Editor’s Note

Dear Wetlanders,

Its conference season and most of my colleagues, like myself, are busy traveling from one conference to the next, sharing our respective organization’s current research and project findings, and making important connections to expand our reach and build partnerships.

Last week I attended the National Mitigation and Ecosystem Banking Conference in Minneapolis, Minnesota. It was a productive meeting, full of opportunities for folks in the mitigation banking industry, state wetland agencies, and federal partners to exchange ideas on ways to improve wetland restoration and compensatory mitigation.

Next week I head out to Cleveland, Ohio for the Association of State Floodplain Managers annual conference where we’ll hold our annual in-person Natural Floodplain Functions Alliance meeting. The following week, our Senior Policy Analyst, Brenda Zollitsch, and our Board of Directors Vice Chair, Tom Harcarik from the Ohio EPA will attend the Society of Wetland Scientists annual meeting. Then in June, our new Policy Analyst, William Dooley, will be attending River Rally 2019.

Most of you are likely getting ramped up for a busy field season, but we hope we’ll get a chance to see some of you at the events we’ll be attending over the next month. If you see one of us, please come up and say hello!

Best regards,

Marla J. Stelk, Editor
Wetland Breaking News

This issue of Wetland Breaking News is Sponsored by:

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Editor’s Choice

Media Release: Nature’s Dangerous Decline ‘Unprecedented’; Species Extinction Rates ‘Accelerating’

IPBES – May 5, 2019
Nature is declining globally at rates unprecedented in human history — and the rate of species extinctions is accelerating, with grave impacts on people around the world now likely, warns a landmark new report from the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), the summary of which was approved at the 7th session of the IPBES Plenary, meeting last week (29 April – 4 May) in Paris. “The overwhelming evidence of the IPBES Global Assessment, from a wide range of different fields of knowledge, presents an ominous picture,” said IPBES Chair, Sir Robert Watson. “The health of ecosystems on which we and all other species depend is deteriorating more rapidly than ever. We are eroding the very foundations of our economies, livelihoods, food security, health and quality of life worldwide.” Read full media release here.

Fifteen AGs slam Trump move to limit federal authority under Clean Water Act

By Steven Mufson – The Washington Post – April 16, 2019
Attorneys general from 14 states and the District of Columbia on Tuesday vehemently opposed the Trump administration’s proposal to roll back a regulation known as Waters of the United States, a move they said would end federal oversight of 15 percent of streams and more than half of the nation’s wetlands. The limit on the federal government’s authority to regulate the pollution of wetlands and tributaries that run into the nation’s largest rivers would be a major win for builders, farmers, coal miners and frackers. Read full story here.

EPA Issues Guidance on Clean Water Act Permitting Requirements

U.S. Environmental Protection Agency – April 15, 2019
Today, the U.S. Environmental Protection Agency (EPA) issued guidance clarifying the application of Clean Water Act (CWA or the Act) permitting requirements to groundwater. EPA’s Interpretative Statement concludes that Congress excluded releases of pollutants to groundwater from the Act’s permitting requirements and instead left regulation of those releases to the states and EPA’s other statutory authorities. Read full news release here.

ASWM Membership

The Association of State Wetland Managers has a long history of blazing trails in advocating for sound wetland science and sensible water policy. By joining the Association, your membership will allow you to enjoy the many benefits of membership such as:

• Members’ Webinar Series and free Certificates of Attendance
• Take an active role in cultivating this wetland ethic across the nation
• Support ASWM's projects and services

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A Message from the Membership Monarch

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ASWM AMERICAN WETLANDS MONTH
HOT TOPICS WEBINAR

Can We Keep Up with Changing Estuaries? Moving from Science to Action in San Francisco Bay

Wednesday, May 29, 2019 - 3:30 - 5:00 pm Eastern

Presenter:
• J. Letitia Grenier, PhD, San Francisco Estuary Institute

ASWM UPCOMING MEMBERS’ WETLAND WEBINAR

Identifying Listed Species and Streamlining Section 7 Consultation for Wetland Permitting (And More): Introduction to the US Fish and Wildlife Service’s Online IPaC Tool

Wednesday, June 12, 2019 - 3:00 - 4:30 pm Eastern

Presenter:
• Victoria Foster, National IPaC Program Coordinator, U.S. Fish and Wildlife Service

Visit the ASWM Webinar Page Here
Interior Secretary Awards States More than $20 Million in Grants Supporting Coastal Wetlands Conservation, Recreation and Communities

Contact: Vanessa Kauffman – U.S. Department of the Interior – May 8, 2019
Today, U.S. Secretary of the Interior David Bernhardt is awarding more than $20 million to 22 projects in 11 coastal states to protect, restore or enhance more than 7,000 acres of coastal wetlands and adjacent upland habitats under the U.S. Fish and Wildlife Service’s National Coastal Wetlands Conservation Grant Program. State and local governments, private landowners, conservation groups and other partners will contribute more than $26.7 million in additional funds to these projects. These grants will have wide-reaching benefits for local economies, people and wildlife – boosting coastal resilience, reducing flood risk, stabilizing shorelines and protecting natural ecosystems. Read full press release here.

House passes bill to force U.S. to stay in Paris climate agreement

By Dino Grandoni – The Washington Post – May 2, 2019
The House of Representatives passed a bill on Thursday designed to force the United States to stay in the Paris accord, in a rebuke to President Trump, who has promised to withdraw from the landmark climate agreement inked under his predecessor, Barack Obama. The Democratic bill, which passed 231 to 190 in a vote largely along party lines, stands little chance of approval in the GOP-controlled Senate. Read full story here.

Sound and fury: Trump administration pushes forward on seismic mapping in Atlantic

By Darryl Fears – The Washington Post – May 1, 2019
The Trump administration is pressing ahead with processing permits that would allow companies to search for oil and gas deposits using potentially harmful seismic blasts in the Atlantic Ocean, despite its decision to delay an unprecedented plan to sell federal leases on nearly the entire U.S. outer continental shelf. Read full story here.

New EPA document tells communities to brace for climate change impacts

By Juliet Eilperin and Brady Dennis – The Washington Post – April 27, 2019
The Environmental Protection Agency published a 150-page document this past week with a straightforward message for coping with the fallout from natural disasters across the country: Start planning for the fact that climate change is going to make these catastrophes worse. The language, included in guidance on how to address the debris left in the wake of floods, hurricanes and wildfires, is at odds with the rhetoric of the EPA’s own leader, Andrew Wheeler. Just last month, Wheeler said in an interview with CBS that “most of the threats from climate change are 50 to 75 years out.” Read full story here.

Updates to the National Wetlands Inventory

Wetlands Mapper & Website

New Wetlands Data: New wetlands data have been added to the Wetlands Mapper as part of the National Wetlands Inventory (NWI) biannual data update process. The new data additions cover almost 15 million acres of the U.S. comprising 8 projects in portions of Alaska, Florida, Louisiana, Montana, Nevada, Texas, Utah and Washington. More information and view the updates here.

New Code Definition Table Download: This table provides a crosswalk from U.S. Fish and Wildlife Service, NWI wetlands data, to the complete wetland definitions, as defined by the Federal Wetlands Classification Standard. Joining the table with NWI wetlands data using the ‘Attribute’ field provides users with a full wetland or deepwater habitat description for each polygon within their own mapping environment. More information and to download the Code Definition Table can be found here.

New Verification Toolset Released: A new Arc version 10.6 and ArcPro 2.3 compatible QAQC toolset has been released. The Wetlands Data Verification Toolset is a tool designed to automate the quality control functions necessary to ensure your data meets the federal standard. Download the latest QAQC toolset here.
EPA to Provide more than $2.6 Million in Grants for Wetland Programs Across New England

Contact: John Senn – U.S. Environmental Protection Agency – April 23, 2019
The U.S. Environmental Protection Agency (EPA) today announced that state, local and tribal governments can apply for grants to develop or refine programs to protect, manage and restore wetlands across New England. EPA expects to provide $2,666,000 over the next two years for these wetland program development grants across the six New England states, with approximately equal allocations over fiscal years 2019 and 2020. Initial applications for the grants are due to EPA by May 24, 2019, and selected recipients will manage the assistance agreement for an initial project period of two years in length, starting no earlier than October 1, 2019. Read full news release here.

Interior’s watchdog opens an ethics probe into Bernhardt four days after his Senate confirmation

By Darryl Fears – The Washington Post – April 15, 2019
The Interior Department’s internal watchdog opened an investigation into ethics complaints against former oil and gas lobbyist David Bernhardt on Monday, four days after the Senate confirmed him as the agency’s secretary. A spokeswoman for Interior’s inspector general’s office, Nancy DiPaolo, said the probe is “based on requests from multiple lawmakers and others.” At least eight senators who chastised Bernhardt during his confirmation hearing, including Ron Wyden (D-Ore.), called for an investigation. Numerous conservation groups also submitted demands for inquiry into potential conflicts of interest. Read full story here.

After a $14-Billion Upgrade, New Orleans’ Levees Are Sinking

By Thomas Frank – E&E News – Scientific America – April 11, 2019
The $14 billion network of levees and floodwalls that was built to protect greater New Orleans after Hurricane Katrina was a seemingly invincible bulwark against flooding. But now, 11 months after the Army Corps of Engineers completed one of the largest public works projects in world history, the agency says the system will stop providing adequate protection in as little as four years because of rising sea levels and shrinking levees. Read full article here.

Barrasso Reintroduces Legislation to Improve Water Quality Certifications

U.S. Senate Committee on Environment and Public Works – April 9, 2019
U.S. Senator John Barrasso (R-WY), chairman of the Senate Committee on Environment and Public Works (EPW), introduced S.1087, the Water Quality Certification Improvement Act of 2019. The legislation is cosponsored by Senators Steve Daines (R-MT), Jim Inhofe (R-OK), Shelley Moore Capito (R-WV), Mike Enzi (R-WY), and Kevin Cramer (R-ND). The bill amends Section 401 of the Clean Water Act. The legislation makes several key clarifications to existing law about the appropriate scope of review for a water quality certification. It would also place procedural guardrails and requirements on states as they process requests for certification to prevent future abuses. Read full press release here.

U.S. hit with two billion-dollar disasters so far in 2019

Contact Leslie Jones – NOAA – April 9, 2019
The so-called bomb cyclone that brought heavy snow, blizzard conditions and major flooding to the Midwest in March landed with a resounding meteorological “ka-boom!” and became one of two billion-dollar weather and climate disasters this year. The other was a severe storm that struck the Northeast, Southeast and Ohio Valley in late February. Read full story here.
State News

CA: Bay Area’s Massive Marsh Restoration Project Takes Root

By Isaac Pearlman – Sierra Club – April 22, 2019
Now, the south San Francisco bay shoreline’s next mammoth transformation is well underway: a 50-year project to return the salt ponds back to the bay, restoring them once again into tidal marsh for the first time in 150 years. At about half the size of San Francisco, the 15,000-plus-acre wetland restoration effort is the largest on the West Coast. The project will remake the South Bay’s shoreline and hopefully buffer the low-lying, densely populated area against rising sea levels. Read full story here.

CA: Endangered wetlands offer vital wildlife habitat and, often, a reason to fight about coastal development

By Martin Wisckol – The Orange County Register – April 19, 2019
Between Southern California’s popular beaches and much-traversed mountain trails lies an unsung natural landscape, teeming with its own special wildlife. As you head outdoors to celebrate Earth Day weekend — or to simply connect with nature and leave behind the anxieties of urban life — one option is our area’s often overlooked coastal wetlands. Read full story here.

CT: Can New Haven save its shoreline, protect city from climate change?

By Mary E. O’Leary – New Haven Register – April 8, 2019
East Shore Park is a well-used refuge for walkers and sports enthusiasts alike, a total of 64 acres with 3,200 feet of shoreline off Woodward Avenue. Possibly the one problem at the popular site, which has 600,000 users per year, was summed up by Giovanni Zinn. “It would be nice to see the water,” said Zinn, the city’s engineer. His department is using an estimated $4 million in bond funds authorized by the state to employ natural methods to reverse erosion and create a resilient shoreline for decades to come. Read full story here.

GA: Lawsuit: Sea Island violated law in marsh-filling project

By Wes Wolfe – The Brunswick News – April 19, 2019
A lawsuit filed Wednesday in federal court in Brunswick accuses Sea Island Acquisition of violating the conditions of its permit under the Clean Water Act to fill in nearly an acre of wetlands adjoining St. Simons Island, by The Inn at Sea Island. Read full story here.

LA: State hires contractor team to build Mid-Breton Sediment Diversion

By Mark Schleifstein – NOLA.com-The Times-Picayune – April 8, 2019
A new joint venture company made up of national construction firms with a history of building levees and bridges in Louisiana has been selected by the state coastal authority to oversee construction of the proposed $800 million Mid-Breton Sediment Diversion in Plaquemines Parish. The Mid-Breton diversion will be built on the east bank of the Mississippi River at Will’s Point, about 68 miles above Head of Passes. It will be designed to capture sediment rich water from the Mississippi and move it eastward into the Breton Sound Basin to restore wetlands. Read full story here.
MD: $10,000 reward offered for information about eagle poisonings on Maryland’s Eastern Shore

By Timothy B. Wheeler – Bay Journal – May 7, 2019
Federal and Maryland authorities are seeking the public’s help to track down whoever poisoned at least nine bald eagles in two locations on the Eastern Shore earlier this year. They’re the latest in a series of unsolved poisonings on the Delmarva Peninsula that have killed at least 29 of the federally protected birds in the last three years. Read full article here.

MD: Brunswick approves first steps for Watershed Implementation Plan

By Heather Mongilio – The Federick News-Post – April 11, 2019
The Brunswick City Council on Tuesday approved the first step in its Watershed Implementation Plan. The Watershed Implementation Plan is a requirement under the Maryland Department of the Environment’s Municipal Separate Storm Sewer System (MS4) permit. The implementation plan details how a municipality will go about achieving the goals set by the agency to limit the daily amount of pollution that goes into the water and eventually reaches the Chesapeake Bay. Read full story here.

MA: Baker-Polito Administration Awards $1.6 Million for River and Wetland Restoration and Climate Adaptation

Contact: Katie Gronendyke – Mass.gov – April 25, 2019
In recognition of Earth Week, the Baker-Polito Administration today announced $1.6 million in state and federal grant funds for ecological restoration projects in the towns of Brookfield, Chicopee, Dartmouth, Mattapoisett, Newbury, and Pittsfield to support river and wetland habitat restoration and climate adaptation. These projects are also now designated as Priority Projects through the Department of Fish and Game’s (DFG) Division of Ecological Restoration (DER), making the projects eligible for technical services, including data collection, engineering, design work, permitting, project management and grants. Read full press release here.

OR: 3 Bills Would Ease Rules Around Wetland Development

By Tracy Loew – Statesman Journal – U.S. News – April 22, 2019
Developers would be able to build in wetlands more cheaply and quickly if three bills in the Oregon Legislature are approved. The legislation would reduce the amount of wetland mitigation required in some cases, streamline the permitting process and create a pilot program to create a local mitigation bank, the Statesman Journal reported Monday. Backers say the bills will help address Oregon’s housing crisis and spur economic development. Read full story here.

PA: Feds working to update flood plain maps

By William Kibler – Altoona Mirror – April 28, 2019
Two federal agencies are gathering information to revise flood plain mapping for the Frankstown Branch of the Juniata River and its tributaries from Duncansville to Williamsburg. The new maps to be created by the Army Corps of Engineers and the Susquehanna River Basin Commission will replace outdated maps from the late 1970s, said Craig Thomas, a Corps hydrologist from the Baltimore office who spoke recently to Duncansville Borough Council. Council President Jeff Wolfe had asked for the update in response to residents’ complaints about flood insurance premium hikes. Read full story here.

PA: Snot Otter Emerges Victorious in Vote for Pennsylvania's Official Amphibian

By Martin Wisckol – The Orange County Register – April 18, 2019 – Video
Pennsylvania's soon-to-be official amphibian has more than its fair share of nicknames: snot otter, mud devil, Allegheny alligator, devil dog, lasagna lizard. In short, it's not exactly a looker. But the Eastern hellbender salamander was the overwhelming choice of lawmakers for amphibian representation in the state. On Tuesday, the state’s House of Representatives voted 191-6 on a bill that would name the aquatic creature its state amphibian. Read full story and view video here.
SC: Tree-planting effort in upstream SC swamp could help Charleston area’s flooding woes

By Bo Petersen – The Post and Courier – April 15, 2019
Cypress trees, swamp oaks, tupelo — more than 215,000 native wetland trees have just been planted to restore 500 acres in Four Holes Swamp near Holly Hill. Think of them as a solution to flooding. The Audubon South Carolina seedling effort will create a couple of hundred-thousand more tall straws in the swamp’s ability to suck up floodwaters that otherwise would deluge the rapidly developing Charleston suburbs downstream. Read full story here.

TX: Galveston Bay rises with $2 million gift to protect and beautify ecosystem

By Steven Devadanam – CultureMap – April 26, 2019
Lovers of Galveston Bay know that the ecosystem has been beset by challenges, after being ravaged by Hurricane Harvey and the Deepwater Horizon spill, and last year, receiving a C grade for its overall wellness. Even more challenging, Galveston Bay has lost more than 35,000 acres of intertidal wetlands since the 1950s. But now, hope floats, with the news that the Galveston Bay Foundation has received a $2.3 million award to continue to restore and create marsh habitat in the Dollar Bay/Moses Lake complex in Galveston Bay. Read full story here.

TX: Playas Help Texans Live Within Water Means

Texas Playa Conservation Initiative – April 26, 2019
A cutting-edge producer of organic crops and livestock who sees playas as vital recharge wetlands shared his thoughts on what must be done to protect playas and the water future of the region during a recent Playa Field Day in Hereford, Texas. Sponsors of the event included Ogallala Commons and its partners, the High Plains Underground Water Conservation District, the Dixon Water Foundation, and Texas Parks & Wildlife Department. Read full story here.

VA: Virginia coastal towns brace for rising sea level

By Kal Weinstein and Owen FitzGerald – The Virginia Gazette – April 30, 2019
The tide is high, but this seaside town is holding on. As the owner and operator of Seaside Eco-tours, Capt. Meriwether Payne ferries passengers from the Wachapreague Town Marina to the barrier islands just beyond the marshes of the shoreline village. The nature surrounding Virginia’s Eastern Shore is the heart of her business, but the rising sea level and the resulting increase in coastal flooding are threatening Payne’s excursions. Read full story here.

WA: Cooke Aquaculture will pay full $332,000 penalty for fish pen collapse in Puget Sound

Washington Department of Ecology – April 29, 2019
Cooke Aquaculture will pay the full $332,000 penalty to the Washington Department of Ecology for the collapse of its floating pen near Cypress Island that released 250,000 non-native fish into Puget Sound. The collapse in August 2017 led to a multi-agency investigation, and ultimately to the state Legislature passing a bill to phase out non-native fish farming. Read full story here.

WI: DNR Won’t Overrule Judge’s Decision to Invalidate Frac Sand Wetland Permit

By Rich Kremer – Wisconsin Public Radio – May 1, 2019
Officials with the state Department of Natural Resources will not overturn an administrative law judge’s decision to invalidate a permit to fill 16 acres of high-quality wetland to make way for a proposed frac sand facility in Monroe County. Instead, the agency said the decision would be handled best by the circuit court system. Read full story here.
ASWM Compensatory Mitigation Webinar Recording’s

An Ecological Framework for Reviewing Compensatory Mitigation: Coherent Plans – Goals, Objectives, Performance Standards, Outcomes and Monitoring

Held April 18, 2019

Presenters:

Eric Stein
Principal Scientist, Southern California Coastal Water Research Project

Mick Micacchion
Professional Wetland Scientist and Restoration Ecologist, The Nature Conservancy

Anthony Zemba
Environmental Specialist, Certified Ecologist/Soil Scientist, Fitzgerald & Halliday, Inc.

View April 18th Webinar Recording Here

An Ecological Framework for Reviewing Compensatory Mitigation Plans: Plan Review

Held March 21, 2019

Presenters:

Steve Martin
Environmental Scientist, Institute for Water Resources, U.S. Army Corps of Engineers

Michelle Mattson
Environmental Scientist, Institute for Water Resources, U.S. Army Corps of Engineers

Michael S. Rolband
P.E., P.W.S., P.W.D., Wetland Studies and Solutions, Inc.

Karen Greene
National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries)

View March 21st Webinar Recording Here
A new effort to save birds pinpoints in amazing detail where they fly

By Anders Gyllenhaal – The Washington Post – April 29, 2019
For years, as California’s Central Valley grew into the nation’s leading agricultural corridor, the region gradually lost almost all of the wetlands that birds, from the tiny sandpiper to the great blue heron, depend on during their migrations along the West Coast. But a dramatic turnaround is underway in the valley. Dozens of farmers leave water on their fields for a few extra weeks each season to create rest stops for birds. The campaign has not only helped salvage a vital stretch of the north-south migration path called the Pacific Flyway but also tested a fresh model for protecting wildlife. Read full story here.

New Studies Highlight Challenge of Meeting Paris Agreement Climate Goals

American Geophysical Union – April 23, 2019
New research highlights the “incredible challenge” of reaching the Paris Agreement without intense action and details the extreme temperatures parts of the planet will suffer if countries fail to reduce emissions. Two new studies published in the AGU journals Geophysical Research Letters and Earth’s Future now show some of the goals set forth in the agreement might be difficult to reach without much sacrifice. Read full press release here.

Rate of ice loss from Greenland has grown by a factor of six since the 1980s, scientists find

By Chris Mooney and Brady Dennis – The Washington Post – April 22, 2019
Greenland, home to Earth’s second-largest ice sheet, has lost ice at an accelerating pace in the past several decades — a nearly sixfold increase that could contribute to future sea-level rise, according to a new study based on nearly a half-century of data. The findings, published Monday in the Proceedings of the National Academy of Sciences, estimate that Greenland’s glaciers went from dumping about 51 billion tons of ice into the ocean between 1980 to 1990, to 286 billion tons between 2010 and 2018. The result is that out of nearly 14 millimeters of sea-level rise in total caused by Greenland since 1972, half of it has occurred in the past eight years, researchers found. Read full story here.

Study Shows Continuing Impacts of Deepwater Horizon Oil Spill

Nature World News – April 21, 2019
Nine years ago - April 20, 2010--crude oil began leaking from the Deepwater Horizon drilling rig into the Gulf of Mexico in what turned out to be the largest marine oil spill in history. A long-term study suggests the oil is still affecting the salt marshes of the Gulf Coast and reveals the key role that marsh grasses play in the overall recovery of these important coastal wetlands. Conducting the study was a multi-institutional research team funded in part by the Gulf of Mexico Research Initiative, a 10-year independent program established through a $500 million financial commitment from BP. The team began sampling soon after the spill was finally contained and continue their work today. Their most-recent article--in Estuaries and Coasts--reports on the first six and a half years of sampling post-spill. Read full story here.
A climate change solution slowly gains ground

By Steven Mufson – The Washington Post – April 19, 2019
At the end of a cul-de-sac called Fresh Way, two bright green structures the size of shipping containers gleam in the warm sunlight, quietly sucking from the air the carbon dioxide that is warming the planet. One structure houses computer monitors and controls. Atop the other, large fans draw air through slabs made of honeycomb-style ceramic cubes. The cubes hold proprietary chemicals that act like sponges, absorbing carbon dioxide at room temperature. Every 15 minutes, the slabs rotate and the cubes are heated, releasing a stream of 99 percent pure carbon dioxide into a shiny steel pipe. This is Global Thermostat, one of just three companies at the leading edge of the hunt for ways of skimming carbon dioxide from the air. Read full story here.

Satellite confirms key NASA temperature data: The planet is warming — and fast

By Chris Mooney – The Washington Post – April 17, 2019 – Video
A high-profile NASA temperature data set, which has pronounced the last five years the hottest on record and the globe a full degree Celsius warmer than in the late 1800s, has found new backing from independent satellite records — suggesting the findings are on a sound footing, scientists reported Tuesday. If anything, the researchers found, the pace of climate change could be somewhat more severe than previously acknowledged, at least in the fastest warming part of the world — its highest latitudes. Read full story and view video here.

Amphibian apocalypse is twice as bad as scientists thought

By Jason Bittel – The Washington Post – March 28, 2019
There is a plague ripping through the amphibian species of the world. It’s caused by fungus that’s invisible to the naked eye and spreads easily by many means. It kills by disrupting the way these creatures breathe through their skin, essentially suffocating frogs and salamanders. The disease is called chytridiomycosis, and according to a landmark study published Thursday in the journal Science, it’s even worse than we thought. Read full story here.

Earth Challenge 2020: Join the world’s largest coordinated citizen science campaign to date!

April 22nd, 2020 marks the 50th anniversary of Earth Day. In recognition of this milestone a consortium of partners is launching Earth Challenge 2020 (EC2020). By working with existing citizen science projects and building capacity for new activities EC2020 will foster the collection and integration of one billion open, interoperable data points to strengthen links between science, the environment, and society. EC2020 is currently enlisting citizen science practitioners, other scientists, educators, and others to join research teams. To learn more and join this campaign visit http://earthchallenge2020.earthday.org/.
**Resources and Publications**

**New online tool to help guide conservation efforts**

CBS19 News – April 11, 2019
A new statewide land conservation strategy identifies high-value lands and conservation sites across Virginia. Governor Ralph Northam announced the creation of ConserveVirginia earlier this week. It is a first-in-the-nation, data-driven approach that features a "smart map" to guide conservation efforts. Read full story here.

**Improving Implementation of the 2008 Mitigation Rule**

Trout Headwaters, Inc. – April 9, 2019
This latest whitepaper, co-authored by Trout Headwaters CEO Michael Sprague, highlights recommendations provided to government officials and agencies recently for improving implementation of the 2008 Mitigation Rule for compensatory mitigation. These suggestions follow a careful study of data provided by the U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency for Section 404 of the Clean Water Act. Read the whitepaper here.

**America's Most Endangered Rivers of 2019**

American Rivers – 2019
Water scarcity due to global warming could displace 700 million people worldwide by 2030. In the same time frame, 54 million lives globally could be impacted by river floods. In the United States, our climate has warmed by 1.8 degrees in the past century. It's time to get real about what this means: Forest fires are growing more destructive, cities are struggling to do more with less water, fish and wildlife are struggling to survive and storms are triggering more life-threatening floods. Read full report here.

**Moving Toward a Multi-Benefit Approach for Water Management**

Pacific Institute – April 2019
There is broad recognition that adapting to climate change, coupled with the need to address aging infrastructure, population growth, and degraded ecosystems, will require rethinking programs and policies and investing in our natural and built water systems. Many of the strategies for addressing water challenges can also provide other benefits, including reducing energy use and greenhouse gas emissions, providing wildlife habitat, and enhancing community livability. However, identifying and quantifying these benefits for water management strategies can be challenging. This report proposes a framework for systematically identifying and incorporating the multiple benefits and trade-offs of water management strategies into decision-making processes. Read full report here.

**Receive Information on Upcoming ASWM Webinars**

- ASWM Members’ Webinars
- Hot Topics Webinars
- Compensatory Mitigation Webinars
- ASWM-NRCS Wetland Training Webinars
- Natural Floodplain Functions Alliance
- EPA Region 10 Tribal Training Webinars

Sign Up Here
'Historic day for Scotland' as beavers get protected status

By Libby Brooks – The Guardian – May 1, 2019

Wildlife campaigners have hailed a “historic day for Scotland” as beavers are granted protected status a decade after their successful reintroduction in Argyll. It is now illegal to kill the animals or destroy established dams and lodges without a license. While wildlife groups emphasize the widespread ecological benefits of the beavers’ reintroduction, including increasing biodiversity and reducing flood risk, farming representatives continue to raise concerns about damage to agricultural land and waterways. Read full article here.

Four New (Old) Ways the White House is Trying to Restrict Science for Policymaking

By Andrew Rosenberg – Union of Concerned Citizens – April 25, 2019

Yesterday, the Office of Management and Budget (OMB) in the White House issued new “guidance” for the Administration to “Improve Implementation of the Information Quality Act”. Unfortunately, it reads like a re-hashing of some of the worst ideas for restricting the use of science in policymaking from the last five years or so. Way back in 2015, when some members of Congress were trying some of these same tricks to tip the scales in favor of regulated industry we summarized them in a Policy Forum article in Science. Here we go again—but this time, the Trump administration is trying to push these changes through unilaterally, the latest round in a long list of efforts to push science to the sidelines. Read full blog post here.

Wildflowers: robust, low-maintenance, pollinator-friendly

By Dean Fosdick – Associated Press – April 16, 2019

Gardeners trying to lure pollinators to their landscape would be wise to mimic nature and plant wildflowers. The attractive perennials tolerate harsh climates, seldom need fertilizing and resist most diseases and insect pests. Wildflowers are durable, too, requiring little or no irrigation once established. “They bloom early and establish nicely to make a very natural colony,” said Barry Glick, owner of Sunshine Farm and Gardens in Renick, West Virginia. But beware: Some native plants are invasive. Read full story here.

Green infrastructure benefits extend beyond stormwater

By Joan Smedinghoff – Chesapeake Bay Program – April 12, 2019

When it comes to community infrastructure, many local officials are looking for solutions that serve multiple purposes. That’s where green infrastructure, such as the curb extension pictured above, can come into play. As the name suggests, curb extensions increase the space between the curb and the sidewalk (or, conversely, decrease the space between the curb and car). In that new space, cities can place many different solutions to fit their needs: benches, trash cans, gardens, trees, artwork—you name it. When coupled with green infrastructure practices like permeable pavement or rain gardens, these curb extensions can meet multiple needs. Read full blog post here.
Proposed Conservation Agreement for Monarch Butterfly

Contact: Georgia Parham – U.S. Fish and Wildlife Service – April 12, 2019
The U.S. Fish and Wildlife Service is announcing the opening of a 60-day public comment period regarding an “enhancement of survival” permit application associated with a proposed Candidate Conservation Agreement with Assurances (CCAA) for the monarch butterfly on energy and transportation lands. The proposed agreement would involve transportation and energy partners across the lower 48 states and would address conservation needs of the species on millions of acres of rights-of-way and associated lands. Read full press release here.

Photo Contest Winners Gallery

Chesapeake Bay Foundation
Presenting the winners of CBF's Save the Bay Photo Contest! Use the map to see where these talented photographers found their inspiration. See winners here.
## Calendar of Events

### Webinars  Meetings  Trainings

#### WEBINARS

**May 2019**

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<td>May 21, 2019</td>
<td>11 a.m. ET</td>
<td>American Geophysical Union (AGU)</td>
<td>Webinar: <em>Climate Extremes in Present and Future: How Can We Avoid the Worst?</em></td>
</tr>
<tr>
<td>May 22, 2019</td>
<td>2:00 p.m. ET</td>
<td>U.S. Environmental Protection Agency Water Research Program</td>
<td>Webinar: <em>Multi-Source Remote Sensing for Assessment and Management of Surface Waters</em></td>
</tr>
<tr>
<td>May 22, 2019</td>
<td>3:00 p.m. ET</td>
<td>EBM Tools Network</td>
<td>Webinar: <em>Building Knowledge, Capacity, and Collaborations to Develop Indicators for Ecosystem-Based Fisheries Management in Case Studies across the World</em></td>
</tr>
<tr>
<td>May 23, 2019</td>
<td>3:00 p.m. ET</td>
<td>Ecological Society of America</td>
<td>Webinar: <em>Forecasting Ecology in a Changing World</em></td>
</tr>
<tr>
<td>May 30, 2019</td>
<td>1:00 p.m. ET</td>
<td>The Swamp School OSHA Safety Training</td>
<td>Webinar: <em>Wetland Assessment</em></td>
</tr>
</tbody>
</table>

**June 2019**

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Organization</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 5, 2019</td>
<td>12:00 p.m. ET</td>
<td>EBM Tools Network</td>
<td>Webinar: <em>Finance Tools for Coral Reef Conservation: An Overview (Viewing #1) (Viewing #2: 9:00 p.m. ET)</em></td>
</tr>
<tr>
<td>June 11, 2019</td>
<td>3:00 p.m. ET</td>
<td>USGS</td>
<td>Webinar: <em>Tribal Resources for Climate Change Vulnerability Assessment</em></td>
</tr>
<tr>
<td>June 12, 2019</td>
<td>3:00 p.m. ET</td>
<td>ASWM Members’ Wetland Webinar</td>
<td>Webinar: <em>Identifying Listed Species and Streamlining Section 7 Consultation for Wetland Permitting (And More): Introduction to the US Fish and Wildlife Service’s Online IPaC Tool</em></td>
</tr>
<tr>
<td>June 20, 2019</td>
<td>1:00 p.m. ET</td>
<td>American Trails Webinar</td>
<td>Webinar: <em>Designing Near Wetlands, Streams, Forests, and Other Environmental Resources</em></td>
</tr>
</tbody>
</table>

#### Special Events

- **Bay Day Festival**  May 18, 2019  Kemah, TX
- **Cape May Spring Festival**  May 16-19, 2019  Cape May, NJ
- **WaterFest**  Ramsey-Washington Metro Watershed District  June 1, 2019  St. Paul, MN
- **Beaver Festival**  June 29, 2019  Martinez, CA
- **BIOBLITZ 2019**  July 19-20, 2019  Pickerington, OH
- **Voice of Wetlands Festival**  October 11-13, 2019  Houma, LA
### May 2019

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 19-22, 2019</td>
<td>Lisle, IL</td>
<td>Arboriculture &amp; Urban Forestry Educators' Symposium &amp; Summit</td>
</tr>
<tr>
<td>May 19-23, 2019</td>
<td>Baltimore, MD</td>
<td>2019 NAEP Conference: The Environmental Landscape in an Age of Infrastructure Modernization</td>
</tr>
<tr>
<td>May 19-23, 2019</td>
<td>Cleveland, OH</td>
<td>Association of State Floodplain Managers 42nd Annual Meeting: Managing Floods Where the Mountains Meet the Desert</td>
</tr>
<tr>
<td>May 20-22, 2019</td>
<td>Baltimore, MD</td>
<td>Choose Clean Water Coalition: 10th Annual Choose Clean Water Conference</td>
</tr>
<tr>
<td>May 28-31, 2019</td>
<td>Toledo, OH</td>
<td>Soil Ecology Society Biennial Meeting</td>
</tr>
<tr>
<td>May 29-June 2, 2019</td>
<td>Waikoloa, HI</td>
<td>Ducks Unlimited National Convention</td>
</tr>
</tbody>
</table>

### June 2019

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Event</th>
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<tbody>
<tr>
<td>June 2-5, 2019</td>
<td>Portland, OR</td>
<td>International Urban Wildlife Conference</td>
</tr>
<tr>
<td>June 4-6, 2019</td>
<td>Bologna, Italy</td>
<td>2nd International Conference on Community Ecology</td>
</tr>
<tr>
<td>June 10-12, 2019</td>
<td>New Haven, CT</td>
<td>Third Annual Digital Data in Biodiversity Research Conference: Methods, Protocols, and Analytical Tools for Specimen-based Research in the Biological Sciences</td>
</tr>
<tr>
<td>June 10-14, 2019</td>
<td>Brockport, NY</td>
<td>The College at Brockport, State University of New York: 62nd Annual Conference on Great Lakes Research: Large Lakes Research: Connecting People and Ideas</td>
</tr>
<tr>
<td>June 12-14, 2019</td>
<td>Manhattan, KS</td>
<td>Kansas State University: Arthropod Genomics Symposium</td>
</tr>
<tr>
<td>June 13-14, 2019</td>
<td>Providence, FL</td>
<td>Land Trust Alliance: Seventh Symposium on Advanced Legal Topics in Land Conservation</td>
</tr>
<tr>
<td>June 16-19, 2019</td>
<td>Sparks, NV</td>
<td>2019 AWRA Summer Specialty Conference: Improving Water Infrastructure Through Resilient Adaptation</td>
</tr>
<tr>
<td>June 17-19, 2019</td>
<td>Milwaukee, WI</td>
<td>2019 Great Lakes Public Forum</td>
</tr>
<tr>
<td>June 17-20, 2019</td>
<td>Louisville, KY</td>
<td>National Hydrologic Warning Council Conference</td>
</tr>
<tr>
<td>Event</td>
<td>Date</td>
<td>Location</td>
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<tr>
<td>Wetland Breaking News</td>
<td>June 21-24, 2019</td>
<td>Cleveland, OH</td>
</tr>
<tr>
<td>Joint Conference of the Society for the Study of Evolution, the Society of Systematic Biologists, and the American Society of Naturalist: <a href="#">Evolution Conference</a></td>
<td>June 21-25, 2019</td>
<td>Providence, RI</td>
</tr>
<tr>
<td><strong>July 2019</strong></td>
<td><strong>July 15-17, 2019</strong></td>
<td>Monterey, CA</td>
</tr>
<tr>
<td>Appalachian Regional Reforestation Initiative (ARRI) Conference: <a href="#">Restoring Productive Forest on Mine Lands in Ohio</a></td>
<td><strong>July 24-25, 2019</strong></td>
<td>Cambridge, OH</td>
</tr>
<tr>
<td>20th INUA Congress: Life on the Edge</td>
<td><strong>July 25-31, 2019</strong></td>
<td>Dublin, Ireland</td>
</tr>
<tr>
<td><strong>August 2019</strong></td>
<td><strong>August 5-6, 2019</strong></td>
<td>Huntington, PA</td>
</tr>
<tr>
<td><strong>August 11-16, 2019</strong></td>
<td><strong>August 18-22, 2019</strong></td>
<td>Louisville, KY</td>
</tr>
<tr>
<td><strong>September 2019</strong></td>
<td><strong>September 11-12, 2019</strong></td>
<td>Cleveland, OH</td>
</tr>
<tr>
<td><strong>September 22-26, 2019</strong></td>
<td><strong>September 29-October 3, 2019</strong></td>
<td>Sacramento, CA</td>
</tr>
<tr>
<td><strong>September 29-October 3, 2019</strong></td>
<td><strong>Reno, NV</strong></td>
<td><strong>American Fisheries Society and the Wildlife Society Annual Meeting</strong></td>
</tr>
<tr>
<td><strong>October 2019</strong></td>
<td><strong>October 8-10, 2019</strong></td>
<td>Pittsburgh, PA</td>
</tr>
<tr>
<td><strong>October 17-19, 2019</strong></td>
<td><strong>October 21-22, 2019</strong></td>
<td>Raleigh, NC</td>
</tr>
<tr>
<td><strong>October 21-22, 2019</strong></td>
<td><strong>October 21-22, 2019</strong></td>
<td>Oakland, CA</td>
</tr>
</tbody>
</table>

*NOTE: The above are examples of meeting names and locations.*
<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>October 27-30, 2019</td>
<td>AASHE Conference: Co-Creating a Sustainable Economy</td>
</tr>
<tr>
<td>November 3-7, 2019</td>
<td>CERF 2019 25th Biennial Conference: Responsive-Relevant-Ready</td>
</tr>
<tr>
<td>November 3-7, 2019</td>
<td>American Water Resources Association: Annual Water Resources Conference</td>
</tr>
<tr>
<td>November 15-17, 2019</td>
<td>Alliance for the Chesapeake Bay Watershed Forum: Better Together: Diverse</td>
</tr>
<tr>
<td></td>
<td>and Innovative Collaborations for the Chesapeake Watershed</td>
</tr>
<tr>
<td>November 15-17, 2019</td>
<td>AGU Fall Meeting: Science Communication: A Sharing Science Room</td>
</tr>
<tr>
<td>December 10-14, 2019</td>
<td>AGU Fall Meeting: Science Communication: A Sharing Science Room</td>
</tr>
</tbody>
</table>
**TRAINING/WORKSHOPS**

### May 2019

**May 20-24, 2019**  
Lansing, MI  
Michigan Wetlands Association Course: *Wetland Delineation Training, USACE Northcentral and Northeast Regional Supplement*

**May 20-June 17, 2019**  
Online  
The Swamp School Online Course: *Developing Wetland Water Budgets 2019*  
Other dates offered

**May 21, 2019**  
Boulder, CO  
CUAHSI Short Course: *The Science and Practice of Operational Ensemble Hydrological Prediction*

**May 21-24, 2019**  
Kays, KS  
Wetland Training Institute, Inc. Course: *Graminoids (Grasses, Sedges, Rushes) ID for Wetlands and Wetland Delineators*

**May 21-June 11, 2019**  
Prince of Wales Island, AK  
Tatoosh School Course: *Community Ecology*

**May 23-24, 2019**  
Sussex, NJ  
Rutgers Office of Continuing Professional Education Course: *Vegetation Identification for Wetland Delineation: North*

**May 26-June 1, 2019**  
Steuben, ME  
Eagle Hill Natural History Science Field Seminar: *Calicioid Lichens and Fungi of the Acadian Forest: Identification and Ecology*

**May 26-June 1, 2019**  
Steuben, ME  
Eagle Hill Natural History Science Field Seminar: *Introduction to Bryophytes and lichens*

**May 29-31, 2019**  
Golden, CO  
CUAHSI Short Course: *Integrated Simulation of Watershed Systems using Parflow*

**May 29-31, 2019**  
Portland, OR  
Portland State University Course: *Lamprey Ecology & Management*

**May 30-31, 2019**  
Zephyrhills, FL  
Richardson Soils & Environmental: *Florida Wetland Delineation Workshop*

**May 30-31, 2019**  
Charleston, SC  
Duncan & Duncan Wetland & Endangered Species Training: *Hydrophytic Vegetation (Coastal Plain)*

### Eagle Hill Institute 2019 Wetland Related Field Seminars

**10% Discount for ASWM Members**  
[Join ASWM here]

- **June 23-29**: Sedges and Rushes: Identification and Ecology
- **July 7-13**: Survey of Grasses: Their Structure, Identification, and Ecology
- **July 14-20**: Wetland Identification, Delineation, and Ecology
- **July 21-27**: Ericaceae and Heathland Communities of Coastal Maine
- **August 4-10**: Submersed and Floating Aquatic Plants

More information on these and other seminars can be found in the listings below or here.
<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 2-8, 2019</td>
<td>Steuben, ME</td>
<td>Eagle Hill Natural History Science Field Seminar: Freshwater and Diadromous Fishes of New England</td>
</tr>
<tr>
<td>June 3, 2019</td>
<td>Boston, MA Area</td>
<td>Institute for Wetland &amp; Environmental Education &amp; Research: Plant ID Course: Wetlands &amp; Their Borders</td>
</tr>
<tr>
<td>June 3-5, 2019</td>
<td>San Diego, CA</td>
<td>Wetland Training Institute, Inc. Course: Plant identification for Coastal Southern California</td>
</tr>
<tr>
<td>June 3-7, 2019</td>
<td>Collins, CO</td>
<td>Stream Mechanics Workshop: Stream Functions Pyramid</td>
</tr>
<tr>
<td>June 3-8, 2019</td>
<td>Isle Royale, MI</td>
<td>Isle Royale &amp; Keweenaw Parks Association: Isle Royale Plant I.D. Workshop</td>
</tr>
<tr>
<td>June 3-August 26, 2019 Online</td>
<td>The Swamp School Online Course: Wetland Basic Delineation Training 2019 Also offered in September and November</td>
<td></td>
</tr>
<tr>
<td>June 3-August 26, 2019 Online</td>
<td>The Swamp School Online Course: Certified Wetland Hydrologist Other dates offered</td>
<td></td>
</tr>
<tr>
<td>June 4-7, 2019</td>
<td>Boston, MA Area</td>
<td>Institute for Wetland &amp; Environmental Education &amp; Research: Plant ID Course: Basic Wetland Delineator Training. Other dates offered</td>
</tr>
<tr>
<td>June 5-7, 2019</td>
<td>St. Louis, MO</td>
<td>Center for Conservation and Sustainable Development: Missouri Botanical Garden: R Basics Workshop</td>
</tr>
<tr>
<td>June 9, 2019</td>
<td>Lake Ariel, PA</td>
<td>Lacawac Sanctuary Field Station and Environmental Education Center Workshop: Ecology of Aquatic Plants</td>
</tr>
<tr>
<td>June 9-15, 2019</td>
<td>Steuben, ME</td>
<td>Eagle Hill Natural History Science Field Seminars: Chironomids: Classification, Morphology, Identification, and Lifecycles</td>
</tr>
<tr>
<td>June 10-11, 2019</td>
<td>Charleston, SC</td>
<td>Duncan &amp; Duncan Wetland &amp; Endangered Species Training: Advanced Hydric Soils, Hydrology, and Regional Indicators (Coastal Plain) Other dates offered</td>
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<td>June 10-13, 2019</td>
<td>Teatown Lake Reservation Westchester County, NY</td>
<td>The Swamp School Course: Wetland Delineation Training</td>
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<tr>
<td>June 10-July 8, 2019 Online</td>
<td>The Swamp School Online Course: Basic Botany for Wetland Assessment Other dates offered</td>
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<tr>
<td>June 11-14, 2019</td>
<td>Basking Ridge, NJ</td>
<td>Rutgers Office of Continuing Professional Education Course: Methodology for Delineating Wetlands</td>
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<tr>
<td>June 12, 2019</td>
<td>Basking Ridge, NJ</td>
<td>Rutgers Office of Continuing Professional Education Course: Introduction to Wetland Identification</td>
</tr>
<tr>
<td>Date</td>
<td>Location</td>
<td>Course Details</td>
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<tr>
<td>June 13, 2019</td>
<td>New Brunswick, NJ</td>
<td>Rutgers Office of Continuing Professional Education Course: <strong>Improving Your</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Gran Writing Skills</strong></td>
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<tr>
<td>June 13, 2019</td>
<td>New Brunswick, NJ</td>
<td>Rutgers Office of Continuing Professional Education Course: <strong>Advancing Grant</strong></td>
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<td><strong>Writing Skills – Build and Improve</strong></td>
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<tr>
<td>June 16-22, 2019</td>
<td>Steuben, ME</td>
<td>Eagle Hill Natural History Science Field Seminars: Independent Study: <strong>Topics</strong></td>
</tr>
<tr>
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<td><strong>in Fungal Biology</strong></td>
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<tr>
<td>June 16-22, 2019</td>
<td>Steuben, ME</td>
<td>Eagle Hill Natural History Science Field Seminars: <strong>Medicinal Plants:</strong></td>
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<tr>
<td></td>
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<td><strong>Traditions and Contemporary Perspectives</strong></td>
</tr>
<tr>
<td>June 16-29, 2019</td>
<td>Fort Collins, CO</td>
<td>Colorado State University Course: <strong>Summer Soil Institute</strong></td>
</tr>
<tr>
<td>June 17-19, 2019</td>
<td>St. Michaels, MD</td>
<td>Environmental Concern Course: <strong>Basic Vascular Plant ID</strong></td>
</tr>
<tr>
<td>June 17-21, 2019</td>
<td>Online</td>
<td>The Swamp School Online Course: <strong>Accelerated Online Wetland Delineation</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Training Workshop</strong>. Also offered in September and December</td>
</tr>
<tr>
<td>June 17-21, 2019</td>
<td>University of New Brunswick</td>
<td>Canadian Rivers Institute Course: <strong>Applications of Stable Isotopes to Aquatic</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Ecology</strong></td>
</tr>
<tr>
<td>June 17-July 1, 2019</td>
<td>Online</td>
<td>The Swamp School Online Course: <strong>Habitat Conservation Plans</strong></td>
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<tr>
<td></td>
<td></td>
<td>Also offered in October</td>
</tr>
<tr>
<td>June 17-July 12, 2019</td>
<td>Online</td>
<td>The Swamp School Online Course: <strong>Wetlands 101: Wetlands, Regulations, and You</strong></td>
</tr>
<tr>
<td>June 18, 2019</td>
<td>New Brunswick, NJ</td>
<td>Rutgers Office of Continuing Professional Education Course: <strong>Green</strong></td>
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<tr>
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<td><strong>Stormwater Management</strong></td>
</tr>
<tr>
<td>June 18-19, 2019</td>
<td>Park Lyndon North, MI</td>
<td>Michigan Wetlands Association Course: <strong>Sedges of Michigan Wetlands</strong></td>
</tr>
<tr>
<td>June 18-July 31, 2019</td>
<td>Alaska</td>
<td>Tatoosh School Course: <strong>Case Studies for a Changing World</strong></td>
</tr>
<tr>
<td>June 19-20, 2019</td>
<td>Anchorage, AK</td>
<td>Wetland Training Institute, Inc. Course: <strong>Advanced Hydric Soils Online with</strong></td>
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<tr>
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<td></td>
<td><strong>Field Practicum</strong>, Other dates and location offered</td>
</tr>
<tr>
<td>June 23-29, 2019</td>
<td>Steuben, ME</td>
<td>Eagle Hill Natural History Science Field Seminars: <strong>Sedges and Rushes:</strong></td>
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<tr>
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<td><strong>Identification and Ecology</strong></td>
</tr>
<tr>
<td>June 23-29, 2019</td>
<td>Steuben, ME</td>
<td>Eagle Hill Natural History Science Field Seminars: <strong>Insect and Spider Biology</strong></td>
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<td><strong>“Through the Lens”</strong></td>
</tr>
<tr>
<td>June 24-25, 2019</td>
<td>Twin Cities, MN</td>
<td>Wetland Training Institute, Inc. Course: <strong>Advanced Hydric Soils Online with</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Field Practicum</strong>, Other dates and location offered</td>
</tr>
<tr>
<td>June 24-27, 2019</td>
<td>Angier, NC</td>
<td>The Swamp School Course: <strong>Wetland Delineation Training</strong></td>
</tr>
<tr>
<td>June 24-27, 2019</td>
<td>Pittsburgh, PA</td>
<td>Wetland Training Institute, Inc. Course: <strong>Identifying Grasses, Sedges, and</strong></td>
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<td></td>
<td><strong>Rushes</strong></td>
</tr>
<tr>
<td>Date</td>
<td>Location</td>
<td>Course</td>
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<tr>
<td>June 24-July 1, 2019</td>
<td>Appledore Island, ME</td>
<td>Shoals Marine Laboratory Course: <a href="#">Climate Change and the Gulf of Maine</a></td>
</tr>
<tr>
<td>June 24-July 5, 2019</td>
<td>Missoula, MT</td>
<td>Flathead Lake Biological Station Course: <a href="#">Conservation Ecology</a></td>
</tr>
<tr>
<td>June 24-July 5, 2019</td>
<td>Missoula, MT</td>
<td>Flathead Lake Biological Station Course: <a href="#">Environmental Sensors: Designing, Building and Deploying in the Field</a></td>
</tr>
<tr>
<td>June 24-July 19, 2019</td>
<td>Missoula, MT</td>
<td>Flathead Lake Biological Station Course: <a href="#">Field Ecology</a></td>
</tr>
<tr>
<td>June 24-July 19, 2019</td>
<td>Missoula, MT</td>
<td>Flathead Lake Biological Station Course: <a href="#">Seminars in Ecology and Resource Management</a></td>
</tr>
<tr>
<td>June 28, 2019</td>
<td>Portage, WA</td>
<td>Wetland Training Institute, Inc. Course: <a href="#">Beginners Plant ID for Wetland Delineation</a></td>
</tr>
<tr>
<td>June 30-July 20, 2019</td>
<td>St. George's Bermuda</td>
<td>Bermuda Institute of Ocean Sciences: <a href="#">Coral Reef Ecology: Reef Response to Environmental Change</a></td>
</tr>
</tbody>
</table>

### July 2019

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 1-September 23, 2019</td>
<td>Online</td>
<td>The Swamp School Online Course: <a href="#">Wetland Basic Delineation Training 2019</a> Other dates and locations offered</td>
</tr>
<tr>
<td>July 7-13, 2019</td>
<td>Steuben, ME</td>
<td>Eagle Hill Natural History Science Field Seminars: <a href="#">Survey of Grasses: Their Structure, Identification, and Ecology</a></td>
</tr>
<tr>
<td>July 7-13, 2019</td>
<td>Steuben, ME</td>
<td>Eagle Hill Natural History Science Field Seminars: <a href="#">Marine Benthic Invertebrates</a></td>
</tr>
<tr>
<td>July 7-13, 2019</td>
<td>Steuben, ME</td>
<td>Eagle Hill Natural History Science Field Seminars: <a href="#">Graphite Illustration: Mastering 3-Dimensionality and Composition</a></td>
</tr>
<tr>
<td>July 8-19, 2019</td>
<td>Missoula, MT</td>
<td>Flathead Lake Biological Station Course: <a href="#">Landscape Ecology</a></td>
</tr>
<tr>
<td>July 8-19, 2019</td>
<td>Missoula, MT</td>
<td>Flathead Lake Biological Station Course: <a href="#">Aquatic Microbial Ecology</a></td>
</tr>
<tr>
<td>July 8-28, 2019</td>
<td>Colorado Springs, CO</td>
<td>Rocky Mountain Field Course: <a href="#">Earth Corps Field Studies</a></td>
</tr>
<tr>
<td>July 8-September 30, 2019</td>
<td>Online</td>
<td>The Swamp School Online Course: <a href="#">Certified Hydric Soils Investigator</a> Other dates offered</td>
</tr>
<tr>
<td>July 8-September 30, 2019</td>
<td>Online</td>
<td>The Swamp School Online Workshop: <a href="#">Principles of Wetland Design</a> Other dates offered</td>
</tr>
<tr>
<td>July 8-September 30, 2019</td>
<td>Online</td>
<td>The Swamp School Online Course: <a href="#">Wetland Monitoring Techniques</a></td>
</tr>
<tr>
<td>July 9-11, 2019</td>
<td>Cooper Harbor, MI</td>
<td>Isle Royale &amp; Keweenaw Association: <a href="#">Keweenaw Plant I.D. Workshop</a></td>
</tr>
<tr>
<td>Date</td>
<td>Location</td>
<td>Course Description</td>
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<tr>
<td>July 11-12, 2019</td>
<td>Denver, CO</td>
<td>Wetland Training Institute, Inc. Course: Advanced Hydric Soils Online with Field Practicum. Other dates and location offered</td>
</tr>
<tr>
<td>July 14-19, 2019</td>
<td>Williamsburg, VA</td>
<td>QUBES Workshop: Evolution of Data in the Classroom: From Data to Data Science</td>
</tr>
<tr>
<td>July 14-20, 2019</td>
<td>Steuben, ME</td>
<td>Eagle Hill Natural History Science Field Seminars: Wetland Identification, Delineation, and Ecology</td>
</tr>
<tr>
<td>July 14-20, 2019</td>
<td>Steuben, ME</td>
<td>Eagle Hill Natural History Science Field Seminar: Taxonomy and Natural History of Northeastern Caddisflies (Trichoptera)</td>
</tr>
<tr>
<td>July 14-29, 2019</td>
<td>Appledore Island, ME</td>
<td>Shoals Marine Laboratory Course: Integrated Ecosystem Research and Management</td>
</tr>
<tr>
<td>July 15-19, 2019</td>
<td>Shepherdstown, WV</td>
<td>U.S. Fish and Wildlife Service Course: Wetland Plant Identification</td>
</tr>
<tr>
<td>July 15-August 12, 2019</td>
<td>Online</td>
<td>The Swamp School Online Course: Phase I Environmental Site Assessment Also offered in November</td>
</tr>
<tr>
<td>July 16-19, 2019</td>
<td>Boston, MA Area</td>
<td>Institute for Wetland &amp; Environmental Education &amp; Research: Plant ID Course: Basic Wetland Delineator Training</td>
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<tr>
<td>July 16-19, 2019</td>
<td>Portage, WI</td>
<td>Wetland Training Institute, Inc. Course: Plant Identification for Wetland Delineators</td>
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<tr>
<td>July 21-27, 2019</td>
<td>Steuben, ME</td>
<td>Eagle Hill Natural History Science Field Seminars: Ericaceae and Heathland Communities of Coastal Maine</td>
</tr>
<tr>
<td>July 21-27, 2019</td>
<td>Steuben, ME</td>
<td>Eagle Hill Natural History Science Field Seminars: Dragonflies and Damselflies: Field Techniques, Identification, and Natural History</td>
</tr>
<tr>
<td>July 21-27, 2019</td>
<td>Steuben, ME</td>
<td>Eagle Hill Natural History Science Field Seminars: Drawing and Painting Birds</td>
</tr>
<tr>
<td>July 22-August 2, 2019</td>
<td>Missoula, MT</td>
<td>Flathead Lake Biological Station Course: Alpine Ecology</td>
</tr>
<tr>
<td>July 22-August 2, 2019</td>
<td>Missoula, MT</td>
<td>Flathead Lake Biological Station Course: Stream Ecology</td>
</tr>
<tr>
<td>July 22-August 2, 2019</td>
<td>Missoula, MT</td>
<td>Flathead Lake Biological Station Course: Unmanned Aerial Vehicle (UAV) Remote Sensing for Freshwater Ecology</td>
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<tr>
<td>July 22-August 5, 2019</td>
<td>Online</td>
<td>The Swamp School Online Course: Data Collection for Environmental Professionals Also offered in December</td>
</tr>
<tr>
<td>July 28-August 2, 2019</td>
<td>Boston University</td>
<td>Ecological Forecasting</td>
</tr>
<tr>
<td>July 28-August 3, 2019</td>
<td>Steuben, ME</td>
<td>Eagle Hill Natural History Science Field Seminars: Mushroom Identification for the Novice: Focus on Edible and Medicinal Mushrooms</td>
</tr>
<tr>
<td>July 28-August 3, 2019</td>
<td>Steuben, ME</td>
<td>Eagle Hill Natural History Science Field Seminars: Leaf and Stem Mining Insects</td>
</tr>
<tr>
<td>Date</td>
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<tr>
<td>July 28-August 10, 2019</td>
<td>Bar Harbor, ME</td>
<td>College of the Atlantic Field Botany: Plants of New England</td>
</tr>
<tr>
<td>July 29-August 2, 2019</td>
<td>Shepherdstown, WV</td>
<td>U.S. Fish and Wildlife Service Course: Restoration Policy, Planning, and Partnering</td>
</tr>
</tbody>
</table>

### August 2019

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Course Description</th>
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<tbody>
<tr>
<td>August 3, 2019</td>
<td>Lake Ariel, PA</td>
<td>Lacawac Sanctuary Field Station and Environmental Education Center Workshop: Harmful Algal Blooms</td>
</tr>
<tr>
<td>August 4-10, 2019</td>
<td>Steuben, ME</td>
<td>Eagle Hill Natural History Science Field Seminars: Microlepidoptera: Collection, Preparation, Dissection, Identification, and Natural History</td>
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<tr>
<td>August 4-10, 2019</td>
<td>Steuben, ME</td>
<td>Eagle Hill Natural History Science Field Seminars: Submersed and Floating Aquatic Plants</td>
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<tr>
<td>August 5-16, 2019</td>
<td>Missoula, MT</td>
<td>Flathead Lake Biological Station Course: Ecology of Forests and Grasslands</td>
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<tr>
<td>August 5-16, 2019</td>
<td>Missoula, MT</td>
<td>Flathead Lake Biological Station Course: Lake Ecology</td>
</tr>
<tr>
<td>August 5-October 28, 2019</td>
<td>Online</td>
<td>The Swamp School Online Course: Certified Wetland Botanist</td>
</tr>
<tr>
<td>August 7-9, 2019</td>
<td>Ann Arbor, MI</td>
<td>CUAHSI: Open Source Urban Hydrology Sensor Bootcamp</td>
</tr>
<tr>
<td>August 9, 2019</td>
<td>Marysville, WA</td>
<td>Wetland Training Institute, Inc. Course: Beginners Plant ID for Wetland Delineation</td>
</tr>
<tr>
<td>August 11-17, 2019</td>
<td>Steuben, ME</td>
<td>Eagle Hill Natural History Science Field Seminars: Lichens, Biofilms, and Stone</td>
</tr>
<tr>
<td>August 11-17, 2019</td>
<td>Steuben, ME</td>
<td>Eagle Hill Natural History Science Field Seminars: EPT Taxonomy and Ecology</td>
</tr>
<tr>
<td>August 12-16, 2019</td>
<td>Shepherdstown, WV</td>
<td>U.S. Fish and Wildlife Service Course: Habitat Conservation Planning for Endangered Species</td>
</tr>
<tr>
<td>August 12-16, 2019</td>
<td>Online</td>
<td>The Swamp School Blended Online and Field Wetland Delineation Workshop Field Days - August 21-22, 2019</td>
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<tr>
<td>August 12-September 6, 2019</td>
<td>Online</td>
<td>The Swamp School Online Course: Basic Botany for Wetland Assessment Other dates offered</td>
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<tr>
<td>August 13-14, 2019</td>
<td>Atlanta, GA</td>
<td>Duncan &amp; Duncan Wetland &amp; Endangered Species Training: Hydrophytic Vegetation (Piedmont)</td>
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<tr>
<td>August 13-16, 2019</td>
<td>Hays, KS</td>
<td>Wetland Training Institute, Inc. Course: Plant Identification for Wetlands and Wetland Delineators</td>
</tr>
<tr>
<td>August 18-24, 2019</td>
<td>Steuben, ME</td>
<td>Eagle Hill Natural History Science Field Seminars: Mushroom Microscopy: An Exploration of the Intricate Microscopic World of Mushrooms</td>
</tr>
<tr>
<td>August 18-24, 2019</td>
<td>Steuben, ME</td>
<td>Eagle Hill Natural History Science Field Seminars: Taxonomy and Biology of Ferns and Lycophytes</td>
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<tr>
<td>Date Range</td>
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<td>Course</td>
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<tr>
<td>August 18-24, 2019</td>
<td>Steuben, ME</td>
<td>Eagle Hill Natural History Science Field Seminars:</td>
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<tr>
<td></td>
<td></td>
<td>Introduction to Bird Banding, Research, and Monitoring for Songbirds</td>
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<td>and Raptors</td>
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<tr>
<td>August 19, 2019</td>
<td>Aliquippa, PA</td>
<td>The Swamp School Course:</td>
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<tr>
<td></td>
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<td>Wetland Delineation Training</td>
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<tr>
<td>August 19-September 13, 2019</td>
<td>Online</td>
<td>The Swamp School Online Course:</td>
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<tr>
<td></td>
<td></td>
<td>Developing Wetland Water Budgets 2019</td>
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<tr>
<td>Other dates offered</td>
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<tr>
<td>August 20-21, 2019</td>
<td>Marquette, MI</td>
<td>Michigan Wetlands Association Course:</td>
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<tr>
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<td></td>
<td>Northern Michigan Wetland Plant Identification</td>
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<tr>
<td>August 20-21, 2019</td>
<td>Niles, MI</td>
<td>Michigan Wetlands Association Course:</td>
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<tr>
<td></td>
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<td>Wetlands Grass Identification</td>
</tr>
<tr>
<td>August 26-29 2019</td>
<td>St. Michaels, MD</td>
<td>Environmental Concern Course:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Grasses, Sedges and Rushes</td>
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</tbody>
</table>

**September 2019**

<table>
<thead>
<tr>
<th>Date Range</th>
<th>Location</th>
<th>Course</th>
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<tbody>
<tr>
<td>September 6-8, 2019</td>
<td>Steuben, ME</td>
<td>Eagle Hill Natural History Science Fall Workshop:</td>
</tr>
<tr>
<td></td>
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<td>Asteraceae: Fall Botanizing and Botanical Surveys</td>
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<tr>
<td>September 9-November 29, 2019</td>
<td>Online</td>
<td>The Swamp School Online Course:</td>
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<tr>
<td></td>
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<td>Certified Wetland Hydrologian</td>
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<tr>
<td>September 10-12, 2019</td>
<td>Avondale, PA</td>
<td>CUAHSI Workshop:</td>
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<tr>
<td></td>
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<td>DIY Water Monitoring Data Portals, and Watershed Modeling</td>
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<tr>
<td>September 16-17, 2019</td>
<td>St. Michaels, MD</td>
<td>Environmental Concern Course:</td>
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<tr>
<td></td>
<td></td>
<td>Evaluating Hydric Soils in the Field</td>
</tr>
<tr>
<td>September 16-October 11, 2019</td>
<td>Online</td>
<td>The Swamp School Online Course:</td>
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<tr>
<td></td>
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<td>Conducting Effective Ecological Risk Assessments</td>
</tr>
<tr>
<td>September 17-18, 2019</td>
<td>Toms River, NJ</td>
<td>Rutgers Office of Continuing Professional Education Course:</td>
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<td>Vegetation Identification for Wetland Delineation: South</td>
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<tr>
<td>September 17-19, 2019</td>
<td>Pocono Mountains, PA</td>
<td>The Swamp School Course:</td>
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<tr>
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<td>Wetland Plant ID Workshop</td>
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<tr>
<td>September 19, 2019</td>
<td>Tuckerton, NJ</td>
<td>Rutgers Office of Continuing Professional Education Course:</td>
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<tr>
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<td>Identification of Tidal Wetland Plants</td>
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<tr>
<td>September 23-25, 2019</td>
<td>New Brunswick, NJ</td>
<td>Rutgers Office of Continuing Professional Education Course:</td>
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<tr>
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<td>Soils and Site Evaluation for Septic Disposal Systems and Stormwater</td>
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<tr>
<td>September 25-26, 2019</td>
<td>Niles, MI</td>
<td>Michigan Wetlands Association Course:</td>
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<tr>
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<td>Advanced Wetland Delineation</td>
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<tr>
<td>September 27-29, 2019</td>
<td>Steuben, ME</td>
<td>Eagle Hill Natural History Science Fall Workshop:</td>
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<tr>
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<td>Fall Maine Mushrooms</td>
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<tr>
<td>September 30-October 4, 2019</td>
<td>St. Michaels, MD</td>
<td>Environmental Concern Course:</td>
</tr>
<tr>
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<td></td>
<td>Basic Wetland Delineation</td>
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</tbody>
</table>
October 2019

October 2-4, 2019
Hillsborough, NJ
Rutgers Office of Continuing Professional Education Course: *Wetland Construction: Principles, Planning and Design*

October 7-November 1, 2019
Online
The Swamp School Online Course: *Developing Wetland Water Budgets 2019*
Other dates offered

October 11-13, 2019
Steuben, ME
Eagle Hill Natural History Science Fall Workshop: *Bryophytes: Mosses and Liverworts*

October 14-18, 2019
Shepherdstown, WV
Stream Mechanics Workshop: *Stream Functions Pyramid*

October 14-November 8, 2019
Online
The Swamp School Online Course: *Basic Botany for Wetland Assessment*
Other dates offered

October 15, 2019
Boulder, CO
CUAHSI Workshop: *The Community WRF-Hydro Modeling System*

October 21-24, 2019
Pittsburgh, PA
The Swamp School Workshop: *Principles of Wetland Design*

October 22-25, 2019
Basking Ridge, NJ
Rutgers Office of Continuing Professional Education Course: *Methodology for Delineating Wetlands*

October 23, 2019
Basking Ridge, NJ
Rutgers Office of Continuing Professional Education Course: *Introduction to Wetland Identification*

October 25-27, 2019
Steuben, ME
Eagle Hill Natural History Science Fall Workshop: *Crustose and Foliose Lichens*

November 2019

November 7-8, 2019
Somerset, NJ
Rutgers Office of Continuing Professional Education Course: *Lake Management*

November 11-13, 2019
St. Michaels, MD
Environmental Concern Course: *Winter Woody Plant ID*

November 11-January 31, 2019
Online
The Swamp School Online Workshop: *Principles of Wetland Design*
Other dates offered

November 25-December 23, 2019
Online
The Swamp School Online Course: *Phase I Environmental Site Assessment*

December 2019

December 2-5, 2019
Atlanta, GA
The Swamp School Course: *Wetland Delineation Training*

December 2-27, 2019
Online
The Swamp School Online Course: *Developing Wetland Water Budgets 2019*
Other dates offered

December 16-27, 2019
Online
The Swamp School Online Course: *Data Collection for Environmental Professionals*
EDITOR’S CHOICE

- Media Release: Nature’s Dangerous Decline ‘Unprecedented’; Species Extinction Rates ‘Accelerating’
- Fifteen AGs slam Trump move to limit federal authority under Clean Water Act
- EPA Issues Guidance on Clean Water Act Permitting Requirements

NATIONAL NEWS

- Interior Secretary Awards States More than $20 Million in Grants Supporting Coastal Wetlands Conservation, Recreation and Communities
- House passes bill to force U.S. to stay in Paris climate agreement
- Sound and fury: Trump administration pushes forward on seismic mapping in Atlantic
- New EPA document tells communities to brace for climate change impacts
- EPA to Provide more than $2.6 Million in Grants for Wetland Programs Across New England
- Interior’s watchdog opens an ethics probe into Bernhardt four days after his Senate confirmation
- After a $14-Billion Upgrade, New Orleans’ Levees Are Sinking
- Barrasso Reintroduces Legislation to Improve Water Quality Certifications
- U.S. hit with two billion-dollar disasters so far in 2019

STATE NEWS

- CA: Bay Area’s Massive Marsh Restoration Project Takes Root
- CA: Endangered wetlands offer vital wildlife habitat and, often, a reason to fight about coastal development
- CT: Can New Haven save its shoreline, protect city from climate change?
- GA: Lawsuit: Sea Island violated law in marsh-filling project
- LA: State hires contractor team to build Mid-Breton Sediment Diversion
- MD: $10,000 reward offered for information about eagle poisonings on Maryland’s Eastern Shore
- MD: Brunswick approves first steps for Watershed Implementation Plan
- MA: Baker-Polito Administration Awards $1.6 Million for River and Wetland Restoration and Climate Adaptation
- OR: 3 Bills Would Ease Rules Around Wetland Development
- PA: Feds working to update flood plain maps
- PA: Snot Otter Emerges Victorious in Vote for Pennsylvania’s Official Amphibian
- SC: Tree-planting effort in upstream SC swamp could help Charleston area’s flooding woes
- TX: Galveston Bay rises with $2 million gift to protect and beautify ecosystem
- TX: Playas Help Texans Live Within Water Means
- VA: Virginia coastal towns brace for rising sea level
- WA: Cooke Aquaculture will pay full $332,000 penalty for fish pen collapse in Puget Sound
- WI: DNR Won’t Overrule Judge’s Decision to Invalidate Frac Sand Wetland Permit
WETLAND SCIENCE NEWS

- A new effort to save birds pinpoints in amazing detail where they fly
- New Studies Highlight Challenge of Meeting Paris Agreement Climate Goals
- Rate of ice loss from Greenland has grown by a factor of six since the 1980s, scientists find
- Study Shows Continuing Impacts of Deepwater Horizon Oil Spill
- A climate change solution slowly gains ground
- Satellite confirms key NASA temperature data: The planet is warming — and fast
- Amphibian apocalypse is twice as bad as scientists thought

RESOURCES AND PUBLICATIONS

- New online tool to help guide conservation efforts
- Improving Implementation of the 2008 Mitigation Rule
- America’s Most Endangered Rivers of 2019
- Moving Toward a Multi-Benefit Approach for Water Management

POTOURRI

- ‘Historic day for Scotland’ as beavers get protected status
- Four New (Old) Ways the White House is Trying to Restrict Science for Policymaking
- Wildflowers: robust, low-maintenance, pollinator-friendly
- Green infrastructure benefits extend beyond stormwater
- Proposed Conservation Agreement for Monarch Butterfly
- Photo Contest Winners Gallery
CALENDAR OF EVENTS

Webinars

May

- American Geophysical Union (AGU) Webinar: Climate Extremes in Present and Future: How Can We Avoid the Worst?
- U.S. Environmental Protection Agency Water Research Program Webinar: Multi-Source Remote Sensing for Assessment and Management of Surface Waters
- EBM Tools Network Webinar: Building Knowledge, Capacity, and Collaborations to Develop Indicators for Ecosystem-Based Fisheries Management in Case Studies across the World
- Ecological Society of America Webinar: Forecasting Ecology in a Changing World
- The Swamp School OSHA Safety Training Webinar: Wetland Assessment

June

- USGS Webinar: Tribal Resources for Climate Change Vulnerability Assessment
- ASWM Members' Wetland Webinar: Identifying Listed Species and Streamlining Section 7 Consultation for Wetland Permitting (And More): Introduction to the US Fish and Wildlife Service’s Online iPaC Tool
- American Trails Webinar: Designing Near Wetlands, Streams, Forests, and Other Environmental Resources

MEETINGS

May 2019

- Arboriculture & Urban Forestry Educators’ Symposium & Summit
- 2019 NAEP Conference: The Environmental Landscape in an Age of Infrastructure Modernization
- Association of State Floodplain Managers 42nd Annual Meeting: Managing Floods Where the Mountains Meet the Desert
- Choose Clean Water Coalition: 10th Annual Choose Clean Water Conference
- Society of Wetland Scientists 2019 Annual Meeting: The Role of Wetlands in Meeting Global Environmental Challenges: Linking Wetland Science, Policy, and Society
- Soil Ecology Society Biennial Meeting
- Ducks Unlimited National Convention

June 2019

- International Urban Wildlife Conference
- 2nd International Conference on Community Ecology
- Third Annual Digital Data in Biodiversity Research Conference: Methods, Protocols, and Analytical Tools for Specimen-based Research in the Biological Sciences
- The College at Brockport, State University of New York: 62nd Annual Conference on Great Lakes Research: Large Lakes Research: Connecting People and Ideas
- Kansas State University: Arthropod Genomics Symposium
- Land Trust Alliance: Seventh Symposium on Advanced Legal Topics in Land Conservation
- 2019 AWRA Summer Specialty Conference: Improving Water Infrastructure Through Resilient Adaptation
- 2019 Great lakes Public Forum
- National Hydrologic Warning Council Conference
- River Network: River Rally
- Joint Conference of the Society for the Study of Evolution, the Society of Systematic Biologists, and the American Society of Naturalist: Evolution Conference
July 2019

- Society for Conservation GIS Annual Conference
- Appalachian Regional Reforestation Initiative (ARRI) Conference: Restoring Productive Forest on Mine Lands in Ohio
- 20th INUA Congress: Life on the Edge

August 2019

- Mid-Atlantic Invasive Plant Council Conference
- Ecological Society of America Annual Meeting
- StormCon

September 2019

- Great Lakes Area of Concern Conference
- International Conference on Ecology & Transportation
- American Fisheries Society and the Wildlife Society Annual Meeting

October 2019

- Natural Areas Association: Natural Areas Conference
- Land Trust Alliance Rally 2019
- San Francisco Estuary Partnership: State of the Estuary Conference
- AASHE Conference: Co-Creating a Sustainable Economy

November 2019

- CERF 2019 25th Biennial Conference: Responsive- Relevant-Ready
- American Water Resources Association: Annual Water Resources Conference
- Alliance for the Chesapeake Bay Watershed Forum: Better Together: Diverse and Innovative Collaborations for the Chesapeake Watershed

December 2019

- AGU Fall Meeting: Science Communication: A Sharing Science Room
Training/Workshops

May 2019

- Michigan Wetlands Association Course: Wetland Delineation Training, USACE Northcentral and Northeast Regional Supplement
- The Swamp School Online Course: Developing Wetland Water Budgets 2019
- CUAHSI Short Course: The Science and Practice of Operational Ensemble Hydrological Prediction
- Wetland Training Institute, Inc. Course: Graminoids (Grasses, Sedges, Rushes) ID for Wetlands and Wetland Delineators
- Tatoosh School Course: Community Ecology
- Rutgers Office of Continuing Professional Education Course: Vegetation Identification for Wetland Delineation: North
- Eagle Hill Natural History Science Field Seminar: Calicioid Lichens and Fungi of the Acadian Forest: Identification and Ecology
- Eagle Hill Natural History Science Field Seminar: Introduction to Bryophytes and lichens
- CUAHSI Short Course: Integrated Simulation of Watershed Systems using Parflow
- Portland State University Course: Lamprey Ecology & Management
- Richardson Soils & Environmental: Florida Wetland Delineation Workshop
- Duncan & Duncan Wetland & Endangered Species Training: Hydrophytic Vegetation (Coastal Plain)

June 2019

- Eagle Hill Natural History Science Field Seminar: Freshwater and Diadromous Fishes of New England
- Institute for Wetland & Environmental Education & Research: Plant ID Course: Wetlands & Their Borders
- Wetland Training Institute, Inc. Course: Plant identification for Coastal Southern California
- Stream Mechanics Workshop: Stream Functions Pyramid
- Isle Royale & Keweenaw parks Association: Isle Royale Plant I.D. Workshop
- The Swamp School Online Course: Wetland Basic Delineation Training 2019
- The Swamp School Online Course: Certified Wetland Hydrologist
- Institute for Wetland & Environmental Education & Research: Plant ID Course: Basic Wetland Delineator Training
- Rutgers Office of Continuing Professional Education Course: Restoration Ecology: Using Mitigation and Sustainable Design Techniques to Reduce Stormwater Impacts and Increase Storm Resiliency
- Center for Conservation and Sustainable Development: Missouri Botanical Garden: R Basics Workshop
- Lacawac Sanctuary Field Station and Environmental Education Center Workshop: Ecology of Aquatic Plants
- Eagle Hill Natural History Science Field Seminars: Mosses: Structure, Ecology, and Identification
- Eagle Hill Natural History Science Field Seminars: Chironomids: Classification, Morphology, Identification, and Lifecycles
- Duncan & Duncan Wetland & Endangered Species Training: Advanced Hydric Soils, Hydrology, and Regional Indicators (Coastal Plain)
- The Swamp School Course: Wetland Delineation Training
- The Swamp School Course: Basic Botany for Wetland Assessment
- Rutgers Office of Continuing Professional Education Course: Methodology for Delineating Wetlands
- Rutgers Office of Continuing Professional Education Course: Introduction to Wetland Identification
- Rutgers Office of Continuing Professional Education Course: Improving Your Gran Writing Skills
- Rutgers Office of Continuing Professional Education Course: Advancing Grant Writing Skills – Build and Improve
- Eagle Hill Natural History Science Field Seminars: Independent Study: Topics in Fungal Biology
- Eagle Hill Natural History Science Field Seminars: Medicinal Plants: Traditions and Contemporary Perspectives
- Colorado State University Course: Summer Soil Institute
- Environmental Concern Course: Basic Vascular Plant ID
- The Swamp School Course: Accelerated Online Wetland Delineation Training Workshop
- Canadian Rivers Institute Course: Applications of Stable Isotopes to Aquatic Ecology
- The Swamp School Online Course: Habitat Conservation Plans
- The Swamp School Online Course: Wetlands 101: Wetlands, Regulations, and You
• Rutgers Office of Continuing Professional Education Course: Green Stormwater Management
• Michigan Wetlands Association Course: Sedges of Michigan Wetlands
• Tatoosh School Course: Case Studies for a Changing World
• Wetland Training Institute, Inc. Course: Advanced Hydric Soils Online with Field Practicum
• Eagle Hill Natural History Science Field Seminars: Sedges and Rushes: Identification and Ecology
• Eagle Hill Natural History Science Field Seminars: Insect and Spider Biology “Through the Lens”
• Wetland Training Institute, Inc. Course: Advanced Hydric Soils Online with Field Practicum
• The Swamp School Course: Wetland Delineation Training
• Wetland Training Institute, Inc. Course: Identifying Grasses, Sedges, and Rushes
• Shoals Marine Laboratory Course: Climate Change and the Gulf of Maine
• Flathead Lake Biological Station Course: Conservation Ecology
• Flathead Lake Biological Station Course: Environmental Sensors: Designing, Building and Deploying in the Field
• Flathead Lake Biological Station Course: Field Ecology
• Flathead Lake Biological Station Course: Seminars in Ecology and Resource Management
• Wetland Training Institute, Inc. Course: Planning Hydrology, Vegetation, and Soils for Constructed Wetlands
• Wetland Training Institute, Inc. Course: Beginners Plant ID for Wetland Delineation
• Bermuda Institute of Ocean Sciences: Coral Reef Ecology: Reef Response to Environmental Change

July 2019

• The Swamp School Online Course: Wetland Basic Delineation Training 2019
• Eagle Hill Natural History Science Field Seminars: Survey of Grasses: Their Structure, Identification, and Ecology
• Eagle Hill Natural History Science Field Seminars: Marine Benthic Invertebrates
• Eagle Hill Natural History Science Field Seminars: Graphite Illustration: Mastering 3-Dimensionality and Composition
• Flathead Lake Biological Station Course: Landscape Ecology
• Flathead Lake Biological Station Course: Aquatic Microbial Ecology
• Rocky Mountain Field Course: Earth Corps Field Studies
• The Swamp School Online Course: Certified Hydric Soils Investigator
• The Swamp School Online Workshop: Principles of Wetland Design
• The Swamp School Online Course: Wetland Monitoring Techniques
• Isle Royale & Keweenaw Association: Keweenaw Plant I.D. Workshop
• Wetland Training Institute, Inc. Course: Advanced Hydric Soils Online with Field Practicum
• QUBES Workshop: Evolution of Data in the Classroom: From Data to Data Science
• Eagle Hill Natural History Science Field Seminars: Wetland Identification, Delineation, and Ecology
• Eagle Hill Natural History Science Field Seminar: Taxonomy and Natural History of Northeastern Caddisflies (Trichoptera)
• Shoals Marine Laboratory Course: Integrated Ecosystem Research and Management
• U.S. Fish and Wildlife Service Course: Wetland Plant Identification
• The Swamp School Course: Phase I Environmental Site Assessment
• Institute for Wetland & Environmental Education & Research: Plant ID Course: Basic Wetland Delineator Training
• Wetland Training Institute, Inc. Course: Plant Identification for Wetland Delineators
• Eagle Hill Natural History Science Field Seminars: Ericaceae and Heathland Communities of Coastal Maine
• Eagle Hill Natural History Science Field Seminars: Dragonflies and Damselflies: Field Techniques, Identification, and Natural History
• Eagle Hill Natural History Science Field Seminars: Drawing and Painting Birds
• Flathead Lake Biological Station Course: Alpine Ecology
• Flathead Lake Biological Station Course: Stream Ecology
• Flathead Lake Biological Station Course: Unmanned Aerial Vehicle (UAV) Remote Sensing for Freshwater Ecology
• The Swamp School Course: Data Collection for Environmental Professionals
• Ecological Forecasting
• Eagle Hill Natural History Science Field Seminars: Mushroom Identification for the Novice; Focus on Edible and Medicinal Mushrooms
• Eagle Hill Natural History Science Field Seminars: Leaf and Stem Mining Insects
• College of the Atlantic Field Botany: Plants of New England
• U.S. Fish and Wildlife Service Course: Restoration Policy, Planning, and Partnering
August 2019

- Lacawac Sanctuary Field Station and Environmental Education Center Workshop: Harmful Algal Blooms
- Eagle Hill Natural History Science Field Seminars: Microlepidoptera: Collection, Preparation, Dissection, Identification, and Natural History
- Eagle Hill Natural History Science Field Seminars: Submersed and Floating Aquatic Plants
- Flathead Lake Biological Station Course: Ecology of Forests and Grasslands
- Flathead Lake Biological Station Course: Lake Ecology
- The Swamp School Online Course: Certified Wetland Botanist
- CUHHSI: Open Source Urban Hydrology Sensor Bootcamp
- Wetland Training Institute, Inc. Course: Beginners Plant ID for Wetland Delineation
- Eagle Hill Natural History Science Field Seminars: Lichens, Biofilms, and Stone
- Eagle Hill Natural History Science Field Seminars: EPT Taxonomy and Ecology
- U.S. Fish and Wildlife Service Course: Habitat Conservation Planning for Endangered Species
- The Swamp School Blended Online and Field Wetland Delineation Workshop
- The Swamp School Course: Basic Botany for Wetland Assessment
- Duncan & Duncan Wetland & Endangered Species Training: Hydrophytic Vegetation (Piedmont)
- Wetland Training Institute, Inc. Course: Plant Identification for Wetlands and Wetland Delineators
- Eagle Hill Natural History Science Field Seminars: Mushroom Microscopy: An Exploration of the Intricate Microscopic World of Mushrooms
- Eagle Hill Natural History Science Field Seminars: Taxonomy and Biology of Ferns and Lycophytes
- Eagle Hill Natural History Science Field Seminars: Introduction to Bird Banding, Research, and Monitoring for Songbirds and Raptors
- The Swamp School Course: Wetland Delineation Training
- The Swamp School Online Course: Developing Wetland Water Budgets 2019
- Michigan Wetlands Association Course: Northern Michigan Wetland Plant Identification
- Michigan Wetlands Association Course: Wetlands Grass Identification
- Environmental Concern Course: Grasses, Sedges and Rushes

September 2019

- Eagle Hill Natural History Science Fall Workshop: Asteraceae: Fall Botanizing and Botanical Surveys
- The Swamp School Online Course: Certified Wetland Hydrologist
- CUHHSI Workshop: DIY Water Monitoring Data Portals, and Watershed Modeling
- Environmental Concern Course: Evaluating Hydric Soils in the Field
- The Swamp School Online Course: Conducting Effective Ecological Risk Assessments
- Rutgers Office of Continuing Professional Education Course: Vegetation Identification for Wetland Delineation: South
- The Swamp School Course: Wetland Plant ID Workshop
- Rutgers Office of Continuing Professional Education Course: Identification of Tidal Wetland Plants
- Rutgers Office of Continuing Professional Education Course: Soils and Site Evaluation for Septic Disposal Systems and Stormwater BMPs
- Michigan Wetlands Association Course: Advanced Wetland Delineation
- Eagle Hill Natural History Science Fall Workshop: Fall Maine Mushrooms
- Environmental Concern Course: Basic Wetland Delineation
October 2019

- Rutgers Office of Continuing Professional Education Course: Wetland Construction: Principles, Planning and Design
- The Swamp School Online Course: Developing Wetland Water Budgets 2019
- Eagle Hill Natural History Science Fall Workshop: Bryophytes: Mosses and Liverworts
- Stream Mechanics Workshop: Stream Functions Pyramid
- The Swamp School Course: Basic Botany for Wetland Assessment
- CUAHSI Workshop: The Community WRF-Hydro Modeling System
- The Swamp School Workshop: Principles of Wetland Design
- Rutgers Office of Continuing Professional Education Course: Methodology for Delineating Wetlands
- Rutgers Office of Continuing Professional Education Course: Introduction to Wetland Identification
- Eagle Hill Natural History Science Fall Workshop: Crustose and Foliose Lichens

November 2019

- Rutgers Office of Continuing Professional Education Course: Lake Management
- Environmental Concern Course: Winter Woody Plant ID
- The Swamp School Online Workshop: Principles of Wetland Design
- The Swamp School Course: Phase I Environmental Site Assessment

December 2019

- The Swamp School Wetland Delineation Training
- The Swamp School Online Course: Developing Wetland Water Budgets 2019
- The Swamp School Course: Data Collection for Environmental Professionals
The Association of State Wetland Managers’ *Wetland Breaking News* (WBN) is a monthly e-newsletter. *Wetland Breaking News* is an edited compilation of wetland-related stories and announcements submitted by readers and gleaned from listservs, press releases and news sources from throughout the United States. WBN chronicles the legislative, national and state news relevant to wetland science and policy, wetland regulations and legal analysis of Supreme court cases from the past month; it also links to new publications and resources available to wetland professionals as well as events and training opportunities for those working in water resources and related fields. *Wetland Breaking News* has been published for over fifteen years and ASWM has been a think-tank and source for wetland science and policy news and discussion for over 30 years.

The items presented in *Wetland Breaking News* do not necessarily reflect the views of the editor or of the Association of State Wetland Managers. Send your news items, comments, corrections, or suggestions to news@aswm.org.

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*Group Photo at the ASWM Annual State/Tribal/Federal Coordination Meeting, April 2-4, 2019, Leesburg, VA*

*John McShane Photo*