NVARC Nashoba Valley Amateur Radio Club

SIGNAL

A club since 1992
Since 1993
Since 1996

de N1NC July 2021 Volume 30 Number 7

In this Issue

NVARC Monthly Meetings

NVARC general meetings are scheduled for the third Thursday of the month at 2430 UTC (7:30pm, Eastern Time).

Note that NVARC does not meet in July or August, due to vacations, and other Summertime activities.

Non-members who are interested in attending may send an email to meetings@n1nc.org requesting the teleconference details.

NVARC thanks **Medtronic, Inc** for providing the teleconferencing services under their employee volunteer support program for non-profit organizations.

Last Month's Meeting

Mindy, KM1NDY spoke on operating remotely, on hikes, and at POTA and SOTA sites. Mindy's talk focused on gear choices (both radio and outdoor), portable op strategies, and a bit of philosophy to hopefully give you all the information needed to get out there and do it yourself!"

The President's Corner

de Bruce, K1BG

Thoughts on Field Day

Besides being a test of emergency preparedness, Field Day is many things to many people. For some it's a contest, for some a social event. For some it's an opportunity to Elmer, and for others it's an opportunity to learn. For me, it's all of those things rolled into one.

In my opinion, we had an excellent Field Day this year, and I'm sure more details will be forthcoming in other pages of this Signal.

Kudos to Jim, AB1WQ, for his leadership again this year. This was his last year as Field Day chairman, and I'm sure he will pass along this knowledge and experience to whoever steps up next year. Please thank Jim for his leadership and dedication in making Field Day a success.

One thing that was different this year was that we did not utilize the motorized-telescoping-tower-on-a-trailer that we have used for the last 15 years or more (with the exception of last year's very limited Covid operation).

"Nothing beats a directional antenna at 60 feet on Field Day!" is a line that I used more than once over the weekend.

The difference was quite obvious. This year's HF antennas were a collection of wire dipoles and inverted Vs on two push-up masts, at heights of maybe 30 or 35 feet.

On top of this, band conditions were not that good. This combination made making contacts more difficult and phone contacts in particular more challenging. But a funny thing happened.

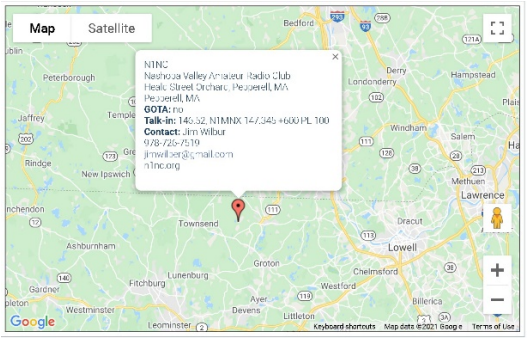
We did make CW contacts using the simple wire antennas, and we had club members learning and developing Morse skills in response.

The GOTA station made a bunch of FT8 and FT4 digital contacts, as did the VHF station.

So maybe adapting to simple antennas is not a bad thing. But it would be good to have more punch on phone… And BTW, we DID make contacts on phone!

Also, this year I thought our visitors genuinely showed more interest. Several expressed interest in learning more about Amateur Radio in general and NVARC in particular. I wonder if this is because when they observed this year's Field Day, they said to themselves "I can do that!", as opposed to seeing the big tower and just being overwhelmed. Maybe some things do beat that 60 ft directional antenna? It's just a thought, but it's worth thinking about.

We had a ham, who had just re-located to Pepperell, find us by visiting the ARRL Field Day locator website. If you haven't visited this site, you should: http://www.arrl.org/field-day-locator.



He was not aware of NVARC before this. Another potential future club member!

Several other hams who are not yet club members participated, both operating and helping set up and take down.

Club members that operated Field Day from their home stations: please let KB1HFT, our newsletter editor (Editor@n1nc.org) know so that results can be tabulated and posted in the August Signal.

Final thoughts? Field day was a blast! Everything played extremely well. We contested, socialized (plenty of great food), Elmered, and learned. It was **way** too hot, but then, maybe we should think about a winter Field Day. You never know how that might turn out. Thanks again to everyone who volunteered to make this year's Field Day so special.

NVARC's summer schedule is pretty slow. There is a picnic in the planning stages for August, details TBD.

Club Meetings

NVARC does not hold formal club meetings in July and August, but we will be holding informal Zoom gatherings (details will be provided via the club reflector or email). Bill, K1NS, is looking for a suitable venue for us to have a group gathering for dinner, and we will let you know the if/when/where of this event.

HamXpostion

NVARC will have an indoor table at the Northeast HamXpostion in Marlboro in September (formerly Boxboro).

John, KK1X, has volunteered to coordinate the event. This will be a great gathering place for club members, and a place where we can publicize the club within the amateur community.

I will be asking members to "man-the-booth", but if you are going to the event you will probably be around the booth anyway. More details will be coming. Please mark this on your calendars: September 10, 11, and 12th (mostly Saturday the 11th). For more information, please go to http://www.hamxposition.org.

Have a great, and above all else, safe summer.

-de Bruce,
K1BG

NVARC Field Day 2021: A Great Success

While the final results have not been tabulated, NVARC's 2021 Field Day has been hailed a success by everyone involved.

Jim, AB1WQ coordinated the event, with help from a number of people:

- John, KK1X, Bruce, K1BG, Phil, W1PJE, and Jessica, WU3C, served as station captains.
- Jim, N8VIM, supplied biodiesel power and networking.
- Jessica, WU3C, provided AND prepared 2 lunches and a breakfast. Jessica also coordinated the effort to collect bonus points.

- John, KK1X, kept us hydrated, refreshed, and provided dozens of handmade (by John) cookies.
- Leo, K1LK, gave us a place to congregate out of the sun.
- Dan, KW2T gave an educational talk on Noise, and will submit our final score, once the logs are merged.

Many others contributed in varying ways as well.

So, what does this all mean? N1NC wound up with somewhere around 1240 contacts, with CW, Phone, and digital contacts. Bonus points have not yet been tabulated, but we should wind up with around 800 bonus points or so.

Once this all has been merged, the resulte (with documentation) will be submitted to the ARRL. Final club results and a full report should be available in the August signal.

If you worked Field Day from your home QTH, your score can be added to the club score if you choose “Nashoba Valley ARC” on the ARRL’s log submission form. See: http://www.arrl.org/files/file/Field-Day/2021/4_01-2021%20Now%20what.pdf

And, you earn a 50-point bonus for submitting everything via the http://field-day.arrl.org/fdentry.php web app!

A Gallery of Field Day Photos

Several folks were kind enough to submit photos this year, documenting the goings-on. Here’s a selection:

John, KK1X (left), and Bruce, K1BG, share a laugh as they set up for guying a mast.

The taller of two push-up masts. It held 40m & 20m Inverted Vees, and one end of an 80m end-fed.

Jessica, WU3C, came well prepared for the expected heat with a Huge Fan!

A view of the social center & mess tent.

Signing in and Cookies!

John, KK1X, working in the 95+ degree heat.

Jessica, WU3C, cooking up a delicious lunch that couldn't be beat.

Breakfast, Sunday morning. Mmm, Mmm! Thank you, Jessica!

Sandor, NB1N, working the night shift, racking up a huge CW score.

Field Day Generator Update: Biodiesel!

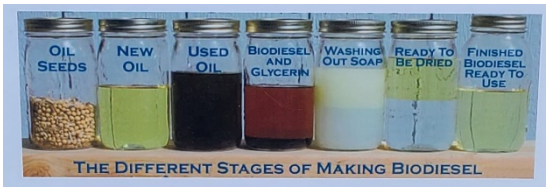
Not only did NVARC run Field Day on emergency power, supplied, as in the past, by Jim, N8VIM's awesome diesel generator, but this year, for extra bonus points, the generator ran on biodiesel fuel, that Jim extracted from used vegetable oils[1]. Jim writes:

"I Started with 21 gallons of waste vegetable oils of various types, and ended up with just about 17 gallons of finished fuel.

A half-gallon was used for a full load test of the generator, and about a quart got spilled on me when the fuel hose slipped. Thankfully it is totally biodegradable!

A tad bit over 16 gallons went into the generator tank for FD, and all the extra was in that little glass jar I brought for a visual aid.

I am processing another 30 gallons now which will finish off my waste vegetable oil stock."



Thank You, Jim!

Dan, KW2T, on A Major Source of Noise

During Field Day, Dan, KW2T, did an "Educational Event" which garnered NVARC 100 Bonus points.

Dan spoke about Noise, the thermal kind that makes the "rush" you hear in a radio when no one's there. The noise is based on atomic randomness and is defined by Boltzmann's constant.

Dan explained why the noise power in a radio is proportional to bandwidth and why a CW filter gets you a better signal/noise ratio from your radio.

Dan has since confided that he failed to look at his notes during the talk, and thus forgot to discuss a very interesting concept about noise: the fact that a noise waveform, although completely random, is a waveform none the less.

[1] https://www.utahbiodieselsupply.com/makingbiodiesel.php links to a description of the oils-to-biodiesel process.

The waveform can be recorded and played back, and if there are two antennas very far apart both looking at the same noise source in the sky, say a star far, far, away, the noise waveform at both sites can be recorded, and compared.

If one gets the timing lined up perfectly, they will correlate (match), and one can look at phase shifts and arrival time variations and do transforms on the data from multiple receiving points far apart on earth to result in an image of the star. Cool!

This is what radio astronomy is all about: correlating random noise.

The noise will seem coherent, which sounds like an oxymoron, but this is the science of interferometry. Wikipedia's entry on Interferometry[2] has very nice pictures of Very Large Array (VLA) antennas doing this work (scroll down).

A VHF/UHF Yagi for Satellite Contact

***de* Phil, W1PJE**

The tape measure dual VHF/UHF Yagi used in the satellite QSO attempt at the NVARC Field Day site was constructed especially for the event and comes from a January 2012 QST article by John Portune W6NBC.

It is a 3 element VHF and 5 element UHF design.

The concept keeps expenses down by using holes drilled in 1/2" inner diameter standard white PVC pipes for the elements, avoiding stainless steel hose clamps or PVC X fittings.

A 1" salvaged tape measure (from one lying around this QTH with a bent first few inches) is used for element material, with some filing off of the very sharp cut steel ends and paint scraping/soldering for good electrical connection on driven elements.

Wooden 3/16" dowel segments are used for support when connecting driven elements and for stiffeners on the 2m elements.

Liberal use of tie wraps allows the two beams to be operated at right angles to each other (cf. the W6NBC article for patterns), while the 70cm beam can be cleverly rotated for easy storage, folding the 2m elements on top of themselves.

Polarization diversity is achieved by hand rotating the boom for best signal.

No built-in diplexer was used due to lack of time, so two separate HTs were required for uplink and downlink.

A built-in coax choke balun is effected for each band by using several turns of RG-58 coax around the boom element itself.

The 2m beam uses a hairpin match made out of 12-gauge bare copper wire to provide a near 50 ohm impedance, while the 70cm beam matches to 50 ohms without further work.

Final tuning was done using a NanoVNA H4.

In practice, it was clear that the 70 cm beam needs some further work, but an excellent match (> 20 dB return loss) was obtained on the 2m beam. There's always next year!

-*de* Phil, W1PJE

Monday 2m NVARC Information Net

Due to vacation activities of club members and technical issues the N1MNX repeater is having, the weekly NVARC club Information Net will be suspended for the rest of the summer.

Plans to resume will be based on the availability of the repeater and post vacation interest among club members. Please check future issues of the Signal for updates.

[2] https://en.wikipedia.org/wiki/Interferometry

From the Shack
de George, KB1HFT

Not from the Shack, this month, but from Field Day.

I had a blast Sunday morning, working 6m FT8 at Phil, W1PJE's, VHF/UHF station.

While my QSO count was nothing to brag about (21 FT8 contacts over ~3 hours), the reach of Phil's 746 transceiver's 40 watts, and Skip, K1NKR's 3 element beam at 28 feet was surprising. Six meters was hot!

Here's a screenshot of PSKReporter's display of N1NC 6m reception reports over those 3 hours. Sweet!

-*de* George, KB1HFT

Have **YOU** paid your NVARC Dues? See:
http://n1nc.org/Members/Roster
for your renewal month.

Treasurer's Report

Income for June was $60 in membership renewals, $30 in Signal advertising, and $5 for a WAMC certificate. There were no expenditures io June leaving a net balance increase of $95.

Current balances:

General fund	$2,773.82
Community fund	$5,948.25

As of 1 July we have 43 members who are current with their dues and 29 renewals outstanding.

Thank you to those of you who mail your renewals or use PayPal. Renewal months are in the member list on the N1NC.org server at http://n1nc.org/Members/Roster.

To pay membership dues via PayPal see the instructions at http://n1nc.org/Members/dues.

If you are joining ARRL or renewing your membership please consider letting Ralph send in the paperwork for you. The Club will buy the stamp and will get a commission from ARRL. As a Special Service Club, the ARRL expects a majority of Club members to also be ARRL members. Contact Ralph for further information if you need it.

de Ralph, KD1SM

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Join NVARC! Annual membership dues are $15; $20 for a family.

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Contact us on the N1MNX repeater.
442.900 (+), 100Hz
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This newsletter is published monthly. Submissions, corrections and inquiries should be directed to the newsletter editor: editor@n1nc.org.
Articles and graphics in most PC-compatible formats are OK.

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