

## Bowdoin Scientific Station

### Report of Activities

2015

*The Bowdoin Scientific Station (BSS) is a multidisciplinary field research station and wildlife sanctuary operated by Bowdoin College and located on the Bay of Fundy's Three Islands chain (Kent, Sheep, and Hay Islands). BSS is dedicated to:*

- *Conducting world-class ecological research,*
- *Supporting the scientific community by providing access to the organisms, habitats, and long-term ecological databases of the Three Islands region,*
- *Providing a working and living environment that is free of distractions, allowing scientists and students to become fully immersed in their work,*
- *Training students to become future leaders of their fields,*
- *Protecting the native flora and fauna of Three Islands,*
- *Providing a focal point to encourage collaboration and discourse among all members of the Bowdoin community, and*
- *Supporting the liberal arts mission of Bowdoin College and the activities of the broader scientific community.*



The *Ernest Joy* emerges from the fog to deliver much-anticipated supplies.

Photo by Evan Graff ('11), from his book *Tides and Fog*.

## FLOOD TIDE DIRECTORS' NOTE

Kent Island is in a leadership transition, so this year's annual report kicks off with greetings from multiple directors. In keeping with the spirit of the place, instead of 'incoming' and 'outgoing' directors I thought we should label our positions by the tides. So Dre and I write to you 'on the flood' – or 'on the make', as Russell or Marko might say.

For those of you who don't know us, here's a quick bit of background. Dre is a nurse, but with a PhD in ecology and evolution lurking in her past and an ongoing interest in disease ecology. Don is a biology professor down the road at Bates College, currently enjoying a research sabbatical to punctuate his stint as chair of the biology department. (In fact, we spent the first half of this sabbatical at Kenyon College, on a research collaboration with former KI director Bob Mauck.) We first came to Kent Island in 2007, as a family of two, studying the reproductive ecology of storm-petrels. In the years since, our love of the island has grown. This year, we are excited to come back in a new role, and as a family of three. Our 5-year-old daughter, Emma, has been to Kent Island before, but her memories of it are hazier (dare we say foggier?!?) than we would like. This summer will be a real treat for her, as it has been for other kids growing up there – Wheelwrights, Murrays, and Maucks, and more recently Norris-Newmans and Mennill-Doucets. The island community offers amazing growth opportunities for 5-year-olds, for undergraduates, and even for those of us that think we have things all figured out.

As we gear up for a summer of science, art, music, and rustic communal living, we want to express our gratitude to those directors and family members who have come before us and made this place what it is – in the most recent 60 years, that list includes Chuck & Louise Huntington, Peter Cannell, Nat & Genie Wheelwright, Bob & Susie Mauck, and Damon & Janet Gannon. The place also runs on the hard work and skill of the island caretakers, who in recent decades have been Marko Murray and Russell & Joan Ingalls. We feel honored to be interim stewards of Kent Island's traditions while the College carefully considers the best leadership model for the future.

Stay in touch, and we'll look for you on the flood.

Don Dearborn, Interim Director [ddearbor@bates.edu](mailto:ddearbor@bates.edu)

Dre Gager, Interim Assistant Director [abgager@gmail.com](mailto:abgager@gmail.com)

### EBB TIDE DIRECTOR'S NOTE

Kent Island is a magical place. Many things make it special, such as its remoteness and its unusual ecology (e.g., macro tides, self-compatible plants, boreal community despite temperate latitude). But what really makes Kent Island special is the people—generations of students, faculty, staff, and friends who understand Kent Island's importance and who strongly support it.

I am blessed to be able to work with this group of people and I'm proud of our accomplishments over the past eight years. Since 2008, BSS researchers have published 45 scientific papers, produced 25 undergraduate (17 from Bowdoin College) and six graduate theses, and made dozens of presentations at conferences around the globe. Our artists, writers, and musicians have made Kent Island the subject of gallery exhibitions, two books of photography, one chapter of a natural history book, a wildlife documentary film, museum exhibits, an orchestral piece, and much more. This is a pretty impressive track record for a small research station run by a liberal arts college.

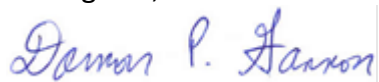
The past eight years has also been a period of great infrastructure investment. The Dorm underwent a major structural and aesthetic renovation, the Lower Lab and Capt. Gillette had structural renovations, the electrical system underwent a major overhaul, a new "family-friendly" cabin was built, the *Ernest Joy* underwent a major structural refit and was repowered, and the entire wharf was replaced (all 140' of it).

Kent Island's value goes way beyond academic productivity. Just about everyone who has spent more than a day living in our intimate community returns to the mainland with a new perspective. Kent Island stimulates self-sufficiency, civic mindedness, compassion, curiosity, a sense of stewardship, and an appreciation for simplicity. We often refer to this as the "Kent Island Ethic." Other field stations come close to replicating the culture of Kent Island, but I haven't yet found one that has the same magic. Kent Island's culture is shaped by its unique blend of remoteness, simplicity, small size, communal living, and high-powered science.

This will be my last BSS annual report. By the time you read this, I'll be heading for greener pastures. This spring, Janet and I will be joining the ranks of Kent Island alumni and friends. Professor Don Dearborn (Bates College) and his wife Dre Gager (Ph.D. in Ecology & Evolution and a registered nurse) will be taking over for this field season. Don and Dre (and 5-year-old daughter Emma) have a long association with BSS, and are Kent Islanders to their core. I'm confident that the island is in good hands. As for Janet and me...After living here for 8 years, we are looking forward to spending our first summer in Maine. We hear that it is quite pleasant.

Thank you for your unflagging support of Kent Island and for welcoming us into this community. I know you will be just as hospitable to Don, Dre, and Emma. Keep in touch and stay tuned to all of the developments that will be taking place on *your island*.

Best Regards,



Damon Gannon, Director

## 2015 In Brief

It was a busy, productive year, in which two theses and seven peer-reviewed papers were published. BSS opened for the season in early April, with three feet of snow still on the ground. The Savannah sparrow team was studying song learning and had to be present when the first sparrows returned to the island in early spring. The undergraduates arrived on the island on May 26<sup>th</sup>. Temperatures were still dipping down into the 30s (F).

Kent Island continued hosting Bowdoin Orientation Trips, Bowdoin class field trips, tour groups visiting Grand Manan, and high school students from the Upward Bound program. This spring we also hosted an Ornithology field course from Dalhousie University and forged a new partnership with the Grand Manan Museum in which two of our gifted artists, Tracy Faber ('16) and Isaac Jaegerman ('16), collaborated with Grand Manan artist, Sara Griffin, and Museum Curator, M.J. Edwards, on creating a life-sized mural exhibit depicting the Bay of Fundy's intertidal zone.

### A Sampling of Student Projects from 2015

#### **Sarah Adrianowycz, Kenyon College '16**

Sex Differences in Parental Investment in Leach's Storm-Petrel, (*Oceanodroma leucorhoa*)

For the second consecutive summer I worked on the Leach's storm-petrel project under the supervision of Robert Mauck. We gathered demography data in our two discontinuous study sites, the Shire and the Ditch, completing daily checks to establish burrow occupancy and the identity of breeding birds. With three members on the team we were able to investigate a number of questions, including parental foraging during incubation, pair coordination, and fluctuating asymmetry.

I am currently studying sex differences, specifically in parental care. Sex differences could manifest in various forms in storm-petrels, so I am utilizing both data I collected and data from previous years to investigate parental behavior during incubation and chick rearing. This season we applied ten geolocators to incubating storm-petrels. I am examining these data, in conjunction with two additional years of geocator data, for differences in the foraging decisions of males and females. We predict that the foraging area will differ between sexes, as will the duration and distance of foraging bouts. These predictions are informed by data collected using passive integrated transponder (PIT) tags which indicated parental attendance at the nest differed throughout incubation and chick care. By investigating the question of sex differences using multiple lines of evidence, I hope to be able to present a compelling honors thesis in the spring.

Coming back to Kent Island has helped me appreciate the island even more for its unique combination of scientific and social opportunities. The flora and fauna are amazing, and perhaps only rivaled by the peers and advisors with whom I have had the pleasure of working. This year I learned more about the Savannah Sparrow project and was able to dabble in the many research projects unique to Kent Island.

**Lauren Michael, Kenyon College '17**Fluctuating Asymmetry and the Effect of Health on Reproductive Success in Leach's Storm Petrel (*Oceanodroma leucorhoa*)

The Leach's Storm-Petrel, a long-lived pelagic seabird, has to find a balance between its energetic investment in its young and in its overall health. If they prioritize their offspring over their condition, the resulting health deterioration can decrease their chances of both survival and future reproduction. In this study, the relationship between health and reproductive success was examined using a technique known as fluctuating asymmetry. Fluctuating asymmetry (FA) is defined as an organism's deviation from bilateral symmetry in a morphological trait, usually as a consequence of an environmental stressor (Galban 2011, De Coster et al. 2013). FA can be used as a phenotypic measurement of developmental instability. This study tests the hypothesis that fluctuating asymmetry is a measurement of nutritional condition and overall bird health in the Leach's Storm-Petrel, and can therefore be used to predict the reproductive success of this study species. Right and left tarsus, wing, and tail feather measurements were taken on 91 Leach's Storm-Petrels to analyze the effects of asymmetry on lay date, egg volume, and mate choice. Tail feathers were also pulled from 35 of those birds to examine the link between nutritional condition and asymmetry through the method of ptilochronology. After an initial analysis, there seems to be no clear correlations between asymmetry and egg volume, asymmetry and lay date, and asymmetry and mating. The data will be more thoroughly examined after the field season ends in late July and all data are fully collected. I am hopeful that this study will be able to offer greater insight into the concept of fluctuating asymmetry, a theory that has surfaced relatively recently and has been widely debated. Kent Island has been an incredible place for me to do my research this summer. I have gained important knowledge and logged an entire summer of field experience that is sure to help me in my pursuit of a career in field biology.

**Claire Schollaert, Bowdoin '16**Reproductive Success of Herring Gulls (*Larus argentatus*): The Contributions of Hatch Order, Hatching Asynchrony, and Nest Site Selection

This summer I looked at inter-sibling dynamics of Herring Gull chicks and the effect of foraging behavior on reproductive success. With the Herring Gull population in decline, most likely as a result of changes in an anthropogenically produced food base, it is becoming increasingly important to enhance our understanding of the reproductive mechanisms of the species and related behaviors, such as forage behavior, that contribute to an individual's reproductive success. For this reason, Kate Shelpr, a master's candidate at UNB, and I employed fourteen GPS tags on adult Herring Gulls in order to track forage behavior throughout the breeding season. Additionally, I looked at sibling dynamics within Herring Gull nests in an attempt to explore food distribution strategies employed by parents and how these affect reproductive success. It is known that lower quality adults that are unable to sufficiently feed all chicks in a three-chick brood utilize brood reduction strategies such as hatching asynchrony in order to increase the fledging potential of certain chicks at the expense of others by creating sibling hierarchies within nests. It is likely that this disproportionate resource provisioning strategy, which is facilitated by hatching asynchrony, is more often utilized by parents of lower fitness, resulting in greater growth rate variation between siblings within the nests of these adults.

Using Ecotone GPS tags and stable isotope analysis, forage behavior of Herring Gull adults was investigated, while simultaneously monitoring chick growth in the corresponding nests throughout the

2015 breeding season. Moving forward, the GPS and supplementary stable isotope data will be used to look for potential links between the foraging behavior of certain adults to their general reproductive success for the season in addition to intra-brood dynamics derived from chick growth data. More specifically, examining intra- and inter-brood growth rate variations may provide insight into the effectiveness of sibling hierarchy generation as a strategy for reproductive success.

My experience this summer on Kent Island has been immensely valuable. Having the opportunity to work with a masters student on her thesis while also working on my own independent research has been an amazing learning experience.

### **Liam Taylor, Bowdoin '17**

#### **Biparental Coordination in Leach's Storm-Petrels:**

This summer, I gathered data in an attempt to unravel a mysterious step in the reproductive strategy of Leach's Storm-Petrels (*Oceanodroma leucorhoa*). In order to successfully incubate their single-egg clutches in underground burrows, while also having to travel up to thousands of kilometers away from their nesting colonies to forage, the Storm-Petrels utilize obligate biparental care strategies. Several known adaptations, such as the Storm-Petrel eggs' ability to withstand long periods of non-incubated neglect, are deeply tied to the unknown scheduling processes by which two adults coordinate care. As shown in other species, this care may be most strongly influenced by an individual's physiological condition and that same individual's incomplete knowledge of its mate's behavior.

To uncover the driving forces behind biparental coordination, my project first involved a focus on real-world data. By tagging both parents at several nests with Passive Integrated Transponder (PIT) tags, I could get a unique-ID time record of movements in and out of burrows during incubation. With this information, the length of foraging and incubation bouts-- as well as the cues that appear to be linked with these transitions-- can be matched to specific parents. These PIT data show that the mechanics underlying biparental scheduling behaviors are connected to an individual parent's condition at the time of incubation, as well as the arrival and incubation behavior of a given bird's mate.

A more complete understanding of biparental care will rely on an increasingly generalized model involving stochastic life-history and environmental factors. To this end, I have also begun work on a programmed energetic simulation. By modeling the parameters that drive the Storm-Petrel's survival and reproductive strategies, I can represent actual evolutionary pressures on a population of computer-generated birds. As the parameters are fine-tuned (again using real-world data), and the program is expanded, I hope to see which abstract biparental scheduling strategies may lead to the highest potential fitness, and compare those to the strategies represented in the PIT data. Thus, those hypotheses which involve the actual movements of the birds and those which arise from the simulation can inform each other.

This was my second summer on Kent Island, and my experience only served to solidify my earlier impressions. On the island, you are completely surrounded by both your own and others' study species. Beyond being a marvelous natural show, this display forces you to be honest in representing your work. You can't ignore your organism's (or nature's) reality in favor of a pleasant hypothesis, or an oversimplified model. Your science becomes bound to your environment in the most honest possible way.

Beyond that, the island also offers you the valuable experience to, in the clichéd phrase borne from less sincere opportunities, “network.” You get to meet and live with professors, students, and researchers. This kind of “networking” isn't to get you another fellowship, or a leg-up for graduate

school, or some kind of social prestige. It's a sort of honest communication from which you can learn about science, and a certain lifestyle, better than you can from stories or a textbook. You can begin to understand the real scientific methodology, both in a personal and professional sense, that gets edited out somewhere along the way between idea and publication.

**Gillian Kramer, Bowdoin '16**

## Effects of Seabirds on the Soil Chemistry of Islands

Foraging at sea and breeding and resting on land, seabirds transport materials between marine and terrestrial habitats and are recognized as important biotic vectors that link and influence both ecosystems. Frequently nesting on coasts and offshore islands, seabirds can chemically alter the edaphic conditions of the areas they inhabit. They supply nutrients, energy, and biomass in the form of feather, guano, eggshell, fish scrap, and carcass debris. As the climate changes and seabirds travel to new places or develop new feeding patterns, their presence may significantly impact the new areas they inhabit. In this study, I investigated the hypothesis that on Kent Island, an important migratory stopover point and breeding site for many seabirds, areas with highest densities of herring gulls and Leach's storm-petrels would have different and unique soil, and possibly plant species, compositions. The effects of seabirds on soil composition in one breeding season has not yet been quantified, so I collected soil samples once before gull and petrel chicks hatched and once soon before each fledged to measure and compare the input of each species. I will analyze the samples for metal concentrations and total N, S, P, Na, K and Ca content using an ICP-OES and CHNS elemental analyzer. I expect to see differences in the soil composition in areas of highest gull and petrel density from areas of lowest density, but predict that the nutrient input of either species in one season is not great enough to affect plant composition. Over the course of multiple breeding seasons, the input of high densities of gulls and petrels may alter the soil composition and impact what plant species can and cannot grow.

By collecting soil samples and plant and habitat data, I was able to navigate and see all of the incredible parts of Kent Island, and some on Grand Manan, Wood, and North and South Green Islands (all in the Bay of Fundy). I became more proficient in identifying wildflowers, grasses, and trees, and learned more about the activities and characteristics of many pelagic and passerine bird species. I was able to help other undergraduate and graduate students with their projects and better understand other research methods and current questions or topics being investigated in the field. I learned that doing fieldwork and analyses requires being patient and adaptable, but that the process is exciting and enriching in the long run. This summer I have developed a stronger love and interest in ecology, and hope to continue to explore and do work in the field in my time during or after Bowdoin.

**Katie Craighill, Bowdoin '17**

## Bowdoin Scientific Station Habitat Management Plan

In order to conserve the diverse collection of species and habitats on Three Islands as well as maintain important study sites, I began a habitat management plan, which catalogues the long and short-term management goals and concerns for Kent, Hay, and Sheep Islands. The plan also considers the effects of human disturbance on the islands and how to reduce human impact by improving facilities, removing detrimental equipment, and managing the influx and disposal of materials.

In Section A (Property Review) this plan compiles information on the history of Three Islands and their current conditions. In this section I include information about the species of interest on the island and their preferred habitats, in particular savannah sparrows, Leach's storm-petrels, and gulls. I also include an inventory of existing infrastructure on the island. In Section B (Management Recommendations) I provide specific management options and recommendations, which address the identified concerns and management goals of the island. In addition to sections A and B, an extensive Appendix (Section C) has been gathered that contains raw data, maps, lists of species and habitats on the island, photographs, and other pertinent materials for the management plan.

I have started several pilot studies on Kent, Hay, and Sheep Islands, including a tree seedling density study, exclosure analysis, pond water quality assessment, and vegetation inventory study. From these studies, I have collected data that will supplement the current information compiled for the habitat management plan. The plan has been developed with the intention that it is open to input and modification from current and future stakeholders.

My experience on Kent Island this summer was a unique introduction to field research. I worked hard during the day, tromping through the dense vegetation on Hay and Kent Island with my quadrat and notebook, and spent my evenings gallivanting around with friends and watching the sunset from the wharf.

### **Emily Weyrauch, Bowdoin '17**

Science Journalism and Poetry at the Bowdoin Scientific Station

I spent my time on Kent Island as an artist-in-residence working on two writing projects. One project was writing articles about the various Bowdoin students doing work at the Bowdoin Scientific Station. The articles (seven in total) were each published on the Bowdoin News website and shared on various social media platforms. My other project was poetry writing. I set the goals of writing one haiku per day, one full-length poem per week, and one longer shore ode poem that I worked on continually through the summer—and achieved all of them (I ended up writing 3 haikus per day). Writing every day is habit-forming, and throughout the summer I felt more and more comfortable being in my own head and writing observations, associations, thoughts and sensations.

I have grown artistically and personally in many ways this summer. In addition to finally having time to devote to writing poetry, I also had time to read poetry—really read it. Thanks to Professor Anthony Walton's suggestions, I read Robert Hass' translated haikus of Bashō, Buson, and Issa—three Japanese masters of the form. I also read a book of A. R. Ammons' selected poems. Sitting outside in nature to read poems aloud and let the words resonate in your mouth and in the air and echo on the rocks around you allows you to embody the poem in a more committed way than simply reading on a page or skimming allows. I found that taking the time to slow down and read poetry has allowed me to create poetry of my own that is more subtly influenced by the masters and more true to what I want to convey. The quiet beauty of Kent Island allowed for just that.

In writing the feature articles on the Bowdoin student scientists and artists, I was able to familiarize myself better with the ins and outs of their projects, spending time in the field with each subject so that I could accurately represent them in my writing. I found myself helping with their projects and I no longer felt like an outsider. I was not just a journalist, not just a poet—I was a community member.



**Isaac Jaegerman, Bowdoin '16**

Artist in Residence - Grand Manan Museum Intertidal Mural Project

As an artist-in-residence on Kent Island I spent the summer painting a mural depicting the intertidal zone for the museum on Grand Manan. Working with fellow artist-in-residence, Tracey Faber '16, and local Grand Manan artist, Sara Griffin, we completed three large murals, and formulated plans for a fourth wall to be completed next year. I focused on a mural of the dulse industry, which has played an important role socially and economically on Grand Manan since the mid 1800s. Dulse is a type of edible seaweed that grows in the infralittoral zone of the intertidal. The other two walls depict scenes of clamming in the soft sediment of the lower intertidal as well as an underwater view of the intertidal zone at high tide, when species of marine mammals, fish, seabirds, and myriad others inhabit the same space.

Ultimately, our goal was to create an informative piece of art, based in scientific reality and relatable to an audience ranging from children to fishermen, scientists, students, and any member of the general public. Visual art is an effective communicator of ideas and stories, and our murals tell the scientific story of the intertidal zone as it relates to the culture of the Atlantic coast, and more specifically, the culture on Grand Manan and Kent Island. Spending our weekends on Kent Island allowed Tracey and I to glimpse the intertidal zone as it exists almost completely untouched by humans except in small, controlled ways. We also gained considerable insight into many intertidal species by observing and participating in fellow students' experiment-based research projects.

**Tracey Faber, Bowdoin '16**

Artist in Residence - Grand Manan Museum Intertidal Mural Project

The intertidal mural project is a collaboration between the Grand Manan Museum in New Brunswick, Canada, and the Bowdoin Scientific Station on Kent Island. Grand Manan artist Sara Griffin, fellow BSS artist-in-residence Isaac Jaegerman, and I created a museum exhibit depicting the ecosystem and industries of the intertidal zone in the Bay of Fundy. The Bay of Fundy is unique in its extreme tidal range, and the intertidal zone strongly impacts the coastal communities and industries that are dependent on this ecosystem. Translating the scientific concepts of the environment for local residents and fishermen as well as tourists increases people's understanding of the ecosystem and their ability to manage and conserve it. We designed the mural and its interpretive materials to convey the concepts of the vertical zonation, ecological community, food webs, and ecological niches within the intertidal zone. The challenge of this project was telling a scientific narrative through an artistic medium, but communicating a story about an aspect of the world is the function of all art at a fundamental level. This story is about the interactions between species in an ecosystem and between a community and its environment. We completed three separate murals portraying the infralittoral fringe; one depicting dulse harvesting in the rocky intertidal, another showing clamming in the soft sediment, and the last illustrating the subtidal zone. The mural includes local people as well as landscapes and organisms, so it will be an educational tool for the Grand Manan community as well as tourists.

I spent the previous summer on Kent Island doing a creative writing and painting project, and when I was given the opportunity to work at the Grand Manan Museum this summer, I was excited to return. Spending the week painting on Grand Manan while living in the Swallowtail Lighthouse keeper's cottage and having weekends on Kent Island gave me a broader sense of the ecosystems and communities of the Bay of Fundy. I was able to experience the environment through the lenses of art

and science at the same time, and to be a part of the Grand Manan and Kent Island communities. The people of Grand Manan were incredibly open and welcoming to us, characterizing this summer as one of close connections in isolated yet never isolating places.

### **Sam Seda, Bowdoin '15**

Artist in Residence – Culinary Historian / Cook

This summer, I got the chance to return to Kent Island and work as the Station Cook once more. I consider myself lucky to have been able to return to such a wonderful environment, so I wanted my project to be something I could give back to the Island upon its completion. Many cooks have consulted the box of scraps and index cards that bear recipes that have been successful over the years for ideas and suggestions, but since the Island's summer population tends to grow with each passing year, many recipes are scaled to feed groups of 4 to 8. I incorporated multiple recipes from the Station's history, as well as from my own repertoire of Island meals, into an updated Kent Island Cookbook, consisting of about 30 recipes ranging from bread recipes to desserts. It also contained 3 short essays, my attempt at providing some sort of insight into the cook job, for future Cooks and islanders alike. It is hard to describe this job to anyone, especially during the year when you're back in the Bowdoin mindset, and I will be out in the working world next year making me even further removed from the process of cook selection. I want my work to be useful in the kitchen as well as in the head, as I address common internal and external stressors of the job.

The cook job itself was as much of a challenge as it was last year, albeit with completely different stressors. While I found myself readily able to put out adequately sized meals on time and plan out menus for every week, the job started to feel routine much earlier than it did last year. My project kept me inside the majority of days, and by the time dinner was served I'd find myself exhausted, trying to ignore the next day's work looming in the sunset-hued background. Fortunately, new developments quickly made the job much more challenging, which was a welcome hurdle to practice jumping over. In addition to the vegetarians in our group, we gained a gluten-free resident early on in the season, followed by another gluten-free and dairy free researcher who stayed for about a week, forcing me to adapt my meals and provide options that checked all three dietary boxes. There was a huge influx of people to feed over a weekend when a biology class from Dalhousie University arrived, but they were excellent guests and a pleasure to cook for, thanks to a scheduling innovation that moderated the amount of people receiving food at any one time. I also began to take a much more active role in the procurement of our resources, aiding Mark Murray, our caretaker, in our weekly grocery runs. The island consumed an unprecedented amount of food, impressive in both scale and scope but typical in terms of the island's growing popularity and the appetites of birders, but the additional set of hands made what would be exhausting labor (loading/transporting carts, loading/transporting boxes, unloading boxes to store in coolers when necessary, unloading boxes into van, unloading van and transporting boxes to boat) merely strenuous. I would enthusiastically recommend incorporating a Grocery run into individuals' Kent Island curriculum, both for the aid it provides and to give Islanders another glimpse into how much work it takes to feed such a hungry island.

## 2015 Publications

(\* = at least one undergraduate author, § = at least one graduate student author)

- § Dearborn, DC, AB Gager, ME Gilmour, AG McArther, DA Hinerfeld, and RA Mauck. 2015. Non-neutral evolution and reciprocal monophyly of two expressed Mhc class II B genes in Leach's storm-petrel. *Immunogenetics* 67:111-123.
- \* Fricke, E., K. Blizzard, D. Gannon, and R. Mauck. Model of burrow selection predicts pattern of burrow switching by Leach's Storm-petrel (*Oceanodroma leucorhoa*). *Journal of Field Ornithology*. (BSS publication no. 253)
- § Gilmour ME, CR Lattin, LM Romero, MF Hausmann, RA Mauck, and DC Dearborn. 2015. Finding the best predictor of reproductive performance of Leach's Storm-petrels. *Auk: Ornithological Advances*. 132:191-205. (BSS publication no. 250)
- § Mitchell, GW, Woodworth, BK, Taylor, PD & Norris, DR. 2015. Age specific differences in flight duration and groundspeed are driven by wind conditions aloft: an automated telemetry study. In press: *Movement Ecology*. (BSS publication no. 251)
- § Pakkala, J.J., D.R. Norris, J.S. Sedinger, and A.E. Newman. 2015. Experimental effects of early-life corticosterone on the hypothalamic–pituitary–adrenal axis and pre-migratory behaviour in a wild songbird. *Functional Ecology*. DOI 10.1111/1365-2435.12603. (BSS publication no. 252)
- § Woodworth, BK, GW Mitchell, DR Norris, CM Francis & PD Taylor. 2015. Patterns and correlates of songbird movements at an ecological barrier assessed using landscape- and regional-scale automated radio-telemetry. *In press: Ibis*. (BSS Contribution no. 254)
- §\* Woodworth, B.K., A.E.M. Newman, S.P. Turbek, B.C. Dossman, K.A. Hobson, L.I. Wassenaar, G.W. Mitchell, N.T. Wheelwright, and D.R. Norris. 2016. Differential migration and the link between winter latitude, timing of migration, and breeding in a songbird. *Oecologia* (in press). DOI 10.1007/s00442-015-3527-8. (BSS Contribution no. 255)
- Wheelwright, N.T. 2016. Eradication of an ecosystem engineer. *Frontiers in Ecology and the Environment* 14:53-54.

## Reports & Theses

- Bloch, J. 2015. Environmental effects on begging call ontogeny of nestling Yellow. Honors Thesis, Bowdoin College
- Walder, C. 2015. Making the Cut: Benthic Community Responses to Rockweed (*Ascophyllum nodosum*) Harvesting Honors Thesis, Bowdoin College.
- Gannon, D.P. 2015. FSML: Strategic Planning for the Bowdoin Scientific Station. Final Report to the National Science Foundation, Improvements to Infrastructure of Field Stations and Marine Laboratories (FSML) Program.
- Lovit, M. 2015. Rare Passamaquoddy flora of Grand Manan. Project Report, Florence M. Christies Grant in Botany from the New Brunswick Museum. Includes surveys of Ross, White Head, and Kent Island.

## News from Kent Islanders

Four students in Bowdoin's Class of 2015 were awarded Latin Honors at Graduation:

- Elisabeth Strayer, Magna Cum Laude
- Christine Walder, Magna Cum Laude
- Elizabeth Brown, Cum Laude
- Claudia Villar-Leeman, Cum Laude

Five Kent Islanders won awards at Bowdoin College's Honors Day Celebration 2015

- Emily Hochman '15: Prize for Excellence in Romance Languages
- Elisabeth Strayer '15: Pray English Prize
- Claudia Villar-Leeman '15: Copeland-Gross Biology Prize
- Christine Walder '15: Academic Award in Environmental Studies & Sumner Increase Kimball Prize in Natural Sciences
- Cailey Oehler '15: Bowdoin Teacher Scholar & Philip C. Bradley Spanish Prize

Cailey Oehler ('15, BSS artist-in-residence & cook, 2013 and 2014) received a Fulbright Fellowship. She is teaching English and organizing a community kitchen in Colombia.

Kent Island Alum, Iris Levin ('05), returned to the Bowdoin campus in early spring to give a seminar for the Biology Department called "Swallows, Seabirds and Social Networks."

Professor Nat Wheelwright received the 2015 Eugene S. Odum Award for Excellence in Ecology Education from the Ecological Society of America.

Christine Walder ('15) is starting a Masters Program in Physical Geography and Ecosystem Analysis at Lund University in Sweden.

Jackson Bloch ('15) is competing in a series of long-distance Nordic ski races across Europe this coming winter. He will be in Sweden to ski in the Vasaloppet, the world's oldest, longest (90 km!), and largest cross-country ski race, where he also plans to meet up with fellow Kent Islander, Christine Walder.

Liam Taylor ('17) won a Grua/O'Connell Research Award to travel to Kenyon College to work with Bob Mauck and Don Dearborn to create some predictive models of incubation behavior in Leach's Storm-Petrels. Liam is also a finalist for the prestigious Goldwater Scholarship (Good luck, Liam!)

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