

Kent Island Annual Report – 2007

Changing of the Guard

I know you will join me in welcoming Damon Gannon as the new director of the Bowdoin Scientific Station at Kent Island. Damon is a marine vertebrate ecologist and he knows a thing or two about field stations. Damon has worked at some of the best-known field stations in the country, including the Manomet Bird Observatory, Woods Hole, Duke's Marine Lab, and Mote Marine Laboratory. Importantly, Damon spent three summers in the 1990's studying harbor porpoise ecology at the Grand Manan Whale and Seabird Research Station in North Head. He won't be surprised by the tide. Damon and his wife, Janet, will arrive in Brunswick in early May. The plan is for him to spend the summer on Kent Island learning the ropes, then take over all operations this fall. Damon's hiring is a real sign of Bowdoin's commitment to Kent Island.

Damon will bring a new perspective, a fresh approach. Kent Island has long been known for its ornithological research and Damon assures me he is committed to building on Kent Island's strengths. At the same time, Damon will pursue new opportunities for student research. Every year, we are intrigued by the seals on the Moustache, by the whales and dolphins around us. I look forward to Damon helping us see these wonders in new ways.

Damon becomes the eleventh director of the Bowdoin Scientific Station at Kent Island (for a complete list, see the addendum at the end of this report). I know this because Nat Wheelwright recently detailed Kent Island's history for the April issue of *Bowdoin Magazine* and for his inaugural talk as the Anne T. and Robert M. Bass Professor of Natural Sciences. *Good Gun Tales and the 73-Year History of the Bowdoin Scientific Station on Kent Island* was a celebration of Kent Island's rich history. Nat painted a delightful picture of the station's origins. Never before had I

seen the entire saga laid out before me. The talk and the preceding dinner, hosted by Bowdoin President Barry Mills, were well attended. From Bill Gross's sister, Louise Minot, to Bob Cunningham's sons, Peter and Jim, to Chuck Huntington and a small army of Kent Island alumni, the entire evening underlined the strength and depth of the community that is Kent Island.

Challenges

Mail Day on Kent Island. Everyone around the long table in the Dorm, intently writing the last words on the last letters to go to Grand Manan. Anyone have Canadian stamps? That evening, Marko drops the bag of mail on the table. It had traveled at *Ernest Joy* speed all the way from Seal Cove. Hannah sifts through each piece. "One for Amberlee, one for Stu..." Whatever you are doing, you stop and read your mail. The rest of the world has entered your world on a piece of paper. You take the time to read, to savor, to think. It is fundamentally different from email, much as living on Kent Island is fundamentally different from living almost anywhere else.

At summer's end, every student is charged with summarizing his or her summer's work. Often, however, the words go beyond their science. A common theme that emerges every year comes from one such writer this year, Bier Kraichak ('09): "As many of us pointed out, simple and minimalist living on Kent Island serves as a 'cleansing experience' or, perhaps, a refuge from an intense academic year and life in general...Living on the island gave me countless opportunities to learn. Spending day after day with lichens, both in the lab and the field, I began to understand what it is like to be doing research, to engage myself in something completely, to be frustrated and discouraged by the routines and secrets of nature...Through talks, data analysis and observations, I started to see how to really

formulate questions in science, and how to go about testing your hypotheses. Though I was sometimes overwhelmed, I appreciated the opportunity to design my entire project by myself, to struggle with the process... The experience assured me that I would be able to conduct research on my own and find something that might interest me in the future.”

Kent Island has changed a great deal since Bill Gross first opened the station in 1935. In 1987, when Nat Wheelwright brought solar power, lights, and computers to the island, I am sure many Kent Island alumni were sure the world would end right then and there. It didn't. One reason is that the important things did not change. Nat maintained the ethic of simplicity and community that Chuck had nurtured since 1955 and that Chuck had inherited from those before him. What remained the same was that Kent Island is one place where you can be completely you. You can immerse yourself in a worthy and elemental endeavor without the distractions the world usually throws at you. You deal with the weather and the tide and your work head on. I am convinced this is one reason the science coming out of Kent Island has been held in such high esteem for so long.

Kent Island is facing a world that grows ever more connected. We even send our weather observations out to the world wide web. Who'd have thought? In the last few years, cell phone service has reached across from the mainland to cover our island in connectedness. You can't stop progress. Mail day is an endangered species in the rest of the world, made so by email. Kent Island is a simplicity preserve. It is a place where every night we sit down to dinner together and we talk and we eat. Instant contact with the world outside has its benefits, but I have long thought it wasn't worth the costs in June and July. Soon enough, any attempt to control such access may be futile when every open laptop will be instantly connected to a satellite somewhere. Change is coming.

I think the challenge is not to lose the sense of community and the elemental lifestyle that has launched generations of young scientists and changed so many lives over the last seventy years.

Research in 2007

• Leach's Storm Petrels

Between Chuck Huntington's long-term demographic study, the aging work Mark Haussman and I started two years ago, and new projects by students and visiting researchers, it was again a busy year at the storm-petrel mines.

Among their many duties, Hannah Harwood ('08) and Amberlee Gustafson ('08) grubbed petrels in Petrel Path. After Chuck helped get them started in early-June, they grubbed a total of 240 burrows, of which 151 were active, among the fallen trees and raspberry patches of Petrel Path. They handled 292 breeding adults, including 80 new breeders and 15 birds as old or older than Hannah and Amberlee. The oldest bird was a male in its 32nd breeding season. Amberlee started the summer a bit shaky on the idea of sticking her hand into a dark hole, but she persevered. That is courage. Hannah, on the other hand, took to it like a storm-petrel to water. Hannah can't get enough of petrels; along with Carrie Roble ('08), she is currently going through Chuck's old records and entering data that will allow us to analyze storm-petrel survival in a statistically defensible manner.

Stu Fety (Kenyon '09) had chief responsibility for the basic demographic work in the Shire. He had early assistance from Katie Mauck, Mark Haussmann (Kenyon College, recently hired at Bucknell University) and Sara Brinda (Kenyon '08). Stu, the self-proclaimed "Eggasaurus Rex", found most of the 172 eggs among the 300+ burrows in the Shire.

Stu's main focus, however, was to assess storm-petrel reproductive effort by investigating oxidative stress through the incubation period in these birds. He collected repeated blood samples (early, middle, late incubation period) from 55 adults in 41 burrows in the area Alexis Blackmer Ackerman (now a professor at Sacramento City College) used for much of her Ph. D. work a few years ago (a.k.a. "The Ditch"). Stu is currently analyzing his blood samples in the lab at Kenyon, which will allow him to determine how oxidative stress changes across time and is related to

measures of reproductive effort (ptilochronology, weight, hatch date, hatching success).

For storm-petrel biologists, August and September are where it is at. Once hatched, the chick sits alone in the burrow for the next 65 days. Parents arrive sporadically for brief nocturnal feeding visits and chicks that start out as 7g peepers balloon to as much as 110g (over twice an adult's weight). This makes it an excellent time to gauge parental effort (how much food do they bring?) and to investigate the effects of weight gain on an array of parameters related to chick health and survival.

This August and September, Mark Haussmann and I continued our investigation of telomeres and longevity. We monitored chick growth patterns and manipulated feeding rates. We then took blood samples at regular intervals to measure oxidative stress and telomere change with time. It was a real team effort from late July to late September. Jesse Rosenbluth (Kenyon '07) took much of August, with my help for a few days and then Hannah's help for a week. Mark Haussmann managed an August and a September expedition on chick patrol, even though that meant leaving wife Emily and new arrival, May, at home with the in-laws. That's dedication. All of this work produced a pile of blood samples to be analyzed back at the lab. That work is ongoing. In our final year of funding, 2008, we will focus on heritability issues.

Don Dearborn (Bucknell University) had spent a few weeks in June and July on the island studying gulls (see below), but returned in September as part of Team Telomere. He figured that since we were manipulating chick growth to look at the physiological basis of aging, he would see how it affected their ability to solve spatial cognition tasks. Don is nothing if not creative and resourceful. With the help of Andrea Gager (scheduled to be island chef in 2008), Don designed a complex challenge that required chicks to turn away from a blocked entrance to a safe "burrow" and detour through a short maze to reach a different entrance to the burrow. Preliminary analyses show that nestlings that had been food-restricted early in development performed badly on the detour maze even after food supplements

raised their body mass to normal levels. Don's future work "includes putting Bob Mauck in a similar maze, to see if he's as smart as the birds he studies. Given that he's relinquishing the post of Kent Island Director, it's tough to predict his performance."

• Savannah Sparrows

As Corey Freeman-Gallant ('91, Biology Department, Skidmore College) wrote to me, Savannah Sparrows "are the bird of the future." Nat, Corey, Mark and I are beginning a new endeavor to look at aging in Savannah Sparrows (SAVS). The beauty of Nat's study system is that 10-12% of the nestlings and 25% of the fledglings caught in any one year will return to Kent Island to breed as adults. That exceptional level of philopatry will allow us to determine how survival and lifetime reproductive success are affected by what a bird experiences as a nestling. Between the four of us, we will examine that question from the molecular to population levels.

Last summer was the first step. Mark and I learned how to find sparrow nests despite the absence of old salts like Nat and Corey. As twenty years of Nat's assistants can tell you, it is harder than it looks. I can tell you for sure that it is great fun. When hours of careful observation and stealthy approaches pay off and the nest is revealed, the thrill rivals any lottery winner's exhilaration. More so, I'd say, because you earned it.

Nat spent a week in early June to help us get off the ground. By mid-June, when he left, Mark Haussmann had a bounce in his step with regard to nest-finding. Once Nat and Mark left, I had primary nest-finding duties, though kudos also go to Ed and Midge Minot during their week-long visit in late June. Heather Williams ('76, Biology Department, Williams College) on the island with daughter Heather to study song, contributed mightily to our efforts to capture adults. In a summer of part-time sparrow work, we located 35 nests. Good training for next year.

Anna Bender ('08), another multi-tasker on KI this summer, was the real SAVS workhorse. Once the nests were located, Anna weighed and measured every chick daily, much as Caitlin

Jeffrey ('07) did last year. On day eight, she took a blood sample from each chick. Sara Brinda (Kenyon '08) assisted Anna for a week in June and is now using those samples to analyze heritability of telomeres as part of her senior honors project at Kenyon. Sara is finding that although telomere length is highly heritable, the amount of food a chick gets in the nest also has a significant effect on the health of its telomeres.

Finally, it must be said that Eggasaurus Rex of storm-petrel fame found the last sparrow nest of the summer.

• **Tree Swallows (and Bluebirds)**

Hannah Harwood led the tree swallow effort, with help from Amberlee Gustafson. Six active nests were found (five in the South Field and one in the North Field). Each nest had four to six eggs (mean = 5.5 eggs). All but two eggs hatched (94%), both of those from the same six-egg nest. Two nests failed. Not surprisingly, one failed after an extended stretch of fog. The other however, was something out of CSI Grand Manan; the adult male and all nestlings were found dead one sunny day in late June. The other 4 nests fledged all of their nestlings. Thus, overall fledging success was low (21 of 31, or 67%), but the total number of chicks fledged was four more than fledged in 2006. Having cleaned out all the boxes at the end of the season, Hannah says we are ready for next year's dramatic upswing in the number of tree swallows. It doesn't look good.

Bluebirds nested on Kent Island in the box just outside the dormitory, near the rain gauge. The bluebirds, not often seen on the island, produced five fledglings. Chuck was quite happy about the new inhabitants and instructed Hannah and Amberlee on how to tell the males (N=2) from the females (N=3) once they reach 12 days old.

• **Black Guillemots**

Liz Carlton (Kenyon '09) devoted her summer to figuring out whether black guillemots (BLGU) choose their mates with their feet. This monomorphic seabird is black and white with a bright red mouth and bright red feet. The normal pattern for species with such bright coloration is that the extravagance is limited to one sex. Think

of the peacock, or the cardinal. Such display is thought to signal something about the quality of the individual possessing it and is used by the opposite sex to choose a mate. Guillemots and puffins are exceptions to the normal pattern in that both sexes possess the extravagant display. Liz asked whether the bright red feet of BLGU are signals of individual quality that both sexes use to choose a mate. If so, she expected males with the brightest red feet to be mated with females having the brightest red feet. Think of Brad Pitt and Angelina Jolie. To test this, she had to catch both members of as many breeding pairs as possible.

Liz had plenty of help, starting with Bill Preston who contacted me after reading about Maddy Pott's ('07) guillemot study last year. Bill helped us think about how best to catch these birds. He offered plenty of encouragement, and was quite pleased that these birds he had studied so intently back in the sixties were once again getting the attention they deserved.

Bruce Kohorn, a field ecologist disguised as a molecular biologist on Bowdoin's faculty, and his son Ari joined in the quest for a few days in June. The capture and processing of the first bird was something of a struggle. That night, Ari produced a cartoon of the entire operation worthy of the editorial page.

It was Carrie Jane Roble (Bowdoin '09), however, who deserves the title of Most Valuable Teammate. Wrangling guillemots can be a two-person job. Liz had to capture, band, measure, and take a blood sample from each individual. She would then photograph the bird's right foot under controlled lighting (see last year's work by Maddie Pott and Emily Vaughn). Without Carrie, Liz would not have made it. Carrie, whose own study involved barnacle settling patterns (see below), spent part of every day for much of the summer helping Liz. Together, they captured 45 adults, of which 34 were mated pairs.

All of the effort produced some very interesting results that Liz presented at the SICB meeting this winter. Black guillemots mate assortatively with respect to foot color. In other words, birds choose mates with feet of similar quality. Very cool.

It would be even cooler if the blood samples reveal something about what the red color signals. Shaina Stewart (Kenyon '09) spent a week on Kent Island in early June helping locate nests, then spent the fall analyzing the blood samples collected by Liz and Carrie for signals of oxidative stress. Alas, no correlation has been found thus far.

• Barnacles

Barnacle World belonged to Carrie Jane Roble ('08). Working with Jon Allen (Doherty Marine Biology Postdoctoral Scholar and soon to be on the faculty at Randolph-Macon College), Carrie decided to investigate settling patterns of barnacles along the Kent Island coast. Do barnacle larvae settle randomly, or is the timing and subsequent survival affected by exposure to wave action? With Jon's help, Carrie set up her initial study plots in areas of varying exposure – the South End, East Side, and the tranquil West Side facing Sheep Island.

The first surprise was that barnacles on Kent Island settle much later than those near Brunswick. Jon left by June 1 and there were no settlers in sight. Carrie could find almost no juvenile barnacles on the rocks in any of her three study sites into early June. She decided to look in the water column. With Mark Murray's help Carrie took plankton tows in the *Ernest Joy* offshore from her study sites for seven days. With the aid of a dissecting scope she found her reluctant larvae, and with each tow their numbers increased. By June 9th, settling had begun on the West Side. Settlement in the exposed Southern and Eastern sides of the island lagged about two weeks behind.

Carrie spent a fair amount of time crawling among the rocks of the inter-tidal. It prompted her to think about the Dog Whelk (*nucella lapillus*), a barnacle's main worry. Do whelks have discriminate tastes, with respect to size? Do they eat the big settlers first? To answer these questions, she placed rocks in small enclosures in the inter-tidal along the West Beach. Recently settled barnacles of all sizes covered each rock. She put a single whelk in each enclosure. She let the whelk graze, then checked to see what was left

on the rock. Turns out that whelks are the Godzillas of the barnacle world, they will eat any juvenile barnacle they encounter, regardless of size.

• Snowshoe Hares

Are they gone?

The last hare seen on Kent Island was found dead and in a trap when I arrived at the end of May. In yet another display of her versatility, Hannah Harwood was this year's Bunny Jihad Leader. Fraser Shephard of Grand Manan, long time friend of Kent Island, donated 29 of his wooden traps for the effort. With our 11 wire traps, that gave Hannah 40 to deploy: 31 on Kent and 9 on Hay. Nat, for whom Bunny Jihad has become an obsession, helped with the initial placement during his visit in early June. From then on, Hannah checked the traps every 3-4 days. As the summer wore on, she would move them as yet another area came up dry. She even distributed apples leading to the traps like Hansel and Gretel's bread crumbs and hung pungent apple bait bags in the trees to lure them in. Once or twice, there would be a hint of a hare, conflicting signs – was that a fresh hare dropping in one of Kendra's plots, or just an old one wet from the rains? Had Carrie and Liz seen fresh hare droppings in the South, or the leavings of a particularly weak muskrat? Hannah rushed out to check on every report and to surround the area with traps and apples. Nada. Niente. Nichts. False alarms? By the end of the summer, Hannah was discouraged. She wondered if she had not done this properly. Twenty-four hundred trap-days and not a single hare seen. I'd say Hannah had done just fine. Hard to prove a negative, isn't it? All we know for sure was that we had no confirmed evidence of hares. All we know for sure is that by late July and into September you could find seedlings everywhere; a sight unseen for fifty years.

It has been an exceptional snow year for Grand Manan and Kent Island. One particularly rough day when the weather wasn't fit for fishing, Russell, Terran and Chris Ingalls spent the afternoon walking a fluffy white Kent Island.

They found not a single hare track in the snow.
Not a one.

Are they gone? Ask me next year at this time.

• **Forest Ecology – Effect of the Hares**

How have the forests on Kent Island changed since the hares were introduced? How will they change once the hares are gone? These were Anna Bender's questions. No detailed data exist on forest ecology pre-snowshoe hare infestation, but Anna, working with Nat Wheelwright, decided to document and describe the state of the forest ecology at the time of the hares' (knock on wood) eradication.

With Nat's assistance, Anna created 3 plots in each of the island's 5 forest types (white birch, mountain ash, mixed forest, white spruce, and balsam fir). In each plot, she recorded the percent herbaceous vegetative cover at ground, lower canopy, and higher canopy levels. She recorded the # seedlings and seedling heights by species, as well as tree DBH and status (alive, dying, or dead) of the nearest ten trees to each m² quadrat. Finally, she took pictures of canopy cover at 20 random points around the plots, measured depth to mineral soil and forest height at each quadrat. Anna's work provides a baseline against which to compare forest recovery over the next fifty years.

In the course of her work, Anna was struck by how many of the trees in the white spruce and balsam fir forests were dead or nearly so, though the white birch and mountain ash forests appeared healthier. By the end of the summer, Anna had hope. A spring and summer without hares produced seedlings everywhere, tiny trees less than 3cm in height, in every forest type and particularly prolific in the mountain ash and balsam fir forests. Truly glorious.

• **Forest Ecology - Restoration**

Kendra Neff ('08) reports that the forest equivalent of being hit by gull droppings was to be perpetually wearing spider webs with live bugs in them. You have to believe Kendra because she spent her summer trying to determine the most effective methods of reforesting Kent Island post-hare eradication. Working with John Lichter (Bowdoin Biology Department) during the first

week, she prepared forty 1-m² plots within five habitat areas characterized by varying vegetation and canopy types. She manipulated the ground cover in each plot so that she could look at the effect of removing ground vegetation and/or litter on germination and seedling growth. She and John planted 2,000 store-bought seeds of both white spruce and balsam fir. To track seed fate, John suggested placing sticks in the ground next to each seed in each plot. John found some likely looking sticks in the pantry. He and Kendra carefully placed them in the soil with the seeds. Meticulous work. When Kendra next checked on seed growth, the sticks had wilted. Turns out they were made of pasta, not wood. Hmmm. Uncontrolled variable. Kendra removed what remained of every pasta stick in the forest.

For the rest of the summer, Kendra followed germination and survival rates as a function of seed type and treatment type. The sunny weather in June found Kendra tending her plots most days with a five gallon water container on her back, continually watering the plots to be sure that the unexpected dry weather didn't affect her results. By summer's end, she had found 298 spruce seedlings in her plots, but no fir seedlings. As part of her honors project, Kendra returned to Kent Island in late September to census the plots once again. Though many spruce seedlings had not survived into September, the fir seedlings had finally emerged. She is now waiting for the snow to clear so she can make another trip and learn what survived the winter.

Kendra's honors thesis has revealed a number of interesting findings, including: (a) soil moisture was a serious constraint on germination (shade is a huge help), and (b) thick litter depth (which was 17.0 +/- 1.1 cm in the fern site) significantly lowers seedling survivorship. After much analysis and hard thinking, Kendra thinks the best way to reforest Kent Island is controlled burns within a forest gap. Such a method would (a) retain soil moisture (because evapotranspiring vegetation would be removed), (b) significantly reduce litter depth, allowing the seedling's root radicle to penetrate to the mineral soil, and (c) provide seeds through natural seed rain from the forest edge.

Her thoughts about fire come in part from a controlled burn John suggested. In late July, when the grass was sufficiently dry, Kendra, Ross Mauck and I burned a 10m by 10m plot among the tall grass south of Nat's sparrow study grid. She and John will plant seeds there this spring, in a variety of densities, to determine optimal seed density for re-forestation. For my money, the burn was a high point of the summer.

• Lichen World

From the moment Bier Kraichak ('08) arrived on Kent Island, he was struck by the old-man beard (*Usnea* spp.) hanging from every tree. Bier spent this summer getting to know the lichens of Kent Island more intimately than anyone had before. He got a jumpstart during the first week of June from Ralph Pope, a noted Maine lichenologist, who tutored him in the collection and identification of lichen.

Bier spent early June honing his skills in both lab and field. When I walked the woods with Bier, I was in awe of his ability to stop by a tree, run his eyes and fingers along the branches and tell me about each and every crustose, foliose, and fruticose lichen he touched. He cataloged 60 specimens, representing 49 species, for our collection and took a few back to Brunswick for consultation with Ralph Pope.

Once he felt confident in his identification skills, he focused on understanding which lichen could be found in which habitat and what might account for such diversity. Bier's work is part of an honors project with Nat Wheelwright and he followed Wakaba Futamura's ('98) previous work on moss to select seven representative habitats: (1) white birch (2) white spruce (3) mountain ash (4) mixed forest (5) balsam fir (6) open field and (7) coastal rock. By summer's end, he had quantified lichen distribution in 594 quadrats across these habitats along with the physical features that characterized each quadrat. Surprisingly, his initial analyses revealed very little difference among forest habitats with regard to species richness, composition and physical factors among forest habitats. He did, however, find significant differences in lichen by substrate in the open fields.

Bier didn't stop with the forest and fields. He also looked at the lichenology of the rocky shoreline and inter-tidal community, examining another 407 quadrats along transects running from the forest edge to the sea. He reports that the community of coastal lichens on Kent Island has well-defined zones, including "black zone" of *Verrucaria* spp. and "yellow zone" of, predominantly, *Xanthoria* spp.

In his spare time, Bier also learned about the mosses of Kent Island. He worked with Anna and Kendra to help identify the mosses found in their forest plots. According to Bier, learning the mosses enhanced his ability to understand lichen distribution.

I can't leave lichen world without mentioning Bier's presentation at the end of the summer. Somehow, he had to get his audience interested in lichen. How to do it? Bier, who hopes to teach biology in his native Thailand, began the talk with examples of fungi and algae in his hands. He then dropped them in a paper bag, shook it up, then reached in the bag and pulled out a handful of lichen. In this way, he introduced us to the unique and surprising character of lichen. Bier is a natural teacher, as well as a careful scientist with tremendous energy.

• Meteorological

As promised in last year's annual report, the Kent Island weather is online. Yes, if you are sitting at work daydreaming about being back on Kent Island right at that moment, you have some help. We have a new HOBO weather station (Onset Computing) running on solar power and uploading the weather observations once an hour to a server near you. To get there, just go to the Kent Island website and follow the links to KI Weather. You can see the last three days of weather observations, or download the daily weather recorded since last July. Why do we show the last three days? According to Russell Ingalls, that is the timeframe most helpful to fishermen who need to determine whether they may be sailing into calm waters, or the Perfect Storm. Russell and the Grand Manan fisherman have been using this all winter. Apparently, when Gannet Rock shut down a few years ago, so did its

weather reports. The Kent Island Weather Station at Fog Heaven has come to the rescue and is now serving the fishing community in its stead. Some tidbits from this winter: the coldest temperature occurred on January 3 at 11AM (3.9°F), the wind hit 55.6 mph December 16 at 7:30PM (out of the southwest, of course).

Swimming was a semi-regular undertaking in June. June! What does that tell you about our weather this summer? By the usual metrics, June wasn't extraordinary: we had the normal one day over 70°F and the mean daily high temperature was 58.7 °F, very near the 60 year mean of 58.1°F (± 1.5 STD). However, twenty days in June had at least a few hours of bright sunshine. No wonder Carrie Jane, Kendra and the gang could often be found in the Tide Pool at the South End.

July was a bit warmer, but less sunny. Rainfall was about an inch less than normal (2.5 inches vs. 3.4 ± 1.8 STD) in June. By mid-July we had had less than an inch of rain. Then on the 20th we had 2.5 inches, which somehow overwhelmed the HOBO rain gauge and it hasn't worked since. Mid-July's rain aside, it was a beautiful summer. Anna Bender said it best when she wrote "AMAZING WEATHER. I do not know whom to thank for this, but many thanks a thousand times over."

Usually, I thank Bob Cunningham. Unfortunately, Bob didn't make it to Kent Island this year due to health problems. Thanks to Bob, we have detailed weather records stretching back to the 1930's. This year, for the first time, Bob did not have the time to assemble our weather records. We are in a transition period in which the new equipment will replace some of the automated recording Bob has had running since the early nineties. We will retain the written weather logs, even with the new-fangled net-accessible data logger. Those of you who have spent the summer on Kent Island had your time watching the weather, checking the rain gauge, and entering the data at 8AM and 8PM. That log provides us with information a HOBO can't deliver, such as cloud cover and fog. It also allows the person in charge of weather observations to be closer to the weather than he or she has ever been in their lives. It is a speed bump. Slow down, take a look, and be

aware of what is around you. Bob Cunningham had Kent Islanders doing this for decades. Thanks, Bob.

• Herring Gulls

Don Dearborn began some work on immune function and hatch order in herring gulls. In many birds, including herring gulls, parents begin incubation before the last egg is laid. The last-laid egg thus hatches later than the rest of the clutch, putting that chick at a competitive disadvantage against its nest-mates. If hatching asynchrony is the result of a constraint or tradeoff, moms could enhance the survival prospects of the last-laid egg by giving it extra immune factors. On the other hand, if hatching asynchrony is a strategy to facilitate brood reduction, moms might give the last-laid egg even fewer immune factors than the first-laid eggs. To test this, Don collected plasma samples from nestlings on the day after hatching to assess whether immune function varies with hatch order. Stay tuned.

• Insular Polytechnology

If you ask Mark Murray about Kent Island's infrastructure, he will tell there weren't many earth-shattering projects this summer. No pyramids built, no aqueducts. To his mind, it was a summer of taking care of details: new faucets, a kitchen window, the little things. However, among these little projects, there are some notable changes. The Rat Shack remodeling is officially done. New shingles, new windows. It is now the toast of the town. The *Ernest Joy* has a newly installed radar and GPS system. The water system works, having put up with buckshot from the Bunny Jihad all these years. If you walk into the shop and look up, you will notice a new ceiling courtesy of Mark and Susie Mauck. No more barn swallow droppings sifting gently onto your head. Little things like this make life better. Oh yes, and the final section of the wharf has been shored up. The entire length of the wharf has been replaced since 2000. Ready for another twenty years.

Entropy never sleeps. Nor does Marko.

• Kent Island Cuisine

With a dash of flexibility, a dollop of

creativity, and never-ending good cheer, Hannah Harwood and Amberlee Gustafson served up a diverse, interesting, and delicious dinner six nights a week - for vegetarians and carnivores alike. Bier remembers them as “extraordinary, too-delicious-to-be-true, gone-in-20-minutes dinners by our great cooks.” I agree. I don’t think they repeated a meal before July. Amberlee always seemed to have a new Indian dish that both satisfied and edified. Store-bought bread just wasn’t in the cards this year. Fresh baked bread was *de rigueur*. Hard to get better than steaming hot bread, fresh out of the oven, after a full day in the field. Cooking for an entire island, six nights a week, can be a daunting task. I think Hannah and Amberlee, like every cook in Kent Island’s history, came to the end of the summer somewhat surprised that they had managed to put good food on the table in sufficient quantity and quality to leave smiles on all our faces. Well done.

Friday’s dinner was often theme night. You were expected to show up at the table in costume. Favorites included the Pirate Dinner led by Captain Mark Haussmann, a formal ball, tropical dinner and, most notably, the Disney dinner. The latter was attended by Tinkerbelle (Anna), Rafiki (Carrie), Grumpy (Bier, complete with lichen beard), Doc (Marko), Princess Tiger Lily (Amberlee), Donald Duck (Stu), Ariel (Kendra), Buzz Lightyear (Bob), Pinocchio (Liz), and Don Dearborn’s Sebastian the Crab, complete with Flounder the Gull.

We always seemed to have a new bouquet of flowers (or lichen) on the table, thanks to Bier who often provided us with Thai food on Sunday, the day when we non-cooks were free to demonstrate our chef chops.

• Life on Kent Island

Thanks to Don Dearborn, Kent Islanders everywhere were raised a notch in the eyes of Grand Mananers. I don’t have a complete history in front of me, but I believe Don is the first Kent Islander to conquer the greasy pole during the annual Seal Cove Canada Day celebration. Don’s technique, caught forever on video, was impeccable – power and extension. Had the pole been twice as long, the flag still would have been

Don’s. Carrie and Stu, both of whom had received advice on greasy pole strategy and tactics from Terran and Christopher Ingalls, ended up wet and flagless. However, their efforts certainly added to the general Kent Island glory on Canada Day.

Early June was a whirlwind of activity. Katie Mauck once again helped get the petrel people started. Seth and Nina Murray helped Mark open the station. John Lichter and Jon Allen spent the first week helping Kendra and Carrie get projects started on the right foot. For the first time, I was off the island for a week in early June; unfortunately, that coincided with visits from Nat and Genie Wheelwright, Ralph Pope, and the Kenyon contingent of Mark Haussmann, Shaina Stewart, and Sara Brinda. Things cleared out by mid-June, which allowed Heather Williams and daughter, Maria, to spend a week or so recording SAVS songs. Ed and Midge Minot, on sabbatical from Massey University in New Zealand, spent a week chasing SAVS. Ross and Susie Mauck arrived later than usual and were around long enough for the traditional end of year whale watch. Russell’s seemingly absolute control of sea and sky ensured a spectacular trip, complete with barbecued bacon. Hannah’s parents Paul and Susan Harwood, along with aunt Beth Ogden, helped us with fledgie fest in July. Chuck’s well-timed trips were enjoyed by all. They certainly brought a smile to Carrie’s face. Of course, everything brings a smile to Carrie’s face.

Jack LaLanne would have been right at home on Kent Island this summer. Amberlee was the driving force behind “Get Fit for Life!” (GF4L!), which subsequently had to be renamed “Get Ripped for Life” due to copyright infringement concerns brought to light by Jim Bittle, Carrie’s friend who visited for a few days in June. The activity sufficiently impressed Don that he suggested an upcoming infomercial involving the patented Kent Island Rock Lift ©. GRFL was augmented by Anna’s yoga sessions, a more tranquil endeavor that nicely counterbalanced the no hold’s barred GRFL. Stu, a member of Kenyon’s cross-country and track teams, battled nesting gulls on his daily sprints to both the southern and northern ends of the island. Then

there was Dance Your Pants Off Sundays, which certainly qualified as exercise.

Kendra brought her guitar to the island, along with lots of talent. She could be found many an evening writing songs in the Dingleberry. Amberlee played outdoors, for the birds to enjoy, while Marko's virtuosity was, as always, appreciated by all. Hannah and the Dastards, the island's short-lived rock band, had Carrie on flute, Genie Wheelwright on harmonica and Mark Haussmann on vocals. The band broke up by mid-June amid squabbles about division of royalties, record labels, and the fact that Mark and Genie had to leave the island.

Hannah brought an endless supply of new games to our world. Word of the Day, an on-going exercise in erudition, led off with the always useful *callipygian* and *ichor*. If word games weren't your cup of tea, then how about Mafia, the exciting parlor game of intrigue and betrayal, or Eyes-Up-Eyes-Down, for which the proper stance is feet at shoulder width, knees bent, shoulders loose, arms at the ready. What struck me about Hannah's games was that every one of them involved your brain, creativity, and community. I feel sorry for people who rely on television for their entertainment. And those without the pleasures of Mail Day.

Addenda to the List of Publications from the Bowdoin Scientific Station

The complete list of more than 160 scientific publications can be found on the Kent Island web page (www.academic.bowdoin.edu/kent_island/public.shtml).

Haussmann, M.F. and R.A. Mauck. 2008. Telomeres and Longevity: Testing an Evolutionary Hypothesis. *Molecular Biology and Evolution* 25 (1): 220-228.

Wheelwright, N.T., and J.D. Rising. 2008. Savannah Sparrow (*Passerculus sandwichensis*). *The Birds of North America Online* (A. Poole, Ed.). Ithaca: Cornell Laboratory of Ornithology. 90 p.

Wheelwright, N.T., M.B. Swett, I.I. Levin, D.E. Kroodsma, C.R. Freeman-Gallant, and H. Williams. 2008. The influence of different tutor types on song learning in a natural bird population. *Animal Behaviour* (in press).

Zangmeister, J.L., M.F. Haussmann, J. Cerchiara, and R.A. Mauck. 2008. More than meets the eye: incubation failure and abandonment in Leach's storm-petrel (*Oceanodroma leucorhoa*). *Journal of Avian Biology*. (in review)

Butler, M.W., J. Garvin, N.T. Wheelwright, and C.R. Freeman-Gallant. 2008. Minimum ambient temperature, but not paternity, is associated with immune response in Savannah Sparrows. *Behavioral Ecology* (in review).

Cohen, A., R.A. Mauck, N.T. Wheelwright, C.E. Huntington, and K. McGraw. 2008. Associations between antioxidants and lifetime reproductive success in two bird species. *Functional Ecology* (in review).

Zangmeister, J.L., M.F. Haussmann, J. Cerchiara, C.E. Huntington, and R.A. Mauck. 2008. Sex and individual quality may mediate trade-offs in a long-lived seabird, Leach's storm-petrel (*Oceanodroma leucorhoa*). *Ecology* (in revision).

Robert A. Mauck
Director, Bowdoin Scientific Station
March 5, 2008

- **Historical Addenda (courtesy of N.T. Wheelwright)**

- **BSS Directors**

Years	Director
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.) (absent 1979-80)
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; 04-08	Bob Mauck (professor, Kenyon College)
2008-present	Damon Gannon (faculty, Bowdoin College)

¹ From 1935-53, Bowdoin Biology Professor Alfred O. Gross held the position of Director, although he spent relatively little time on Kent Island.

- **Year-round Wardens/Caretakers²**

Years	Caretaker/Warden
1930-35	Allan Moses, Ralph Griffin
1936-1949	Ernest Joy
1950-52	none (Lester and Myhron Tate and Bowdoin student Al Barnes volunteered)
1952-55	Rex Harris
1956-58	Harry Green
1959-61	Sydney Guptill
1962-81	Myhron Tate
1982-89	Bob Tate
1990-present	Russell Ingalls

² During the first 15 years of the Bowdoin Scientific Station, Lester Tate (Myhron's father and Bob's grandfather) was mostly responsible for boat transportation and major carpentry. The exact years that Harris, Green and Guptill were caretakers have not been confirmed. Mark Murray (Bowdoin '75) shared caretaker's duties during the summers of 1990-95, 2000-01, and 2004-present.