AGENDA

Commission for the Environment

August 8, 2016
7:30 p.m.

Orange County Solid Waste Administration Building
1207 Eubanks Road, Chapel Hill

Time	Item	Title
7:30	**I.**	**Call to Order**
7:32	**II.**	**Additions or Changes to Agenda**
7:35	**III.**	**Approval of Minutes – June 13, 2016** The CFE will consider approval of minutes from the last meeting. (Attachment 1)
7:45	**IV.**	**CFE Facebook Page** The CFE will continue its discussion on the use of Facebook and other social media to communicate with the public about CFE activities and other environmental matters of interest to residents of Orange County. (Attachments 2-3)
8:15	**V.**	**Hydrilla treatments in Upper Eno River basin (update)** Staff will update the CFE on year two of a two-year pilot study to treat the aquatic weed hydrilla in the Eno River and other water bodies in the watershed. (Attachment 4)
8:45	**VI**	**Inter-Local Clean Energy Working Group** Staff will update the CFE on recent discussions by the Inter-Local Clean Energy Working Group about the County's potential participation in a Phase I Solar Feasibility Analysis. (Attachment 5)
8:50	**VII.**	**The Nature of Orange Contest Winners 2016** Staff will present the winners of this year's contest (Attachment 6)
9:00	**VIII.**	**Updates and Information Items** Staff and/or CFE members will provide updates on the following items: ➢ Legislative wrap up – NC League of Conservation Voters (Attachment 7) ➢ Overview of 2016 environmental legislation – Robin Smith (Attachment 8) ➢ State rejects plan to preserve land in Falls Lake watershed (Attachment 9) ➢ County study to help justify wider stream buffers (Attachment 10) ➢ Mountains-to-Sea Trail in Orange County (Attachment 11) ➢ Orange County recognized by NC Coastal Federation (Attachment 12) ➢ Impact of tree harvesting on wildlife (Attachment 13) ➢ NC's Butterfly Highway (Attachment 14) ➢ Coal and gas expected to decline in next decade (Attachment 15) ➢ Antarctica ozone hole beginning to heal (Attachment 16) ➢ The healing power of nature – Time Magazine (Attachment 17) ➢ *Any other new information from CFE members and staff*
9:15	**VIII.**	**Adjournment**

Next meeting: September 12 (Hillsborough – West Campus Office Bldg.)

CFE Meeting Ground Rules *(Adopted 9/12/11)*

1. Keep to agenda topic under discussion
2. Share relevant information
3. One person speaks at a time after recognition by the Chair
4. Everyone is invited to participate in discussions / no one person should dominate discussions
5. Strive to reach consensus first before voting

Activities the CFE expects to carry out in 2016:

- Continue to update the Orange County State of the Environment 2014 report
- Continue to explore ways to improve the County's ability to foster local sustainable energy production and energy efficiency strategies, including developing incentives for increasing energy efficiency in new construction
- Recommend ways to reduce the County's "carbon footprint" and implement the County's Environmental Responsibility Goal (BOCC Priority #10)
- Continue to help with public outreach and management efforts related to hydrilla in the Eno River
- Help initiate the development of a comprehensive conservation plan for Orange Co
- Co-sponsor the annual DEAPR photography contest (*The Nature of Orange*)
- Help plan for and participate in County's annual Earth Evening event

Concerns or emerging issues the CFE has identified for 2016:

- The CFE will continue to advocate for an expansion of the County's commercial food waste pickup and composting services to reduce food waste in the solid waste stream
- The CFE remains interested in developing incentives for increasing energy efficiency in new construction
- The CFE will continue to learn more about environmental justice matters and incorporate relevant information and considerations in the State of the Environment report and its other activities
- The CFE will continue to follow the Solid Waste Advisory Group's discussions of how to improve the handling and disposal of Orange County's solid waste, and will advocate for better long-term solutions
- The CFE will continue to advocate for increased efforts to gather information related to water resources in Orange County and to increase public awareness and understanding of water supply sources, related concerns, and what steps can be undertaken to maintain or improve the quantity and quality of Orange County water supply resources
- The CFE will continue to address, as appropriate, the critical environmental issues for Orange County as enumerated on page 3 of the 2014 State of the Environment report, which include potential adverse effects from a) invasive, non-native, plant and animal species; b) reductions in State-led collection of water resources data; c) potential drilling for natural gas in the Deep River basin; d) urban sprawl; and CFE support for e) the responsible deployment of clean and appropriately-sited renewable energy and reductions in energy use to help fight climate change

Orange County
Commission for the Environment

DRAFT Meeting Summary

June 13, 2016
Richard Whitted Meeting Facility, Hillsborough

PRESENT: Lynne Gronback (Acting Chair), May Becker, Peter Cada, Bill Kaiser, Bill Newby, Jeanette O'Connor, Rebecca Ray, Sheila Thomas-Ambat

ABSENT: Thomas Eisenhart, Loren Hintz, Lydia Wegman, David Welch

STAFF: Tom Davis, Brennan Bouma GUESTS: Bruce Sinclair, Tim Turner

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I. **Call to Order** – O'Connor (on behalf of Gronback) called the meeting to order at 7:30 pm.

II. **Additions or Changes to Agenda** – O'Connor suggested moving the discussion of the landfill solar array proposal ahead of the CFE Facebook item to accommodate guests from the Carrboro Environmental Advisory Board. Cada offered a motion; seconded by Ray. CFE members approved of rearranging the agenda accordingly.

III. **Minutes** – O'Connor asked for comments on the May 9 meeting summary. Cada motioned approval as written; seconded by Newby. Motion approved unanimously.

IV. **Potential Solar Array at the Closed County Landfill** – The CFE received information from the Town of Carrboro's Environmental Advisory Board (EAB) about that board's interest in collaborating with Orange County and the Town of Chapel Hill on investigating the possibility of installing a solar array at the closed landfill. This project has not yet been endorsed by the Town of Carrboro. EAB members Bruce Sinclair and Tim Turner presented information from their preliminary investigations for CFE consideration and discussion.

The EAB is looking into several ways of promoting solar power development in the area, and wanted to speak with the CFE specifically about larger ground-mounted solar arrays (20-40 acres, 4 - 5 MW capacity), ideally near 3-phase power substations. Sinclair said the EAB has received guidance from Strata Solar

The Orange County landfill is one of few large parcels of land remaining for solar development that are close to the potential users of that energy. It is also bordered by large powerlines, and both of the parcels at the landfill that might work for solar development have good southern exposures, so solar might work well at that location.

Sinclair and Turner said they have spoken with Orange County Solid Waste Director Gayle Wilson and Solid Waste Planner Blair Pollock about this idea and learned that there are two possible sites at the landfill. They also learned that Strata Solar considered the landfill previously but decided not to develop there.

Some of the challenges associated with developing solar on a landfill are that you have to accommodate for future settling of the land surface and for the active landfill gas recovery system that is operating on both parcels.

Sinclair and Turner said there is a landfill site called Hickory Ridge near Atlanta that has a flexible TPO plastic cap with flexible solar panels laid down on top. It cost $7 million ($5 million with a $2 million grant). This would be a possible solution as it would not cause settling and it would flex with the settling the might occur. The efficiency of the panels is less than for the rigid panels. More exploration is needed to ensure that the plastic cap would be durable enough to walk/drive on, and to make sure it would not be susceptible to damage by animals.

There are several ways to pay for and develop solar power systems. Third party sales are prohibited in NC. The owner of the panels cannot sell the electricity generated. "Use-all" or "Sell-all" (sell all energy generated to Duke Power) or net metering (use as much power as you can and then sell the remainder to Duke Power) arrangements are all possible. The use can be changed in the future based on need if more facilities are developed out there. The EAB is uncertain whether there are facilities nearby that could take advantage of this power (Orange County Animal Shelter might be one).

A developer could also lease the land from the County and then operate his or her own system. This is the most straightforward way to go as all the risk goes to the developer.

Community solar is also possible, where individual investors buy into and own the system, and lease the land or roof space to install it. This was done on the Carrboro Farmers Market (~$40-$50,000). This can be done less formally by allowing the panels to be sponsored by community members, but owned by the property owner. These options are sometimes desirable for those who want to invest in solar, but whose land or roof space is shady or otherwise inappropriate for solar development.

Sinclair and Turner said the EAB is interested in taking the appropriate next steps in exploring the possibilities for landfill solar development with Orange County. Their presentation is available upon request.

Brennan Bouma offered some of the history of Orange County staff's exploration into solar development on the landfill and other sites including the previous interests of Cypress Creek Renewables, Strata Solar, and UNC. Bouma offered to continue conversations with the EAB on this issue.

V. **CFE Facebook Page** – Gronback and O'Connor provided an overview and demonstration of how Facebook and other social media sites could work in practice to communicate with the public and other stakeholders about CFE activities, and how these sites can be used to share information about environmental issues of interest to residents of Orange County.

CFE members feel social media (not just Facebook) is an important communication tool to make the work of the Commission more visible, especially to the young residents of the county. There is also an interest in hearing from county residents since many people do not have time to attend meetings.

The CFE discussed the need for some internal protocol (or code of conduct) for structuring and using these media, reflecting the Orange County Social Media Policy. It was explained that creating and maintaining an official social media presence as an appointed Orange County commission, implies that statements made on the site are officially sanctioned. This can be difficult to manage if the site is structured so that anyone can post comments. The Orange County Social Media Policy guides the creation of these sites so that they avoid any foreseeable issues.

The merits of several possible structures were discussed, including the thought of "piggybacking" our comments on an existing County social media site such as the one set up for DEAPR. It was decided that Gronbeck and O'Connor would succinctly summarize the options that the Social Media Policy allows for a future CFE meeting and would reach out to David Hunt to learn more about what levels of response are allowed to comments or emails received through the site. This would allow everyone on the CFE to make the decision about the best way to move forward including the possibilities of making on overall media and outreach strategy and/or subcommittee.

VI. **Committee Meetings** – Gronback suggested no committee meetings and CFE members agreed.

VII. **Updates and Information Items** – Information on the following subjects was provided in the meeting package; selected items were discussed: a) tri-county conservation plan proposal, b) Hollow Rock Nature Park opening, c) NC regulating renewable energy, d) state senate eyes mussels for cleaning Jordan, Falls lakes, e) coal ash pond closures update, f) solar farm field trip, and g) woman tackling her city's food waste problem.

VIII. **Adjournment** – Cada motioned to adjourn the meeting; seconded by Ray. Gronback adjourned the meeting at 9:15 pm.

Summary by Brennan Bouma, AMS Staff

Orange County Commission for the Environment

Orange County Commission for the Environment

Lynn Home

Timeline Photos Likes About Videos

Community

Search for posts on this Page

59 people like this

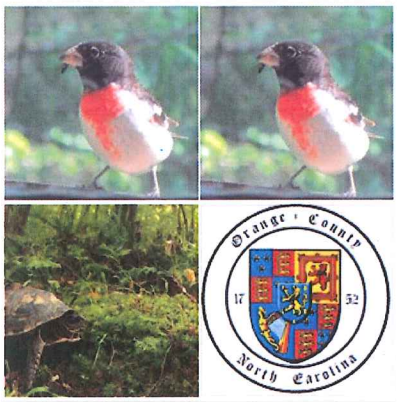
Invite friends to like this Page

ABOUT

This commission represents the public and advises the Board of Commissioners on matters affecting the environment with particular emphasis on protection.

http://www.co.orange.nc.us/boards/indivbd.asp

PHOTOS



VISITOR POSTS

Lorenz Hintz
22 April at 12:49

Come to Hillsborough Friday April 29,2016 for Earth Evening.

2 Likes
Like · Comment

Lorenz Hintz
22 April at 12:44

Status Photo/Video

Write something on this Page...

Orange County Commission for the Environment
22 hrs ·

Free Food Waste Drop Off Pilot Program at the Carrboro Farmer's Market

Starting June 18, 2016 the Carrboro Farmers' Market will partner with Orange County Solid Waste Management to offer a free food waste drop-off for local residents and Farmer's Market attendees, continuing every Saturday market day through September! Participants can bring all food scraps (veggie scraps and all meat, bones and dairy too) and food related paper such as paper napkins and paper plates. This is... See more

Like Comment Share

Orange County Commission for the Environment
19 May at 18:18 ·

Spring migration is happening in Orange County. Rose-breasted Grossbeak spends most of fall, winter and spring in Latin America and stays for a few weeks in Orange County in the spring and fall while travelling further north to breed.

Like Comment Share

4

1 share

Write a comment...

https://www.facebook.com/CommissionfortheEnvironment/

Now is your chance to show off your photos. Send them to Orange Coun...Continue reading

Like · Comment

Lorenz Hintz
10 July 2015 at 12:56

I haven't visited this site in a few months. Seems thanks to the heavy snow last winter the number of ticks is down.

Like · Comment

PEOPLE ALSO LIKE

Morgan Creek Valley Allia... Like
Non-profit Organisation

Chapel Hill Stormwater M... Like
Government Organisation

Orange County NC Solid... Like
Government Organisation

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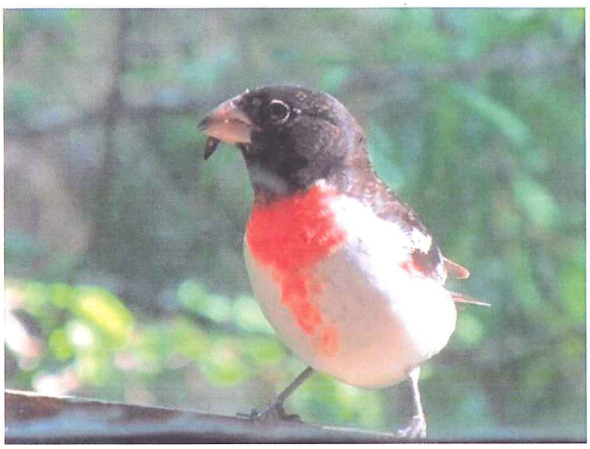
Orange County Commission for the Environment
19 May at 18:16 ·

- Hollow Rock Opening Celebration Rescheduled - -

Due to the combination of forecast heavy rain overnight Friday, potential thunderstorms early Saturday, and already-wet and poor trail conditions, the planned Hollow Rock Nature Park grand opening for Saturday, May 21, 2016 at 9:30 a.m. is being rescheduled.... See more



Like Comment Share

Orange County Commission for the Environment
16 May at 14:59 ·

Hollow Rock Nature Park in Durham will have its grand opening the Saturday, May 21st, at 9:30am. Come join us as we celebrate this new park!

The address is 692 Erwin Rd. Durham, NC. You can park and take a shuttle to the site from Forest View Elementary School (3007 Mount Sinai Rd., Durham NC).

For more information, please contact Lynn Hecht at 919-245- 2510 or at lthecht@orangecountync.gov.

Like Comment Share

Top comments

Write a comment...

Orange County Commission for the Environment - Hollow Rock Opening Celebration Rescheduled - -
Due to the combination of forecast heavy rain overnight Friday, potential thunderstorms early Saturday, and already-wet and poor trail conditions, the planned Hollow Rock Nature Park grand opening for... See more

Like · Reply · 19 May at 18:20

Orange County Commission for the Environment
shared Jeff Herrick's event.
25 April ·

Come to Carrboro Town Hall tomorrow (Tuesday) at 7:30 to support the town's efforts to reduce its carbon footprint!

Support Carrboro Climate Change Plan

26 APR

Tues 19:30 · Carrboro
4 people interested · 7 people going

Interested

Like Comment Share

Orange County Commission for the Environment shared a link.
25 April ·

Nature of Orange Photography Contest

Orange County Department of Environment, Agriculture, Parks amp Recreation along with the Commission for the Environment announces the 2015 Nature of Orange Photography Contest. The purpose of the contest is to get people outside...

ORANGECOUNTYNC.GOV

Like Comment Share

The Chapel Hill News
3 May ·

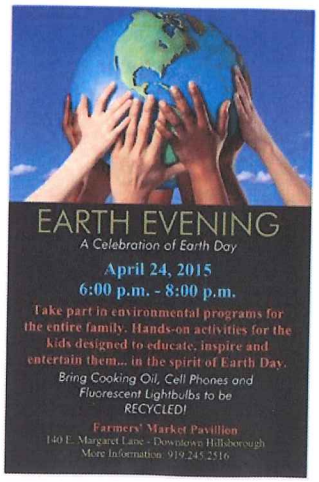
Like Page

Planting flowers in your yard? The Orange County Commission for the Environment wants you to take another look at native species and be wary of invasive outsiders.

Choose native species of plants for garden

While some of us value plants in our landscapes primarily for the beauty they provide, we may not realize that plants are in fact critically important components of food webs and essential to the life cycles of birds and insects.

Lynn Hecht shared Orange County Environment, Agriculture, Parks & Recreation's photo.
23 April 2015 ·



Baura Branan, Charyl Flannery Allison and David Stancil

Like Comment Share

Orange County Social Media Policy

Effective September 30, 2011

Purpose

Orange County has recognized the need to augment traditional communication methods with the use of social media channels. Public demand and the rapid growth of social media (aka: Web 2.0) use by other local, state and federal government entities has highlighted the usefulness of social media as an effective mode of enhancing constituent communications. The use of social media presents opportunity and risk to individual County agencies and departments, as well as the County as a whole. In general, the County supports the use of social media technology to enhance communication, collaboration and information exchange to meet business mission and goals.

This document establishes the countywide social media use policies, protocols and procedures intended to mitigate associated risks from use of this technology where possible. This policy will be revised and Department social media activity shall be adjusted accordingly, in the event the County changes its direction on social media use.

Definitions

A. Social Media Network(s) / Site(s) – An online service or site that focuses on building social networks or social relations among people, and permits users of the site to share information, interact and communicate with each other.

B. Approved Social Media Site(s) – An online service or site sponsored by the County permitting information exchange, interaction and communication between the public and the County, its Agencies and/or Departments and listed on the Social Media Policy Site Guide.

Applicability

This policy applies to all Orange County employees and volunteers, interns, consultants, service providers and contractors performing business on behalf of County Agencies/ Departments.

Departments using social media technology shall achieve policy compliance within 30 days of the approval of this policy by the County Manager.

Implementation

The County Manager, or his/her designee, is responsible for facilitating the County's Social Media Policy in compliance with established Board rules and protocols.

This includes the responsibility to audit Department use of social media and enforce policy compliance. Within the terms of this policy, Department Heads have authority to determine and establish social media activity at the Department program level.

Policy

A. Department use of social media technology shall conform to the policies, protocols and procedures contained, or referenced, herein.

B. A Department's decision to embrace social media shall be a risk-based business decision approved by the Department Head and supported by a strong business case that considers the Department's mission and goals, audience, legal risks, technical capabilities and potential benefits.

C. A Department's decision to use social media technology shall be documented in writing and approved by the Department Head, County Attorney, Chief Information Officer and the County Manager.

D. Access to social media networks from within the County's IT infrastructure is limited to individuals performing official County business and to agencies/departments with sufficient information and technology security controls.

E. Department Heads are ultimately responsible for determining who is authorized to use social media on behalf of the department, and for designating appropriate access levels, while maintaining ultimate account ownership.

F. Departments shall only utilize County approved social media networks for hosting official County social media sites.

G. County Department social media sites shall be created and maintained in accordance with County social network usage standards and with identifiable characteristics of an official County site.

H. Departments are responsible for establishing, maintaining and monitoring the activity on the social media sites, and shall follow the measures outlined herein to prevent inappropriate or technically harmful information and links.

I. The same standards, principles and guidelines that apply to Orange County employees in the performance of their assigned duties apply to social media technology use on behalf of the County.

J. Department use of social media shall be documented and maintained in an easily accessible format that tracks account information and preserves items that may be considered a record subject to disclosure under the North Carolina's Public Records Act.

K. Department social media sites shall be monitored regularly and prompt corrective action shall be taken when an issue arises that places, or has potential to place, the County at risk.

Procedures

A. Authorized Use of Social Media

1) Departments utilizing social media shall:
   (a) Have a strong understanding of the risks associated with using social media.
   (b) Prior to opening an account, consult with the Chief Information Officer and County Attorney to assess the risks utilizing a specific County approved social networking site in comparison with the business opportunities expected.
   (c) Establish and document a well thought out and documented social media strategy.
   (d) Implement the security controls mandated by the Chief Information Officer to protect County Information and Technology assets.
   (e) Only access social media networks authorized by the Chief Information Officer.
   (f) Comply with all applicable federal, state, and county laws, regulations and policies including, but may not be limited to, copyright, records retention, North Carolina Public Records Act, First Amendment, privacy laws, employment related laws and County policies.

2) Department Heads shall designate at least two employees (one primarily authorized user and secondary authorized user) to monitor the Department's social media sites with specified access levels.

3) Departments shall determine the appropriate access levels which include identifying what sites, or type of sites, the individual is approved to use, as well as defining capability: publish, edit, comment or view only.

4) Only the Department Head and designated employees shall have permission to create, publish or comment on behalf of a County Department.

5) Only the Department Head associated with a particular Social Media Site and the County Manager shall have the authority to increase or decrease the access levels to the social media sites.

6) The ability to change account credentials shall be the responsibility of the Department Head and not delegated within a Department.

7) Employees authorized to monitor content on social media sites shall comply with the guidelines provided in Section D – Site Content.

8) Authorized users shall be provided a copy of the County's social media policy and are required to acknowledge their understanding and acceptance of this Policy.

B. Approved Social Media Networks

1) Departments shall utilize only approved social media networks for hosting official County social media sites.

2) County social media sites shall be used only to provide information about County Departments or County related events or programs.

3) Social media networks under consideration will be reviewed and approved by the Chief Information Officer in with consultation from County Attorney, HR and Risk Management when appropriate.

4) For each approved social media network, usage standards will be developed and documented by Information Technologies to optimize government use of the site in correlation with the County's overall business mission and County Social Media Use Policy.

5) Chief Information Officer is responsible for maintaining the list of approved social media networks and site related usage standards.

6) Social media networks on the approved list shall be reviewed at least bi-annually for changes to terms of use agreements and/or new/expired offerings or as needed.

7) A Department may request review and approval of additional social media networks as needed.

C. Official County Social Media Sites

1) County Department social media sites shall be created and maintained in accordance with County social network usage standards and with identifiable characteristics of an official County site.

2) County social media network accounts shall be created and maintained using an official County email account, solely owned by the respective Department Head.

3) Sites shall contain visible elements that identify them as an official Orange County, North Carolina site. Among other items, this includes displaying official County seals, Department brands, contact information and a link to Department websites.

4) County social media sites shall display, or provide a link to, the County's Content Disclaimer and Social Media Disclaimer and any applicable policies.

D. Site Content

1) Departments are responsible for establishing, monitoring and maintaining content posted to their social media sites and shall have measures in effect to prevent inappropriate or technically harmful information and links.

2) As is the case for Orange County web sites, agencies/departments are responsible for the content and upkeep of their social media sites.

3) County websites shall remain the primary and predominant source for Internet information.

4) Content available through an online source shall:
   (a) Be deemed of value, useful and appropriate for the general public;
   (b) Shall use proper grammar and standard AP style whenever possible, avoiding the use of jargon and acronyms that may not be widely understood by the public;
   (c) Be factual and properly vetted;
   (d) Be approved by the Department Head, when deemed potentially provocative.
   (e) County content available through an online source shall not contain, or hyperlink (link) to, information that:
      (i) Threatens, condescends, or degrades any group belonging to a particular race, culture, religion, sex, sexual orientation or political party;
      (ii) Is profane, vulgar, obscene, or sexually explicit;
      (iii) Promotes, fosters or perpetuates discrimination on the basis of race, creed, color, age, religion, gender, marital status, status with regards to public assistance, national origin, physical or mental disability or sexual orientation;
      (iv) Can be classified as confidential, private or proprietary, or can be classified as personal health information under the Health Insurance Portability and Accountability Act (HIPAA);
      (v) May infringe on a third party's copyright or intellectual property rights;
      (vi) Contains a solicitation of commerce;
      (vii) Contains paid advertisements or endorsements, with the exception of a County contracted business lessee;
      (viii) Contains plagiarized material;
      (ix) May be illegal or encourages illegal activity;
      (x) May compromise the safety or security of the public or public systems.
      (xi) Discloses confidential or proprietary information.

E. Comments

1) Sharing or posting content owned by others shall be performed in accordance with copyright, fair use and established laws pertaining to materials owned by others. This includes, but is not limited to, quotes, images, documents, links, etc.

2) Electronic information posted to a social media site by the County, or a member of the public, may be considered a record subject to North Carolina's Public Record Act.

3) Social media sites are not intended to be used in a manner that guarantees the right to protected free speech. Each Department is responsible for monitoring postings, and taking appropriate action when necessary, to protect general site visitors from inappropriate or technically harmful information and links.

4) Sites that allow public comment shall inform visitors of the intended purpose of the site and provide a clear statement of the discussion topic introduced for public comment so that the public is aware of the limited nature of the discussion and that inappropriate posts are subject to removal, including but not limited to the following types of postings regardless of format (text, video, images, links, documents, etc.):

(a) Comments not topically related;
(b) Profane language or content;
(c) Content that promotes, fosters or perpetuates discrimination on the basis of race, creed, color, age, religion, gender, marital status, status with regards to public assistance, national origin, physical or mental disability or sexual orientation;
(d) Sexual content or links to sexual content;
(e) Solicitations of commerce;
(f) Conduct or encouragement of illegal activity;
(g) Information that may tend to compromise the safety or security of the public or public systems;
(h) Content that violates a legal ownership interest of any other party.

5) Department's choosing to establish a blog or allow posts from the public on County social network sites, shall prominently display, or provide a link to, the County's Social Media Disclaimer and Comment Policy.

6) Departments choosing to use public comments shall consult with County Attorney to develop and document Department-specific disclaimers to meet the County's legal needs. County Attorney may also be consulted to determine whether to remove comments that violate this policy

7) Authorized employees shall respond to all comments not topically related, but concerning the performance of the Orange County Government as follows:

"Thank you for participating in this discussion and for your feedback on the performance of the Orange County Government. Your comment has been forward to the appropriate authorities for further action. If you need additional information please contact the Office of the Orange County Clerk at (919) 245-2130".

F. User Behavior

1) The same standards, principles and guidelines that apply to Orange County employees in the performance of their assigned duties apply to employee social media technology use.

2) County workforce members authorized to use social media technology shall do so only within the scope defined by their respective Department and in compliance with all County policies and practices.

3) Social media use by County workforce members shall be performed within the County's established Social Media Policy.

4) Authorized social network spokespersons participating in personal social networking discussions related to County business matters shall indicate that viewpoints are personal and may not reflect County opinion.

5) Employees performing County social media work beyond normal work hours shall receive pre-authorization from the Department.

6) Employees shall obey all laws and shall refrain from engaging in partisan political activity when using social media sites on behalf of the County.

7) All questions concerning implementation of the Social Media Policy shall be directed to the County Attorney.

G. Account Deactivation

IT reserves the right to monitor and terminate any underutilized social media accounts.

H. Records Management

1) Department use of social media shall be documented and maintained in an easily accessible format that tracks account information and preserves items that may be considered a record subject to disclosure under the North Carolina's Public Records Act or required to be retained pursuant the records retention laws.

2) Departments are responsible for the creation, administration and deactivation of social media accounts.

3) Only the Department Head associated with a particular social media site shall have the credentials to control the email access account for the site or social media account. Account password information shall only be shared with authorized staff designated by the Department Head, or her/his designee, to fulfill the role of Site Account Administrator.

4) Passwords shall conform to County complex password requirements when permissible.

5) Account password shall promptly be reset when an employee is removed as an account administrator.

6) Departments shall maintain a record of social media sites created for County use, including, but may not be limited to:
   (a) A log file containing the name of the social media network, account id, password, registered email address, date established, authorizing representative and name of person who created account and agreed to the sites terms of use agreement and/or policy.
   (b) A record of the sites usage agreement at the time the site was created and any updated versions.
   (c) A list of authorized site content authors and editors.
   (d) Electronic information posted to a social media site by the County, or a member of the public if permitted, may be considered a record subject to North Carolina Public Records Act.

7) Any content maintained in a social media format that is related to County business, including a list of subscribers and County or public posted communication, may be a public record.

8) IT shall have procedures in effect to preserve published social media content.

9) The Department maintaining the site is responsible for responding completely and accurately to any public records request for public records on social media.

10) Site content shall be maintained in accordance with its respective Records Retention Schedule and in accordance with County IT policies and procedures. If the content constitutes a public record, it must be disclosed to the public unless an exemption applies.

11) Posts deemed technically harmful or inappropriate shall be promptly documented, saved prior to removal from the site.

12) Departments shall maintain a record of signed social media policy acknowledgement forms for each authorized user.

Exceptions

There are no exceptions to this policy.

Deviations

Inquires regarding policy deviations should originate from a Department head and be directed to the Chief Information Officer, 919-245-2280, 131 W. Margaret Lane, Suite 300, Hillsborough, NC 27278

Last modified Friday, January 25, 2013
Contact Webmaster

ORANGE COUNTY

Department *of* Environment,
Agriculture, Parks & Recreation

To: Commission for the Environment
From: Tom Davis, Water Resources Coordinator
Re: Eno River Hydrilla Management Pilot Study Update
Date: August 3, 2016

Recently, the Eno River Hydrilla Management Task Force (Task Force) met to discuss the status of the hydrilla management pilot study activities in the Eno. Quoting the update from SePro, the firm under contract to conduct the Eno River herbicide (Sonar) treatment:

> Overall, the Sonar program appears to have provided full control of early-stage hydrilla growth present at time of application start. Representative photos of hydrilla condition near the start of the 2016 treatment program and at 1 month into the treatment (June 10) are at the end of this update. NCSU staff indicated that recent surveys have not been able to detect hydrilla in the treatment zone.
>
> Regarding nontarget plant effects, riffleweed appears healthy and unaffected by management activities and water willow stress is almost non-detectable. The minimal willow stress contrasts with the relatively strong chlorosis noted in mid-summer of a hot and dry 2015 when a single injector was used versus the two used this season.

Thorough late July, flows in the Eno have been above the long-term mean, resulting in above-expected usage of herbicide. As a result, additional funds are needed to continue the management effort through the remainder of the growing season. Several of the funding partners involved with this project, including Orange County, have pledged funds to continue the hydrilla management project.

Additional discussion focused on the next phase of this project. Consensus seemed to be emerging that the goal of the next phase of this project should be to reduce the presence of hydrilla throughout the main stem of the Eno to non-nuisance levels, and once when that is achieved the Task Force can then work to determine if hydrilla is present in other areas of the watershed at nuisance levels. This goal would build on the pilot study, as well as ongoing hydrilla management activities in Corporation Lake, Lake Orange, West Fork of the Eno River Reservoir, and Compton's Pond. This would also likely involve herbicide addition at more than one location in the main stem of the Eno. SePro is interested in working with the Task Force to develop a wider-scale management plan for the Eno this fall.

NATURAL and CULTURAL RESOURCES DIVISION
Orange County Department of Environment, Agriculture, Parks & Recreation
PO Box 8181, Hillsborough, NC 27278
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This process will postpone the immediate need for the Task Force to somehow survey the entire watershed, comprised mostly of private land, during the hydrilla growing season. Recently, Task Force members surveyed ten ponds in the upper Eno watershed and determined that hydrilla was present in five of the ponds.

Lastly, this should allow the Task Force to solicit input from the public about whether or not hydrilla is present elsewhere in the watershed at nuisance levels.

April 26, 2016 – limited, early-stage growth of monoecious hydrilla at Pleasant Green access

June 10, 2016 – Sonar-injured hydrilla (left) and healthy riffleweed (right) at Pleasant Green access

Orange County Interlocal Clean Energy Work Group

Draft Scope of Work

Joint Solar Energy Feasibility Study

The Orange County Interlocal Clean Energy Work Group (ICEWG), comprised of Orange Water and Sewer Authority, Orange County, Carrboro, UNC Chapel Hill, Chapel Hill-Carrboro City Schools, and the Town of Chapel Hill, seeks consulting service proposals for a joint solar energy feasibility study. The goals of this project are to provide each organization with a prioritized list of possible renewable energy deployment sites and to help the group prepare for a potential joint procurement of solar PV in the future. There are up to _____ total facilities that ICEWG members will wish to include in this analysis.

To this end, the ICEWG anticipates the following scope of services:

- **Pre-project due diligence** – this step is to ensure that the consultant has an adequate grasp of local and organizational conditions. This research would include, but not be limited to: local economic conditions with regards to solar, state regulatory structure, local ordinances and other applicable laws, and potential financial (and ownership) models for funding the project.

- **Initial data collection** – the consultant will provide members with a standardized data collection method and assist in collecting asset data for each of the potential sites to be evaluated. This includes buildings, parking structures, vacant land, and any other potential sites that could host a solar array.

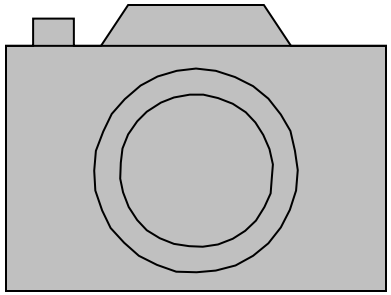
- **Technical analysis** - after screening the data for potential sites, the consultant will conduct site visits to field-verify data and conduct a technical analysis of solar potential. For each site, this includes, but is not limited to, the following: kW potential, shading analysis, roof condition, and annual energy output. All analysis should cover the entire life of the system (25-30 years), and the consultant should use an industry standard software package, such as NREL's System Advisor Model.

- **Financial analysis** - the consultant will create a pro forma for each potential site, analyzing costs and benefits for the life of the system. This should include, but is not limited to, the following: capital costs, financing and insurance costs, O&M costs, REC values, and annual energy revenue (both energy and demand using actual rate tariffs). The analysis should also provide a breakeven analysis, which should include simple payback (accounting for inflation and system degradation), levelized cost of energy, cash flow, and net present value.

- **Synthesis and prioritization** – the consultant will create a final report for each group member, prioritizing each site based on its financial performance. The report and rankings should include current and projected capital costs, roof replacements, site suitability, and any other relevant factors. Additionally, the consultant will provide the entire group a report and presentation on potential bundling opportunities for collaborative procurement.

Proposals should include a fixed fee and/or a per site cost. Proposals should also include: an anticipated schedule; list of key personnel that will work on the project and brief description of their qualifications and experience; work capacity of the firm; and three references for similar projects completed for other clients.

The Nature of Orange
Photography Contest 2016



ORANGE COUNTY
NORTH CAROLINA

"THE NATURE OF ORANGE" Photography Contest

- 5th annual photography contest
- Photographers help document the beauty and diversity of our natural resources or show residents enjoying our parks and environment. All photos taken in Orange County.
- 89 entries (21 Youth and 68 Adult)
- Volunteer judges evaluated photos based on:
  - relevancy
  - composition/arrangement
  - focus/sharpness
  - lighting and creativity

Mountain Laurel

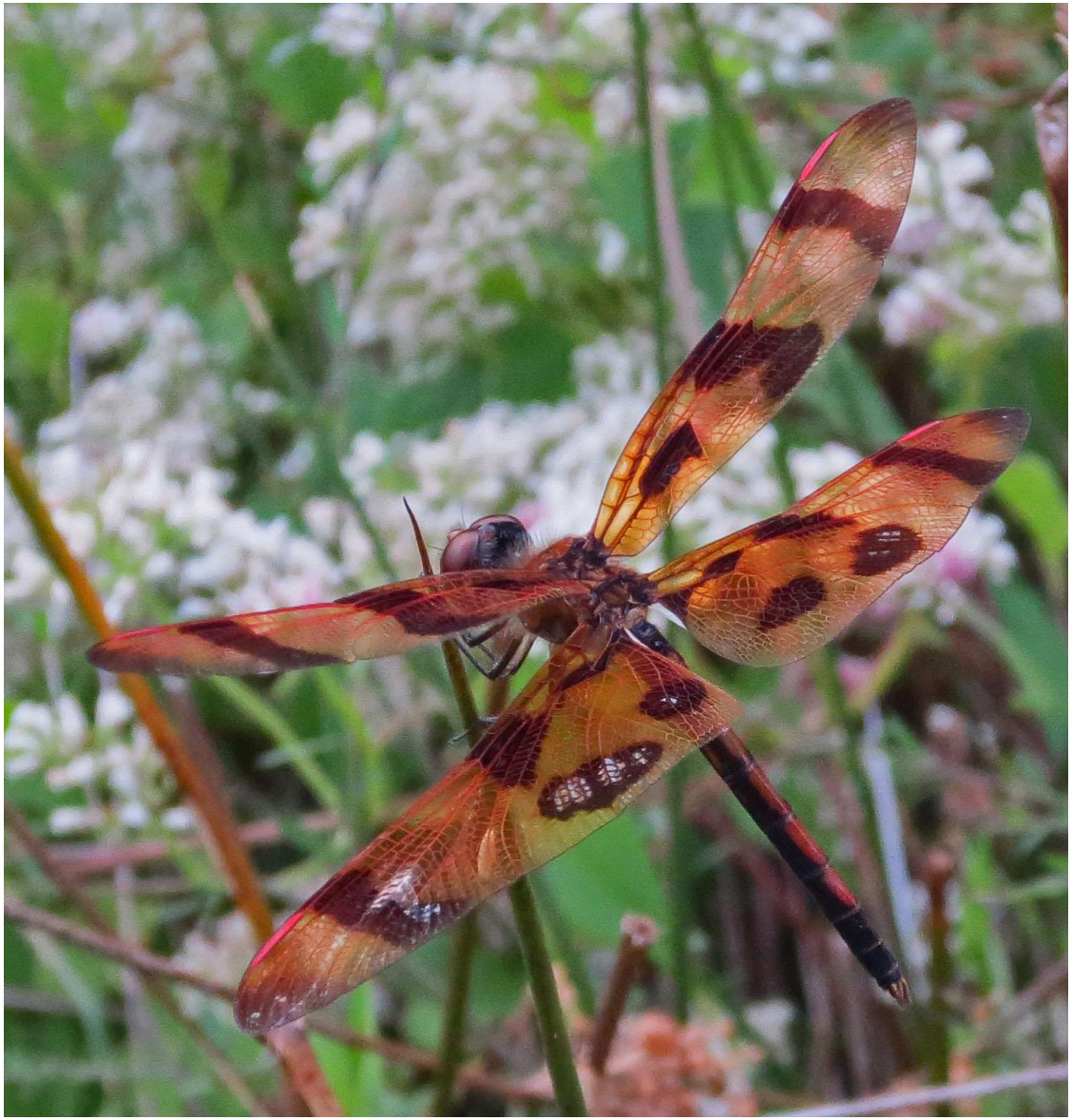
Thomas Griffin (1st Place Adult)

Mourning Dove

Walter Bullock (2nd Place Adult)

Blackwood Orange

Keith Newell (3rd Place Adult)



Picture Perfect

Latonya Ellison (Honorable Mention Adult)

Riverwalk

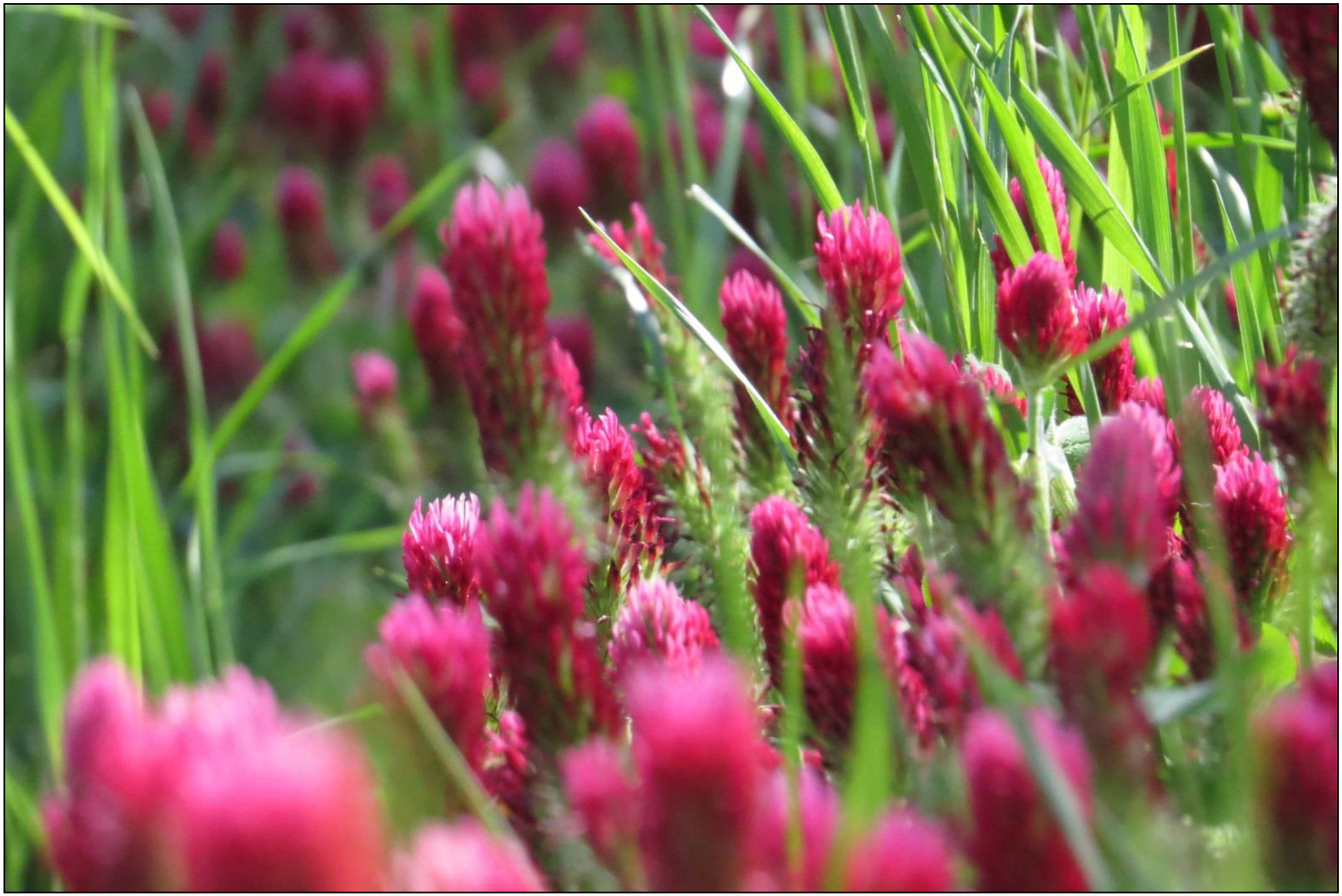
Latonya Ellison (Honorable Mention Adult)

Gray Wall Jumper

Sonya Nelson (1st Place Youth)

Farm Flowers

Caroline Mohler (2nd Place Youth)



Down on the Eno

Shannon Dorsi

(3rd Place Youth)

Farm Fresh Shitake Mushrooms

Caroline Mohler

(Honorable Mention Youth)

Pretty Bird

Calin Lucero (Honorable Mention Youth)

“THE NATURE OF ORANGE” PHOTOGRAPHY CONTEST

We thank our judges:

Laura Branan, Photographer

David Schaub, Photographer

Holden Richards, Photographer

From: NC League of Conservation Voters [mailto:cib@nclcv.org]
Sent: Monday, July 11, 2016
To: Tom Davis
Subject: CIB 7/11/16: Legislative session wins

North Carolina League *of* CONSERVATION VOTERS

Conservation Insider Bulletin: July 11, 2016

Conservationists held off some of the worst ideas proposed during this legislative session. This week in *CIB*:

Legislative Watch: Environmental Wins of the 2016 Session

Sometimes important wins come in the form of damage not done. That was the case with the North Carolina General Assembly's "short session" this year. Conservation advocates, allies, and bipartisan supporters of better judgment succeeded in blocking some of the worst proposals made this year on key environmental issues.

As is often the case in life, a measure of luck also helped. House and Senate conferees were hammering away in the last days of the session on a collection of the latest "regulatory reform" (i.e., environmental protection repeal) bills. A few especially controversial topics were delaying the conclusion—and then the Senate decided to wrap matters up and leave with the deals still hanging. Some observers believe that the House's surprise rejection of Senate strongman Tom Apodaca's controversial overhaul of Asheville city government helped spark the abrupt departure.

Let's take a look at some of the bad ideas that didn't pass:

Draconian restrictions on wind energy development which would have barred wind energy farms from most of the state—in the name of 'military operations protections' that in fact were not requested by the military. (Early warning, though: Bill sponsors have already promised to bring back this bad idea for another push next year.)

Unnecessary permitting requirements designed to hinder solar energy development (added state bonding, filing, and general red tape requirements).

Elimination of the state's electronics recycling program.

Broad **elimination of riparian buffer protections and nutrient management plans** that reduce pollutants impacting sensitive watersheds (provisions affecting the Neuse, Tar-Pamlico, and Catawba basins, as well as the Randleman Reservoir watershed).

Hodgepodge of other cutbacks of environmental protections and land use rules (most of the latest round of "rules reform" bills).

Finally, we point to one of the **few real positive environmental moves** in this year's budget, an increase of $8.6 million in funding to the Clean Water Management Trust Fund (CWMTF), for an annual total of $22.4 million. (For comparison purposes, though, don't forget that before the current state leaders came into power, North Carolina was investing up to $100 million a year in CWMTF projects. We're a long way down from that peak.) There was also an increase in recurring annual appropriations of $315,000 to the Natural Heritage Program, for an annual total of $765,000.

We bring you this list of positives now in part to give credit where due, and in part to encourage all our friends and allies to continue your advocacy efforts on behalf of our shared environment. Even during the dark times—like North Carolina state government today—those efforts are extremely important and can have critical positive impacts.

At the same time, **don't forget the anti-environmental measures which did pass**: new coal ash legislation letting Duke Energy off the hook for urgently needed cleanups, the blocking of badly needed cleanup plans for key water supply reservoirs (Jordan and Falls), and other cutbacks. Ultimately, the only way to prevent a continuing retreat on clean water, air, and land in our state is **to elect new leadership committed to a clean, green, and healthy North Carolina**.

Who we elect matters to our environment and health—and the election this November will be as important to our environmental future as any in our lifetimes.

Campaign Watch: Early Voting Advocacy

With the importance of this fall's elections in mind, we encourage our friends and supporters to get involved in helping to ensure the broadest possible opportunities for all our citizens to vote. One key way to do that is to see to it that one-stop early voting is as convenient and accessible as possible.

Our friends at Democracy NC are asking citizens to help support accessible early voting opportunities this month as county boards of election finalize their early voting arrangements for the November election. To learn more about the issues involved, when your county's meetings will be held, and how you can help, see here.

Administrative Watch: High Arsenic Levels Found in Water Supply Lake Near Power Plant

Mecklenburg County officials have acknowledged finding high arsenic levels in Mountain Island Lake—Charlotte's principle water supply lake—near where Duke Energy has been draining water from coal ash storage pits. Reported levels reached almost ten times the state safety threshold for arsenic in surface waters.

Officials assert that there was no risk to public drinking water because the contamination was not found at these levels near the drinking water supply intake. Duke says it stopped draining the water into the lake after getting the county test results. However, Duke said it expected to resume discharges of the coal ash pond water after a new treatment system is ready, and that it expects to get a state permit allowing arsenic in lake water near its discharge at over seven times the state safety threshold.

Of course they do. The McCrory Administration has already assured us that *There Is No Danger to the Public from Duke.*

Education & Resources: How's Your Waterway?

The U.S. Environmental Protection Agency (EPA) has introduced an interesting and handy tool for citizens to check up on the status of the local waters nearest you. It's called "My Waterway" and it's available in regular website and mobile app formats. It provides maps, as well as information on pollutants, sources, and even what's proposed to deal with problems. The mobile app offers location-specific information for those who don't know the waterways for the area they're in. See the fact sheet with links here.

Conservationists: Stanback Intern Laura Marie Davis

NCLCV welcomes our Stanback Interns each summer to join our team of citizen advocates for a clean, green, and healthy North Carolina.

That's our report for this week.

From: NC League of Conservation Voters [mailto:cib@nclcv.org]
Sent: Monday, July 04, 2016
To: Tom Davis
Subject: CIB 7/4/16: Session is officially over. What happened:

North Carolina League of CONSERVATION VOTERS

Conservation Insider Bulletin: July 4, 2016

The NC General Assembly has adjourned for the summer, but left an environmental mess on its way out the door. That news, plus more positive items, this week in CIB:

Legislative Watch: Coal Ash Cleanup Cancelled; Budget Riders Rip Environment

The good news is that they've gone home for the summer—we hope for the year. The bad news is the mess they left on coal ash (again!) and other issues, including the budget.

Let's start with **coal ash**. In another late-session 'gut-and-stuff', the NC Senate took the already weak HB 630, titled "Drinking Water Protection/Coal Ash Cleanup Act", and replaced its provisions with new contents that would neither clean up coal ash nor protect drinking water.

The new bill swiftly passed both chambers—*despite outspoken opposition from environmentally concerned legislators*—and was sent to the governor as the General Assembly's latest gift to power giant Duke Energy. The bill eliminates the Coal Ash Management Commission (which, while flawed, served as some check on the anti-environmental leanings of the McCrory environmental department leadership). It gives Duke over two years to begin providing safe drinking water to residents whose wells have been contaminated by coal ash pollution. Worst of all, it lets Duke off the hook altogether for cleanup of a full half of its coal ash pits, which can be "capped in place" and left to leach pollution into ground and surface waters indefinitely.

NCLCV Director of Governmental Affairs Dan Crawford said, "The anti-clean water NC Senate has brokered yet another sweetheart deal for Duke Energy. Right now, there are families in North Carolina who can't drink their own well water because of coal ash pollution. When we say these politicians put polluters over people, this coal ash bill is exactly what we're talking about."

He could also have been talking about the NC Senate's propensity for attaching special **anti-environmental riders as special provisions in the budget**—without proper review and debate by substantive area committees or the public. They did it again this session, and some of those anti-environmental riders made it into the final budget version passed by both chambers and sent to the governor last week.

We'll take a closer look at the entire budget over the next week, as well as other late-passing rules "reform" provisions that hit environmental protection. For now, we'll mention one of the riders that stands out as a special problem: rule changes delaying and weakening pollution cleanup in the Falls of the Neuse and Jordan reservoirs. This provision represents the "compromise" version which came out of the House/Senate budget conference committee's negotiation over the Senate's sweeping assault against key clean water standards from the mountains to the coast. While we appreciate the efforts of House negotiators to apparently keep parts of that assault out of the final budget bill, the provisions which remain still create new problems. Among other effects, they cancel the cleanup plans adopted for those two key water supply reservoirs and require another start-over. They also interfere with local governments' ability to implement stormwater management protections that they are required to provide under the federal Clean Water Act. These items may easily result in yet another federal court smackdown of the scofflaw legislators of North Carolina.

Campaign Watch: A New Wind; NC in Play

A New Wind: Renewable energy advocates have seen with alarm the increasingly aggressive efforts by some state legislators to protect their patrons in the fossil fuel industry by creating additional barriers to the development of new wind energy projects. That makes especially timely the recent formation of a new player in the political energy debates. American Wind Action, a 501(c)(4) nonprofit group, launched last week with its announcement of plans to spend money in Congressional and state legislative races to "inform and educate the public on the many benefits that wind energy brings to our nation and communities across America." The new organization is bipartisan with connections to major actors in the wind power development industry.

NC in Play: Signs are strengthening that North Carolina is regarded as very much "in play" in the presidential, gubernatorial, and US Senate races this fall. Democratic presumptive nominee Hillary Clinton will visit the state for a major campaign event tomorrow (July 5) for the second time in three weeks. The event, to be held in the Charlotte Convention Center, features the first 2016 joint campaign appearance by Clinton and President Barack Obama. That major campaign rollout had been previously scheduled to take place in Wisconsin, but was delayed after the mass shooting in Orlando last month. By the time the campaign was ready to reschedule, national polls had shifted in Clinton's direction, and North Carolina had emerged as arguably the closest presidential swing state. The decision to re-locate such a politically significant event here reflects an apparent decision by the Democratic ticket to take the offense in stretching the political map not only in the presidential campaign, but in the contest for control of the Senate as well. Both Democratic Senate nominee Deborah Ross and gubernatorial nominee Roy Cooper are expected

to be present for the event as well. This anticipated joint appearance marks a dramatic change from many recent past campaigns in North Carolina, when major state office Democratic nominees made themselves scarce around the visits by their party's presidential candidates.

Environmental issues have become a major point of contrast between Clinton and Republican presumptive nominee Donald Trump. As noted in a Washington Post article on the North American leadership summit last week, "Democrat Hillary Clinton has said if she's elected president she will work to ensure that half of the nation's electric power will come from clean energy sources by 2030. GOP presumptive nominee Donald Trump has emphasized the need to continue extracting fossil fuels, including coal, to power the nation's electrical grid and has questioned much of the Obama administration's effort to forge international climate agreements."

Climate Change Update: North American Leaders Commit to Clean Energy

At the North American Leaders Summit last week, the presidents of the United States and Mexico and the prime minister of Canada announced agreements on steps to fight climate change, including the goal of producing 50 per cent of the continent's energy from clean sources by 2025.

Measures specifically cited in the leaders' joint statement included expanding renewable energy generation in the power grid, adding to cross-border transmission lines to share renewables-produced electricity, expanding clean vehicle fleets and other efficiency investments, and extending tax credits for clean energy production and investment.

The joint statement reads in part, "The Paris Agreement was a turning point for our planet, representing unprecedented accord on the urgent need to take action to combat climate change through innovation and deployment of low-carbon solutions. North America has the capacity, resources and the moral imperative to show strong leadership building on the Paris Agreement and promoting its early entry into force. We recognize that our highly integrated economies and energy systems afford a tremendous opportunity to harness growth in our continuing transition to a clean energy economy. Our actions to align climate and energy policies will protect human health and help level the playing field for our businesses, households, and workers. In recognition of our close ties and shared vision, we commit today to an ambitious and enduring North American Climate, Clean Energy, and Environment Partnership that sets us firmly on the path to a more sustainable future."

SmithEnvironment Blog

2016 Legislative Session in Review: Environmental Legislation

by Robin W. Smith

July 12, 2016. The 2016 General Assembly session resulted in changes to several environmental laws, but ended without final action on a major regulatory reform bill. Among the more significant environmental provisions enacted outside the budget bill:

Coal Ash. House Bill 630 eliminated the Coal Ash Management Commission, giving the Department of Environmental Quality (DEQ) authority to make decisions about final closure of coal ash impoundments. The bill also changed the criteria for prioritizing impoundment closures and required Duke Energy to provide a permanent alternative water supply to well owners within 1/2 mile of a coal ash impoundments (unless separated from the impoundment by a river or lake) and to other well owners potentially affected by the migration of groundwater contamination from the impoundments. See an earlier post for more detail on H630 changes to the 2014 Coal Ash Management Act.

Commissions. House Bill 630 responded to the Governor's constitutional objections to three state regulatory commissions -- the Coal Ash Management Commission, the Oil and Gas Commission, and the Mining Commission. The Governor successfully challenged the laws creating all three commissions as violating separation of powers; in part, the Governor objected to the legislature's power to appoint a majority of each commission's members. A post on the N.C. Supreme Court decision can be found here. The Governor vetoed an earlier bill (Senate Bill 71) attempting to resolve the separation of powers issue by giving the Governor a majority of commission appointments. The Governor's position on Senate Bill 71 suggested an ongoing objection to any commission exercising executive powers unless the Governor had authority to appoint a majority of the members without legislative confirmation; direct the actions of the commission; and remove commissioners at will.

The Governor's Office reportedly accepted H630 as a compromise. The bill eliminates the Coal Ash Management Commission, but retains the Oil and Gas Commission and the Mining Commission under conditions the Governor had previously objected to -- legislative confirmation of appointees and the ability to remove commissioners only for cause. [Note: Although there have been indications that the Governor's Office agreed to H630, the Governor has not yet signed the bill.]

Renewable Energy. Two provisions in Senate Bill 770 (N.C. Farm Act of 2016) amended laws related to renewable energy specifically to benefit agricultural sources, such as swine waste-to-

energy projects. Sec. 10 of the bill extends the state's renewable energy tax credit (25% of project costs) to projects in service by January 1, 2020 (previously January 1, 2017) as long as the facility began construction by December 31, 2013. The extension will likely benefit some swine waste-to-energy projects that have been in the works for several years, but are not yet generating electricity. Sec. 18 of the same bill gives poultry and swine waste-to-energy projects priority over other renewable energy generation projects in connecting to electric utility delivery systems.

Sediment Pollution. Sec. 14 of Senate Bill 770 amends G.S. 113A-52.01 to add production of "[m]ulch, ornamental plants, and other horticultural products" to the list of agricultural activities exempt from the state's Sedimentation Pollution Control Act (or "Sediment Act"). The Sediment Act otherwise requires activities disturbing an acre or more to maintain a stream buffer and use erosion barriers to keep sediment out of rivers, lakes and streams. The addition of ornamental plants will not raise many questions, but mulch is not an agricultural product similar to the others. Including mulch production in the Sediment Act exemption will raise two questions:

1. What kinds of operations will be covered by the mulch exemption? Mulch operations include large-scale municipal waste disposal facilities that mulch yard waste and have no relationship to agriculture.

2. How will the mulch exemption affect Clean Water Act permitting? The exemption seems to go beyond the federal stormwater exemption for agriculture. That is important because most land-disturbing activities in N.C. meet federal construction stormwater requirements by complying with the state Sediment Act. If the Sediment Act exempts activities that don't also fall under a Clean Water Act stormwater exemption, the activity may require a separate federal stormwater permit.

What didn't happen? Several efforts to enact legislation significantly restricting wind energy development failed, although Sen. Harry Brown has already indicated an intent to reintroduce a bill prohibiting erection of wind turbines in designated military air corridors in 2017. Proposals to repeal the ban on landfill disposal of electronics and to end the state's electronics recycling program also failed. Legislators apparently could not reach agreement on bills attempting to clarify the protocol for advising well owners on the health effects of well contamination -- an issue sparked by controversies over conflicting advice given to well owners near coal ash impoundments; those bills never got to a floor vote. The Senate received House Bill 593 (Amend Environmental Laws 2) from the House and expanded the bill to include a number of additional provisions on stormwater, beach nourishment, stream mitigation and other issues. The House did not concur in the Senate changes, leaving those proposals to die with adjournment.

2016 Legislative Session in Review: The Budget

by Robin W. Smith

July 7, 2016. A few notes on how the General Assembly allocated state funds for the environment.

A New Trend Toward Funding Environmental Studies at UNC-CH -- The legislature directed (and in most cases funded) the University of North Carolina at Chapel Hill to study or convene stakeholder groups on environmental and natural resource policies rather than assigning those projects to the Department of Environmental Quality (DEQ) or to a legislative study committee:

♦ The budget directs UNC to create a North Carolina Policy Collaborative to "facilitate the dissemination of the policy and research expertise of UNC for practical use by State and local government". The Collaborative will focus on research related to natural resource management, including "research related to the environmental and economic components of the management of the natural resources within the State of North Carolina and of new technologies for habitat, environment and water quality improvement." The legislature appropriated $1 million to the UNC Board of Governors for the N.C. Policy Collaborative for the 2016-2017 fiscal year.

♦ A UNC-led stakeholder group will study efforts to "ecologically restore and achieve economic sustainability" the state's shellfish aquaculture industry. The budget provision directs the UNC-Chapel Hill Chief Sustainability Officer (Brad Ives, former Assistant Secretary in DEQ) to lead the stakeholder group. The legislature did not appropriate funds for the effort.

♦ The budget creates a new study of water quality programs to reduce nutrient pollution focused on the Falls Lake and Jordan Lake nutrient reduction strategies. See an earlier post for more detail on the substance of this budget provision and the effect on enforcement of the Falls Lake and Jordan Lake water quality rules. The legislation gives the UNC-CH Chief Sustainability Officer responsibility for this study as well and provides funding at $500,000 per year for six years. (The budget provision allocates an additional $1.3 million to DEQ in 2016-2017 to study *in situ* technologies to reduce nutrient impacts.)

These represent unusually large and extended state investments in environmental studies. The combined UNC/DEQ appropriations for environmental research, collaboration and water quality studies total $2.8 million just for FY 2016-2017. The UNC nutrient study will be funded at $500,000 per year for another five years beyond that. By comparison, the legislature appropriated only $100,000 for a one-year study of another high profile environmental issue -- hydraulic fracturing -- in 2011-2012. Another reference point may be the annual budget of $4.1 million for the state's non-point source water pollution program; the 2016-2017 appropriations for environmental studies represent 2/3 of the annual operating budget for the non-point source water pollution program.

Earmarked Funds for Water and Wastewater Infrastructure. Most new funding for DEQ's Water Infrastructure Division to support local government water and wastewater projects has been earmarked for specific projects. Of the approximately $18.8 million in water/wastewater funding added to DEQ's 2016-2017 budget, the legislature directed approximately $16.6 million to the following projects:

$400,000 to an unnamed municipality (population < 100) for wastewater improvements needed to eliminate illegal wastewater discharges.

$1,000,000 to Duplin County for improvements to the on-site wastewater system at an elementary school

$700,000 to the Town of Fontana Dam for wastewater system upgrades

$14.5 million to fund extension of water lines to cities and counties in an as-yet unformed Regional Water and Sewer Authority intended to include Guilford County, Rockingham County and one or more municipalities. If the Regional Water and Sewer Authority is not formed by June 30, 2017, the funds revert back to the state' General Fund. (In other words, the funds cannot be allocated to other water and wastewater projects.)

Restoration of Funds for Commercial UST Cleanups and the Water and Air Quality Account: Some transportation-related environmental programs have long been funded by a small portion of the state's gas tax. Those programs include the Commercial Underground Storage Tank Fund, (which pays to clean up petroleum contamination from leaking underground storage tanks at convenience stores, gas stations and other businesses) and the N.C. air quality program. In 2015, the legislature replaced the on-going gas tax allocation to these two programs with a one-time appropriation and ordered a program review. The main purpose of the review was to look at the diversion of gas tax money from the Highway Fund to non-highway uses -- a legislative concern for several years. The 2016 budget restores the gas tax allocation to both programs, putting them back on a stable (although not necessarily adequate) funding source.

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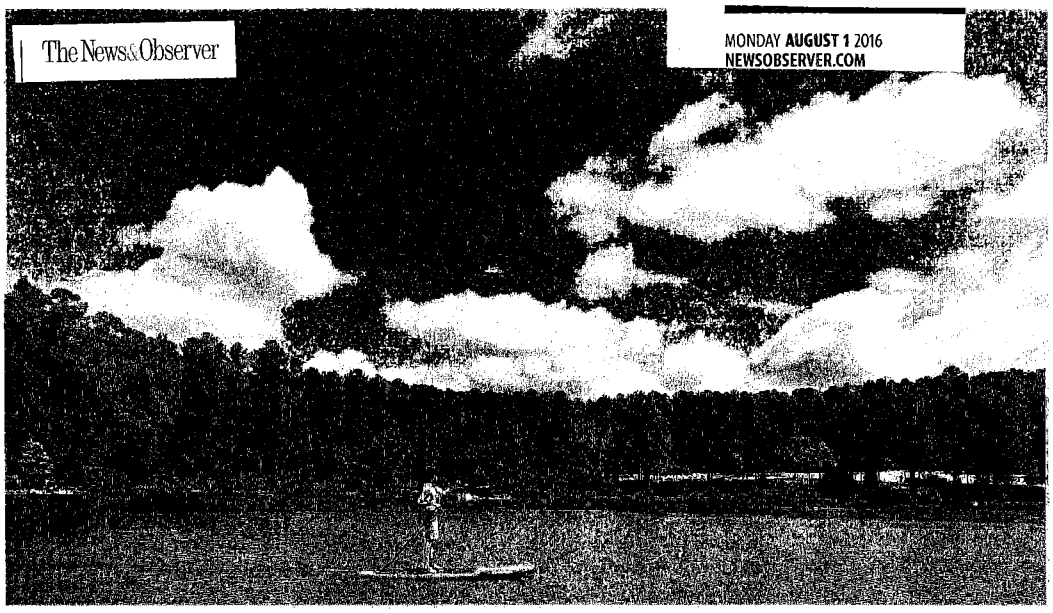
BY PAUL A. SPECHT
aspecht@newsobserver.com



CHUCK LIDDY cliddy@newsobserver.com

Bryce Tuton, 16, of Raleigh paddles Friday across Falls Lake at the Highway 50 boat ramp. The lake is considered impaired because of high nitrogen and phosphorus levels.

FALLS LAKE

State rejects plan to help preserve land

RALEIGH

The state environmental department rejected a proposal by local governments to preserve land along Falls Lake because state officials say they're not sure land conservation would prevent pollution-causing nutrients from entering the drinking-water source.

Falls Lake is considered impaired under the Clean Water Act because of its high nitrogen and phosphorus levels. The Upper Neuse River Basin Association, which represents Raleigh, Durham and 12 other municipalities, sought to prevent such nutrients from entering the lake by curbing development around it.

The state already has some rules for building in the Falls Lake watershed, which spans 770 square miles across the northern Piedmont. Developers and government members of the Upper Neuse watershed can build retention ponds or stormwater drainage systems to earn points under North Carolina's "nutrient credit" system.

The number of credits a developer must earn before starting construction varies depending on the size of the project and its environmental impact. Currently, the state awards no credits for preserving land around Falls Lake.

"Land preservation has so many environmental benefits that it seems a logical extension to make it part of the solution to restoring Falls Lake," said Ken Waldroup, Raleigh's assistant public utilities director. "Right now, (developers) can't choose preservation as a means for complying with the Falls rules. We were trying to open that door."

The proposal identified 260,000 acres – about 406 square miles – of land as high-priority conservation areas.

The state Department of Environmental Quality rejected the proposal on grounds that it doesn't comply with state requirements for offering incentives.

North Carolina's rules require private and municipal land owners to reduce pollution-causing nutrients to qualify for credits. Because land preservation keeps nutrient levels status quo rather than reducing them, the state cannot by law offer credits, Jay Zimmerman, director of the department's water resources division, wrote in an email to the Upper Neuse Association.

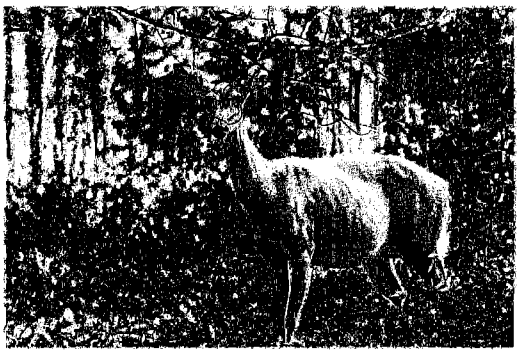
"Offering a credit for land conservation could incentivize it at the expense of other practices for which actual reductions can be estimated," Zimmerman said.

He suggested that development may do more than conservation to reduce nutrients.

"(T)here is a consensus understanding that securing a conservation easement alone, without additional restoration efforts, will not result in net nutrient loading reductions," he wrote.

Zimmerman said the state would, however, consider reinstating the conservation tax credit. Property owners who want to preserve their land in sensitive areas can apply for federal tax deductions, but not state deductions.

"Moving forward, I have also asked staff to prioritize consideration of land conservation as a potential enhancement for other restoration measures," he wrote.



TRAVIS LONG tlong@newsobserver.com

A doe grazes along a hiking path near Falls Lake. The lake's watershed stretches across 770 square miles.

Waldroup said Raleigh has had a good relationship with DEQ officials as they've worked together to create a nutrient-management credit system. This is the first time the department has rejected one of the city's proposals, he said.

Forrest Westall, executive director of the Upper Neuse association, said he can see where DEQ is coming from with its decision. The state is requiring his group's member cities to help offset pollution that occurred amid rampant development between 2006 and 2012, and he said the state may want cities to take more active measures against pollution than merely buying undeveloped land and keeping it the way it is.

> "HOW CAN WE PROTECT WATER WITHOUT COMPLETELY BANKRUPTING COMMUNITIES?
>
> *Durham councilwoman Jillian Johnson*

But Durham councilwoman Jillian Johnson noted that other mitigation strategies are more expensive.

"Municipalities are finding it to be really difficult to get in range of the standards established by the Falls Lake Rules," Johnson said. "How can we protect water without completely bankrupting communities?"

Westall, for his part, said DEQ rejected his group's proposal by following the letter of the rule rather than the spirit of it.

"This is an important public policy issue and represents a narrow view of the importance of land conservation in helping to maintain and improve water quality in the watershed," he wrote in an email.

Stopping pollution before it happens is easier than cleaning it up after it happens, said Reid Wilson, executive director of Conservation Trust for North Carolina.

"Think about when a person gets a flu. They take medicine to make themselves feel better," Wilson said. "But in the future, they take better steps like washing their hands and eating well to make sure they keep from getting sick.

"An ounce of prevention is worth a pound of cure."

Paul A. Specht: 919-829-4870, @AndySpecht

PLANNING & INSPECTIONS DEPARTMENT
Craig N. Benedict, AICP, Director

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ORANGE COUNTY
NORTH CAROLINA

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Suite 201
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Hillsborough, NC 27278

July 26, 2016

Michael Calhoun, PE
Vaughn & Melton Consulting Engineers, Inc.
1318-F Patton Avenue
Asheville, N.C. 28806

RE: NOTIFICATION OF SELECTION – Completion of study consistent with Orange County RFQ # 5219

Dear Mr. Calhoun:

Orange County released a Request for Qualifications (RFQ), number 5219, associated with the completion of a scientific study providing an avenue for the County to comply with recent changes in State law associated with the enforcement of riparian buffers. Specifically the County was looking to complete a study justifying the enforcement of more restrictive riparian buffer standards than presently required under State law.

Your firm submitted a response outlining a process for the completion of this study on May 24, 2016.

After an internal review of all submissions, and completing project team interviews, through this letter we are delighted to inform you the County has selected your firm to complete the aforementioned study.

We will be reaching out to you to complete contract preparation and to schedule initial project scoping meetings. We look forward to working with you on this project and will be in touch soon.

Sincerely,

Michael D. Harvey AICP, CFM, CZO
Current Planning Supervisor
Orange County

CC: Board of County Commissioners
Bonnie Hamersley, County Manager
Craig Benedict, Planning Director
John Roberts, County Attorney
David Cannell, Financial Services
File

Indy Week 6/29/16

Unhappy Trails

WILL A NEARBY HIKING TRAIL MAKE A SECLUDED ORANGE COUNTY NEIGHBORHOOD MORE DANGEROUS?

BY DANNY HOOLEY

A brief tornado watch followed by a thunderstorm Thursday night likely depressed attendance inside Chapel Hill's Town Hall. But several dozen residents of affluent, secluded homes near Cane Creek reservoir, owned by Orange Water and Sewer Authority, made it to the OWASA board meeting anyway, to passionately oppose the Mountains-to-Sea Trail coming through OWASA land near their properties.

"Our homes, our lifestyles, we feel like we've been hijacked," said Ann Charles, her voice quivering. "It doesn't feel good."

The neighbors cite a variety of reasons for their opposition: invasion of privacy, potential safety hazards, a spoiling of the natural habitat for rare creatures such as the bald eagle. Some expressed concerns about water quality suffering due to contact with careless hikers or their dogs. One said she was told by her insurance agent that her rate would go up, due to increased risks associated with a nearby recreational trail.

Many objections, however, seem rooted in what those homeowners valued most when they bought their properties. "My wife and I moved in there when I was sixty," says Cane Creek neighbor Jim O'Connor. "We moved there for the seclusion."

The county's parks staff will plot the trail's route through Cane Creek, though the OWASA board of directors has to approve it. Since extending an invitation for the trail to be built on OWASA land, the board has been creating a list of conditions that need to be met before the actual construction.

The first public discussions about the MST started some forty years ago. Former state senator Howard Lee, who was elected as Chapel Hill's mayor in 1969, took some credit. "The idea for the trail, obviously, was planted as a seed when I was mayor," he said at the OWASA meeting. "I made this proposal in 1977 that we have a trail stretching for the mountains to the sea. I couldn't believe that it would develop to where it is today."

Since then, the nonprofit group Friends of the Mountains-to-Sea Trail, in collaboration with the state parks system, local governments, and other agencies, has worked toward building a continuous trail from the Great Smoky Mountains to Jockey's Ridge State Park on the Outer Banks. Built mostly by volunteers, the MST currently consists of 680 miles of trails and 470 miles of roads connecting them.

Between 2005 and 2007, the state parks division and other stakeholders met publicly to plan a trail through Alamance, Durham, and Orange counties. In 2009, OWASA's then-chairman, Randy Kabrick, sent a letter to Orange County Board of Commissioners chairwoman (now state senator) Valerie Foushee, in support of allowing a portion of the trail to be built on OWASA property.

> "Our homes, our lifestyles, we feel like they've been hijacked."

Soon, residents living near Cane Creek started pushing back.

John Silva, a Cane Creek resident, describes himself as an avid hiker who generally supports the MST. He's owned property in the area since the early 1980s and lived there since 1995. "This particular segment of the trail is flawed in many ways," Silva said at Thursday's meeting.

Silva and others argue that people often set little fires on trails, which means a gust of wind in the wrong direction could spark disaster. Silva told board members that the residential area near OWASA land is a potential "tinderbox" that would be near-impossible for firefighters to protect.

(Reached by the *INDY* Friday, Orange Grove Volunteer Fire Company chief Steve McCauley Sr. said he doesn't see the proximity of a trail as a worrisome hazard. A lightning strike, he points out, would do much the same thing.)

Opponents also warn that the trail could present new opportunities for criminals.

"Unfortunately, trails have become soft spots for crime," Silva told the OSAWA board. "They're considered 'blueberry patches' now—easy places to go to commit crime and get away with it." (The Wake County Sheriff's Office reports zero incidents in the trails surrounding Falls Lake since January 2015.)

Not all residents feel the same way. In fact, at Thursday's meeting, supporters were about equally represented. Many are volunteers who've helped build sections of the MST. Supporters say the trail would be an economic driver for Orange County and a gift to future generations.

"I'm strongly in favor of having the MST trail go through OWASA property," said Carl Shy, a thirty-four-year resident of Bingham Township, which borders OWASA's land. "This area has extraordinary scenic beauty, being heavily forested, with undulating terrain bordering the waters of the reservoir. It would be highly appropriate to make this beautiful tract of land available to the public."

The board didn't take any action last week. Members talked about looking at alternative routes for the trail. They didn't rule out the possibility of not allowing the trail on OWASA property after all and said that any site agreement will likely take a couple of years.

"[Board members] really want to be respectful of adjacent neighbors," says Kate Dixon of Friends of the Mountains-to-Sea Trail. "We really want that, too. We're really not trying to invade people's privacy at all."

dhooley@indyweek.com

North Carolina
Coastal Federation
Working Together for a Healthy Coast

July 5, 2016

Bonnie Hammersley, County Manager Orange County
200 S. Cameron Street
P.O. Box 8181
Hillsborough, NC 27278

Dear Bonnie:

I am very pleased to inform you that Orange County has been selected to receive a 2016 Pelican Award for your resolution opposing offshore oil along the North Carolina coast.

The federation annually recognizes the exemplary achievements and actions by people who have made significant contributions to the coast. This year we are recognizing the 33 local governments that passed oil resolutions.

Please join us on Saturday, August 6, 2016 for our Pelican Awards and Boathouse Boil. The event will be held at the Boathouse at Front Street Village, 2400 Lennoxville Road in Beaufort, NC 28516. The awards program and festivities are from 5:00 p.m until 9:00 p.m.

We invite you to join us for this enjoyable evening that includes the awards program, reception, dinner and silent auction. Additional tickets may be purchased by going to http://www.nccoast.org/event/pelican-awards-and-boathouse-boil/. Please RSVP to Lauren Kolodij at laurenk@nccoast.org by July 20 so she can provide you with additional event details.

Congratulations and thank you for your continued stewardship of our beautiful North Carolina coast!

With my best regards,

Todd

Todd Miller
Executive Director

Northeast Office
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Manteo, NC 27954
252.473.1607

Headquarters & Central Office
3609 N.C. 24 • Newport, NC 28570 •252.393.8185
www.nccoast.org

Southeast Office
309 W. Salisbury Street
Wrightsville Beach, NC 28480
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News + Observer
July 5, 2016

NCSU study: Harvesting for wood pellets has no impact on woodland life

Researchers cataloged small animals in clear-cut areas in N.C. where wood debris was removed

Animals use the debris when available but do not depend on it

Instead, they say, the animals are resilient and adapt to changing conditions

BY STEPHEN GINLEY
Correspondent

RALEIGH

Harvesting wood debris from areas that have been clear-cut of timber does not affect the animals that live there, according to a study from researchers at N.C. State University.

Chris Moorman, a professor of forestry and environmental resources, and his students spent four years cataloging small animals such as mice, toads, bugs and mourning doves at loblolly pine plantations. They found that the populations in clear-cut sites were unaffected regardless of how much wood debris was removed.

This low-value wood, or "biomass," left over from logging is pulverized to make wood pellets that are used as a carbon-friendly alternative to coal in Europe and in parts of the United States. Wood is classified as a renewable energy source by the European Union, which burns wood pellets from the southeastern U.S. to comply with the Kyoto Protocol to curb greenhouse gas emissions.

The biomass left after a forest has been clear-cut supports a host of critters. It is home to bugs at the bottom of the food chain, which are eaten by burrowing shrews and amphibians and small reptiles such as salamanders. Some of the biomass is a fertilizer for smaller vegetation that feeds birds and rodents. The cold-blooded citizens of the sites make their homes in the wet, woody debris left by logging.

TRAVIS LONG tlong@newsobserver.com

Logging leaves low-value wood that can be harvested to create wood pellets that are used as fuel.

Moorman and his students wanted to know if removing large amounts of this biomass to make wood pellets could hurt the communities that spring up after the lumber is chopped down.

Moorman says clear-cut logging has a well-known effect on biodiversity by displacing forest-dwellers such as deer and nesting birds. Less understood was the effect of clearing the debris left after logging. Ecologists have predicted that harvesting biomass would remove potential habitats and sources of food from clear-cut areas, causing animal populations to fall.

Sarah Fritts, an ecologist who studied the mammals, amphibians and reptiles at the logging sites, speculated that toad populations would be lower in areas where more wood debris was harvested. But after four years of research, she says, she "captured thousands and thousands of toads," and there was no variation even in the most harvested sites.

The 150-acre pine plantations in the study have so much wood debris left over after logging that even the most heavily harvested sites were left with 10 percent of their biomass, Moorman said. The harvesters start to lose money if they chase down every last branch and pile of wood chips, some of which are water-damaged and would not make good wood pellets anyway. Even 10 percent of the debris is enough to satisfy the population that survives after clear-cutting.

To count the populations at each site, Fritts set live traps and put a tag on each animal so it would not be counted again. She was curious about why the toads were not as affected by a lack of debris as she hypothesized.

To find out what they preferred, she built a 30-square-foot rink divided into four sections, each with different amounts of

SEE LOGGING, 4A

FROM PAGE 2A

LOGGING

biomass. The quarters were separated by low current electrical wire that would track when it was crossed by the toads Fritts kept in the box. She found that during the day, toads spent their time in the debris because it retains water and shielded them from the sun. When it cooled off at night, the toads ventured out to find food.

According to Moorman, the animals that live in clear-cuts "evolved to respond to disturbances."

Forest clearing events like forest fires and hurricanes are even more destructive than logging, and the populations in coastal North Carolina are resilient. Moorman noted the study may not apply to biomass harvesting in logging sites in the mountains.

Stephen Ginley: 919-829-4520

July 5, 2016 News + Observer

SAVING BEES, BUTTERFLIES

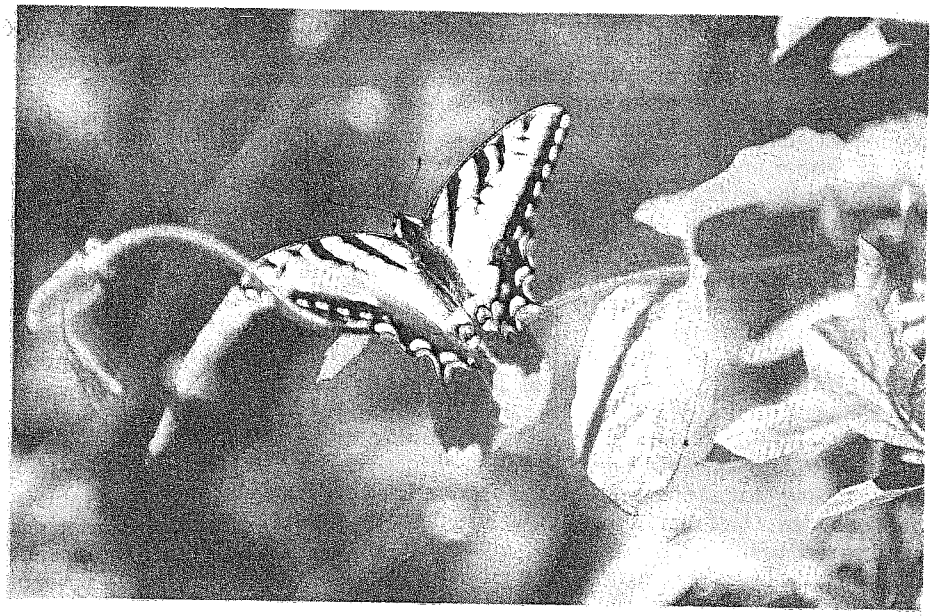
Pollinators find salvation, friends along the Butterfly Highway

Pollinators around the world face extinction, UN says

Butterfly Highway provides oases of food and water

Volunteers have multiplied 16-fold since February

BY BRUCE HENDERSON
bhenderson@charlotteobserver.com



Resting on a honeysuckle vine, an Eastern tiger swallowtail butterfly, the state butterfly of North Carolina, warms up near a Butterfly Highway.

The bees and butterflies flitting through your yard this summer don't hint at a dark reality: The pollinators that feed the world are starving.

More than 200,000 species, mostly insects, carry pollen grains from male to female parts of flowers for reproduction. Three-quarters of the globe's food crops rely on pollinators.

But up to 40 percent – chiefly bees and butterflies – face extinction, the United Nations reported earlier this year. Habitat losses leave too few of the native plants that feed pollinators and nurture their young. Pesticides, invasive species, disease and climate change all take tolls.

Charlotte is part of the growing response to a global crisis.

Earlier this year the Charlotte-based N.C. Wildlife Federation launched the Butterfly Highway. The program recruits volunteers to create a network of oases for the hardworking insects.

The response was unexpected. The program began in February with 50 volunteers in west Charlotte. By June more than 800 people had signed on statewide, tending plots from apartment balconies to 100-acre farms.

"This is something that anyone can do because it doesn't cost any money, and you can belong to a bigger network," said the federation's Angel Hjarding, a UNC Charlotte doctoral student who leads the program.

The basics are simple: Tend native plants; offer water; avoid insecticide use.

The plight of pollinators is gaining international attention. Before the UN's jarring report, the Obama administration announced a plan last year to make 7 million acres of federal land more pollinator-friendly. There's also a federally sanctioned National Pollinator Week, which began June 20.

Just as striking is that ordinary people want to help.

The Asheville-based nonprofit Bee City USA, which works to raise awareness of pollinators, got its start in 2012. Now 22 U.S. cities, including Matthews, are Bee Cities and 13 university campuses have signed up to hold public awareness events.

"The sad news is that because pollinators are so small and work so hard and go about their business, they just haven't been noticed," said founder Phyllis Stiles. "People have gotten the memo that no bees, no food."

Stiles was named U.S. advocate of the year in 2015 by the Pollinator Partnership, the largest nonprofit in the field. But after years of work for nonprofit groups, she knew little about pollinators until 2007.

That's when news broke that 30 to 90 percent of domestic honey bee hives were being lost, the vital worker bees are disappearing. Losses have moderated since, but the cause of colony collapse disorder, as it is called, remains a mystery. Researchers suspect a mix of reasons, including invasive mites, new diseases and pesticide poisoning.

"Our goal is being PC – pollinator conscious – so that when you start to pull out that bottle of Roundup (weed killer), you might pause and think of pollinators and say 'maybe I don't need that,' " Stiles said.

In Chatham County, west of Raleigh, extension agent Debbie Roos created a demonstration pollination garden in 2008. Since then, she's led more than 100 garden tours while presenting programs across the state.

"People come to my workshops and go home with milkweed plants" on which monarch butterflies lay their eggs, Roos said. "Then I get the proud pictures the next year of a monarch."

The enthusiasm can be contagious.

Ron Ross, a mortgage auditor and caregiver in Charlotte, wanted to find a project that would engage his community off Beatties Ford Road. He found it in the pollinator gardens that a half-dozen neighbors have tended since last summer as fore-

Butterfly Highway pollinator gardens:

- Have no minimum size.
- Get at least six hours of sun a day.
- Offer native trees, shrubs or flowers, including nectar plants.
- Have places for insects to raise young, such as butterfly eggs.
- Use no chemical pesticides.

Details: www.butterflyhighway.org

runners of the Butterfly Highway.

"Once it took hold, it seemed like all of a sudden we started seeing butterflies that we hadn't seen before," Ross said.

Neighbors use charts to identify species they see, reporting the data to Hjarding. They also expanded their initial work, seeding wildflowers on a vacant acre owned by Piedmont Natural Gas and installing bluebird houses.

"I call myself a city boy," Ross said, "but that's changing."

Bruce Henderson: 704-358-5051, @bhender

A new Butterfly Highway sign sits high on a screech owl nesting box post.

Coal and Gas to Begin 'Terminal Decline' In Less Than A Decade, Bloomberg Says

by Joe Romm Jun 13, 2016

A stunning new forecast on "peak fossil fuels for electricity" by Bloomberg New Energy Finance (BNEF) concludes that "coal and gas will begin their terminal decline in less than a decade."

It's been clear for a while that coal demand is plateauing, if it hasn't already peaked. But BNEF explains that of the "eight massive shifts coming soon to power markets," #1 is "There Will Be No Golden Age of Gas."

Here is the core finding of BNEF's "annual long-term view of how the world's power markets will evolve in the future," their New Energy Outlook (NEO):

Cheaper coal and cheaper gas will not derail the transformation and decarbonisation of the world's power systems. By 2040, zero-emission energy sources will make up 60% of installed capacity. Wind and solar will account for 64% of the 8.6TW [1 Terawatt = 1,000 Gigawatts] of new power generating capacity added worldwide over the next 25 years, and for almost 60% of the $11.4 trillion invested.

These conclusions may come as a surprise to the vast majority of U.S. policy- and opinion-makers, but all the way back in November the International Energy Agency came to a similar conclusion: "Driven by continued policy support, renewables account for half of additional global generation, overtaking coal around 2030 to become the largest power source."

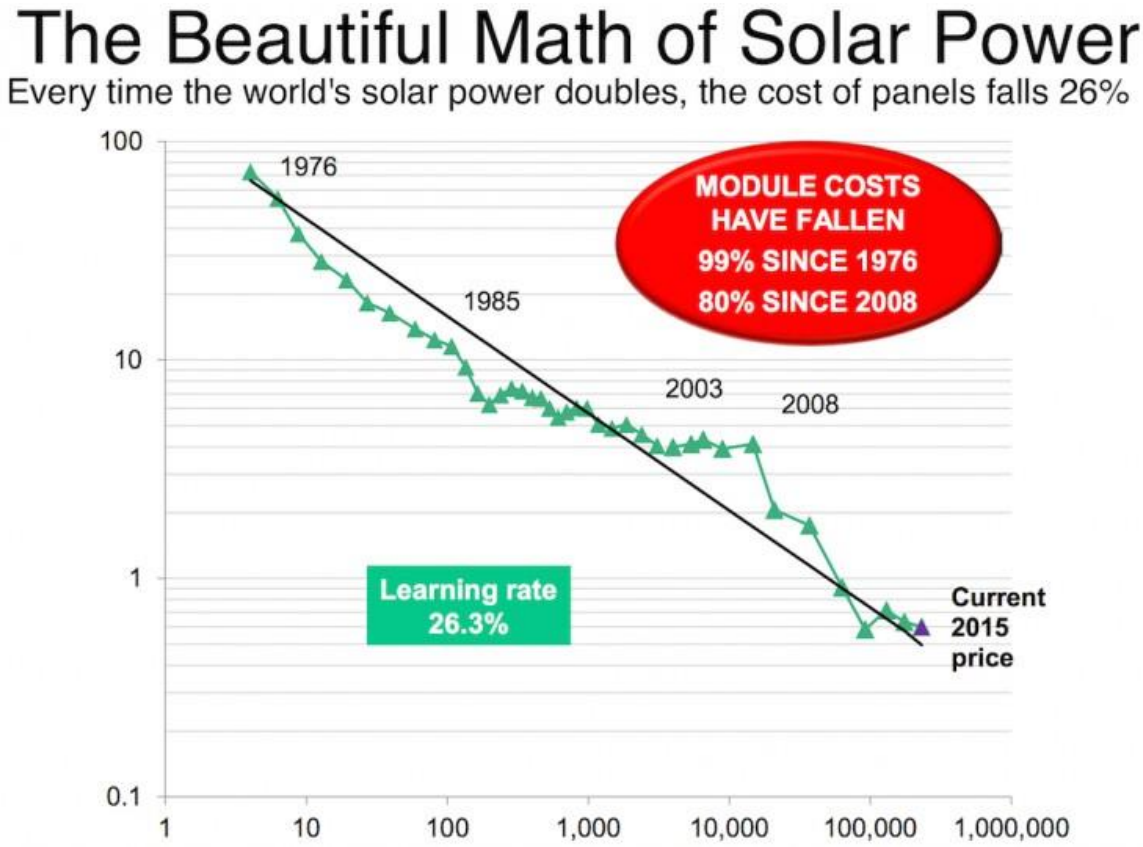
I've been reporting on this trend in my ongoing series "almost everything you know about climate change solutions is probably outdated" (see, for instance, "We Can Stop Searching For The Clean Energy Miracle. It's Already Here").

BNEF, however, keeps putting out the most comprehensive, up-to-date, chart-filled, data-driven analyses of the clean energy revolution — and it is all must-read stuff.

Let me single out two charts in particular, an amazing one you've probably seen before, and an equally amazing one you probably haven't.

Solar and Wind Prices Plummet

In a section headlined, "Solar and Wind Prices Plummet," BNEF says "The chart below is arguably the most important chart in energy markets. It describes a pattern so consistent, and so powerful, that industries set their clocks by it."



"Wind-power prices are also falling fast — 19 percent for every doubling," explains BNEF. They project that over the next quarter-century, dropping prices and improving performance (see below) will drive the world to a stunning $3.4 trillion investment in solar, and $3.1 trillion for wind — and both of those exceed the cumulative investment of $2.1 trillion projected for all fossil fuels through 2040. BNEF expects an investment in new hydropower of some $900 billion through 2040, and an investment of about $1.1 trillion in new nuclear.

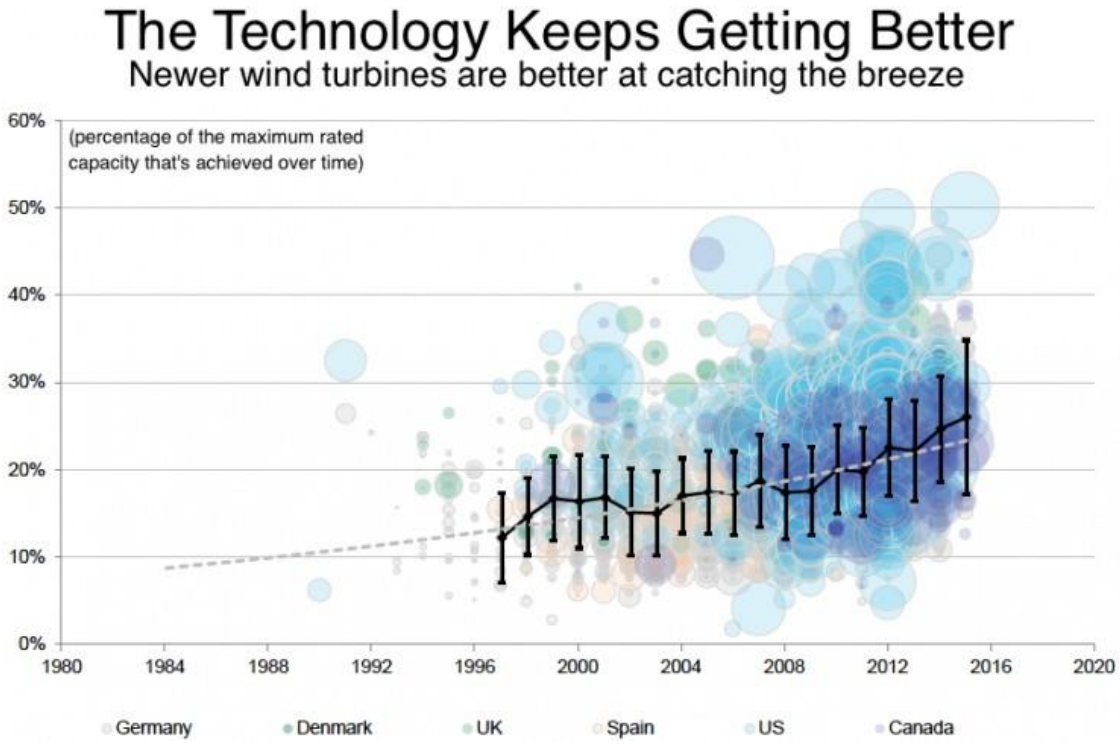
The result of these investments and the continued learning by solar and wind means make "these two technologies the cheapest ways of producing electricity in many countries during the 2020s and in most of the world in the 2030s."

Significantly, the $7.8 trillion investment in renewables and ongoing price drops are all just what BNEF expects to happen on our current path. It's "business as usual." It does not assume the world embraces the policies needed to drive the investments necessary to stabilize below the 2°C (3.6°F), as the nations of the world have unanimously agreed to do in Paris last December. In the below-2 degrees Celsius scenario, "the world would need to invest another $5.3 trillion in zero-carbon power by 2040."

Also, given how increasingly cost competitive solar and wind are on their own over the next decade or two, the trend to put a price on carbon in a growing number of countries around the world means that, for those nations, renewables will be competitive even sooner.

Capacity Factors Go Wild

BNEF explains that one of the "massive shifts coming soon to power markets" is: "Capacity Factors Go Wild." The capacity factor is the "percentage of a power plant's maximum potential that's actually achieved over time."



Wind, for instance, "varies in strength with the time of day, weather, and the seasons." That means "a project that can crank out 100 megawatt hours of electricity during the windiest times might produce just 30 percent of that when averaged out over a year." That would be a 30 percent capacity factor.

BNEF's key post is that the capacity factors for renewables keep going up as the technology gets better and we get smarter about figuring out the optimal placement. BNEF reports that "Some wind farms in Texas are now achieving capacity factors of 50 percent" (!) and offer up this remarkable chart of capacity factors over time:

As capacity factors and prices improve, renewables become more attractive. Moreover, once built, the marginal cost of operating a solar and wind plan is "pretty much zero — free electricity — while coal and gas plants require more fuel for every new watt produced." Choosing free zero-pollution power over not-free dirty power isn't a tough choice for utilities.

And that brings us to BNEF's jaw-dropping conclusion: "As natural gas and coal plants are increasingly idled in favor of renewables, their capacity factors will take a big hit, and lifetime cost of those plants goes up. Think of them as the expensive back-up power for cheap renewables."

July 1, 2016
News + Observer

ENVIRONMENT

Healing begins for Antarctica's ozone hole

BY SETH BORENSTEIN
Associated Press

WASHINGTON

Antarctica's ozone hole finally is starting to heal, a new study finds.

In a triumph of international cooperation over a man-made environmental problem, research from the United States and the United Kingdom shows that the September-October ozone hole is getting smaller and forming later in the year. And the study in Thursday's journal Science also shows other indications that the ozone layer is improving after it was being eaten away by chemicals in aerosols and refrigerants. Ozone is a combination of three oxygen atoms; high in the atmosphere, it shields Earth from ultraviolet rays.

The hole has shrunk by about 1.7 million square miles in the key month of September since the year 2000 – a decline of about one-fifth, the study found. That difference is more than six times larger than the state of Texas. It also is taking about 10 days longer to reach its largest size, according to the study.

The hole won't be completely closed until mid-century, but the healing is appearing earlier than scientists expected, said study lead author Susan Solomon of MIT.

"It isn't just that the patient is in remission," Solomon said. "He's actually starting to get better. The patient got very sick in the '80s when we were pumping all that chlorine" into the atmosphere.

"I think it's a tremendous cause for hope" for fixing other environment problems, such as man-made climate change, said Solomon, who led two U.S. Antarctic expeditions to measure the ozone layer in the 1980s and has also been a leader in studying global warming.

In the 1970s, scientists suggested that Earth's ozone layer – about 6 to 30 miles high in the stratosphere – was thinning because of chemicals called chlorofluorocarbons from aerosols and refrigerants.

Those chemicals would break down into chlorine that attacked ozone, which at that level protects people from ultraviolet rays linked to skin cancer. Then in early 1980s, a hole in the ozone layer over Antarctica started appearing in October – and then, September and October – making the problem more urgent. Ozone thinned elsewhere on Earth and already has begun healing in the middle section of the planet, but the Antarctic ozone hole was the gaping wound that grabbed the world's attention.

The Montreal Protocol, a 1987 global treaty to phase out many of the ozone-depleting chemicals, led companies to develop new products that didn't eat away at the ozone layer.

"There is a sense of 'mission accomplished,' " emailed University of California San Diego's Mario Molina, who shared the 1995 Nobel Prize for chemistry for his characterization of the ozone problem.

TIME July 26, 2016

The healing power of nature

By Alexandra Sifferlin

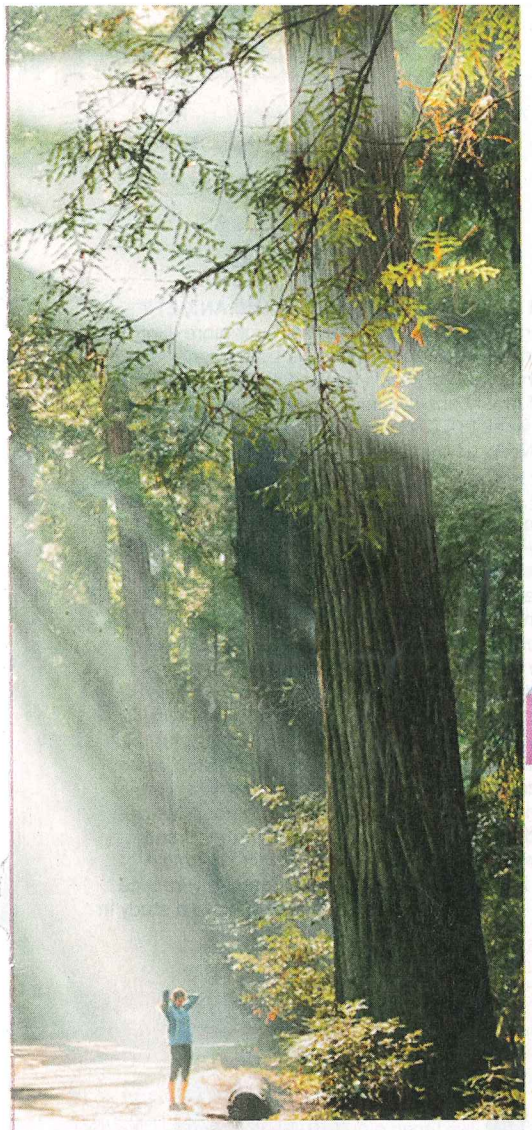
IT SOUNDED MORE LIKE A LARK THAN a scientific study when a handful of Japanese researchers set out to discover whether something special—and clinically therapeutic—happens when people spend time in nature. They were inspired by a new recommendation from the Forest Agency of Japan, which in the early 1980s began advising people to take strolls in the woods for better health. The practice was called forest bathing, or *shinrin-yoku,* and it was believed to lower stress—but that hadn't been proved. Since then, a large body of evidence has shown that spending time in nature is responsible for many measurable beneficial changes in the body.

In one early study, Yoshifumi Miyazaki, a forest-therapy expert and researcher at Chiba University in Japan, found that people who spent 40 minutes walking in a cedar forest had lower levels of the stress hormone cortisol, which is involved in blood pressure and immune-system function, compared with when they spent 40 minutes walking in a lab. "I was surprised," Miyazaki recalls. "Spending time in the forest induces a state of physiologic relaxation."

Another researcher, Dr. Qing Li, a professor at the Nippon Medical School in Tokyo, found that trees and plants emit aromatic compounds called phytoncides that, when inhaled, can spur healthy biological changes in a manner similar to aromatherapy, which has also been studied for its therapeutic benefits. In his studies, Li has shown that when people walk through or stay overnight in forests, they often exhibit changes in the blood that are associated with protection against cancer, better immunity and lower blood pressure.

Recent studies have also linked nature to symptom relief for health issues like heart disease, depression, cancer, anxiety and attention disorders.

"The quiet atmosphere, beautiful scenery, good smells and fresh, clean air in forests all contribute to the effects," says Li. □



Plants and trees release compounds that protect them from pests; when humans inhale those compounds, it promotes healthy—and measurable—biological changes

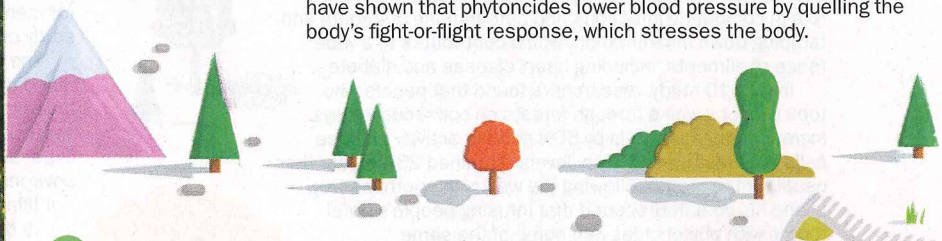
COREY HENDRICKSON—GALLERY STOCK; ILLUSTRATIONS BY PETER RYAN FOR TIME

1 IT CAN LOWER BLOOD PRESSURE

Spending time outside is good for the heart, research shows, and since high blood pressure costs the U.S. approximately $48.6 billion per year and affects 1 in 3 Americans, visiting green spaces may be a simple and affordable way to improve heart health. A large June 2016 study found that nearly 10% of people with high blood pressure could get their hypertension under control if they spent just 30 minutes or more in a park each week. "If everyone were to make time for nature, the savings on health care costs could be incredible," says study author Danielle Shanahan, a research fellow at the University of Queensland in Australia.

The fresh air could be one factor, since air pollution has been linked to a higher risk for heart attacks, but since the study participants lived in cities (and therefore were also being exposed to air pollution), that likely isn't the only driver. Scientists think stress reduction also plays a part. "Nature is undemanding," says Shanahan. "It requires effortless attention to look at the leaves of a tree, unlike the constant emails at work or the chores at home."

Trees' natural fragrance may also play a role, as some studies have shown that phytoncides lower blood pressure by quelling the body's fight-or-flight response, which stresses the body.



2 EXPOSURE TO IT CAN INCREASE AWE

Looking at a stunning waterfall or undulating countryside can do more than enrich your Instagram feed: it can also elicit feelings of awe that bring a number of health benefits. In a 2015 study, researcher Paul Piff of the University of California, Irvine, found that people who spent 60 seconds looking up at towering trees were more likely to report feeling awe, after which they were more likely to help a stranger than people who looked at an equally tall—but far less awe-inspiring—building.

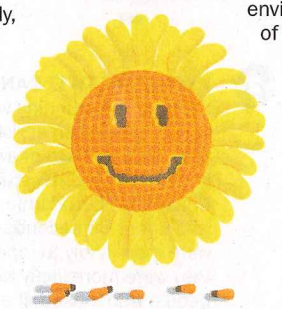
"Experiences of awe attune people to things larger than themselves," says Piff. "They cause individuals to feel less entitled, less selfish, and to behave in more generous and helping ways." The benefits of awe are physical too: regularly experiencing moments of awe has been linked to lower levels of inflammatory compounds in the body.

Everyday interactions with nature can also benefit. An April 2016 study of 44 cities found that urban areas with more parks scored higher on measures of community well-being. That's likely because parks give people opportunities to socialize and be active with their neighbors, which could improve health, the researchers say. People in cities with lots of green space were more likely to report having more energy, good health and a sense of purpose too.

3 IT PROMOTES CANCER-FIGHTING CELLS

An April 2016 study published in the journal *Environmental Health Perspectives* reported that women living in areas with a lot of vegetation had a 12% lower risk of death from all causes compared with people in the least green places. That could be thanks to cleaner air, but nature may also offer its own medicine. Li's research at Nippon Medical School shows that when people walk through a forest, they inhale phytoncides that increase their number of natural killer (NK) cells—a type of white blood cell that supports the immune system and is associated with a lower risk of cancer. NK cells are also thought to have a role in combating infections and autoimmune disorders and tamping down inflammation, which contributes to a wide range of ailments, including heart disease and diabetes.

In a 2010 study, researchers found that people who took two long walks through forests on consecutive days increased their NK cells by 50% and the activity of these cells by 56%. Those activity levels remained 23% higher than usual for the month following the walks. In another study, Li and his co-authors found that infusing people's hotel rooms with phytoncides had some of the same anti-cancer-cell effects as those seen among people walking through forests.



4 IT CAN HELP WITH DEPRESSION AND ANXIETY

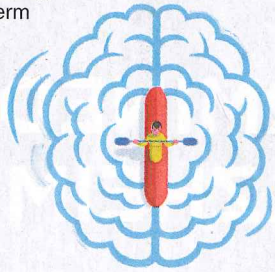
Not surprisingly, urban dwellers are far more likely to have anxiety and mood disorders than people who live in rural areas. That's the bad news, since about 80% of Americans live in cities. The good news is that a small 2015 study published in the *Proceedings of the National Academy of Sciences* found that people who walked for 90 minutes in a natural setting, such as a forest or a nature park, were less likely to ruminate—a hallmark of depression and anxiety—and had lower activity in an area of the brain linked to depression than people who walked in an urban area. "Accessible natural areas may be vital for mental health in our rapidly urbanizing world," the study authors write.

The exact mechanism of how nature helps mood disorders is unclear, but researchers agree that at the very least, time in nature tends to lift spirits. "When you have a short blast of nature exposure, people's moods go up," says Ming Kuo, an environment and behavior scientist at the University of Illinois at Urbana-Champaign. Another possibility is that the air near moving water, forests and mountains contains high levels of negative ions, which are thought to potentially reduce depression symptoms, according to a study in *Frontiers in Psychology*.

5 IT MAY HELP WITH ADHD SYMPTOMS

Small studies in kids with attention-deficit/hyperactivity disorder (ADHD) have suggested that nature walks could be a potential natural treatment to improve attention. In one study, a team led by Kuo of the University of Illinois at Urbana-Champaign had kids with ADHD take three 20-minute walks, without their medication, in different locations: a park, a neighborhood and an urban area. When the researchers tested the children afterward, they found that after a park walk, the kids were able to concentrate substantially better than after a walk in the other settings. In a separate 2011 study, Kuo and her colleagues found that children who regularly played in outdoor areas had milder ADHD symptoms, according to their parents, than children who played indoors or in areas with less nature access. "Nature gives the part of the brain that's used in effortful concentration a rest," says Kuo. "If you spend time doing something mentally relaxing, you feel rejuvenated."

People without ADHD symptoms can also improve their attention and concentration by interacting with nature, evidence suggests. One University of Michigan study found that people improved their short-term memory by 20% after a nature walk but had no changes after walking through city streets.



6 EVEN FAKE NATURE HAS BENEFITS

Before you start planning your escape to the countryside, consider this: "There is plenty of evidence that you will get a range of benefits even if all you can manage is putting a plant in your room or looking at trees through your window at home," says the University of Queensland's Shanahan.

Research shows that even if they're artificial, the images, sounds and smells of nature can have positive health effects. Listening to nature sounds over headphones, for instance, has been shown to help people recover faster from stress—which might explain why so many spas employ nature sounds in their treatment rooms.

Several studies have also shown that having a window view can improve attention, reduce stress and even help people in hospitals heal after operations. One widely cited study of people recovering from abdominal surgery found that those with tree-lined views were released faster from the hospital, experienced fewer complications and required less pain medication than people whose rooms faced a brick wall.

ILLUSTRATIONS BY PETER RYAN FOR TIME