

ENVIRONMENTAL SPOTLIGHT:



MARYLAND

America's Largest Estuary Provides Haven for Numerous Rare & Endangered Species

Meet the diverse ecosystems of the Chesapeake Bay, where water meets land, and a multitude of species face the threat of extinction. In this exploration, we'll encounter a variety of aquatic creatures, terrestrial animals, avian species, and plants, each struggling to survive in the face of environmental challenges. Alongside these familiar inhabitants, we'll also delve into the realm of cryptids, exploring the legend of a mythical creature known as "Chessie."



**Chesapeake Bay:
A Cradle of Diversity**

Photo Credit:
Tom Patterson. Public Domain

The Blue Crab



Join us as we unravel the intricacies of Chesapeake Bay's biodiversity and delve into the mysteries of its endangered inhabitants.

Chesapeake Bay is a biome of immense environmental value due to its unique location and nature. It supports varied wildlife, including hundreds of at-risk species just like Chessie. The seagrass beds, oyster reefs, and tidal marshes offer a sanctuary to numerous plants and animals, forming a complex food web that is crucial for environmental health. Let's look at a few of these at-risk species more closely, starting with the sea-loving inhabitants. One of the most famous at-risk species of Chesapeake Bay is the blue crab.

A blue crab with its signature blue colored claws.
Photo Credit: James St. John on Flickr. CC By 2.0 DEED

The Chesapeake Bay watershed includes 1.5 million acres of wetlands.



THE CHESAPEAKE BAY

In Chesapeake Bay, the blue crab reigns supreme, embodying the delicate balance of this unique ecosystem. More than a third of the United States' blue crab catch comes from Chesapeake Bay. With its captivating cerulean hues and formidable claws, the blue crab plays a crucial role as both predator and prey. However, it faces threats from overfishing, habitat destruction, pollution, and climate change, endangering its population. From the mid-1990s to the late 2000s, the blue crab population dramatically decreased. A decrease in underwater grass abundance caused by warming waters, irregular weather patterns, and pollution has been linked to the population decline. Overfishing also puts pressure on the population. There may be some hope. In 2022, crabbers harvested only 19% of the female blue crab population. This was below the target of 28%, and well under the overfishing threshold of 37%. Conservation efforts led by The Chesapeake Bay Program strive to protect the blue crab habitat and promote sustainable practices, offering hope for its future. Another at-risk species living in the waters of the Bay is the Atlantic Salmon.

Water rich natural environment invites thriving biodiversity



Photo Credit: Canva Stock

Atlantic Salmon



A wildlife biologist releases an Atlantic Salmon after taking health data. Photo Credit: John Cameron on Unsplash

In Chesapeake Bay's intricate ecosystem, the absence of the Atlantic salmon looms large, once a vital component now scarce due to centuries of human impact. Historically, these fish undertook epic migrations, heralding seasonal changes and sustaining both wildlife and communities.

ENVIRONMENTAL SPOTLIGHT: WETLANDS BIODIVERSITY



Atlantic salmon showing the kype (hook) in the lower jaw, a characteristic of the male during spawning season. The kype is used to battle with rival mates and is absorbed at the end of spawning season.

However, habitat destruction, overfishing, pollution, and barriers like dams have pushed the Atlantic Salmon to the brink of extinction. This decline mirrors a broader trend along the Atlantic coast. Restoration efforts, including habitat restoration, fish passage initiatives, and stocking programs, aim to revive populations. Despite challenges like habitat degradation and climate change, hope endures.

In addition to crustaceans and fish, there are several land-based amphibians and insects at risk in Chesapeake Bay — amphibians such as the Shenandoah Salamander.

Shenandoah Salamander

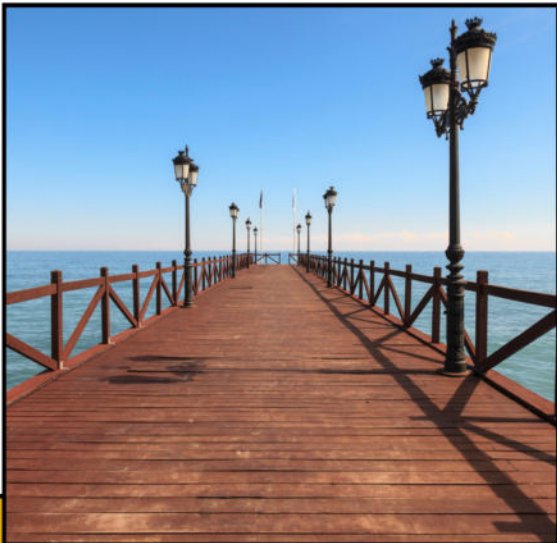


A Shenandoah Salamander seemingly poses for the camera.
Photo Credit: Ann and Rob Simpson/Shenandoah National Park. CC BY 2.0 DEED



While the Shenandoah Salamander primarily inhabits the rugged slopes of Shenandoah National Park, its existence is intricately linked to the broader Chesapeake Bay region. The health of the bay's watershed, encompassing diverse habitats from mountain streams to estuarine wetlands, directly influences the survival of species like the Shenandoah Salamander. As a sentinel of ecosystem health, the salamander serves as an indicator of environmental conditions, reflecting the impacts of human activities such as habitat fragmentation and climate change. Furthermore, the protection of the Shenandoah Salamander and its mountainous habitat contributes to the overall biodiversity and ecological resilience of the Chesapeake Bay watershed. By recognizing and conserving the interconnectedness of species and habitats across the region, we can ensure the preservation of not only the Shenandoah Salamander but also the entire ecosystem that sustains life within Chesapeake Bay and its surrounding landscapes.

Along with amphibians, there are several insect varieties that are at risk in this area such as the Puritan Tiger Beetle.



Puritan Tiger Beetle



The Puritan tiger beetle has been on the federal endangered species list since 1973. Photo Credit: Susan Wojtowicz / U.S. Fish and Wildlife Service. CC BY 2.0 DEED

The Puritan Tiger Beetle, a rare insect species, holds a unique presence in two distinct regions: the Connecticut River Valley in New England and along the shores of Chesapeake Bay in Maryland. These beetles thrive in habitats characterized by naturally eroding cliffs and sandy beaches, where vegetation is sparse. Playing a pivotal role in the local food web, they prey on insects and crustaceans while also serving as prey for other insects and birds.

Since 1973, the Puritan Tiger Beetle has been listed as federally endangered, primarily due to habitat loss.

By 2010, their numbers had dwindled to just around 5,000 individuals, with the majority, approximately 4,500, found in Maryland. The precarious balance of their existence is threatened by various factors, including shoreline development and bank stabilization efforts aimed at protecting human infrastructure. While eroding cliffs pose risks to coastal properties, certain engineered structures, like segmented offshore breakwaters, offer a potential solution to prevent erosion while preserving vital habitat for the Puritan Tiger Beetle. By addressing these challenges with innovative conservation strategies, we can strive to safeguard the future of this remarkable species within the Chesapeake Bay region.

ENVIRONMENTAL SPOTLIGHT: WETLANDS BIODIVERSITY

The Saltmarsh Sparrow

As we've discovered so far, there are at-risk species in the water and on land. We also find airborne species of animals that are at-risk such as the Saltmarsh Sparrow.

The Saltmarsh Sparrow, with its melodious chirps echoing through Chesapeake Bay's saltmarsh habitats, faces numerous threats endangering its survival. Relying on these vital habitats for nesting and foraging, the bird confronts challenges from sea-level rise, coastal development, and invasive species. Between the years 1990 and 2010, this species saw a 75% decrease in population.

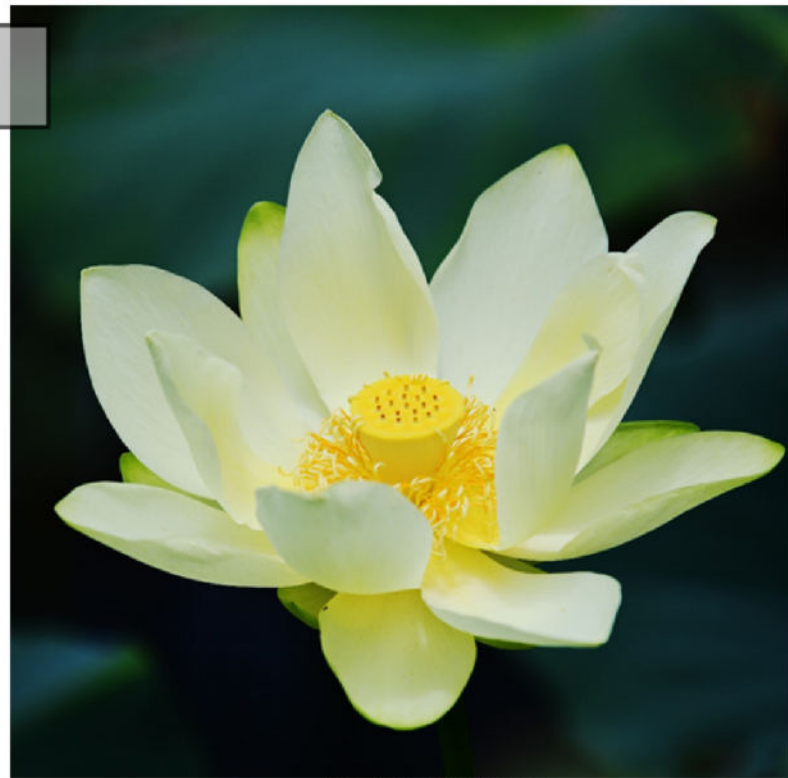
Animals aren't the only inhabitants of Chesapeake Bay that are at risk. There are also several cases of plant species which find themselves at-risk due to various factors. The American Lotus is a great example.



A Saltmarsh Sparrow with its characteristic yellow, black, and white coloring
Photo Credit: Peter Paton. U.S. Fish and Wildlife Service. Public Domain

American Lotus

Within the tranquil waters and sun-drenched shores of Chesapeake Bay, the American Lotus is a botanical gem that graces the landscape. With its striking yellow flowers and large, round leaves, this native aquatic plant species adds a splash of vibrant color to the bay's marshes and freshwater ponds. As a keystone species in the bay's wetland ecosystems, the American Lotus plays a vital role in providing habitat and food for a diverse array of wildlife. Its floating leaves offer shelter and nesting sites for waterfowl and other aquatic birds, while its submerged roots provide refuge for fish and amphibians. However, the American Lotus faces threats from habitat loss, water pollution, and invasive species such as water chestnut. The aggressive growth of water chestnut can lead to the displacement and decline of the American lotus, disrupting the balance of aquatic ecosystems within Chesapeake Bay.



American lotus flower
Photo Credit: Steve Fung. CC BY-SA 2.0 DEED



CHESSIE



So far, we've seen several examples of at-risk species in Chesapeake Bay spanning the brackish waters, on land and in the air. Species include both animals and plants. But there is also another category of species at-risk in the Chesapeake Bay—a species of the cryptid variety. A cryptid is a creature whose existence has been suggested, or claimed by eyewitnesses, but is not recognized by mainstream science. The cryptid at-risk in Chesapeake Bay is “Chessie the Sea Monster” of course!



Artistic rendering of what Chessie the Sea Monster may look like. Photo Credit: Image created by DALL-E, an artificial intelligence developed by OpenAI

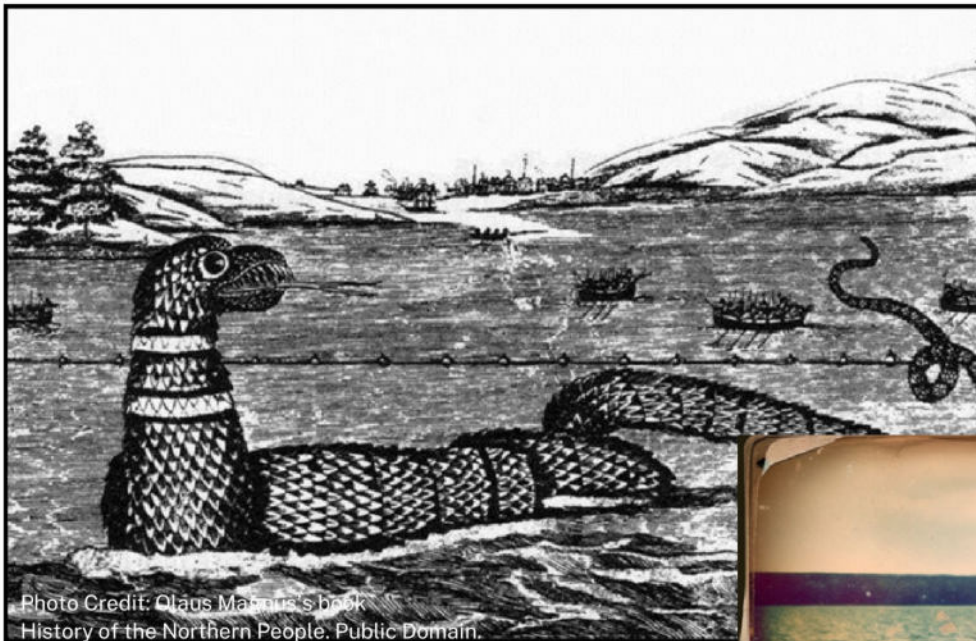


Photo Credit: Claus Malmros's book History of the Northern People. Public Domain.

Chessie, reputedly a great water reptile possibly up to 20 meters long living in the depths of Chesapeake Bay, has been part of local folklore since the first reported sighting in 1936. Described as snake-like, with a head reminiscent of a football and movements that suggest an aquatic serpent, Chessie has been spotted intermittently by locals and visitors alike.

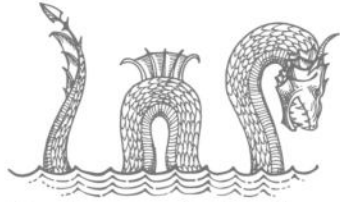
The most famous documentation of Chessie came in 1982 when Robert and Karen Frew captured footage of what they claimed was the bay monster near Kent Island.



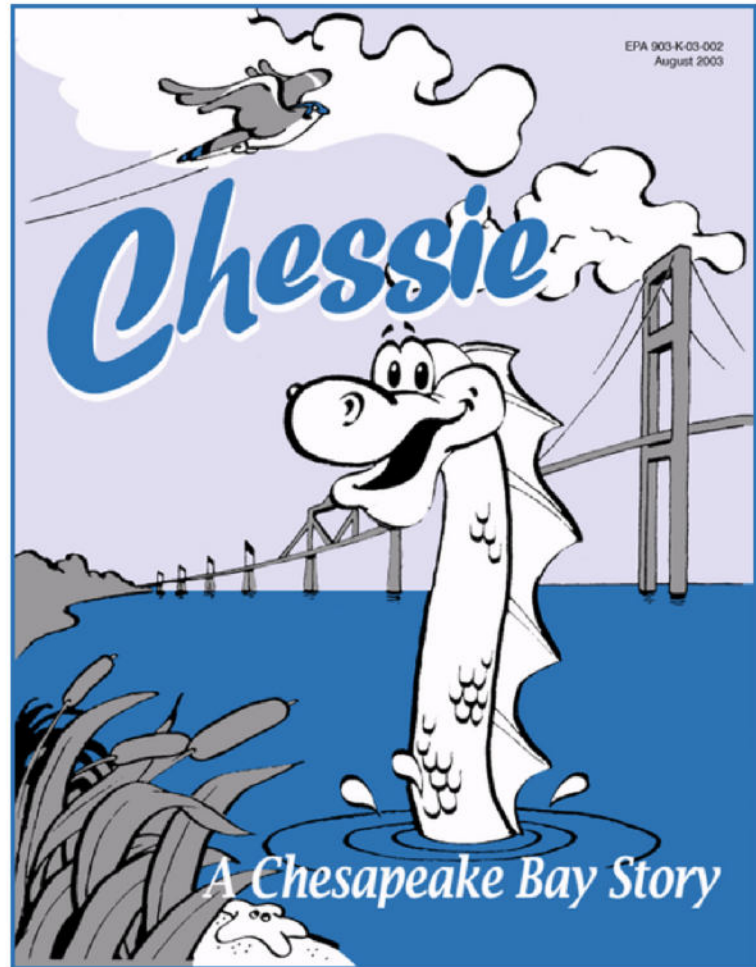
Artistic recreation of footage captured by Robert and Karen Frew. Photo Credit: Image created by DALL-E, an artificial intelligence developed by OpenAI

Biodiverse Wetlands

Originally dismissed by many, Chessie has grown into more than just a cryptid tale; it has become a symbol of the Bay's ecological challenges and a reminder of what could exist beneath the surface, unbeknownst to us. The U.S. Fish and Wildlife Service even adopted Chessie as an icon for environmental protection during the 1980s, demonstrating the creature's transition from mythical beast to environmental beacon.



Chessie and his fellow water reptiles have undoubtedly been impacted by human development and climate change. What makes the story of Chessie and Chesapeake Bay truly fascinating is not just the debate over the existence of a mysterious sea creature but also what this legend symbolizes for conservation efforts. It underscores the need for an open-minded approach to the unknown aspects of environmental science and the exploration of biodiversity. Chessie, real or not, encourages a protective attitude towards the mysteries of the natural world and the unseen species that may quietly dwell within.



The biodiversity of Wetlands.
Photo Credit: Canva Pro Stock



In summary, our exploration of several emblematic species within the Chesapeake Bay ecosystem reveals the intricate tapestry of life and the challenges faced by each. The Blue Crab, symbolizing resilience and vitality, grapples with threats from overfishing, habitat destruction, and climate change. The Atlantic Salmon, once abundant, now teeters on the brink of extinction due to habitat loss and overfishing. The Shenandoah Salamander, confined to dwindling habitats, underscores the fragility of mountain ecosystems. The Puritan Tiger Beetle, endemic to unique coastal habitats, faces habitat loss and shoreline development. The Saltmarsh Sparrow, emblematic of coastal resilience, battles rising sea levels and habitat degradation. The American Lotus, cherished for its beauty and ecological significance, confronts threats from invasive species like water chestnut. Lastly, the legend of Chessie the Sea Monster embodies the mysteries and wonders of Chesapeake Bay, prompting us to explore the unknown depths of our environment with curiosity and reverence. As we strive to protect and conserve these species, we affirm our commitment to preserving the biodiversity and ecological integrity of Chesapeake Bay for future generations.



Great Blue Heron.
Photo Credit: Canva Pro Stock



Article Authors:
Williams, Barrett (Texas)
Coman, Kenneth: (Maryland born and raised)

Great Blue Heron.
Photo Credit: Canva Pro Stock