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JUNE 2018 CHAPTER CHAIR REPORT
by Martha Klein

The good news is we had a few successes in the Connecticut legislature this year. Specifically, we helped pass Senate Bill 9, which increases the amount of renewable energy our state will use to 40 percent by 2030. This increase is a goal we have advocated to achieve for years. In addition, Senate Bill 7 passed, which requires deeper greenhouse gas reductions, and is another idea the CT Chapter has supported for a long time. Finally, Senate Joint resolution 35 passed, which will force the state to hold public hearings before disposing of public land gifted to the state for permanent protection. See more information in the articles below.

These wins are not trivial and we have fought long and hard for them. Unfortunately, in order to achieve these successes, we had to make painful compromises, such as trading away net metering. Losing net metering hurts, not just the solar industry, but all residents of the state by making it harder and more costly to invest in solar technology.

One of the many forms of inequality in our nation is the energy affordability gap, which refers to the increased percentage of income that working class people pay for energy. Solar energy can make energy costs more affordable, which has an outsized benefit for poor and working class families. The CT legislature removed that avenue for more affordable energy. We'll be advocating in Hartford more fiercely than ever in 2019, and we hope you'll be with us.

Another piece of important news for the Chapter is that we are hiring! We plan to hire a Chapter Director. If you know anyone who might be interested, please send them to this website, and ask them to apply for Connecticut Chapter Director: (www.sierraclub.org/careers)

Martha Klein is CT Chapter Chair, Communications Chair and lead volunteer on Beyond Gas and Save Remington Woods conservation campaigns.
MAY CHAPTER ACTIVITIES

In May, The friends of Remington Woods launched a GoFundMe campaign in order to pay for a feasibility study which is a necessary early step in any land conservation plan. gofundme.com/save-remington-woods

Volunteers on the Beyond Gas campaign published a press release on May 4 describing the extent of methane leaks in Connecticut. The leaks are underreported by gas companies, and are often not repaired. The impact of these massive leaks worsens climate disruption and have negative public health effects. Tree death as well as bad economics for ratepayers are also some of the consequences in Connecticut.

Gas companies charge ratepayers for leaked methane, or "natural gas" which is a terrible greenhouse gas and short term pollutant. This strange reimbursement mechanism, whereby gas companies are rewarded for not taking proper care of their infrastructure, makes our already expensive energy costs even higher. The bill introduced by Senator Ted Kennedy that we advocated for this year to reduce methane leaks, SB 346, didn't pass, but we'll be raising it again next year.
CONNECTICUT POLITICS 2018

Political Committee Update, June 2018
by Ann Gadwah

The Political Committee continues its work in finding great candidates to endorse for the 2018 election. We are currently in the process of revising our candidate questionnaire to reflect both the bills that have passed in the 2018 legislative session and environmental issues that will be potentially relevant for the 2019 session.

Candidate Endorsements

All candidates running for the legislature have the opportunity to apply for our endorsement by completing our questionnaire. Candidates running for statewide offices, such as Governor, Lt. Governor, Attorney General, Secretary of State and Treasurer may also apply for endorsement. The timing of those endorsements will come later in the election cycle and we will keep our members abreast of the timing. If you are a candidate or know a candidate who would like a Connecticut Sierra Club endorsement for either a state or federal position, please contact Ann Gadwah at anngadwah@gmail.com, and we can start the process for you.

Both Republicans and Democrats hold their various nominating conventions at the district and statewide levels in May. We expect excellent candidates came out of these conventions. We anticipate there will be some exciting potential primaries that we intend to follow very closely and hope you will as well.

Conservation and Environmental Candidates

Every election season brings new hope for electing candidates who truly share our passion for conservation and environmental protection. It is more important than ever to stay engaged politically and to make sure we vote. Keep an eye out in the next couple months for our endorsements. The environmental community should be a consistent voting bloc that candidates from both sides of the aisle try to sway. Let’s show them we are a force to be reckoned with.

Ann Gadwah is Political Committee Chair and a member of the Executive Committee, CT Chapter Sierra Club.
During the 2018 Legislative session, the CT Chapter Sierra Club Legislative Team worked hard to bring about change to Connecticut's environmental laws. We lobbied and asked for support on several bills. The most significant bills we endorsed were Senate Bill 7 (to reduce greenhouse gas emissions and protections against sea level rise) and Senate Bill 9 (to increase renewable energy, community shared solar and many other things). Both bills passed, but unfortunately SB-9 was passed without true net metering. It was that concession or nothing at all.

Some of our priority bills went far, but time ran out before they were voted on. The team did well attending trainings, holding phone banks, tabling at events and lobbying state senators and representatives.

**Off Season Plans**

This off session we plan to recruit more people to work with us lobbying their congressional representatives and attending demonstrations and rallies. Our goal is to be prepared to lead a big effort next session. The CT Chapter Sierra Club seeks volunteers who are action takers and care deeply about environmental issues.

An effort to work more closely with other allied organizations is also a priority for us as we move forward. Stronger alliances with other organizations makes our voice louder. The environmental groups were a little divided this year and that may have been a factor on some environmental bills. The legislative team will work toward achieving greater cohesion amongst partner organizations in the future.

**Take Action: Volunteer**

I would like to thank everyone who was involved this session. It was a great experience, and a lot was learned. Now as a team we can build on those experiences and train others who also want to make a difference. Hopefully we will make a bigger impact next session. If you are interested in volunteering for the Legislative Team, please send an e-mail to aserrano1776@gmail.com expressing your area of interest.

*Angel Serrano is Legislative Chair and a member of the Executive Committee, CT Chapter Sierra Club*
Sunburned: The Unintended Effect of SB 9
by Colin Cogle

While voters were asleep hours before sunrise on May 9, Senate Bill (SB) 9 passed our House. It effectively undoes our state’s popular and successful net metering program. The text of the bill, if signed into law, would require Connecticut’s energy usage to step up to 40 percent from renewables by 2030, as opposed to the current mandate of 28 percent by 2020. I’ll commend it that far. I’m sure this is where our elected officials stopped reading.

What is Net Metering?
The remainder of SB 9 eliminates net metering, the promise that a customer with solar panels will pay for electricity by the kilowatt-hour like any other customer; however, when their home is generating more power than it’s consuming, the provider would buy the excess power at the same price. Currently, photovoltaic (PV) system owners have seen their electricity bills greened by the sun, making the investment pay for itself in a matter of years.

How Will SB 9 Change Net Metering?
Under SB 9, utility companies such as Eversource can set lower buyback rates during periods of “excessive generation.” Its passage would all but gut our rooftop solar industry, laying waste to yet another of Connecticut’s fast-growing economies and threatening to send all 2,000 of our tax-paying solar jobs to greener pastures. Case in point: when a similar bill passed in Nevada, and that sunny state lost thousands of jobs to their solar-friendly neighbors, it wasn’t long before their legislature backtracked and re-instmted net metering.

The advocacy group Vote Solar said through their regional director, Sean Garren: “This bill is sadly misguided. Connecticut pays some of the highest electricity costs in the nation, and rooftop solar investment provides a much needed opportunity for families and businesses to manage those bills while lowering the overall cost of the utility system for everyone - and helping us fight climate change as well.”

Last year, residents of the towns of New Milford and Sherman stood against the Connecticut Siting Council under the banner of Rescue Candlewood Mountain and staunchly opposed the razing of scenic, amphibian populated and forested Candlewood Mountain to build a large solar plant. There is, however, little if any opposition to homeowners buying a PV system. The removal of net metering, ironically, would undercut the higher renewable goals promised by SB 9.

Lawmakers Side with Your Electric Company
At least two out of three lawmakers voted on the side of your electric company, but this is a classic case of our elected representatives betraying the popular vote that sent them to Hartford in the first place. A recent poll by Public Policy Polling shows that 77 percent of Connecticut electors surveyed are in favor of expanding the role of solar energy in our state. Splitting the numbers by party affiliation shows that 71 percent of Republicans, 78 percent of Democrats and 81 percent of Independents are in favor of expanding access to solar energy.
While SB 9 now sits on Governor Malloy’s desk, it originated from his office, so a veto seems unlikely. All we can do is remind our readers of the significance of the first Tuesday in November.

*Colin Cogle works in Internet Technology and considers himself well versed in net neutrality. Colin is a member of the CT Chapter Sierra Club and a resident of New Milford.*

**Good News in Hartford: SJ 35 Bill Finally Lets Us Vote**
by Kenneth Selling

In the late night flurry of last minute Legislative battles in Hartford, the Sierra Club got a big win. Strangely, for years, Connecticut has quietly allowed the Connecticut State Legislature in an annual Conveyance Bill, to give away publicly-owned lands without public comment.

Some of these "I'll scratch your back if you scratch mine" giveaways have happened in the dark during the last days of Legislative sessions, with little or no chance for the public to know or comment upon them. This year, a bill, SJ 35, just passed that calls for a statewide voter referendum this November to change this policy. You can easily make a direct difference by voting for it.

If we vote for it, Connecticut’s Constitution will be amended to require public hearings be held before public lands are given away or sold. And, it will require a two thirds majority vote if those lands happen to be state parks, forests, or agricultural lands. This bill will at last allow the sunlight of public scrutiny and comment to shine on what has sometimes been a murky political patronage process.

If this Fall referendum passes, Connecticut will at last join neighbors New York, Massachusetts and Maine, in adding the simple decency of transparency to this process. Unlike public laws, which can quietly be reversed later, this Constitutional amendment would require public hearings. Come November, all Connecticut ballots will give you a chance to vote for SJ 35. We urge you to support it.

For the top ten reasons why to vote ‘yes,’ click on:
Top 10 Reasons

For information on the recent bill, read here:
CT Woodlands Recent Bill

*Kenneth Selling is a 37-year member in CT Chapter Sierra Club*
TAKE ACTION NOW

Get On Board!
by Geneva Renegar

One avenue of activism that is largely unknown or overlooked by a wide audience is your local town boards and commissions, specifically, the conservation commissions or the inland wetland agencies in Connecticut towns.

The Role of the Town Activist
In every Connecticut municipality, there are commission members who volunteer their time and energy by being good stewards of our land, waterways and natural resources. These volunteers are usually assigned to these positions by the first selectman or mayor, with the agreement that they serve out their terms. Once sworn in at the town hall, these members become integral assets to conservation and preservation with a keen eye to regulations, as outlined by the Connecticut General Statutes.

Applications that come before the commission are rigorously scrutinized for adherence to laws and regulations, and ideally approved after a judicious decision is reached by consensus. It is common for commission members to attend training, be present at on-site inspections and participate in auxiliary educational conferences to stay up to date with current law while facilitating dialogue of today’s needs and tomorrow’s priorities.

In some scenarios, application reviews are for residential or commercial building. Often, there has been a violation of the code, and it is the duty of the commission to seek a just and fair remedy, with follow-up to ascertain adherence to code. Among the myriad of remedies are planting trees and native plant species, replacing shrubs and restoring area wetlands. Members of these boards and commissions are also present at public hearings where strict protocol is followed and evidence is brought forth by all affected parties.

The conservation commissions and inland wetland agencies are a dynamic environment to work in, and you do not have to be a scientist, engineer, biologist or specifically credentialed in anything to participate. Included are all major political parties whose members work inclusively and compatibly to achieve the most desired outcome for the conservation and preservation of your town’s natural resources.

Lobby for a Seat at the Table
The question asked most often is “How do I get on a commission?” The answer is: “You advocate for yourself.” A strongly written letter of intent to the first selectman or mayor will often suffice to receive a follow-up interview, regardless of political party affiliation. These commissions and boards often don’t have full membership, leaving a precarious vacuum in local governance. Sometimes just reaching the minimum quorum to run a meeting is difficult!

Waterford Town Hall
Photo Credit: Geneva Renegar
While the phrase “Think Global, Act Local” has secured its place in popular speech, it is important to emphasize that active involvement and initiative are what is needed for change on a local level. There is, for example, a sobering report on my town’s website titled “Climate Change, Vulnerability, Risk Assessment and Adaptation Study.” CLIMATE CHANGE, VULNERABILITY, RISK ASSESSMENT AND ADAPTATION STUDY. The impact of these issues will be monumental if no action is taken to mitigate infrastructure damage and property damage due to flooding attributed to sea-level rise. Of course, taxpayer dollars pay for the town’s environmental planner, public works and the recreation and parks department, but the boards and commissions also play a pivotal role in good town stewardship.

It is my hope that more individuals who feel disempowered will consider joining their town government in the quiet aspect of activism by becoming a public servant. By doing so there is a real opportunity to participate in the policy trajectory of your town. “Think Global, Act Local” is still the watch-word for change, and I encourage you to educate yourself about your local landscape and to petition for inclusion. It’s easier than you think and the rewards are numerous and the achievements long-lasting.

*Geneva Renegar, a CT Chapter Sierra Club hike leader, is a member of the Town of Waterford Conservation Commission and is Co-Chair of the town’s Flood and Erosion Control Board.*

**Why Does Scott Pruitt Still Have a Job?**

by Ann Gadwah

Scott Pruitt is the embattled head of the Environmental Protection Agency under the Trump Administration. During his 16-month tenure, he has either reversed or moved to roll back dozens of environmental regulations and protections. He is currently under investigation for over ten ethics violations. By his own words and actions, he does not understand climate change is caused by humans, nor does he trust scientific evidence. He hardly seems to believe in the mission of the agency he heads up. So, the question is, why the hell does Scott Pruitt still have a job?

**Environmental Misdeeds**

Examples of the environmental rules Pruitt has gutted since taking office include methane reporting requirements, the clean power plan, car and truck fuel-efficiency standards, limits on toxic discharge from power plants and endangered species protections. He has reversed previous decisions on the Keystone Pipeline, the Dakota Access Pipeline and drilling in the Arctic Wildlife Refuge. He oversaw the United States’ withdrawal from the Paris Climate Agreement. The future status of ten national monuments and 12 marine areas are uncertain due to Pruitt. He does not protect the environment. He is not doing his job.
Ethics Violations
Some of the ethics violations he is being accused of include obscene spending on travel, security details and a special, soundproof private phone booth in his office. He obtained a highly suspicious sweetheart rental deal on a condominium in the D.C. area from a lobbyist's wife. He has hired his banker to head up the Superfund program, allowed his personnel to keep their political consulting gigs and given exorbitant raises to staff without White House permission. He sidelines staffers who question him. One staff member has even accused the head of Pruitt's security detail of threatening him. He allegedly uses lights and sirens to make it on time to dinner reservations, as if he were a head of state, rather than a Cabinet member. He is not following the rules, nor the law. He has yet to be punished, or even show an ounce of remorse.

Why is Pruitt Still in Office?
Others in the Trump administration have lost their jobs for less than the accusations against Pruitt. The only answer I can think of is that, despite his lack of any sort of moral compass and his utter lack of doing anything to protect our environment, in the administration's eyes, he is doing a good job. If his job is to weaken and destroy the Environmental Protection Agency, then he is doing a good job. If his job is to support and enrich the fossil fuel industry, then he is doing a good job. What does it say about our country when those in charge implement policies such as these? What does it say about the state of our country if someone who violates ethics is protected by those in power?

We the People cannot allow Pruitt and the administration to win this fight. We need an Environmental Protection Agency that lives up to its mission. We need ethical and just leaders.

Take Action: Call or email Senators Blumenthal and Murphy, Congresswoman Esty, the White House and any other influencer you identify. Scott Pruitt needs to go and public outrage can kick him out.

Ann Gadwah is Political Committee Chair and a member of the Executive Committee, CT Chapter Sierra Club.
Data analytics has always interested me. The importance of using data to persuade and support an argument is increasingly important in today’s unfortunate “fake news” climate. There’s a popular saying attributed to W. Edwards Deming, “In God We Trust, all others bring data.” I offer an addendum “…and do some analytics.”

In late 2016, coincident with the U.S. presidential election, I channeled an uneasiness many in my profession felt as to whether government agencies would continue to host publicly available data. There was concern that useful data repositories would simply go away.

**Hazardous Material Incident Data**

As I have always been interested in and troubled by oil spills…from an environmental perspective, but also from a process defect/system performance perspective…I chose to educate myself about government-supplied data regarding hazardous material incidents, while the data were still available. I spent the greater part of 2017 doing so.

The U.S. Department of Transportation (USDOT) manages the Pipeline Hazardous Materials Safety Administration (PHMSA), which, in turn, regulates the pipeline system in the U.S., including hosting the archival and ongoing compilation of hazardous incident data. The data, required by regulation to be reported by pipeline operators, dates back to 1968 and are still available at the PHMSA website [PHMSA](https://www.phmsa.dot.gov).

Although the reporting process and data formatting changed several times over the years, it has been stable since 2010. Data are reported for incidents related to Liquefied Natural Gas (LNG), Natural Gas Transmission and Gathering, Natural Gas Distribution and Hazardous Liquids (including Carbon Dioxide). As data for the latter were more fully developed, they afforded a broader array of analytics on which to base my learning. What I found upon exploring this data was eye-opening and important enough to try to acquaint as many interested readers as possible with the contents and the information it conveys. Having recently become involved with the CT Sierra Club’s efforts on methane regulation, the Club and I have a shared interest in improving the sloppy state of affairs in which we find ourselves.

**Basic Statistics**

Data files and data dictionaries posted online are updated periodically by PHMSA. Incidents are required to be reported under the PHMSA framework, a relevant portion of which is included in the Appendix. The following brief analysis is based on data downloaded on 27 April 2018. The data and analysis have been posted to my company Evergreen Business Analytics, LLC website, [EGBANA.com](http://EGBANA.com), for others to review, amend or extend. The data allow for a tabulation of incidents by count or severity, measured by number of barrels (BBLs) leaked, or total cost of a leak. Table 1 below shows each of these three measures.
Leak History

There were almost 3,330 leaks, spilling nearly 300,000 BBLS, and costing ~ $2.5 billion across the pipeline system since 2010. By far, the largest notable leak was 20,000 BBLS in the Kalamazoo River, Michigan in 2010, which alone had a total cost of $840 million, of which $650 million is in environmental cost. Other components of cost are related to operator and non-operator property damage/repair, lost commodity and emergency services.

Since 2010, there has been an average of about 400 incidents across the system every year, totaling roughly 85,000 BBLS, and $200 million in associated costs. If you are as astonished as I was upon first reviewing these results, know there are many severe incidents that are not widely reported and therefore not widely known and therefore cannot be collectively managed.

Figure 1 below displays the percentage (i.e., “share”) of BBLS leaked by each commodity type, revealing that crude oil, and HVL (Highly Volatile Liquid) or other flammable/toxic fluids account for more than 80 percent of unintentional spillage volume. The data also have intentional BBLS spilled, as well as recovered BBLS.


These leaks happened in almost all 50 states. (the New England states had five incidents in this time window; with two in Connecticut).

**TABLE 1: INCIDENTS, BBLS, AND TOTAL COST BY**

<table>
<thead>
<tr>
<th>Year</th>
<th># Incidents</th>
<th>BBLS Spilled Unintentionally</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>350</td>
<td>100,558</td>
<td>$1,075,193,990</td>
</tr>
<tr>
<td>2011</td>
<td>344</td>
<td>89,110</td>
<td>$273,526,547</td>
</tr>
<tr>
<td>2012</td>
<td>366</td>
<td>45,884</td>
<td>$145,247,426</td>
</tr>
<tr>
<td>2013</td>
<td>401</td>
<td>117,467</td>
<td>$278,525,540</td>
</tr>
<tr>
<td>2014</td>
<td>456</td>
<td>48,383</td>
<td>$134,581,610</td>
</tr>
<tr>
<td>2015</td>
<td>460</td>
<td>102,226</td>
<td>$256,251,180</td>
</tr>
<tr>
<td>2016</td>
<td>420</td>
<td>86,135</td>
<td>$205,453,238</td>
</tr>
<tr>
<td>2017</td>
<td>415</td>
<td>92,613</td>
<td>$124,249,081</td>
</tr>
<tr>
<td>2018</td>
<td>77</td>
<td>5,800</td>
<td>$8,604,724</td>
</tr>
<tr>
<td>Grand Total</td>
<td>3,288</td>
<td>688,177</td>
<td>$2,501,633,336</td>
</tr>
</tbody>
</table>

**FIGURE 1: COMMODITY TYPE, SHARE OF BBLS LEAKED, 2010**
Table 2 shows the top ten states by incident count. To be fair, the opportunities for an incident are greater in states with more pipeline miles, which accounts for Texas rising to the top of the list, as it has almost 65K miles of pipeline out of about 200K pipeline miles nation-wide as of 2016.

**Texas vs California Spill Costs**

Interestingly, the average cost per spill across the top ten states is ~$400K. Note: For Texas this figure is about half this rate; for California it is almost three times this rate. Why? California had a significant spill of about 3,000 BBLS near the Pacific Ocean in 2015, resulting in ~$140 million in total costs. But, clearly, there is a meaningful difference in how leaks are handled in Texas vs. California; perhaps Texas is particularly adept at mitigating damage and therefore cost as compared to California, or perhaps their clean-up practice is different – or their spills are less “nasty.” Delving further into this topic is for future exploration.

Adjusting for pipeline miles in the top ten states, on average there were three incidents, 300-400 BBLS spilled, and total costs of ~$950 million, *for each 100 miles of pipeline*.

Finally, Figure 2 below reveals the locations of incidents across the U.S. by latitude and longitude. Trace the location of major pipelines in our country. Example, look at the Colonial Pipeline in the Eastern U.S.
The hazardous material pipeline system in the U.S. is more incident-prone than is generally known. While data related to system defects are being recorded, if not widely reported, as it is associated with leak incidents, this data should be used to more proactively assess driving factors across the system and actively try to mitigate them. No doubt those in the industry, as well as environmentalists, can agree on the need to avoid leaks where possible.

In the next installment of this series, we will explore pipeline operators, as well as the causes of these leaks.

Appendix
Incident reporting requirement, per PHMSA:

An accident report is required for each failure in a pipeline system subject to this part in which there is a release of the hazardous liquid or carbon dioxide transported resulting in any of the following:
(a) Explosion or fire not intentionally set by the operator.
(b) Release of 5 gallons (19 liters) or more of hazardous liquid or carbon dioxide, except that no report is required for a release of less than 5 barrels (0.8 cubic meters) resulting from a pipeline maintenance activity if the release is:
   (1) Not otherwise reportable under this section;
   (2) Not one described in §195.52(a)(4); “Resulted in pollution of any stream, river, lake, reservoir, or other similar body of water that violated applicable water quality standards, caused a discoloration of the surface of the water or adjoining shoreline, or deposited a sludge or emulsion beneath the surface of the water or upon adjoining shorelines.”
   (3) Confined to company property or pipeline right-of-way; and
   (4) Cleaned up promptly;
(c) Death of any person;
(d) Personal injury necessitating hospitalization;
(e) Estimated property damage, including cost of clean-up and recovery, value of lost product, and damage to the property of the operator or others, or both, exceeding $50,000.

Tim K. Keyes, Ph.D., Evergreen Business Analytics, LLC is a CT Chapter Sierra Club member and investigator of the CT Chapter Sierra Club report on methane regulation Gas Pipelines

BOOK REVIEW
The Ecology of Freedom
by James Root

The Connecticut environmentalist interested in a deep background of environmental issues might check out the edgy classic, Ecology of Freedom by the late Murray Bookchin. This title is considered that influential writer’s ‘magnum opus’ and its ideas have been used as a basis for the experimental, non-hierarchical state of Rojava in today’s fragmented Syria.

Bookchin is considered the originator of ‘social ecology,’ a perhaps deliberately confusing term. Social ecology professes that all our ‘environmental problems’ are only complete manifestations of deeply, historically embedded, social problems. More exactly, our concept of nature, and our relationship to it, evolved in tandem and parallel to our collective social and societal psyche-usually in a bad way.
Mutual Cooperation vs Scarcity
The book begins in prehistory, where as late as the Neolithic Age (roughly 10,000 years ago), the sexes functioned in a complementary way, in cooperation for the good of the group (in a bit of an Eden trope). This social reality was reflected in a more mutualistic view of nature. Later, an antagonistic reality developed. In Bookchin’s view, as hierarchies of rule and domination gradually evolved with agriculture and proprietorship, almost out of cognitive necessity, the collective view of nature (and god in those times) morphed to that of a stingy ‘other’ that we could never fully trust and that we had to continually work to prevail against. This was the birth of ‘scarcity’ - a concept that has been used so effectively to keep people in line.

Historical Resistance Explored
The author continues to offer a sometimes disordered but effective argument for this ‘social/view of nature’- illustrating it with little discussed (in environmental circles) cases of historical resistance to this ugly trend in the human/nature outlook. He offers a fascinating account of early Christian ‘heresies’ that came to be known as ‘Gnostic’ or esoteric mystical knowledge. These competing Christian sects saw a big problem early on in Christianity’s heaven oriented cosmos and tried to provide an option. Very courageous sects, both hedonistic and ascetic, from Europe’s middle ages are also discussed - including some incredible Bohemian sects from central Europe and later, very radical groups, like the “Diggers,” Protestant radicals from the time of the English Civil War.

The onset of the modern world, in Bookchin’s take, brought many technological wonders (and certain kinds of derivative freedoms), but failed to confront itself in its unhealthy view of nature that continues to play out under the glitzy surface of all the new gadgets and consumer items that are characterized as essentially ‘fetishistic’.

The Historical Process of Technology
In a fashion not surprising from an ex-Marxist, the author contends that any amelioration of or deliverance from this destructive social legacy, going forward, must be predicated on a consciousness of the historical process, as described in the book. Also, more specifically, technology (should not be shunned in Bookchin’s ideal future) but must always be viewed as something originating and existing within a social matrix - and not an end in itself without real ramifications to society. This admonition is a natural conclusion leading from the book’s many mentions of technology as an insensitive re-enforcer of hierarchy and an inhibitor of freedom.

James Root is a CT Chapter Sierra Club member who lives in Danbury.
GREATER HARTFORD GROUP ANNUAL OUTING

BBQ, Hike and Kayak

Description: Join us to relax at this pleasant spot at Northwest Park! Learn about Sierra Club activities in your area and chances to volunteer even a small amount of time to help our environmental efforts. Enjoy a potluck BBQ picnic under our pavilion and then explore the park trails, nature center or museum.

Sponsor: Greater Hartford Group Connecticut Chapter Sierra Club

Date: Saturday, June 9; Rain cancels.
Time: 12:00-4:00pm
Location for GPS: Northwest Park, 145 Lang Rd, Windsor, CT 06095

Directions: From I-91 north, take Exit 38. From I-91 south, take Exit 38A. Turn right at the exit on to Poquonock Avenue (Route 75). Go about 1.5 miles and turn left on to Prospect Hill Rd. Turn right at the second traffic circle on to Lang Road and continue up the road to the Nature Center.

Parking: Free parking in the large lot nearby

Food and Meet Logistics: A covered pavilion behind the official buildings will be available for our group. There are picnic tables and two BBQ grills set up for the potluck.

Please bring your own place setting and a food dish to share (appetizer, salad, dessert, or other food to grill), serving 8-10. No alcohol permitted.

Hiking and Biking Options
Hiking and biking is available on several park trails. Dogs are permitted in the park, if kept on a leash and messes are picked up.

Trail Map: Northwest Park Map

Nature Center and Tobacco Museum Options
Visit the free, on-site nature center and tobacco museum, open 10:00am to 4:00pm Saturdays.
For more information visit: Northwest Park
Kayak Trip Add-On

Description: After a hike and BBQ potluck at Northwest Park, come take a kayak trip! We’ll paddle the 243-acre Rainbow Reservoir, tree lined with only a few houses set back from the water. Then we’ll head up the Farmington River towards North Bloomfield and even Simsbury before returning to the launch site.

Date: Saturday, June 9
Time: 4:30pm
Location: Boat Launch at 118 Merriman Road, Windsor, CT

Logistics: Meet at the boat launch. Map of area and trip route at: Map

Parking: No fee to launch and free parking

Leader: Renee Taylor

RSVP Renee to Kayak: mchawigirl@yahoo.com by Friday, June 8, so she knows whether to bring her kayak

Questions: Renee at mchawigirl@yahoo.com

Important: Safety vests must be worn at all times. Please no cell phone use on the water.

Rain cancels.
Shoreline Group Elects Officers
by John Dixon

The Shoreline Group of the CT Chapter Sierra Club held its regular monthly meeting in May at the Starbucks in Madison. One of our main accomplishments was to elect our new leaders.

In the picture are our new officers. On the right is Jody Kaplan, our new Chairperson. Jody has spent much of his life until retiring, as a police officer in New York City, where he often dealt with environmental issues. He is also a photographer and a writer and currently works in a bank. In the middle is Tom Paul, our faithful Treasurer, who is involved in all sorts of environmental organizations in the Madison area. On the left is Marina Dixon, our new Communications Chair. Marina is a freshman at Daniel Hand High School. She is in the Environmental Club there and is mainly concerned with saving polar bears.

We welcome all members in the Shoreline area to come and join us.

Date: Wednesday, June 13
Time: 6:30pm
Location: Starbucks, 609 Boston Post Road, Madison

Contact: John Dixon at 203.907.7307

John Dixon is on the Executive Committee of the CT Chapter Sierra Club and a leading force in the Shoreline Group
OUTDOOR EVENTS: JUNE HIKES

*Common info for each outdoor event*

**Dress:** Be sure you dress for the weather and the activity. We suggest you bring water and a snack. Bug repellent and sunscreen are advised.

*Free event open to Sierra Club members and the public*

**Sierra Club Outing Waiver:** You may review the waiver by clicking the attachment here: [Waiver](#)

### Hike on National Trails Day

JOIN OUR OWN Sierra Club hike along a little known loop trail with two lakes, archaeological sites and a surprise view in the middle.

The hike explores the full park, over mostly gentle terrain. Expect a few, very short, semi-steep parts. The pace will be moderate, but we'll stop to admire scenic views and some early historic sites.

Outings leader is Kenneth Selling.

#### Details

**Date:** Saturday, June 2; **Rain Date:** June 3  
**Time:** 1:00pm-4:30pm  
**Location:** Rocky Hill at Dividend Pond Park/Loop Trail

**Meeting place:** Main parking lot is off Old Forge Road. A small gravel lot is on the right, 0.6 miles East of the traffic light at Route 99.  
**GPS:** 30 Old Forge Road, Rocky Hill, CT 06067

**Option:** Ice cream stop after the hike.

For more information, see the listing in [Rocky Hill Nature Walk](#)
Hike Narragansett Trail

**Date:** Saturday, June 30  
**Time:** 10:00am start; anticipated 1:00pm finish  
**Questions:** Geneva Renegar,  
**Leader:** genevarenegar@gmail.com

**Overview:** Hike on sacred ground. A portion of our six mile hike is on the Mashantucket Reservation and this Blue Blaze trail has established trails and a mostly easy and even terrain. Enjoy a quiet and peaceful hike among the scent and sight of wooded land and open terrain where we will cross an old mining quarry, a dam and a pond on this out-and-back route.

Please be mindful to protect yourself from ticks and wear full pants and light clothing and bring water, your camera and your appreciation for the outdoors. Come out in the burgeoning summer morning and join us on this leisurely hike!

**Rating:** Moderate due to length

**GPS Directions:** 245-261 Wintechog Hill Road, North Stonington, CT

**Final directions:**  
Wintechog Hill Road is the first street to the east after the fourth stoplight into the Foxwoods Museum entrance. Turn right off Route 2 onto Wintechog Hill Road and proceed for about 0.2 mile. On the right side of the road, watch for the trail sign on a tree and park on the designated area.
Chapter 1: Numbers and Their Properties

1.1 Introduction to Numbers

1.1.1 What are Numbers?

Numbers are fundamental entities used in mathematics to represent quantities. They are used to count, measure, and label. There are several types of numbers, each with its own characteristics and applications.

1.1.2 Natural Numbers

Natural numbers are the numbers used for counting. They are the positive integers starting from 1. The set of natural numbers is denoted by the symbol \( \mathbb{N} \).

1.1.3 Whole Numbers

Whole numbers include all the natural numbers and the number 0. They are used for counting and labeling. The set of whole numbers is denoted by the symbol \( \mathbb{W} \).

1.1.4 Integers

Integers include all the whole numbers and their negations. They are used for counting, labeling, and measuring. The set of integers is denoted by the symbol \( \mathbb{Z} \).

1.2 Properties of Numbers

Numbers have various properties that govern their behavior. These properties are essential for understanding and manipulating numbers.

1.2.1 Closure Property

The closure property states that if you perform an operation on any two numbers in a set, the result will also be in the set. For example, addition and multiplication are closed operations for the set of integers.

1.2.2 Commutative Property

The commutative property states that the order of the numbers does not affect the result of an operation. For example, addition and multiplication are commutative operations.

1.2.3 Associative Property

The associative property states that the grouping of numbers does not affect the result of an operation. For example, addition and multiplication are associative operations.

1.2.4 Identity Property

The identity property states that there is a special number, called the identity, which when combined with another number using an operation, leaves the other number unchanged. For example, the number 0 is the identity for addition, and the number 1 is the identity for multiplication.

1.2.5 Inverse Property

The inverse property states that for every number, there exists another number that, when combined with the original number using an operation, results in the identity number. For example, the additive inverse of a number is its opposite, and the multiplicative inverse of a number is its reciprocal.

1.3 Applications of Numbers

Numbers are used in various applications, including:

1.3.1 Arithmetic

Arithmetic is the study of numbers and their operations. It involves addition, subtraction, multiplication, and division.

1.3.2 Algebra

Algebra is the study of symbols and the rules for operating them. It allows us to solve equations and manipulate expressions.

1.3.3 Geometry

Geometry is the study of shapes, sizes, and positions of objects. It involves measurements and calculations.

1.3.4 Statistics

Statistics is the study of collecting, analyzing, and interpreting data. It helps us make sense of the world around us.

1.3.5 Probability

Probability is the study of chance and uncertainty. It involves calculating the likelihood of events occurring.

1.4 Conclusion

Numbers are a fundamental concept in mathematics. They have various properties and applications that allow us to understand and manipulate the world around us.
A number of states have recently enacted legislation to protect pets in hot cars, and have done so with bipartisan support. This year, several states are considering similar legislation.

**Animal Advocates Cheer**

Connecticut’s animal advocates, the rapidly growing “Army of the Kind,” are grateful for the passage of this legislation that will protect Good Samaritans who boldly intervene in these time-critical situations, saving animals from an unnecessary and agonizing death.

Annie Hornish is Connecticut State Director, The Humane Society of the United States (HSUS) ahornish@humanesociety.org

**POETRY**

**Arborvitae at Land’s End**

My arborvitae, silent, stalwart centurions,
Mark land’s end at home,
Keeping that enchanted world safe from intrusion,
As from them many birds roam.

Lacy green fingers reach to the sky,
Wrapped in a magic aura of cedar scent.
Their stolid beauty bows to the breezes that pass by,
Strength and surrender at once as they bent.

These friendly guardian angels make me smile,
For they’ve thrived in such a short while.
Robust and hearty yet elegant,
Watching them grow, my life shall happily be spent.

M. Renee Taylor is a CT Chapter Sierra Club member and active in the Greater Hartford Group where she is known for scheduling interesting and informative educational speakers. She also leads kayak trips for the Chapter.
REQUEST FOR CONTENT

All Connecticut Sierra Club members are invited to contribute to our online newsletter, the *Quinnehtukqu*, which posts ten times per year: monthly, with one summer issue for July and August, and one holiday/winter issue for December and January. We accept articles, book reviews, puzzles, events, photos, poems, etc. Articles, limited to 500 words, should be on a subject of local or national interest to the Connecticut Chapter membership. The goal of the newsletter is to inform, educate, motivate and involve our members.

To submit newsletter articles, letters to the editor, etc. for the *Quinnehtukqu*, send to ctsierraq3@gmail.com. To post information to the website or social media, send content to connecticut.chapter@sierraclub.org.

Visit our website at CT Sierra Club. See us on Facebook at Facebook CT Sierra Club

Below is the newsletter calendar for the next two 2018 submission dates. Please read dates carefully. The calendar is intended to make it easier for you to plan your *Quinnehtukqu* contributions for publication.

The *Quinnehtukqu* is distributed at the beginning of the month.

SUMMER CALENDAR

- **Wednesday, June 13**, Summer Submissions Due
- **Saturday, July 7**, Summer Q Distribution

SEPTEMBER CALENDAR

- **Monday, August 13**, September Submissions Due
- **Saturday, September 8**, September Q Distribution

All decisions regarding use are made by the Communications Committee.
TELL A FRIEND

Do you agree with the Sierra Club principles of exploring, enjoying and protecting our state, country and planetary environment? Do you enjoy reading the Quinnehtukqut? Why not tell a friend? Invite people to join the Sierra Club. It’s easy! Go to our website at ctsierraclub.wixsite.com/sierraclub-ct and click the blue JOIN or the red DONATE button in the upper right corner. Follow the directions.

You can also give memberships as gifts. It’s a wonderful way to honor your friends and family, or perhaps enlighten them.

For gift memberships, go to: Gift Memberships

Help Us Keep Our Programs Running!

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