KENT ISLAND

Monica Das
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WELCOME</td>
<td>2</td>
<td>An overview of the mission of this magazine, a taste of what is to come, and an invitation to read and to think</td>
</tr>
<tr>
<td>IMAGES OF KENT ISLAND</td>
<td>3</td>
<td>A meditation on the beauty of the island through images of the landscape, flora, fauna, and Scientific Station</td>
</tr>
<tr>
<td>PROJECT OVERVIEWS</td>
<td>14</td>
<td>Descriptions of the main research projects on the island this summer – birds, bugs, and more!</td>
</tr>
<tr>
<td>A BRIEF HISTORY</td>
<td>18</td>
<td>A treatment of the human settlement and history of Kent Island from the Passamaquoddy to the present</td>
</tr>
<tr>
<td>PICTURES + POEMS</td>
<td>28</td>
<td>Paired photographs and poems from two artists-in-residence considering nature, man, and the nature of man</td>
</tr>
<tr>
<td>LEACH’S STORM-PETRELS</td>
<td>38</td>
<td>A summary of the study of this mysterious bird at BSS, from the 1950s to this summer</td>
</tr>
<tr>
<td>LIFE ON THE ISLAND</td>
<td>46</td>
<td>A window into everyday life on one very small isolated island – entertainment, traditions, and intrigues!</td>
</tr>
<tr>
<td>IN DEFENSE OF FIELD STATIONS</td>
<td>69</td>
<td>An essay considering the value of field stations and field research, and an evaluation of a summer spent on Kent Island</td>
</tr>
<tr>
<td>BIRDS OF THE BAY OF FUNDY</td>
<td>74</td>
<td>Images of some of the many birds that make their homes on Kent Island and the Bay of Fundy-Gulf of Maine region</td>
</tr>
<tr>
<td>A TRIP TO MACHIAS SEAL ISLAND</td>
<td>87</td>
<td>A tale of adventure and the high seas…but mostly, a tale of puffins and razorbills</td>
</tr>
</tbody>
</table>
“This is a good place,” Mark Murray says with a smile, joking about how although the AARP has taken to sending him membership offers, he is not ready to retire, and certainly not ready to leave. The caretaker of the Bowdoin Scientific Station on Kent Island is right – this is a good place, beautiful and unique. Kent Island lies only 120 miles from Bowdoin’s main campus in Brunswick, Maine as a bird would fly, but the trip takes twelve hours, ample time for a lifestyle recalibration. The electricity supply here depends on how much energy our 25 year old solar panels can capture on this almost perpetually foggy island at the mouth of the Bay of Fundy, while internet access is limited and cell phone use costs a small fortune because the island is in Canada.

Though the station has changed considerably in recent years, and now boasts a renovated kitchen and dormitory, a summer here is still unlike a summer anywhere else. The isolation and rustic nature of the station are essential characteristics of Kent Island, contributing to the communal feeling of the summer experience here and marking the island as separate from the bustling, competitive, and fragmented outside world. The many people who love this island, Mark among them, have worked hard to preserve these qualities.

I was lucky enough to spend this summer on Kent Island with a Bowdoin Scientific Station artist-in-residence fellowship. The island is an astounding fairyland of dewy mornings, gorgeous sunsets muted like watercolors by the fog, and, everywhere, birds. Herring gulls, Leach’s Storm-petrels, Savannah Sparrows, Bald Eagles, and many other species fly across the island’s skies and attract scientists and artists alike. As someone interested in the mechanics and the poetics of nature and in highlighting the inexorable links between them, I found much to love here, and much I know others will love as well. I undertook this project in order to explore life on Kent Island – to look at the impact of its unique environment on the research station, to examine the interplay between respect for the past and forward momentum in shaping our own history, and to make a small misty island in New Brunswick, physically only accessible by a trip involving a car, three boats, and the favor of the weather gods, a little more accessible to the greater world. I hope you find the following pages informative, entertaining, and inspiring.
IMAGES OF KENT ISLAND
Selected moments from a summer of wonder

A double rainbow appears from the fog behind the shop and the warden’s house.
Herring gulls fly as the sun sets over Sheep Island, one of the three islands Bowdoin College owns in the Bay of Fundy.

A damselfly hovers in the grass near the Bowdoin Scientific Station’s solar water pump.
One of 100 on the island, a tree swallow box sits empty. In the 1980’s, all the boxes were occupied, but this year only four held birds.
Images of Kent Island

The view of Kent Island from the island's southern end

Rainboots, the most beloved items on Kent Island, arrayed on Russell Ingall’s boat Island Bound during a whale watch
The beautiful but dangerous Bay of Fundy is an everpresent force on Kent Island.

A Small Copper, one of the most common species of butterflies on the island
Silverweed peers out from some rock, a hidden burst of color on an island that appears gray at first glance.

A fishing boat, spotted through the clothesline. Almost everyone Grand Manan, the closest populated island to us, makes his living from the sea.
Students enjoy a bonfire on the east beach with music and s’mores during their time off.
BSS Director Damon Gannon holds out a Radiated Shanny, a small fish found in the intertidal zone.

The introduction of snowshoe hares in the 1950s decimated the island's forests, leaving dead trees with no saplings to replace them, but since their elimination in the early 2000s, young evergreens have begun to appear.
Herring Gulls nest inland and on stony beaches, and their eggs blend in with both dry grass and with stones.

Iris grow wild on Kent Island, along with many other wildflowers.
A walkway of moss unfolds through the forest like a carpet unrolled before a retinue of fairies or a researcher eager to reach the "shire" - one of the main Storm-petrel study sites.
Images of Kent Island

One of the beautiful Kent Island sunsets behind the dock and the Captain Gillette, the building in the foreground.
Cailey Oehler is an artist-in-residence and our cook. She spends her mornings on a bilingual poetry project, and her afternoons creating delicious dinners for the students, professors, island visitors. She has made it her mission to keep our kitchen stocked with enough delicious granola and homemade yogurt to satisfy the ravenous appetites of Kent Island breakers, a seemingly impossible task, but one she accomplishes gracefully.

For her artistic project she originally planned to work with a group of themes she thought a summer on Kent Island might provide insight into – ideas like isolation, exile, and solitude. She chose a group of Spanish poems that both dealt with these themes and incorporated bird imagery, as she knew that birds were an integral part of Kent Island life. She planned to translate those poems to English, then to write her own poetry in response to each poem and based on her own experiences.

However, by the time she had finished her translations, she realized that life on Kent Island was very different than she had imagined it would be. Her project changed, therefore, to focus on sensory poetry illustrating tiny moments and images, especially of daily routines. She also wrote a short story inspired by her time in the kitchen. You will see some of her poetry, along with the image that inspired each piece, later in the magazine.

Will Montag’s project consists of a survey of two groups of beetles that previous studies of beetles on the island have largely ignored. The Intertidal Rove beetles – of the family Stethylinidae – live in the intertidal zone, making them difficult to find, especially during high tide, when the beetles survive in air pockets. Fungus beetles, which belong to several related families, are “head of a pin small,” Will explains, so they are difficult to collect by eye or to identify without the aid of a good microscope. Thus, both groups of beetles have proved challenging to study in the past.

Will uses a variety of traps, including pit traps and beat sheets to collect the beetles. He records information about weather, substrate, and other environmental factors as he collects subjects in order to learn about the beetles’ life histories. His study of Intertidal Rove beetles indicates that the beetles thrive on driftwood in the sand beaches at the north end of the island. However, Will remains unsure if this prevalence reflects the fact that more sand-dwelling Intertidal Rove beetles live on the island than bedrock or cobble-dwelling ones do, or if it simply indicates that the rock dwelling species, which tend to hide deep in cracks of stone or under pebbles, are harder to find. Will plans to use his results as the basis for an honors thesis in Biology.

Kasey Villeneuve’s two projects this summer both relate to categorizing the abundance of wildlife on and around Kent Island. Her first project involves observations of the island wake off the south end of the island. On clear days, she uses a spotting scope to observe this oceanographic feature caused when the outgoing tide forces water masses to split and then to crash back together around
the island, creating an eddy which concentrates plankton and small fish.

This plentiful food source attracts fish, marine mammals, and birds. Each day she observes it, Kasey calculates the location of the wake based on the angle of her scope and a few other constants, and sketches the positions of the wake and the animals she sees. Marine birds, seals, and porpoises all feed in the wake regularly; though her statistical analysis is not complete, marine animals appear to feed in the wake significantly more often than they do in the surrounding areas.

For her second project, Kasey surveys the intertidal zone at a series of locations all around the island. She records the amount of macroalgae (seaweed) present, and identifies macroalgae and invertebrate species in order to gain a better understanding of intertidal ecosystems.

Doctors Amy Newman and Ryan Norris, professors at the University of Guelph in Ontario, have been coming to Kent Island for five years to study Savannah Sparrows. They rise early, like the birds they study, and can often be spotted standing silently, leaning on their “sparrow sticks” – tall staffs crafted from fallen branches – and watching for their elusive subjects. They use the sticks to flush birds from the grass and to locate their well-hidden nests.

A large part of their work involves piecing together what Ryan calls the “puzzle” of the birds’ life histories by banding and tracking individual birds. This year’s chief mystery is why Savannah Sparrow numbers and density appear unusually high. Amy and Ryan follow which birds come back to the island each summer, which birds mate with each other, and what territory each bird chooses and defends each year. They also use light-sensing geolocators to determine where the birds winter; this year sparrows returned from as close as New York and as far away as Florida.

In addition, Ryan and Amy measure a stress hormone found in the sparrows’ blood called corticosterone. They take a baseline blood sample within three minutes of capturing a bird, and draw another sample after holding the bird in a cloth bag for 30 minutes. Using the years of data they have collected, Ryan and Amy can compare the stress responses of returning birds with information from previous years, such as the number of eggs in the clutch they hatched from, lineage, and age.

Sheela Turbek is working on Savannah Sparrows this summer, both with Ryan and Amy and on her own project. She works extensively with Ryan and Amy in the field. They locate the nests of all Savannah Sparrow pairs on their vast study site. If the nests are preyed upon by gulls, ravens, or crows, as they often are, they find the replacement nests as well.

Once they have located the nests, the researchers check them every other day to see how many eggs are present. They record the number of nestlings that hatch, and seven days later, band the young birds, take blood samples, weigh the birds, and measure each bird’s tarsus – comparable to our shin bone. On nice days, they set up fine nets called mist nets and collect and band adults, in order to keep track of the populations.

In addition, Sheela has an independent project on Savannah Sparrows, most of the laboratory analysis for which she will do in the fall as an honors thesis in Biology. She plans on taking small feather samples from the middle of the retrix (part of the tail feathers) of
several birds. She will analyze the stable Hydrogen isotope ratios incorporated into the feather growth wherever the birds were while their feathers were growing – in this case, their wintering sites.

Hydrogen isotope ratios change depending on elevation, precipitation, and atmospheric gradients. The samples she collects can tell her the latitude each bird wintered at. In addition, some returning birds were outfitted with geolocators last year, so Sheela can compare the locations from the geolocators to her chemical data in order to determine the usefulness of Hydrogen isotope signatures for future experiments. For a little more detail on Hydrogen Isotope ratios, see the Spotlight on Science on page 52.

Dave Raskin, one of the artists-in-residence this summer, is composing a piece of music drawing on his experiences on Kent Island. Although he first planned to create an objective musical portrait of the island, a few weeks of struggling with purely representative music convinced him to change his piece to something more experiential and emotional, evoking hopeful anticipation, homesickness, and exploration among many ideas. Because the presence of birds and fog are such an integral part of the summer experience here, however, he has retained some representational motifs in his music.

He originally planned to write a piece for a chamber group, and to possibly include electronic elements as well, but due to an unexpected opportunity facilitated by his advisor at Bowdoin, the Portland Symphony Orchestra has offered to read his piece in September. Therefore, he is now embroiled in the ambitious undertaking of writing a full orchestral composition. He works closely with Vincent Shende and George Lopez, a music professor and an artist-in-residence at Bowdoin, respectively. He says their help is especially valuable in helping him avoid the typical mistakes composers make when writing for instruments they do not play.

One of the most interesting and challenging parts of composing, he explains, involves striking the balance between what he wants to hear and what an orchestra can reasonably accomplish. Especially now that electronic equipment allows a composer to retain complete control of his music if he wishes to, factoring physical limitations into a piece can be frustrating, even taking into consideration the lushness and versatility live instruments can provide. Knowing that professional musicians will read the piece lessens the pressure to simplify his ideas. Still, this project has been an opportunity for Dave to consider the relative merits of absolute artistic control and the possibility of future interpretation.

Claire O’Connell is working on several projects with Leach’s Storm-petrels this summer. With Claudia and Elizabeth, she monitors population demographics and reproductive success in a study site called the Shire, continuing work on a decades-long study.

By building fake burrows and experimenting with low-energy heating elements, Claire is trying to determine whether or not it is possible to experimentally raise and control burrow temperature. If they could manipulate burrow temperatures inexpensively and unobtrusively, future researchers could design experiments to test the relationship between climate change and reproductive success.

Another of her projects, in collaboration with Claudia, uses ptilochronology, the study of feather growth rates as an index of nutritional health. They pluck a tail feather from an adult bird and determine how much of the feather grows back in a given time period. The length indicates how much surplus energy the bird has available to spend on growing back the feather. Claire and Claudia aim to compare this ability to spend ener-
Energy on feather growth – essentially energy used for personal survival – with burrow temperature, which can be used as a measure of energy put toward reproductive success.

Finally, male and female storm-petrels are monomorphic, and very difficult to differentiate. Blood samples reveal different levels of hormones, but are invasive and unwieldy. Research suggests that part of the males’ chatter call has a higher pitch than that of the females’, and Claire hopes to use recordings and playbacks to determine whether this difference can be reliably recognized and utilized in the field.

Claudia Villar, like Claire and Elizabeth, monitors the Leach’s Storm-petrels that nest in underground burrows in the Shire. The students check almost 400 burrows every two days, and document the presence of adult birds, eggs, and chicks that they find.

Claudia also works with Claire on the ptilochronology project, trying to determine a relationship between the amount of energy birds can spend re-growing feathers and the temperatures of their burrows.

Additionally, Claudia’s independent experiment – in conjunction with the same project – deals with petrel burrows. Claudia’s project draws on a paper written by Bowdoin students and Kent Island faculty that is currently in review for publication. Petrels are generally extremely loyal to their burrows, more so even than they are to their mates. However, following reproductive failure petrels sometimes switch burrows, and the paper offers a ranking of burrow characteristics based on the burrows birds tend to move into. Claudia hopes to compare this ranking system to incubation length, hatching success, and growth and development in order to see if “better” burrows can actually be correlated with higher reproductive success.

For her independent project, Elizabeth hopes to examine the diet of Storm-petrels. The birds generally eat copepods, aggregates of zooplankton, and small fish and squid. Elizabeth will try to identify the most common foods of the Kent Island Storm-petrels with even more specificity.

For this project she takes samples of stomach oil from adult birds burrowing in a study area called the Ditch. The Shire is used for population demographics, and has been for several decades, so invasive studies must be carried out at other sites, like the Ditch.

She extracts about two milliliters of stomach oil from birds weighing at least 50 grams using a small syringe inserted down the birds’ throats. Petrels mass varies drastically before and after feedings - sometimes by as much as a quarter of their body weight – so using only heavy birds ensures that the birds have plenty of food, even when some is taken. In the fall, Elizabeth will extract and amplify mitochondrial DNA from the stomach oil, and will identify the species present in each petrel’s stomach.

Elizabeth Brown, along with Claire and Claudia, is working with Leach’s Storm-petrels this summer. With the other students, she monitors the study area called the Shire, keeping track of how often birds return to their burrows to incubate eggs or feed young, and tracks reproductive success.

Vocab: Bird Life Stages

- Egg – Reproductive body made up of ovum, albumen (white), jelly, membrane, and shell
- Nestling – A young bird still confined to its nest
- Fledgling – A young bird in the process of growing flight feathers
- Juvenile – An independent bird not yet ready to reproduce
- Adult – A fully grown bird capable of reproduction
The south hill reverberates with the shrieks of Herring Gulls. The birds have an astonishing vocal range; their calls can sound like pigs, dogs, cats, and screeching children among many other sounds. Combined with the whistles and trills of songbirds, the wind rattling through dry raspberry brambles, and the swoosh of the sea, their wailing makes the southern end of Kent Island, a peaceful and isolated hill facing the mouth of the Bay of Fundy, sound like a veritable menagerie.

Kent Island sits in the southern edge of the Bay of Fundy, which reaches up from the Gulf of Maine to cut between New Brunswick and Nova Scotia, and is famous for its incomparable tides. Only about 250 acres, the island tends to be cool in the summer and mild in the winter, and is frequently windy and foggy due to the influence of the upwelling of cold Atlantic bottom water in the Gulf of Maine. Spruces, firs, and pines brave the cold wet winds stalwartly, and raspberries, blueberries, and rhubarb all grow wild on the island, tempting muskrats and a wide variety of insects. The intertidal zone provides a home for more than 40 species of macroalgae as well as crabs, snails, and fish. Off the coast, marine mammals, including Humpback, Minke, and Right Whales, Harbor Porpoises, Harbor Seals, and Gray Seals hunt and play. And everywhere, birds alight, hop, dive, bank – fly.

The first island on the Atlantic coast large enough to be a true resting point on the way north to the Canadian interior,
and the last on the way south to the tropics, Kent Island is a magnet for migratory birds. There are no reptiles on the island, and no mammals besides humans, bats, and muskrats, so the birds’ only real predators are each other.

Leach’s Storm-petrels, Savannah Sparrows, Common Eiders, Herring Gulls, and many more birds nest on the island, while even more species stop through on their way to their own nesting or wintering grounds in the spring and fall.

In addition to birds, in the summer, a small community of scientists and undergraduate students converge at the Bowdoin Scientific Station on Kent Island. The field station is owned by Bowdoin College, a small liberal arts school in Brunswick, Maine, and has been active since 1934, though the island itself has an even longer history.

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The Passamaquoddy Indians of Maine summered in the New Brunswick-Bay of Fundy area for hundreds of years, boating from island to island and hunting seals. Their trips certainly took them to Kent and to its smaller neighbors, Hay Island and Sheep Island, which make up what the locals simply call Three Islands. They continued visiting the area until the 1930’s, but by their last visit the island had changed considerably.

The New Brunswick-Nova Scotia area, particularly Grand Manan – the large island six miles north of Kent – was settled by Penobscot Loyalists during the 1700’s. Most of the families in the Grand Manan area have lived in the area for at over one hundred years, and can trace their family histories back to a migration from Great Britain.

Mark Murray, one of the caretakers of the Bowdoin Scientific Station today, tells a story about how he was looking for a scrap of medium density overlay plywood, a particularly long lasting material,
with which to make a repair. He did not want to buy an entire sheet of wood when he needed only a small piece, and when he asked Russell Ingalls, the station’s other caretaker – whose family has lived in the area for generations and is intimately associated with Kent Island’s history – Russell immediately joked that they could find a perfect piece by sawing the French off a road sign on Grand Manan. Mark adds that while Russell did not mean it – probably – the joke was certainly indicative of the pride Grand Mananers take in their heritage.

For a time, the New Brunswick area was contested territory. Massachusetts claimed it as part of the land that eventually became Maine, while England claimed it as part of its Canadian provinces. While today, the Grand Manan archipelago, like New Brunswick and Nova Scotia, is certainly Canadian, the Magnuson-Stevens Fisheries and Conservation Act of 1976, commonly known as the 200 mile limit, and the corresponding Canadian laws, have led to some contested islands and waters as result of the way Canada curves to the north and east of Maine, so that part of Gulf of Maine lies within 200 miles of both Canada and the United States.

In 1796 – some sources say 1798 – the first British settlers moved onto Kent Island. John Kent made his living from the island and the sea, and occasionally worked as a pilot in the Bay of Fundy. He and his wife Susannah lived on the island together for about 25 years, and after his death, she remained on the island for another 25 years. The ghosts of both Kents – John tall and spectral, Susannah eerie and witch-like – are occasionally reported on the island, and stories about the island’s namesakes abound, although the origins of these legends are questionable at best.

One such tale suggests that John Kent, on one of his boating trips, met a woman and decided to bring her back to the island as his mistress. When he arrived however, Susannah refused to share him with another woman, so the couple killed her and put her down their well. It is this last detail that makes the story particularly absurd – Kent is a small island, with limited fresh water generated mainly by rainfall, and poisoning one’s own well, thereby ruining a supply of water, and forcing oneself to perform unnecessary manual labor, seems far too foolish an action to attribute to a couple who lived successfully under challenging conditions for so long.

Another story supposedly harkens from Susannah’s time on the island as a widow. One foggy night, a British brigantine sailed up the Bay of Fundy. As the ship grew near the Murre ledges, a dangerous underwater formation just south of Kent Island, the Captain of the vessel, well into a bottle of Jamaican rum, saw a witch who said she could direct the ship safely through the reefs. Following her instructions, the Captain smashed the brig into the rocks. The officers and crew all escaped to Kent Island on lifeboats, where they stayed the night with Susannah Kent. The Captain, angry and likely still drunk, insisted that Su-
Sannah was the witch he had seen, and his crew was hard-pressed to keep him from attacking their hostess.

When the crew moved on to Grand Manan, the captain told everyone he met that Susannah Kent was a witch. Considering how unusual women living alone were at the time, many probably believed him. After Susannah died, the island was occupied by various other settlers. From the late 1800s to the 1920s, several families lived on Kent Island, and there were houses, roads, automobiles, and even a schoolhouse. Afterwards, McLaughlin Brothers Ltd., a company out of Seal Cove, Grand Manan, bought Kent Island. They built a herring weir in the shallows between Kent and Hay and a smokehouse where they processed the fish. This smokehouse, called the Captain Gillette, is still used as a boathouse today.

Meanwhile, Henry Ingalls and his family owned and lived on Hay and Sheep Islands. Locals used the islands – Kent in particular – to shoot Eider ducks, prized for their soft down, and considered a prime game bird as well. They also gathered Eider eggs, which, like Herring Gull eggs, were consumed as a Bay of Fundy delicacy. By the 1920s, the few remaining Eiders on Kent Island made up the last of what had once been many breeding colonies for the Common Eider in the Gulf of Maine region. Hunting and egg poaching, in addition to predation, increased by mammals accidentally or purposefully introduced to many offshore islands where seabirds like to breed, wreaked havoc on Eider populations throughout northeastern North America. And this is where we must leave Kent Island temporarily, to pick up a different story, the story of Alan Moses.

Alan Moses’ grandfather, John Thomas Moses, moved to Indian Island in Passamaquoddy Bay from England in the middle of the 19th century. He lived temporarily in Bangor, Maine, and eventually moved to Grand Manan to settle down with his family. Then, and now, Grand Manan was essentially a fishing community, and most families made their living fishing and lobstering.

John Moses’ son, John Russell Moses, was the ninth of ten children, a hard worker with a bit of a Midas touch. He became
The Kent Island Pioneers
1954
Returning home on MacMillan's famous schooner "Bowdoin"
W.A.O. Gross, F. Favour, E. Whitman, F. Fisher
a very successful fisherman and exporter of fish products, particularly dried hake air bladders, which were used to make isinglass. This substance was the basis for an early form of plastic and, before Prohibition in the United States, was also used to clarify beer.

The Moses family was full of avid amateur ornithologists and taxidermists. John Russell passed these skills down to his son Alan Leopold Moses, as well as his other children, Sarah and Bedford. Alan became a tremendous naturalist, highly observant and interested in the world around him. He worked for his father, and became an excellent fisherman and boatman. Though he was not particularly interested in business or industry, he liked being on the water, and meeting others with his same interest in wildlife. Ernest Joy was one such friend, a local fisherman and pilot who knew more than almost anyone about local wildlife, particularly birds.

One day, in 1913, Ernest Joy was near Machias Seal Island and saw an unusual bird, so, as naturalists were wont to do at the time, promptly shot it. The bird turned out to be a Yellow-nosed albatross, a bird with a wingspan of six to seven feet, typically found only in the southern hemisphere. He presented the bird to his friend Moses, who prepared it as a specimen for his family’s extensive collections.

Such an unusual find was widely discussed in certain circles, and before long, the American Museum of Natural History in New York (AMNH) sent an acquisitions team to Grand Manan to try to buy the albatross. Moses, however, was not interested in money, and refused the group several times. Eventually, however, he offered a trade. If the Museum would arrange to send him on a collecting trip somewhere interesting, he would give them the specimen for free. The Museum agreed and left happily with their specimen.

The conservation movement in North America was really getting underway during this time, and in 1923 Moses joined the Labrador Patrol, a new branch of the Canadian Wildlife Service dedicated to enforcing anti-poaching regulations in the Gulf of St. Lawrence region. In the middle of the season, however, he got a message – the AMNH was honoring its deal, and Dr. Leonard Sanford, who had made the original bargain with him, had obtained a spot for him on a trip to the South Atlantic with the Cleveland Museum of Natural History. Allan turned out to be a tremendously valuable member of the expedition, which visited the Cape Verde islands, West Africa, South Trinidad, and eventually Brazil, from which Moses left the expedition to return home. The trip also whetted Moses’ appetite for traveling.

In 1927, Robert Rockwell, who had also been on the journey and had since become an exhibit preparer in the mammal division of the AMNH, wrote to ask if Moses would be interested in going to Tanganyika and the Belgian Congo on a trip the Museum was sponsoring. John Sterling Rockefeller and his friend Charles G.B. Murphy led the trip, which was backed by a grant of nearly $150,000 from the Rockefeller Foundation. The plan was to collect samples of several rare African species for the museum’s collection – in particular, the Museum wanted a specimen of the
African green broadbill, a sparrow sized flycatcher. The only known specimen was in the Rothschild Museum in England, and had been bought by a naturalist in Congo from a local who had found the bird dead, so collecting a bird in its prime condition after observing it in its natural habitat would be a unique feat.

The expedition set off at the end of June, 1928. As on his previous trip, Moses – a good shot and excellent taxidermist – was an integral member of the expedition. He collected several notable specimens, and prepared the expedition’s samples. For over a year, the group slogged through Africa, searching for the elusive bird. Though they gathered many rare and interesting samples, they could not locate the small bird they so wanted to find. In July, 1929, more than a year into their journey, the expedition was in Luvumba in the Belgian Congo. Moses had contracted malaria, and while the others in the expedition took daily treks searching for the bird, he armed himself with quinine and rest.

Waking up from a nap on the 26th, he got up to stretch, and suddenly saw the broadbill perched in a tree right in front of him. Some stories suggest he actually saw it from the privy; regardless, he turned back to his tent, grabbed his specimen gun, and shot the bird. Exhausted and overexcited, he returned to his cot, clutching the bird. When his companions returned to camp, they found him asleep, with the bird clutched in his hand. Moses had saved the expedition.

The group continued on, collecting a few more broadbills and several more rare specimens. Rockefeller was immensely grateful to Moses, and asked if there was anything he could do to thank him and to mark the occasion. Moses had a ready answer. For considerably less money than this African expedition had cost, he explained. Rockefeller could buy a group of
three islands in the Grand Manan area, and save the Bay of Fundy Eiders. Rockefeller agreed to try.

A man named Ralph Beal, a school board officer and Justice of the Peace, acted as a proxy so that the Rockefeller name would not raise the prices of the island. He bought Kent for $25,000 and transferred the deed to Rockefeller, but Henry Ingalls absolutely refused to sell Sheep and Hay Islands. He also refused to stop hunting eiders in season, as they were a significant part of his food supply and hunting was just about the only entertainment his islands offered. However, he agreed to grant scientists access to his islands to monitor populations and reproductive success.

Rockefeller named Alan Moses and Alan’s friend Ralph Griffin wardens of the new bird sanctuary on Kent Island. Though the Depression did not hurt the Rockefeller family as much as it did many others, chiefly due to their Standard Oil holdings, Rockefeller still wanted the island to be as close as possible to self-sustaining. A cow, a flock of sheep, and the buildings on the island came with the sale, and he expected his wardens to manage all of these holdings profitably.

The wardens also tended a large garden, and ran a silver fox fur ranch, a project that made Moses quite uneasy, as an escape could essentially undo all the good they had done for the island’s birds. Rockefeller even suggested that the two men continue running the Herring weir, though such a project quickly proved unrealistic. Still, the wardens were successful in their most important goal, protecting the eiders, and the first real nesting season under their watch yielded a gratifying number of ducklings.

In 1932 Alfred A. Gross, a professor of biology at Bowdoin, visited Kent Island to study the Eiders. Soon afterward, Rockefeller invited a group of New Englander ornithologists on a yacht trip to Three Islands to help him determine how to best use Kent to carry out his dual goals of forwarding scientific research and maintaining a reservation for birds. As a result of their recommendations, Rockefeller decided to give Kent Island to a college as an outdoor laboratory with the stipulations that it would be maintained as a sanctuary, used for scientific purposes only, and would employ a watchman to guard against egging and hunting from at least May 1 to September 1.
In May of 1934, Commander Donald Macmillan, the famous Arctic explorer and Bowdoin alumni, left Maine on his schooner, Bowdoin. He dropped off four students, William A.O. Gross (the professor’s son), Burt Whitman Jr., Paul Favour Jr., and Frederick A. Fischer, to Kent Island to see if the site would be a suitable outdoor laboratory for Bowdoin students.

Three months later he picked them up on his way back from the Arctic. The students strongly recommended that Kent be used as an off-campus research station and the Board of Governors accepted the recommendation. Two years later, Bill Gross convinced Rockefeller to donate the island to Bowdoin, and the Bowdoin Scientific Station was born. Alfred became the Director of the station, although Bill, still a student, served as the acting Field Director of the station for several years.

Moses returned home, married, and continued building his collections and supporting community initiatives. He died in 1953, but the Moses Memorial Collection can still be seen at the Grand Manan Museum. Ernest Joy was hired as the first caretaker of the Bowdoin Scientific Station on Kent Island, and was paid $300 a year, a fee he supplemented by trapping muskrats. He served as the caretaker on Kent Island until the 1950s.

The Scientific Station’s early days were certainly rustic. Though there were students and scientists in the summer, Ernest Joy and his housekeeper Carrie were essentially alone on the island during the rest of the year. During World War Two, the station closed for two seasons and besides a few visitors, the pair spent the years alone. Ernest communicated with the outside world via rare boat trips to Grand Manan, marine radio when he had batteries, and letters when he could find fishermen and ferry operators would deliver them.

He and Carrie lived on the island year round, braving storms and unbelievable tides while feasting on a steady diet of lobster and Herring gull eggs. In 1944, Ernest was burning some trash, and the wind carried off a piece of burning paper. A huge fire commenced, changing the landscape of the island forever, and creating an interesting opportunity to study ecological succession.

Though the effects of the fire may be the most tangible impact he had on Kent Island, Ernest, the namesake of one of the Station’s workboats, was most beloved for his crusty affectionateness. Everyone who came to work at the station found him to be a unique character, one who truly believed in the station’s work, and went to seemingly impossible lengths to fulfill his duties. One of the many people Ernest kept in touch with was Robert Cunningham, who first came to the station as a high school student to keep the weather records, and who became a renowned meteorologist at MIT.

Cunningham pioneered the study of acid precipitation by studying fog on Kent Island. For the duration of his time on the island, Ernest took weather observations for Cunningham, and sent them – along with letters in his inimitable style – whenever a boat stopped by Kent and could take some mail. In one letter, indicative of the frontier spirit of the early days of the Station, he writes, “I PULLED 2 teeth the other night with Pinchers and am going to try another when my PLUCK returns.”

In 1948, Carrie died, and Ernest retired soon after. Following Ernest’s retirement, a series of caretakers took his place. Myron Tate, the son of Ernest’s friend Lester, had the longest tenure among them. He worked on the is-

KENT ISLAND DIRECTORS:
1935-38: Bill Gross (Bowdoin ’37; Harvard graduate student)
1939: Charles Ruckstuhl (MIT graduate student)
1940-41: James Blunt (Bowdoin ’40)
1942-45: none (no summer program because of WWII)
1946-49: Raymond Payntor (Bowdoin ’47; Yale graduate student)
1950-51: Al Barnes (’49)
1952: Edgar Folk (professor, Bowdoin Biology Dept.)
1953-88: Chuck Huntington (professor, Bowdoin Biology Dept.)
1979-80: Peter Cannell (Bowdoin ’76; American Museum of Natural History graduate student)
1987-2003: Nat Wheelwright (professor, Bowdoin Biology Dept.; co-director 2000-01)
2000-01; 2004-08: Bob Mauck (professor, Kenyon College)
2008-present: Damon Gannon (faculty, Bowdoin College)

Note: From 1935-53, Bowdoin Biology Professor Alfred O. Gross held the position of Director, although he spent relatively little time on Kent Island.
land for about 20 years beginning in 1962, and is still fondly remembered by many Station alumni.

Today, Mark Murray and Russell Ingalls make up our wonderful caretaking team. Mark lives on the island during the summer and takes care of nearly everything while Russell, whose family once owned Sheep and Hay Islands, lives on Grand Manan and watches over the station year-round. A series of directors presided over the station in succession until 1953, at which point Charles Huntington, universally known as Chuck, took over.

Chuck’s study of Leach’s Storm-petrels, a small cryptic bird related to albatrosses, began in the 1950s and continues to this day. He retired as head of the Bowdoin Biology department in 1986, but remained Director of the Station until 1988, when Nathaniel Wheelwright succeeded him. Nat, as he is generally known, focused on Savannah Sparrows and Tree Swallows, and stepped down as Director to focus on his teaching in 2006. Robert Mauck, a Kenyon biology professor who has been associated with the island since he began studying Leach’s Storm-petrels as a graduate student, acted as Director for two years, after which the current Director, Damon Gannon, a professor of marine biology at Bowdoin, took over.

During the 1950s, introduced snow hares overran Three Islands. Because they eat seedlings, as time passed, and older trees died, the hares essentially killed large patches of the forest. While the open areas let in light, theoretically allowing for more light and growth, they also created new forest edges which were vulnerable to wind and other elements, making it more likely for trees to fall.

Whenever the hares were removed from the island, more would hop across the intertidal zone from Sheep or Hay Island. Partially due to the desire to effectively eliminate the hares, in 2003 Bowdoin purchased Sheep and Hay islands from the Ingalls family, though the family retains recreational use of the island. Though fallen trees remain a common sight on the island, new growth has also begun to appear, an encouraging sign for the forest’s future.

Mark, who is also caretaker of Bowdoin’s Coastal Studies Center in Harpswell, Maine during the school year, and is often called Bowdoin’s official “Professor of Insular Polytechnology” has almost finished renovating the station’s dorm – a building that has been on the island since the 1800s, and was originally a sheep barn.

The former barn now boasts a spectacular kitchen, a new lounge, and operational insulation. This year, nine students – six scientists and three artists – have summer fellowships on the island. Damon and his wife Janet (also a member of Bowdoin’s Biology Department) along with Mark, live on the island with them during the summer, along with two professors from the University of Guelph in Ontario, Ryan Norris and Amy Newman, who have been coming to Kent for several years to research Savannah Sparrows. Chuck, Nat, Mark’s children Seth and Nina, and Bob all visit the island for interludes, as do many other scientists, professors, students, and friends associated with Bowdoin or the station. And of course, like always, the birds come home to Kent Island, which, thanks to Alan Moses, is truly their island.

“Although the station remains beautiful and isolated, every year the accomodations grow plusher.”
End of the day

Returning home on tired legs
with the rhythmic mud-muffled thump of each step
set by the depths of the consciousness to the beat of a familiar song
half-aware humming-
melodic murmuring emitted gently by wind-burned lips: barely audible
the half-pleasant warmth of soreness in wool-sheathed heels
a reminder
flares up with
the flashing by of moments
recalling the day’s work
muscles slowly stretching into a nearly imperceptible half-smile
revealing satisfaction: weary celebration
The sky, pink-streaked, matches scraped forearms
and calloused palms
mirrors cheekbones on faces thawed and reinvigorated
by standing a little too close to the stove
and enough dusky light remains to reveal the path.
Books

Arranged neatly at first, and
later piled, layered, and stacked
alternately standing straight and leaning emphatically,
as if taking shelter from high winds.
On pure-white painted shelves,
yellowed and grayed pages
and bright-hued covers
are made more strikingly conspicuous.
Their variable heights, thicknesses
and intellectual depths create
a concise reflection of humanity.
The pages, once crisp, are rubbed soft,
worn and wrinkled like the skin of those who read them through the decades,
and who quietly left their grocery receipts and bus tickets between the pages:
as minute proofs of their eternal being.
They are crammed overflowing with memories.
On dog-eared pages encased by
creased covers and bent, osteoporotic spines
are built shelters for refuge and vehicles for adventure:
blanket-and-flashlight forts and newspaper sailboats,
impregnable cities and formidable galleons.
Here too are felt unimaginable pain and indescribable joy,
ardent desire and vacuous apathy.
Fog

Fog blows in low,
like fallen clouds
married beneath their station to the sea air;
failed in aspirations they never held in much esteem,
which others had imposed upon them,
armed with implications that refused to be ignored.
Disappointed, desolate, their mothers
drift wailing past freshly washed
but never-really-clean windows,
flecked with barely visible particles of paper towels
that had been sprayed with brightly-colored chemicals
and absentmindedly wiped across their smooth surfaces.
The fog's movements are erratic:
alternately neck-breakingly fast and mind-crushingly slow,
some wisps get caught in botanical tangles,
hang like cobwebs.
The sun shines through their translucent snarlings.
Microscopic rainbows appear in drops of moisture
infinite infinitesimal splendor.
Birds don’t get lost in it; no airliner turbulence
no warnings over the crackly PA system that fill you with New York memories:
no Subway smells and damp subterranean heat
no scare-tactic anti-using banners of bodies ravaged by dependence
the birds were made for this
soaring upward in the grey
refreshing, gorgeous, crisp.
Nature is perfect so we never stray too far.
the haze brings everything closer,
Pea soup in bowls
and backs hunched, leaning in over the steam,
listening for its vacillating whispers
phrases revelatory of the self we’ll marvel over and soon forget completely,
resign to our vaults of oblivion.
bundled up, huddled in.
We notice what matters- the divergences between
the feelings we get from days full of
acrylic and aspartame,
or wool and honey.
Untitled

Lustful burning tongues of orange
interspersed: flashes of green
leap upward from the depths of a rust-eaten cylinder
burn with a heat that dances, vacillates
over the boundary separating ample
and excessive.
It paralyzes; makes you conflicted between drawing closer and pulling back.
It’s a heat like new love: fear and attraction
comfort and exhilaration,
and like new love,
it heightens perception.
A release of long-stored energy,
eagerly, breathlessly anticipated.
Words printed on paper
little clinging families of them
preserved together on tiny scraps
as ash falling over our heads.
The memories remain.
Tired old news from months ago,
or cons in the mind of a child
and their deepest yearnings subtle but perceptible
in the work of second-rate but ambitious journalists
our faces Upturned
as if Embracing a spring rain?
Or joyful at The first snowfall of winter
like graceful helicopters
dive-bombing birds careen through the infinity that hangs over us
they pass overhead with shrill cries signaling
the coming of something new,
something bigger than and outside of ourselves.
Smoke in our lungs and our eyes is nothing
compared with what it would take to tear us away
from this captivating mystery
blue sky
streaked with Florida pastel cotton-candy pinks and lavenders
an airliner on its transatlantic course,
packed with the bodies and possessions of four hundred tourists and businessmen
cuts a surgeon-sure slow and tidy narrow gash
and the moon appears pure-white
a quarter being pushed through a coin slot
by some eager child-titan buying a thrill.
Untitled

In the early morning sunlight
spider’s webs glint on the tops of skyward-reaching brambles.
Spread through immense fields of rolling hills,
slopes that rise and fall like each heavy breath of the universe;
scatter like runaways,
like dandelion parachutes on zephyrs in springtime.
They are tirelessly constructed identical
poured out by the hundreds
like the massive houses fabricated en masse
in the ever-sprawling suburbs:
somehow simultaneously wholly custom-designed and enormously impersonal
dewy sails of Warships floating on an interminable sea of utter sameness
choruses of repeated
Remember, children, you are unique-
just like everybody else.
Silken threads
near-invisible and luxurious to the touch
dangerous Like what tangles us up
in ourselves
our egotistical trivialities
yet somehow gorgeous, even breathtaking
miraculous and freeing in their tininess
which can take you past infinity and
it all becomes obvious, suddenly
Never look back
Never look back
Never look back.
LEACH’S STORM-PETRELS

On the first clear morning of the summer research season, I walked through the forest with Claire O’Connell (Kenyon ’13), Claudia Villars (Bowdoin’15) and Elizabeth Brown (Bowdoin’15). Since the 1950’s, students and professional scientists have studied Leach’s Storm-petrels on Kent Island; the three students make up this year’s main contingent of researchers. Hip-high ferns, trees, and fallen trees, particularly birches and firs, surround us. The students are searching for Storm-petrel eggs to send to Environment Canada’s semiannual toxicology testing program.

Once they locate a burrow, the researchers slide an arm into it, searching for the back of the hole. The burrows are long – generally about 3 feet – and often twisted, so the students have to push their arms in as far as possible. If reaching in as far as they can go does not get them to the back of the burrow, they can make an access hole from above the burrow and start over from there. When a burrow is not being “grubbed” in this manner, a small stone or board covers the hole to keep out rain and predators, and the process seems to have little impact on the birds. The nests are often lined with dry leaves; when your hands are numb from hours of grubbing in the cold, it can be hard to tell whether you are brushing dead leaves or feeling feathers.

The girls talk to themselves, saying “push, push,” – trying to reach into the backs of the deep burrows – then joking that they sound as if they were giving birth. In the far background, the ocean rolls and crashes steadily. An eagle circles overhead and the woods erupt in whistles as songbirds sing warnings.

Shoving an arm down a hole in the ground is utterly counter-intuitive. In addition, the burrows are narrow, and all three girls have scabs on their arms from pushing their arms down the narrow burrows against tree roots and rocks. Still, the research offers rewards. On my third grubbing attempt, I find a bird. The petrel feels like a small warm ball of feathers with wings, hardly the size of a fist. We do not take the birds out today, just mark whether or not we feel them and look for eggs.

The petrel is remarkably calm as my hand invades its burrow slowly, my fingers waving like tentacles as I push my arm forward so that I don’t rocket my tensed fingertips forward and hurt a bird or crack open an egg. The bird simply rustles around a little, but doesn’t make a sound, although at night their gremlin-like cackles can be heard all over the island. I feel an egg, and, with a horribly guilty feeling, draw it out from under the bird, which still does not react. I reassure myself that it is early in the season – the egg is probably only a day or two old, and the birds will often re-lay if eggs are taken this early. The egg is about the size of a fat date, white and smooth and warm, and I hand it to Claudia to put in the cooler we will give to the toxicology agency.
What is a Leach’s Storm-petrel anyways?

Leach’s storm petrels (*Oceanodroma leucorhoa leucorhoa*) are small dark grey-brown birds related to albatrosses. Their close relatives, the Wilson’s Storm-petrels (*Oceanites oceanicus oceanicus*), which nest in the southern hemisphere and fly north during the austral winter, are the most abundant birds on Earth.

Leach’s Storm-petrels are about 8 inches long and weigh about 50 grams, with a forked tail and long pointed wings. The birds can live up to 40 years, a remarkable lifespan for such a small bird. Chiefly pelagic, the petrels have tube-noses over their black curved beaks which they use to expel salt when they drink seawater. They have tiny spurs behind their small webbed feet, which they use to dig their burrows. Many of the adult birds are missing toes because, while they forage for food, fish sometimes nip at their feet!

The birds nest in large colonies, mainly on offshore islands from Massachusetts to Norway in the Atlantic and from Baja California to Hokkaido, Japan in the Pacific. Their narrow burrows can reach lengths of over three feet, and are often located on hills or under tree roots. The birds are largely monogamous, although research indicates that birds exhibit greater loyalty to their burrows than to their mates.

Though we know little about their migratory behavior, scientists believe the birds winter all over the southern Atlantic; petrels have been seen off the coasts of Africa and South America. Juvenile birds appear to spend their summers investigating colonies, as the birds do not return to their natal nesting grounds. Once they reach reproductive maturity, at about three or four years, the males fly to their nesting grounds early in the spring, to dig a new burrow or to claim an existing one.

The females quickly join their mates. Like most birds, Leach’s Storm-petrels seem to navigate using a combination of celestial clues and the earth’s magnetic field. In addition, the petrels use their remarkably good sense of smell to locate their burrows. They return to their burrows at night, probably to avoid predators like Great Black-backed gulls. The birds lay one egg each year; the eggs are about 10 percent of the petrel’s body size.

The male and female birds take turns incubating their small white egg for nearly forty days. While one parent stays with the egg, the other feeds. The petrels routinely fly over 150 miles to the far reaches of Georges Banks off the coast of Cape Cod, and return, in less than a week. Once the chicks hatch, they remain in the burrow for another 60 days until they fledge, and both parents make feeding trips. The adult birds distill oil from their prey to feed to their chicks, essentially providing meals of pure liquid fat. The chicks, born tiny mounds of grey fluff, grow into round balls filled with oil, up to twice the weight of their parents. Eventually, the chicks begin to refuse food from their parents and lose weight as their flight feathers grow, until they are ready to take to the air and sea.
Looking for the birds entails first finding the burrows—most are marked with flags from years of research projects, but because there are so many and so few landmarks, keeping accurate maps and accounts is very challenging. Although the wood is small, the first few days it is easy to get disoriented and confused trying to find patches of burrows that haven’t already been grubbed.

At lunch and dinner, the three students huddle over the notecards they use to keep track of burrow data, trying to figure out which burrows they missed or where the notecard that goes with an observed burrow has disappeared to. The students strategize about what will be helpful moving forward. When not looking for eggs, they have been frantically trying to update maps from years past, adding helpful markers like the orientation of the burrows compared to trees and other natural landmarks, particularly in their main study site, called “the Shire.” In addition, this year student projects make use of “the Ditch” and “Petrel Path,” the oldest study site on the island, and the home base of Dr. Charles Huntington’s illustrious career.

Chuck, as he is known on Kent Island, stands bent over at nearly the same angle as his cane. At 92 years old, he has arrived for a weekend visit to meet students, see the dorm renovations, and check in with his beloved petrels. Chuck, a former Bowdoin Biology Department Head and Kent Island Director, began his work on Kent Island in 1953. His study of Leach’s Storm-petrels may represent the longest continuous field study by a single investigator. With Bob Mauck and Ron Butler he wrote the section on Leach’s Storm-petrels in *Birds of North America*, the first place an ornithologist looks when searching for the life history of a particular bird.

Over his time studying them, Chuck banded tens of thousands of petrels. By following individual birds, he learned that petrel lifespans can reach the low 40s; for a 50 gram bird, such a long life is virtually unheard of. Though his study site, “Petrel Path,” has been largely abandoned in recent years, small portions are still monitored in case some of the birds he banded years ago return. This after-
noon, Chuck leads Claire, Claudia, and Elizabeth to his old haunt to help them find the burrows he wants them to track and to answer any questions they have about his methods, which they still use today.

Before we leave, Chuck holds court in the laboratory. Dressed in brown boots, khaki pants, a grey knit sweater decorated with white reindeer that his son made him, and a white hat that hides his fine white hair, he exudes excitement when he talks about petrels. He shows students how his index-card based organizational system works. Claudia asks a few questions about what to record at each burrow, and then we stop in the dorm, so that the students can help Chuck wrangle with his rain pants. A few minutes later, we set off.

Petrel Path is indeed a mess, but Chuck is single-minded and adventurous. He swings over and clambers under fallen trees, employing his remarkable memory to help students locate burrows. We locate about three quarters of the number he had hoped for, but considering the state of the site, we all consider the excursion a success.

Before we head back, Chuck opens his cane into a little stool, and settles down to tell us a few stories. Among many about petrels and his children and grandchildren, the story of how he met his wife, Louise, stands out.

As a young professor at Bowdoin, Chuck attended a meeting in Wellesley, Massachusetts. There, he met a Radcliffe student named Louise. They went out once, but later, when Chuck wanted to call her again, he realized he had forgotten her last name! He knew that the name was somehow related to rocks, and a friend of his, who knew how much Chuck liked her, called every family named Stoner listed in the Boston yellow pages, to no avail. However, his efforts inspired Chuck, who also knew that Louise had taken an ornithology class at Harvard with Ernst Mayr, the famous evolutionary biologist who framed the biological definition of species. Chuck called Mayr, asking for a girl named Louise who had taken a class with him, and Mayr immediately knew he meant “Louise Slater – the best babysitter we ever had.”

One of the happiest days of his life, Chuck says, was the day he asked Louise if she would like to visit Kent Island, and she re-
responded that she would. The two were engaged on the island; in lieu of the ring Louise said she did not need, Chuck bought her a pickup truck. The two were married soon afterwards, and have four children. Chuck concluded by inviting all of us to visit him and Louise at their Harpswell, Maine home.

As we walked slowly back to the dorm, Chuck told us more about his family, his time on Kent Island, and petrels. He reminded students about how the remarkable longevity of Storm-petrels informs their life history strategy. Because the birds will have many chances to reproduce, they are quite willing to abandon their chicks if they are sick, scared, or their partner is not spending enough time sharing the burden of incubation. While the birds are considered generally monogamous, “divorces” often occur the year after a reproductive failure. He also described an experiment he performed in which he sent petrels to Scotland in airplanes and released them; the fastest bird returned to its burrow in only nine days. The day after our walk, Chuck left to go home, but everyone on the island had been touched by his enthusiasm and inspired by his dedication.

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As the summer progresses, Claire, Claudia, and Elizabeth move through their main study site, the Shire, faster and faster. The Shire is used for demographic studies, while more invasive projects such as Elizabeth’s stomach oil extractions take place at other sites like “the Ditch.”

This year, the students are monitoring 376 burrows and 132 eggs. The students have divided the Shire into sections; in each section, one student calls out burrow numbers and records results while the other two locate the burrows, grub where necessary, handle birds and eggs, and call out results. For each burrow, they first note whether the lattice, made of pieces of fern stems they prop in the entrances of the burrows, still stands or has been knocked down. If the lattice is down, then the students know they need to measure a bird in that particular burrow, or check for an egg or chick, and they grub the burrow.

The most common method used to capture an adult storm petrel involves sliding your arm down the burrow until you can feel the bird, letting it nip you with its beak, and gently drawing it out head first. Occasionally the birds vomit or bite, but generally, petrels are docile. Seabirds, they seem clumsy and confused on land, and submit calmly to pokes and prods. The students weigh and measure each bird they capture. In order to keep the birds on the scale, and prevent them from spreading their wings
Claire, Claudia, and Elizabeth help Chuck over a fallen tree near Petrel Path.

Elizabeth measures the tarsus of an adult Storm-petrel.
and potentially hurting themselves, the students invert the birds into toilet paper rolls and place those on the scale. The students also measure the tarsus, a part of the leg, for each bird, as well as wingspan. They measure and weigh eggs, as well the chicks beginning ten days after they hatch.

The students, like the many researchers who have come before them, seek to balance their desire for large sample sizes and accurate information with the knowledge that too much invasive research could change the birds’ behavior, even causing them to abandon their nests. Kent Island is a sanctuary as well as a field station, and procedures for avoiding such events have developed over the years. Still, for each incoming group of researchers, finding the balance can be challenging. Claudia and Elizabeth, having just completed their freshman years, found handling the birds particularly disconcerting at first. Claudia noted that she had never seen anyone handle such small birds before, and she needed some time to learn that the birds were not quite as delicate as they first appeared.

In addition, the idea that removing birds from their burrows to weigh and measure was considered non-invasive took some time to get used to. However, as the students became more adept at handling birds, the amount of time each bird spent out of its burrow shrunk, and the process became smoother. Still, some questions remain unanswered. Researchers generally believe that, unlike adult birds, chicks can be handled every day, as they cannot leave their burrows, and their parents do not stay with them for any length of time once they have hatched. Thus, handling does not appear to lead to abandonment. However, since birds rarely return to their natal sites to reproduce, scientists cannot follow the chicks to determine whether frequent handling has any long-term effects.

For now, the students continue to handle the chicks, gathering valuable data. Measuring the chick’s tiny wings is the hardest part. The students blow on the wings to see the difference between fuzz and actual wing. Weighing the chicks, however, is easy; for several weeks the chicks cannot even walk, let alone fly. Because the chicks grow in spurts, even doubling their body weight on nights both parents return to feed them, weighing the chicks provides information about how often and under which conditions adults tend to return to feed their young. Incidentally, the chicks are adorable warm balls of grey down with soft round bellies; Janet Gannon, a laboratory instructor at Bowdoin who spends her summers on Kent Island with her husband, current BSS director Damon Gannon, says that they “make kittens look like dump trucks.”

Under the guidance of Bob Mauck, Chuck’s collaborator, another former BSS Director, and a current Biology professor at Kenyon College in Gambier, Ohio, Claire, Elizabeth, and Claudia have began to analyze their plentiful data. In addition to their demographic studies, the students have used dummy geolocators to show that a new method of attachment, involving trimming feathers on the birds’ backs and superglueing the devices, works more successfully than previous attempts have. They hope that based on the data they have collected, showing the students direct Claire and Elizabeth through part of the Shire.
that the birds do not abandon their burrows when tagged and that the locators stay on the birds backs on their long journeys, the Station will invest in active geolocators next year. Though scientists have long believed that the birds in the populous New Brunswick and Newfoundland colonies feed south of Georges Bank at the southern end of the Gulf of Maine, and winter all around the southern Atlantic, hard data remains scarce.

Each student also has an independent project. Claire spent part of the summer proving that she could manipulate burrow temperatures so that future researchers can investigate potential relationships between climate change and reproductive success. She also investigated the possibility of sexing the monomorphic birds by their calls. Claudia examined the relationship between burrow rankings, based on which burrows petrels tend to move into if they abandon their old nests, and reproductive success. Elizabeth took stomach oil from several petrels in “the Ditch” in order to investigate petrel diets. The students also pursued a ptilochronology project, pulling the rightmost tail feather of petrels and investigating how much the feather grew back in three weeks.

At the end of the season, conversations with Bob and with other researchers at the station helped the students see how their many strands of research fit together. The students plan on comparing their burrow rankings to their ptilochronology findings in order to see if the birds living in “better” burrows have more energy to spare growing back feathers. If Elizabeth’s pilot project yields successful results, future researchers might compare food sources to ptilochronology, geolocator data, and hatching success to learn which foods provide the best energy, and how far petrels will travel to find such foods before their long forays away from their egg become problematic. The relationship between energetics and climate change interests scientists studying all types of organisms and systems; Claudia, Claire, and Elizabeth have laid the groundwork for productive and multifaceted investigations of this interaction in petrels for years to come. Bob hopes to send the students to SICBE (Society for Integrative and Comparative Biology)’s annual conference next January in San Francisco to present their results.

• • • • • • • • • • •

On one of the first nights of the field station, Damon led all this summer’s BSS students on a late night petrel hike, a Kent Island tradition. Leach’s Storm-petrels love dark foggy weather; though the birds are clumsy fliers over land, often crashing into trees and occasionally researchers, they prefer the safety a dark night provides them from predators like gulls. All around us, petrels sounded their “chatter call,” often described as the cackle of a friendly but slightly deranged gremlin. Every so often, however, we heard the sound petrel pairs make when in their burrows together, called a purr. Though very distinct from the sound of a cat, the noise indeed sounds like a warm continuous clicking purr. To live on Kent Island is to grow accustomed to these unearthly noises, and to grow to love the Leach’s Storm-petrel. Like Chuck, we will never truly leave them behind.

Claire measures the tarsus of a petrel chick.
LIFE ON KENT ISLAND

Those who have never seen it may imagine the Bowdoin Scientific Station on Kent Island, located at the mouth of the Bay of Fundy, as a desperate encampment of scientists pursuing field research in the face of poor weather and rustic facilities. While this characterization possesses points of accuracy, the Station provides much more than a site for research. The Bowdoin Scientific Station on Kent Island offers Bowdoin students a unique summer experience.

Scientists and artists alike take advantage of the Station’s isolation to immerse themselves in independent projects. Living in a community of professional scientists and students also facilitates interesting and productive conversations about the nature of science and research as well as about the academic world and other possible career paths. In addition, students gain the rare experience of rustic communal living with limited interactions with the outside world.

We spend most of our time on Kent Island immersing ourselves in this rooted and introspective island life, although a few exciting excursions, including the Canada Day celebrations on Grand Manan and a whale watch, reassure us that a world beyond our foggy island still exists. Living on Kent Island is also fun: full of pranks, puns, and excellent food. Here I detail life at Kent Island — science, art, unique vocabulary, the daily battle with herring gulls, and more.

Arrival

We left campus at six a.m. Monday, May 28 — Memorial Day. We had met briefly the day before to load our gear into the vans and trailer. Damon and Janet Gannon, the station’s Director and his tremendously energetic wife, organized us as we packed mountains of groceries, duffel bags, and instruments. Dave’s keyboard was dropped cavalierly once or twice, but its owner seemed the least worried about it of all of us and no harm was done.

The day of our departure, we appeared bleary eyed, but mildly appeased by the promise of donuts from Frosty’s, a family-run mainstay on Maine Street in Brunswick. Damon drove a truck with the trailer attached, and Janet and a student each had a van. We drove a few hours up the Maine coast, and crossed the border into Canada at Calais. Soon afterwards, we drove up to the ferry yard in Black’s Harbor, New Brunswick, parked, and had a picnic lunch out of the back of one of our vans before the 1:30 ferry.

The drives were quiet. Northern Maine in the morning is a place to put on quiet country music, drowse, and watch trees, which all those who were not forced to drive did contentedly. Lunch though, was a change. The excitement of food and the gentle prodding of Damon and Janet encouraged bonding over the struggles to find appropriate
vehicles for mustard as a vegetarian, and over speculation over what was to come.

The ferry trip to North Head, Grand Manan was smooth and quiet; we travelled before the ferry’s busy season in July and August, and the new boat was sparkling clean. Damon pointed out sea birds and harbor porpoises from the deck, and a screen inside played the last television images we would see for two months – a low budget and moderately offensive Canadian diet show suggesting that women would do well to limit their diets to Brazil nuts and raw onions.

We drove across Grand Manan to Seal Cove, where Russel Ingalls, one of the Scientific Station’s caretakers, waited with his boat Island Bound and a small crew. We moved our supplies from the vans to the boat rapidly with their help, jumped in ourselves, and set off. In about 45 minutes, we had reached the mooring where the station’s other caretaker, Mark Murray, waited with three smaller boats, Ernest Joy, Susannah Kent, and Frank. Our timing was perfect, and the tide was high, so we were able to offload all our supplies onto the small boats and pilot them straight across the basin, a small shallow bay one can trudge across at low tide, up to the dock, where we unloaded them and said goodbye to Russell.

We left some of our things in the Captain Gilette and the Lower Lab, two buildings right next to the dock where some students would live. The rest we loaded onto a little tractor trailer or carried up to the main building on the island, simply called the Dorm. Nina Hearth, a friend of the Station and a florist in Brunswick, had pasta with homemade sauces and salad ready, and everyone sat down to eat, reveling in the delicious food while peering around, wondering who they would be closest to by the end of the summer. The adult scientists, Mark, and Nina kept up a happy chatter.

Nina, who left to return home the next day, obligingly showed off the log Mark had flattened out for her as a kitchen stool so that she, at 5’ 1”, could see into the tall pots she needed to cook for so many of us. The log became a permanent addition to the kitchen when Cailey, our summer cook, revealed that she was only 4’ 11”. The next few days were full of unpacking, settling into the gorgeous new dorm, acquainting ourselves with the island, and getting to know one another.

Cast of Characters

Mark Murray, always in his comfortable uniform of jeans, a well-worn sweatshirt, and a black baseball cap, graduated from Bowdoin in 1975. For almost 20 years, he has taken care of the Bowdoin Scientific Station on Kent Island using a unique combination of power tools, long-hoarded driftwood, ingenuity, and levity to do what no one else could and keep this place running. He also takes care of Bowdoin’s Coastal Studies Center in Harpswell, Maine during the school year. “Marko”, as he is often called, builds and fixes, soothes and teases, plays guitar and sings beautifully, cooks, and tells stories – passing Kent Island history, mystery, and silliness down to each new crop of summer islanders.

This summer he won Bowdoin’s Polar Star award for leadership and service to the college, an honor that was supported by letters from an unprecedented variety of people – students, professors, alumni, and employees of the col-
lege – and was utterly deserved. Because Mark was on the island working, he could not attend the picnic in Brunswick where the awards are distributed, so the Gannons planned a surprise party for him. Damon presented him with a makeshift trophy, a Canadian loonie, and some chocolate to stand in for the prize awaiting him at home.

Janet made a dark chocolate raspberry cake, which she managed to keep secret even from Cailey, and presented to appropriate oohs and aahs from all.

Our cook and resident poet, Cailey Oehler (Bowdoin ’15), also contributes significantly to the work of keeping the station running. She feeds and waters nine hungry undergraduates, four to five resident adults, and whatever visitors may be staying with us, talking or singing barefoot all the while. When we arrived on the island, Janet, who helped Cailey get used to judging portion sizes and acclimating to the limitations of cooking on a small island, gave her three rules for dinner: “Six o’clock. Hot. Preferably edible. You do that, you’ll be fine,” she said, but the advice was unnecessary. Dinner is always ready, hot, and delicious as well.

Cailey also talks more than anyone on the island; she knows something about almost everything, loves to talk on the marine radio, and can make a statement uttered by someone without a second thought into an inside joke with herself, and then with everyone on the island, with frightening speed. A few of her favorite refrains of the summer include, “Not in a squeeze-bottle, no! Glucose, fructose, well at least it’s not inverted,” regarding visitor Ed Minot’s distressed reaction to our jam selection, “Do lobstermen like their cookies chewy or crunchy? No! Really, it’s important,” refusing to believe Mark’s repeated assurances that lobstermen do not discriminate when it comes to their cookies as she prepared to pack snacks for an excursion the group took on Russell’s boat, and, “Damon. Damon. Damon. Outhouse!” joking about calling Damon on the marine radio from the outhouse so no one would overhear her unnecessary use of the machine.

Dr. Ryan Norris, a professor at the University of Guelph, quickly emerged as our otherwise mellow crew’s resident rabble-rouser, prankster, and master of ceremonies. Lanky, with a perpetual boyish smile and a joke always at hand, he loves to tease Cailey while vacuuming down another helping of her dessert, and his acrobatic dive and roll in Kent Island’s favorite game, Tank, is unparalleled. Where all this energy comes from remains a mystery, as he and his wife Amy are always up
and working by around 6:30 a.m., searching for Savannah Sparrow nests or attempting to catch adult birds. A wonderful teacher, Ryan can always find a way to challenge students to think more like ecologists. The source and target of frequent jokes about Canada, he is the object of much speculation among the island’s students, half of whom are convinced that he is secretly a guitar fiend based on his extensive musical knowledge – alas, the theory has yet to be confirmed or denied.

Ryan’s wife, Dr. Amy Newman, is petite and piquant. Like her husband, she teaches biology at the University of Guelph, and the two provide remarkable role-models of dedicated and passionate scientists, working long hours and conversing eagerly about their projects and research interests. Amy avoids the burden of undesirable chores like outhouse duty because unanimous agreement has given her name a permanent berth next to bread on the chore list. She makes delicious, hearty bread that soaks up butter, olive oil, and sauces, holds together when weighted down with leftovers, and makes the perfect addition to breakfast, lunch, dinner, or snack time.

Ryan once tried to convince some students that it was traditional to cook and consume study subjects – in his case, Savannah Sparrows – in the manner that people eat ortolan buntings, with a white cloth over their head, supposedly either because the rich birds are so messy to eat it is embarrassing, or to hide the shame of their excess from God. Amy’s immediate deadpanned agreement, upon walking into the conversation, nearly convinced some students; luckily, neither she nor Ryan can stand up to Marko’s amused eyebrow movements, and when thus confronted, collapsed into laughter.

By virtue of the fact that she is also working with Savannah Sparrows, Sheela Turbek (Bowdoin ’13) has been more or less adopted by Ryan and Amy for the summer. She has the most experience with ornithology of the undergraduates, and her name dominates the student bird-sightings list we keep in the dorm. Sheela, Ryan, and Amy, or Team Sparrow, as they have taken to calling themselves, like to arrange to have dish duty together, ostensibly because it makes organizing their schedules easier, though some have speculated the actual goal is to maintain their exclusive allure.

Though quiet, Sheela loves jokes and pranks, pulling them off with such competence and gravitas that she is rarely suspected. She is always up for a game or adventure, be it a circumnavigation of the island or an outdoor sleepover, and with her striking light green eyes, dark skin, and low laugh, adds a quiet energy of intelligence and good humor to all of her endeavors.

In constant friendly competition with Team Sparrow, Claire, Claudia, and Elizabeth make up another dishwashing cohort, Team Petrel. Claire O’Connell (Kenyon ’13) is tall and thin, with long arms perfect for grubbing thin twisting burrows. The only student from outside of Bowdoin this year, she would have provided an invaluable voice of perspective simply by being from Kenyon. In fact though, she has lived in a variety of interesting places, including Micronesia, and so widens our world even further. Full of recipes for homemade health products, she made Ryan a suitably “manly-smelling” deodorant from Juniper gathered
during an outing on Grand Manan. Because she is juggling so many projects, Claire often disappears for large chunks of time, but she always arrives in time for dinner, a few helpings of dessert, and animated conversation. In addition, she has the largest movie collection on the island, making Tarantino nights, with copious amounts of stove-popped popcorn provided by Cailey, a favorite weekend activity.

Claudia Villars (Bowdoin ’15), the second member of Team Petrel, has an unfailingly positive and curious demeanor and can claim responsibility for at least ¾ of the questions asked on the island. Impressively, Mark, Damon, or Janet can usually provide an answer. She and Elizabeth took a Marine Biology class at Bowdoin last year, with Janet as their lab instructor, and excitedly identify species of algae, snails, and worms on excursions to the intertidal zone. Claudia is most interested, however, in sharks. Columbian, she often enjoys Spanish cooking and speaking sessions with Cailey when she is the day’s sous-chef.

She and Elizabeth Brown, demonstrating their impressive dedication, sometimes run to the south end of the island, braving an obstacle course of scurrying muskrats, just-hatched eider ducklings, and mud patches so deep and sticky they can suck the shoes off your feet. Claudia and the other members of Team Petrel, along with occasional invited guests, also love lugging a bucket of hot water down to the basin in their bathing suits and taking picturesque dock showers.

Even before the trip, Claudia and Elizabeth Brown (Bowdoin ’15) were close, and the trip has made the two – both so energetic and interested in taking advantage of every opportunity Kent Island has to offer – almost inseparable. Elizabeth, from St. Louis, Missouri, which she likes to remind people is in the Midwest, not the South, has long blonde hair and the best posture of anyone on Kent Island, from so many years of dancing. She loves animals, and many of her t-shirts bear the logos of shelters and organizations that care for abandoned or abused pets.

Easily excited, she especially exults over delicious vegetarian meals. Elizabeth’s greatest challenge on Kent Island came the day our fresh fruit ran out, and our next batch of groceries would not come until the next day. She bore the struggle with fortitude, although the fierceness with which
she pounced on the fruit when it arrived exposed the depth of her deprivation, to general amusement. The dearth of fruit was even more of a burden to Kasey Villeneuve (Bowdoin ’14), with her gluten allergy. She seems to subsist contentedly on a diet of cottage cheese, canned pineapple, and corn cereal. Although she cannot enjoy the fruits of her labors, she still likes to help bake and make granola. Kasey grew up in a military family, and has lived in Italy and Japan, but she currently resides in Maine. She seemed extremely quiet at first, but laughs a lot, and loves to listen to and to talk about music.

Always clad in shorts, leggings, and a raincoat, sometimes with the hood cinched over her entire face so that only her eyes peer out, watching for Herring Gulls, she spends a lot of her time trudging to the south end or the intertidal zone on the west side of the island to take observations for her projects, and entering interminable amounts of data. She sometimes seems caught off guard when Ryan asks if she has seen anything interesting that day, unsure if he is mocking the fact that she sees several hundred gulls each day or genuinely curious, an understandable confusion, as he is almost always joking—except about science, which he really does love.

Likewise, the Station’s director, Dr. Damon Gannon, has an abiding love for nature, particularly marine biology. His position at Bowdoin is unique, as half his work is teaching and half is administrative. He knows an immense amount about fish and marine mammals, and other ocean dwelling animals as well. Damon often makes jokes about being short at his own expense, though he cannot quite compete with Cailey. He speaks slowly and deliberately, and often answers Claudia’s queries with another question, the professor in him always eager to help students figure things out on their own. His supremacy as the island’s chief hot sauce connoisseur has been challenged more that it usually is this year, as many of the students love spicy food as well, but still remains intact.

In addition to hot sauce, Damon also loves hot dogs, although Janet keeps him eating healthily most of the time. He also

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**SPOTLIGHT: SCIENCE**

**Ptilochronology:** The study of energy availability through feather growth over time. The most common method involves plucking a feather and measuring the length a replacement feather grows to over a given amount of time. Ptilochronology data are often used to assess a bird’s “quality”, essentially a quantifiable measure of health.

**Geolocators:** Light sensing geolocators calculate their locations based on the timing of dawn and dusk. Though less accurate than GPS trackers, due to the possibility of interference by clouds or other light-blockages, and particularly hard to use at high latitudes around equinoxes, the geolocators are much lighter than their GPS counterparts. While the lightest GPS trackers currently available weigh about 5 grams, geolocators can weigh as little as 0.6 grams and can therefore be attached to small birds like Savannah Sparrows and Leach’s Storm-petrels.

**Stable Hydrogen Isotope Ratios:** Another technology used in migration studies. Hydrogen molecules come in several isotopes, each with different weights based on the number of neutrons present. Due to their different weights, the isotopes evaporate at different rates. Therefore, ratios of hydrogen isotopes vary by elevation and atmospheric gradients, and regional precipitation reflects these ratios. Plants incorporate these ratios as they use water, and as animals eat the plants and one another, the ratios are transmitted through trophic levels. Because the ratios in feathers remain constant, reflecting where the feathers were grown, stable hydrogen isotope ratios can be used to determine the wintering grounds of birds captured at their summer nesting grounds. Due to weather patterns, latitudinal values tend to be more accurate than longitudinal values. However, due to the lack of high mountains, in North America locations east of the Rockies can generally be determined with high accuracy.
makes excellent guacamole and chili. In one batch, he even included chickpeas, Janet's favorite food, although she was off the island at the time.

Janet Gannon warned us early in the summer that if she had her way, we would eat chickpeas every single day. Cailey considered preparing an Iron Chef style dinner for Janet's return to the island after she had been gone a few days, in which every dish incorporated chickpeas, but finally decided that the amusement and novelty would not outweigh the thought of eating only chickpea leftovers for days. However, the day she returned, Janet brought us presents – every student reached into her bag and pulled out a treat, ranging from dried mango to toblerone.

Janet is a laboratory instructor at Bowdoin and knows all about the intertidal zone in the Gulf of Maine. She cut her long hair short a few months before the summer, and with her zest for discovery, both scientific and culinary, sometimes seems like a pixie sent to infuse students with enthusiasm for macro-algae and sand mites, a task she accomplished more effectively than anyone else could. She maintains her infectious excitement without ever touching dessert, a true test of willpower, as moose munch, pies, and cookies abound on Kent Island.

Meanwhile, Dave Raskin (Bowdoin '13), our resident musician, eats platefuls of dessert after eating platefuls of dinner, but appears incapable of gaining weight. Mordantly self-deprecating, with curly hair cut asymmetrically so that he is forced to brush it out of his left eye constantly, Dave has cooked professionally, and makes delicious food when he draws weekend cook duty. He broke his ankle in a dramatic wiffleball accident during the third week of the summer session.

As Mark was in Brunswick at the time, the accident provided Damon an opportunity to show off his carpentry skills, resulting in what Damon called an appropriately Kent Island-looking crutch; in other words, the most monstrous monster truck of crutches. When Dave went to Calais, just across the border to Maine, to get a cast, whispers erupted about the possibility that he would finish his fellowship in Brunswick, leaving Will the sole male student on the island. To everyone's relief, especially Will's, he did come back, with blander but
more effective crutches and tales of flushing toilets. He often walks around the island to clear his head, singing along with his headphones in his full clear voice, oblivious to the world.

Will Montag (Bowdoin ’13), on the other hand, chooses books as his form of escape; when not working, he can almost always be found with his e-reader, racing through novels with incredible speed. A group of students including Will slept on the southernmost hill of the island – a perfect place to stargaze and to watch the sunset and sunrise from – one night. In the morning, Will woke up, rolled up his tarp, and stood reading his Kindle for an hour until the others woke up and it was time to head back to the dorm for breakfast.

Will’s main food groups appear to be tobasco sauce and candy, both of which he has supplied himself with amply. Tall, with a guttural gravelly voice, he has a unique sense of humor, and he and Dave love expanding hypothetical situations from a simple what if, to the realm of the absurd, and then even further. Always prepared for the unexpected with his safari hat, quick dry outfit, and GPS, Will ranges around the island hunting beetles, and has a knack for suddenly appearing unexpectedly whenever someone reaches their destination on an impromptu hike, casually checking one of his pit traps.

In addition to our main summer group, we host a number of visitors. Dr. Charles “Chuck” Huntington, a former Director of the station, comes every year, full of stories and eager to get back into the field. At 92, he still goes out to his study area every year to check in on his petrels. Always dressed in his grey and red sweater with red reindeer, knit for him by his son, Chuck stands almost as curved as his cane, which folds into a little seat, from which he can hold court at any time.

Opposite him in physical stature, Dr. Nathaniel Wheelwright is tall and lean, but equally excited about birds. The moment he arrived on the island, he ran up to the dorm and collected as many students as he could to return to the basin with him, so he could show them an American widgeon, an unusual visitor to the island.

Dr. Robert Mauck, another former BSS director and current professor at Kenyon College, Ohio, made two trips to the island. While looking through all the things that had been packed away during the renovation, some students came across a picture of Bob with Mona Lisa eyes that follow you everywhere, and it quickly began popping up in people’s cubbies and beds, so that even when he was away, Bob’s presence was strongly felt. Team Petrel thrived on Bob’s inspirational talks; the ability to give a “pump up” grubbing speech can be claimed by few. On his second trip, Bob brought his son Ross, a rising sophomore at Kenyon, who picked berries, joined in one of our evenings of music, and made Melonberry, a classic Kent Island drink he invented as a child.

Dr. Ed Minot, the nephew of BSS founder Bill Gross, visited and regaled us with tales from New Zealand, where he is a professor. Dr. Heather Williams (Bowdoin ’77), a professor at Williams College, came for a few weeks to
record Savannah Sparrow songs and to reminisce with Mark about Bowdoin in the late ’70s. Both of Mark’s children came for short visits. Nina, a baker in Portland, Maine, made a lot of friends very quickly with her superb rhubarb custard pie, and gave Cailey a bagel making lesson. Seth, who was a ship’s engineer, was on the island to share our celebration of Mark’s Polar Star award; he also helped his father install our new inverter, which meant that we could direct power to all of our buildings at once, instead of choosing between the dorm and the lab. Cara Martin-Tetreault, Bowdoin’s dean of funded research, also came up for a few days, bringing pineapples and watermelon with her and quickly becoming Elizabeth’s favorite person. We hosted several other visitors, who brought gifts, mail, and news of the outside world, and we were delighted to see them all.

Though Russell Ingalls does not live on Kent Island, as one of the BSS caretakers, he plays an incredibly important role. He has worked with the station for 22 years. His family once owned Hay and Sheep Islands, also part of the station’s property, and the Ingalls have been friends to Bowdoin for several generations. Among his many roles, Russell provides transportation to and from Kent Island, keeps an eye on the station during the winter, and acts as an envoy between the station and the local community. Incredibly kind, talented, and hardworking, he also harvests lobster, herring, sea urchins, and scallops and occasionally offers tours and whale watches. This summer he took us lobster fishing and whale watching and ran many of the Canada Day festivities on Grand Manan, where he lives with his family.

The Facilities

Kent Island, though small, functions remarkably well as a model of community living, in part due to our carefully tended small-scale infrastructure. The buildings on the island include the Warden’s House, Shop, Radio Shack, Fog Heaven, Hodgeson House, Rat Shack, Captain Gillette, Lower Lab, Cow Barn, camp, lab, outhouses, shower, and dorm.

When Sterling Rockefeller bought Kent Island, he built the warden’s house for Alan Moses and Ralph Griffin. Damon and Janet, who live in the small white clapboard house during the summer research season, sometimes joke to their friends that they spend summers in a Rockefeller mansion on a private island, though the house lacks electricity and running water. Mark works out of the shop, and Amy and Ryan live in the radio shack during their time on the island. Fog Heaven, the tiny structure where Bob Cunningham used to sleep and take meteorological measurements, received a slight extension when Mark raised the sinking building and lengthened it so that a full-length twin bed fits inside. Cunningham’s son Jim stayed in the new building when he visited for a few days this summer.

The Hodgeson House, Rat Shack, Captain Gillette, and Lower Lab all house students and visitors; Chuck particularly likes the Hodgeson House. The Captain Gillette and Lower Lab sit by the dock; we do not nail down the floorboards of the Captain Gillette because once or twice a season, during a very high tide, water comes right up to the building, and would damage a rigid floor, or even uproot the building (students sleep on the second floor, which does not flood). The Cow Barn is essentially a glorified storage shed, while Mark lives at “camp”, also known as the Caretaker’s Cottage. The laboratory, connected to the dorm, houses scientific equipment and offers researchers a home base. Our outhouses are pretty standard, but we love our solar shower; every few days, whoever has the water chore fills the large black tank above the shower, covered with a clear plexiglass lid, and water heats up in the sun. Of course, sometimes we still choose the tried and true bucket-of-hot-water-and-an-old-yogurt-container method.

In the fall of 2010, thanks to an National Science Foundation grant, renovations on the dorm, also known as the sheep barn, began; the project will be complete this October. The building has stood on the island as long as anyone can remember, and was, indeed, once a sheep barn. With a
### The weekly dishwasher and sous-chef sign up board

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Bagels made by Nina Murray and Cailey
kitchen, dining room, and living room, people gravitate to the dorm, and over so many years of love and wear, the building had grown rather dilapidated. The renovated dorm is beautiful, and still maintains its sense of history and character. We have a lovely kitchen with an industrial stove and oven, a double sink, a large pantry, and insulation. Mark also added a few windows and rearranged the floor plan so that we enjoy more light.

Life on Kent Island is all about ingenuity; just as part of the crutch Damon made for Dave came from the widow’s walk that used to be on the roof of the dorm, our new building boasts some unusual features. The beautiful sliding door between the dining area and mudroom has handles made of fallen tree parts, and a piece of trimming in the kitchen washed up on the beach decades ago; on the back, it is signed J. Levin, 1939. Mark also added a few windows and rearranged the floor plan so that we enjoy more light.

For years and years, the living room area of the dorm was known as the Dingleberry lounge, perhaps because when the building was a sheep barn, the sheep were sheared in that area. Mark has long detested the name. Our new, brighter, lounge, filled with pictures from Kent Island’s past, a cozy woodstove, and, thanks to Don Borkowski, new couches, seemed to deserve a new moniker. Mark and Dave have suggested Ingallsbury, to honor the Ingalls family, which has given so much to make the island what it is. As Dave explained, “It’s the Ingallsbury. Like Dingleberry, but for the Ingalls. And bury as is traditional British township, rather than blueberry!” Whether ardent defenders of the Dingleberry tradition will agree remains to be seen.

Thanks to solar panels, we have lights in the dorm, lab, and warden’s house, as well as the ability to charge phones and computers and to use power tools. A solar water pump provides the energy to transport water from our well to a large cistern which gravity feeds our kitchen sink and two hoses.

Thanks to the NSF grant, we have a new solar water heater, also fed by the cistern. We no longer boil water in a kettle to do the dishes; we can simply go collect a bucket of hot water. On sunny days, the water in the heater can reach up to 205 degrees Fahrenheit. One day Damon even made coffee using water from the solar heater. In addition, we maintain a series of trails throughout the island, small outposts on Hay and Sheep Islands, and our boats. Our dock will be rebuilt after the summer research season is complete.

Daily Routine

A day on Kent Island begins with a Team Sparrow coffee pow wow around 6:30 a.m., after which Amy, Ryan, and Sheela head out to the field to look for nests, band birds, or collect other observations. Breakfast for the rest of the island
is more of a floating affair between 7:15 and 8:15. A few pots of coffee, cereal, and last night’s desserts generally make appearances. The clear favorite, however, is the homemade granola that Nina Murray showed us how to make when she was visiting; the recipe actually comes from the ship that Seth Murray works on, and has therefore been dubbed “boat granola.” We race through a batch every few days; luckily, making granola is almost as fun as eating it. Around 8:00, most people start gearing up for their workday. The petrelers don their rain pants and head to the Shire, their chief study site. Will wanders toward one of his traps. If the day looks bright, Kasey heads toward the south end to observe the island wake. If not, she works on her intertidal project or data entry. The artists-in-residence may take a walk for inspiration, or relocate to somewhere quiet to work.

Often, the sparrow group wanders in for a real breakfast around 9:30; if the morning has been particularly successful, their breakfasts grow more elaborate. Sometimes Ryan makes pancakes and bacon, but more often the group just takes their share of granola and brews some more coffee. Damon and Janet roam the island, checking in on students and helping where they are needed. When everything is running smoothly, they can spend some time on their own research and on paperwork. People work until they come to a natural stopping point for lunch, usually around noon. Lunch generally involves leftovers, simply heated up or combined into exciting new creations. Peanut butter and jelly or fried egg sandwiches on Amy’s bread are also favorites. The three people on dish duty usually begin at 1:00, while everyone else goes back to work.

Afternoons tend to involve a mixture of field work, data entry, and relaxation. The sous chef of the day reports for duty at 2:00 and begins cooking with Cailey. By between 5:00 and 5:30, most people have finished their days work and can enjoy a little free time before the dinner bell rings at 6:00, although Amy, Ryan, and Mark generally work straight until dinner. Damon and Mark preside over the long table from opposite ends when we eat inside. If the day is warm, we relocate to picnic benches outside the dorm. The meal often begins quietly as everyone tears into their delicious food after a long day of work, but soon the ribbing, jostling, and laughter begins. As Cailey makes a production of presenting the day’s dessert – unveiling baklava as a surprise, or naming cookies that look perfectly good “inner beauty cookies” because she thinks they are shaped wrong, but wants to assure us they still taste delicious, which they do – the coffee drinkers begin their own production.

“19/24ths?” Marko suggests. Dave counters with 71/99ths, and Cailey asks if that can be simplified, then, abashed, reminds us that she is a poet. Ryan announces that 33/47ths is the night’s perfect decaf: caffeinated ratio, then habitually throws a scoop of each type of beans into the coffee grinder like always. After dinner, those on dish duty clean up, scientists finish up any data entry that they need to, and the rest of the evening is free. On Saturdays we work until 3:00, and spend the afternoon on group projects and chores. After dinner on Saturday night, we have a chore Yankee Swap and dish duty sign up; we take Sundays off.

For the Yankee Swap, Janet takes a baseball cap around, and we all pick a number. In order of our numbers, we reach into the hat and choose a chore, or steal a
chore someone before us has chosen. Trash means taking compost out to the pile, burning paper and cardboard waste, and bagging up recyclables and trash. Outhouse involves cleaning the outhouses and shower and restocking toilet paper.

Whoever has outhouse duty is also challenged to be creative in making the outhouse a homier place. Often, the person will arrange bouquets, leave a crossword and pencil, or provide reading material. The person who gets pantry cleans the refrigerator and sweeps the kitchen; dorm and lab are also organizing and sweeping chores. One person gets to wrestle with our temperamental weedwhacker and trim the greenery around the edges of buildings, while someone else pushes an enormous lawn-mower to clear trails.

One person is in charge of washing our dish towels. The official Kent Island laundry machine is a large black bucket with a hole in its lid. Put your clothes or dish towels in the bucket, fill with water, and add a squirt of detergent. Fit a toilet plunger through the hole in the bucket, close the lid, and pump. Drain the water, rinse, and hang — voila! Laundry. Whoever is in charge of the garden removes its cover on warm mornings and replaces it in the evening in addition to watering our small crop of lettuce and radishes. Weather entails taking and recording twice daily meteorological observations, including rainfall, wind direction, and visibility. The last chore in the Yankee swap is water, which involves filling the clear tank above the shower with water so that the sun can heat it and turning on our solar water pump on sunny days. In addition to the chore swap, on Saturday evenings people sign up for dish duty, sous chef duty, and weekend cooking duty.

Visitors often bring exciting treats including sausages from the Vegetable Corner in Brunswick, pistachios, and watermelons. We also enjoy wild island bounty. The rhubarb in the amazing pie Nina made us grew on the island. Strawberries, raspberries, and blueberries also grow here, although the main crop of blueberries and raspberries will peak after our summer ends. Towards the end of the season, we made blueberry muffins and herbs, no one would dare complain about our summer culinary experience. One of the chief pleasures on Kent Island is the plentitude of freshly baked bread – Italian bread, buttermilk bread, and cinnamon bread are a few of the many highlights. Cailey uses our abundance of canned and dried beans to make soups, Mexican foods, curries, bean burgers, and more. Her many recipe books, combined with the island’s cookbooks and Janet’s collection, give rise to all manner of delicious treats, particularly of the Caribbean persuasion. Thanks to her, we also have a constant supply of homemade yogurt to complement our granola obsession.

Movie nights require an abundance of popcorn.
pancakes, and ate fresh berries almost every day. In the past, station members collected and ate gulls eggs instead of buying eggs from Grand Manan, but our knowledge of the toxin levels in the eggs of seabirds prevents us from doing the same. Still, we can enjoy some oceanic foods; one day Janet made us *Chondras crispus* pudding, a dish in which the pudding’s gelatinous texture comes from the carageenan boiled out of the particular species of seaweed.

About once a week, a student or faculty member presents a scientific paper – or other materials for the artists – and leads a group discussion. Damon presented a paper on the arms war between moths and bats, Cailey offered some poetry and questions about the nature of art, and the petrel team brought a paper on telomeres and aging in petrels. Each talk was characterized by Ryan pushing students to think critically, asking: where is the hypothesis? Does this experiment employ an inductive or deductive process? What new questions do the results suggest? Amy showed us an amazing video of bats hunting that gave us all a newfound appreciation of the tiny bat Elizabeth, Claudia, and Kasey found in their room one day and named Vlad. The telomere talk led us to think about life history strategies, and whether aging is necessary. In the poetry discussion, the scientists offered interesting perspectives, wondering how someone might test the hypothesis that art is evolutionarily advantageous.

**Free Time**

We take advantage of our free evenings and Sundays in a variety of ways. There are several games particularly beloved by Kent Islanders. King among these is Tank. The game is simple, but provides immense fun both for participants and spectators. One member of each two person team wears a blindfold and spins around a few times. Balls of all shapes and sizes litter the yard. When the game begins, the partners who can see, ranged in a circle around the yard, direct their blind partners toward balls, and then try to help them aim the balls at their competitors. Ryan’s duck and roll is a force to be reckoned with, and a spectacle as well. We also enjoyed one excellent game of wiffleball, although it ended in Dave’s breaking his ankle, after which no one ever suggested playing wiffleball again.

Kent Island also boasts its own version of the game Guess Who®, dubbed “Who’s Who” and invented by Kevin Wu (Bowdoin ’14), who spent last summer here with a biology fellowship. The game uses the Guess Who board, which is made up of tiles with little cartoon characters on them. In the normal game, each player or team chooses one of the characters and the opposing team endeavors to identify this character by asking yes or no questions like, “Is the person a male?” and, “Does he have red hair?” In the Kent Island version, however, instead of asking questions based on physical characteristics, we ask questions such as, “Would this person whine about drawing the outhouse chore?” “Could this person catch a muskrat?”, and “Would this person be able to fix the Gravely (our lawn-mower) if it broke?”

Despite the fact that the answers to these questions are subjective, the game works surprisingly well. In a dramatic Who’s Who tournament, the final round came down to Dave and Amy versus Sheela and a visiting student, Noelle. The last game, however, was scheduled for 7:00 a.m. the Sunday morning Noelle had to leave to return to Brunswick, as the participants were too mentally exhausted from the semi-finals to continue the night before. Due to miscommunication, however, Sheela did not show up for the final round, and her team was forced to forfeit. Previous generations of Kent Islanders have also made Kent Island Monopoly, Clue, and cribbage boards. Cards are another favorite past time on the island. Mark, Ryan, and Amy particularly love a game called Euchre. Towards the end of the season, we all learned to play Euchre and Kemps, another card game, and spent night after night playing and singing along to the radio Heather Williams gave to the island upon her departure.

In addition to games, students spend a lot of time reading. Interestingly, this seems to have been the year that Kindles and Nooks became really popular on Kent Island – about half the students brought one. This transition sparked several interesting conversations among the students, who overall agreed that they still love physical books – and enjoy taking advantage of Kent Island’s library,
but the e-readers are incredibly convenient for transporting large numbers of books without sinking our dinghies. In addition, we take hikes, often to the south end of the island, which commands a lovely view of the Bay, the lighthouse on Gannet Rock, the sunset, and the sunrise.

Several of the students have enjoyed camping out in various buildings and places on the island, including the dock and south hill on clear starry nights, and the Hodgeson House and Hay Island as well. The night spent in the Hodgeson house was quite cozy, with six people cuddled into one small room – four on the same bed. Our excursion to Hay Island, on the other hand, became unexpectedly exciting when a thunderhead in the distance began shooting bolts of increasingly bright lightning. We considered relocating to the small shack on the island, but eventually decided to wait and see if the storm reached us, which was lucky, because it remained over the mainland and we woke up to a lovely sunset and beautiful blue skies.

Students also enjoy occasional campfires. Cailey or Dave sometimes brings a guitar and we make s’mores. Occasionally Cailey performs a dramatic poetry reading, or we have a sing-along, but the chief attraction of the activity seems to be building the fire. The question of using the teepee method or the log cabin is always vigorously debated, although in the end we usually just end up with a pile of burning logs.

On Sundays, we have internet access and can email family and friends at home, check in on current events, and look up recipes. Of course, a considerable amount of our time is spent simply sitting and talking – listening to Mark and Heather talk about changes and continuities in Bowdoin’s culture, talking about what we do and do not miss about “civilization,” and marveling at the stars. Kent Island also boasts several fun traditions.

There is the pioneer’s picture, a tradition that started in the 1970’s, involves reenacting the original photograph of the Kent Island pioneers. Some years the reenactment has been all faculty children, or all faculty, but usually it is a collection of students, striving diligently to recreate the inimita-
ble facial expressions of their predecessors. Kent Island also loves pranks. Although our summer was fairly low key compared to some, the picture of Bob Mauck popped up unexpectedly all over the island, and there was a minor heel war, in which the process of “icing” was re-enacted with bread heels.

The prankster must offer the heel of bread, hidden in some way, to their chosen prankee and ask, “Do you want this?” If the person willingly accepts the offer, the heel is revealed, and the recipient must immediately kneel and eat it. In one of the most ingenious heelings of the summer, Dave hid a heel in a pan of vegetarian lasagna. As Elizabeth came into the dorm, he helped himself to a slice of the heel lasagna, then “realized” that the lasagna was vegetarian and that he wanted meat, and offered her the plate, revealing the heel once she had accepted the plate. And of course, in addition to hard work and our small daily pleasures, we have excursions.

Notable Affairs

In addition to the academic and community living experiences, a summer on the island offers students a chance to learn about the environment, history, and culture of the Bay of Fundy region. For example, every year on the last day of the lobster fishing season, the Kent Island students have a chance to help BSS caretaker Russell Ingalls pull up all his traps and band lobsters. This year all the students except Dave, nursing his broken ankle, chose to try our hands at lobster fishing with Russell.

On Friday, June 29, a chorus of beeping watch-alarms erupted at 4:30 a.m. and we rolled out of bed to pile on our raingear. The tide was too low for a boat to approach the dock, so we trudged across the salt marsh, occasionally stopping to reclaim boots lost to the squelching mud. Russell picked us up from a beach on the northwest of the island as the sun was rising. The morning was absolutely lovely, with glassy water mirroring the beautiful gradated sky. Cai ley, Claire, Kasey, and I remained on Russell’s boat Island Bound with Russell and his crew, his son Chris and Mark Wilcox. Claudia, Elizabeth, Sheela, and Will boarded Mearl Maid, piloted by Russell’s older son Theron and crewed by Jason Cain.

From Island Bound we sighted Herring Gulls, Common Eiders, Black Guillemots, Atlantic Puffins, and Wilson’s Storm-petrels, though we missed Sheela, the most accomplished ornithologist of the students, who doubtlessly could have identified even more seabirds. Russell showed us Island Bound’s mapping equipment and described how when his father learned to sail, his only navigational tool was a compass. Chris and Mark taught us how to stack lobster traps, empty bait bags, and band lobsters. Suddenly, we were part of the crew.

Russell approached each trawl, a long buoyed line with several traps attached, with careful precision. As soon as we were close enough, Mark grabbed the buoy with a long gaff (hook), pulled it onboard, and looped the line over a hydraulic-powered winch. He hoisted the line aboard with this pulley, then reached over the rail and pulled up the trap. Mark and Chris then emptied the traps, 48” x 24” x 15” colored wire boxes. First they untied bait bags, small mesh sachets oozing with old herring, and slid them down for one of us to empty into the water. Seabirds, particularly gulls, swarmed down on the bait and formed a white train behind us. Next, Mark and Chris showed us unusual catches—anemones, urchins, and grumpy-looking fish called sculpins, for example—before throwing them back to their watery lives. They tossed crabs of legal size into a large bin, then dealt with the lobsters.

They pulled out the lobsters, throwing back animals that were too small or females carrying fertilized eggs. The minimum legal carapace length, the measure of the hard continuous shell covering the lobster’s head and thorax, is three and a quarter inches; local fishermen call the lobsters too small to harvest “bobs.” Selling a lobster that is under regulation size or that is carrying eggs results in heavy fines and sometimes in the suspension of a fisherman’s license, so Mark and Chris checked each lobster very diligently. Finally, Chris stacked the trap on the boat’s deck while we banded the lobsters.

Initially nervous about handling the lobsters, we quickly gained confidence. We grabbed the lobsters with one hand, sliding our fingers up their sides until their claws were locked pointing above their heads. With our other hand, or a partner’s, we held a bander, a scissor-like device with small metal plates that fit together like clapping hands rather than sliding blades.
Holding the bander closed at, we jabbed its end into a thick rubber band, then opened the bander so that the rubber band was opened tautly on it. We slid this band over the lobster’s claw, then let go, twisted our wrist, and pulled the bander away, ready for the next claw. Chris showed us how, if the lobster’s claw was opened too widely for a band to fit around, a quick poke to the inside of the claw with the bander would cause the lobster to snap it closed; of course, we learned quickly that if the jab was too slow, the lobster simply snatched the bander.

We made two trips, each about four hours, to retrieve all of Russell’s traps, filling the deck of Island Bound with the colorful boxes. For the first time in several years, all the students stayed aboard for both trips, eager to spend time with the patient, encouraging, and engaging lobstermen. Chris and Russell answered our questions about lobsters and other creatures of the Bay and laughed when our lobster remnants right off our rain boots! After dinner, Russell took us back to Kent Island with a bin full of lobsters, which we moored in the water off Kent Island until the next day.

With a whole lobster for everyone who wanted one, and plentiful butter, dinner was an animated and laughter-filled mess. For the next few days Kent Island felt positively decadent; we fixed ourselves lobster omelets for breakfast and lobster rolls for lunch. The smell of fish clung to our raingear for days, but our memories were more than worth the price.

Another chance for us to learn about the culture of the Bay of Fundy came soon after our lobstering trip. The next Monday, we went to Grand Manan to celebrate Canada Day. Unlike fishing, this trip actually presented an opportunity to sleep in for most of us, although Sheela still woke up early to look for nests. Mark took the first group – Janet, Claudia, Elizabeth, Cailey, Claire, Will, and I – to Grand Manan in Ernest Joy at 9:45; the second group joined us about an hour later.

The day was clear and hot as we pulled into the wharf. After dropping some of our things off in a van and leaving Janet to her own devices, we went to the sardine museum, a set of old buildings right on the water displaying historical objects from the Bay of Fundy hermit fisheries. We saw scales, smoking equipment, and lots of sardine cans. After touring the museum, we decided that it was time for the greasy pole.

We had been hearing about the event, a Canada Day tradition on Grand Manan, all summer. Claire, Cailey, Will, and I decided to participate, while Elizabeth and Claudia went to find a place with a good view. The setup is quite simple. A long wooden timber projects from the wharf over a narrow channel that fills with about ten feet of water at high tide. A barrel with a hole bored through its axis is attached to the timber so that the barrel can slide back and forth on the pole, which tilts slightly upward. At the end of the pole, a small Canadian flag waves. Dish soap keeps the pole “greasy” so that the barrel slides back and forth smoothly. The goal is to push off from the dock and ride the barrel all the way to the end of the pole, grabbing the Canadian flag; the first few people to succeed win prizes. Essentially, the greasy pole is a one way ticket straight into the cold water of the Bay of Fundy.

Russell’s family plans and runs many of the Canada Day festivities. He and Jason were in a small boat in the channel when we arrived, making sure the pole was properly greased and replacing the flag when participants were successful. Chris managed the queue and hooked the barrel back to its starting point between contestants. We stepped into the back of the line, inching forward as each person made the attempt. Though
Elizabeth wades in the Bay of Fundy.

Claire looks over cliffs on the north end of Grand Manan.

Students explore Swallowtail during Canada Day on Grand Manan.
Claire makes a valiant attempt at the Greasy Pole.

The firetruck pull.
Photo Credit: Janet Gannon
the event was fun to watch, we wondered if Claudia and Eliza -beth had made the better decision. Then Mark Wilcox bounded up to us, dripping wet from having gone already, and full of smiles and ad-vice that reassured us. But suddenly there was just one person before us in line, and then I was up, and all my nervousness flooded back.

I sat on the barrel, feet on the dock, and straightened and bent my knees a few times, trying to get a feel for what I was doing, and trying not to make a fool of myself. After about 15 seconds of this, I took a slow breath and pushed off, sliding down the pole until, before I really knew what had happened, I hit the water. Even though the water was cold, by the time I pulled myself up the ladder to the wharf, sopping, I was hooked. Claire, Cailey, and Will all had similar experiences, and so, upturning our expectations of the day, we all decided to try again. This time Claire went first, so close to reaching the flag we could all almost taste it. When I went, the barrel stopped about halfway down the pole, and there was a pause. I was perfectly balanced on the pole, but stuck, and had an instant to wonder if I could clamber off the barrel onto the pole and slide along it to the flag before the barrel be-gan to spin and I was falling. Cailey got about as far as I did, and Will a little farther, but none of us could reach the flag. Still, we were all glad that we had tried, while Claudia and Elizabeth appeared very happy that they had been able to witness our attempts.

After the greasy pole, we walked over to the trap hauling competition, which Russell and Ja-son ran as well. Two boats, each of two men, competed at a time. One man rowed the boat as fast as he could about 150 meters through the water, turning around a buoy to swing back around to a smaller buoy which was attached to a lobster trap. The second man in the boat would then reach over, pull up trap as fast as he could, and empty the bait bag inside it, at which point his team mate could start rowing back to the finish line. We saw a boat run into the side of the channel, and a man tip overboard as his boat turned, but the best part was seeing Mark Wil-cox. He was a trap puller, and as his teammate rowed, Mark lay still and snug in the front of the boat, calmer then we had ever seen him but still smiling merrily; his team won, to no one’s surprise.

During the trap hauling competition, the second group from Kent Island arrived. Shee-la, Dave, and Kasey joined us to watch the end of the event, disappoointed to have missed seeing the greasy pole – and pretending to be disappointed about having missed their opportunity to participate. Once the competition was over, we decided to look for lunch and ice cream, so we drove to Harbor Gifts, a souvenir shop and grille. There we ran into Mark Murray enjoying his lunch and chatting with some of his many acquaintances on Grand Manan. After browsing around for a few minutes, those of us who wanted lunch ordered; oth-ers ate ice cream on the porch, and some went to check out the dollar store across the street – a veritable treasure trove that sold everything one could imagine and more. Af-ter soaking in the sun and people watching for a while, we decided to explore more of the island, so we drove up to Swallowtail, a beautiful
lighthouse on the north side of the island.

Swallowtail lived up to its name, and we saw lots of butterflies playing amongst the wildflowers. We also picked wild strawberries; Cailey gathered a large handful for Dave, who found a bench and settled down to rest and watch over the gorgeous scenery while we trekked around. After our trip to Swallowtail, we went to a beach. Again, we left Dave to claim a spot for himself, where he quickly made friends with some local beachgoers. The rest of us walked around the water’s edge, enjoying the chance to imagine living in one of the beachfront houses, with our herring weir right in front of our house. We picked up a few shells, noticing that unlike many of the beaches we were used to, there were only a sparse number of shells, but those we found were perfectly complete. We also walked by sand sculptures from another Canada Day festivity and particularly admired a large octopus gripping a treasure chest.

By this time it was midafternoon and very hot. We brought Dave, Cailey, Will, and Kasey to the island’s firehouse, where the Canada Day celebrations continued with live music and food. Damon and Janet met them there after their own day of errands and relaxation on the island, and Ryan showed up, having dropped Amy off at the airport on her way home and given a radio interview about butterfly migration. The rest of us drove toward the southern part of the island, where we found some pretty trails overlooking coves and cliffs. We walked around for about an hour in the wildflowers and the trees. Finally we headed back to the firehouse, as we had been told several times that we did not want to miss the truck pull at 6:00.

As Mark likes to say, in Maine, or anywhere else you could think of, a truck pull involves trucks pulling large objects. On Grand Manan, however, a truck pull involves teams of six people – at least one a woman – pulling fire trucks about 50 yards. The station was crowded with families cheering for their favorites; for our part we were awed by everyone. Once the truck pull was over, we had a few minutes left to buy sparklers for the fourth of July, and then it was time to meet Russell at the wharf, as Mark had taken Ernest Joy back earlier. We loaded our groceries onto Island Bound, and headed home.

Our next trip, to Machias Seal Island, is detailed on page 60. On July 19, Russell took us on a whale watch. Though the trip almost
always finds whales, and Damon even brought underwater acoustic equipment so we could hear them, the giant cetaceans did not grace us with their presence. Our trip was surprisingly quiet, but we enjoyed the beautiful sunny day on the water nonetheless. Island Bound looked incredible, outfitted for the tourist season. This summer Russell plans to expand the occasional tours he offers friends and acquaintances into a true charter business. Out on the water, Russell, Bob Mauck, and Bob’s son Ross threw herring scraps to attract seabirds. We sighted Herring gulls, Laughing gulls, Greater Shearwaters, Sooty Shearwaters, Puffins, Wilkins Storm-petrels, Red-necked phalaropes, and a juvenile Gannet. Russell showed us how shearwaters dive by sticking a herring baited hook down into the water, though most birds were too wary to take the bait. Still, the Shearwaters were enormously entertaining to watch. They fly so low their wings skim the water, using physics similar to hovercrafts, and run across the water before taking off, sounding their kazoo-like calls. We also saw harbor porpoises—a mother and a calf.

A large part of the experience of a whale watch on Island Bound is the food. Russell brings Canadian equivalents to Chips Ahoy! and Oreos, barbeque and bacon flavored potato chips, and lots of soda. He also grills burgers, veggie burgers, and barbequed bacon, which would be delicious anywhere, but were downright amazing in the middle of a bright blue day on the water. Claudia, who does not eat beef, asked for a veggie burger with bacon, to Russell’s amused bemusement. Russell grilled as we rolled side to side, passing over a large shoal. Water rushing out of the deep Bay of Fundy basin hits the shoal and rises in long rolling waves; we joked that even if Russell could not find whales, he could take tour groups whitewater kayaking. As soon as we returned to smooth water, we attacked the food with a vengeance.

On our way back home, we made a detour to pass by Gannett Rock, a tiny rocky outcropping visible from the south end of Kent Island, with a lighthouse that was manned until the 1990s. The lighthouse is a little eerie, with paint peeling and a helicopter landing pad falling apart. All around, grey seals play on the rocks and in the water. Jim Cunningham, Bob Cunningham’s nephew, told us about the technology scientists use to identify seals using their markings and spots. Eventually, we turned around and Russell took us home. The tide was going out rapidly, so we offloaded from Island Bound to Ernest Joy, which was moored by plank beach, as quickly as possible so that Russell could leave before he was marooned with us. Then we tromped across the basin, Damon pulling Dave in an inflatable raft, to collapse, exhausted by the sun, sea, and fun, in the Ingallsbury, which had been refurnished two days before. Mark and Bob played Cailey and Dave’s guitars while we made a late dinner, and our outing came to a cozy end.

Saying Goodbye

The final week of our time on Kent Island went by unbelievably quickly, in a frenzy of chores and attempts to complete the “Kent Island Bucket List.” On our last Sunday Mark took us to Outer Wood Island, a small island nearby, where we roamed around picking blueberries and combing the beach for interesting rocks. We gave short presentations on our projects, cleaned, packed, and bid grave farewells to the petrel chicks. We left at 7:30 a.m. on July 28, nearly nine weeks after our adventure had begun. Like on our initial trip, we were fortunate and the tide was high for our departure, so we left directly from the dock. Damon and Janet stayed behind for a final weekend of straightening up, while we returned back to campus with Mark. The trip was mostly uneventful, though notably louder than our shy journey north; Cailey and Claire even played their ukuleles for us as we drove. In Brunswick, we slowly spread out, meeting family and friends. Next time we get the chance though, we will be back, showing future Kent Islanders how to grub, avoid gulls, and find the hidden patches of berries that litter this special place.
Field stations often suffer, unappreciated and overlooked, in these days of harsh budget cuts. Ecology lacks analogies to the search for the Higgs-Boson particle - lacks concrete goals based on established gaps in knowledge that, when met, can be pointed to as discrete steps toward furthered understanding. The debate over whether rules such as those accepted in the physical sciences govern ecology as well can be easily complicated by semantics, and by whether exceptions prove, disprove, or modify the rule. Breakthrough discoveries in ecology, such as James Estes’ pioneering study on trophic cascades do occur occasionally. But most fieldwork involves slow detailed studies of life histories, painstaking examination of ecological interaction, days and days of data collecting followed by days and days of statistical analysis – not an easy sell for scientists searching for funding. However, field stations cannot be discounted as the sites of integral studies, training grounds for young scientists, and facilities that wed research and conservation seamlessly.

Field stations enrich ecological research, particularly by making long-term integrative studies possible. Working at one particular place year after year allows scientists to learn about life histories, population dynamics, and ecosystem connections. In addition, immersion in a particular place helps scientists to recognize an unusual event, such as a warm summer, a poor breeding year, or a new invasive competitor. Most importantly, long-term field studies can contribute to comprehensive understanding of relationships and systems that cannot be studied in a laboratory, complementing the isolated mechanistic studies that are best carried out in such environments. Two case studies from the Bowdoin Scientific Station on Kent Island, concerning acid fog and Leach’s Storm-petrels, demonstrate the breadth and depth of research possible even at a small summer field station.

Dr. Robert Cunningham first arrived on Kent Island to keep weather records as a high school student. He continued on to a distinguished career as a professor of meteorology at the Massachusetts Institute of Technology. He visited the Station whenever possible; the Station’s caretaker also kept daily meteorological records, which he sent to Cunningham. Years of observations and study informed Cunningham’s deep understanding of the atmospheric systems of the Bay of Fundy and Gulf of Maine. This understanding led Cunningham to realize that air masses moving up the East Coast of the United States carried pollutants; in 1941, he published a pioneering article on acid fog more than 20 years before the Hubbard Brook Experimental Forest released its well-known study on acid rain. Cunningham’s work, clearly demonstrating that
pollution was a global problem rather than a local one, contributed to the passage of several important environmental protection laws, including the Clean Air Act of 1970, and paved the way for future scientists.

Leach’s Storm-petrels nest on Kent Island during the summer. Scientists have studied the small burrowing seabirds here for decades. Dr. Huntington, BSS Director Emeritus, has worked continuously with the birds since 1953 in what may be the longest biological study by a single principal investigator. Huntington and his collaborators, particularly Dr. Robert Mauck, have studied the petrels’ life histories; the 50-gram birds can live up to 40 years. Recent molecular work suggests that this longevity might be ascribed to remarkable telomere maintenance, a finding that could have far-reaching impacts in medicine. Without the Station’s institutional support and Dr. Huntington’s dedication, we might not know that these cryptic birds live remarkably long lives, let alone imagine that the pelagic creatures might be the starting point for potentially life-saving genetic research. This work and additional studies on the Leach’s Storm-petrel’s role in the Gulf of Maine ecosystem, as well as the impact of climate change on this ecosystem and the petrels, will continue for decades to come.

Nothing can match the training that a young ecologist receives at a field station. Field research provides students with an opportunity to learn outside the classroom or laboratory setting, addressing and embracing the unpredictability of research in the “real world.” Many students find laboratory exercises that have been performed time after time, and often have predetermined results, both uninteresting and stressful. Why bother if they know what will happen? What if something goes “wrong” and their professor deducts points? Working at a field station is different. A student might begin with a hypothesis, but even his professional mentors cannot tell him what “should” happen, only what might be likely considering what is known so far. When an unexpected result comes along, as they are wont to do, instead of asking to redo their experiment, or brushing it away as an outlier and reassuring themselves that things are going according to plan, students learn to engage with their observations. They ask their mentors questions, delve into books and journal articles, and widen
their contextual lenses to think about what their results suggest. They learn, in short, that scientists progress not by reminding themselves of what they know, but by seeking to understand what puzzles them. Essentially, at field stations, to a greater degree than even an independent study within a university setting can provide, young adults learn to think about themselves as scientists in addition to as students.

Besides learning to take ownership of their ideas and experimental processes, students at field stations have the opportunity to learn about the realities of a career in ecology. At a very basic level, they learn field techniques and methods they rarely have a chance to learn in classes. Furthermore, many learn data management and statistical skills more effectively than they do in a class, where even data gleaned from physical experiments can seem abstract and unimportant. Field stations are also breeding grounds for self-sufficiency, ingenuity, and initiative. After all, many field stations are located in remote locations, and most operate under budget constraints. Students sometimes need to improvise procedures and devices based on the materials available to them—a valuable lesson that scientists do not have laboratory instructors to provide everything they need. Working at a field station also teaches students how to troubleshoot when part of their experiment seems to be going wrong. Many field station programs for students also offer components on reading, writing, and presenting scientific literature. The critical thinking skills involved in fine-tuning an experimental procedure or evaluating an article in a scientific journal are more important for aspiring scientists than any techniques they learn or grades they earn.

Claudia Villars (’14) studied Leach’s Storm-petrels this summer. She learned about population dynamics, life histories, and energy budgets. At the beginning of the summer, she asked a constant stream of questions, endearing herself to the island’s faculty. However, throughout the summer, she learned that the encyclopedia, and even our all-knowing professors, did not have easy answers for many of her questions. Instead, they taught her to think about her questions in a larger ecological context, and in terms of experiments that she could design. Furthermore, they challenged her to think beyond binary systems, in which organisms are K-selected or R-selected, and past the patterns and relationships graphed with smooth, beautiful lines, she had learned in classes. In the field, considerations such as reproductive success and colony health, for example, can compete against one another in unexpected ways, and clarity is an illusion. However, this is exactly what makes field station research so rich and compelling.

In addition, Claudia learned to reflect on the purposes and limitations of biological research. Many university biology students study science because they like it, perform well in it, and have always thought of themselves as science students. Most also entertain an unexamined belief that science is clearly beneficial to the world at large (with the possible exception of some military applications, perhaps), and ecology is particularly important in terms of environmental health and conservation. Understandably however, in laboratory settings, students rarely need to think about the possible limits to the idea that any knowledge gained is a success. Questions about what research can be justified and what makes it justifiable do not arise when students grow bacterial cultures or dissect crickets. Ethics tends to be taught as its own course, separately from laboratory or field experiences. Claudia learned to ask questions like: Will my study cause the petrels to act unnaturally? Will they abandon their eggs? How do I weigh an addition to the scientific knowledge base and future conservation measures made possible by these gains against the potentially harmful effects of disturbance and trauma? Through her experience engaging in these important questions, Claudia learned that she feels more comfortable with work that has clearly delineated benefits to her study subjects and/or humans in the near future, and is particularly interested in the interactions between natural and human systems, such as the fishing industry in the Gulf of Maine.

Kent Island inspired Dave Raskin (’13) to rethink some of his ideas as well. A music major at Bowdoin, Dave spent the summer composing. He also gained a deep appreciation for biology, one he easily could have graduated from Bowdoin without. Dave spent some time this summer recording birdcalls and unraveling their notes and rhythms; when Dr. Heather Williams, a professor at Williams College in Williamstown, Massachusetts and a Bowdoin and Kent Island graduate, came for a few weeks, Dave learned about how a biologist...
might approach these same birdsongs. Heather works with Savannah Sparrows, examining the differences in the calls of different populations, the unique calls of certain cohorts - fads - and the evolution of songs within populations. She studies how juvenile males learn their songs from their fathers, or sometimes from louder males nearby, and how certain elements of their songs, such as “trills” and “buzzes”, relate to sexual selection. In addition, Dave thrived during our paper discussions, seminar-type group talks about scientific papers that often turned into broad conversations about ecology and philosophy. Offered the opportunity to participate in these conversations, Dave learned to think about science as a process of critical thinking rather than an exclusive field that offers outsiders only fleeting incomplete glimpses of how the world works.

Sheela Turbek (’13) already knew she was interested in science; the Biology and Spanish double major will use her data from this summer for her honors thesis in biology. However, living at a field station teaches students of all disciplines valuable lessons. Sheela worked incredibly hard this summer, rising at 6:30 every day to look for dishearteningly well-camouflaged Savannah Sparrow nests. Drs. Amy Newman and Ryan Norris, who studied Savannah Sparrows with her this summer, worked even harder, scientists who, rather than shrugging their duties onto their student assistants, love the opportunity to perform their own field work. Their excitement over their work, and the spirit of fun they brought to all of their endeavors, inspired Sheela to think about the lifelong pursuit of science with a new lens.

Ryan and Amy embodied the type of mentors that are invaluable to young scientists. Both played large roles in encouraging Claudia and Dave to ask new, increasingly insightful questions. Like the best advisors, they exposed students to new ideas and acted as role models. Many Bowdoin students considering a future in academia absolutely believe that teaching at a liberal arts school is the ideal professorial situation. Amy and Ryan, however, teach at the University of Guelph, a large research university near Ontario. They enjoy their research and find happiness at an institution with a model that considers it equally important as teaching. Though Sheela is not sure what she wants to do after she graduates, Amy and Ryan, along with her mentors at Bowdoin, have shown her many potentially fulfilling options. In addition, Amy and Ryan, like all the faculty members on Kent Island, served as role models, both as scientists and as individuals.

By their very nature, field stations are sites of both research and conservation work. At a very basic level, the environmental monitoring that often occurs at these sites both contributes to our general understanding of environmental change and provides valuable information to any scientist who works at the station. Because field stations want to remain appealing places for scientists to come work, of course, they strive to maintain intact ecosystems. Though privately owned land that scientists are granted access to can have the same qual-
ities, field stations, often institutionally affiliated, are more stable. Scientists beginning a long-term study can feel relatively secure in knowing that their study site will remain undisturbed and accessible to them at a field station, while other sites may be unpredictable. Kent Island was established as a bird sanctuary as well as an “outdoor laboratory” for Bowdoin students, and many other field stations are similarly invested in the conservation concerns that biologists often claim to be driven by, but have few real chances to explore.

Field stations are ideal homes for integrative long-term ecological studies, apprenticeships for aspiring scientists, and conservation-driven science. Finally, field stations serve as an antidote for the academic myopia that often plagues both professors and students. Working in the setting of a university or professional laboratory can twist priorities until preeminence, rather than discovery, becomes the goal, and competition, rather than collaboration, becomes the rule. At field stations, of course, scientists work with a mind toward publication, a competitive academic pursuit. However, at most field stations, communal living, cooking, and chores have an equalizing and team building effect. Working in the field also serves as a constant reminder not to forget context or a greater purpose. Temporal scales, trophic webs, and environmental changes can all disappear when you focus on a single mechanism or interaction, though such studies are extremely important. However, working in organism’s habitat, all these things come rushing back, and with them reminders. Whether the goal is conservation, building or dissembling an ecological “law”, or a contribution to human medicine, working at a field station keeps this aim in clear sight.

This summer taught me a lot about Bowdoin as an institution. I had a chance to learn about a portion of its history that is fascinating and also accessible; the idea that I attend the same school as Hawthorne and Longfellow did often seems abstract and unrelated to my life, while the history of Kent Island informed my experience here in every way. I could imagine Ernest Joy spending years essentially alone guarding the island from poachers. Sometimes, the battery for his marine radio ran out, and with it his only way to communicate with the outside world besides boat. It was easy to be grateful for our new water heater, our groceries from Grand Manan, and our internet Sundays – even more exciting than Sundae Sundays on campus. Having spent hours trying to take pictures of fairly common birds, I empathized with Allan Moses’ struggles to locate the elusive African broadbill, and that empathy allowed me to access the ideas of the Rockefeller empire, the Depression, the evolution of the field of ecology, and the serendipitous nature of history in new ways. I met Chuck Huntington and heard about his long career as a professor at Bowdoin, and heard about Mark Murray and Heather Williams’ experiences as students at Bowdoin, as well as their perceptions about how Bowdoin has changed.

Most of all, for me, Kent Island will always be a series of images – the Canadian flag waving teasingly at the end of the greasy pole, a petrel chick sitting like a tiny mound of fluff in Bob Mauck’s hand, Chuck at 92, crawling under a suspended fallen tree to reach a petrel burrow. Lobster fishing, Canada Day, our whale watch, and stories from the island’s history taught me about life in the Bay of Fundy-Gulf of Maine region. I have always felt lucky to attend Bowdoin, and have always loved Maine, with its mountains and oceans, forests and beaches. Still, my deepened understanding of the most important industry in Maine and the people who work and live in it has deepened my appreciation. In addition, my project this summer allowed me to observe a variety of interesting research projects, to engage with students and scientists about their interests and goals, and to participate in conversations about conservation, ecology, and the nature of science. This experience, more than any science class I have taken, reassured me that I could read, understand, evaluate, and discuss scientific developments. There are many types of educations, but I think a college that provides its students a functional literacy in fields like ethics, politics, art, communication, and yes, science, along with the tools to critically analyze and to continue on with a chosen specialty, is on the right track. Field stations like the Bowdoin Scientific Station on Kent Island have an important role to play in this type of education.
BIRDS OF THE BAY OF FUNDY

A juvenile Gannet takes off
Yellow warbler

Razorbills
Atlantic puffin

Common Eiders
Savannah sparrow

Common yellowthroat (male)
American Redstart (female)

Black-capped chickadee
Double-crested cormorant
Cedar waxwings
Leach’s Storm-petrel

Great blue heron
Black-crowned night heron

Herring gull
Common murres

Tree swallow
6:00 a.m. We leave Kent Island on a gleaming Island Bound. The lobster season ended just a week ago, but Russell has already cleaned, repainted, and installed benches and guard rails, readying himself for the tourist season. We tow Ernest Joy and Susannah Kent, two of Kent Island’s workboats, behind us as we travel south. The gray sky and gray sea cannot quench our excitement – Russell carries us toward Machias Seal Island, home to the largest Atlantic Puffin colony in the Gulf of Maine. Machias Seal Island also boasts the last manned lighthouse in maritime Canada due to the fact that the island lies in disputed waters, claimed by both Canada and the United States. We have even been promised a Mountie, standing guard over the island and its birds. We sight a few seabirds, but the wind blows through our jackets, and we retreat into Island Bound’s cabin to drowse, read, and speculate on how close we will be to the puffins.

7:10 a.m. The gale rises, and the cabin floor tilts and pitches beneath us. A mild squall besets us, and those who had remained outside wander into the cabin seeking warmth and entertainment. Russell continues on undisturbed; his radar shows that we will be clear and easy soon. But suddenly, a shout! Ernest Joy floats free, like an orphan Eider duckling, frightened and helpless. Russell swings Island Bound back into the squall to collect our wayward boat, a move that leaves several students rather queasy. We abandon the cabin in favor of fresh air and the spectacle of our illustrious director leaping into Ernest Joy. For a moment, it appears the two may be lost at sea together, but he and Russell quickly secure the boat, and we resume our journey south.

We pass Gannet Rock, a tiny island littered with the beaks of birds that became eagle-prey with a lighthouse where lighthouse keepers once lived with their entire families. A few Wilson’s Storm-petrels
A juvenile puffin

Though “3/4 the way to penguins,” puffins can still fly.
and Herring Gulls skim the water’s surface, but mostly we see ocean and sky, both calm and peaceful now. A squat black bird approaches from behind. As it flashes past, I spot its bright orange bill – a puffin racing us home. As we continue, I see more, some in small groups, some alone. A few fly in the opposite direction as us, heading out to fish, but more streak past us on their way to Machias Seal Island.

We hear a low sonorous fog horn, and the students still inside the cabin tumble out to see the island appear.

8:30 a.m. An island even smaller than we expected rises out of the sea, dominated by a squat lighthouse. In the water around us, hundreds of puffins float and dive. The fog horn continues to blast erratically as we climb onto Susannah Kent. Russell takes us in two trips, steering the boat straight up to a concrete walkway, where we jump out. Trips to Machias Seal Island must be timed carefully; visitors who do not arrive at high tide find disembarking onto the island almost impossible. Our landing, however, goes smoothly. Alas, the island is Mountie-less at the moment, but a graduate student from the University of New Brunswick meets us. He walks us up to a few picnic tables, where we, distracted by the puffins and razorbills flying about and the stunningly fearless Savannah Sparrows peering up from our feet, take an embarrassing amount of time to split into groups of three.

Three species of alcids – puffins, razorbills, and murres – nest on the island, along with the sparrows, a few Great Black-Back and Laughing Gulls, and some Leach’s Storm-petrels. Common terns used to be prevalent on Machias Seal, but their populations have crashed in recent years, likely due to less accessible herring prey. In addition to lower numbers of young herring, the fish appear to have shifted lower in the water column, where diving birds like the alcids can still reach them, but terns cannot. This year a few terns attempted to nest on the island, but without a thriving colony to repel predators like gulls, they could not successfully raise young. We eventually stop looking for terns and watching the other birds long enough to form trios, and our host leads us out to the blinds.
8:45 a.m. The bird blinds sit among boulders and crevices, looking rather like outhouses. Puffins surround the wooden structures, even landing on top of them, while razorbills sit a little further away, preening. A few birds skitter away as we approach, but most ignore us, confident in their overwhelming numbers and their experience with people. Once we file into the blind, the birds forget we ever existed. We follow our guide’s advice to open windows only on one side of the blind at a time, thereby hiding our silhouettes, and he leaves us alone with thousands of seabirds. Despite its immense population, the colony sounds like a dream; after all our experiences with Herring Gulls, we cannot believe that a group of seabirds can remain so muted. Every so often, we hear a strange mechanical sound, like a chainsaw buzzing from miles away—a puffin call.

Sometimes we feel the thump of a bird landing above our heads, but mostly we just watch. The puffins waddle so close we could reach out and touch them, though we have been warned not to. They rub their large orange beaks together as a sign of affection, an adorable image that looks too painted and posed to be real. Against orange webbing, their black claws look surprisingly sharp; we learn later that older puffins tend to dull their talons by pushing off and landing on rocks, but the younger birds routinely scratch researchers. We see a few puffins with winter plumage; Damon notes that their black faces make them look less like clowns and more like Jokers of the Heath Ledger variety. Some puffins return from the sea with bits of fish in their beaks, immediately dodging down into their burrows to feed their chick. Puffins, Razorbills, and murres all raise one chick each year; interestingly, Black guillemots, their close relatives which we often sight off the shores of Kent Island, raise two chicks at a time.

The Razorbills are a little larger and leaner than the puffins, with minimalist black and white bills, and black heads that hide their black eyes. Though they remain more wary of the blinds than the puffins, they fly quite close. They rub beaks like the puffins do, and can dive even deeper. Alcids, like Storm-petrels, share the burden of chick-rearing equally between sexes. Parents take turns hunting and incubating eggs or watching the chicks. Unlike petrels, though, alcids hunt in waters close to home, making several trips each day, rather than one trip every few days. Once the chicks are large enough, razorbill fathers teach their chicks to swim and hunt, leading them down to the water in a little parade.

9:45 a.m. An hour of watching puffins and Razorbills, with the occasional glimpse of a distant murre, flies past, and our guide comes to collect us. We return to the picnic tables and he tells us about his research and
about life on Machias Seal Island. Two lighthouse keepers run and maintain the lighthouse year round. Scientists studying the alcid colonies come and go – currently, our guide and his two assistants make the island’s population a rollicking five. During the summer, two boats a day bring tourists to the island. One boat leaves from Cutler, Maine and the other from Seal Cove, Grand Manan. Today, the Grand Manan operator is on vacation and has given us his time.

We learn that alcids live in the northern hemisphere, and can be thought of as three quarters of the way to penguins, with stumpy wings that they use like flippers to swim with, but that they can still use to fly. No one really knows where the birds go in the winter, though geolocator experiments are ongoing. Many scientists believe that they disperse in the northern Atlantic, rather than truly migrate. Most of the work on Machias Seal Island focuses on the Atlantic puffins, especially on population demographics. Puffins can live over 30 years and eat mostly young herring, although in recent years, as haddock populations in the Gulf of Maine have rebounded, the puffins have been eating more young haddock as well. Like petrels, puffins nest in arm-long burrows; our petrel students suggest a grub-off, but to no avail.

Life on Machias Seal sounds lonelier than our summer on Kent. Although the daily procession of tourists offers tidings from the outside world, the lighthouse keepers have a television for news and entertainment, and the researchers enjoy the culinary variety of groceries from both Grand Manan and Maine, living on such a small island with only five people and tens of thousands of eerily quiet birds can take a toll. Many Kent Islanders find the graduate student alarmingly grumpy, although this says more about our own excitement and elimination of the thoughtless grumbling that, like gossip for most people, serves as social glue for many academics, than it reflects on the lumberjack-esque researcher. After about an hour of talking about puffins and petrels, tourists and
lawn-mowing, and New Brunswick and Maine, we realize how lucky we are to have each other to keep us excited about our research and our island experiences. Still, we tell Damon he should ship in some boulders so that puffins want to nest on Kent Island, and we can try our hand at grubbing them.

10:45 a.m. When a group of tourists from Maine land, we bid our goodbyes. Russell picks us up in Susannah Kent and carries us over to where Ernest Joy bobs alongside Island Bound. Damon takes half the students over to Ernest Joy while the rest of us stay with Russell, and the boats circumnavigate the island. From the water, we see the lighthouse and living facilities, as well as the bird blinds, covered with puffins and Razorbills. Puffins surround us in the water, and on the rocky shore, we see Common murres.

The largest and most penguin-like of the alcids, murres can dive up to 500 feet. They tend to stay near shore, so snaking among the rocks in a small skiff is the best way to see them. Sooty colored and sleek, the murres occasionally unfold their wings, surprisingly long and elegant. We also see Harbor seals and Grey seals playing in the water and sunning themselves on the seaweed covered rocks. Finally, we return to Island Bound, carefully tying up Susannah Kent and Ernest Joy to avoid the adventures of our initial trip.

11:30 a.m. By the time we are ready to head home, the sun flashes brightly on the blue-grey sea. We watch the seals and puffins as they slowly disappear from sight. We even spot a few Harbor porpoises. After a few minutes, students sprawl across Russell’s gorgeous new benches, enjoying a perfect nap in the warm salty air.

Russell tells me that data about puffin diets often predicts fishing catches two years away, and that the return of haddock signals an increasingly healthy ecosystem. However, more ground fish also complicate conservation measures, as they eat the herring and lobsters that make up the bulk of the Gulf of Maine fisheries. Our trip home takes a little under two hours. When we reach Kent Island, we wake up the students still sleeping. Eider ducks and Herring gulls welcome us back, along with Heather and Ryan, who, having been to Machias Seal before, stayed behind with their beloved Savannah Sparrows. Though we agree that a few puffins might brighten Kent up a bit, the island has never felt so much like home, and we are glad to be back.
REFERENCES


Conner, W. and Corcoran, A. Sound strategies: the 65-million-year-old battle between bats and insects.


Cailey Oehler (Bowdoin ’15) performs a traditional Three Islands Sacrificial Fog Dance. Though most visitors, indeed most of the Kent Island community over the last 80 years, believe that Robert Cunningham’s iconic “Prey For Fog” sign was a misspelling or a mediocre pun, this year’s students know the truth. Unless a brave student performs this intricate ritual, involving the fearless sacrifice of the physical body to the spectral fog, the fog invades. First, it creeps into the mind, slowly turning everyone on the island into zombies. Next, it takes our bodies, turning us all into ghosts; Susannah Kent suffered this terrible fate in 1853. Finally, the fog overwhelms the entire island, relinquishing Kent Island and all of those on it to the status of myth, like Atlantis or jobs for humanities majors. Thankfully, Cailey rose to the occasion, ceding to the mist to sate its relentless hunger before returning to herself and the heat of life by enacting the evolution of man with burning fire sticks. The dance serves first as a sacrifice, offering the fog enough flesh to prevent it from devouring everything in its path, and then as a warning that, having taken our offering, the fog must wait until next year, or perish by flame. Following the ritual, the Kent Islanders enjoyed watching the fog roll in and out over the sea, appreciating its beauty and power safe in the knowledge that the fog dance had been performed to perfection.
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