



After the Fact | [Ocean, People, Planet: A Wildlife Refuge Takes on Climate Change](#)

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TRANSCRIPT

[Opens with church hymns, clapping and signing]

Dan LeDuc, host: Along the Harriet Tubman Underground Railroad Byway on the Maryland shores of the Chesapeake Bay sits the New Revived United Methodist Church—one of four traditionally Black churches in the area founded after the Civil War. The area is rich in American history and biodiversity, and rising waters are putting it all at risk.

Marcia Pradines Long, project leader at Chesapeake Marshlands National Wildlife Refuge Complex: Too bad you weren't here, last week we had a ton more waterfowl, swans, couple thousand geese, snow geese too. I think they took off, I'm not sure.

Cambridge, Maryland resident: We saw a group of snow geese still down there.

Marcia Pradines Long: Still a few?

Dan LeDuc: I'm Dan LeDuc for The Pew Charitable Trusts. Welcome to "After the Fact" and our season on "Ocean, People, Planet." And that was Marcia Pradines Long greeting residents in Cambridge, Maryland.

She manages the nearby Blackwater National Wildlife Refuge. And she is working to ensure a sustainable future for this unique place that's home to the iconic bald eagle as well as thousands of migratory birds each year. Her job goes well beyond the wildlife. The surrounding community depends on the jobs and tourism revenue from the Chesapeake Bay and people are a big part of her work—which is made all the harder by climate change.

Marcia Pradines Long: There is no time to waste. We have a limited little window to be able to save our marshes. And it's certainly an issue that we cannot tackle alone. We need all of our partners. And we need the public. We need the public to care. And that's where I think refuges can be so important when it comes to sea level rise and climate change because not everybody lives this. Not everybody sees it. Not everybody cares about wildlife like some of us do.



Dan LeDuc: That brings us to our data point for this episode: 2.1 feet. In a report on climate change for Maryland officials, scientists estimate that coastal waters will rise as much as 2.1 feet in a little more than two decades from now. That means if you're patient and stand at the water's edge, it'll rise up past your knees by 2050. It's happening now. Blackwater has seen thousands of acres of its land submerged in recent decades.

Like many communities, a changing climate is affecting the local economy and wildlife, this region's future—and its past.

We traveled to Blackwater National Wildlife Refuge and spoke with Joseph Gordon, who directs Pew's work on conserving marine life in the United States. His team's research is helping us understand how the health of the ocean affects coastal areas, like the Chesapeake Bay.

[Bird chirping, sounds of outdoor nature]

Dan LeDuc: It's just so quiet.

Joseph Gordon, project director of East Coast conserving marine life in the United States, The Pew Charitable Trusts: Well, it's quiet, but if you take time, if you listen closely—this is one of the amazing parts about this place—you'll hear the spring peepers, which are the little frogs, starting to croak, and the insects and the birds. It's a different kind of a chorus. Rachel Carson did her research near here.

Dan LeDuc: Is that right? I did not know that.

Joseph Gordon: Yeah, at Patuxent. And, you know, she wrote about "silent spring." If you look to the right, not right now, but earlier there were bald eagles and even juvenile bald eagles. And they're recovering—and so you don't have a "silent spring," we actually have spring coming to life. So, it's an inspiring story that you can experience if you come to a place like Blackwater.

Dan LeDuc: It is true. As soon as you just still yourself, you realize how much sound there actually is happening here.

Joseph Gordon: Yeah.

Dan LeDuc: We're right on the edge of the Chesapeake Bay. How does that tie into the broader issues facing the ocean?

Joseph Gordon: So, the Chesapeake Bay, it is like a beating heart connecting life throughout the ocean and across continents.

The osprey that you might see catching a fish, diving down, and it's usually in Atlantic menhaden, which is a fish that feeds on plankton and then goes along the Atlantic coast, and feeds every



predator you can imagine, including whales. And the osprey themselves, after feeding on these menhaden, many of them will travel South, to the Caribbean or even to South America, before coming home. So, these epic journeys—we're at the crossroads of some of the Earth's most amazing migrations—all begin or depend on the Chesapeake Bay.

Dan LeDuc: If you were bringing someone here for the first time, what would you want to show off to them?

Joseph Gordon: I think the salt marsh hides its treasures. So, if you sit closely and wait, you might see a great blue heron come by to fish or an osprey swoop down. But also, it hides some of its challenges. So, you might see some trees that look a little thin off to the left, but they actually are ghost forests. These are trees—yeah, you can see them on the left there, those pines and hardwoods—that are becoming submerged under saltwater, and they can't survive. And that's actually true as well for some of the salt marsh and other habitats. And so, you're seeing, in fast motion compared to the rest of the country, the effects of climate change. And so, the areas there are areas that will change. The question is, how can land be conserved upland so that we can have this kind of a habitat even as it shifts inland?

Dan LeDuc: I'm looking at those trees, and I'm glad you told me that some of those are evergreens because I couldn't have told otherwise. They're so sparse now because of what's happening to them. They're just spindles.

Are we right in the marsh here that you were describing earlier?

Joseph Gordon: Some of this is marsh, more what you can see in the distance. And there are different animals in here. So, for example, what you may not see here because they're very, very depleted, is, for example, the salt marsh sparrow, which is this amazing bird. It's only adapted for a salt marsh habitat. And so, it does migrate south. But when it comes here, it depends on a very short season to lay its eggs and rear its young. And that is between the two high tides that happen every month. And if those tides change, then it'll flood. And so, in a way, the salt marsh sparrow is like us. It depends on us to be able to thrive and to preserve a habitat that it can survive in.

[Sounds of geese]

Dan LeDuc: From bird watching to hunting to hiking, more than 200,000 people visit the Blackwater National Wildlife Refuge each year to enjoy the recreation and respite it provides. We came here to ask Marcia Pradines Long about other lessons this place offers.

Dan LeDuc: We are at Blackwater National Wildlife Refuge. This is your baby.

Marcia Pradines Long: Many of our babies. I've got a great team here.



Dan LeDuc: And the reason, of course, we came is we want to learn more about the impact of climate change and the encroachment on some of the lands here. How has it changed in those however many decades?

Marcia Pradines Long: Well, we have seen a lot of change. We have a lot of folks come here to learn about sea level rise and to witness it. This is something that we have a number of universities doing extensive research on.

If you go out on the wildlife drive, you will see all this is what they call Blackwater Lake. That used to all be marsh. And through the process of sea level rise it has turned into open water. We have lost 5,000 acres since the '70s of marsh to open water. And at the same time, that marsh has begun to migrate into upland areas as well. So, you'll see dying trees along the edge of the marsh. That's what people call "ghost forests." And then you'll actually see dying trees within the forest, and you'll see marsh grasses moving up into those areas.

And that is all a direct consequence of sea level rise. And it's been happening for many, many decades. But it's very apparent here because we are at ground zero for sea level rise. We're very flat. We don't have much elevation. We don't have a lot of development. So, you can see all these natural processes at work right here.

Dan LeDuc: And that's why we're here because it is such a vivid example of what's occurring sort of almost before our eyes but not realizing it maybe elsewhere. But here, you can truly see it. What kind of challenges does that present, then, for someone in your position to how to manage a refuge? It's not like you can make it like it used to be.

Marcia Pradines Long: So once upon a time, biologists and ecologists used to try and work towards these precolonial conditions of the environment, so what used to be here before settlers came. It was marsh. And now you look at it and say, "is this practical to actually restore this open water into marsh? Or is it practical to keep this marsh where it is, or is it going to migrate?"

So, we've had to have a pretty significant change in the way we think about restoration, and conservation as well, because there are areas that we may say, "we need to let that revert. We cannot restore it back to what it was before." And we might have other areas that we'll say, "well, OK, this used to be upland forest." We see the changes that are going on. It makes sense to allow it—we can't stop it, some of the natural processes, to actually allow it to become marsh.

But the marsh that's coming in now is not the same marsh as yesteryear. It's full of phragmites. Phragmites is a very tall grass from Europe. It does not have nearly as much wildlife value as all of our other native marsh grasses did before. So we have to think, well, how do we manage that? And that's not easy.



Dan LeDuc: Part of that changed thinking is partnership—and as Joseph Gordon points out—it takes a number of stakeholders working together to combat the impact of climate change.

Joseph Gordon: People will talk about that there's no silver bullet, but there is here, and it's partnership. And so you have communities of foresters, agricultural communities, Native American tribes. And people working to preserve Harriet Tubman's history and that Underground Railroad. People working in the military to protect the country. It's people working together, everyone in the community and outside of it, to create a world we want to live in.

[Sounds of car door opening and closing]

Dan LeDuc: We hopped in the car with Joseph and drove along Wildlife Drive, which circles the refuge, to see more evidence of the changes happening at Blackwater.

Joseph Gordon: If you look to the right all along this road and left you will see ditches that were dug. In some cases, they were dug so roads don't flood and, in some cases, to eliminate mosquitoes.

Dan LeDuc: Managing this park is not the usual routine. You actually can't take it back to what it was.

Joseph Gordon: That's right. It can't be something from the past. It has to be something we actively decide it to be in the future.

Dan LeDuc: We're fortunate that we are in a refuge, but you were making the point that most of the East Coast is going to be privately held land, so what are the challenges with that?

Joseph Gordon: The story of Blackwater Refuge is much bigger than the refuge itself. It's the partnerships they've built with the community. Most of the U.S. coast is privately owned. With sea level rise happening, we can't solve that problem with new parks and refuges, that's not going to happen. What really needs to happen is people coming together to help, with the parks, with the refuges, with state parks, with private lands, everyone coming together, to develop a plan for the future so we can create the kind of coastal habitat that we need and the wildlife that depends on it.

Kristin Thomasgard, program director for the Department of Defense's Readiness and Environmental Protection Integration Program: We're affected on DOD installations by more frequent flooding as a result of climate change, storm surge, and other climate and environmental challenges across the entire landscape.

Dan LeDuc: One of the biggest partners in protecting the Chesapeake Bay and Blackwater may not be one you'd expect. It's the U.S. Navy, and that was Kristin Thomasgard, program director



for the Department of Defense's Readiness and Environmental Protection Integration Program. She explains how mitigating climate change in areas like the Chesapeake Bay is critical to the economy, and national security.

Dan LeDuc: Kristin, let's start by just talking about the history of the relationship between the Blackwater National Wildlife Refuge and the military. It's been going on for a long time.

Kristin Thomasgard: It has been. The Blackwater National Wildlife Refuge is in a really key location beneath some critical airspace for the Department of Defense and for the Navy in particular, where they train pilots and train on a lot of important aircraft. Part of that process involves needing to maintain a very safe, quiet, and dark space beneath that training area. Part of what is so important to the Department of Defense is our stewardship of important natural resources and important waterways.

And I think the relationship that exists with Blackwater National Wildlife Refuge and the partnership in that entire landscape is really an incredible example of how a very diverse set of partners that you would not expect to come together, have come together for a common cause, which is to preserve that space, to increase the connectivity of that landscape for both the purpose of preserving that resource, protecting the water, and maintaining that military mission. By bringing those diverse perspectives together, you can grow the partnerships, you can grow the sources of funding and the types of programs that are available to protect that important resource.

Dan LeDuc: Blackwater is also maybe not the first place that comes to mind when you're talking about climate change, changes in the ocean. But, of course, it's all part of this large ecosystem. The changes that are happening at Blackwater, the water encroachment, and other things, what impact does that have on the mission side of your concerns?

Kristin Thomasgard: So, we really can think of our military installations and military facilities as being part of the community in which they're located. Flooding, storm surge, and other climate and environmental challenges, we've looked at those issues as a risk management challenge that we have to face and assess. Particularly at a facility like Patuxent River Naval Air Station, where we have very expensive equipment, very sensitive systems that we're testing, any kind of weather impact there is significant. And having access to the facilities, having access to our runways, having access to the roadways, again, it's the same types of challenges that any community would face in terms of getting people from place A to place B, moving our equipment from place A to place B, and ensuring that we're not negatively impacting our ability to do the work that needs to be done there.



Most of the folks who work at our facilities live in the community. When the roadways are affected, people can't get to work. People's homes are flooded. That impacts the department's ability to accomplish our mission, because our mission is accomplished by our people, and those people are affected in the same way as anyone else in the community.

Dan LeDuc: Marcia Pradines Long is increasingly seeing those effects—flooding and closed roads and the very land itself disappearing.

Dan LeDuc: So, in the last few decades, you've lost 5,000 acres to what is now covered with brackish water, right?

Marcia Pradines Long: Yes.

Dan LeDuc: What is the practical effect of that loss of land to the species who live in Blackwater?

Marcia Pradines Long: Well, certainly we lose diversity. We lose the species that used to be there. Black rails are one that have had a 90% decline in just the past decade or so.

You lose what is really the heart of the marsh, all these different types of plants and birds and wildlife that really make this area special.

And just last year, we had our first shot-mentored hunt. It's a mentored hunt program for adults who've never hunted before, and they want to learn, but they don't have anybody. They didn't grow up with that tradition.

And wouldn't you know it, we had this very bad storm. You try and drive down most of the roads in the southern part of the county and it looked like a river.

And that was from increased storms and increased winds and everything that happens because of climate change. Most of this winter we spent a lot of time cutting down trees that had already fallen from all the high winds we had, from the storms that we had. And our maintenance staff and our fire crew were out there just trying to clear the roads. Those are things that we see at any point throughout the year.

Dan LeDuc: Is there anything special to be done with an existing marsh to maintain it?

Marcia Pradines Long: Yes! What we do when we're addressing climate change here at the refuge is we have a strategy called Blackwater 2100 that we developed in conjunction with the Conservation Fund and Audubon Maryland-D.C. And it looks at a number of strategies.

One of them is phragmites control and invasive control such as nutria. Another one is strategic acquisition. Where are the marshes going to migrate to? And where are the forests going to persist? We should acquire that if we can. But it also has to do with pinpointing those high-



quality marshes that are worth trying to save and restore before they're gone. So, it's really this three-pronged approach that's important. Because if you wait till the marsh is gone, it's too late.

Dan LeDuc: As Marcia looks to the future, historian and author Kate Larson looks to the past. The legacy of the Underground Railroad and the stories of families who lived near the Chesapeake Bay are intertwined with the landscape. The area is rich in Black history with places like New Revival United Methodist Church, founded in 1876 for communities to freely worship. Near the shores of the Blackwater River also sits the birthplace of Harriet Tubman and this year marks her 200th birthday. Kate Larson tells us more.

Dan LeDuc: I wanted to go back and ask you about that very first time you visited Blackwater. As a historian visiting a place like that, how important is it for you to be able to immerse yourself in a landscape?

Kate Clifford Larson, historian and author of *Harriet Tubman, Bound for the Promised Land*: First of all, it's beautiful. The marsh and the wildlife, it's spectacular. And there's a lot of water. It's very low land. It would have been very difficult to describe her life without being there, and seeing those fields, and the forests, the marshes, the rivers, and the streams, that sky, that beautiful sky. It's so pristine it was very easy to see Harriet Tubman and her family on that landscape. Tubman did not leave letters or diaries behind for us to hear from her voice what it was like to grow up on that landscape, to work there, to live there, to escape from there. So as a biographer, I had to piece together her life.

Dan LeDuc: You went there for the first time about how long ago?

Kate Clifford Larson: It was in 1999, so that was 23 years ago I went there for the first time.

Dan LeDuc: And over your visits you've seen that place change. Tell us about those changes.

Kate Clifford Larson: Oh, it has changed. The land when you walk on it is very mushy now. It's spongy. Whereas it wasn't that way before. There's a lot more water on the roads, high tides. There's more water that seeps into the travel lanes. And some of the back roads, actually, some of them become inaccessible at certain times of the year, certainly during the full moon. When there's heavy rains, it's much more difficult to get around.

Dan LeDuc: Are things physical sites, artifacts, anything physical from that time still left that might be affected by the rising waters?

Kate Clifford Larson: The plantation that Tubman was born on and where her father lived and worked, there were at least 40 enslaved people at a time there. The state of Maryland has been doing some archaeological work at a site that they're calling Ben Ross's Cabin Site. It would have been where Harriet Tubman's father lived. There are other sites nearby. And I fear that they're



going to be lost before we can find them and preserve them. There's the story of slavery. And many of us know what that horrific story is. But there's another side of it. There's that community. And they raised this brilliant woman. And it's really, really important for us to find those sites. I'd like to be able to at least virtually populate that landscape, so we could tell the stories of the people. Those enslaved people, and the freed people that they were married to, related to, they're the people that raised Harriet Tubman along with her parents. They educated her. They taught her how to survive on that landscape, how to survive slavery. That was her classroom. And I would like to see it preserved, so that we can tell those stories.

Julie Schablitsky, chief archaeologist at the Maryland Department of Transportation:

Archaeology is definitely being threatened all over the world because of sea level rise.

Dan LeDuc: That's Julie Schablitsky, chief archaeologist for the Maryland Department of Transportation. With her team, she's working hard to unearth American history before rising sea levels wash it away forever.

Julie Schablitsky: In the case of Ben Ross, what we notice is that we would excavate a 5-foot-by-5-foot excavation unit and dig down about not even a foot.

And we'd leave and come back the next morning, and our units were full of water. So, what that's telling me is that within the next decade, I don't know if Ben Ross's site is even going to be around anymore. It could be completely submerged.

We're really in a race against time because it's eating away shorelines that, where people lived thousands of years ago. So, a lot of these sorts of sites are really just being washed out into the bays, into the rivers and the oceans.

Dan LeDuc: In your work previous to this location, have you run into saltwater intrusion and the effects of climate change before?

Julie Schablitsky: All along the Chesapeake Bay, the cemeteries are being impacted by the sea level rise. And you'll see actual coffins coming out into the bay.

I've also seen Native people—there are sites that are 1,000, 2,000 years old—seeing oyster middens, which are basically areas of shell that have been eroding out from the water. Even when we were looking for the Lost Colony of Roanoke, you could see how the edge of where they lived was being eaten away by the wave action. So, all these sorts of things have always been a problem for archaeologists, but it seems to be escalating at an alarming rate.

Dan LeDuc: Tell me how you first heard about this site. Did you know what you were looking for when you came here?



Julie Schablitsky: Well, everybody knows the name of Harriet Tubman.

Dan LeDuc: Oh, you bet.

Julie Schablitsky: So that's a very, of course, exciting name to think about when you're asked to go find an archaeological site associated with such a "shero." And when I was first called up, it was by the U.S. Fish and Wildlife Service, Marcia Pradines. And she said, "you know, we just acquired this property. And we think we know where Ben Ross's home is."

Dan DeDuc: How do you even begin something like this?

Julie Schablitsky: The first step that we do as archaeologists is that we look at historic documents, historic maps. And we lay those out in front of us and try to determine where a dig area should be based on, for example, in this case, Ben Ross. Is there anything that talks about this person?

And it's hard to find historical documents that talk about enslaved people. But Anthony Thompson, who enslaved Ben Ross, did have a will. And it mentioned Ben in his 1836 will. And what it said is that he gave Ben 10 acres of land. And through looking at other deeds and historical documents, we were able to find an area within Anthony Thompson's 1,000 acres where Ben could possibly have lived.

So that's where the archaeology begins. We know that people live along roads, that they need water. And so, we thought that the best way to begin this search was by walking along this old historic road and digging shovel test pits.

Shovel test pits are simply foot-and-a-half diameter holes where archaeologists take the soil out of the hole. They screen it and look for the presence or absence of artifacts.

We began doing that, digging shovel test after shovel test after shovel test. And I thought it'd be pretty easy to find where people lived all over the place. There have been people living here for thousands of years. But interestingly enough, after the 700th hole, I—

Dan LeDuc: 700th?

Julie Schablitsky: I became a little frustrated. I said, "where is this place?" All we need to find are some broken dishes and old glass—some nails that suggested there was a building here. But I was finding nothing.

My metal detector has always been with me because it's a quick way to find an historic site. All I need to do is have some metal—rusty nails, buttons. So I took it out, and within the first couple of minutes, I got a hit. I thought, this is great. Maybe there's something interesting here. But then I remembered this place has been hunted on for generations, it's probably just an old



shotgun shell. But you know you still dig. So, I got out my trowel and began to dig the hole up. And I reached in the hole, and I pulled out this metal object. And I looked at it and it was round.

And I was shocked. It was a coin. Well, it couldn't be that old. I rubbed off the dirt, and the year was 1808. I just couldn't believe it, that I found this just after the first couple of minutes of looking.

And the reason 1808 to me was almost this omen that we needed to keep on searching and digging is because that is the year that Ben Ross and Rit Greene, Harriet Tubman's parents, were married and began their family. Within a couple of days, we found the site.

Dan LeDuc: What was that feeling like?

Julie Schablitsky: The feeling was amazing because we knew how big of a find this would be, not just for an archaeological crew, but for the descendent community, for the people of Maryland, for anybody who has looked at Harriet Tubman and her family as inspirational. So, this was a big moment.

Dan LeDuc: Have you ever worked on anything that you—I sense this real excitement about what you're doing, not just—you clearly have it about your work, but about this site, there's something special. You can tell.

Julie Schablitsky: The special thing about this site is that there are living descendants who remind me of why I do this, that it's not just about the old things we find in the ground. It's not just about the people that even lived before. It's about the people living today and what that past and those stories mean to them and what they're going to even tell their grandchildren. I think about how these stories are going to keep on being passed down from generation to generation. And I'm hoping that archaeology can have a small part in that.

Dan LeDuc: As the various partners around the Blackwater Refuge continue to maintain the changing habitat, Marcia says she is eager to share what they have learned.

Marcia Pradines Long: As the rates of change are happening faster and faster, and we're seeing how things respond. One of the things that's very important to us is to share what's working, and just as importantly, what's not working.

And to be able to continue to see tens of thousands of waterfowl, 20, 30, 40, 50, 100 years from now, continue seeing eagles still on the landscape, that's what this is all about. So, I have to look at the big picture. Not just the sea level rise that's at our feet right now, but what is the future and what do we want to see?



Dan LeDuc: For photos of wildlife and our interviews at Blackwater National Wildlife Refuge as well as more resources on what you've heard about this episode, please visit pewtrusts.org/oceanpeopleplanet.

Thanks for tuning in to our "Ocean, People, Planet" season. We'll be back soon with more episodes focused on how researchers and people living along the world's coasts are working on innovative solutions to address the challenges facing our ocean.

Until then, I'm Dan LeDuc for The Pew Charitable Trusts, and this is "After the Fact."