Core Sound Waterfowl Museum & Heritage Center

SOUNDSIDE LEARNING

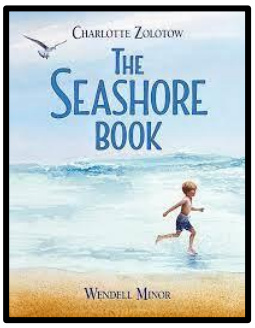
THIS WEEK ON CORE SOUND

April 17, 2023

COMING UP AT CORE SOUND…

- **April 19:** *Soundside Science & Story Time* for ages 3-5, 10 AM
- **April 20-21:** *Earth Day @ Core Sound,* teachers register now!
- **April 21-22:** *"Crystal Coast Star Party"*

Sound Reading Material For You & Your Child



The Seashore Book
By Charlotte Zolotow

Wendell Minor's beautiful artwork and Charlotte Zolotow's simple, evocative prose brings a day at the beach vividly to life as a boy and his mother imagine what it would be like to spend a day at the seashore. Hunting for seashells and building sandcastles, this tribute to the power of imagination and the tenderness of a mother-child connection is also a sweet ode to summer's greatest pastimes. Perfect for story time or bedtime.

Grade Level: preK-1
Pages: 32

Camdyn, We Salute You

Meet Camdyn Ensminger! She is a member of East Carteret's Class of 2023 and is one of Leona's and Emmer's crowds from Harkers Island. Her mom, Candace Guthrie, is the daughter of Fredda Willis and Davie Guthrie. Her dad, Landon Ensminger, is the son of Judy and Bobby Ensminger. Camdyn's stepmom is Ashley Ensminger and she has two sisters, Karlyn and Charlotte.

Camdyn has been a member of Civil Air Patrol, the US Air Force Auxiliary, for six years. She was only 12 years old when she joined the program! Her mother encouraged her to get involved, a decision that has surely impacted her future for Camdyn plans to attend a four-year university as a biochemistry major while participating in Air Force ROTC. Following graduation, she will commission as a 2nd lieutenant within the US Air Force. She then plans to attend medical school to become a medical doctor in the military.

Currently, Camdyn is Cunningham Field Composite Squadron's Cadet Commander and Leadership Officer. This past November, Camdyn received the Amelia Earhart Award, which is the promotion to cadet captain. She has since been promoted again and although she remains a captain, she is one step closer to receiving her Colonel George Boyd Award, cadet major. She has had many opportunities and is thankful for the doors that have opened for her.

When asked who inspired her, Camdyn replied, "My mom has shown me that I need to be independent and work hard for everything I have. She has pushed me to be the greatest version of myself, and I couldn't be more thankful for every sacrifice she has made for me and the countless hours of cheering me on through everything I do."

Camdyn also shared this message for her peers. "My advice to all youth, but especially the Down East youth, is to get out and see the world. Pursue your wildest dreams and never limit yourselves because the world is so much bigger than Carteret County. Our community will always welcome you back with open arms whenever you return home! There is so much to see and experience and you only get one opportunity to live this life, so make the most of it! A challenge will push you to discover a better and wiser version of yourself. I always remind myself of that when I am facing a challenge that I feel I may never get through; I always find myself on the other side of the challenge feeling accomplished and more knowledgeable than before."

Ah, That Smell

Still today, whenever I turn east towards Down East, I roll down my window and inhale deeply. The smell of the marsh at North River means I'm almost home! Ah, that smell!

The scent originates from the tiniest members of the wetland's ecosystem. These one-celled living organisms, called bacteria, are too small to be seen without the help of a microscope. The billions of bacteria living in just one gram of marsh mud are critically important to the healthy functioning of wetlands. Many different species of bacteria exist and are diverse in terms of their metabolic requirements.

Humans need oxygen from the air and organic carbon from the foods we eat to generate useful energy allowing us to grow and function normally. We also give off carbon dioxide as a waste product every time we exhale. However, this is not the case for all bacteria. Some bacteria depend on organic carbon and oxygen, but many do not. These bacteria are more like the earliest bacteria that existed before the Earth's atmosphere even had oxygen.

Bacteria species have evolved in ways so they can use different forms of nitrogen, sulfur, phosphorus, and carbon as sources of energy. Consequently, bacteria are critically important to the major biogeochemical cycles in wetlands. Bacteria produce sources of these chemicals in forms that plants, and the animals that eat plants, require for growth and function.

For example, bacteria are essential to the nitrogen cycle. Plants need nitrogen primarily in the form of nitrates or ammonium. Other bacteria are decomposers, so when something dies in the marsh, bacteria slowly break down the cells of the dead organism and eventually generate ammonia or ammonium. Additional species of bacteria use ammonia and ammonium to generate nitrates that plants need.

For plants to grow, farmers require nitrogen in the form of nitrates or ammonium. There is a limited amount of nitrogen in soil, so eventually this natural source of nitrogen will be depleted. Farmers must then turn to fertilizer as a source of nitrogen nutrients. However, the more fertilizer that is added over time, the more likely water runoff from rain will carry the nitrates into streams and wetlands.

High levels in the waterways will cause excess nutrient pollution. That is when bacteria come to the rescue! Some species of bacteria break down nitrates for energy and their waste product is nitrogen gas. These microorganisms convert nitrates to nitrogen, which is a safe component in air, therefore, removing excess nitrates from the environment.

Other species of bacteria affect the carbon, sulfur, and phosphorus biogeochemical cycles in similar ways. There are bacteria that use sulfates that create hydrogen sulfide gas as a waste product, which is what we smell!

Folks tend to focus on the wetlands environment that we can see -- grass, mud, crabs, mussels, water and birds. But the next time you breathe in the marsh air, appreciate the microorganisms that are just as important to our ecosystem's balance and health.

marsh near Cedar Island