



SIERRA
CLUB
FOUNDED 1892

TERRA FIRMA

SEPTEMBER - DECEMBER 2024

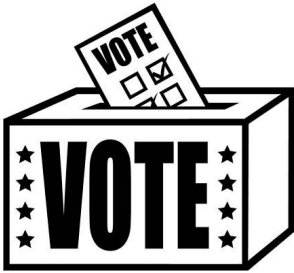
PUBLISHED BY VOLUNTEERS FROM THE LOWER HUDSON GROUP SIERRA CLUB

VOTE!

By Paul Presendieu

This is the election of our lifetimes. Please volunteer, get your friends and family to vote, and be sure to vote.

In the 2022 election, New York State's delegation to the House Of Representatives was reduced by four Democrats, which tipped the national balance of power in the House to the Republicans. What happens locally greatly affects what happens nationally, and we saw no greater example of that than our state in 2022.



Voting is our most powerful tool to ensure that our government prioritizes the health of our planet and our communities. The decisions made by our elected officials will determine whether we continue to protect our natural resources, reduce greenhouse gas emissions, and promote environmental justice

for all, especially in the most vulnerable communities.

This election is about more than just choosing candidates; it's about choosing the future we want to live in. I urge you to get involved, stay informed, and make your voice heard. You can view the Sierra Club's endorsed candidates for New York by visiting <https://www.sierraclub.org/atlantic/2024-endorsements>. These are the candidates who have committed to protecting our environment and fighting for a sustainable future. Later you can also join our team of volunteers for a phone bank by visiting <https://docs.google.com/forms/d/e/1FAIpQLScK89bGjgjfjKmjDhYv9epa2hp173UoFqvUvldbyQPDONx3Zg/viewform> as we support candidates up for election to represent Westchester, Rockland, Putnam, and Orange counties.

Let's ensure that our votes contribute to a cleaner, healthier planet. Your vote is your voice—let's use it to speak up for the earth.

Let's make November an election to remember with pride.

Join us to work on environmental issues in Rockland County!

Rockland Sierra Club was one of the groups leading the successful effort to defeat plans to desalinate Hudson River water for Rockland's drinking water. We are now helping the County craft a sustainable water management policy. We are also working to limit new fossil fuel infrastructure and have partnered with 350.org on efforts to address climate change through divestment and through promoting Climate Smart/Clean Energy Communities programs for towns and villages.

Rockland Sierra Club usually meets on the second Monday of each month. Check RocklandSierraClub.org for dates and locations. For more information: pkurtz9@gmail.com or call 845-709-0802.

HIKES AND OTHER OUTINGS

Don't forget to check the Get Outside page on our group website for all kinds of outings. They're fun and invigorating, and a great way to meet like-minded people of all ages and walks of life.

Visit SierraLowerHudson.org and click Get Outside.



Membership Meeting Schedule

Visit SierraLowerHudson.org and select Events
Visit RocklandSierraClub.org

All meetings via Zoom, link on websites

CLIMATES: THEY ARE A-CHANGIN' (PART II IN A SERIES)

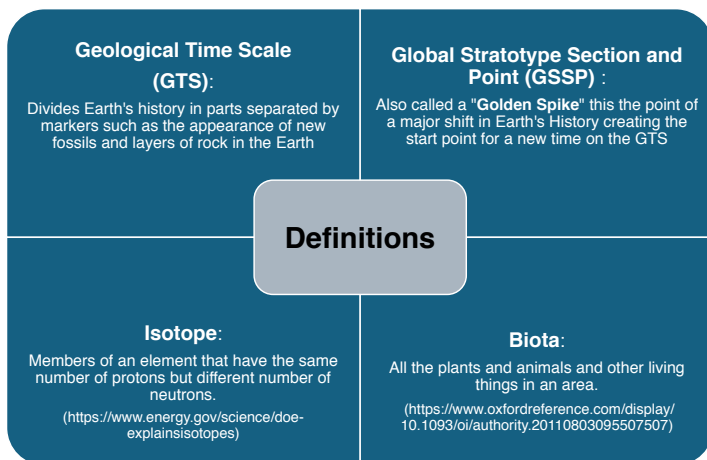
By Joseph Dunnigan

Introduction:

Last time we met, we had travelled back in time to an ancient Earth imprisoned in a sheet of ice. But with the help of primeval volcanic activity, greenhouse gases accumulated in the atmosphere and freed that "Snowball Earth" from its icy prison.^{1,2} From that glacial retreat, life jumped back from the precipice of extinction and in the form of green algae began the journey through epochs of evolution.²

As flora and fauna evolved to fit into the ever-changing world, periods of glaciation and interglaciation occurred. Historically, major extinction events were caused by changes to the Earth's crust, climate, and sea level, as well as impacts from meteors.³ Then at about 300,000 years ago, a new species arrived on the evolutionary timescale.⁴ One whose big brain allowed it to adapt and overcome a myriad of abiotic and biotic struggles. These beings who would one day harness the technology of fire and never look back on their troglodyte ways were our *Homo sapiens* ancestors.

We are our ancestors' legacy. Far removed from the discovery of fire. We have begun the next great extinction event.^{5,6} Caused not by Earth's natural changes or by a collision from an Armageddon-sized asteroid. No, this new phase of Earth's geological history is of our own making.



An Epoch by any other name...

In the last article, we learned about a period on the geological time scale called the Neoproterozoic. When Earth was covered in ice. Now we focus our attention on a smaller chapter of that temporal measurement. One that is still writing itself. One that may soon be renamed.

The Holocene is what our current epoch is officially called.^{5,6} According to the Museum of Natural History, the Holocene began around 11,700 years ago and continues to this day.⁷ The beginning of the epoch is at a point when the climate warmed after another period of glaciation.⁷ The word "epoch" is a term used by scientists to divide up the earth's history on the geologic time scale.⁸

Each section of the geologic time scale is distinct. To create a unit of time on the geologic time scale, there are benchmarks that must be met.⁶ According to Lewis and Maslin, the criteria to

create a time on the geologic time scale requires that evidence, such as new fossils, must be found in rock, glacier ice, and other sediments. And that the evidence must be specific to the time and be globally marked.⁶ With the use of specific markers such as fossils, the lowest portion of these layers begins the time unit. The next period's lowest portion ends the time unit and begins the new one.⁶ Think of it like a multi-layered cake with different colors marking different layers of time stacked on top of one another. Each layer is separate but part of the same dessert, Earth (See Photo1 below). Now with this cake (Earth) the layers of each portion can take millions upon millions of years to form. Probably not a cake you'd want to eat, but a good one to live upon if you ask me!

Now, each layer of this earth is given a marker (the icing between the layers: Never mind the icing dripping down!) called the Global Stratotype Section and Point (GSSP) or "golden spike."⁶ Often these "golden spikes" denote a major shift in Earth's history. Frequently evidenced by new fossils.⁶ But here is where things get tricky.



Photo 1: Layered Cake - Stock Photo of Microsoft Word

According to Lewis and Maslin, the Holocene does show up in the fossil record albeit with some difficulty in identification. To make a better determination about the start of the Holocene, scientists turned to a shift in an isotope.⁶

Maybe it's here that you're thinking, "Great! Time is divided. And scientists use different things instead of fossils to determine the time scale of Earth's history. What does any of this matter anyhow?"

I would have to respond with, "Bingo!"

Juliet once professed, "What's in a name! that which we call a rose by any other name would smell as sweet..."⁹ I would amend this statement to ask, "What's in an epoch! That which we call the Holocene by any other name would still be anthropogenic."

But it turns out that a group of scientists have been supporting a new name for this Holocene epoch. A name that would better reflect the *Homo sapiens*' influences on this planet. A name that would place us directly into the path of infamy!

Dawn of the Anthropocene:

Way back when in the year 2000, Paul J. Crutzen and Eugene F. Stoermer, wrote an essay called, 'The "Anthropocene."' In that essay, the authors argued that the current epoch was not adequately named and that a more accurate representation of this period would be to call it the "Anthropocene."

Anthropocene means "Recent age of Man."⁵ The point of this was not as a testament to our achievements. Unfortunately, it was meant to reflect our devastating impact on this planet.⁵ Sadly, this is supported by major extinctions, increases in atmo-

spheric greenhouse gases, and changes to the geochemical cycle.⁵ And while the authors felt it was arbitrary to give an exact date to the start of the Anthropocene, they did suggest the industrial revolution as its beginning. Albeit with an openness to future suggestions by other researchers. Enter Lewis and Maslin to the scene of Geographical Time Scale.

Lewis and Maslin tried to pinpoint a start to the Anthropocene to legitimize it as an epoch like the Holocene. But a problem arose that was analogous to the issue of the Holocene, which was how to determine the start?

Lewis and Maslin used the requirements of the geologic time scale to suggest five possible beginnings to the Anthropocene. As they tested their hypotheses, they found that some of their suggestions failed the litmus. For example, the extinction of the Megafauna proved to be too spread in time and place to be a reliable marker of the beginning of the Anthropocene.⁶ As Lewis and Maslin went through their list of suggestions for the start of the Anthropocene, they landed on two dates. These two dates were 1610 and 1964.

Why these two dates?

Lewis and Maslin did not arbitrarily reach the 1610 and 1964 dates. According to Lewis and Maslin, after the arrival of Europeans in the New World the result was the “largest human population replacement in over 13,000 years.”⁶ During this mixing of the Old and New Worlds, the exchange left an impression on both sides. Biota previously separated by oceans began to appear in the sediment record.⁶ But it was the sudden drop in atmospheric CO₂ from 1492 to 1650 that led the authors to their conclusion that the 1610 date should be used as a marker for the beginning of the Anthropocene.

According to Lewis and Maslin, the genocide of millions of inhabitants in the Americas led to the regeneration of the land that had been used for farming as well as an abrupt reduction in the use of fire. Using ice cores to establish a specific date, the authors landed on 1610 as the marker for the beginning of the Anthropocene.

The 1964 date has a similar path for its establishment as the beginning of the Anthropocene. According to Lewis and Maslin, the “Great Acceleration,” a period in which technology advanced exponentially, is a good timeline to be used as the beginning of the Anthropocene. It was during this period that nuclear testing occurred, plastics became a thing, and other chemicals began to be widely used.⁶ During the early 1960s, nuclear testing decreased. But like the Holocene’s marker, and the 1610 date for the Anthropocene, the 1964 date has a chemical attached to its reasoning.

According to Lewis and Maslin, 1964 is where global carbon-14 reaches its maximum in the strata or sedimentary record. Because of this sudden change in composition, the authors suggest, along with the appearance of plastics and other chemical evidence, that the year 1964 should be considered for the start of the Anthropocene.

Dating a new epoch is tricky. Trickier still is establishing an epoch that could replace a previous one. Especially one that is still happening, as is the case with the establishment of the Anthropocene. And unfortunately, politics does come into play. Using 1610 could imply colonialism and global trade of natural resources brought about the Anthropocene. While the 1964 date would imply a technology driven global threat.⁶ But public perception aside, does it really matter to have a specific date?

Two dates to rule them all...

... so it seems.

But of course, this remains to be seen.

Unfortunately, I do not have a clear answer to the question of when the Anthropocene began. Nor do Lewis or Maslin or any other scientist, for now. Sure, there are many other hypotheses out there, but none have been ordained to make the Anthropocene official.

Officially, we live in the Holocene. But regardless of what name we call this time or by what date we decide to give as its start, one thing is certain, we humans have done something to this planet. We now seek to see if what we have done can be reversed.

The Saga Continues:

Defining the Anthropocene may give context to the climate change issues we now face. The very suggestion of a new epoch shows that humans have impacted the earth to such an extent that an entire new timeline in which we are the cause should be established. This is not meant as an award for our period here on earth but as a warning that we must change the path we are on. After all, epochs usually end when a new fossil record or global catastrophe occurs on the sedimentary time scale.

Climate change may have been the beginning of that catastrophe. To explore this subject further, our next article will delve into the rise of carbon by human actions and how it as an element has affected the systems on this planet.

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INCINERATION: BAD FOR PEOPLE, THE PLANET, AND OUR POCKETBOOKS

By Courtney M. Williams & Anika Bhat

The Sierra Club opposes incineration of all kinds. Incineration is not considered acceptable because of its adverse environmental and health effects and the destruction of materials that could be conserved while saving energy through other management methods.-- Approved by the Sierra Club Board of Directors, December 19, 2019

If the Sierra Club opposes trash incineration why does New York State burn garbage?

Westchester County's largest industrial air polluter is the Wheelabrator trash incinerator, operated by WIN-Waste Innovations, in Peekskill. It is one of the oldest incinerators in the nation, built 40 years ago under the auspices of the Westchester County Industrial Development Agency to burn most of Westchester's garbage.

Know better, do better. Trash incineration is not clean, not green, and definitely not sustainable. Think about the "Three Ps." Incineration is bad for the Planet, its People, and our Pocketbooks.

PLANET

Wheelabrator is the number one producer of Greenhouse Gases (GHGs) in Westchester County which already has programs that could divert 90% of what we send to the incinerator. We just lack the political will to address the problem and expand those programs!

Pollutant (in pounds except CO ₂ e)	2017 Emissions	Rank in County	Health Effects
Global Warming Pollution (in tons of CO ₂ equivalents)	797,098	1	Extreme weather, disease, crop damage, species extinction
Nitrogen Oxides	2,093,339	1	triggers asthma attacks, chronic respiratory disease and stroke
Sulfur Dioxide	245,807	1	triggers asthma attacks; chronic respiratory and heart diseases; stroke
Carbon Monoxide	131,295	3	headaches and dizziness; increases lifetime risk of heart disease
Volatile Organic Compounds	70,473	2	eye, nose and throat irritation, headaches, loss of coordination and nausea, liver, kidney and central nervous system damage, cancer
Particulate Matter	19,364	2	heart attacks, stroke, irregular heartbeat, aggravated asthma, decreased lung function, difficulty breathing
Fine Particulate Matter	15,911	2	same as above, but worse, gets deep into lungs and into blood stream
Benzo[a]Pyrene	165	1	skin, lung, and bladder cancers
Lead	57	2	damages nervous system and kidneys, lowers IQ, increases likelihood of antisocial behavior
Mercury	21	1	damage to nervous, digestive, and immune systems, lowers IQ
Cadmium	7	1	kidney disease; lung cancer

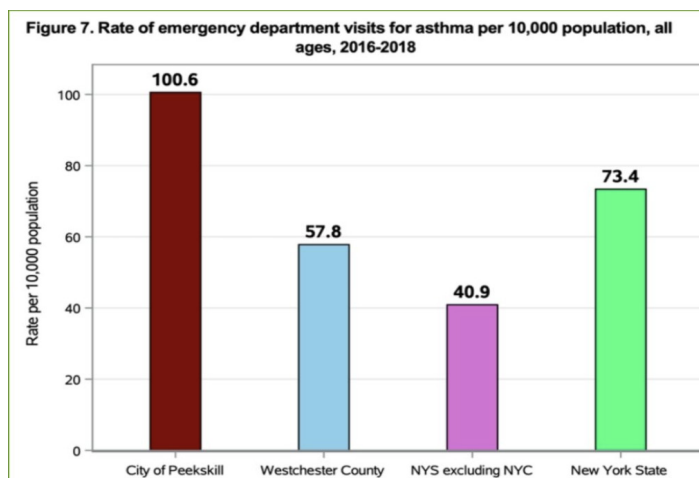
Source: NYSDEC

PEOPLE

Peekskill census tract 36119014100, home to the incinerator, has a higher environmental burden than 98% of census tracts state-wide according to New York State's Disadvantaged Communities Criteria. The American Lung Association has given Westchester County an "F" for air quality due to ground level ozone due to air pollution.

Wheelabrator is the number one emitter of Nitrogen Oxides, Sulfur Dioxides, Benzo[a]pyrene, Mercury, and Cadmium, pollutants directly linked to acute and chronic disease in

humans; like asthma, lung cancer, cardiovascular disease, and others seen at high rates in Peekskill residents. The rate of emergency department visits for asthma in Peekskill is nearly double that of the rest of Westchester. To add insult to injury, the Title V Air Permit for Wheelabrator expired in December 2021 and has yet to be renewed, allowing it to operate on outdated emissions standards.



Source: Statewide Planning and Research Cooperative System (SPARCS) NYS Dept of Health 2021 Health Equity Report for Peekskill

POCKETBOOKS

If Wheelabrator survives to complete its current contract with Westchester County it will be tied as the oldest trash incineration in the nation! We must prepare for Wheelabrator's obsolescence or we will be stuck with 2000+ tons of trash a day! Now is the time to replace the tax base for Peekskill, provide new, better, healthier jobs for employees, and implement long term sustainable solutions for our waste. It is fiscally irresponsible for Westchester County to pretend that the incinerator will last forever.

SOLUTIONS

So, how do we fix this harmful, antiquated waste system?

According to the [Zero Waste International Alliance](#), Zero Waste is the conservation of all resources by means of responsible production, consumption, reuse, and recovery of products, packaging, and materials without burning and with no discharges to land, water, or air that threaten the environment or human health.

Zero Waste saves money, creates good jobs, protects public health, and mitigates the climate crisis- just ask communities like Montgomery County, Maryland that are already doing it!

We fight for clean air and healthy communities together!

Westchester Alliance for Sustainable Solutions (WASS) is a county-wide effort to move our communities to Zero Waste and make Wheelabrator-Peekskill obsolete.

Resources to learn more:

- Westchester Alliance for Sustainable Solutions (WASS) website
- WASS Fact Sheet
- WASS YouTube Channel

Courtney M. Williams is the founder of Westchester Alliance for Sustainable Solutions. She can be reached at wasspeekskill@gmail.com. Anika Bhat is a student at Rye Country Day School.

AN AMPHIBIOUS OUTING WITH SOME FRUGS

By Gale Pisha

The temperature was in the 40s at 8:30 a.m. on April 27, when my husband and I set off in a two-person canoe. We began at the DEC launch site on Wheeler Road in Wingdale, north of Pawling in Dutchess County. Our guide for the paddle was Ken Luhman, Chairman of Friends of the Great Swamp (FrUGS), which was founded in 1990 as "a non-profit volunteer organization ... to preserve and protect the health of the Great Swamp watershed through research, education and conservation."¹ He led us and three other canoes south on the Swamp River for the Spring High Water Paddle. The river was about 30 feet wide at the launch site but narrowed down to about six feet wide further south. In the narrows, the current was faster, so we had to paddle harder.

The Swamp River is part of the Great Swamp of Eastern Putnam and Dutchess Counties. Located north of Pawling, the river's water flows north to the Ten Mile River, enters Connecticut, flows into the Housatonic River and ends up in the Long Island Sound. South of Pawling, the Great Swamp drains into the East Branch of the Croton River and supplies New York City with drinking water.

At close to 6,000 acres, the Great Swamp is one of the largest wetlands in New York State. The Swamp improves water quality by filtering out pollutants and acts like a giant sponge to reduce flooding. It presents opportunities for kayaking, paddling, and other recreational activities. Finally, the Swamp provides a wide variety of habitats that protect endangered species. The wetland is home to 185 species of birds, 36 species of amphibians and reptiles, and 20 species of mammals, including beavers, otters and bears.

The day my husband and I canoed, the air was filled with the trills of red-wing blackbirds and sights of great blue herons flying overhead. After paddling upstream for about an hour, we went around an island and headed back north. Drifting with the current past the launch spot another 600

feet, we stopped by the "rookery," where we could see onshore a number of platform-like blue heron nests in the trees. We also spotted a painted turtle sunning on a log, passed a beaver lodge, and saw many beaver-gnawed trees during our time on the river.

Our paddle ended back at the launch site at 10:30. After a quick lunch at a local restaurant, we headed farther south on Route 22 to the Appalachian Trail (AT). This point of the AT has its own rail stop on Metro-North's Harlem Line from New York City. After crossing the tracks, the AT makes its way across the swamp on a boardwalk. There were skunk cabbage, phragmites, cattails, sedges and rushes growing in the marsh, which contrasted

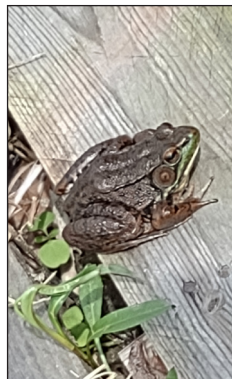
with the tree- and shrub-dominated area where we had paddled earlier in the day. The trail then turns north and parallels the Swamp River. The air had warmed to the mid 60s by this time. Along the bank we saw spring wildflowers, including purple trillium, trout lily, bloodroot, Canada mayflower, and emerging fern fiddleheads.

The Great Swamp has had to fend off several proposals to drain it for farmland or to use it as a reservoir. Also, it faces threats from intruding suburban development from Westchester County and New York City. To help raise money for their work to protect this natural treasure, FrUGS runs guided paddles, hikes, educational walks and other outings. They offer artists plein air events to view the beauty of the watershed for painting, drawing and photography, and their season culminates with the Great Swamp Celebration Art Show. This year's Art Show is from October 26-27. Visit FrUGS' website at <https://frogs-ny.org/> for more information. To see Ken's stunning photos and videos taken in the Swamp throughout the year, find their Facebook page at <https://www.facebook.com/FrUGS.NY/>. You can support

FrUGS' important conservation and education work through tax deductible donations or as a volunteer. Please join Lower Hudson Group in supporting FrUGS!



Paddling on the Swamp River



Green frog next to the boardwalk



Purple trillium next to the AT

¹ <https://frogs-ny.org/>

2024 ELECTION BALLOT

EXECUTIVE COMMITTEE, SIERRA CLUB LOWER HUDSON GROUP

VOTING DEADLINE DECEMBER 31, 2024

YOU CAN VOTE ONLINE!

Please check your email Inbox in December for your 2024 Sierra Club Atlantic Chapter and Lower Hudson Group ballots, which will be sent to all members with email addresses on file. You must choose to EITHER vote online OR by filling out this paper ballot.

There are four vacancies for our group's Executive Committee ("ExCom").

CANDIDATE STATEMENTS

Candidate Statement of Edward Berry

Public elections are essential to our survival as a democracy and as a functioning society. This is why I volunteered to be the Political Chair for the Lower Hudson Group. We must change the way we treat our planet. With other volunteers, I interview candidates and compare voting records and environmental stands on key issues. Then we select the best candidates based on their environmental records, often assisting endorsed candidates in their races. Also, I work with like minded allies, such as labor unions, community groups. We've approached and recruited young people. It is hard but rewarding work, but we have brought about key changes in the NY state government. This November there is a decisive struggle for the future of our country, one we need to win. Together we can. Remember our shared values and vote! Please vote to keep me on our group ExCom.

Candidate Statement of Gail Dutan

I've been a member of Sierra Club since 1998 when I started doing the layout for our newsletter, Terra Firma, and have since printed and mailed it from my family's business. I helped put together the recipe booklet for the 2020 Harvest Dance fundraiser. My real passion is food and its effect on our health. I became a Sierra Club Outings Leader a few years and have led hikes combined with a farmers market visit. I've also tabled for the past three years at Ossining's Green Festival and enjoyed talking with people about various issues our club works hard on and how they can get involved. I ask for your vote to continue on our ExCom.

Candidate Statement of Peggy Kurtz

Climate change and the crisis of extinctions are the two great tasks of our generation. A lifelong environmental advocate, I've led Sierra Club in Rockland County since 2006. I was also one of the leaders of the Rockland Water Coalition's successful fight to stop Suez's energy intensive desalination proposal, and I'm a member of the Rockland County Water Task Force and an active participant in Nyack 2030's exciting climate work. I also led the successful campaign for a

renewable energy program for tens of thousands of Rockland residents. More recently, I've led the effort to provide information to Rocklanders about toxic PFAS chemicals in our drinking water – and I work with others statewide to ban PFAS in consumer products. In the fall, we will also be campaigning in the most critical election of our time. I believe in the strength of Sierra Club's network of activists working for change and would love to continue to serve on the Executive Committee.

Candidate Statement of Liam Robb O'Hagan

I was born and raised in New Zealand before moving to the US 24 years ago. I'm a life-long environmentalist with degrees in sociology and zoology, and I've worked as a trekking guide, journalist, website producer and most recently a lead parent. I like doing good, rather than selling more stuff. When I was in Chicago, I helped with the campaign to close the city's coal-fired power plants, and I'm on the Village of Mamaroneck Committee for the Environment. I do some of our group's communications. I ask for your vote to stay on our ExCom.

Candidate Statement of Paul Presendieu

Environmental education and climate civics are the key pillars for our ability to preserve our natural resources and encourage stewardship from residents of all backgrounds. As the Chairman of the City of New Rochelle's Ecology & Natural Resources Advisory Committee I have served as an educator and advisor for my Mayor, City Council, and city hall staff. Also, as the Board Secretary for the New York State Association of Conservation Commissions, I have served in the vanguard of communication with citizen environmental advisory bodies throughout the State of New York to create a shared statewide marketplace of ideas amongst cities, towns, and villages. The work of the Sierra Club will be critical in the years to come, and with your support, I will be able to assist our educational efforts while helping identify climate candidates for elected office.

2024 ELECTION BALLOT
EXECUTIVE COMMITTEE, SIERRA CLUB LOWER HUDSON GROUP
VOTING DEADLINE DECEMBER 31, 2024

You can vote for Lower Hudson Group's Executive Committee in ONE of two ways:

With the paper ballot below
(follow instructions)

OR

Online:
Please check your email Inbox in December for your Lower Hudson Group ballot (included in your 2024 Sierra Club Atlantic Chapter ballot) which will be sent to all members with email addresses on file.

You may vote EITHER with the paper or online ballot, but not both.

There are four vacancies for our group's Executive Committee ("ExCom").

BALLOT

Please vote for up to four candidates. If you vote by paper ballot, cut off this whole page and mail to Laura Burkhardt, 3406 Kendal Way, Sleepy Hollow, NY 10591 so that it is received no later than December 31, 2024. Member information, needed to verify that the member has not also voted online, will be separated from votes before votes are tabulated to ensure secrecy.

Vote here:

- ☐ Ed Berry
- ☐ Gail Dutan
- ☐ Peggy Kurtz
- ☐ Liam Robb O'Hagan
- ☐ Paul Presendieu

*If you have a joint membership, vote here also:

- ☐ Ed Berry
- ☐ Gail Dutan
- ☐ Peggy Kurtz
- ☐ Liam Robb O'Hagan
- ☐ Paul Presendieu

*If you have a single membership, this column will be ignored when votes are counted.

VOTE



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c/o GAIL DUTAN
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Carmel, NY 10512

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LOWER HUDSON GROUP

SIERRA CLUB

WESTCHESTER, PUTNAM, ROCKLAND & SOUTHERN ORANGE COUNTIES

"One of the first conditions of happiness is
that the link between man and nature
shall not be broken." —Leo Tolstoy



**SIERRA
CLUB**
FOUNDED 1892

TERRA FIRMA

SEPTEMBER - DECEMBER 2024

PUBLISHED BY VOLUNTEERS FROM THE LOWER HUDSON GROUP SIERRA CLUB

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