



Riverlovers Currents

Volume 30, Number 3, March 2017

Message from the President

Finally, a nice large snowstorm—one that's not melting. As I write this in mid-February more snow storms have arrived, and more snow is predicted. The vernal equinox (12 hours of daylight and 12 hours of night time) will be March 20th this year. Springtime is near!

I want to thank everyone for a successful EagleFest. Ferry Sloops and Riverlovers worked together and brought in and served delicious soups and fresh bread to the many vendors and volunteers. A special thanks to Gunnar for coordinating the donated and home-made soups.

At the outreach table in the big tent, we generated a great deal of interest in Riverlovers' future activities. We gave out forty Riverlovers *Currents*, and handouts describing Riverlovers. Most of the visitors to our outreach table expressed interest in our meetings and activities, and many people signed our sign-up sheet. I want to thank Hannah, Leesa and Rudy for volunteering at our outreach table.

For the March 17th Potluck we will screen the PBS Nature program, *Giraffes—Africa's Gentle Giants*. The film reveals a disturbing secret: that they are disappearing. The giraffe population in Africa is down 40% in just two decades.

In April and May we will be kept busy by many volunteering opportunities, such as cleaning up the shoreline of the Hudson River with Riversweep and Earthday clean-ups. We will have outreach tables at the various Earthday events.

We will have several trips and walks in spring and early summer, such as the Pepsico Sculpture Garden in Purchase, the New York Botanical Garden in The Bronx, Storm King Art Center in New Windsor, and Blue Mountain Reservation in Cortlandt Manor.

Come to our meetings, come to our activities. Both members and non-members are welcome. Together we can be educated and educate others to protect the Hudson River and save the Earth and its climate for ourselves and future generations.

Great EagleFest Support Effort!

by Gunnar Andersen

Many thanks to all the volunteers from Riverlovers and Ferry Sloops for the wonderful and varied soup donations, and a very special Thank You to Umami Cafe and A&S Deli in Croton for their very generous donations of soup.

EagleFest volunteers were surprised when they saw that they had so many choices for their lunch.

Also, a big Thank You to the indefatigable kitchen crew who served soup and bread throughout the day to over 100 EagleFest volunteers who spent their day working in the park and had no chance to get away for a meal outside the park. We got feedback from many people, saying that our efforts were really appreciated.

Fracking & Energy's Impacts

Here's what happened to our sources of electrical energy production from 1950 to 2016. Hydropower dropped from 30% to 6%, coal dropped from 55% to 32%, natural gas increased from 12% to 33%, nuclear increased from 0% to 19% and non-hydro renewables went from 0% to 8%.

As a result, methane pollution from the oil and gas supply chain produces 10 million tons per year (although 40% of that could be reduced very cheaply).

Over 15 million people live within a mile of recent oil and gas development activities, which give rise to roads, truck traffic, dust, noise, leaks, spills, wastewater contamination, etc. Over 10,000 spills were reported in 2015, and 800 billion gallons of saltwater were used in treating and fracking almost all of the more than one million active wells in the U.S.

Up to 4% of wells will fail over their lifetime, and many of the regulations and "industry standards" are routinely not followed. Note that low-volume hydraulic fracturing is still permitted in New York State, although high-volume fracking is not allowed. Earthquakes in Oklahoma, Texas and Ohio have been shown to be due to wastewater injection practices, but recent new regulations (which we hope will not be overturned) are reducing their incidence.

It should be noted that the oil and gas industry only reports very limited data. Regulators need better training and information technology capacity to handle the huge amounts of "big data" that are needed for effective regulation. There are huge gaps in wastewater detection capabilities relating to analysis, toxicity, protection from other hazards, water treatment, etc.

While it is true that some rules, like for air, are Federal, the EPA delegates enforcement to the States. We need strong State regulatory rules and enforcement capacity (people) if we are to do an effective job. It's *our* environment that we're degrading.

Fracking: The Process

by Bill Flank

[*This is the first in a series of articles on fracking.*]

Here's how it's done. First, a well is drilled into a target shale rock formation like the Marcellus shale underlying Pennsylvania, New York and Ohio. The borehole is about 12 to 20 inches in diameter. Steel casing piping is inserted into the well, then cement is pumped in, sealing the casing to the wall of the borehole. The specific cement is formulated to expand on curing. (Common Portland cement contracts about 0.5% on curing, which would produce leaks along the well bore.)

Failure of cement seals is the major failure mode responsible for contamination *traveling* from one rock stratum to another. Cementing failure is blamed for at least 25 instances so far of groundwater pollution in Pennsylvania, mostly in older vertical wells.

Once the well casing is cemented in place, the pipe and peripheral cement layer in the target production strata are perforated at specific points. This is done with explosive-driven projectiles that are forced about a foot into the formation. The well is then washed out with a slug of concentrated hydrochloric acid, which can increase the cavity significantly, especially in carbonate rock. If the rock is a silicate rock, the acid treatment is less effective.

The fracking process usually starts with mechanically plugging off sections of the perforated well bore. Each section is washed with a slug of acid. At the top of the well, the water tanks are connected to the mixing tanks, which feed a line-up of twenty 2,000-horsepower pumper trucks in parallel, producing a flow of 4,000 gallons per minute at a pressure of 10,000 pounds per square inch.

In shallower wells, high-pressure water is sufficient to fracture the formation, creating fissures emanating as much as 100 feet into the formation. If the pressure is reduced, the deformed formation relaxes, collapsing the pores and expelling the water back up the well bore. This is called "flowback water." To minimize relaxation, silica sand is slurried into the water, carrying the sand into the pores and propping them open. High linear velocity produces turbulent flow, and keeps the proppant from settling in the casing.

A variety of chemicals is added to the fracking fluid to improve the operating characteristics of the process, and it is often claimed that the exact composition of this toxic cocktail is proprietary. However, the categories of additives are generally well-known to people working in the field, and it's simply a matter of selecting a suitable member of each category to formulate the cocktail used at a given well.

When the process pressure is relieved, some flowback water is expelled, typically over a week or two. Over time, the flowback water is diluted by water native to the formation. This is called "produced water," and its composition varies with the rock formation. This brine in the Marcellus shale contains toxic levels of barium, strontium and radium. In Long Beach, California, produced water is augmented with sea water and is reinjected into the formation to prevent land subsidence in the harbor.

Wells initially produce natural gas (which is predominantly methane) at high pressure and high volume,

but these rates decline over several years, and most wells are then abandoned as uneconomical, often in ten years, but sometimes, with repeated fracking injections and high prices, they can continue to produce as long as twenty years.

Walkabout Coffeehouse In March

The Saturday, March 11th concert of the 29th season of the Walkabout Clearwater Coffeehouse is in the upper Sanctuary at Memorial United Methodist Church in White Plains. Si Kahn, Joe Jencks and Maria Dunn have teamed up for a series of special concerts, and they are featured at the March Coffeehouse. These performing songwriters represent the finest traditions in music that is socially aware, musically engaged, and full of heart and purpose.

Looking back, last month's performers, old Clearwater friends "Magpie" (Terry Leonino and Greg Artzner) announced they were donating the proceeds of CD sales of their new "*Rachel Carson—Songs for the Earth.*" album to Clearwater. And, looking forward, the April 8th Coffeehouse concert will once more be the popular "Phil Ochs Night."

Tickets are \$20.00 in advance online (until 7:30 a.m. on the day of the concert) and \$25.00 at the door. Students with ID are \$15.00 and children ages 6 to 12 are \$10.00. For tickets, visit www.WalkaboutClearwater.org.

Doors open at 6:30pm and the concert begins at 7:30. The trademark informal audience songfest with the Walkabout Clearwater Chorus begins at 6:45. Come and sing with us!

Feedback

This statement was read at a Town Hall Meeting Jan. 25, 2017 in Peekskill.

My name is Warren Lindholm. In my 39-year career at Con Edison, I worked as a technician in the Waterside Generating Station, a fossil fuel power plant in midtown Manhattan, and during outages at Indian Point Generating Station.

My department's job in Waterside, among other duties, was to total the various fuels burned to generate electricity, and to calculate the Heat Rate. Heat Rate can best be described as the heat value of fuels burned divided by the electricity produced. Heat Rates of 12,000 BTU/kwHr are typical.

A fossil fuel replacement power plant for Indian Point's 2,000 Megawatts with a 12,000 BTU/kwHr Heat Rate, would need to burn 3,840,000 gallons of oil per day, or 23,000 tons of coal per day, or 559,000,000 cubic feet of natural gas per day. The CO₂ release would be 44,160 tons per day for oil, or 42,100 tons per day for coal, or 34,000 tons per day for gas. These figures are attributable to the carbon in the fuels combining with the oxygen in the air.

Approximately every 18 months, 1/3 of the fuel is replaced, so in 4 1/2 years, 72,532,000 tons of carbon dioxide will be released. You get the idea. In our looming climate change or "climate catastrophe," closing Indian Point is not a very good idea. We need more next-generation nuclear power plants, spent-fuel reprocessing, and breeder reactors, in NY State and in the United States. We need to close fossil fuel power plants, not nuclear power plants.

Thank You.



What's Happening When

Sundays, 10am–3pm, **Farmers' Market** at the Beacon Sloop Club, at Long Dock Park in Beacon. Local cheeses, eggs, pasta, bread, lamb, fruits and vegetables.

March 11, Sat, 7:30pm, **Walkabout Clearwater Coffeehouse featuring Si Kahn, Joe Jencks & Maria Dunn.** *Upstairs* in the Sanctuary at Memorial United Methodist Church, 250 Bryant Ave, White Plains. Tickets are \$20.00 in advance online (until 7:30 a.m. on the day of the concert) and \$25.00 at the door. Students with ID are \$15.00 and children ages 6 to 12 are \$10.00. Open seating. Proceeds benefit Walkabout & Clearwater. Refreshments available. Free parking. Sing with the Walkabout Clearwater Chorus at its informal Teachabout starting at 6:45pm. Info: 914-946-1625. Tickets: 800-838-3006 (Brown Paper Tickets). On-line for tickets and information: www.WalkaboutClearwater.org.

March 17, Fri, 6:30pm, **Riverlovers Monthly Potluck Supper** at Croton Point Nature Center. We will screen the PBS Nature program, *Giraffes—Africa's Gentle Giants*. Info: www.riverlovers.org.

Quote Without Comment

The Nuclear Information and Resource Service, as part of a presentation on nuclear waste on November 3, 2016, documented the high energy use during the front stage of the nuclear fuel cycle.

“Making nuclear fuel creates voluminous amounts of contaminated waste (radioactivity and heavy metals) at the front end of the nuclear fuel cycle—before fission. In rounded numbers, making one ton of uranium fuel leaves behind 20,000 tons of waste rock (from mining), 4,000 tons of solid and 4,000 tons of liquid waste (from milling), five tons of solid and 46 cubic meters of liquid waste (from conversion), six tons of depleted uranium (from enrichment), and 0.5 cubic meters of solid waste and 8 cubic meters of liquid waste (from fuel fabrication).”

Clearwater Acts To Protect Ratepayers

Hudson River Sloop Clearwater, Inc. has filed a legal Article 78 petition, suing the New York Public Service Commission to stop as much as \$10 billion in ratepayer subsidies to New York's aging nuclear power plants.

Clearwater and several co-petitioners filed the action in State Supreme Court to challenge the recently enacted mandatory 12-year nuclear subsidy that will cost the State's ratepayers between \$7 and \$10 billion. The nuclear surcharge, called the Tier 4 Standard, was ordered by the Public Service Commission as part of its Clean Energy Standard.

The legal brief argues that the imposed consumer subsidy is unjustified, and that the PSC did not follow the law in enacting the surcharge on all New York ratepayers. It

would apply even to those who don't use any nuclear energy and who already purchase 100% renewable energy. This cost double whammy will impact individuals, businesses, organizations and local governments, including some in our area. Municipalities, which are subject to the tax cap, may have to discontinue their support of renewable energy infrastructure in order to meet the fiscal constraints of the cap, a highly undesirable consequence.

Here's how to join Riverlovers...

(the local Clearwater Sloop Club in the Northern Westchester-Putnam County area)

Application for Riverlovers Membership

Name _____

Address _____

City _____ State _____

Zip _____ Telephone _____

Renewal ___ New ___ Additional Contribution \$ _____

Please send check (\$25 individual, \$35 family) for 2017 to:
Riverlovers, P.O. Box 285, Croton-on-Hudson, NY 10520.

I want to have *Riverlovers Currents* delivered electronically.

Send to this e-mail _____

Yes! I Also Want To Join Clearwater

Please sign me up in the following membership category:

<input type="radio"/> Individual	\$50	<input type="radio"/> Mariner	\$500
<input type="radio"/> Family	\$65	<input type="radio"/> Sailing-Master	\$1000
<input type="radio"/> Contributor	\$100	<input type="radio"/> Benefactor	\$5000
<input type="radio"/> Sponsor	\$200	<input type="radio"/> Other	\$25

Name _____

Address _____

City _____ State _____ Zip _____

Please include check payable to Clearwater, or charge by credit card

Visa MC Discover Amex

Account No. _____

Exp. Date _____ Signature _____

Mail To: Clearwater, Inc.
724 Wolcott Avenue
Beacon, NY 12508

Your Clearwater membership gets you the *Navigator* and other benefits, along with being part of Riverlovers' "parent" organization representing individuals and Sloop Clubs up and down the Hudson Valley "working for the River."

Riverlovers - Who We Are

Riverlovers, Inc. is a chartered Sloop Club of the Hudson River Sloop Clearwater, Inc., an environmental non-profit membership organization whose most visible symbol is its member-owned and operated 106-ft. sloop "Clearwater." As a local affiliate, River-lovers' purposes are:

- Maintaining an active Sloop Club in the Northern Westchester-Putnam County area;
 - Meeting the needs and interests of individuals through a variety of interest groups, including monthly Potluck dinner meetings with varied programs, environmental education and awareness, boats and sailing, concerts and festivals;
 - Organizing trips and recreational activities, seminars and workshops, learn-to-sail programs and Clearwater visits;
 - Research, education and action to protect our rivers and our environment;
 - Working for access and effective land use along the Hudson River and its tributaries;
 - Boating projects on the Hudson River, to reach out to the surrounding community for educational and recreational purposes.
- We invite you to join us. Contact our interest group coordinators, or write to Riverlovers, Inc., P.O. Box 285, Croton-on-Hudson, NY 10520. Together we can do a lot!



Interest Group Coordinators

Interest Group	Coordinator	Phone
Envir. Education	Bill Flank	238-8240
Membership	Gunnar Andersen	432-3112
Newsletter	Bill Flank	238-8240
Newsletter Distribution	Cynthia Andersen	432-3112
Outreach	Warren Lindholm	739-9028
Photographer/Archivist	Beverly Dyckman	739-5057
Potluck	Warren Lindholm	739-9028
Publicity		

Web Page: www.riverlovers.org

Riverlovers Officers

President:	Warren Lindholm	739-9028
Vice Pres. (programs):		
Secretary:	Cynthia Andersen	432-3112
Treasurer:	Daria Gregg	944-8396
President-Emeritus	Gunnar Andersen	432-3112

Newsletter Submissions

Please send news articles and other items of interest to Riverlovers Currents, P.O. Box 285, Croton-on-Hudson, NY 10520. Include your name, address, and phone number. Names can be omitted on request.

Back issues of *Riverlovers Currents* are available at our web site, www.riverlovers.org

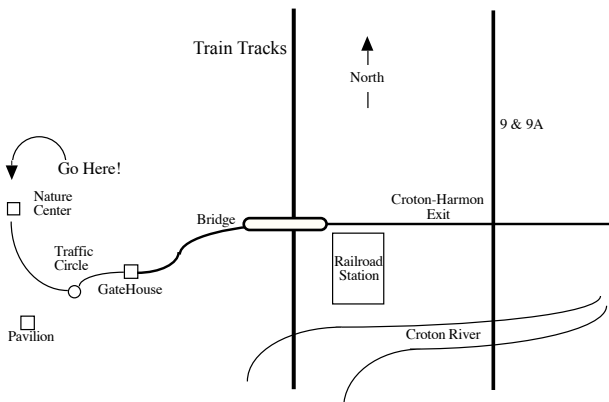
Newsletter Committee: Editor, Bill Flank; Associate Editor, Mel Fitting

March Newsletter Contributors: Gunnar Andersen, Bill Flank, Warren Lindholm

Riverlovers Monthly Potluck and screening of *Giraffes — Africa's Gentle Giants*



Riverlovers, Inc.
P.O. Box 285
Croton-on-Hudson, NY 10520



Friday, March 17, 2017
6:30pm
Croton Point Nature Center