

Chesapeake Stories

The Bay in Words and Pictures

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Chesapeake Eats

Five Sources for the Freshest Seafood

---Dean Keh, Michaella Kuykendall, Val Petsche



Quinn Lemmon holds a crab at Cantler's Seafood Restaurant.

Photo: Dean Keh

Residents of the Chesapeake Bay region have an advantage over most other people--access to fresh seafood. Restaurants and seafood suppliers on both sides of the Bay rely on the Chesapeake's stock of crabs, oysters, and rockfish, so those businesses have had to adjust as the health of the Bay has fluctuated over time.

Chesapeake Eats (continued)

How do these establishments manage with an ever-changing supply of products?

Quinn Lemmon has been an employee at Cantler's Riverside Inn in Annapolis, Maryland since 2011. Cantler's main attraction is their steamed crabs, though they also serve a wide variety of other seafoods. Established in 1974, the restaurant offers the rich historical heritage of the Bay region while delivering classic Chesapeake Bay dishes.

"We have a combination of local watermen and outside shipments to supply the demand of the restaurant," Lemmon said. "Since we go through so much stock so quickly, local watermen can't keep up with the needs of the restaurant. There have been times we've steamed more than 40 bushels of crabs in a single day."

Cantler's sells five different sizes of crabs ranging from "smalls" to "supers," all hand sorted upon delivery to the restaurant. As is the nature of market pricing, the crabs are priced by the dozen, though customers can also purchase crabs by the single or the bushel.

"When we notice a shortage of crabs in the Bay over a period of time, the prices definitely increase, but we're much more likely to import blue crabs from out of state than ask fishermen to supply [more] for us," Lemmon said.

He also explained that the restaurant tries to give back to the Bay as much as they can. Any time they come across an undersized crab they toss it back into the water, and they recycle oyster shells to be repurposed, rather than simply disposing of them.

"We're so grateful for the support we get from local fishermen. We know a lot of them, and some even work with us whenever they're not on the water fishing," Lemmon added. "It's a huge blessing to have such a connected

community providing as much local food as they can to all the people that come through here at Cantler's."

Allen and Heather Goldsboro run a business called *Shipwrecked Seafood* in Hebron, Maryland, selling local oysters and clams at three different farmers markets in Maryland, including Salisbury. "We're a father-daughter startup that began in May," Heather said.

Their clams come from Hog Island in Virginia near the Chesapeake Bay Bridge Tunnel, and their oysters are sourced from Saxis Island located along the Maryland-Virginia state line.

"We buy off of the dock from people we know, and everything is in the family," Heather added.

Allen Goldsboro said seafood is unique to the Eastern shore, with the Chesapeake Bay and the Atlantic Ocean surrounding the land.

There is a major difference between buying locally and from a commercial company, according to Heather. "Grocery stores stock whatever seafood they can get cheapest," she said. "Smaller, local businesses have a shorter supply line, and so it's easy to trace. We buy our seafood off the boat. We know the watermen, and we talk to them every week, and I can tell you exactly how long those are going to last, when they come out of the water and what the weather was like at the time," she said.

Shipwrecked Seafood is a business that barely supports itself, according to Heather. "We're putting our time into it in hopes that it will become something larger," she said. "One day I would like to be able to pay someone to cover me if I get sick."

Chesapeake Eats (continued)



Camden Avenue Farmer's Market in Salisbury

Photo: Dean Keh

Kieran Clucas is the co-owner of Alaskawild Seafoods, a vendor at the Camden Avenue Farmers market in Salisbury. The business is headquartered in Seaford, Delaware, offering fresh caught salmon, halibut, and cod from Alaska as well as rockfish from the Chesapeake.

Clucas grew up both on the Eastern Shore and in Alaska. "I grew up in both places, and had access to local Maryland and Alaskan seafood," he said. "We live in a coastal area, and a lot of the people I grew up with were watermen." Many of his family members are watermen, including his uncle, father and grandfather.

According to Clucas, seafood is vital to the Eastern Shore, with blue crabs from the Chesapeake Bay being a critical component. "Economically, seafood such as crabs is a big deal for sure," he said.

Clucas ate many Eastern Shore dishes as a

child, including soft shell crab sandwiches and rockfish. "Fish-fry has always been a big thing too, and I know my Thanksgiving dinner always looked a little different than most people today," he said. "We had a little bit of turkey and a lot of fish, so that's definitely interesting for sure."

Quality is one of the most important factors to consider when it comes to fishing, according to Clucas, and products must be caught fresh to ensure this. "Local seafood is taken much better care of than the stuff you would find at most grocery stores, and I know the gap between buying from this guy over here selling oysters, or from buying in the grocery store," he said. "There is a huge gap [regarding] health as well. I know my products personally, and that we catch it all wild so absolutely nothing is added to it.

"You can go and look at a package in the store, and there's going to be food colorings, preservatives or all sorts of additives in that

Chesapeake Eats (continued)

piece of fish,” Clucas said. “In the end, you don’t have nearly the same product.



Local-caught rockfish being prepared Photo: Dean Keh

But local seafood can be tainted too. A flu-like outbreak affected many people following this year’s annual Oyster Jam and Brew Festival which took place at Fager’s Island Restaurant in Ocean City. More than 160 people fell ill following the incident.

Oysters were sourced from the state of Maryland, and served raw, fried, steamed, in stew, and in signature dishes offered by select local restaurants. “Scientists are going out on a boat with the members from the Department of Natural Resources (DNR) to investigate the issue, and to see if it’s something to do with where the oysters came from,” said Clucas.

He also explained that his business, Alaskawild, has been affected in the past due to fluctuations in fish populations. “As a fisherman, and specifically on the Eastern Shore, [I can say that] the DNR hasn’t done very well at regulating the fishing and oyster

industry,” he said. “A lot of the rockfish have been overfished, and that can certainly affect our livelihood.”

Clucas added that although fishing in the Bay has not been handled responsibly in the past, recently the situation has changed. “Lately, it’s been doing very well and there’s a lot of biologists who have been working in the Chesapeake to bring back the industry,” he said.

Clucas believes pollution from agricultural runoff has become a major problem. “There’s such a large human population that it just ends up ruining shellfish beds and many other wildlife,” he said. “There’s so much trash, and [the waters] can be so full of contaminants that you don’t to be there. And that affects our ability to be successful fishermen.”

Joe Gross is a barback at the Harvest Wood Grill, a seafood restaurant and bar in Annapolis. The restaurant offers raw oysters from the Chesapeake Bay, including Hooper's Island, Chincoteague, Rappahannock and St. Jerome Creek. Their menu features fresh rockfish and raw shellfish sourced from the Bay.

Chesapeake seafood is a real delicacy, according to Gross. “I’m a big fan of fried oysters and [steamed] crabs. I wish I could eat them every day,” he said.

But his knowledge concerning Bay wildlife populations extends only as far as the virtual reality game *Clam Digger*, an app guiding gamers through virtual clam harvesting. “With oysters, we hear about the shortages, but we as consumers don’t really experience it, other than price-wise maybe,” Gross said, and added that he is not directly affected by changes in seafood populations or the water quality of the

Chesapeake Eats (continued)

Bay, though, for he does not know any fisherman. “It’s not an occupation I’m familiar with anymore. When I was younger there would be people I knew that would fish for a living, but now it’s not as strong as an independent career, and it seems to be increasingly commercialized,” he said.



Suicide Bridge Restaurant Photo: Michaella Kuykendall

Cabin Creek is home to the **Suicide Bridge Restaurant** in Cambridge, Maryland. The restaurant embraces waterfront culture and offers an array of seafood meals, along with riverboat cruises complete with authentic 1920s riverboat attire. The restaurant's alarming name doesn't deter customers, according to General Manager Craig Cooper. “People venture out to find the restaurant with the unusual name, but it’s our great seafood that keeps them coming back,” he said.

The restaurant at Suicide Bridge was once a small building, purchased by Dave Nickerson, President of the Kool Ice & Seafood Company based in Cambridge. Nickerson wanted to expand his business ventures from exporting locally-caught seafood to preparing his fresh

catches in dishes at Suicide Bridge. After 30 years of operation, Nickerson has been able to expand the restaurant to seat 400 people and offer party accommodations as well as cruises on the restaurant’s two riverboats.

The success of the restaurant lies in their main attraction—fresh seafood, much of which Cooper said is locally sourced from the Choptank River, the Chesapeake Bay and the Atlantic Ocean, mostly within a 60 mile radius of the restaurant.

The kitchen at Suicide Bridge specializes in dishes made with fresh-caught crab and fish. Suicide Bridge offers specials on the catch of the day, like Chesapeake rockfish, flounder, mahi mahi, tuna or Atlantic salmon. During crabbing season, the restaurant buys their crabs directly from local fishermen that dock in the marina nearby, removing the middleman.

Cooper has been the manager of the business for the last 20 years. He said that during that time, “there has been fresh, local seafood all along.”

Cooper refuses to buy commercial products during slower periods because local seafood is still readily available. “During the off season, we use local Maryland crab meat, pasteurized in Dorchester County, through the winter months until the spring comes,” Cooper said.



Sign with rockfish Photo: Michaella Kuykendall

The restaurant serves local catches processed by Kool Ice & Seafood. Cooper said he will buy

Chesapeake Eats (continued)

crabs right off of the docks during the warmer months, and the restaurant receives seafood deliveries every morning before they open to ensure freshness. If Suicide Bridge runs out of a certain product, the restaurant will remove it from the menu, and offer something else instead.

Once crabbing season is over, menu changes are made to accommodate for the seafood that is available. "It's mainly a price thing; the price just keeps going up, because demand keeps increasing and catch is not increasing with it," Cooper said. "We will have more oyster dishes available now that they have come in season," he added.

Over the years Cooper has had the opportunity to evaluate water quality of Cabin Creek, a

branch of the Choptank River. "As for the water quality, [they say] it's getting better, but I don't really see that. I haven't seen a change in the quality of the seafood, the fish, or the crabs.

In the summer months, being in a brackish water area where we are, our crabbing catch has been down because the water temperature is so high," he said, noting that the increasing temperature of the bay water has caused an oxygen depletion in its tributaries, including Cabin Creek.

Despite the challenges, though, Suicide Bridge will continue to be the restaurant with the strange name and the freshest seafood as long as Chesapeake Bay and its tributaries supply the harvest that keeps them going. "We wouldn't do it any other way," Cooper said.



Marina at Suicide Bridge

Photo: Michaella Kuykendall

Roni Captures Beauty

Bay Region Artist Profile

---Sydney Alexander, Dyan Ordakowski



Placeholder info

Photo: Sydney Alexander

The culture of the Chesapeake Bay region has developed, grown, and changed over the years, just as every culture does, but because of the aesthetically pleasing, naturally enjoyable environment of our area, our culture is quite unique. One thriving, talented local artist who

Roni Creates Beauty (continued)

lives and works day in and day out engulfed in the culture of the Chesapeake Bay region is Roni, who prefers her last name not be mentioned as she does not use it professionally. After finding herself infatuated with art from a very young age, Roni decided to make her hobby a part of her lifestyle forever.

“To keep it simple,” Roni says, “art is the act of expressing emotion.”

Roni began getting serious with her art skills in high school when she was part of her school’s visual arts program for two years. She then graduated from Salisbury University and later attended University of the Arts in Philadelphia, where she began her career from scratch. Roni started showing and selling her creations in college, realizing that her hobby could become her career.

To get away from hometown roots and experience other locations, Roni moved to Philadelphia, Harlem, and Brooklyn within a short time span. She continued to create artwork and try to make a living from it. Drawing inspiration from the city lifestyle in her work, she learned that even though her native roots grew from oceans, islands, sand, and seagulls, she can benefit from changing perspectives..

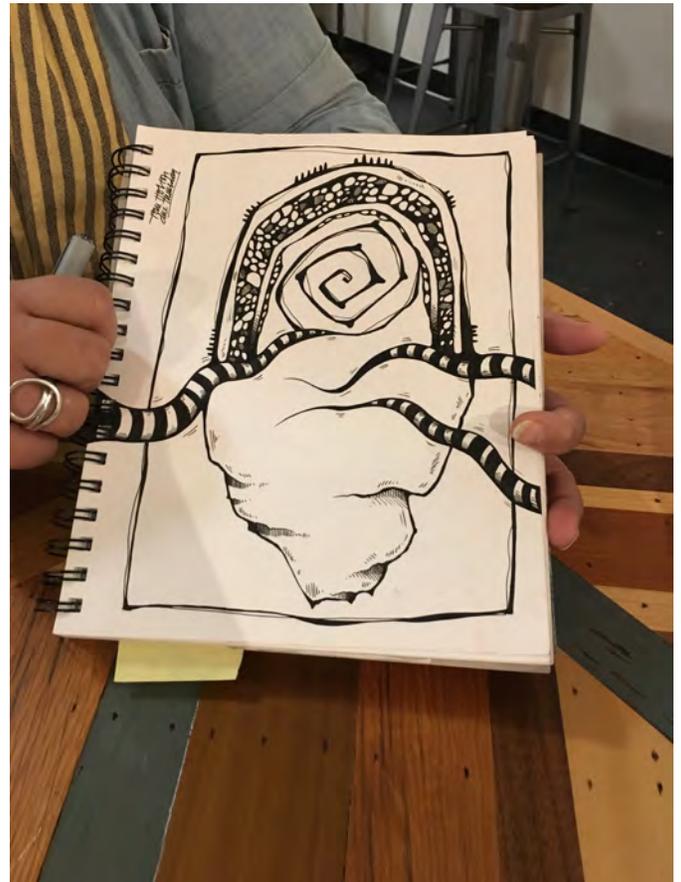
When her sister got pregnant back home, Roni returned to the Eastern Shore, where she now lives and works as a local artist and art coach in the Chesapeake Bay area.

Roni is extremely involved with the area’s art culture that is inspired by the Chesapeake Bay. She not only contributes her own works, but also helps others in developing their own as an art mentor / tutor.

She enjoys helping out local businesses with her talent by decorating menu chalkboards for local restaurants such as Tall Tales Brewing Company, The Brick Room, and Brew River.

Perhaps even more impressively, she paints murals for local private commissions around the Delmarva area, and some in Philadelphia.

She can often be found in local coffee shops doodling in her notebook, or proudly standing behind a table full of her creations during a Third Friday event.



One of Roni's doodles

Photo: Sydney Alexander

Using neon colors and abstract ideas, Roni is not one who creates “traditional Chesapeake Bay art” with the ocean, grasses, boats, and birds. She is spunky. She enjoys creating abstract art that grabs the attention of viewers quickly and holds it.

Roni says that there are positive and negative aspects to being an artist in this particular region. One of the negatives is that it is hard to get people to care about your work if it doesn’t depict the traditional art aspects of this area.

Roni Creates Beauty (continued)

"No one cares ... if you don't paint ducks, nature scenes, or classic cardinals," she says. "People like me struggle because I do the abstract weird stuff with crazy colors."

One of Roni's biggest obstacles when starting in the art career was that she wasn't sure if she would even make a profit because she doesn't fit in. The art culture of the Chesapeake Bay region contains a lot of marshland landscapes and waterfowl because that is what the people of this area are surrounded by. They can relate to this.

The positive part of art culture of this area is the small town atmosphere, which allows for information about local artists like Roni, and art events, to be spread easily. The small town setting also means that everyone knows each other. Artists will meet other artists and people to support their work. People are more supportive of others whom they are familiar with.



Roni

Photo: Sydney Alexander

Roni primarily finds inspiration in nature. Being a native of the Chesapeake Bay region, she is particularly drawn to water, specifically the ocean and the Bay. Her work often depicts the swift movement of water and how it maneuvers "angelically" within itself.

In contrast, Roni also finds inspiration in city life and culture since she lived it and immersed herself in that lifestyle for a portion of her life. In the city, "there is a lot of graffiti, and as an artist, you learn quickly how to do it," she says. She depicts the differences in the two cultures in her art as if to show why she is the way she is--a high-spirited, modern individual thriving in a traditional, enduring area with a risky career.

In addition to water, Roni is also drawn to the other three elements: fire, air, and earth. "Although viewers cannot necessarily see them in my work, they are definitely an inspiration and behind a lot of my creations," she says. The four main elements are the building blocks of life on earth, so why wouldn't they be the building blocks of art that depicts life on earth?

Local places such as Pemberton Park, Deal Island, and Parsonsburg area are also big contributors to Roni's inspiration. She enjoys going to Pemberton Park as the seasons change for "the atmosphere feels different depending on what time of year it is." These changes in feelings and emotions during different months are great to build from when deciding what color to use and what emotions to express, she explains.

Deal Island in Somerset County holds a special place in Roni's heart as it "has been around forever" and feels like home no matter what changes in life she is going through. The island, one of the only remaining pieces of land that hasn't seen the effects of industrialization, mirrors the health of the watershed and has some of the oldest buildings on Delmarva. With its small town Eastern Shore lifestyle, the island puts off a certain vibe that brings out emotions in locals, especially Roni.

Roni Captures Beauty (continued)

Parsonsburg is the town where Roni grew up. A noteworthy aspect of the area is "the fields," as "they put off the feeling that you can do whatever you want since you're in the middle of nowhere, yet only a few minutes from the highway." In her hometown, Roni can feel disconnected from the reality of life, while still being connected.

Roni says that in a place so beautiful in some spots and so ugly in others, it is "easy to find the beauty in the most mundane things," which enables her to find inspiration and express the emotions that she feels every day.



Placeholder info

Photo: Sydney Alexander

She is a strong supporter of the idea that as the health of the Bay improves, so does the health of the art culture in the area: "As the Bay gets healthier, the area gets nicer; as the area gets nicer, people with money move here, and Salisbury University students stay here, people with money then support local artists and events, which in turn sparks attention from a larger crowd. Students who live here up the population and therefore also the support and money flow. It's a vicious cycle that ends up turning out okay in the end."

Roni believes that the overall health of the Chesapeake Bay and its communities is going to keep improving. "People are actually going out there and cleaning up; that never happened before," she says. More and more support is coming to these small towns and therefore launching the careers of these local artists, benefiting and enlarging the art culture in the area. All of the small towns are improving because of the improving Bay. "It's a ripple effect," she adds. "We are now giving back to the community instead of just taking, which promotes a healthy environment and culture for everyone. "

Regional Art Culture Highlights

The Ward Museum in Salisbury, now part of Salisbury University, was established in 1975 by the Ward Foundation and contains exhibits of carved waterfowl and other regional art.

The Salisbury Wicomico Art Council is a non-profit organization with the goal of supporting local art culture in Wicomico County by organizing and funding events and art organizations such as these:

Third Friday is "a long-time tradition of downtown Salisbury that includes a lively environment filled with good eats and drinks, live music, local artists' work, and more fun, all during the evening of the third Friday of every month. "

The Salisbury Art Space is a small business located in downtown Salisbury that was established in 1953 with the goal of promoting the art culture in the area. Art Space hosts programs to help aspiring artists get engaged and immersed in Salisbury's art culture.

Better Years Ago

Sportfishing Has Its Ups and Downs

----Evan McCarthy, Mac Peperak, Nathan Voshell



Steve Peperak holding a flathead catfish

Photo: Mac Peperak

It isn't always a walk in the park for Bay fishermen, with many trips coming up empty handed. Recently, local anglers have been encountering dead zones on the Bay—areas with

Better Years Ago (continued)

very low oxygen levels. These oxygen levels are too low to support marine life, causing many animals that find themselves caught in a dead zone to suffocate.

Dead zones, which affect fish, crabs, oysters, and other aquatic animals, are caused by excessive nitrogen and phosphorus pollution in the water caused mostly by human activities such as wastewater treatment plants, runoff, and air pollution. However, dead zones can also be made worse by natural causes such as a large storm that washes fresh pollutants into the water.

The Chesapeake Bay Foundation recounts a summer a few years ago when “oxygen-deprived waters killed 296,000 fish in Mattox Creek, Virginia. Most of the dead fish were vital menhaden, white perch, and croaker; other species included gizzard shad, catfish, American eel, largemouth bass, and blue crabs.”

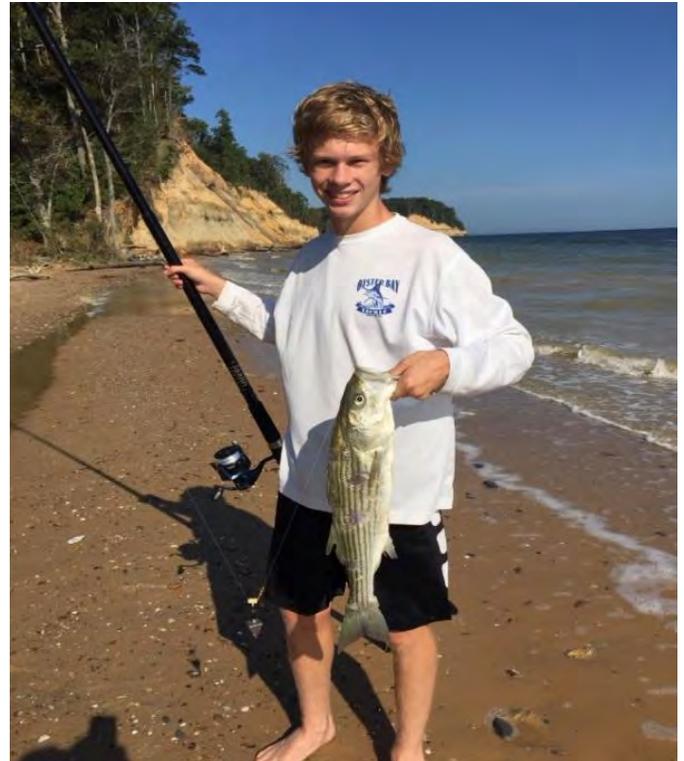
These dead zones are a double-edged sword: while very hard to fix, they are also very hard to notice until you are actively fishing them. For fishermen like Oakley, this could mean hours of casting into lifeless water.

Gerard Oakley, a local angler of thirty years, recalls a news report saying “there was a soil sample done near the Patapsco River and they couldn’t even find worms in it. So it certainly has rebounded since then. Although nobody should be eating any of the fish coming out of the Patapsco, there’s definitely fish there now.”

This was about the same time when there was a moratorium on striped bass fishing in 1984. Heavy pressure on striped bass populations from commercial fishing in prior years had greatly decreased the population. Six years later, the first striper season took place.

The Virginia Institute of Marine Science (VIMS) has discovered a new bacteria species that is spreading among striper populations in

the Bay called mycobacteriosis. Fish with mycobacteriosis have lesions on their organs and red ulcers on their scales. In addition, they experience weight loss. These are all symptoms that Oakley has seen in fish for himself. “The fishing has gotten better overall since when I was a kid, but I’ve been catching more fish that look skinny and unhealthy,” he says.



Gerard Oakley's son Seiler holding a striper



Closeup of fish shows lesions.
Photos: Gerard Oakley Used by permission.

Better Years Ago (continued)

According to the National Oceanic and Atmospheric Administration (NOAA), it is possible the disease can be spread to the anglers who catch fish with mycobacteriosis, but such occurrences are fairly uncommon. It's estimated that up to 70% of stripers in the Bay have mycobacteriosis. White perch, a relative of stripers, are also susceptible to the disease. NOAA believes white perch contract it because they are often share the same habitat as stripers.

"We don't really know why striper fishing been so bad this year, but it's definitely the worst it's been in four years," says Steve Dodson, an 11-year striper angler on the Bay and alltackle.com bait shop employee.



alltackle store

Photo: Evan McCarthy

Dodson has seen and caught many of these sickly fish for himself, too. Dodson and other Bay anglers have given the disease a different name based on the fishes' zombie-like appearance. "We call the disease 'fishsteria' where they have red marks and wounds closer to their tail," Dodson says. "The best thing you can do when you catch those fish is to wear latex gloves and put [them] back in the water as soon as possible."

Oakley has encountered more than just sickly stripers recently. He has discovered an increasingly larger number of blue and flathead catfish. Both fish are native to the

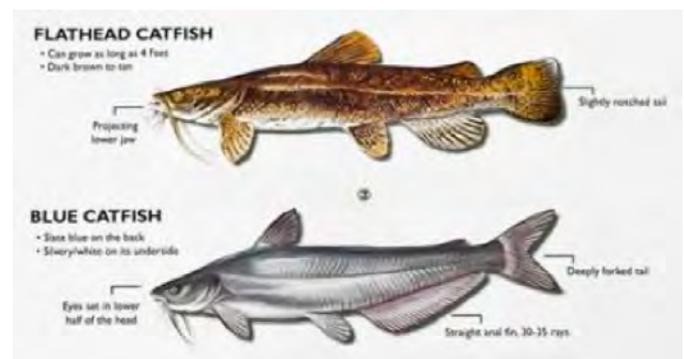
Mississippi, Missouri, and Ohio River basins, but were illegally introduced into the James, Rappahannock, and York Rivers in Virginia during the 1960s-1980s by sport fishermen.

Maryland DNR employee John Mullican explains, "In Maryland, flathead catfish are still only located in a few places on the Chesapeake Bay, the Potomac River, Upper Bay, Elk River, and Sassafras River." They are considered to be an alien or invasive species.

According to NOAA, catfish account for 75% of total fish biomass in the James and Rappahannock Rivers. These fish can exceed 100 pounds and have the same diet as stripers.

Oakley is seeing the damage that invasive catfish are causing. "They're so plentiful and are hurting the crab population," he says. "I've dissected the stomachs of the many catfish I've caught, and it's mostly crabs in their stomach... they're taking a lot of resources away from the native fish."

The Maryland Department of Natural Resources has no regulations on catfish, meaning any size flathead or blue catfish can be kept. A DNR officer at Sandy Point State Park has even told Oakley to keep all of the blue and flathead catfish he caught, due to their effect on the Bay. Despite the DNR's suggestion for anglers to keep all blue and flathead catfish, fishing for them is often catch-and-release. Blue and flathead catfish are



Flathead and blue catfish

Illustration: Maryland DNR

popular with some anglers for the strong fight

Better Years Ago (continued)

they put up. Commercial fishermen also enjoy them for their profitability.

Angler Steve Peperak says, "Unfortunately, the flathead catfish are most likely here to stay; without a drastic change there's nothing we are going to be able to do to get rid of them."

While many anglers release the catfish, keeping *too many* fish has also become an issue. "Going to Jonas Green on the Severn, people have 45 fish in their cooler, and some of these people fish every day," Oakley explains. Many of these fish are undersized stripers, bluefish and other fish native to the Bay. Not only are they undersized, but exceed the limit the DNR allows you to keep.

Oakley thinks this may be happening because people aren't totally aware of the laws and regulations. A few times, Oakley has reported anglers for keeping undersized striped bass at Jonas Green State Park. The DNR gave the poachers fines and mandatory court appearances.

Oakley sees additional behavior from fishermen that can have negative consequences on the Bay's health. "I'm disappointed by how much trash is left in fishing spots, and it seems to be everywhere I go on the Bay," he says.

Most of the trash discarded is old line, fish hooks and bait packaging. Eventually, this trash ends up in the water where fish and birds get tangled in it. Other trash comes from derelict crab pots that get caught on fishing piers. This carelessness unintentionally kills thousands of crabs, not to mention the bycatch of other aquatic life. Oakley believes, "If people had to actually get out and clean areas of the Bay, and see how messy it is, it would make them want to not be messy because they'd see what it's doing to the Bay."

Farming and livestock also have direct effects on the Bay's health according to Oakley. "I think the biggest problems that the Bay faces are the runoffs," he says. The chemicals in

fertilizer and antibiotics from livestock are now found in fish, so that's a big problem for the fisheries." Farmland accounts for 23% of the land in the Chesapeake Bay's watershed. Both manure and fertilizer contain phosphorous and nitrogen that drain into the Bay. This increases algae growth that depletes oxygen levels in the water.

Striped bass are indicators for the health of the Bay, so correlations between oxygen, phosphorous, and sediment levels can be made with the striped bass population. If there are high amounts of oxygen and low amounts of phosphorous, nitrogen and sediments, the water and striper populations are healthy.

Hannah Pimley, a research assistant at an experimental farm in Kent County, Maryland, says, "Well, agricultural runoff and water maintenance is emphasized much more here than in the Midwest. It was almost a culture shock when I moved here. The sandy soils really underline the importance of controlling agricultural runoff. In Indiana and the Midwest, the soil is a clay soil, which holds water extremely well. Here, the ground doesn't hold water, so the run-off can easily continue on into the Bay."

High nutrient pollution can come from a variety of sources. Agricultural runoff is one major way that many of these nutrients enter the Bay's watershed. Every year in order to keep up with demand for crops, applications of Nitrogen, Phosphorous and agricultural lime are used to positively affect yields. The Nitrogen helps keep the corn from turning yellow, the phosphorus is added because in corn and hay crops it is quickly depleted, and the lime is added to increase the pH of the soil, making it more alkaline.

But if these amendments are applied incorrectly, or if the soil of the entire field is not taken into account, runoff can occur. While pH changes and increased fertility in the agricultural fields can be welcomed as a benefit, too much lime or added nutrients

Better Years Ago (continued)



Photo on the left shows a research field that tests new varieties of corn. Photo on the right shows the bare ground level of the same field, where you can see the paths carved by water when the field has gotten too wet. Photos: Nathan Voshell

could be detrimental and quickly swept away into the watershed either by irrigation or by heavy rainfall. Episodes like this are easy ways to quickly add nutrient pollution into the Bay's watershed.

Changes in the Bay's nutrient levels have harmful effects on the fish in many ways. One of the effects of the pH changes in the water, according to the Chesapeake Bay Foundation is that intersex conditions (sex changes) can occur in fish along with immune deficiency issues regarding the fishes' overall health; animals that prey on the fish, such as birds, can also be affected.

Other forms of runoff include those from parking lots and on city rooftops. With so much flat space and no natural grasses to soak

it up, all the harmful waste materials that are left in the cities in the region--including oil, antifreeze and exhaust particles--are quickly swept away into the watershed and then find their ways to kill or hurt fish.

The way to prevent this kind of harmful runoff is to install more natural filter systems. Salisbury University, for example, has two of these systems. The first one is part of the design of the Guerrieri Academic Commons that was built in 2015, where the gardens you see around the building are actually low lying drainage systems, and the roof is also covered with vegetation drainage units much like those on the ground.

The second kind are the rock-based drainage systems around the school's sports fields.

Better Years Ago (continued)

The holes in these systems are about 12 feet deep and filled with rocks that lead to a city drain that allows some of the pollutants that normally find their way into the city's wastewater to be filtered out.



Drainage garden outside Guerrieri Academic Commons
Photo: Nathan Voshell



Softball field drainage system Photo: Nathan Voshell

The responsibility for agricultural runoff lies with the farms that are producing the pollution. "I think there should be incentives to corporations to do the right thing and significant penalties to the corporations that are causing pollution," Oakley believes. Oakley grew up when farms near the Bay were still small scale and family run. Since then, the majority of farms have increased in size in production – producing more manure and chemicals applied to the land.

There are also things going right for the Bay, like the removal of dams in Bay watershed

areas. The Bloede Dam on the Patapsco is undergoing removal, so that fish like shad and herring will have free passage to and from Bay waters, and "there is discussion on removing the Conowingo Dam," Oakley claims.

The Conowingo Dam is a hydroelectric generating station located on the lower Susquehanna River that was reconstructed in the early 90s with the addition of fish ladders. It was originally thought that the Conowingo Dam would trap pollution and sediments, but it is no longer doing so. Now, there is a large sediment buildup behind the dam that is released during major storms and contributes to the sediment pollution in the Bay. According to the 2012 U.S. Geological Survey, the reservoir behind the dam has lost the ability to trap sediments, deeming it ineffective for the long term.

The Schumaker Pond in Salisbury is a dammed portion of the Wicomico River, making it a part of the Bay watershed. Fish impounded in the pond include the American eel, a food source for Bay stripers and other species.



Schumaker Pond Photo: Nathan Voshell

Oakley credits nonprofit organizations like the Chesapeake Bay Foundation (CBF) for keeping people up-to-date on Bay news like dam removal and raising awareness through effective use of social media. He believes more Bay organizations should do the same.

Better Years Ago (continued)

“Social campaigns need to make sure to use the right channels of social media... Facebook and Twitter get the word out,” he says.

The Maryland Saltwater Sportfishing Association (MSSA) is another non-governmental group advocating sustainable striped fishing practices. MSSA was founded in 1981 to ensure that striped populations would bounce back after being nearly depleted. They organized marches in support of the striped harvest ban to allow striped populations to rebound. The organization is a thousand members strong and they all share the mission of preserving the natural resources the Chesapeake Bay has to offer for our future generations.

MSSA has brought attention to the need to regulate menhaden populations in the Bay. Menhaden are a small baitfish that play a crucial role in the Bay's ecosystem. These fish

provide food for predatory birds, stripers and other game fish. Menhaden are also targeted by commercial fisheries for fish oil, fertilizer, bait and food.

Up to 2013, there were no regulations on them, meaning unlimited millions of pounds of menhaden could be caught yearly. Now, the catch limits still allow 400 million pounds of menhaden to be caught every year according to the Atlantic States Marine Fisheries Commission (ASMFC).

With menhaden being at a historic low population, the MSSA, among other Bay advocates, wanted to see a change in the regulations in the decision made by ASMFC on November 14th, 2017. MSSA was successful in getting their voice heard, with 158,000 people coming out to ASMFC hearing on whether or not to create stricter regulations on menhaden harvests. But despite the public support, the ASMFC rejected the draft that would decrease the amount of menhaden harvested each year. Instead, ASMFC decided to raise the limit to 216,000 metric tons (476,198,486 lbs.) for 2018.

“It's disappointing that the Board voted to continue with the status quo rather than adopt new standards to protect this key food fish,” said CBF Senior Regional Ecosystem Scientist, Chris Moore. CBF will continue to push for regulations on menhaden that will benefit the Bay. Moore believes that “the only way to make sure we have a healthy ecosystem is by taking a look at the big picture when managing the menhaden fishery. We will continue to advocate for implementing a strong ecosystem-based approach for the menhaden catch as soon as possible.”

The future of the Bay's health is uncertain to Oakley. He explains, “We have two major cities right on it – D.C. and Baltimore--so it's going to be a difficult thing to keep clean with such a high density population.” Longtime environmental journalist Tom Horton says that scientists who have worked on the Bay for



Menhaden frozen for striped bait

Photo: Evan McCarthy

Better Years Ago (continued)

forty years have “seen some modest upticks in water quality.”

CBF claims that the Bay is an integral part to the human health and wealth of 18 million people. The Chesapeake Bay watershed supplies drinking water for 75% of the watershed’s residents, a number that is close to 13 million people. In addition, NOAA reports that “the commercial seafood industry in Maryland and Virginia combined equals \$3.39 billion in sales; \$890 million in income, and nearly 34,000 jobs to the local economy per year.” As noted by the EPA, it is essential to continue work to restore the Chesapeake Bay, to ensure that “we leave a foundation for a vibrant economy for generations to come.”

Not to mention good fishing.

Changing Seasons Call for Different Lures

According to tackle expert Steve Dodson, "In the summertime, anglers use plugs and lures like bucktails." Bucktails, which are fished on lighter gear with rods around seven feet long, imitate the action of smaller fish like menhaden when they're fished in water between 15 and 25 feet deep.



Bucktails

Photo: Evan McCarthy

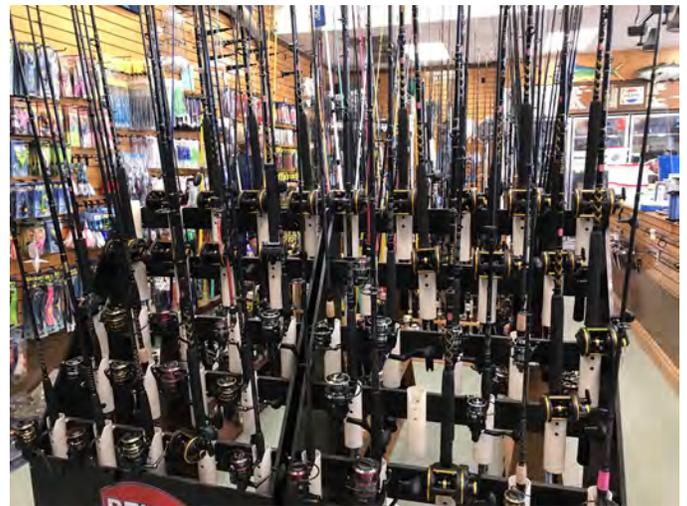
The best rigs to use in the fall when the weather is cooler, according to Dodson, are "umbrella rigs," so named because the fanned-out wires that hold soft plastic swimbaits in white or chartreuse resemble the skeleton of an umbrella.



An umbrella rig

Photo: Evan McCarthy

Umbrella rigs, which in action imitate schooling baitfish, are trolled in 20 to 30 feet of water and can catch stripers "anywhere from 28 to 48 inches long," according to Dodson. They require heavy-duty tackle to handle the weight of gear and fish.



Heavy-duty tackle

Photo: Evan McCarthy

Not Just a Luxury Food

Crabs from Water to Table

---Alaina Plugge, Emma Renteria, Meredith Whitten



T.L. Morris Seafood

Photo: Meredith Whitten

When you hear the words “Chesapeake Bay,” one creature quickly comes to mind: the famous blue crab. This succulent seafood is the pride and pleasure of the Bay. The scientific name for blue crab, *Callinectes sapidus*, speaks to its value as a favored delicacy. *Callinectes* means “beautiful swimmer” and *sapidus* means “tasty or savory.”

Not Just a Luxury Food (continued)

Having an arrogant attitude, the blue crab will take on any opponent, including humans. Watch a crab as it extends its claws up while scuttling sideways across a dock or kitchen floor, daring you to follow.

Important to the energy cycling in the Bay, blue crabs also serve as food for rays, striped bass and bluefish. Commercially, blue crabs from the Chesapeake Bay account for about one third of the nation's harvest.

With the decline of other commercially important aquatic species such as the oyster, the seafood industry in Chesapeake Bay is becoming more dependent on the blue crab. And as the human population in the Bay watershed increases, so does the demand for crabs.

But the commercial harvest of blue crabs has been fluctuating over the last 25 years. Recently, in 2014, the catch was at an all time low. In fact, it was this century's lowest amount with 35.2 million pounds harvested. In 2015, though, there was a 40% increase, and 53.1 million pounds of crabs were collected. This could be a sign of hope for the next few years to come.

Have you ever wondered what labor it took for the blue crab to get from the Bay to your table? This is where crabbers, like 20 year old Noah Ewing, come in to do their job in harvesting bushels of crabs. Ewing is from Easton, Maryland and has been crabbing using his boat, the *Instigator*, for 3 years.



Instigator docked

Photo: Alaina Plugge

Ewing uses a “long trotline with clam bags attached to it” as bait when he crabs. This process seems much more laborious when we think about a day in the life of a crabber.



Noah Ewing crabbing

Photo: Alaina Plugge

It starts with waking up before the sun rises, at about 3am, to head to the dock. The secret to getting a good harvest is location. Ewing's boat is docked in Oxford, Maryland, and he usually stays close to the area, crabbing mostly near Bellevue, which lies on the north bank of the Tred Avon River.

He has baited his lines the day before in preparation for the next time he goes out on the water, filling dozens of bags with clams attached to a 1,200 foot trotline. The line has buoys and chains attached to it to hold down the line after it's thrown into the water.

After laying the line, then comes the most important part, catching the crabs. Ewing will set his trotline in a rig attached to the side of his boat that brings the line to the surface enough to scoop a crab off the bait and put it into a bushel basket.

Not Just a Luxury Food (continued)

Maryland has regulations regarding the time commercial crabbers can work. Ewing says that over the summer they're allowed to crab "between 1 hour before sunrise and 9 hours after sunrise during the months of May through September."

As the days become shorter, during the winter the hours change to between sunrise and 10 hours after sunrise during October, November, and December.

Not only are there rules about when to crab, there are regulations that dictate the size of the crabs you can keep. Hard crabs that are less than 5 inches across the shell from tip to tip of the spike have to be thrown back into the water.



Bushel baskets

Photo: Meredith Whitten

Catching crabs is hard work, but it doesn't end there. Next comes the selling process.

Josh Parker is owner of T.L. Morris Seafood in Trappe, Maryland, where the focus is crabs. Parker explains that he has about 20- 25 watermen who supply him, arriving by boat and vehicle to sell him the crabs they have caught that day.

Although crabbing season officially starts in April, he explains, it doesn't get busy for them until late May right after Memorial Day. "It's always interesting to see the beginning of the season and try to guess what the rest of the

summer will look like in terms of the amount of crabs being caught," he says.

As the watermen approach T.L. Morris in their truck or on their boat, an employee is sent out with a handcart to load up the crabs. It always starts with the baskets that hold female crabs, then "trash" crabs, more commonly known as number three males, then number two males, and then finally the number one male crabs.

The number one males are the crabs that everyone wants: they are big, fat, and expensive. When the crabs are brought into the cooler they are weighed up separately by what type they fall under: "Brandon, go ahead and put the number ones in the middle, number twos and threes, in the back left, and females in the back right," Parker instructs.

Once the crabs are weighed and before they are sorted, the weight is written down next to the watermen's names and on a ticket for them to keep. This is the record Parker keeps for paying the watermen at the end of the week.

This process is quick to keep things moving to the next waterman. Although watermen are not put on a specific time limit unless it is very hot out, they mostly come in all around the same time. Watermen's initials are placed on the top of the baskets for Parker to know which crabs he is going to wholesale to other companies and which ones he wants to keep to sell in his steam room.

Other companies start to catch onto the initials of the watermen they prefer, so Parker will try to keep them happy by sending them the same ones all the time.

Once all the crabs are in place and Parker gets a little extra time on his hands, he puts his jacket and gloves on and goes into the cooler to begin the grading process of the crabs.

Although the watermen also grade their crabs when they're culling them," Parker says, "I grade them myself to double check and make

Not Just a Luxury Food (continued)

sure everything is right."

Number one male crabs get broken down into number one males and large number one males. Of course, the large number one males are bigger than the regular number ones. Regular number one males by law must be at least 5 1/2-inches long from point to point on the shell. Large number one males run six inches and above.

Smaller crabs are also put in their own categories as well. Number two male crabs are small heavy crabs, full of meat. A lot of people do not prefer these because they're smaller; although they are packed with meat some people still prefer the bigger ones.

Another category of male crabs is the number three males. This male crab is a big but not heavy: "I personally refer to them as trash crabs or paper shell crabs," Parker says. Paper shell means that the crab has just recently shed and the shell is very soft; when you squeeze the shell most of the time your fingers can crush right through it.

Lastly, female crabs are not put in any different category based on size. Small, medium, and large female crabs are all thrown into the same pot for people to buy. There's a rumor going around that female crabs are sweeter than the males.

"Once the grading process is over, then comes the fun part: selling," Parker says. In the steam room is where all the magic happens. Once an order is placed for crabs it is the employee's job to go back to the cooler, get the crabs, shock them, and then bring them back in. When crabs are shocked, they are put into a tank hooked up to wires that go to a switch that shocks them: "This makes our job of putting them into the steam pot easier," says Parker. Once the crabs are thrown into the pot they are steamed for about fifteen minutes. The smell created from steaming crabs fills the air, leaving customers on the edge of their seat to get their order home and on the table. After crabs are removed from a pot, they are put into either a

bag or a box and smothered with seasoning.

Parker says, "Many people request us to season them while they're in the pot, but some people are allergic to our JO special seasoning, and we don't want any to get on those people's crabs." Once the crabs are seasoned and boxed up, they're sent on their way to be eaten.

Although crabs are normally a luxury meal for people, Parker says, "we have our weekly customers come in that we have really started to know on a personal level. Knowing that customers enjoy T.L. Morris' customer service and the tastiness of their crabs enough to continue to come weekly is such a rewarding feeling for employees and watermen of T.L. Morris."



Steam pots at work

Photo: Meredith Whitten

At 1 Fish 2 Fish, the relationship between the customers and staff is similar to what you see at T.L. Morris. The seafood restaurant is like an old Mom and Pop shop: "We try to keep everything like a nice, warm, clean environment," says one of its original staff, John Connell.

According to Connell, 1 Fish 2 Fish has been in the Salisbury, MD area for five years and is doing surprisingly well given the high turnover rate of the other seafood establishments in that location before they took

Not Just a Luxury Food (continued)

it over. Although 1 Fish 2 Fish's biggest seller is the blue crab, they do also sell snow crab



1 Fish 2 Fish

Photo: Emma Renteria

legs and crayfish as well as other seafood.

"I have a couple different waterman, crabbers, that go out and get the different types of fish," Cornell says. "But some of the stuff we get through a bigger outfit that I cannot get [locally], like salmon or other types of fish that come more from the West Coast or North Atlantic. Most of our shrimp we get out of the Carolinas or the Gulf. But I always try and get everything as local as possible."

The shop is also aware of the impact of food waste on the environment. "We try and keep the waste down to a bare minimum; a lot of the stuff we try and move in forty-eight hours," says Connell. "If we do not move the fish in forty-eight hours, we try to go ahead and incorporate it in other things (their food menu), doing specials. Especially with the cost of seafood, we don't like to have too much waste," he says.

Since 1 Fish 2 Fish is reliant on the crab

population for most of their sales, the health of the Bay's aquatic environment is important to them. "It is scary that everything is tied into crabs," says Connell. "We are kind of worried how the crabs have been the last few years with the sustainability [of the crab population]. It is kind of like cross your fingers and hope that it does well."

"[Changes in crab catches] come and go; this year there were a lot more females than years past. Some years there are more juvenile crabs than in years past. The upside is scientists are looking into all this stuff. [Though] even ... they are still trying to wrap their heads around what actually causes the population to either expand or retract," Connell says.

Scientific research is aiding in restoration practices, but changes in policy are important to the long-term health of the crab population according to Connell. "There have been dead zones in the past, but these areas are getting better. They have done so much conservation on the Bay that I think it has helped a little bit," he says.



Inside 1 Fish 2 Fish

Photo: Emma Renteria

"The biggest factor is just ourselves harvesting them. It is more so the females--because you are not allowed to get females with eggs in Maryland [like you can] in Virginia. I think

Not Just a Luxury Food (continued)

that makes a difference," Connell says.

"I would rather go ahead and have the higher prices now," he continues. "Take preservative steps now and make it harder for us now, rather than five or ten years from now not

having any crabs and have it all shut down. I think this is the way some of the crabbers have to look at it, too. Crabbers, they do not look long term, they look at the short term. All they are worried about is what they will make today."



John Connell hard at work

Photo: Emma Renteria

Waterfowling Thrives

Tradition and Conservation in the Marshes

---Alex Crupi, Raymond Kimball, Josh Schmidt



Hunter retrieving a duck

Photo: Alex Crupi

Hunting waterfowl in the Bay region has been a tradition since the time of its first explorers.

Presidents as well as kings have been drawn to

Waterfowling Thrives (continued)

the Chesapeake for its richness in waterfowl. According to *Fish & Hunt Maryland*, an article on waterfowling is never complete without mention of the Susquehanna Flats Havre de Grace (Harbor of Grace) in Harford County is known as the "Decoy Capital of the World."

In the mid to later parts of the 1900s you could see goose and duck hunting blinds spotted all across the main stem of the Bay. Now there are only a few, because most waterfowlers there now use boats to hunt sea ducks and scoters.

But Bay tributaries and farm fields are still dotted with huge numbers of blinds and ground pits for ducks and Canada geese.

What most people don't realize is how much hunters contribute to conservation efforts, especially here on the Eastern Shore. There are many hunting and sporting organizations such as Ducks Unlimited that heavily support and contribute to conservation as well as preservation efforts in and around the Chesapeake Bay region. These efforts include the restoration of wetlands and the protection of wildlife essential to the area's ecosystems.

Wetlands weren't always viewed as important functioning ecosystems. In the past they were seen as useless, and many were destroyed for development and agricultural purposes. In the last 200 years, about fifty percent of wetlands have been destroyed.

However, more recently many people have realized that wetlands are vital resources not only for humans, but for migratory birds, such as waterfowl. These species use wetlands for breeding, nesting, raising young, drinking water, shelter, and interactions with other animals. Some waterfowl rely on wetlands so heavily that their survival as a species depends on them.

Important wetland habitats in the Bay region

include Kent Island, Deal Island, Elliot's Island and Assateague Island.

These wetland areas are known by experienced hunters like Nolan Patten to be major hotspots for waterfowl hunting--"I've hunted these places since I was seven years old with my dad and have consistently seen an abundance of ducks and geese," he says--because they are right in the middle of the Atlantic Flyway (AFW), a major corridor for migratory birds spreading from the Caribbean all the way up the east coast to Maine and Canada.



Illustration: US Fish and Wildlife Service

The AFW covers the most populated part of the U.S., so sustaining a healthy environment is a challenge, but vital to the thousands of birds that fly the routes. The Atlantic Flyway Initiative declared that "providing and maintaining quality nesting, migration stopover, and wintering sites in the Southeastern U.S. is extremely important for population health and stability of Atlantic Flyway shorebird populations."

Throughout the year migratory birds inhabit the entire coastline of the Chesapeake Bay,

Waterfowling Thrives (continued)

where they play a part in the infrastructure of the environment. Migrating birds were part of our Chesapeake ecosystem before we humans took over the shoreline and wetlands. These bird species help maintain the yearly pattern of Chesapeake life and establish a balance.

Issues certainly brew between the densely populated U.S. and migrating routes; one of the main problems is habitat loss and degradation.

Beaches, inlets, tidal flats, and salt marshes are most important for bird habitat along the outer coast of Delmarva and mainly the Eastern Shore of Maryland. Unfortunately for the birds this happens to be where the 17 million Americans and counting want to live, because of the area's intrinsic beauty and resources.

Salt marsh and wetlands border the coastline acting as a barrier protecting the land and filtering our anthropogenic toxins. The health of the Bay and its habitat is immensely important to the success of wildlife and the overall migrating waterfowl community.

Chesapeake Bay is the wintering destination of over one million ducks, swans, and geese which "is roughly one third of all waterfowl wintering along the Atlantic coast," according to the U.S. Fish and Wildlife Service.

Whether the birds are wintering, breeding, or spending their lives along the Bay, food sources are crucial to bird populations. Submerged aquatic vegetation (SAV) is the sole food source for most of the Chesapeake's waterfowl, so some of the best bird populations are found where clean water supports lots of bay grasses above and below the surface.

Over 20 different waterfowl species--both ducks and other aquatic birds-- spend the winter here. Dabbling ducks include mallards, teals, pintails, wooducks, wigeons, and American black ducks. These waterfowl

are classified as dabbling ducks because they are found in shallow flood areas and marshes, feed by tipping their heads into the water, and spring into the air instead of pattering on the water's surface.



Green-winged teal and buffleheads Photo: Josh Schmidt

A large variety of diving ducks is also seen disappearing beneath the surface and can be heard pattering their way across the water on a calm day. Most diving ducks like Canvasbacks, Scoters, and Mergansers will be found in large lakes and rivers along the Bay that have sufficient diving depth upwards of 10ft. These ducks dive under the water (hence the name) to feed and escape harm. Their slow process of leaving the water before flight earns them their famous pattering characteristic.

Other waterfowl species including Canada geese "spend a large amount of time on land, as they graze on grasses and other land plants, in addition to eating some aquatic plants," according to Ducks Unlimited.

Since geese mainly feed on grass and land plants as found on a typical Maryland farm, it's no surprise that they have been flocking to our area. Canada goose populations over the years

Waterfowling Thrives (continued)

have risen and have begun to cause concern over population growth. Maryland's DNR is responsible for conducting population counts on the geese and monitoring their effect on Maryland's environment and people.

After geese come in, they can become territorial over nesting areas. Once eggs begin to hatch, the geese "have a strong tendency to return to where they are born and use the same nesting and feeding sites, which makes it hard to eliminate geese once they become settled in a local area," according to the DNR.

All of these species--even the geese--play crucial roles within the Chesapeake's ecosystem, establishing a balance among the wildlife. Preserving this balance is where conservation and proper management policies become valuable.



Wigeon

Photo: Raymond Kimball

One organization that contributes heavily to the conservation of wetlands and waterfowl is Ducks Unlimited. They were started in 1937 during the dustbowl when waterfowl populations dropped dangerously low. A few

sportsmen teamed up to start conserving and protecting wetlands to prevent this from happening again.

Today they are an international non-profit organization with over 60,000 volunteers and about 80 people on the National Staff and Board of Directors and 500 employees across the country. The CEO is Dale Hall, who was also the director of the U.S. Fish and Wildlife Service from 2005 to 2009.

Their mission is to conserve, restore, and manage wetlands and associated habitats for North America's waterfowl. They do this by restoring grassland, replanting forests, restoring watersheds, working with land owners, working with partners, acquiring land, conservation easements, management agreements, and geographic information systems (GIS). In the United States alone they have conserved over 5 million acres, in Mexico about 2 million and in Canada over 6 million. Over 20,000 conservation projects have been completed across North America.

DU's conservation program in Maryland has restored and conserved 4,851 acres of wetlands and adjacent habitat.

One example in Maryland is in the Choptank watershed. This program restores natural hydrology to privately owned land that was formerly used for agriculture. In 2015 DU completed five projects totaling 38 acres.

One of these projects was the 7-acre property owned by Hank Warner in Dorchester County. "I'm a big duck hunter and a big conservationist, and this was a great experience, Warner says. "DU was very accommodating. They know what they're doing and they work with the private landowner to give them an attractive and functional project that will accomplish what is needed."

The Choptank program is also supported by Maryland's Department of Natural Resources

Waterfowling Thrives (continued)

and Atlantic Coastal Bays Trust Fund.

Spencer Schenking is a senior at Salisbury University. He's been hunting on the Eastern Shore for 7 years. His brother showed interest in hunting, which prompted Spencer and his dad to get into it as well. From the time he started hunting to today, he has noticed a substantial increase in geese populations. However, he has also noticed a decline in diver ducks. "Diver ducks love colder weather. Each year it's been getting warmer and taking longer to get cold, so we have been seeing less diversity in the duck species we see."

Conservation efforts are working to increase waterfowl populations, but some variables like

climate change are harder to control. Ducks Unlimited is constantly striving to do better and to achieve its goal of wetlands sufficient to sustain waterfowl populations "today, tomorrow and forever."

On balance, the Chesapeake Bay and its tributaries have proven to be an ideal habitat for migratory birds and waterfowl. Through conservation efforts, wetland habitats are now being protected and preserved.

According to Ducks Unlimited, "wetlands are among the most productive ecosystems of the planet. They are invaluable not only to waterfowl and scores of other wildlife species, but also to the very quality of life on Earth."



Decoys on the Tuckahoe River

Photo: Josh Schmidt

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