Natural Resource Quarterly

Newsletter of the National Capital Region Inventory & Monitoring Network

National Park Service
U.S. Department of the Interior

National Capital Region
Inventory & Monitoring Network

Summer 2017

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http://science.nature.nps.gov/im/units/ncrn/index.cfm

Subsistence Fishing Along DC Area Shorelines

Indigenous communities and early Europeans who lived in or visited our region harvested plentiful supplies of fish from the Potomac and Anacostia Rivers. Yet the fact that people today still fish and eat from these rivers takes many by surprise.

To learn more about these non-recreational fishers, a group of researchers led by Shirley Fiske, Professor of Anthropology at University of Maryland, is conducting an ethnographic study facilitated through the Chesapeake Watershed Cooperative Ecosystems Studies Unit (CW CESU).

An ethnographic study looks at people and their culture. Fiske's study focuses on anglers who fish and eat from the Potomac and Anacostia Rivers. By gathering information through interviews with the anglers themselves, this study will provide park managers good ethnographic data to inform resource management decisions.

The researchers want to know who these anglers are, who taught them to fish, which NPS parks are their favorite fishing holes, and what fishing and the parks mean to them. Additionally, the study covers:

- The reasons people fish the river and eat their catch
- The extent of food insecurity among people who fish
- How history and culture inform where people fish and which fish they eat
- Which species of fish people prefer to eat, which species they prefer to share
- How fishing contributes to establishing a sense of place

Researchers are using interview responses to generate maps of where anglers fish and how far they travel to reach a park as well as statistics and stories.

As the researchers work on their analysis, some trends and themes are emerging. The average angler in the study is 44 years old and has fished the Anacostia and Potomac

FISHING Continued on p2

An angler fishing near the Woodrow Wilson Bridge over the Potomac River. (NPS photo)

SUBSISTENCE FISHING From p1

NPS Photo

An angler displays a freshly caught blue catfish, one of the most commonly shared fish amongst those interviewed.

for more than 15 years. Most can cite fishing regulations and many are aware that eating too much of their catch poses health risks, but not necessarily the details of why it is risky and the degree of risk. [Interviewers were neutral observers regarding fishing regulations and fish consumption guidelines.]

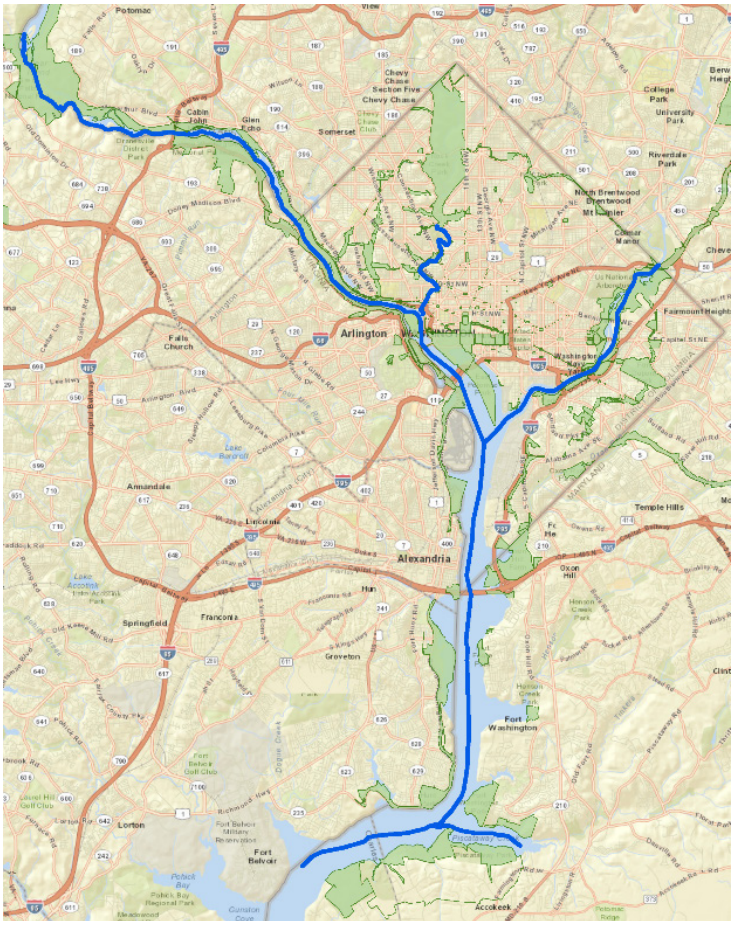
Even if they did not eat the fish themselves, all of the anglers interviewed shared fish like blue catfish and striped bass (locally known as rockfish) with family, friends, neighbors, and even with strangers. Other species of fish being caught and eaten include: eel, carp, small- and large-mouth bass (rare), yellow and white perch, American and hickory shad, and northern snakehead.

For some, sharing fish reduced economic hardship. One angler told us that, "we know [what our neighbors'] economic issues are, sometimes when we have plenty to eat, especially fish, we always like to hand them over, some catfish…"

For other anglers, sharing fish is about being social, "Sometimes [I bring fish home] if my neighbors ask me, you know, if you're going to catch cat?"

By having anglers informing research in their own words, we can understand meaning and values they ascribe to park resources from their perspective.

Researchers hope that this study will help foster a better understanding of people who fish on park shorelines in Washington, DC. By fall 2017, the team will share their research findings in a final report and through several informational meetings with staff of the National Mall and Memorial Parks,



Researchers interviewed anglers along 47 miles of DC, Virginia, and Maryland shoreline (shown by dark blue line).

National Capital Parks – East, George Washington Memorial Parkway, Chesapeake & Ohio Canal National Historical Park, and Rock Creek Park. To learn more about the "Ethnographic Overview and Assessment of Subsistence Fishing on the Anacostia and Potomac Rivers and Rock Creek", please contact National Capital Region Anthropologist Noel Lopez by NPS email (202-619-7280) or Shirley Fiske at sfiske@umd.edu.

CHESAPEAKE WATERSHED COOPERATIVE ECOSYSTEM STUDIES UNIT

This project is facilitated by the Chesapeake Watershed Cooperative Ecosystem Studies Unit (CW CESU). The CW CESU promotes stewardship and integrated ecosystem management of natural and cultural resources in the Chesapeake Watershed through collaborative research, technical assistance, and education. To do research with CW CESU, please contact Danny Filer at 301-689-7108.

Tree Ring Study of Forest Age and Past Climate

A tree core showing annual growth rings.

To figure out how old a forest is, you have to do more than measure the diameter of its trees. While many large trees are old, some are surprisingly young. And some small trees are deceptively old.

That's why in 2017, the National Capital Region Network, Inventory & Monitoring team (NCRN I&M) will be looking at tree rings throughout the region. We hope to get a better idea of how old our forests are so we can better understand our long-term forest vegetation data.

In the NCR, detailed forest age and history are generally not known. In this project we hope to (1) estimate forest (stand) age at each of I&M's long-term monitoring plots and (2) document the historical pattern of tree growth recorded in tree rings. Tree ring data can then be compared to historical climate to determine the impact of climatic variation on tree growth.

About tree rings

Each tree ring represents one growing season. Rainy years produce wider rings than dry years. Within a ring, early wood cells formed in spring are lighter in color with large vessels. As growth slows during summer, vessels shrink and wood looks darker.

We will use the species of trees known to be the most reliable at putting on annual rings despite climatic variation, including: Virigina pine, white oak, chestnut oak, red oak, and red cedar.

Gathering Cores

Luckily, we don't need to cut a tree to determine its age, we can use 2 pencil-wide cores to do the job. Collaborators at the University of Maryland Center for Environmental Science (who bring a wealth of forest assessment and coring experience to this project: http://www.umces.edu/research-highlights/scientists-investigate-climate-changes-forests) will gather two cores each from four trees in a band outside of each I&M forest plot.

Photos: Andrew Elmore

Above: Pairs of cores taken at right angles, help get the most comprehensive set of rings.
Below: A core is carefully removed from a borer.

Trees respond to coring by forming boundaries that isolate injured tissue and resist the spread of pathogens. To limit any potential pathogens, we will use coring best management practices including cleaning the borers used to take cores after each use.

In the lab, we will count and measure rings for width using a dissecting microscope. Cross-dating software will help identify the year each ring was formed.

Park Acronyms

ANTI = Antietam National Battlefield
CATO = Catoctin Mountain Park
CHOH = Chesapeake & Ohio Canal National Historical Park
GWMP = George Washington Memorial Parkway
HAFE = Harpers Ferry National Historical Park
MANA = Manassas National Battlefield Park
MONO = Monocacy National Battlefield
NACE = National Capital Parks - East
NAMA = National Mall and Memorial Parks
PRWI = Prince William Forest Park
ROCR = Rock Creek Park
WOTR = Wolf Trap National Park for the Performing Arts

Chronic Wasting Disease Updates

Scott Bates, NCR Wildlife Biologist

What is Chronic Wasting Disease?

Chronic Wasting Disease (CWD) is a contagious and fatal nervous system disease of deer, elk, and moose. It was discovered at a Colorado research facility in 1967, and has since been detected locally in deer in several counties along the western Maryland and Pennsylvania border, the eastern panhandle of West Virginia, and in Frederick and Shenandoah Counties in Virginia.

It is not known to infect livestock or humans at the present time. To prevent spread of the disease, effected states have restricted transport of deer carcasses, feeding of deer (a CWD transmission route), and use of deer urine lures.

25 Cases in Pennsylvania Wild Deer in 2016

The Pennsylvania Game Commission tested 5,707 deer and 110 elk for Chronic Wasting Disease (CWD) during 2016. In all, 25 wild deer tested positive for CWD.

All were from in or near the state's Disease Management Area 2 (DMA 2), the only area of the state where CWD has been detected in the wild. These 25 cases more than doubled the detected in DMA 2 from 2012 to 2015.

Case in Franklin and Fulton Counties, PA

A 4-year-old, farm-raised, white-tailed deer shot in a hunting preserve in Franklin County, PA was confirmed to have CWD. The deer was sold to the preserve by a captive deer farm in Fulton County, PA (both PA counties are immediately north of Washington County, MD).

This does not effect current deer management at Antietam because the CWD Plan for Antietam and Monocacy states that initial response activities occur when CWD is less than 20 miles from the parks. Likewise, Harpers Ferry and C&O Canal are more than 35 miles from the affected site and the joint Deer Managment Plan for both parks instructs that the parks should consult with the state when CWD is within 5 miles.

Cases in Allegany County, MD

CWD testing of 200 deer from Allegany County in Maryland found 6 deer with the disease. Five were shot and one was a road kill. The total number of deer from Allegany County with CWD since 2011 is now 17.

New Testing Method for CWD

A new test for detecting chronic wasting disease was developed by researchers from Colorado State University. The test detects CWD at very low levels in the urine, saliva, or feces of deer, elk, and moose. Jenny Powers, NPS Biological Resources Division, advises that the test is too expensive to be useful. It may have additional use in detecting misfolded proteins associated with Alzheimer's, Parkinson's, and traumatic brain injury.

References:

CWD Fact Sheet: https://www.nwhc.usgs.gov/disease_information/chronic_wasting_disease/

Haley et al. 2014. Detection of Chronic Wasting Disease in the Lymph Nodes of Free-Ranging Cervids by Real-Time Quaking-Induced Conversion, Journal of Clinical Microbiology Volume 52(9).

Maryland CWD Management Area: http://dnr2.maryland.gov/wildlife/Pages/hunt_trap/CWD_in_Maryland.aspx

I&M in Your Park - June, July, & August 2017

To join NCRN I&M in the field, or for more specific monitoring dates please contact Megan Nortrup at 202-339-8314.

NCRN I&M Monitoring	Amphibians	Forest Birds	Forest Soils	Forest Vegetation	Grassland Birds	Water (quarterly)
Antietam National Battlefield		X	X	X	X	X
Catoctin Mountain Park	X	X	X	X		X
Chesapeake & Ohio Canal NHP	X	X	X	X		
George Washington Memorial Parkway	X	X		X		X
Harpers Ferry NHP		X		X	X	X
Manassas National Battlefield Park	X	X	X	X	X	X
Monocacy National Battlefield		X	X	X	X	X
National Capital Parks - East	X	X	X	X		X
Prince William Forest Park	X	X	X	X		X
Rock Creek Park	X	X		X		X
Wolf Trap NP for the Performing Arts		X		X		X

A Walk to Explore Natural & Cultural Resources at Fort DeRussy

Join park staff and regional specialists on September 8 (10:00am-1:00pm) to explore the vegetation and cultural resources of Fort DeRussy.

NCR Historical Landscape Architect Maureen Joseph, I&M Botanist Liz Matthews, Rock Creek Biological Science Technician Ana Chuquin, and Rock Creek Cultural Resource Program Manager Josh Torres will lead a walk to explore this Civil War Defense of Washington fort site and nearby locations in Rock Creek. The walk begins at 10:00am sharp at the trail head near the intersection of Oregon Ave. and Military Rd. NW. Please park at the Rock Creek Nature Center or at the Grove 13 parking lot and walk to the trail head. There are restrooms and water at the Rock Creek Nature Center, but not on our trail route. Bring lunch, water, sunscreen/hat, and any other gear you'd like for the walk (optional gear includes notebook, camera, hand lens, etc). A 30 minute lunch break is included.

To RSVP, contact Elizabeth Matthews by NPS email by September 1.

For more about Fort DeRussy, visit: https://www.nps.gov/places/fort-derussy.htm

Birds Change Their Tune in Response to DC Area Traffic Noise

Birds sing differently in response to traffic noise, which may affect their ability to attract mates and defend their territory, according to new research from Rock Creek Park and two Fairfax County, Virginia parks.

Each weekend Rock Creek Park, in the heart of Washington, DC, closes sections* of busy Beach Drive from 7:00 am Saturday to 7:00 pm Sunday for bikers, roller bladers, hikers, and joggers. Researchers lead by Dr. Kate Gentry of George Mason University wondered, how do birds respond to these road closures? And in particular, can suboscine birds (who have "innate" calls) cope with fluctuating noise levels as well as oscine birds (who learn their calls from relatives and neighbors)?

To answer this question, the group decided to focus on a particular suboscine bird—a flycatcher called the Eastern wood pewee (*Contopus virens*). The pewee is relatively common in urban parks of the eastern U.S. It is also migratory and establishes territories in early May—nesting in the same location each year. It's song is a distinct, "pee-a-weeee!"

The team used special automated recording devices to record sound during the each morning's dawn bird chorus (4:00 am to 10:00 am), which just so happens to overlap with morning rush hour traffic. They recorded at sites where traffic sounds from the nearest road were either constant or fluctuated from periodic road closures.

The team learned that the pewee changes its song in response to noise by compressing the range of its song to leave out lower pitched notes and singing in shorter bursts to improve transmission. The pewee's ability to make these adjustments is a trait called song plasticity.

Unfortunately we don't know how birds hearing the altered calls respond. Traffic noise is associated with declines in breeding success and in the variety of bird species present in an area. It also contributes to reduced fitness of birds that nest near roads.

Eastern wood pewee

Photo: Cameron Rognan, Cornell Lab of Ornithology

In Rock Creek when roads were closed though, the pewee's songs returned to their natural state with a wider range of pitches including more low notes and longer song length. These temporary road closures offer relief from traffic noise and give birds the chance to sing the version of their song that they're best at, and that's best for attracting mates and defending territory. For this reason, researchers suggest traffic noise reduction is a valuable tool in improving bird habitat and creating a more natural soundscape.

References

Katherine E. Gentry, Megan F. McKenna, and David A. Luther. 2017. Evidence of suboscine song plasticity in response to traffic noise fluctuations and temporary road closures. Bioacoustics. Published online April 17, 2017. Pgs 1-17. http://dx.doi.org/10.1080/09524622.2017.1303645

*Road closures include sections from Broad Branch Road to Military Road, from picnic grove 10 to Wise Road, and from West Beach Drive to the DC line. Road closures also occur on federal holidays.

Citizen Science and Virginia Bluebell Bloom Times Along the C&O Canal

While NPS horticultural experts carefully scrutinize cherry tree development to predict cherry blossom bloom times on the National Mall, at the C&O Canal, a group of volunteer citizen scientists has been tracking Virginia bluebell (*Mertensia virginica*) bloom times. Since 2015, the intrepid group, lead by Jim Webb and NPS Interpretive Ranger Kelly Fox, have tracked these locally loved spring wildflowers from first growth to full bloom. Their inspiration comes from Henry David Thoreau, who in the 1850s, kept detailed notes on the changes in the plant life around Walden Pond—when leaves emerged, when plants flowered, and changes in leaf color. A science we now call phenology.

Between February 3 and April 11 this year, up to 8 volunteers recorded bluebell life stages including: initial growth, leaves, buds, and full flowers at eight locations along the C&O Canal from Great Falls up to Fifteen Mile Creek. They used the cell phone application Nature's Notebook to record their observations.

And it turns out that in 2017, the average full flower day for the Virginia Bluebells (March 29) was only 4 days after the official bloom date for the Cherry Blossom Festival (March 25)! Perhaps the bloom of native Virginia Bluebells could entice some cherry blossom watchers to the C&O Canal, the George Washington Memorial Parkway, Manassas National Battlefield Park, Harpers Ferry National Historical Park, and other regional bluebell hotspots!

Photos: (left) NPS/Lehman, (right) Jim Webb

Left: Virginia bluebells blooming at Manassas National Battlefield Park
Right: Citizen science volunteer Linda Pekala amongst bluebells at Noland Ferry along the C&O Canal

At the C&O Canal watch sites, initial growth of bluebells arrived 39 days into the year in 2017, leaves at 59 days, and flower buds at 76 days. Plants at lower elevations generally arrive earlier than their higher elevation counterparts.

To learn more about participating in this project contact C&O Canal Volunteer Coordinator Emily Hewitt at NPS email. Further details at https://irma.nps.gov/rprs/Permit/Profile/56882

Calendar

JUNE

3-7. International Urban Wildlife Conference. http://www.urban-wildlife.org/

15. Invasive Plant Management Training Workshop. 8:30am-3:30pm. Rock Creek Park Nature Center. Contact Joe Kish by NPS email.

JULY

20. Natural Resources Advisory Team (NAT) Meeting. HAFE.

SEPTEMBER

8. Walk to Explore Natural and Cultural Resources at Fort DeRussy/ROCR. RSVP to Elizabeth Matthews by NPS email.

OCTOBER

19. Natural Resources Advisory Team (NAT) Meeting. ROCR.

National Capital Region Network Inventory & Monitoring (NCRN I&M) Staff:

Program Manager: Geoff Sanders
Data Manager: vacant
Botanist: Elizabeth Matthews
GIS Specialist: Gregory Geise
Hydrologic Technician: Tonya Watts
Hydrologic Technician: Margie Shaffer
Quantitative Ecologist: John Paul Schmit
Science Communicator: Megan Nortrup

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NCRN Natural Resource Quarterly offers updates on the status of park natural resources and Inventory and Monitoring (I&M) "vital signs" for the NPS National Capital Region Network (NCRN).

Questions or comments? Contact Megan Nortrup by NPS email or at 202-339-8314