

Inspiring wonder, understanding and connection to the natural world through playful, outdoor, scientific inquiry



Kestrel
EDUCATIONAL
ADVENTURES



**2020
Annual
Report**

From the Founder -

In the fall and winter of the 2019-2020 school year, my colleagues and I were leading groups of bubbly young scientists in clambering over rocks tracking raccoons and otters, and drawing maps with students in full classrooms. By April, we were chatting with each other entirely over screens and I was holding baby turtles up to the laptop camera, trying to keep them from dripping onto the keyboard as I called on children to comment on their growth.



I believe deeply and passionately in the value of science education and outdoor connection, in any possible circumstance, however we can possibly reach people. When the pandemic shut down all our local schools, Kestrel kept two instructors on board all the way through the summer, working entirely remotely. Despite being forced to close our physical office and change all our programming to remote, we continued to do science with children. We set up a biomimicry engineering club and a nature games class, created on - location films at local tidal flats and vernal pools, and designed remote lesson plans for all the school groups we had planned to adventure with throughout the spring. Times were challenging, but we took great joy in connecting with our students and supporting them in inquiry and observing wildlife.

It was in August that I found our new remote teaching model had some advantages I would not have thought of, if we weren't forced into it. We normally enroll close to 60 campers throughout the summer, most of them from on and around Cape Ann. This year, we had campers Zooming in from three states. We rolled out our new ForestBook Skills Tracker, a series of woodland skills campers can choose from, and then advance in levels at their own pace. Sandwiching outdoor time at people's own homes between a morning skills meeting and an afternoon virtual campfire for sharing and appreciation, we ran an actual camp.

Our campers developed tracking skills, setting up sandy tracking areas outside, or, in one case, convincing their pet gerbils to walk through flour so they could study their footprints. We observed and described the plants and trees in each other's yards, and tested little boats we made, in any puddle, pond, or kitchen sink we could find. We got frequent texts and calls throughout each day from campers eager to get a more advanced Forestbook stamp, and wanting to show us the fire they had just built. Perhaps most joyful of all, each week we wove our experiences into semi-fictional stories. Listening to children who had never even met in person, telling stories in which the characters they created interacted with each other to have adventures, save injured wild animals, and raft across rough water, was one of my favorite experiences of 2020. At one point, a tale evolved into a veterinary mystery with an expert team collecting ants from the forest to analyze their potential to save or ruin weasel dens. The ability of our campers to not only make friends but to make stories together, across distance and while building shelters in entirely different habitats, helped me realize that we can reach farther than our little region.

While I look forward to returning to in - person camp in the summer of 2021, we plan to keep some of the aspects that have worked well for our students and their families and teachers in 2020. The coming months will be filled with many adventures.

- Jessica Kagle, Founder and Program Director

Program Highlights

Gloucester High School (GHS) Predator Ecology Study Continues



Thanks to support from Applied Materials Foundation, Brace Cove Foundation and Sam Park & Co. (Gloucester Crossing), we have continued a multi-year partnership with GHS to study the presence and impact of local predators such as Eastern Coyotes. In year three of this partnership, we were able to intensify our data collection with trail cameras, and to involve all the students in an individualized and creative ecology project. The purpose of this project is to help students understand an ecosystem right outside their doors, and in particular, the vast web of life involved in the existence of any predator.

Beginning in the classroom, students studied and described plant samples and learned about the impact of predators on local ecology and on humans. Days later, they met Kestrel instructors at a reservation nearby, where they used the plant descriptions they had written as they collected data about various plants and trees and where they were growing, recorded signs of animals, and checked trail cameras placed around the sites. They matched their findings to field guides, to discover the ecological role of each of them. For example, they found many blueberry shrubs and staghorn sumac, and noted that these provide food to mice and to bluebirds, catbirds, and mockingbirds. The blueberries also directly feed omnivorous red foxes. Black cherry and oak trees provide lots of fruits and nuts to sustain mice and squirrels. The songbirds, mice, and squirrels feed foxes and coyotes. We were all truly excited to learn that in the days they were activated, our trail cameras captured many videos of coyotes, foxes, deer, and other animals.

Back in the classroom, students used their field data to create planting maps for a proposed reservation intended to support local predator species. What the students realized was that planting some species, such as blueberries, would feed coyotes and fox directly, while others, such as oak trees, would mostly sustain the predators indirectly, by providing food for their prey. Most importantly, perhaps, students learned that animals do not exist in isolation, and that if they know the basics of their local species, they know how to manage land to support them.



BRACE COVE
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SAM PARK & CO.
REAL DEVELOPMENT SOLUTIONS

Beverly Children's Learning Center (BCLC) Sneaky Science



In the fall of 2019, Kestrel instructors designed a special program for children at BCLC called "Sneaky Science." This afterschool class involved us all working on our skill of observing wildlife without being detected, and without interrupting its normal behavior. We worked on silent walking, blending in with surroundings, and slow movement. Because there is not abundance of wildlife on the BCLC campus, we got creative and pretended to be wildlife ourselves, snuck up on stuffed animals, and blended in with walls and gym equipment.

By the time we took our first field trip into the woods at Phillips Reservation, our students were so skilled that they immediately blended into the forest. The children wanted to try an art project, so we challenged them to make models of "blinds" for observing wildlife, which they accomplished with flair and imagination.



Fall Conservation Club

Thank you to the New England Biolabs Foundation for supporting this program!



Our Fall 2019 Conservation Club was full to bursting, mostly with students from the Beverly Middle School, along with a few of our longtime Cape Ann friends. Guided by the kids' passions, we split our time between a project to learn and educate about wild coyotes in Beverly, and a project to care for and chart the growth of two rare hatchling wood turtles we fostered. As is always the Conservation Club way, practicing the skills of informed democratic leadership was central to our meetings. The youth members took turns leading meetings and took charge of various project aspects.



We visited Wolf Hollow and had a private meeting with one of the wolves' caretakers to learn more about wolves, coyotes, and their interactions with humans. Our trail cameras in the Beverly woods captured video of a pair of coyotes drinking from a puddle, along with footage of plentiful other wildlife. The youth wrote a guide to raising Wood turtles, as this project is a pilot for our biologist partners under whose permit we are raised the young reptiles. Our dedicated turtle caretakers learned to measure shells and weight, chart growth, and explain to future turtle volunteers how to manage the challenges of raising these finicky and charismatic animals. On our last meeting day in December, the youth presented their completed projects to a packed house of family and community members, then finished up the season with a feast back at our office, including wolf cupcakes lovingly crafted by two brothers who joined the club for the first time this fall.

Turtle Head Start: Brookwood School, Beverly Cove Elementary, Carleton Innovation, Rockport Middle School



Thanks to the support of Institution for Savings Charitable Foundation, this year we expanded the turtle Head Start program we have been conducting for three years with Rockport Middle School, to include three other schools. The turtle Head Start is a collaboration with biologists from Zoo New England to raise rare species in sheltered environments, and then release them back into the wild.

This year, we were part of a small pilot group experimenting with protocols for raising extremely charismatic hatchling Wood turtles. The turtles, dubbed Dorothy and Alice, arrived in September, 2019, and our job was to get them as big and strong as possible before the end of May, 2020. Our team of staff and volunteers prepared food for the very picky young turtles, one of the volunteers going so far as to create a turtle themed playlist for mealtimes. Students at four elementary and middle schools became turtle monitors, learning to weigh and measure them, chart their growth over time, and analyze the trends. They studied the wild habitat and diet of Wood Turtles and thought out how best to conserve them. When all our classes moved to remote, our staff created a special page on our website for Dorothy and Alice, posting growth data and feeding videos each week. We created booklets for each of the three participating grade levels to use to further their engagement with the turtles as well as the curricular science connections.



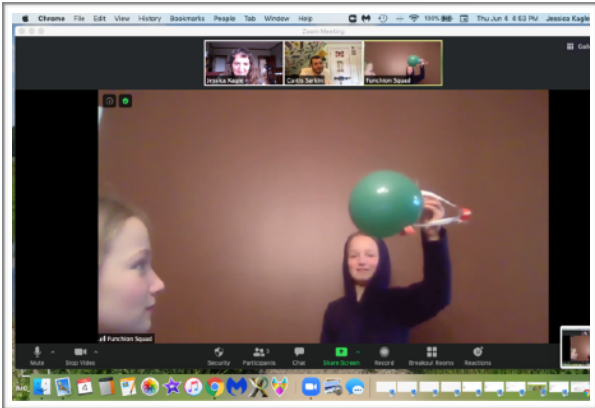
Alice and Dorothy at 10 grams!



The day before the release, we held an online release party, taking one final set of measurements over Zoom, and inviting everyone to offer their best wishes to the pair in the wild. Dorothy and Alice weighed 10 grams each when they arrived, and when they were released on May 22, 2020, they were each healthy, vigorous eaters, and weighed over 160 grams!

Spring Distance Learning Programs

These programs were funded by the New England Biolabs Foundation, New England Biolabs Corporate Donation Committee, Manchester Essex Conservation Trust, and the Beverly Cultural Council, Essex Cultural Council and Manchester Cultural Council, local agencies which are supported by the [Mass Cultural Council](#), a state agency.



We all know that this was no ordinary academic year, but thanks to our flexible funders and fantastic students, we didn't let distance stand in the way of science and nature connection. All our spring programs were converted to remote learning models, with new options developed especially for quarantined and homeschooling families, in addition to curricular support for our school partners and their families. Our Manchester and Essex programs were delivered through the schools as original videos our instructors filmed at the intended field sites, activity and resource guides, and lesson plans to be conducted either

indoors or outdoors. We especially like the vernal pond video, captured over several days in the field, and depicting critters as they migrate, breed, and develop in a local vernal pond. Our naturalists used an inquiry model in the video, asking viewers to observe and consider and question, just as we would have during live field programming. Our spring Conservation Club, scheduled to begin in late March, did not miss a beat, and most of our students dutifully attended Zoom meetings, where we played community building games, and planned out a group project we could do while miles apart from each other. Youth members were each tasked with documenting and researching species they could find near them, and designing a new website to help the general public learn about the life around them, featuring the club members' original photography.

Later in the spring, we launched a new Biomimicry /Engineering afterschool club. Biomimicry is the practice of solving human engineering problems with inspiration from the natural world. Each week, we had a focus animal with a superskill for us to learn from. We made and posted videos and slideshows including an engineering challenge inspired by our focus animal. For example, one week, students were asked to design an alert system that uses vibrations, the way a spider's web alerts its maker to potential intruders or food. One week, we challenged our students to design an underwater communication system inspired by dolphins, and another, a device that fits into tight spaces to retrieve things, inspired by centipedes. Our students impressed and entertained us each week with their fantastic models and sketches based on what they learned from animals and then dreamed up with their minds.



Kestrel Summer Adventures Camp: Remote Survival

This program was supported in part by a grant from the Rockport Cultural Council, a local agency which is supported by the [Mass Cultural Council](#), a state agency. Thank you!



While we had been hoping to operate our traditional camps during the summer of 2020, the pandemic forced a change in model. We decided to offer our survival camp entirely remotely, and to open it up to campers from other regions. Our two weeks of camp each unfolded with a different theme; "Land of Fire and Water," and "Animal Rescue."

Our campers started each morning with a Zoom meeting, during which we played nature games and shared triumphs and discoveries from the previous day, and worked together to add some new plot twists to our collective story. We would then learn a new skill together, such as recognizing trees in our neighborhoods, tying knots, or using a primitive fire starter. At the end of the morning meeting, we would all "step into the story," literally taking a giant step towards our screens and becoming characters in our survival story.



The bulk of each day was spent with campers imagining themselves in our survival story, practicing their skills in their own yards or nearby wild spaces. Instructors coached the campers through phone calls, video chats, and email review of campers' photos and videos. We held our afternoon meetings by joining a short Zoom meeting Jessica hosted from around her fire pit. Each day closed with every one of us offering a bit of gratitude for someone or something that helped us that day. Most of the campers who participated in the first week, proud of their new skills, decided to enroll in the second week as well.

Kestrel Staff

Our Kestrel staff are experienced, knowledgeable professional educators and naturalists who each bring extensive experience to the team. They understand child development, how to support learning, and the complexities of the natural world. This allows them to use a flexible teaching model based on paying attention to students and how they are learning and responding. Staff at all levels contribute original ideas, knowledge, and suggestions to help guide the organization. We plan together, work together, and connect with the natural world together.



Jessica Kagle, Program Director

Jessica holds a master's degree from Harvard Graduate School of Education, and has a lifelong passion for playing in the woods. She has over 20 years of experience as a professional naturalist and educator, and a great love for the wildlife and lands of New England. She is also a former K-8 science teacher with several years of classroom teaching experience in both public and independent schools. Jessica teaches primarily through asking children to design creations based on real experiences, and by encouraging them to be silly, adventurous, and muddy. She loves nothing more than educating people through relationships with wildlife. Jessica can often be found bicycling around New England or standing out in the rain watching frogs and salamanders.



Lis Kernan, Instructor

Lis graduated with her BSc in Zoology & Ecology from James Cook University in Australia, and spent virtually all her free time in the tropics meeting as much of the unique native wildlife as she could find. She worked for many years at Tolga Bat Hospital in Queensland, Australia where each wet season she morphed into a full-time mother bat for hundreds of orphaned baby flying-foxes. She grew up exploring her "own" woods in her backyard in Lexington, MA and can be found most summers hiking and backpacking in the mountains of New Hampshire and Vermont. Lis is unendingly curious about the surprising behaviors, habits, and interactions of living things that can be found in natural and urbanized spaces right around us, and is passionate about fostering a peaceful (and beneficial!) coexistence between humans and wildlife. She is excited to be a part of the Kestrel team because she believes that young humans are often the best naturalists and deserve a platform to explore, question, and deepen their own connection with their world.

Mara Goldberg, Animal Care and Program Volunteer

Mara was raised by parents who let her run around in the woods and do science experiments on her own. She has had many adventures and traveled the world from Hong Kong to Papa New Guinea and Australia to Amsterdam. She grew up to be a social worker, with a private practice here in Beverly. Now she volunteers running around in the woods. Mara takes care of our Head Start turtles, and co-instructs many of our after school classes. She appreciates the full circle her life has made from outdoor immersion in childhood to facilitating children's outdoor experiences and connections with wildlife.

Brian Yurasits, Instructor

Brian received his B.A. in Environmental Studies from NYU, and his M.A. in Marine Conservation and Policy from Stony Brook University. He's spent the past 6 years researching sharks and rays in The Caribbean, collecting data onboard commercial fishing vessels in the Northeast US, and directing a global education non-profit. When he's not working to prevent overfishing and pollution in our oceans, Brian is either searching for surf around New England, climbing some of New Hampshire's 4,000+ foot mountains, or fishing for big bass. His goal is to inspire the next generation to respect and protect the sea.

Curtis Sarkin, Instructor

Curtis has a BA in Writing in Natural History and Cultural Perspectives from UMass Amherst. Before working for Kestrel, he taught hands-on marine science, conducted whale and turtle research, and explored the rainforests and reefs of Central America and Australia. Curtis has been educating the public about local wildlife for over fifteen years and enjoys nothing more than when children ask him challenging and thought-provoking nature questions. He has been flipping over rocks in search of invertebrates since he could first walk, and enjoys fish keeping, fossil collecting, wildlife humor, and science fiction.

Tracy Bowen, Bookkeeper

Tracy is grateful to have grown up in a place and a time where she was free to roam unsupervised in the Great Sippewissett Marsh and play with the animals at neighboring Sacconnesset Farm on Cape Cod. She's a great believer in giving kids time to explore nature and in Kestrel's mission; she's hopelessly drawn to working in non-profits. Tracy keeps our finances organized and manages our payroll.



Goals and Accomplishments

Strategic Plan 2018-2021

Program Goals:

- Remove barriers to participation - Kestrel strives to be inclusive and to serve the needs of all in our service area.
- Build partnerships with Beverly-area organizations to broaden nature connection offerings, strengthen community, and advocate for experiential learning during and outside of the school-day.
- Increase and Deepen Long Term Partnerships with Schools, by including students and school staff in planning and implementation.

Accomplishments

- We were able to pivot and re-design our programs to meet the needs of our schools and families given the unique, unexpected challenges of the spring.
- We were able to increase access to Conservation Club by transporting students to our meeting locations directly from Beverly Middle School.
- Our remote programming allowed access by those who may have had challenges participating in our traditional in-person programming.
- We co-designed and co-taught classes with the Beverly Learning Center Staff and Gloucester High teachers.
- We held after school and vacation programs that were open to the public, at the Glen Urqhart school in Beverly.
- Our partnership with Rockport and Gloucester schools has become a core part of their science curriculums.
- We were able to coach and train teachers to use the natural spaces around their school even when Kestrel instructors were not present.

Students and Schools

Beverly

Beverly Children's Learning Center
Cove Elementary School
Centerville Elementary School
Glen Urquhart School

Gloucester

Gloucester High School

Manchester/Essex

Brookwood School
Essex Elementary School
Manchester Memorial School

Reading

Wood End Elementary

Rockport

Rockport Middle School
Rockport Elementary Afterschool

Salem

Carlton Innovation School

Other

McCaulay Honors College, Brooklyn, NY



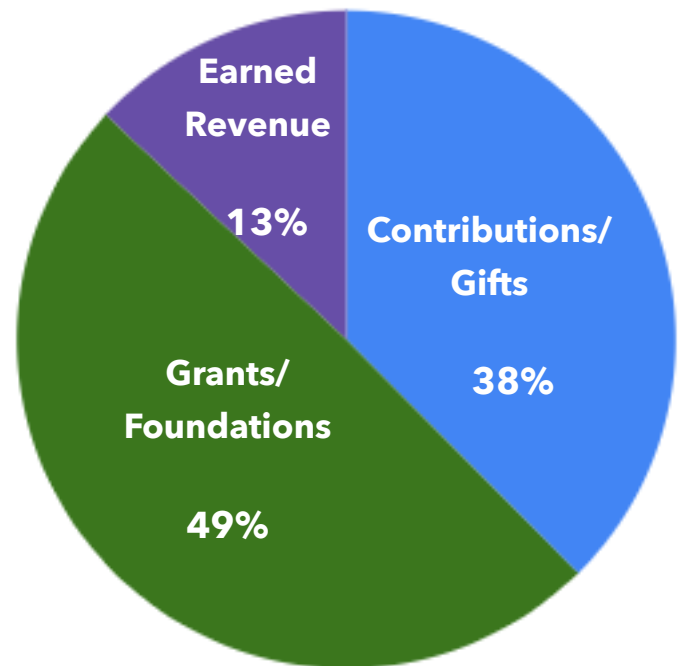
Financials

9/1/19 - 8/31/20

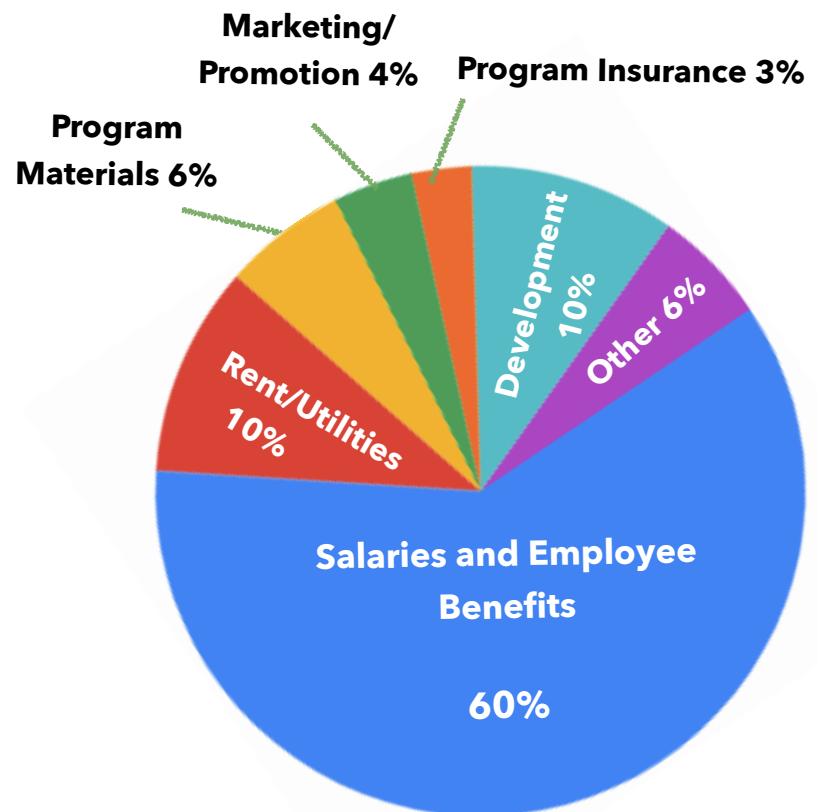
Income	
Contributions and Gifts	\$42,314
Grants and Foundations	\$55,590
Earned Revenue	\$14,680
TOTAL INCOME	\$112,584

Expenses	
Salaries, employee benefits	\$57,377
Rent, Utilities and Maintenance	\$9,953
Program and Office Materials	\$5,839
Marketing/Promotion*	\$3,745
Program Insurance	\$2,835
Development*	\$10,324
Other	\$5,462
TOTAL EXPENSES	\$94,935
Net for the year	\$17,649

INCOME



EXPENSES



*Note: Marketing and Development expenses were funded by a generous grant from the Brace Cove Foundation.

FY20 Supporters

We couldn't do our work without the generous people, businesses and foundations that support us.

Thank you for helping us keep science wild and curious!

\$3,000 +

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Institution for Savings Charitable Foundation
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New England BioLabs Foundation

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Joseph Giso
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\$200 - \$499

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Manchester-Essex Conservation Trust
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Ronnie and Kenneth Kagle
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Rockport Cultural Council
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\$100 - \$199

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 Christopher Wood

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 Kirsten Alexander
 Megan Arnio
 Nicasio Arzu
 Bay View Brotherhood
 Michelle Blestowe
 Michelle Boucher
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 Tracy Bowen
 Annamarie Brady
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We'd also like to give a huge thank you to our Winter Auction donors, and the many enthusiastic bidders who continue to make our online auction so successful.

