To promote education, research and public awareness of Pleasant Bay as an Area of Critical Environmental Concern, to preserve open space and retain the visual quality of the area, to preserve the environmental integrity of the bay’s shoreline, to ensure habitat protection and retention of the rich biological diversity and productivity of the bay, to retain and enhance public access to the shoreline, to preserve natural and historic sites and to promote public awareness of historic Indian culture.

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A Letter From Our President

Dear Members,

It is my honor to write to you in my capacity as newly elected president of the Friends of Pleasant Bay. I have been preparing for this responsibility since last summer, both with trepidation and excitement: trepidation because Mon Cochran’s shoes are big ones; excitement because the phenomenal Friends of Pleasant Bay board has been hard at work, and I am looking forward to continuing to support those efforts.

My perspective of the Bay has been from a boat, as a sailor and boat builder, and not as a scientist. The education I have received from my involvement with FOPB over many years has made me aware of the richness of this precious estuary and of the nature, ecology and history of the Bay. I hope I've become a better steward of the Bay as a result.

While the mission of the Friends of Pleasant Bay hasn’t changed, the intensity and sense of urgency certainly has. Over the years, I have watched FOPB shift that focus diligently and admirably to encompass a greater goal of preservation and education that stretches beyond the limits of Pleasant Bay. It is more than just a pretty place. It is a microcosm of the wider environmental changes we are seeing and reading about worldwide.

Winter might keep some of us off the water, but as we daydream in front of the fire, it’s hard not to think about the beauty of the Bay. If the wind isn’t too harsh, we might even sneak a walk along the shores. The work of the Friends of Pleasant Bay will continue through the winter, and your support is essential to our success.

Your membership contribution is vitally important to the efforts of the Friends. Our collaboration with scientists and educators, ecologists and the people who earn their livelihood on the sea is essential to our understanding of the big picture. Not only are we informing ourselves, we are creating the educational foundation for our future citizens.

Our Fall Newsletter recaps some of our accomplishments and milestones under the visionary leadership of our past president, Mon Cochran, including fundraising for the purchase and conservation of 22 acres on Sipson Island. There is a summary of a recent article in the journal Science that addresses declining bird populations, an update from the Sipson Island Trust, pieces written by several of our educator grantees, and a piece on horseshoe crabs.

Sincerely

Suzanne Leahy

President
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President
Brewster

Kris Ramsey
Vice President
Brewster

Don Ziegler
Secretary
Brewster

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Orleans

Liz Maloney
Harwich

Jansie Shipley
Chatham

In Memoriam

IN MEMORY OF:

Elizabeth Cary

Robert Fano

Jean Murphy Gifford

Danny Gould

Clifton Gustafson

Harriet Hackford

Dick & Betty Klein

Mary Olmsted

Hugh Pershing

Audry Robb

Louise Russell

Jeffrey Rys

Toby Sanders

Christina Vos

Mielke Vos

Miphi Hall-Wunderlich

IN HONOR OF:

Jeanne & Dick Berdick

Robert Granger

Kathrine Green

Todd Kelley

Suzanne Leahy

Liz Maloney

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New Members

Dorothy Bassett

Dorothy Bassett was born and raised in Chatham on Cape Cod. She grew up swimming and sailing in Pleasant Bay and learning about the Cape's ecology during clamming trips with her grandfather, father, and brother. Through Cape Cod Community College she earned an associate's degree and interned at the Woods Hole Marine Biological Laboratory. She later graduated Magna Cum Laude from the University of Massachusetts Boston with a certificate in Geographic Information Systems and bachelor's degree in Earth, Ocean, and Environmental Science. After working as an environmental specialist and hazardous materials chemist in Boston for three years, she took a solo trip around the world through thirteen countries across four continents, learning about different environments from the African Maasai Mara to the New Zealand glow worm caves. After returning to the US, she worked in robotics at MIT, and upon project completion, returned to Chatham. She bought a house on Muddy Creek and enjoys frequently kayaking down to Pleasant Bay. She has spent five years working with Cape nonprofits and earned a Tufts University certificate in Non-profit Business Management. Dorothy now serves as the Executive Director of the Chatham Conservation Foundation, and she is an enthusiastic new member of the Friends of Pleasant Bay Board of Directors.

Todd Kelley

Todd Kelley grew up at Chatham and is a Chatham High School graduate. He says that as a lad it was always understood that Chatham was the community of Monomoy and that namesake went beyond schoolboy rivalry with Nauset and others. It was rooted through generations of families simply living together upon the land, whose legacy belongs to the First People themselves. Through his parents' eyes he saw two more living generations of elders in the community, the likes of W. Sears Nickerson and Joshua Atkins Nickerson, 2nd. Today Todd is in his twelfth season as Park Interpreter at Nickerson State Park with an extended season at Pilgrim Memorial State Park in Plymouth. This is also Todd's thirteenth year doing business as Kelley Trailblazer, your personalized trail guide leader, and it is over the course of this many years that he has developed a working partnership with Michael Lach of Harwich Conservation Trust, professionally delivering cultural and natural history walks across Cape Cod.
How FOPB Helped Build a Land Trust
(And how some of Cape Cod’s saltiest citizens teamed up to help save an island)

The Sipson Island Trust, established by the Friends to manage Sipson Island, didn’t appear overnight. Here is a quick look at its history and progress to date.

Far from a simple process, the Sipson Island initiative required many moving pieces to come together. It needed time. It needed a fundraising plan. But it also called for a new organization. For many good reasons, the initial effort was centered on the Friends, but owning and managing open space isn’t the focus of FOPB. What this project needed was a group of people committed to the environmental stewardship of this special place to develop conservation plans and programming to acquire the land, hold the title, and ensure the public’s access.

A subcommittee of Friends board members took on the task of generating this new organization. Given the project’s goals, its leaders needed to include people with diverse backgrounds and skills in addition to dedication. After much discussion (and even a few rejections), the committee recruited a working board composed of community stakeholders, scientists, neighbors, business people, and veteran conservationists. Together, this group of citizens identified their mission, laid a foundation, and established an organizational framework which has already begun to carry the Friends’ initiative forward. Since August, the organiza-

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tion known as the Sipson Island Trust has been officially incorporated in Massachusetts. You can meet the SIT directors and learn more about SIT at /www.sipsonisland.org/.

Since incorporating, the Sipson Island Trust has worked persistently with FOPB and other stakeholders to lay the groundwork for a shared vision:

- A green recreation destination for all, with beaches for picnicking and upland trails to walk
- A sanctuary maintained chiefly as natural open space, where birds can safely nest and marine life thrive in the eelgrass beds
- An educational resource where scientists can study and kids can learn about the environment and historic indigenous habitation
- A restored ecosystem, aided by removing most of the existing buildings and their related septic systems

The Friends continues to campaign to raise funds to acquire the island for conservation, and we have come far—with the help of many private citizens, charitable foundations, and other Cape conservation groups. Currently we have $1.4 million remaining to raise of a total $5.4 million needed.

On a parallel track, Sipson Island Trust is building its organizational capacity, finalizing an initial Land Management Plan for the island, drafting Conservation Restrictions, strategizing on the final phase of the acquisition, beginning the process of evaluating the island’s habitats to guide future uses, and planning educational programs to share with the community.
The Friends and SIT hope to see you on Sipson Island soon!

Founding Members of the Sipson Island Trust Board

**Dorothy Bassett:** Exec. Director, Chatham Conservation Foundation (conservation, education, land mgmt)

**Tasia Blough:** Board, Friends of Pleasant Bay (marine science, research, education)

**Jay Cashman:** Lessee, Strong Island, Pleasant Bay (neighbor, business owner, marine construction)

**Erin Hilley:** Conservation Biologist, Wilkinson Ecological Design (ecologist, consulting)

**Ginny Farber:** Orleans Conservation Commission (conservation, land management, fundraising)

**Ellen Emerson Kohler:** Board, Pleasant Bay Narrows Trust (attorney)

**Diana Landau:** Board, Orleans Conserv. Trust, Owner and Operator of Parlandau Communications

**Owen Nichols:** Director, Marine Fisheries Research, Center for Coastal Studies (research, education)

**Jeff Norgeot:** Owner/Operator of Jeff Norgeot, Inc. (marine construction, shellfish management)

**Bob Prescott:** Director, ret’d., Mass Audubon’s Wellfleet Bay Wildlife Sanctuary (wildlife biology, education)

**James Rosato:** Commercial Shellfisherman, Orleans

**Charlie Sumner:** Board, Brewster Conservation Trust; past ED, PBCB, past Brewster town administrator (conserv, educ, local govt)

**Maia Ward:** Board, Friends of Pleasant Bay; Co-Owner, Dempsey Marine (business mgmt, biology)

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Sipson’s Island Fundraising Update

Emphasis this past summer and fall has been on identifying potential major donors and engaging with them both at fundraising events and one-on-one. In July, Jamie and John Selldorff hosted a gathering at their home on Nickerson Neck in Chatham, and in mid-August, Jay and Christy Cashman had over 100 guests out on Strong Island for a gala evening. Since then, we have been following up with attendees, and this week sent a solicitation to all FOPB members. We have also had success in seeking funding from regional foundations interested in land conservation and are pursuing support from the nonprofit conservation land trusts in the stakeholder towns of Orleans, Brewster, Harwich, and Chatham. Our application to the Orleans Conservation Trust for $75,000 will be discussed at their upcoming Board meeting.

Here's where the fundraising stands:

- Cost to acquire all 24 acres: $5.4 million
- Gifts and pledges to date (Oct. 1): $3.2 million
- Strong prospects identified for: $800,000
- Additional needed to reach the goal: $1.4 million
Horseshoe Crabs in Pleasant Bay
October 2019

There have been many changes in the ecology of Pleasant Bay, most notably in the populations of birds, sharks, and seals and perhaps horseshoe crabs (HSCs). To the casual observer, there appears to be a decline in the numbers of horseshoe crabs and those spotted are overwhelmingly males. We have looked into this question to determine if there are data to indicate that the HSC population is declining, and if specific measures might be taken to preserve them.

Horseshoe crabs have a major role as a food source for birds, as their eggs are a calorie dense food for migrating birds. In other locales such as the Delaware Bay, they are harvested commercially for bait.

In Pleasant Bay and elsewhere, the females, which are larger, are bled for use in a limulus lysate assay (LAL), a process that entails a reported 10-20% mortality. This is a test for bacterial contamination - no longer used clinically - but used commercially, worldwide. A

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component of the HSC blood provides a sensitive assay for the presence of bacterial endotoxin, the cell wall of Gram-negative bacteria. The LAL assay has been supplanted by a competitively priced synthetic compound (PLoS Biol. 2018 Oct; 16(10): e2006607) termed recombinant factor C (PDA J Pharm Sci Technol. 2017 Sep-Oct; 71(5):405-412. doi: 10.5731/pdajpst.2017.007849. Epub 2017 Jul 20.). This is as sensitive as HSC blood, is competitively priced and has been approved by the US FDA. However, the commercial harvesting of HSCs for their blood continues, although the industry is monitored and populations of HSCs are followed closely.

“The challenge of fisheries managers is to ensure that horseshoe crabs are managed to meet all these diverse needs, while conserving the resource for future generations.” (http://www.asmfc.org/species/horseshoe-crab). The available data from the Atlantic States Marine Fisheries Commission (above) suggest that there is not an acute problem locally; HSC populations appear roughly stable over the past

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Lori Youngman and Judy Updegraff at the Orleans Elementary School write that they have been privileged over the years to receive grants from Friends of Pleasant Bay that have enhanced and enriched the lives of our third grade students and helped them build an understanding of the history, usage and natural treasures of the Pleasant Bay Watershed area. This understanding has deepened their commitment to protect our resource.

Once again this year, they are coordinating study of Pleasant Bay with other teachers so that students experience the bay through technology, art, literature, writing and STEM science standards. The learning opportunities in the application of these cross-curricular standards provides a valuable opportunity for student growth.

Our yearlong study began in early September. Third graders boarded the Beachcomber boats for a tour of Big Pleasant Bay, the new cut, and Chatham Harbor. This trip allowed students to understand the effects of water and winds on our shoreline, to view fragile habitats and their inhabitants, and to think about the potential impacts of humans on this ecosystem. For many third graders, this expedition was their first view of Pleasant Bay from the water.

The next step in our study was to take a view from the land. In mid-October, students explored Jackknife Cove, including the tidal, wrackline and marsh areas. They created video recording and photography with their technology teacher, artistic connections with our art teacher, and poetry writing (in a form we call “Bayku”) with our librarian. The National Seashore Ranger Outreach Education Program helped students build their understanding of the ecosystems and resources of the Pleasant Bay Estuary/watershed area.

At present, students are researching habitats, including those of the plants and animals they observed on their field trips, making connections to the science standards as we study the interdependence of organisms in their environments. The information they gather will be the basis of a folktale that they write and then make into a book using the app “Book Creator” and their iPads. They also write text and add photos and video to form an e-book of their exploratory excursions at Jackknife Cove.
Latham Centers operates a residential treatment school for children with special needs ranging in age from 8 to 22 years old. The students have multiple diagnoses, including: intellectual and cognitive disabilities, developmental delays, emotional disorders, behavioral challenges and mental illness, and at Latham they receive round-the-clock clinical, educational and residential care.

Since 2015, grant funding from The Friends of Pleasant Bay has helped them offer SummerTide, an experiential learning curriculum, part of their year-round curriculum. SummerTide keeps student interest and motivation high during the summer months.

The SummerTide curriculum integrates science, history and environmental studies. It is field-trip based, and each outing is designed to meet a portion of the Massachusetts Common Core science curriculum framework. Students visit Pochet, Little Pochet, and Sampson Islands. A highlight of SummerTide is the Monomoy boat excursion cruise from Harwich to Monomoy Island to view the seal population and other wildlife. For many Latham students, this trip is their first time on a boat. Their excitement is wonderful.

Each student keeps a field notebook, completes worksheets, and creates drawings to document these experiences outside of the classroom. They research each location in advance, and a physical fitness activity is part of each outing.
Declines in North American Bird Populations and the Implications for Pleasant Bay

The journal *Science* recently reported an alarming decline in populations of birds in North America (Decline of the North American avifauna; Rosenberg et al., 366, 120–124; 2019). The authors’ conservative estimates reveal an overall loss of 3 billion birds since 1970, across hundreds of both common and rare species. Datasets analyzed included both long-term (48 year) ground surveys and radar measurements of avian migratory biomass (2007-2017).

Not all avian species experienced declines. A few categories of birds experienced increases in population due to government initiatives, including regulatory actions (e.g. DTT ban benefiting raptor reproduction) and conservation efforts (e.g. Wild Turkeys rescued from extinction through establishment of the Forest Service and institution of game laws).

Of relevance to Cape Cod, with its abundance of aquatic ecosystems, shorebirds and water birds experienced declines of 37% and 21% respectively, whereas waterfowl populations increased by 56%. Waterfowl recovery provides another example of how intervention can reverse human-induced devastation of certain species. In the early 1900s, there was an awareness

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Red Knot feeding on Horseshoe Crab eggs. Kevin Karlson
of the necessity to protect bird populations, in part because of the extinction of the Passenger Pigeon, once one of the most abundant birds on the planet. At the same time, ducks and other waterfowl were being hunted to the brink of population collapse and possible extinction of many species. Conservation efforts, including Federal acts, management plans, and treaties with neighboring countries, were key to reversing declines in waterfowl populations.

Pleasant Bay, in particular, is host to 248 species of birds, including many migratory species, and four species listed as threatened or endangered (Pleasant Bay Alliance’s Area of Critical Environmental Concern report). According to wildlife biologist Mark Faherty (Mass Audubon Wellfleet Bay Wildlife Sanctuary), Red Knots, migratory shorebirds recently listed as endangered, feed on mussel spat in Pleasant Bay and “were common off Sipson [Island]... (2013-2016), but not so much [in] the last few years.” Red Knots are also being impacted by declining horseshoe crab (HSC) populations in Delaware Bay, as their “ability to breed depends on getting enough HSC eggs in May... to fatten up and make the flight directly” to their breeding ground in the high Arctic, which, in turn, is experiencing destabilizing weather due to climate change, thereby impacting the short breeding season.

On Sipson Island, Belted Kingfishers and Bank Swallows nest in the eroding bluffs. “Bank Swallows are part of a group of birds thought...
Birds...

Continued from page 13
to be declining because flying in-
sects are declining,” says Faherty. Fur-
thermore, “anything that pro-
motes nitrogen reduction, eelgrass
growth, saltmarsh restoration, and
increased fish populations could
help Belted Kingfishers. Protecting
eroding banks for nesting sites will
help both species.”

That certain avian species have
experienced population increases
over recent decades proves that
government programs work; how-
ever the current crisis is not limited
to a few types of threatened birds.
With so many species affected and
their interactions with the eco-
system so varied, the scope of the
problem is immense in its breadth
and complexity. Therefore, the au-
thors of the Science article argue
that species-targeted efforts will not
suffice in avoiding a catastrophic
loss of avian biodiversity; a more
comprehensive approach must be
embraced.

In light of this report, conservation
groups have made recommendations
for citizen action, such as keeping
cats indoors, creating bird-friendly
habitats, and preventing bird strikes
at windows. Support for efforts to
conserve existing habitats, such as
the ongoing campaign to save Sip-
son Island, is also important.
Horseshoe crabs...
Continued from page 13
decade, following a precipitous decline in the 1990s. That decline prompted South Carolina to outlaw the use of HSCs as bait. Associates of Cape Cod, a subsidiary of the Seikagaku Corporation of Japan (https://www.acciusa.com/tools-and-resources/educational-content/Horseshoe-Crab-Sustainability) posts a “Horseshoe Crab Sustainability Project” on its website, indicating that it is working to use the “best management practices” to insure the viability of the species, as do the other commercial interests that harvest the crabs for profit.

Despite these efforts, there is concern regarding the long term population decline in HSCs in the Delaware Bay - along with an alarming decrease in migratory sea birds, especially the Red Knots, that depend upon HSC eggs as a major food source (see article on bird populations in this newsletter). Data from the NJ Audubon Society in 2018 indicated that Red Knot numbers fell to a population of 9,840, from 56,000 in 2000, and correlated this decline with a significant decrease in HSC eggs, among other factors. That group and others are coordinating efforts to form a coalition to help preserve the HSC population regionally. One of their goals is to promote the use of the synthetic assay using recombinant factor C instead of HSC blood. However, as noted above, this would not make a significant change to the total numbers of HSCs overall. The factors associated with the fluctuations in the HSC population are complex. At least for now the numbers seem stable.

In Memory of:
Tina Clark Spring
Bob and Peg Wineman
Jean Nickerson Primavera
Mary Louise Russell
Stephanie Gray
Sarah McOsker
Ann Warren
Hugh Pershing
Jean Uebele
Louise Russell

In Honor of:
Leah Thornton Lozano
Joel and Susan Rottner
Hannah, Layla and Aleks
Grandchildren of Deborah Reale

Photo courtesy William H. Hayes Photography, stageharobr@icloud.com