Thursday, June 18, 2026

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"Books should go where they will be most appreciated, and not sit unread, gathering dust on a forgotten shelf, don't you agree?"

— Christopher Paolini

Eastern Ecological Science Center Marine Research Highlights

Eastern Ecological Science Center Marine Research Highlights By Eastern Ecological Science Center June 17, 2026 June is National Ocean Month! Explore USGS ocean science and learn how environmental DNA (eDNA) helps Eastern Ecological Science Center study marine ecosystems. Deep sea ocean waters, particularly those greater than 200 meters in depth and often found offshore near the edges of the U.S. Exclusive Economic Zone (EEZ), are still largely unexplored because they are remote and difficult to access. In collaboration with the Bureau of Ocean Energy Management (BOEM), the National Oceanic and Atmospheric Administration (NOAA), USGS colleagues, and other federal agency researchers, the Eastern Ecological Science Center (EESC), is carrying out eDNA studies in marine environments to better understand biodiversity extending from the surface all the way to the seafloor. Role of eDNA Methods in Deep-Sea Research eDNA methods play a crucial role in studying deep-sea habitats. DNA shed by organisms in cellular material such as skin cells, or even entire microscopic life forms like microalgae, can be collected from seawater and sediment samples. Scientists can isolate and sequence this eDNA, enabling the detection and analysis of a wide range of species, including those difficult to observe directly. Sampling water and sediment at marine expedition sites allows researchers to assess biodiversity and identify rare species often missed by traditional methods such as trawling

Source: U.S. Geological Survey

or using cameras on remotely operated vehicles. eDNA collection is also non-invasive, minimizing disturbance to deep-sea ecosystems. Learn more about EESC eDNA research In recognition of National Ocean Month, here is a look at how EESC scientists are using eDNA to enhance understanding of marine environments. Aleutian Islands Seafloor Mapping: Hazards, Minerals, and Deep Corals In September 2025, EESC joined a diverse team of researchers including USGS colleagues from the Wetland and Aquatic Research Center, Pacific Coastal and Marine Science Center, St. Petersburg Coastal and Marine Science Center, and Woods Hole Coastal and Marine Science Center, on a USGS-led expedition in the Aleutian Arc off Alaska in collaboration with BOEM and NOAA. The expedition aims to deliver essential data about energy resources, underwater earthquakes and other hazards, seafloor habitats, biological resources including vital fisheries, and potential seabed minerals. Research objectives within this expedition include using eDNA and genomic techniques to identify organisms that are difficult to spot visually, increase taxonomic accuracy, and build DNA reference libraries for lesser-known deep-sea species. During the expedition, researchers descended to the sea floor aboard ALVIN , a deep-ocean submersible used in scientific exploration. ALVIN can transport two scientists down to 6,500 meters for up to ten hours and has played an important role in numerous ocean discoveries. While on the sea floor, eDNA samples were collected using Niskin bottles attached directly to ALVIN . Throughout the Aleutian Arc voyage, EESC scientist Aaron Aunins gathered over 200 eDNA samples throughout the water

Source: U.S. Geological Survey

column, from the ocean floor up to the surface across multiple locations in the Aleutian Arc. Once the trip was complete, all eDNA samples were frozen and sent to EESC's Leetown Research Laboratory for further analysis. EESC scientists are responsible for sequencing these eDNA samples to identify corals, fishes, invertebrates and other biodiversity. They are also conducting spatial analyses to connect biological communities with geological and oceanographic features to better understand deep-sea ecosystems and food webs. DNA extraction from all samples collected during the 2025 expedition is complete, with DNA sequencing set to start in fall 2026. Learn more about eDNA collection during the expedition here: Detecting Hydrothermal Vents and Collecting Environmental DNA: Investigating the Water Column in the Aleutian Arc | U.S. Geological Survey . Expedition to Study Abyssal Nodules and Ecosystems in Hawaii Media Sources/Usage: Public Domain. View Media Details During fall 2025, USGS scientists led the Hawai‘i Abyssal Nodules and Associated Ecosystems Expedition to examine the geology, minerals, and environment of the deep seabed near Hawai‘i Island in the U.S. EEZ. This effort is a collaboration with BOEM and NOAA. Using eDNA methods will be a key part of this research because they let scientists find and study different organisms living in deep-sea environments. EESC scientists will analyze water and sediment samples gathered during the expedition to extract and sequence DNA fragments shed by microbes, animals, and other creatures in the area. This will help them get a complete picture of the biodiversity, including spotting rare or hard-to-find species that might not show up with

Source: U.S. Geological Survey

other survey methods. Studying eDNA will help scientists figure out which biological communities are found within different kinds of sea floor and environmental settings, and whether there are special groups in places with manganese nodules or other minerals. This approach also allows researchers to link what they find in the biology with the geology and ocean features, giving them a better understanding of how ecosystems are put together and how they stretch across the deep ocean. In the end, using eDNA will fill important gaps in what we know about deep-sea life and help improve worldwide predictions about where minerals are found and what habitats exist. Click here to watch a video about the expedition: Expedition Recap - Hawai‘i Abyssal Nodules and Associated Ecosystems | U.S. Geological Survey Gulf of America Coral Research In the Gulf of America, the USGS is partnering with other federal agencies and research groups to improve coral protection and management in mesophotic and deep benthic communities . Mesophotic coral ecosystems are located in tropical and subtropical areas at depths between about 30 and 150 meters beneath the sea surface. This area is mainly made up of corals, sponges, and algae, which form the structural habitat in this zone. Media Sources/ Usage: Public Domain. View Media Details In March 2026, EESC scientist Cassia Busch joined a NOAA expedition off the coast of Charleston, SC, as part of the Coral Propagation Technique Development project. This project is one of four collaborative projects working to restore mesophotic and deep benthic communities in the Gulf of America. During this expedition, several live Swiftia exserta corals (or orange fan corals), which

Source: U.S. Geological Survey

were first collected in 2021, were returned to the seafloor. These corals have been carefully maintained for over four years at facilities in Charleston, Gainesville, and Miami, where experts monitored their growth and optimized their tank conditions. Now reintroduced to their natural habitat, scientists will observe them over the coming years to study how they grow after being returned to the seafloor. The team also surveyed the seafloor, collecting new coral samples for age and growth analyses, and taking water samples for flow cytometry and eDNA extraction. These samples will help identify which species are in the water column and provide valuable indicators of reef health, including the detection of rare organisms. Since 2022, scientists have collected more than 4,000 samples from throughout the Gulf of America as part of this 8-year project. These samples will help them track changes in the biological community in the area over time using eDNA analysis. EESC is conducting the eDNA analysis for this project and in June 2026, they will join another Gulf expedition to collect more water samples for eDNA analysis. Learn more about this project here: Mesophotic and Deep Benthic Communities: Coral Propagation Technique (CPT) Development Project | U.S. Geological Survey Related Data Connect Partners Items per page 6 12 Label January 15, 2026 Shotgun sequencing of multiple families of Polychaeta from U.S. Atlantic margin seeps and eDNA metabarcoding sequences of benthic community from Cascadia margin seeps using 18S marker, 2018–2019 Shotgun sequencing of multiple families of Polychaeta from U.S. Atlantic margin seeps and eDNA metabarcoding sequences of benthic community

Source: U.S. Geological Survey

from Cascadia margin seeps using 18S marker, 2018–2019 Reported here are the geographic sampling information associated with the raw shotgun sequencing data of multiple families of Polychaeta samples collected from cold seep sites off the U.S. Atlantic margin as well as raw 18S amplicon sequencing data from sediment eDNA collected from Astoria Canyon seeps, located on the Cascadia margin, northeastern Pacific Ocean. Also included are GenBank... By Wetland and Aquatic Research Center June 17, 2025 Mesophotic and Deep Benthic Communities (MDBC) eDNA metabarcoding: PC2202, NOAA Ship Pisces, June 30-July 11, 2022 Mesophotic and Deep Benthic Communities (MDBC) eDNA metabarcoding: PC2202, NOAA Ship Pisces, June 30-July 11, 2022 Data from environmental DNA (eDNA) samples filtered from seawater collected in the Gulf of America during a research expedition on the NOAA Ship Pisces from June 30-July 11, 2022. Samples were collected at depths throughout the water column using Niskins mounted to rosettes on Connectivity-Temperature-Depth instruments (CTDs). Each eDNA sample was amplified using four primer sets: MiFish... By Eastern Ecological Science Center June 17, 2025 Mesophotic and Deep Benthic Communities (MDBC) eDNA metabarcoding: NF2206, R/V Nancy Foster, August 2022 Mesophotic and Deep Benthic Communities (MDBC) eDNA metabarcoding: NF2206, R/V Nancy Foster, August 2022 Data from environmental DNA (eDNA) samples filtered from seawater collected in the Gulf of America during a research expedition on the R/V Nancy Foster in August 2022. Samples were collected at depths throughout the water column using Niskins

Source: U.S. Geological Survey

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eastern continental margin RADSeq Data to assess population structure of Desmophyllum pertusum found along the United States eastern continental margin This dataset contains metadata about the origin of the cold-water coral samples that were RAD sequenced and the single nucleotide polymorphism (SNPs) generated for population genomic analyses. These data were used to examine patterns of genomic structure of Desmophyllum pertusum from throughout US waters along the eastern continental margin and the Gulf of Mexico. The raw sequence data... By Eastern Ecological Science Center July 15, 2024 Deep SEARCH eDNA metabarcoding data Deep SEARCH eDNA metabarcoding data The Deep SEARCH Project (Deep sea exploration to advance research on cold corals/canyon/cold seep habitats) included a cruise in April 2019 aboard the NOAA ship Ron Brown to various sites along the Mid-Atlantic North American coast. An ROV was used to collect samples of bottom water at these sites, which were then subjected to eDNA extraction and analyses. This data release describes... By Eastern Ecological Science Center Wetland and Aquatic Research Center - Gainesville, FL Wetland and Aquatic Research Center - Gainesville, FL 7920 NW 71st St. Gainesville , FL 32653 United States Phone 352-378-8181 Pacific Coastal and Marine Science Center Pacific Coastal and Marine Science Center 2885 Mission Street Santa Cruz , CA 95060 United States Phone 831-460-7401 St. Petersburg Coastal and Marine Science Center St. Petersburg Coastal and Marine Science Center 600 4th Street South St. Petersburg , FL 33701 United States Phone 727-502-8000 Woods Hole Coastal and Marine Science Center Woods

Hole Coastal and Marine Science Center 384 Woods Hole Rd. Woods Hole , MA 02543 United States Phone 508-548-8700 Label Bureau of Ocean Energy Management (BOEM) Bureau of Ocean Energy Management (BOEM) Japan Agency for Marine-Earth Science and Technology Japan Agency for Marine-Earth Science and Technology National Oceanic and Atmospheric Administration (NOAA) National Oceanic and Atmospheric Administration (NOAA) Scripps Institution of Oceanography Scripps Institution of Oceanography Smithsonian Institution (SI) - National Museum of Natural History Smithsonian Institution (SI) - National Museum of Natural History University of Hawaii - Manoa University of Hawaii - Manoa Woods Hole Oceanographic Institution Woods Hole Oceanographic Institution Related Data Items per page 6 12 Label January 15, 2026 Shotgun sequencing of multiple families of Polychaeta from U.S. Atlantic margin seeps and eDNA metabarcoding sequences of benthic community from Cascadia margin seeps using 18S marker, 2018–2019 Shotgun sequencing of multiple families of Polychaeta from U.S. Atlantic margin seeps and eDNA metabarcoding sequences of benthic community from Cascadia margin seeps using 18S marker, 2018–2019 Reported here are the geographic sampling information associated with the raw shotgun sequencing data of multiple families of Polychaeta samples collected from cold seep sites off the U.S. Atlantic margin as well as raw 18S amplicon sequencing data from sediment eDNA collected from Astoria Canyon seeps, located on the Cascadia margin, northeastern Pacific Ocean. Also included are GenBank... By Wetland and Aquatic

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Scripps Institution of Oceanography Scripps Institution of Oceanography Smithsonian Institution (SI) - National Museum of Natural History Smithsonian Institution (SI) - National Museum of Natural History University of Hawaii - Manoa University of Hawaii - Manoa Woods Hole Oceanographic Institution Woods Hole Oceanographic Institution

Source: U.S. Geological Survey

NASA’s Webb Catches Exoplanet Getting Roasted

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Source: NASA

80606 b, an exoplanet four times the mass of Jupiter with an extremely elliptical orbit that sweeps close by its Sun-like star. The research team is presenting their study and preliminary findings Tuesday at the 248th meeting of the American Astronomical Society in Pasadena, California. “Hot Jupiters are already considered some of the most extreme exoplanets we know of, but even among that population, HD 80606 b is one of the most extreme,” said Tiffany Kataria, the study’s principal investigator at NASA’s Jet Propulsion Laboratory in Southern California. “We typically think of hot Jupiters as hot gas giants sitting right next to their stars, but this planet’s highly eccentric orbit creates a completely different beast.” As the planet plunges close to its star, Webb shows its temperature skyrockets by 1,100 degrees Fahrenheit. Previous studies have shown that radical temperature swings can cause an exoplanet’s chemistry and clouds to change in real time. According to the research team, the dynamic conditions of HD 80606 b make the planet an ideal target to observe these changes with Webb’s powerful instruments. Image: Artist’s concept exoplanet HD 80606 b This artist’s concept shows exoplanet HD 80606 b being “roasted” as its orbit approaches periastron, the point at which it is closest to its host star, which is similar to our Sun. Artwork: NASA, ESA, CSA, Joseph Olmsted (STScI) “Observing a planet like HD 80606 b is actually very efficient because its unusual orbit, with the corresponding swings in temperature and chemical composition, allow us to gather data under varying conditions in just hours and apply those findings to other hot Jupiters or more conventional exoplanets,” said Laura C. Mayorga, co-

Source: NASA

investigator on the study and an exoplanet astronomer at the Johns Hopkins Applied Physics Laboratory in Laurel, Maryland. Measurements of temperature and chemical composition were done with spectroscopy , a technique scientists use to break light into its component colors to reveal information about the composition, temperature, motion, and physical properties of objects in space. The team used Webb's MIRI (Mid-Infrared Instrument) for an extended observation of HD 80606 b before, during, and after its periastron, or closest pass by its star. During periastron, the planet also passed behind the star from Webb's perspective in what's known as a secondary eclipse . The observation was years in the planning, as scheduling the time to catch the planet at this point was complex given its extremely elliptical 111-day orbit , and Webb's own restrictions on where it can look during specific times of the year, based on Earth's position in orbit around the Sun. Researchers say they have only begun to peel back the layers of an incredibly rich dataset, but they can clearly see a dramatic shift in the exoplanet's temperature. "Webb has shown that the planet's increase in temperature was even more extreme than we anticipated based on Spitzer data," said Kataria. In fact, the planet had already been dubbed the " roasted exoplanet " and even got its own poster in NASA's popular series . NASA's now-retired Spitzer Space Telescope laid the groundwork of infrared observations of HD 80606 b, showing that more detailed spectroscopic data from Webb would be especially compelling. "Spitzer did amazing work on this exoplanet, and now Webb is building on that legacy by enabling us to drill down to distinguish specific

Source: NASA

chemical signatures like methane and carbon dioxide, which is just amazing progress," said Ryan Challener, co-author and research associate at the Cornell Center for Astrophysics and Planetary Science. "There's so much to learn from this one dataset here — we really are just getting started deciphering what Webb has to tell us." The James Webb Space Telescope is the world's premier space science observatory. Webb is solving mysteries in our solar system, looking beyond to distant worlds around other stars, and probing the mysterious structures and origins of our universe and our place in it. Webb is an international program led by NASA with its partners, ESA (European Space Agency) and CSA (Canadian Space Agency). For more information on Webb, visit: science.nasa.gov/webb Downloads & Related Information The following sections contain links to download this article's images and videos in all available resolutions followed by related information links, media contacts, and if available, research paper and Spanish translation links. Related Images & Videos HD 80606 b (Artist's Concept) This artist's concept shows exoplanet HD 80606 b being "roasted" as its orbit approaches periastron, the point at which it is closest to its host star, which is similar to our Sun. Related Links Este Artículo en Español – "Telescopio Webb de la NASA Detecta un Exoplaneto Asandose" Read: Webb's Impact on Exoplanet Research Watch: How to Study Exoplanets: Webb and Challenges Explore: Eyes on Exoplanets Print: The Roasted Exoplanet Poster More Webb: News | Images | Science | Home Page Share Details Last Updated Jun 17, 2026 Location NASA Goddard Space Flight Center

Source: NASA

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Putting a ring on it

Aroostook National Wildlife Refuge and Mi’kmaq Nation celebrate a new co-stewardship agreement Written By Image Jalyn Williams As the northernmost national wildlife refuge national wildlife refuge A national wildlife refuge is typically a contiguous area of land and water managed by the U.S. Fish and Wildlife Service for the conservation and, where appropriate, restoration of fish, wildlife and plant resources and their habitats for the benefit of present and future generations of Americans. Learn more about national wildlife refuge east of the Great Lakes, Aroostook National Wildlife Refuge in Maine is a mix of untouched forests, grasslands, and wetlands. Despite its somewhat remote location, the visitor center was recently buzzing with people wanting to learn about a new partnership to enhance conservation on the refuge and strengthen relations between the government and the federally recognized Mi’kmaq Nation. On Earth Day, officials from the U.S. Fish and Wildlife Service and Mi’kmaq Nation came together at a public event to celebrate a co-stewardship agreement that solidified the partnership between Aroostook National Wildlife Refuge and the Nation. The holiday’s theme of joining together to protect the Earth fit perfectly with the collaboration and stewardship that led to the agreement. In the beginning In 2024, wildlife refuge specialist Lachlin Robertson spent the summer at Aroostook National Wildlife Refuge as part of a trainee program to learn more about

Source: U.S. Fish & Wildlife Service

the refuge system. Refuge manager John Magera encouraged Robertson to pursue projects that interested him. Because Aroostook National Wildlife Refuge is part of the Northern Maine National Wildlife Refuge Complex and managed by staff at Moosehorn National Wildlife Refuge, Aroostook doesn't have dedicated full-time staff. Robertson's presence opened the refuge up to new possibilities. Upon arrival, Robertson met up with longtime volunteer and the first president of the Friends of Aroostook, Wayne Selfridge, for a tour of the refuge. During the tour, Selfridge mentioned there was a tree species called brown ash present on the refuge that held cultural significance to a nearby tribal nation. With his background in forest ecology, Robertson researched the tree to learn its significance. He learned that the wood of the brown ash tree could be permanently bent and historically was favored for making snowshoe frames, barrel hoops, canoe ribs, and woven baskets. He also learned that this tree species is threatened by an invasive species invasive species An invasive species is any plant or animal that has spread or been introduced into a new area where they are, or could, cause harm to the environment, economy, or human, animal, or plant health. Their unwelcome presence can destroy ecosystems and cost millions of dollars. Learn more about invasive species of beetle called the emerald ash borer that is making its way through the northeastern United States. It was then that he knew exactly what project he wanted to pursue in his time at Aroostook. "I immediately knew I wanted to work with the tribe and help them access their ancestral natural resources," Robertson said. He and Selfridge

Source: U.S. Fish & Wildlife Service

reached out to the Nation to see how they could collaborate to protect the brown ash. Working with the Mi'kmaq Nation The Mi'kmaq Nation received federal recognition in 1991, when they were known as the Aroostook Band of Micmacs. Since time immemorial, the Mi'kmaq have occupied the lands south and east of the Gulf of Saint Lawrence, the Maritime Provinces and other regions along the Atlantic Seaboard of Northeastern America. Aroostook National Wildlife Refuge is located within the Nation's ancestral homeland. The Nation possesses tribal lands that border the refuge. This proximity reinforces the value of a partnership between the Nation and the refuge, according to Shannon Hill, Environmental Health Director for Mi'kmaq Nation. As a citizen of the close-knit tribal community in Aroostook County, Hill had met members of the refuge's highly dedicated Friends Group and frequented the refuge's visitor center to get native species plush toys for her family. But when Robertson and Selfridge reached out about ways to collaborate, a partnership between the two governments truly started to form. "The refuge doesn't typically have dedicated full time staff, so it was great to have Lachlin there," Hill said. "He made the connection with us and reached out to see if he could meet with our forester to talk about brown ash." Robertson informed Hill that the trees were present on the refuge and that he wanted to work with the Nation to allow sustainable harvest while protecting the stands from emerald ash borers. Hill arranged for the Nation's forester and one of their elders to visit the refuge to determine if the trees were ready for immediate harvest. Fortunately, they were able to

Source: U.S. Fish & Wildlife Service

harvest some logs for tribal basket makers. After this first successful collaboration, Robertson, Selfridge and Hill began brainstorming other ways to work together. Lynx Trail Selfridge had a vision to create an interpretive trail that would connect the refuge and the Nation’s lands. After presenting the idea to the Nation and receiving permission from Hill, Selfridge and Robertson spent weeks walking through the properties to envision a perfect trail. It had to display the wealth of habitats present in the area while evoking what the land looked like when it was stewarded by the Mi’kmaq Nation prior to the twentieth century. They decided on a two-mile stretch that featured new and old forest, riparian riparian Definition of riparian habitat or riparian areas. Learn more about riparian areas and wetlands. It was named Lynx Trail in recognition of the Canada lynx abundant in the area. In Mi’kmaq language, the trail is called Apugsign (“ah-book-see-gen"). The interpretive signs along the trail tell the history of the Mi’kmaq Nation and include Mi’kmaq language translations and pronunciation guidance. Robertson was especially excited about the development of these signs. “It makes me so happy to think that people will be able to read the Nation’s language while walking through and learning about the lands they’ve historically stewarded,” Robertson said. With so much great work completed in just a few weeks, both parties were interested in continuing the partnership. But with Robertson’s time at the refuge coming to an end, the Nation had concerns about their access to refuge lands and Service resources going forward. They had to come up with a plan to ensure the refuge and Nation could continue their co-

Source: U.S. Fish & Wildlife Service

stewardship relationship for the land without a dedicated employee at the refuge. After reading an article about a co-stewardship agreement out west, Hill proposed the idea at a meeting of Service staff and Nation members. In her words, “It was time to put a ring on it.” The Service’s regional tribal liaison Tim Binzen informed the group that a productive and collaborative partnership for conservation had developed between the Rappahannock Tribe and Rappahannock River Valley National Wildlife Refuge in northern Virginia. This success story provided inspiration to get started on a new co-stewardship agreement in the Northeast. The agreement In the months following Robertson’s departure from Aroostook, the Nation and Service staff worked together to draft a co-stewardship agreement, which was finalized in early 2026. The agreement outlines how the refuge and Mi’kmaq Nation will share knowledge, facilitate access to each other’s lands and facilities, and collaborate on programming at the refuge and on the Nation’s lands to preserve cultural knowledge and educate the public about the Nation’s heritage. Along with collaborating on grant applications and maintaining a database of native plants present on the refuge, the refuge committed to creating opportunities for citizens of Mi’kmaq Nation to gain experience in refuge operations and ecological research. The refuge had already done outreach with tribal youth. “For the past couple summers, we've been bringing our youth up for a summer camp and the last day is always at the refuge,” Hill said. “They get to go up to the visitor center and play a couple outside games with the volunteers. And then they get little coupons to spend in the gift shop to

Source: U.S. Fish & Wildlife Service

buy a little stuffed animal souvenir.” With enhanced access to refuge lands, Hill says they have plans for wildlife management studies in the refuge’s Little Madawaska River division. “We plan on doing some eDNA testing this summer and we're going to include that property in our study area.” Continued maintenance of the Lynx Trail and an expansion of the trail network between properties are also part of the agreement. Though there is no transfer of land as part of this agreement, Hill says it provides the Nation with something equally valuable. “We don’t have much money to buy land back, but access to ancestral homelands for cultural practices is the next best thing,” Hill said. Signing day With the agreement written and finalized, all that was left to do was make it official. On Earth Day, the Mi’kmaq Nation and the Service held a signing event in the visitor center of Aroostook National Wildlife Refuge. To kick off the day, attendees heard remarks from Robertson, Hill, and Binzen, who reflected on the origins and growth of the co-stewardship collaboration. Then, Acting Northeast Regional Director Sharon Marino and Mi’kmaq Nation Chief Sheila McCormack spoke before signing the agreement, joining the refuge and Nation into an official partnership that can be renewed every five years. As this was the first tribal co-stewardship agreement Marino had signed, she remarked on how excited she was to see how it would strengthen relations between the refuge and Nation going forward. “I was honored to sign this agreement with Chief McCormack,” Marino said. “We look forward to working with the Nation as partners to steward the wildlife, plants, and habitats that make this place so special.” After the

Source: U.S. Fish & Wildlife Service

signing, attendees stepped outside to view the trailheads for the Lynx Trail (Apugsign) and see Robertson and former Mi’kmaq Nation Tribal Historic Preservation Officer Jenny Gaenzle install two of the new interpretive signs. Hill hopes this agreement will inspire similar ones across the country. “I want this agreement to make a big splash, not only with U.S. Fish and Wildlife, but I want other agencies to see what we're doing and maybe use that as inspiration to reach out to us and work together,” Hill said. In reflecting on the journey from inquiring about brown ash to finalizing an agreement to collaborate for half a decade and beyond, Robertson recalled attending the Mi’kmaq Nation’s traditional celebration, called a Mawiomi, and finding a special craftwork. “I visited an artisan basket weaver’s booth and bought a beautiful lilac and silver basket that he made from brown ash,” Robertson said. “Every time I look at that basket now, I think about what an absolute pleasure it was working with the Mi’kmaq Nation and I just can’t wait to see what comes next.” Story Tags American Indians Cultural resources Special events Trails Tribal lands Wildlife refuges Recreational Activities Accessible trails Cultural heritage Written By Image Jalyn Williams History and Culture Facilities Aroostook National Wildlife Refuge Related Stories History and Culture Co-stewardship: Southeastern Massachusetts Fish Hatchery Works With Tribes Feb 10, 2026 Latest Stories A Mission of Mapping Jun 17, 2026 County Road Work Impacting Access at Kootenai NWR Jun 17, 2026 Current Road Conditions at Pocosin Lakes National Wildlife Refuge Jun 17, 2026

Source: U.S. Fish & Wildlife Service

Fishing Fun, Tradition, and Competition!

Fishing is a core part of our culture, tradition, and method for gathering food in the Pacific Islands region. In fact, many locals prefer the term “non-commercial” fishing, because “recreational” implies we are simply playing with our food. In our island communities, the ocean is our icebox. Its fish and ecosystems sustain us, and we treat them with that level of respect. But there are times when we do play for our food—during fishing tournaments! Fishing tournaments in Hawai‘i can range from bamboo handpoles on the shoreline to 45-foot charter boats chasing blue marlin—and everything in between! While the big-game contests often get the headlines, many of our most meaningful local events focus on community, conservation, and our keiki. Hear from the fishers, dedicated community organizers, and next-generation champions who share their stories and winning tips from these special events. Eat the Invaders Fishing Tournament – Maunalua, O‘ahu Mālama Maunalua’s "Eat the Invaders" tournament turns fishing and reef conservation into a community celebration. By targeting invasive species like ta‘ape, to‘au, and roi, fishers help balance local reef ecosystems while supporting eating local. Champion Spotlight: Henry Ta Henry and his small-boat team recently claimed the top spot. Here's what he had to say about the experience. Why did you choose to fish this particular competition? Was this your first time fishing in an invasive species tournament? I fish in many tournaments each year,

Source: NOAA Fisheries

but this was my first invasive species tournament. I've been fortunate to win several tournaments over the past few years and was honored to receive Wailua Boat Club Fisherman of the Year in both 2023 and 2024. My team and I wanted to give back to the ocean and bring awareness to the invasive situation. As you were headed back to shore, did you think you had enough to win? Our team caught 278.15 pounds of invasive fish. Honestly, I thought we would place, but did not feel confident as there were other very skilled fishermen that entered the tournament. Would you recommend this tournament to others, and would you enter it again? Also, what's your perspective on eating invasive fish? I would highly recommend this tournament for those who have a passion to clean the reef. Yes, definitely looking forward to another tournament that promotes eating invasive fish. I think invasive fish are a highly underrated food source. Part of that may be because they look more like aquarium fish than the fish most people are used to eating. I hope more people understand that by eating these invasive species, we can help reduce pressure on harvesting native fish populations. Many people enjoy eating fish like menpachi, but personally, I prefer taʻape and toʻau because they have fewer bones. Their diet mainly consists of crustaceans and mollusks, which gives them a versatile, clean white meat. My favorite ways to prepare them are fried whole so I can snack on the crispy fins, steamed Chinese-style, made into ceviche, or served as fish tacos. Annual Keiki Fishing Tournament – Punaluʻu, Hawaiʻi Island ʻO Kaʻū Kākou hosted their annual Keiki Fishing Tournament in February 2026. Kids lined the

Source: NOAA Fisheries

shoreline equipped with handpoles, barbless hooks, bait, and a bucket. A little bit of rain and some waves didn’t stop the kids from bringing up a variety of fish! Organization Spotlight: ‘O Ka‘ū Kākou ‘O Ka‘ū Kākou is a non-profit community service organization with goals to promote a healthy Ka‘ū community through activities such as health initiatives, housing projects, and community events—like fishing tournaments. What tip or advice would you give to someone who's never fished before? I would say it might require some patience, but try to have fun with it! Fishing can be frustrating if you aren't catching anything, but keep trying, and eventually you will catch something! What about someone who's interested in tournament fishing? Tournament fishing can be a little more competitive, so maybe start with some smaller tournaments or get some practice in beforehand. Is there a difference between fishing in a tournament vs. an ordinary day of fishing? A fishing tournament has a time limit and might have limited types of fish you can catch. Sometimes it might not be as fun as an ordinary day of fishing, unless you happen to catch a big one! What do you think draws people to play in the tournament? Some people like to enter just for the fun of fishing and the adventure. Others may enter because there are good prizes or might be in a location they haven't fished at before. What aspect of a fishing tournament is exciting and fun for you? What's exciting and fun to me is the adrenaline of not knowing what's going to happen…wondering how much competition there will be, how the water will be that day, and whether the fish will be biting. ‘Ō‘io Invitational Tournament – Island-Wide, O‘ahu

Source: NOAA Fisheries

The Kakaʻako Kasting Club's ʻōʻio (bonefish) tournament is a true test of a shore-based angler's skill. Participants are restricted to spots reachable by foot—no boats or flotation devices allowed. While ʻōʻio are popular gamefish worldwide, they hold a unique status in Hawaiʻi: They're prized not just for the challenge of the catch, but for their high value as local table fare. Champion Spotlight: Keith Kamikawa Keith took the top spot in the 2026 ʻŌʻio Invitational Tournament on Oʻahu. As a lifelong fisherman and one of NOAA's very own sustainable fisheries staffers, Keith shares his perspective on the win. Was there a moment you thought you might lose "the big one?" I lost a big ʻōʻio at the same spot during a previous tournament, so I was super anxious the entire fight, not just one moment. I actually lost that big ʻōʻio at my feet—it was so close I could've almost grabbed it. But at the same time, I like to tell myself to enjoy the moment when I'm connected to the fish. So, when I got this fish close to shore I was super careful and paying attention to everything. Did you think it was a winning catch? When I pulled the fish up on the beach, I definitely knew it would place, especially since there's a 1st through 8th place for the ʻōʻio category. It's not everyday you get to catch an ʻōʻio of that caliber, especially during a specific finite amount of time like a tournament. It ended up being 12.26 pounds—for those that are familiar with bonefish, that's a pretty big one! Can you describe the moment you first brought the fish up? I knew it was going to be a decent-sized ʻōʻio based on how long the fight was and how heavy it felt on the rod, but I didn't think it was going to be that big. I was super excited and thankful

Source: NOAA Fisheries

all at the same time. After I took a couple of pictures, I pretty much started packing up my stuff to go home. I knew there was no way I'd catch an ʻōʻio close to that size, not during that tournament, or maybe not ever. It's kinda like when a hunter is thankful for the animal they just harvested, I was appreciative of the fish, the fight, and the fish ended up providing a ton of food for a family party. Tournaments take a lot of time, work, and dedication to pull off. But ultimately, they are much more than just an opportunity to win prizes—they are a time to spend with family and friends, catch food, and connect with our special places.

Source: NOAA Fisheries

Tennessee Valley Corridor summit participants focus on AI, quantum initiatives

Published: June 16, 2026 Updated: June 16, 2026 ORNL Director Stephen Streiffer (left) and UT System President and chairman of UT-Battelle Randy Boyd (right) listen as Deputy Secretary of Energy James P. Danly delivers remarks. Credit: Amy Smotherman Burgess/ORNL, U.S. Dept. of Energy Leaders from government, industry and research institutions, including the Department of Energy’s Oak Ridge National Laboratory, gathered at the Tennessee Valley Corridor (TVC) National Summit, held May 28-29 in Chattanooga, to discuss how advances in artificial intelligence, quantum technology and energy can strengthen the region's competitive advantage and create new economic opportunities. TVC influence spans more than a dozen congressional districts in Alabama, Kentucky, North Carolina, Tennessee and Virginia. U.S. Reps. Chuck Fleischmann and John Rose, each representing Tennessee districts, delivered remarks that highlighted how the TVC drives regional competitiveness and initiatives that enable a strong talent pipeline that will fill the openings today and respond to the demands of the jobs of tomorrow. Additionally, they discussed how the rising demand for energy as companies and families move to the region in search of opportunity will continue to fuel economic development. Several speakers pointed to the region's institutions as key contributors to that growth, with ORNL

Source: Oak Ridge National Laboratory

highlighted as a longstanding driver of technological innovation and industry partnerships. ORNL's research drives industry innovation ORNL Director Stephen Streiffer spoke on the lab’s long history of developing not only the fundamental science that has accelerated the growth of cutting-edge industries like fusion power, AI and quantum technologies, but also had direct impact on the private sector and the success of the nation. Noting that the first ORNL institute dedicated to artificial intelligence was formed in 1979 — the Oak Ridge Applied Artificial Intelligence Project — Streiffer confirmed that ORNL’s decades of leadership in high-performance and advanced computing has positioned the U.S. and private industry to lead the world in innovative technologies. “In the lead-up to the launch of Titan in 2012, a small company and ORNL started to work together,” said Streiffer. “That company made chips that went into gaming consoles. They had a vision that they could adapt these chips for HPC and they could be incorporated into the supercomputer that we were beginning to build.” That company, Nvidia, was the first ever company to hit a record $5.5 trillion in value. “That’s a direct result of the work that happened here in Tennessee,” said Streiffer. Nvidia is just one example of how laboratory research partnerships can generate lasting economic impact. ORNL continues that collaborative model through initiatives such as the Genesis Mission . The Genesis Mission is a national initiative led by the DOE and the national laboratory complex to build the world’s most powerful scientific platform to accelerate discovery science, strengthen national security and drive energy innovation. It does so by

Source: Oak Ridge National Laboratory

enabling AI-driven, exascale-powered advances that enhance America’s energy innovation, global competitiveness and security. Innovation is central to not only our economic security, said Streiffer, but also our national security. “Considering the scaling of AI and the impact that it has on our existing energy systems, we must come up with better solutions, including quantum, that will allow us to succeed in this space.” Tennessee's competitive advantage comes from the diversity of assets already in place across the state. Innovation moves faster when institutions work together. Together, we can de-risk some of the technologies currently under development, accelerate commercialization and ensure that the benefits of innovation are shared broadly across our communities. - Shaun Gleason, ORNL Partnerships director While ORNL continues to advance next-generation technologies, state leaders are also working to create the partnerships and infrastructure needed to move those technologies into broader use. Tennessee Quantum Initiative aims to connect assets, workforce and industry A panel discussion on the recently announced Tennessee Quantum Initiative (TQI) followed Streiffer’s remarks. The state of Tennessee recently pledged $43 million for TQI, which is designed to build the ecosystem that moves quantum technologies toward real-world adoption. Institutions from around the state will work in unison to leverage different quantum assets to support partnerships that spur regional growth. U.S. Representative Chuck Fleischmann welcomed attendees to the Tennessee Valley Corridor National Summit. Credit: Amy Smotherman Burgess/ORNL, U.S. Dept. of Energy “Tennessee's competit-

Source: Oak Ridge National Laboratory

ive advantage comes from the diversity of assets already in place across the state," said Shaun Gleason, ORNL Partnerships director. "Innovation moves faster when institutions work together. Together, we can de-risk some of the technologies currently under development, accelerate commercialization and ensure that the benefits of innovation are shared broadly across our communities." As TQI expands Tennessee's quantum infrastructure and increases access to quantum resources, leaders said the initiative could accelerate industry adoption of emerging technologies across sectors ranging from logistics, transportation, energy and advanced manufacturing. By connecting industry with academia and research institutions, TQI aims to accelerate research and workforce development, as well position Tennessee as a destination for quantum innovation. The effort complements broader statewide initiatives, including the recently announced K-Quantum Accelerator, which will aid in hiring new UTK faculty members with expertise spanning quantum hardware and software and help spur investments in a new 100,000-square-foot quantum foundry in Knoxville. UT-Battelle manages ORNL for the Department of Energy's Office of Science, the single largest supporter of basic research in the physical sciences in the United States. The Office of Science is working to address some of the most pressing challenges of our time. For more information, please visit energy.gov/science . — Brynn Downing Media Contact Brynn B Downing , Executive Communications Specialist , DOWNINGCB@ORNL.GOV

Source: Oak Ridge National Laboratory

Activity Time - Word Search

Find the words below in the puzzle. Words go across or down only.

Words to Find:

Z	E	S	Y	D	G	S	U	N	S	P
A	H	X	I	V	W	R	M	O	J	S
Q	B	S	G	S	T	M	A	D	P	H
Z	P	I	M	U	M	O	Z	D	H	V
D	T	K	D	M	I	I	H	P	J	L
J	D	O	G	U	E	T	X	X	G	F
M	H	N	Q	X	X	D	I	C	J	G
N	N	H	I	R	O	H	Q	V	U	J
Z	H	J	A	B	U	E	O	Q	I	O
S	P	I	R	L	Z	C	U	T	M	Q
Q	M	D	V	T	K	J	O	O	A	W