



NVARC

Signal



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Next Meeting

There is no meeting in August. Meetings will resume in September.

Weekly 2-meter Net

The NVARC Information Net is held Monday nights at 7:30PM local time on the 2m N1MNX repeater – 147.345MHz+100pL.

Northeast
HamXposition
 and ARRL New England Division Convention
 August 22-25, 2024

Treasurer's Report Ralph KD1SM

Income for July was \$30 in membership fees. Expenses were \$116 for the Post Office box renewal (6 months) and \$26 for the outgoing QSL Bureau leaving a net expense of \$112 for the period.

Current balances:

General fund	\$2,886.65
Community fund	\$7,128.25

As of 1 August we have 37 members who are current with their dues and 50 renewals outstanding. Renewal months are in the member list on www.n1nc.org in the Member's area; check yours on <https://www.n1nc.org/Members/Roster> or you may also email me.

Special thank you to those of you who mail your renewals or use PayPal without a reminder.



Board Meeting Notes 1 August 2024

Bruce K1BG asked if there is a way to increase interest for the Monday 2-meter NET. One suggestion is to use EchoLink via the Internet.

John KK1X has requested articles for Club Signal.

Jim N8VIM indicated that the Club YouTube page has currently 180 Subscribers.

John KK1X has suggested that the License Classes may be held at the Grady Building in Ayer, MA.

John KK1X will be doing a painting project for the Pepperell repeater shack.

There are as of yet no one to volunteer as the Club Picnic host.

Bruce K1BG indicated that there will be a bigger number of guest speakers at this year's HamXposition. There also will be a NVARC table at the dinner.

Ralph KD1SM will transfer the Guest Speaker coffee cups to John K1JEB.

John K1JEB will be bringing all remaining Club Member Badges to the September Club Meeting.

Repeater Shack Working Party

The repeater shack on Heald Street is showing its age. John KK1X is trying to organize a few volunteers to help scrape paint and prime the exterior prior to actually painting the building nicely. It's actually not a huge project.

John will be heading to the shack at sporadic times but will try to have the presence of mind to send a note out to the reflector a couple of days prior to heading out.

Public Service Opportunity – you know, in case you have nothing to do in October...

Every fall on the first Saturday of October, Cystic Fibrosis Foundation's Cycle for Life from Holliston and beyond have shown your CF Cycle spirit and commitment to the CF by volunteering for us on the day of the ride. For 2024 the ride will be held on Saturday, October 5. We are very grateful for your past support and hope that you'll join us again this year.

Together we have seen the power of the pedal. The therapies developed thanks to funds raised at our ride are truly making a difference in the lives of our CF Fighters and family. Trikafta is changing people's lives, yet we are keenly aware of its limitations and that many of our friends with CF are still awaiting therapy.

Please mark this on your calendars and if you are able to commit to volunteering this year, please fill out this form so I can get a feel for everyone's capabilities and start planning.

<https://forms.gle/QZPnSa2cjwJPGmCG9>

This year I am looking to staff 5 or 6 SAG vehicles, 4 rest stops and possibly a bicycle to act as the sweep for the 12 mile course

Please share this with anyone else who may be interested and if you have any questions please feel free to reach out to me.

David Gilman, KC1DDH

Coordinator, Course Safety and communications

kc1ddh@gmail.com

President's Letter Bruce K1BG

It's hot! It's early August, and IMO this summer has been a little warmer and more humid than usual. It's a good time to spend in a cool basement or air-conditioned shack looking to make new friends or work a little DX! As is traditionally the case, there is little NVARC activity during the summer, with our next meeting not happening until September.

If you regularly read the Signal, you'll know that I avoid the heat by camping in Truro on Cape Cod every year, and 2024 was no different. I set up my backup rig – an IC-746Pro – field day style. I power the radio with a marine battery and run the radio at 20 watts to avoid recharging. Since the campground I stay at has no hookups, it's electromagnetically very quiet. No switching power supplies or LEDs close by. This year, I used a random length wire for an antenna. Maybe 30 ft vertical and 40 ft horizontal, using an antenna tuner. What great fun!

While there, I go to weekly breakfasts held by the Barnstable Amateur Radio Club. Old friends N1RA, K1ST, and N2RBI attend these gatherings, and it's always great seeing old friends. It's amazing how similar their breakfasts are to our weekly gatherings at Tiny's Restaurant in Ayer (for those of you who don't know, we gather every Saturday between 7:30 and 8AM for breakfast). Yup, Ham Radio is very much a part of my summer enjoyment.

Which brings me back to summer NVARC activities. We are still looking for a host for the summer picnic, and I will make a "last call" for this year. Whoever volunteers gets to host and show everyone their place (and shack if they want to). The club will budget for paper plates, plasticware, cups, condiments, ice, refreshments, etc. The host provides a grill (or gets attendees to bring them).

Club members and guests attending bring the items that they want to cook and consume. The host picks the day (preferably a weekend) and the time. In the past, we have held the picnic sometime during the months of July, August, and September, so there is still time to plan. If you are interested, please let me know.

Northeast HamXposition is coming up fast. By the time you read the Signal it will be two weeks or so away. NVARC past president Skip Youngberg, K1NKR, has done a superb job coordinating all the speaker presentations for HamXposition this year. HamXposition has, IMO, the best presentations of any ham radio related convention that takes place. Skip has also reserved an "NVARC" table at the banquet on Saturday night. When you purchase tickets, reserve yourself a seat. If you have already purchased a ticket and would like to sit at the NVARC table, let me know and I will send you instructions on how to do this. DO NOT MISS HamXposition. For more info, please go to www.hamxposition.org.

NVARC could use several volunteers to help fill in some holes. A manager for the weekly 2 meter net would bring more focus and participation. John, K1JEB, and I have been sharing this, but there are many times when neither one of us is available. I'd like a volunteer to put an EchoLink connection to the N1MNX repeater to make it easier for remote stations to participate. Ralph, KD1SM, has valiantly been our webmaster for 20 years (or more!) and he could use a break. And finally, we need someone to focus on social media. Several club members have put NVARC on Facebook (K1BG) and YouTube (N8VIM), but we need someone to coordinate these activities. Any volunteers? Let me know!

BTW, if you haven't checked out the YouTube page, you really should! Lots of videos of club meetings and activities here. Jim, N8VIM, has done a great job.

Enjoy the rest of the summer and see you at HamXposition!

The Modern Amateur Radio Spectrum in a Global Context: Use or Lose Phil Erickson W1PJE

I have a somewhat unusual circumstance: use of the radio spectrum is not only my hobby but also my profession. As part of the latter, I've been privileged to serve for the past few years on the US National Academies of Sciences, Engineering and Medicine's Committee on Radio Frequencies, or CORF (<https://www.nationalacademies.org/our-work/committee-on-radio-frequencies>). CORF has existed for a long time now, and has a simple but compelling purpose: to consider the needs for radio frequency requirements and interference protection for scientific and engineering research, coordinate the views of U.S. scientists, and act as a channel for representing the interests of U.S. scientists. To keep things on a neutral and factual basis, the work of the committee is permanently embargoed, and its findings restricted until public release of documents. Everything is strictly peer reviewed; I joke that the Academies' president needs to directly sign off on each pencil after external opinions are collected on its vital requirement.

Why am I mentioning CORF here, for a set of enthusiastic amateur radio hobbyists who are not often scientifically using spectrum but merely enjoying it for communications? (Leaving aside HamSCI here; <https://hamsci.org>) Well, Skip K1NKR has made a related and compelling point in several previous talks including at NVARC, but it bears an endless repeat and is precisely aligned with the things I've learned on that committee. To quote from CORF's recent 2023 document, "The radio frequency spectrum is a limited resource for which there is an ever-increasing demand from an expansive range of applications - all the way from commercial, such as mobile phones, to scientific, such as hurricane monitoring from space. Since radio waves do not stop at national borders, international regulation is necessary to ensure effective use of the radio spectrum for all parties."

In that description, I would suggest changing the word "expansive" to "explosive". Wireless use touches every part of societies' increasing technological complexity in a way vastly different now from even the last generation. And as humans move inexorably towards a spacefaring and continuously connected society, the intense pressure continues to mount. Consider: commercial use of space is non linearly increasing at a huge rate. SpaceX's Starlink constellation, providing internet connectivity from low Earth orbit at about 550 km altitude (a bit above the ionospheric F layer), counted 600 satellites in January 2020. As I write this, there are a factor of 10 more: 6000+ active or temporarily inactive Starlink satellites, a bit more than 4 years later (!!), not counting the 400+ which have already reentered and burned up. Those numbers are not typos. The company's current FCC license allows it to reach 12,000 platforms and SpaceX is applying for 45,000 - and it's only one of more than a dozen companies spinning up similar constellations. Furthermore, a recent study published in Science (<https://www.science.org/doi/10.1126/science.adi4639>) added up the number of 'paper satellites', those which have been filed for consideration - although not all will make it as their startup companies fail - and arrived at well over 1,000,000 potential birds in orbit, including one company filing for more than 337,000 satellites at once.

All of those platforms, every single one, need a radio license to communicate telemetry and commands to and from Earth stations at our current level of technology. See what I mean? (To visualize just the SpaceX constellation, I highly recommend spending a few minutes in your favorite web browser with an interactive website (<https://satellitemap.space>) which is continually updated with the latest Starlink orbital elements.) Someday, laser communications may advance to the point where this pressure will drop, but that's a long way off.

The radio licensing infrastructure used across the world, including the US, ultimately is regulated by the International Telecommunication Union, headquartered in Geneva. Every 4 years, a large meeting (the World Radio Conference, or WRC) is held in a varying location to consider adaptations, new bands, or license allocation changes for various uses. This process is glacially slow because agreements there are the same as signing a formal diplomatic treaty - it's a binding contract between governments to regulate spectrum so as not to interfere with each other. There is literally a US delegation with appointees by government decree, and items on the agenda take 8 years or more to even appear for discussion. If you like double-entry bookkeeping, you'll love reading the WRC legal proceedings and findings!

You might think: in a competitive and heavily financed international regulatory world, how does amateur radio survive? Well, for one thing, we have the large advantage of the International Amateur Radio Union or IARU (<https://www.iau.org/>), which has formal standing and has participated in each WRC conference to represent the interests of the worldwide amateur radio community. This is vital to maintain a voice at the table, and IARU has indeed been a linchpin for many key agreements that keep our "National Parks of the Air" clear and usable for the international communications and technical development that we enjoy. Here in the US, we also have the ARRL, which has people dedicated to participating in things like the IARU and who also communicate with the national regulating agencies - specifically FCC (commercial use) and NTIA (government use) - about the value of our US amateur spectral allocations.



However, this leads to my last point, and the one which K1NKR has well stated before. In a world with intense commercial pressures, where new licenses can generate billions of dollars for emerging technology, there are more eyes than ever on how much bands are used in real practice, rather than on paper. Unlike any other radio service in the ITU's Radio Regulations and within national allocations, the protected amateur radio bands don't require you as an individual licensee to specify exactly what carrier frequency, antenna setup, modulation pattern, precise power level, and duty cycle you are using (**). You can innovate and do what you want within the boundaries of the national park. This is so unique that it is not likely to ever be replicated.

But we can lose it forever - if we don't use it. Even the IARU isn't going to have a large voice at that table in Switzerland, surrounded by the heavyweights of industry, if it doesn't have backing data showing that amateur bands are used across their span, rather than within tiny islands of narrowband transmission crowded into 3 kHz of bandwidth. (In case you haven't figured out where I'm going, FT8 is fabulous, but if that's the only mode we use, we're in major spectral occupancy trouble.) Lack of broad use has already had consequences in some areas through the recent loss in 2020 of Amateur Radio access to the 3.3-3.5 GHz band, which is no longer codified in FCC Part 97. Why? Partially because the FCC noticed the absence of traffic and proposed re-allocating 3.45 – 3.55 GHz for “flexible-use service”, auctioning the desirable “mid-band” spectrum (generally defined as between 1 GHz and 6 GHz) to 5G cell phone providers for suburban network coverage. This is moving ahead, inexorably.

So if you've read this far, here's the takeaway: we need active participation in all amateur radio bands from everyone to preserve these National Parks. Get on the air, however you can, in as many modes as you can. Beyond HF, learn how to communicate at VHF, UHF, even S band and higher. (Ask NVARC vice president Les N1SV for tips!) Increase traffic. Make some radio noise, including at this month's Field Day. It's a way – perhaps the primary way - that you, as an individual operator, can fuel the global fight for amateur spectrum use, in the process helping to preserve a hobby that has endured for more than a century and that has trained a huge number of influential technical and visionary people.

The phrase is trite but now has even more substantial weight: See You On The Air.

(**) I'm excluding the ISM bands here - Industrial, Scientific, and Medical - because, while an individual purchasing the device using these bands doesn't need their own license, the manufacturer does, and they must specify precisely the characteristics listed in order to be type approved e.g. by the FCC.

Working POTA

John KK1X

I managed 533 POTA contacts from the field in July. I was out playing radio a total of 16 days, making a total of 17 activations, six of which were "two-fer" spots. I returned to Walden Pond in June to make up for a "skunk", and did the same this month to Cochituate State Park in Natick, and the New England Trail where it runs through Warwick State Forest. I'd come up short in both spots, and in Warwick, back last autumn, I even ended up with a dead battery. Fun times.

I added six new WMAs to my tally, and on an aborted trip to West Virginia, I activated Promised Land State Park, about 30 miles this side of Scranton PA. Peg and I had planned a trip to her home town in West Virginia, each driving our own car. She was going to stay to visit, while I was going for the family reunion and maybe, just maybe, a few opportunities to activate new Parks On The Air locations.

A Thursday departure seemed OK, and I set out hours before Peg, hoping to squeeze in a park, maybe two, and meet up with her in West Virginia. After nearly 50 years, we both know the route pretty well. I got to Promised Land SP and checked with the staff before operating (hey, be nice, right?). I made a dozen or so contacts. Getting back into cell phone range, I learned that Peg had been sick all morning :(and had not left yet.

She took me up on my offer to come back and collect her so I headed back home and on Friday we drove her car to West Virginia. Given that I'd be flying back without even checked baggage, I left all my gear at home and had no further POTA action during that trip.

For the vast majority of my operations, I've been using an Off Center Fed Dipole that I've mentioned before. I also used the 20m Delta Loop a few times. A 20m dipole also worked nicely. As mentioned last month, my one attempt at using a quarter-wave vertical on 20 was pointless. With six radials, I'd expect something to happen. Even with a decent SWR, I was unable to get out.

Field Day 2024 John K1JEB

The weather ranged from hot and humid to cold and rainy. You know – Field Day. The bugs weren't too bad and the propagation was marginal. You know – Field Day.

HF stations for CW and SSB were supplied by Bruce K1BG and John KK1X. Eliot W1MJ provided and supervised the GOTA station, and Les, N1SV and Skip K1NKR supplied the VHF station.

Two 80 meter End Fed Half Wave antennas were supported on a telescoping mast. KK1X set up a 20 meter delta loop just for fun (it worked very well!). Yagi antennas for 6 meters and 2 meters were set up for the VHF station. The GOTA station fielded a Comet CHA-250 vertical antenna.

Charlie AB1ZN provided sustenance for dinner and Sunday breakfast. Fred KB1RGT supplied pizza for lunch while setting up on Saturday, and Jim N8VIM (again) supplied power and inter-station networking for the logging PCs. John KK1X baked untold dozens of cookies and set up Gatorade beverage coolers with water and lemonade.

In all, 1482 contacts were made (741 CW, 43 FT8, 258 SSB) for 1826 points in all.

1680 additional points were earned in a number of bonus categories.

Our point total (4812) is down from prior years but who cares? We had fun. And the bugs weren't too bad...



Bunch of old guys sweating around the picnic table...

Let's see – that's Bruce K1BG, John KK1X, Eliot W1MJ, Charlie AB1ZN, Les N1SV, John K1JEB, Fred KB1RGT, Skip K1NKR, Adam KC1RVK, and Tim KB1ZVR.

N8VIM photo

Nashoba Valley Amateur Radio Club
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Vice President: Les Peters N1SV
Secretary: John Bielefeld K1JEB
Treasurer: Ralph Swick KD1SM

Board Members:
Fred Darling KB1RGT(2024-2025)
John Griswold KK1X (2024-2026)
Jim Hein N8VIM (2024-2027)

N1NC Trustee: Bruce Blain K1BG

Join NVARC! Annual dues are
\$15 individual, \$20 family

Contact us on the N1MNX repeater:
442.900(+) PL100
147.345(+) PL100
53.890(-) PL100

This newsletter is published monthly. Submission,
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