

Kent Island Annual Report - 2004

End of an Era

As many of you know, Nat Wheelwright stepped down last spring as Director of the Bowdoin College Scientific Station at Kent Island. During his eighteen years as Director, Nat left an indelible imprint on the station and its culture. He brought solar power and computers to the island, had a new science lab built, and generally upgraded facilities. The health and future of Kent Island was always his priority, whether that meant repelling the threat of aqua-culture, or making sure that every Kent Islander remained part of the extended Kent Island family. Since 1987, over eighty papers have come from research conducted on Kent Island, many of them Nat's own, and more than 30 students from Kent Island have gone on to advanced degrees in ecology or related fields. Perhaps most significantly, Nat and his wife Genie nurtured a simplicity and community-oriented ethic that is the core of Kent Island life. The imprint is deep and lasting.

Bowdoin is committed to finding a permanent replacement for Nat, but is still a few years away from doing so. Since I had served as co-director with Nat during the 2000 and 2001 field seasons, Bowdoin asked me to direct the station for the next four years. The summer of 2004 was my first as Director.

Since the Last Annual Report

For years the station has comfortably shared the Three Islands Archipelago with the Ingalls family, owners of Hay and Sheep Islands. We have benefited from this easy relationship in many ways, including friendship and the fact that they have looked after Kent Island's welfare as if it were their own. In November 2003, Jack Ingalls died at age seventy-two. Since then, Junior Ingalls, and Jack's widow, Elizabeth, have offered to sell the islands to Bowdoin. When this opportunity

arose, Bill Gross ('37) offered to cover most of the cost. Although some funds are still needed, the deal is soon to close. If you are interested in helping with this effort, contact Scott Meiklejohn, Bowdoin's VP for Planning and Institutional Advancement (smeiklej@bowdoin.edu). The acquisition of Hay and Sheep, along with the continued friendship of the Ingalls family, will help us keep Kent Island the pristine sanctuary it has always been.

This fall, the American Ornithologists Union commemorated the 100th birthday of Harvard's Ernst Mayr, one of the 20th Century's leading evolutionary biologists. Kent Islanders are forever grateful to Dr. Mayr, the friend and colleague of Alfred Gross, who persuaded the Rockefeller family to give Kent Island to Bowdoin College.

Finally, we mark the passing of Donald Griffin who died this year at age 88. Don was known on Kent Island for his landmark work with homing behavior in Leach's storm-petrels in the 1940's.

Summer of 2004

On June 20th, Chuck Huntington walked into the Dorm and saw the petrel flag hanging in its traditional spot. Startled by the notion that the first chick had been found three weeks ahead of the previous record, he was non-plussed. As it turned out, the flag marked a far more momentous occasion, the 50th anniversary of the start of Chuck's petrel demography study. Nineteen fifty-five was his first year of formal data collection and the traditional start day is June 20. On that day in 2004, there was song and celebration, complete with a cake bearing the outline of a storm-petrel. Chuck's work with these birds is almost unprecedented in duration and the value of 50 years of data collected with care, humor, and love cannot be overstated.

Barry and Karen Mills visited the island in August, the first visit by a Bowdoin president since Bob Edwards visited in 1992. You had to be impressed by their perseverance. Though they had planned a chartered flight from Portland to Grand Manan, the weather did not cooperate. After many delays, they diverted to Fredrickton, rented a car, drove to Black's Harbour, and took the ferry to Grand Manan. In their thirteen hours on Kent Island, they were treated to an art show, a fine dinner with the whole crew, and a night in the Hodgson House surrounded by petrels. My personal highlight was watching Karen's face light up as she held in her hands a fragrant and fuzzy storm-petrel chick.

Mark Murray ('75) returned this year to help ease the directorial transition. Mark once again assumed the post he had held in the early nineties – what Chuck once termed “Adjunct Professor of Insular Polytechnology” -- as well as Master and Commander of our five boat fleet. Mark opened the station and with the help of son Seth, a junior at Worcester Poly Tech, installed a new photo-voltaic panel, charge controller, and a new Sun Danser DC freezer to go along with last year's DC fridge. They actually work, and together don't draw much more power than a couple of 75W light bulbs. The only use we now have for propane is the cooking. Even with all the fog we had in July (see Meteorology), the generator ran less than 3-4 hours all summer. Without ever rushing anywhere, yet never slowing his pace, Mark applied his skills everywhere they were needed, from re-roofing of the Radio Shack and the Lower Lab (north side) to painting and remodeling (a.k.a. “Marko-izing”) the lower lab. Mark has a particular talent for handling the myriad challenges entropy throws our way each year.

In August, Russell Ingalls decided it was time to shore up the end of the wharf. The old timbers were rotting and needed to be replaced. This was a job for Junior Ingalls who has been driving weir stakes for well over half a century. Junior's pile driver is a cross between siege engine, oil rig, and the world's biggest hammer. With the help of Christopher Ingalls and friend Claude Ross Green,

we set nine new posts in a single tide. The skill and joy with which Junior ran the operation impressed everyone there. With this massive blunt instrument, every post went home exactly where Junior and Russell wanted them to be. As the tide began to ebb and we were half done, I looked at Junior and asked how many more we would be able to set. “Can't stop now,” he said. “We're having too much fun.”

As it turned out, the greatest challenge would be getting the driver from Seal Cove to the basin. Joan Ingalls reported on the trip over:

“When we left Seal Cove, Russell ran an extra rope from the driver to the boat, not that we'd need it, he said, but just as a precaution. Well we needed it! Two ropes and a cleat broke coming through Cannon's Ledge. Chris was watching when the lines started breaking. He and his father went aft. Chris jumped aboard the driver to try and get another line secure. I stayed in the wheel house for a minute wondering why I put myself in these messes then decided helping would be less frightening than watching. Russell came back in to steer the boat so we weren't side to the waves, I went aft to help Chris hold the driver. We were pulling as hard as we could and the rope was just zinging. Russell yelled for us to wrap the rope, it would hold better, which it did, but things were a little tense for awhile. Always an adventure.”

On your next return to the basin, you be sure to admire the end of the wharf. It is newly planked (thanks to Russell and Mark), and built to withstand the storm -- or even a nudge from the *Island Bound*.

Research in 2004

• Leach's storm-petrels

In Chuck's fiftieth year studying petrels, he had plenty of help. Katie Mauck spent every morning helping Chuck at Petrel Path and grubbed there alone when Chuck was off the island. Between them, they grubbed 174 burrows. In a sentiment familiar to 50 years of grubbing assistants. Katie says, “Working with Chuck was really interesting, he's been working with petrels

for so long and knows so much, not just about petrels but about everything". A season and a half of grubbing piqued her curiosity with regard to the process of grubbing. Using Chuck's database, Katie found that of the 4513 burrows grubbed from 1991-2003, Chuck captured both members of the pair in 90.6% ($\pm 0.03SD$) of the burrows annually. Catching both parents usually occurred within 3.5 days ($\pm 2.3SD$). Annual hatching success for burrows in which both parents were captured was 82.2% ($\pm 0.07SD$). Success rate is much lower ($39.0 \pm 0.22SD\%$) for burrows in which only one parent was captured. With these data, it may be possible to estimate the natural abandonment rate of undisturbed adult petrels once we determine what percentage of those "single" birds were captured more than once (i.e., didn't immediately abandon after capture). Katie will have to save that analysis for college.

Emily Balf (Kenyon '05) juggled a number of petrel projects throughout the summer. With the help of Nina Murray, she began the reclamation of the Crockett's Point (CP) study area by making a preliminary map. She used the same high-end GPS equipment used by Jenny Glazer (Kenyon '04) to map Petrel Path last year. With the help of Katie, Nina, and Chuck, Emily and Nina also measured egg morphology in Petrel Path and Crockett's Point burrows. She is comparing egg volume in 2004 ($9.3 \pm 0.7 \text{ cm}^3$, $N=66$) against those measured in 1999 ($9.3 \pm 0.06 \text{ cm}^3$, $N=120$) by Rachel Seabury ('0?) and by me in 1991 ($9.6 \pm 0.8 \text{ cm}^3$, $N=100$). Of particular interest are those birds that produced eggs in more than one of these years. Such intra-individual comparisons across time will let her determine whether resource allocation to the egg changes with age.

Neil Burgess of the Canadian Wildlife Service asked us to collect petrel and gull eggs as part of their continuing investigation of environmental health. KI has always been used as a relatively pristine control site. As Emily collected the eggs, she replaced 10 of them with fake eggs containing iButton (Maxim/Dallas, Inc.) temperature data loggers set to record temperature data every 15 minutes, and a second iButton to monitor burrow

temperature. The dual system let her assess how ambient burrow temperatures change when a bird is on the egg to learn whether an iButton placed in a burrow is a reliable indicator of incubation attendance. Preliminary analysis of ten monitored burrows indicates that burrow temperatures less than 12.5°C indicate that no bird is in the burrow. In the future, we will use iButtons and PIT readers to monitor individual incubation behavior without having to disturb the attending adults.

I continued to monitor petrel biology in Bob Ricklefs' old study area (now known as "The Shire") and identified 25 burrows for Jon Philipsborn (Kenyon '03) to monitor in September. This is Jon's second year following chick growth and fledging behavior in the fall. Jon measured chick growth, and collected blood samples from 25 chicks before and after the pre-fledging weight loss period. He was joined by Gaby Nevitt (UC Davis), who is beginning a study of genetic structure among storm-petrels in the North Atlantic.

• Savannah Sparrows

Nat and Genie came up to Kent Island for two weeks in mid-June. This was the third and final year of a collaborative study with Corey Freeman-Gallant ('91), of Skidmore College, on the mating behavior of savannah sparrows. Corey spent the first two weeks of the breeding season banding birds and collecting blood samples with Iris Levin ('05), who returned for a second summer as field assistant and, in July, as field director of the project. Williams College professor Heather Williams ('77) and her daughter, Maria, helped with the recording and analysis of sparrow songs. One of the project's questions is why incest is so rare in this population. One possibility is that females learn to recognize their fathers' songs and avoid mating with them or with males who sing like them (who might be their brothers). Work in Corey's molecular evolution laboratory using microsatellites suggest that cuckoldry is extremely high - nearly 50% of all offspring are sired by someone besides their mother's social mate, typically a neighbor, and extrapair paternity

occurs in more than 70% of broods. Three years of data using molecular techniques to determine the gender of savannah sparrow nestlings suggest that offspring sex ratios are 50:50, regardless of the age, size, or status of female and male parents. Within the breeding population there were 80 individually marked adults who produced 85 clutches, from which 200 blood samples were collected for analysis in Corey's lab.

In addition to collecting data for the final year of Nat and Corey's project on extra-pair paternity, Iris spent the summer collecting another season's data for her honors thesis on Savannah sparrow song. With Heather's help, Iris recorded all the males in the study site and performed song playback experiments in which she indexed aggression based on response time, proximity to the speaker, and the number of songs sung in response to the tape. She ranked males according to song rate as recorded during her daily census, which allowed her also to identify the peak singing periods throughout the summer. These data, combined with the paternity analyses from Corey's lab, will be combined with results from 2003 and form the core of her thesis. Last year's results suggested that males with higher song rates sired more extra-pair offspring, while males who responded more aggressively to the playbacks were cuckolded less. Sounds as if it pays to be obnoxious if you are a sparrow.

Iris's thesis will also examine cultural evolution of song over the last 45 years on KI, focusing on song transmission in the years where we have the most birds recorded. She and Nat had recorded all the males in 2003, so this year she could examine the song of first year males from last year's nests. Previously, Nat and Meredith Swett ('98) found evidence that song is transmitted from father to son, presumably learned while the male is a nestling/fledgling. Surprisingly, Iris found that yearlings may be as likely to copy the noisiest (highest song rate) male in their natal nest area as they were their father.

Further analysis by Heather Williams, who has long been interested in bird song transmission and learning, reveals that returning males fledged from

neighboring nests sing similar songs. These songs are more similar to each other than to any possible model song from the natal nest area. Heather suggests that song development may be a cooperative process between juveniles.

• **Tree Swallows**

The slow decline of Kent Island's tree swallow population continued this year. The 22 nesting attempts recorded this year by Lenora Ditzler ('05) was the lowest on record. It is one less than recorded in 1996, the year after inclement weather caused complete nesting failure on the island. However, for those TRES that did breed this year, the living was easy. On average, 6.0 eggs (± 0.61 SD) were laid per nest, the highest on record. Seventeen successful nests (77%) produced 5.35 hatchlings (± 1.34 SD) and 4.94 fledglings (± 1.24 SD). Those of you with happy memories of determined swallow parents hindering your passage across the North Field will have to adjust your mental image. Only two North Field nest boxes were occupied this year.

We can't blame the tree swallow decline on Lenora, who took on the swallow demography project along with her duties as Artist-in-Residence and all around handy person. Lenora, a Bowdoin visual arts/environmental science major, had never before done such work. By July, she was an old hand at banding, measuring and weighing. Using the new electronic version of the Remote Male Catcher, she managed to catch all but three of the resident males. She notes, "Remote male catching proved to be quite tedious in the beginning, but once I got the hang of it, I really enjoyed doing it. Even if I failed to catch a bird, it was marvelous to have an excuse to lay out in the grass of the South Field for half the day."

Lenora did her part for our PR department. In early June, the Canadian Broadcasting Corporation arrived on Kent Island to film part of a documentary on migratory birds. Entitled "Migration, ces Drôles d'Oiseaux Migrateurs", it is a French language production starring Alain Clavette and Cajun singer/songwriter Zachary Richard. The filmmakers wanted to link the two

Acadies, Louisiana and New Brunswick, via their migratory birds. They came to Kent Island to film spring migrants. The film should air in Quebec sometime this year. The highlight of the film may well be the footage of Lenora's stealthy approach and capture of a female tree swallow as she returns to the nest box. We trust fame won't go to Lenora's head.

• Marine Ecology

Lela Stanley ('04) spent the summer studying the morphology of everybody's favorite seaweed, *Ascophyllum nodosum*. Lela tested the hypothesis that *Ascophyllum* morphology should differ across tidal zones (high vs. low). To do so, she measured algae in the protected waters of the West Beach and the more exposed intertidal of the South End.

Lela found that algal morphology varied more between sites (west vs. south) than within site (upper vs. lower) - hardly surprising for anyone who has seen high tide at both sites. Western plants are more streamlined (thinner in relation to their circumference) than their southern counterparts, which was opposite of what she expected. She also tested the holdfast strength of *Ascophyllum* using a spring scale attached to the holdfast. When the holdfast let go, she recorded the final reading on the scale. As you might expect, southern plants required twice the force to detach them than Western plants (20 kg cm^{-2} vs. 10 kg cm^{-2}). West Beach algae apparently can devote more resources to reproduction, in that western plants produced significantly more fruiting bodies in the last two years than did southern plants

Ascophyllum conveniently grows one new air bladder a year, which makes it easy to age an individual. Lela constructed survivorship curves for each site and zone based on data from 1300 individuals. Of plants older than one year, southern individuals were significantly older than their western counterparts (7.2 vs. 4.9 years). In light of the morphological differences between sites, Lela suggests that western plants compensate for a shorter lifespan with higher productivity, while Southern plants may produce

fewer gametes per year but have more years to reproduce.

One of my lasting impressions of the summer is that of Lela heading south in the rain and the wind and the fog, then returning hours later, wet and tired, but undaunted. Our very own *Ascophyllum* Action Figure.

Bowdoin Visiting Professor Lindsay Whitlow returned twice to Kent Island. With Lela's help, Lindsey began an enclosure manipulation in June to test the effects of green crab predation on soft-shell clam burrowing behavior. He returned in late July to find that clam burrowing depth at Kent Island was not significantly different between control clams (no enclosure) and clams living beneath enclosures (full or partial). This contrasts sharply with clam behavior in southern Maine where enclosures result in decreased burrowing by the clams. Lindsey notes that crab predation at Kent Island is more recent and sporadic than that experienced by clams in southern Maine, which may explain the difference he finds between sites.

• Insects and spiders

Julie Grinvalsky ('04) arrived on Kent Island as our designated "insect ecologist". Originally, she thought she might build on the work of Andrew Graustein ('01) and Sherry Kies ('01) with American Copper butterflies (*Lycaena phlaeas*), but the more numerous and reliable funnel web spiders (family Agelenidae) proved more interesting, particularly the territorial behavior of *Agelenopsis naevia*. She found web ownership to be far more fluid than anticipated. When she removed spiders from a web, another would soon replace it. Males were more likely to replace evicted owners than females. When she reintroduced the original "owner" back to its original web, not one was able to reclaim the web. Surprisingly, reintroduced *A. naevia* would rarely reclaim its original web, even if unoccupied. This led to the use of pitfall traps and mark-recapture techniques to assess how frequently spiders move between webs, though this met with limited success. She encourages future Kent Islanders to study funnel web spiders, but warns that her

experiments “were sometimes more reminiscent of LD50 studies” due to the various marking materials and techniques.

It should be noted that Julie was often assisted in the field by Ross Mauck (Colonial Hills Elementary 2005), to whom Julie presented a hand-made, “Junior Entomologist” sweep net on his departure from Kent Island.

• Oceanography

Kent Island. The Bay of Fundy. These are the biggest tides in the world and, to my knowledge, no one had ever studied the Kent Island tides in detail. This year, geology major Liz Hoering ('06) remedied that. Last winter, she had studied oceanographic data from the Gulf of Maine and arrived on Kent Island with a Conductivity-Temperature-Depth (CTD) meter for precise oceanographic measurements and a keen interest in studying the Fundy tides.

Liz describes the tide as a wave that hits Kent Island twice a day. Think of a rock near shore and how the water moves as the waves pass. With great help from Mark Murray as boat captain and sounding board, Liz spent much of the summer characterizing that wave. She found that the ‘wave’ hits the western side first and propagates around to the South, then East, and arrives last at the North (perhaps an eddy from outside Hay Island and Constable Ledge). We have always calculated tidal effects on Kent Island in reference to the Saint John tide table, with a 45 minute difference between KI and SJ. We now know the true lag time depends on where you are standing (see table below).

Point	Latitude	Longitude	High	Low
West	44°35.00' N	66°46.35' W	+35.0	+39.0
South	44°33.95' N	66°45.60' W	+41.2	+45.6
East	44°35.00' N	66°45.05' W	+42.7	+43.8
North	44°35.80' N	66°45.40' W	+46.3	+46.2

Liz also calculated actual tide heights at low and high tide on Kent Island. Under the assumption that mid-tide here is the same height as mid-tide at Saint John, she has provided us with formulas to calculate Kent Island tides from the

Saint John tables. In general, Kent Island tides are about 75% of those listed for Saint John (SJ).

More precisely, the height of water in meters (above lower low water) at high tide anywhere on Kent Island, is equal to:

Saint John High Tide/1.1 (± 0.005 SE) meters

Low tide is calculated the same way, except on the days of extreme tides. For the three days on either side of the day of the lunar cycle with the lowest low and the highest high, we use:

Saint John Low Tide /0.7 (± 0.013 SE) m

For the three days on either side of highest low and lowest high, we use:

Saint John Low Tide /0.4 (± 0.037 SE) m

Given the precision of her instruments, Liz also determined that the effect of atmospheric pressure on tide height is minimal (± 1 mm), but that wind caused variation from predicted heights of 0 to 0.4 meters, depending on its speed and direction. There was an 8 hour lag time from the onset of a consistent wind to its effect on wave action. The best example was on July 14th when there was a steady NE wind that increased from 10 to 18mph in a few hours. Over the next eight hours, wave heights increased as much as 0.3 m.

Remember, you heard it here first.

• Meteorology

Depending on your point of view, July was either the second worst or the second best month since 1936. Bob Cunningham reports that 25 days in July had fog, exceeded only by the 29 foggy days in 1967 and tied with July of 1995. August, too, was the second foggiest on record with 21 days. Although June was relatively sunny (only 11 days of fog), the aggregate (including August) made for the second foggiest summer that Bob has recorded. Although Bob wasn't on the island to enjoy it, we certainly were.

Peter Cunningham arrived early in June to setup the weather station in his father's stead. Peter, Mark, and I managed to get the entire system running, overcoming the added challenge of working around Iris, who had made "Fog Heaven" her home for the summer. Although, medical issues kept Bob on Grand Manan for the bulk of the summer, he did manage a trip to Kent Island with Russell in August.

For any of you who know Bob Cunningham, run, don't walk, to your nearest computer. Bob's illustrated autobiography has been posted on Peter's website (<http://www.wordwiseweb.com/fogseeker/>). It is a must-read for anyone interested in Grand Manan or Kent Island, and Bob and Claire Cunningham, in particular.

• Arctic Terns

Brian Dalzell's Common Tern Restoration Project completed its third year on Sheep Island. One change from previous years is that Brian no longer fires noise makers to discourage gull predators. The other change was that he hired Carlotta Stoddart from Alberta to do the bulk of the field work. Carlotta spent most of the summer alone on Sheep, monitoring tern nesting success and making sure the solar powered sound system continued to play recorded tern calls. According to Brian, 60 pairs nested on Sheep this year, including 20 nests at the north end of the island. Though this represents an increase over 2003 (~40) and 2002 (~20), there were only 1.8 eggs per nest this year. Hatch rate was a healthy 75%, but not a single chick fledged successfully. Brian reports that adults abandoned the colony the third week in July, which Brian attributes to the extended periods of thick fog and rain, as well as a severe lack of small herring. He notes that fledging success at the Machias Seal colony was also extremely low this year.

Carlotta seemed completely comfortable on Sheep alone with the terns. She did find a message in a bottle from a scallop fisherman on Georges Bank, but we have to believe the highlights of her

social calendar were her occasional dinners on Kent Island.

• Botanical Note from Sheep Island

Dr. James Goltz, of Fredricton and the New Brunswick Museum, visited Sheep Island in late August to survey the plants on the island. He documented 100+ species during his two-day visit, including Rand's Eyebright (*Euphrasia randii*), an extremely rare species for New Brunswick with distinctive small purple to lilac flowers found on exposed headlands in the Bay of Fundy. On Sheep Island, he cautions that it is often hidden beneath taller herbaceous vegetation such as grasses. We hope to make Dr. Goltz's complete list available soon on the Kent Island website.

• Artists-in-Residence

We were fortunate to have two Artists-in-Residence this year. The art was magnificent and so was the energy the artists brought to the island.

Hallie Mueller ('07) immersed herself in art, for that was her only job. Though she seemed never to be without pen, pencil, or brush, perhaps her most intriguing work was a series of "Being John Malchovich-esque" paintings in which she invites the viewer to see the world from her perspective, whether that meant lying in her bunk in the rat shack or hanging out in the dorm. My personal favorite was a painting looking down at her canvas as she paints the water in the basin as she stands on the wharf. There are her bare feet on the weathered wood, the grey pilings, the brown rock and the sun shining off the water. The white canvas is poised in one corner. All summer, Hallie wanted to catch the essence of Kent Island. A great part of that for Hallie involved the people. Thus, she did individual portraits of us all in a variety of media, from formal gouache portraits to spontaneous five-minute ink sketches. She sums it all up by saying, "there's just too much beauty on this island to remember all of it, so the best you can do is share and exchange memories with the other extraordinary people who live here." She accomplished that and more.

Lenora Ditzler came to the island thinking about art, but was also drafted into the service of tree swallow research, carpentry, and a myriad of other island responsibilities. Still, she was able to spend a good portion of time on her art. Through paintings and drawings she captured bits of Kent Island special to her – a particular landscape, a tree she loved to watch, her favorite plant, or a feather found on a walk. My favorites were a series of drawings of small Kent Island jewels, a flower or a leaf, interwoven with small swatches of color. She could be seen wandering the island with colorful cards, stopping to draw when something caught her eye.

The artists drew us all into their world. Several Sundays involved art lessons, a mix of technical advice and wild and crazy drawing assignments. At the end of the summer, they gave us each the name of another Kent Islander and charged us with creating something for that person. The art exchange was a huge success. Lenora notes, “I had no idea everyone would take it so seriously, and was really touched to see that so much effort had been put in by all to make something genuine and lovely”.

At the end of the summer, the Amazon Art Show opened at the Lower Lab. It was impressive to see so much fine work accomplished in just two short months.

• **Cooking**

Most years, the cooks don't get their own section in the annual report. This year was enough of a challenge that it deserves special recognition. Imagine cooking for ten to twenty five hungry people every night. Imagine that half of them are vegetarian. Imagine that one of them is vegan. Soon, two of them are vegan. Finally, four of them are vegan. You invite Russell for dinner. Russell is emphatically not a vegan. You get the picture.

Although Katie Mauck and Nina Murray shared cooking duties for most of the summer, for the first two weeks, Julie fed us. In the process, she learned the art of vegan cuisine, particularly vegan desserts which often included the word “death” in the title.

Katie and Nina relieved Julie two weeks into summer, much to Julie's relief -- anyone who has been cook knows that the job comes with a certain level of stress. Though with no experience cooking for so many people, Katie and Nina, high school seniors both, found new ways to produce balanced meals from North African to Italian cuisines, many containing no animal products whatsoever. By July, prep time had shrunk from 5 hours/meal to about three, the fun quotient remained high, and they still had dinner ready by six every night. Katie notes that 46% of all meals contained tomatoes in some form or the other, 65% of all desserts were vegan, and, to everyone's delight, only twice did we go without dessert.

• **Life on Kent Island**

For the first time in Kent Island history, all of the students were female. One Sunday in July, Mark and I returned from Grand Manan in a dense fog. As I walked across the basin, I heard chanting and saw an unfamiliar sign at the end of the wharf. It read, “Isle of the Amazon Women – Men Beware”. Backing it up were ten Amazons (Hallie, Lenora, Lela, Iris, Emily, Liz, Julie, Katie, Nina, and Maria Williams) festooned with fern leaves, feathers, and face paint, brandishing spears. Needless to say, I turned and ran.

On the whole, however, it was a remarkably cooperative and amiable summer. We were treated to multiple concerts from the Overly-Apologetic Flautists (Julie, Nina and Katie) and singing arose spontaneously many evenings in the dorm. Iris crocheted caps of curious colors for almost everyone. Hallie and Katie revived Mille Bourne as a viable contender for the game of choice, though cribbage is always hard to beat. Susie and Ross Mauck arrived in late June and made the island more of a home. Heather Williams returned to Kent Island for her first visit since 1977 and brought along her daughter Maria, who took to island life as if born to it.

Mark had plenty of willing and able help for all kinds of projects. The lower lab renovation was spearheaded by Julie, Lenora, Liz, and Hallie - most notably the beautiful ceiling murals and

driftwood bench. Julie and Lenora honed their carpentry skills by building an Adirondack chair, patterned after the chair Nina and Mark had donated to the station last year.

We had Thanksgiving in July, complete with turkey and dressing. Russell's family joined us, as did Mark Wilcox and his family. We were glad Mark's kids found the now defunct Cub Cadet such an enchanting toy.

The fog of July didn't prevent two spectacular trips on *Island Bound*. In early July, we went to Machias Seal Island where we ran into Laura Minnich ('02), a Kent Islander in '01 and '02 who is now in graduate school at University of New Brunswick and who was working on Machias for the summer. On the way home, Russell landed us on Gannett Rock as the sun was breaking through the fog. Until recently, Gannett Rock was one of the last manned lighthouses in North America. It is now completely automated and people no longer live there. We spent an hour walking the rock, exploring what man had left behind, and finding alcid skulls and broken eggs strewn everywhere. I felt as if I had been dropped into the computer game MYST. At the end of July, we had a day with flat calm seas and no fog, though somewhat overcast. Russell advised the *carpe diem* approach and we ended up with whales right next to the boat. It left everyone in awe and Hallie speechless, though Russell's barbecued bacon may have had something to do with that.

Finally, there is the new outhouse. The previous director had skillfully managed things such that the Dorm outhouse would not actually overflow until just after he left the island. By late-July, it had reached crisis proportions. We dug the new hole a few yards south of the old one. Luckily, Seth Murray was visiting his father and Seth knows his way around a Kubota tractor. Seth managed about 70% of the digging with the front loader. From there, it was a group effort; everyone taking turns with a shovel when they had a few minutes to spare. Most Valuable Shovel goes to Emily Balf for exertions above and beyond the call. The actual moving of the outhouse, though at times unpleasant, was all about teamwork,

cooperation, skill and luck. For me, the outhouse was yet another illustration that life on Kent Island is lived close to the earth, that we have to be responsible for ourselves, and that we all have to work together.

Addenda to the List of Publications from the Bowdoin Scientific Station.

More than 160 scientific articles have been published in professional journals based on research on Kent Island. Papers with authors who were undergraduates at the Bowdoin Scientific Station are indicated by asterisks. Numbers in parentheses represent Contribution Numbers from the Bowdoin Scientific Station. The complete list of publications can be found on the Kent Island web page (www.academic.bowdoin.edu/kent_island/public.shtml).

- Freeman-Gallant C.R., N.T. Wheelwright, K.E. Meiklejohn, S.L. States and S.V. Sollecito. 2005. Little effect of extra-pair paternity on the opportunity for sexual selection in Savannah sparrows. *Evolution* (in press).
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