dog got into a dust up when I gave him a dog bone. When my mom came home from work, she told me I can live in the woods with the raccoon. I had to give the raccoon back. When I was in high school, I had a girlfriend who lived on the bay. Her family had boats, jet skis and most importantly, it put me back on the water. Together we waterskied, clammed, crabbed, fished, and swam all over the Great South Bay. In time, I was taking out the 19-footer by myself and cruising all fishing spots I read about.

What was the path that led you to QC?

While in high school, I surrounded myself with friends who had similar interests in nature and, over time, I became heavily engaged in being an outdoorsman. The more I learned, the more I needed to know. I was driven to understand the larger meanings and the underpinnings of the systems that connected the ecological patterns I observed. There were a lot of random occurrences that facilitated my educational and vocational journey. When I was a teenager, my best friend's family owned a cabin in the Catskills. They would take me there, and I instantly fell in love with those wooded mountains. At the time, I wasn't particularly devoted to school—what most interested me lay outside those windows. When I turned 20, I enrolled in the NYPD police academy, where I was yearning for excitement—and found it. Policing some of the toughest neighborhoods of Brooklyn was exciting until it wasn't. I witnessed staggering levels of violence fostered by a myriad of socio-economic problems that I couldn't reconcile. Looking for a larger purpose, I enrolled in Nassau Community College (NCC) to

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study biology. I discovered that academics were easy if I applied myself.

With newfound confidence, having achieved good grades at NCC, I started taking promotional exams and was fast rising in the NYPD. I recall a young rookie cop who said to me he was looking for action. I told him there was no need to look for it, because soon enough it will find you. He was shot on three separate occasions. Later, on 9/11, that cop was killed. After 20 years in the NYPD the desire to become a captain wasn't so appealing anymore. A few weeks earlier, I had received my bachelor's degree from QC and won the Donald Lancefield Prize for the highest GPA in the Biology Department. Not long after, I decided to retire from my career in NYPD and attend graduate school at Queens College. Though the transition was difficult at the time, I am so grateful for the life I now live.

What is your favorite natural location in the New York region? Favorite organism?

The salt marsh, estuaries, upland forests, and forested streams of the Northeast are my favorite biomes. The interface of land and water are richly diverse and biologically productive environments. The landbound kid watching the merging of land and water, discovered the biotic potential of that space long before I knew what biotic potential meant.

I do not have a favorite organism. I love them all. Seasonal transitions tend to regulate the movement of organisms that I am attracted to. I follow the seasons, and each has its own special creatures that visit our region. Whether on land, in the air or on the water, I love them all.

What do you do at Riverkeeper?

What would you say are your most meaningful projects?

I am the habitat restoration director at Riverkeeper. I was hired to begin to remove dams from Hudson River tributaries. We have been successful in removing a few dams, and several others are in various stages of engineering the removal process. For us, the largest problem when considering dam removal is the nearby infrastructure and the attendant bureaucratic complexities. Securing owner agreements is difficult enough. Next up is the Hunger Games process of competitive funding.

Receiving public funding is largely driven by the biotic potential of the system we are working on and the criteria of the grant. We have to convince the granting agencies that our projects are worthy. These dam removal projects are most meaningful. Aquatic organisms are some of the most imperiled taxa on the planet and much of this is driven by human control of rivers. Consequently, dam removal in my opinion represents the single best restoration activity that yields immediate results with regard to the stream health and free mobility of organisms. When we remove a dam, the weight of the achievement is equivalent much like removing a wall that restricts humans. When we remove a dam, we are able to change the world for some of the humblest critters. When the breakers punch through a dam, there is always a cheer. Everyone witnessing the event knows that restoring a river is a righteous event.

What concerns you (most) about the future of the natural world? Broadly and in our region?

In the Hudson Valley and NYC metropolitan region, my main concerns are climate change, rapid development, loss of habitat, land use changes, habitat fragmentation, loss of wetlands, and over-exploitation of resources. More broadly, industrial spills, sewage, endocrine disruptors, the slow pace of dam removal in NYS and in the United States, hydropower, damming of the world's great rivers, plastic pollution, ocean acidification, loss of wetlands, and loss of forests, are collectively threatening this planet.

Can you tell us more about your experiences at Queens College?

Upon enrolling in Queens College, I instantly discovered the curriculum was quite rigorous and one had to work to perform well. Nevertheless, I was driven and applied myself because the courses I was taking were so intellectually satisfying. I had an innate love for field courses taught by old school professors like Dr. Sperling, Dr. Chabora, and Dr. Alsop. However, because night courses were limited, I was forced to take a course in evolutionary biology with Dr. Boissinot. I was reluctant to do so because I wanted to become a field biologist, but Dr. Ma

convinced me the course would be worthwhile. I recall struggling while studying for an exam and suddenly experienced a *voila* moment, where I could understand how evolution progressed and Dobzhansky's comment, "Nothing in biology makes sense except in the light of evolution," always stuck with me. That course in evolution and several others in graduate school changed my entire outlook on the perception of life and the science of biology. Upon receiving my bachelor's degree, Dr. Boissinot and Dr. Sperling both encouraged me to enroll in the CUNY Graduate Center's PhD program in biology with an emphasis on ecology, evolution, and behavior. While in graduate school I chose Dr. Waldman as my mentor because of his passion for aquatic organisms and especially migratory fishes. Working with Dr. Waldman allowed my life to unfurl. Dr. Waldman encouraged me to study winter flounder and pursue other opportunities as they became available. Dr. Waldman also introduced me to my co-mentor at SUNY ESF. Eventually, I earned a master's and a PhD in biology. Later, I was hired by Riverkeeper to create a habitat restoration program. Looking back, Queens College and its outstanding faculty laid the foundation of a solid education in biology. Those QC professors directed my academic training and facilitated my transition from the NYPD to my role in conservation biology and aquatic ecology. My role at Riverkeeper has since expanded and so has my education. Overall, my vocational alignment was a direct result of the academic training I received at Queens College and the broader CUNY system. To me, Queens College and the CUNY Graduate Center have been the gift that keeps giving, allowing me to enjoy a life beyond my wildest dreams.

Faculty Notes



Joanna Coleman

JOANNA COLEMAN

received a CUNY Interdisciplinary Research Grant of \$40,000 for a project titled *Skunk Cabbage on an Urbanising Planet*. She also

won a QC Research Enhancement Award of \$6,537 for another project, *Drones & Aerial Biodiversity: Impacts & Opportunities*.



John Dennehy

JOHN DENNEHY

received funding with Monica Trujillo (Queensborough Community College) and Olga Calderon (LaGuardia Community College as Co-PIs (\$1,000,000 total) for a

NSF HSI Implementation and Evaluation Project Award: Developing a Wastewater-based Epidemiology Student Training and Education Program at CUNY.

John Dennehy also made the following presentations:

1. *Genetic Diversity and Evolutionary Convergence of Cryptic SARS-Cov-2 Lineages Detected Via Wastewater Sequencing*. Session: Expanding the rules of life for viruses of microorganisms, American Society for Microbiology Microbe 2023, Houston, TX.
2. *Future Development of Wastewater-based Epidemiology*. American Society for Microbiology Corporate Council Convening 2, American Society for Microbiology Microbe 2023, Houston, TX.
3. *Tracking Cryptic SARS-CoV-2 Lineages Detected in NYC Wastewater*, Annual Meeting of the Queens College Retirees Association, CUNY, NYC, NY.
4. *Wastewater Surveillance for COVID-19 and Beyond*, American Society for Microbiology COVID-19 Research Registry Special Session. (Virtual).
5. *Tracking Cryptic SARS-CoV-2 Lineages Detected in NYC Wastewater*, CCNY Biology Colloquium, CUNY, NYC, NY.

TIMOTHY DUBUC gave a talk titled “Cnidarian Germ Cell Induction has Bilaterian Attributes” at the Latin American Society for Developmental Biology, held in Valparaiso, Chile



Alicia Melendez

ALICIA MELENDEZ

was awarded her ninth external grant. The project, funded by the National Institute of Aging, entitled: “AI powered cross-level cross-species comics data integration to

elucidate mechanisms of exceptional longevity,” will support a collaboration with Professor Lei Xie, a faculty member of the Computer Science Department at Hunter College. This award aims to employ transformative artificial intelligence and machine learning based strategies to identify determinants of exceptional health span and longevity. Targets identified will be validated using the nematode *C. elegans*, which is Professor Meléndez’ research organism of choice, and an excellent model system to study treatments that expand longevity and health span.

Additionally, Professor Meléndez, together with Professors Savage-Dunn, Holtzman, Alvarado and Dennehy received a National Science Foundation Major Research Instrumentation grant for the acquisition of a Zeiss LSM900 Confocal Microscope with Airyscan 2, equipment that promises to have a large impact in supporting the research needs across interdisciplinary fields at Queens College and even surrounding campuses. During the past year, Professor Meléndez traveled to communicate her research, as she was an invited speaker at Johns Hopkins University in the Department of Biology, the Germ Cell meeting at Cold Spring Harbor, and at the University of Texas at Arlington.



Esther Muehlbauer

ESTHER MUEHLBAUER

held an Open Educational Resources (OER) Faculty Fellowship for the development of an OER version of BIO 013, Writing in the Sciences—Evolutionary Themes/Human Origins. OER courses have no textbook cost for students. The

new BIO 013 syllabus is now part of the OER Institutional Repository at QC. Dr. Muehlbauer and her Bio 011 class hosted a Professionals on Campus event in April. Dr. Amber Guth, a QC alumnus, and currently a distinguished physician, surgeon, and researcher at NYU School of Medicine, was the guest speaker. In an interview style presentation, Dr. Guth shared experiences on her journey from QC student in the 1970s to becoming the first female attending surgeon at NYU. She fielded questions from the riveted Bio 011 students on the challenging path to entering the medical field.



Uldis Roze

ULDIS ROZE lectured at the Lexington New York Historical Society on “Porcupines of the Lexington Area.”



Cathy Savage-Dunn

CATHY SAVAGE-DUNN

gave an invited talk titled “*C. elegans* TGF- β Signaling Regulates Lipid Metabolism and Pathogen Response” at the Feinstein Institute for Medical Research,

in July. She also contributed to a conference presentation titled “*C. elegans* BMP Signaling Regulates Whole Organism Homeostasis” at the Third Latin American Worm Meeting, held in Valparaiso, Chile in March.

Dr. Savage-Dunn was also a co-author on a talk titled “Context-dependent transcriptional responses to BMP signaling in *C. elegans*,” presented at the 24th International *C. elegans* Conference in Glasgow, Scotland, and on “*C. elegans* TGF- β Signaling Regulates Pathogen Response” given at Cell Bio 2023, in Boston, MA.



Maral Tajerian

MARAL TAJERIAN

continued to work on an ongoing training grant from the National Institutes of Health (NIH), titled Bridges to the Baccalaureate

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Research Training Program at LaGuardia Community College. She also continued the U-RISE program at Queens College, also funded by NIH, which supports undergraduate students from diverse backgrounds as they complete their baccalaureate degree and transition into and complete biomedical, research-focused higher degree programs. Dr. Tajerian, along with Dr. Sebastian Alvarado, accompanied the first cohort of U-RISE students to the Annual Biomedical Research Conference for Minoritized Students (ABRCMS) meeting in Arizona in fall 2023.

Dr. Tajerian was also a participant in the NIH Compass scholarship online mentoring program, was an invited speaker at the TBRs Society Leadership virtual meeting, a workshop presenter at the Gulf Coast Pain Consortium virtual meeting, and a workshop presenter at the annual meeting of the United States Association for the Study of Pain. North Carolina, USA. 2023

JOHN WALDMAN gave the following talks in 2023:

1. *Running Silver: Restoring Atlantic Rivers and Their Great Fish Migrations, Emphasis Maine.* Natural Resources Council of Maine. (virtual).
2. *Running Silver: Restoring Atlantic Rivers and Their Great Fish Migrations, Emphasis Maine.* Friends of Merrymeeting Bay, Maine. (virtual).
3. *Running Silver: Restoring Atlantic Rivers and Their Great Fish Migrations.* Tour Guides & Explainers, American Museum of Natural History. (virtual).
4. *Climate Change and the Regional Fish Fauna.* Climate Stress Across the Biosphere: From Molecules to Organisms to Earth and Social Systems, Advanced Sciences Research Center.
5. *Shifting Baselines for Anadromous Fish & Freshwater-Saltwater Connectivity.* Where the Wild Things Are. Narragansett Bay Estuary Program. Roger Williams University. Bristol RI.

Faculty In The News

JOANNA COLEMAN was mentioned in *Etsy and eBay are Selling Dead Bats—and Scientists are Disturbed*. February 2023. National Geographic Magazine. <https://www.nationalgeographic.com/animals/article/etsy-ebay-bats-sold>

JOHN DENNEHY was invited to contribute an opinion piece on Equity, Diversity and Inclusion: *When communication all changed*. Appearing in *eLife*.

JOHN WALDMAN was cited in “Maine’s Atlantic Salmon on the Brink,” in *Trout Unlimited Magazine* in February; “An Ode to Herring, Once NYC’s Most Abundant Fish” in *Hell Gate* in March; and in a *New York Times* article titled “Is This the Last Generation to Live on New York City’s Wild Fringes,” in April 2023.

Graduation Award Honorees and Degree Recipients

The **Donald E. Lancefield Prize** is awarded for academic excellence in biology and for a very high Biology Index, excluding research. - **Kaussian Gilmore**

Donald Lancefield was a founding member of the Bio Department when QC was established in 1937, and for many years, was chair of the department as well as pre-med advisor and tennis coach, his special love. He retired about 1963. He was trained as a *Drosophila* geneticist at Columbia.

The **Charles Darwin Prize** is awarded for outstanding performance in biology and for a very high Biology Index including research courses. - **Michael Loccisano**

The **Laura H. and Arthur L. Colwin Prize** is awarded for outstanding research ability to a student who will not be going to a health professional school. - **Michael Loccisano**

Arthur and Laura Colwin were distinguished professors for whom Colwin Hall is named. Laura and Arthur worked on a study of the process of fertilization

in a variety of marine animals. **Michael Loccisano** did outstanding original work as part of a four-person team and is co-first author on a paper posted to BioArchive.

The **Muriel and Philip Feigelson Award** is given for the best undergraduate research to a graduating senior who has also demonstrated significant academic achievement. - **Naseerah Juman**

Philip and Muriel Feigelson are biology alumni who established the Feigelson Award. Philip later became a Dean of Graduate Students at Columbia P & S, and the two published together in endocrinology. **Naseerah Juman** worked with Dr. Dennehy on the interactions between antibiotics and bacteriophage. **Mazharul Mahe** worked on the same four-member team and is a co-first author with Michael on the study posted to BioArchive.

BACHELOR'S DEGREE RECIPIENTS (SUMMER 2022—SUMMER 2023)

MAJOR IN BIOLOGY

(Codes for high-achieving students)

DH – Departmental Honors
HH – with High Honors in Biology
H – with Honors in Biology
HMNS – Honors in Math and Natural Sciences Program member
MHC – Macaulay Honors College
SCL: Summa Cum Laude (3.9 GPA)
MCL: Magna Cum Laude (3.75 GPA)
CL: Cum Laude (3.5 GPA)
ΦBK – Phi Beta Kappa, the national honor society

Faneeza Ally
Carlos Aviles Ramirez
Parbinder Bains
Jaskirn Bali
Sanjay Balram
Abbiegayle Black
Delroy Brockett
Polina Brown – HH, MCL
Rebecca Bruckenstein
Dilin Budhu
Michelle Chew
Jin Young Cho
Zoha Choudhry
Jason Clarke

Alexandra Claus
 Mariam Dager - H
 Thomas Defelice
 Kasey Diaz - H
 Melissa Duverge
 Melanie Feliz - H, MCL
 Noah Ferrer
 Elizabeth Gil
 Kaussaun Gilmore - HH, SCL
 Karl Emmanuel Gregana
 Faraz Hanif
 Jessica Hernandez
 Kayla Hourany
 Michelle Jang
 Peter Joseph
 Leah Jung
 Zachary Katimbang
 Nadiyah Khan
 Min Kyung Kim
 Priscilla Kim - H
 Song Hun Kim
 Kevin Lee
 Morgan Magee H, CL
 Mazharul Mahe - HH, SCL
 Maria Mahmood
 Saoda Mahmud
 Evan Marc
 Elisabeth Martin - CL
 Mona Mona
 Ethan Moriber
 Daniel Murdakhayev - H, CL
 Rudaba Nasir
 Maciej Nicpon
 Amila Osmanovic
 Keann Ottley-Maharaj
 Tal Parness
 Leo Pinto
 Raianul Quader
 Brooke Rahmanan
 Kavita Ramdat
 Christine Ramlackhan
 Aaron Rampersad - H, DH
 Abdul Rehman
 Erica Rivera
 Arianna Rodriguez
 Ingrid Rosario
 Jannisol Sanchez
 Mechela Sewell - CL
 Saijal Sharma
 Rajbir Singh - H, CL
 Michelle Stewart
 Meckella Tennant
 Tahmina Tonni
 Victoria Traina
 Sofia Vargas
 Hui Chen Yeh - CL

MINOR IN BIOLOGY

Abram Abramov - DH, CL
 Tamara Borukhova - DH, CL
 Daniel Fedida - DH, SCL
 Ilana Greenberg
 Dahyeon Jegal - DH, MCL
 Bavel Kagzanov
 Gaozhen Li - DH, CL
 Edina Lleshi
 Cinthia Narciso - DH, CL
 Yaninza Ochoa - DH, CL
 Andreas Paparousopoulos - DH, MCL
 Natalia Paredes
 Natalie Rosado
 Kyle Smith - DH, CL
 Jenay Marshall Smith
 Tsering Tamang - DH

MASTER'S DEGREE RECIPIENTS

Sophia Betzios, "Plastic brain vascular anatomy in a mouse model of peripheral neuropathy," advisor Tajerian

J. Alex Domeyko, "What we know about the small Indian mongoose (*Urva auropunctata*), a globally introduced mammal," advisor Lahti

Kayleigh Kearnan, "Causes and impacts of shutdowns of fish lifts on East Coast hydroelectric dams," advisor Waldman

2023 Biology Department Publications

Aggad, D., N. Brouilly, S. Omi, C.L. Essman, B. Dehapiot, **C. Savage-Dunn**, F. Richard, C. Cazeivieille, K.A. Politi, D.H. Hall, R. Pujol and N. Pujol. (2023). Meisosomes, folded membrane microdomains between the apical extracellular matrix and epidermis. *Elife*, 12:e75906.

Ancillotto L., **J.L. Coleman**, A.M. Gibellini, and D. Russo (2023) Human Dimensions of Bats in the City. In *Urban Bats: Biology, Ecology, and Human Dimensions* (Moretto et al, Eds). Springer.

Andrews, S.N., **J.R. Waldman**, M.S.A. Penney, Z. Yang, and T.S. Avery. 2023. Verification of a stripeless striped Bass *Morone saxatilis* in Miramichi River, New Brunswick, Canada. *Northeastern Naturalist*. 30(3):N35-N43 (2023). <https://doi.org/10.1656/045.030.0307>

Boehm, J.T., E. Bovee, S. Harris, K. Eddins, I. Akahoho, M. Foster, S. Pell, M.J. Hickerson, G. Amato, R. DeSalle, and **J. Waldman**. (2023). The United States dried seahorse trade: a comparison of traditional Chinese medicine and ecommerce-curio markets using molecular identification. *Plos One*. <https://doi.org/10.1371/journal.pone.0291874>

Chapman, D.M., G.A. Fernandez Giné, and **U. Roze**. Functional histology of the integument of the thin-spined porcupine, *Chaetomys subspinosus*. *Can. J. Zool.* 00: 1–10. URL

Coleman, J.L., D.W.H. Lum and X.Y. Yao (2023) *From sodium-vapour to LEDs – how an outdoor lighting retrofit affects insects in Singapore*. *JUE* 9, juad009.

Geller, F.C., and **D.C. Lahti**. (2023). Is sexiness cumulative? Arguments from birdsong culture. *Animal Behaviour* 205:131-137. DOI:10.1016/j.anbehav.2023.09.006.

Hahs A.K., B. Fournier ... **Coleman J.L.**,... D.J. Kotze DJ and M. Moretti (2023) Urbanisation generates multiple trait syndromes for terrestrial taxa worldwide. *Nature Comm.* 14:4751.

Kosinski, K.E. , and **A. Meléndez**. (2023). Autophagy in Germline Stem Cells. In: Shravage, B.V., Turksen, K. (eds) *Autophagy in Stem Cell Maintenance and Differentiation. Stem Cell Biology and Regenerative Medicine*, vol 73. Springer, Cham.

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Moretto L., J.L. **Coleman**, C. Davy, M.B. Fenton, C. Korine and K. Patriquin, Eds. (2023) *Urban Bats: Biology, Ecology, and Human Dimensions*. Springer.

Poulet, C., G. Lassalle, A. Jordaan, K.E. Limburg, C.C. Nack, J.A. Nye, A. O'Malley, B. O'Malley-Barber, D.S. Stich, **J.R. Waldman**, J. Zydlewski, and P. Lambert-i (2023). Effect of straying, reproductive strategies and ocean distribution on the structure of American

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Signaling circuits and the apical
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identified in the nematode *Caenorhabditis
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Qasmieh, S., M. Robertson, C. Teasdale,
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Sharma A., **M. Tajerian**, and J. Berner
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Warburton E.M, E. Swerdfeger and
J.L. Coleman (2023) Urban Bats and
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(Moretto et al, Eds). Springer.

Wirgin, I., R.C. Chambers, **J.R. Waldman**,
N.K. Roy, D.A. Witting, and M. Mattson.
(2023). Effects of Hudson River stressors
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Wirgin, I., A.G. Fox, L. Maceda, and
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doi: 10.3389/fgene.2023.1220068. PMID:
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