



NEWS FOR AND BY BARS MEMBERS

BARS Billerica Amateur Radio Society

JULY 2023

BARS meetings will continue to be “virtual” until further notice!

We intended to resume in-person club meetings with the April meeting, with the plan to continue to also allow members to attend virtually using Zoom. However, due to insufficient bandwidth with the Wi-Fi at the Chelmsford Bible Church, this “hybrid” meeting style appears to not be possible at this time. So we are going to continue to hold our meetings via Zoom, as we have been doing since the start of the COVID era.

The safety and well-being of our membership is important to us.

--BARS Management.

Notice: The VE Exam Session scheduled for August 10, 2023 has been CANCELED!

A Message from the President By Doug Bruce, N1WRN

Greetings Fellow Members,

I hope everyone is doing well these days and that everyone is staying cool. It's been quite the humid start to summer, as we all found out at Field Day this past weekend!

I want to take the time to say a heartfelt Thank You to everyone who made Field Day 2023 a reality for our Club. The spirit of Field Day started on Friday night as we gathered to begin the set up process. Everyone found their niche in order to get the set up process going in a positive direction.

Mark, KA1INE did an absolutely incredible job as Field Day Chair. His head was spinning in a lot of different directions in the weeks leading up to Field Day, but he managed to keep a cool, organized head and guide the volunteers. The situation was well under control under Mark's leadership all weekend.

For example, there was a bit of a panic around 4:00 PM on Saturday when Mark got a text saying the food people that were lined up were going to bail on us. Mark's quick thinking got us a wonderful Italian meal to feed 25 hungry hams and guests from Stromboli's in Billerica on a moment's notice.

Ken, WO1N, did a tremendous job with station set up and logging coordination. He was the glue that kept all of the operators in sync and making as many QSO's as possible during the event.

Kevin was a gracious host from the Town of Billerica and was very helpful in allowing us to get the most out of the available facilities. We are grateful for his assistance. Ken, W7LSG and Paul, K1VK, were instrumental in getting the antennas built and up on the tower and operational.

Thanks also to Bruce, W1LUS, who brought the 80-40 meter dipole for us to use to make contacts on those bands.

A special thanks as well goes to Tom, K1TW, who brought over a Ham Radio Proclamation from the Governor of Massachusetts, Maura Healy, and Lieutenant Governor, Kim Driscoll, which marked the special day. Everyone present was able to get in a nice group photo with the certificate for the BARS webpage.

Lastly, I wish to thank Kayla, W2IRY, for her expert photography, which captured the essence of what was a great Field Day for our Club.

I could go on and on with the thankyou's and kudos for all who contributed to the success of our event. You all know who you are and your efforts and contributions were greatly appreciated in my corner of the ham radio world. Everyone I talked to learned something about ham radio during their time at Field Day this

year. Some of us had never worked the Magic Band, 6 meters, while some of us experienced the joy and simplicity of FT8 mode operation, while some of us kept plugging away on SSB and CW to get points and contacts for the W1HH stations that were on the air.

73,
Doug
N1WRN

Next BARS Meeting: July 5 at 7:00 PM - Program: "Software-Defined Ham Radio" Presenter: Ria Jairam, N2RJ

Our Guest Speaker at our meeting on Wednesday, July 5, will be Ria Jairam, N2RJ. Ria is from Sussex, New Jersey and is well known and respected around the ham radio community.

Among her many credentials are:

- Life member, ARRL,
- Past Director, Hudson Division, ARRL (2019-2023),
- Member of : Amsat, NJDXA, FRC, YLRL, RSGB, Sussex County ARC, Fair Lawn ARC, RIO DX group,
- FRC Section Manager, Northern NJ, and
- SKCC #2725, 100WAAW #927, BH #155.

Ria's many awards include the following:

- DXCC 327 mixed (329 including deleted),
- 9 bands DXCC (5BDXCC + 30, 17, 12, 160),
- Challenge 1900+ confirmed (2050+ worked), and
- VUCC 388 grids,

as well as many Hudson Division and W2 call area wins in ARRL DX SSB, ARRL DX CW, CQWW SSB, etc.

Her most memorable DXCC QSO: Bouvet 3Y0E. "Weak but workable" - to me, anyway. and Honorable mention - ZD8I - was calling CQ on PSK31 and he answered!

Ria will be speaking to us about a fast upcoming trend in ham radio, SDR radios, and how they are used in ham radio. I am sure this will be a very interesting and informative presentation. Please join us on Wednesday, July 5! You won't want to miss this presentation.



BARS will announce the link to join the Zoom meeting before the meeting, but it will be posted to the BARS email list and should not be shared outside our Club. Are you on the email list? If not, please send an email to bars-subscribe@w1hh.org and then simply reply to the robot response from the server and you will be subscribed.

Observing our Zoom meeting requires only a web browser and headphones/speakers. You do not need a webcam or microphone unless you want to speak or be seen.

Before our meeting date, please go to <https://zoom.us/test> and see if it will function for you. If you have problems, we can try to assist – feel free to ask questions on the BARS email list.

We are looking forward to “seeing” many of you on Wednesday 7/5 here at 1900.

Doug, N1WRN

From the Editor's Desk By Marla Wallace, WA1GSF

It's ALIVE!!! (The HF station saga continues)

The ham community really is a community. Though I've been a ham for over 50 years and have a degree in electrical engineering, it never hurts to ask for help when what you need to do is outside your experience. Back in the day, I acted as a “Elmer” for several new hams. But for my antenna project, I needed help, myself.

Up to now, I have only operated on the VHF bands. Initially, I had a technician class license and back in the day, that license had no privileges on frequencies below 50 MHz. So I never had to deal with antennas bigger than a 5-element 6m beam.

My brother, on the other hand, operates HF with wire antennas and is a mechanical engineer. So I prevailed upon him to help me get an antenna up. He recommended a G5RV, so that's what I bought. It's over 100 feet long and has a 35-foot length of 400 ohm ladder line as a matching section. The antenna fits on my lot, but just barely.

So the other day, Andy (KA1GTT) showed up with eighteen 4-foot fiberglass tent poles (army surplus), three pulleys, assorted hardware, three sections of gas pipe and a sledge hammer. Two and a half hours later, I had an antenna twenty-four feet in the air. He had designed a very professional installation, a far cry from stringing the 'RV between two trees.

The center and each end are on halyards using this pulley:



which is intended for a flagpole but fits nicely on the fiberglass tent pole's narrow end. They're available from Amazon for about \$12; see <https://a.co/d/aNZBlgX>. The halyards are 50-foot lengths of 1/4" nylon (I think) rope, which is the standard cord he uses for his antennas. They are secured at the base with a plastic cleat attached to the tent pole with an aircraft-type hose clamp:



Rather than trying to neatly wrap the cord around the cleat, we just took a turn or two on the cleat and used a wire "baggie tie" to secure the hank of cord.

The instructions for the 'RV call for a choke made from a few turns of the coax. Because of the way the antenna fit on my yard, I wound up using around 10 turns about 8" in diameter, the entirety of a 25' roll of RG-58 coax – much more than required. Here's the (ugly looking) choke:



And this is what the whole installation looks like:



Except for the poles, the antenna is practically invisible.

So the antenna is up, the station is assembled and I have made one contact: KC1FTJ on 40m SSB and also on 10m SSB. I'm well on my way to achieving a Worked All North Chelmsford certificate, LOL.

Next month, I hope to be able to report on some more realistic operation. But the system seems to work. I can transmit on at least a part of all the HF bands and even on the bottom 1 MHz of 6m. Which is unexpected; the 'RV was not intended for 160m or 6m. But, as Andy said, the RF has to go somewhere. (It's probably just heating up the coax and the components in the tuner!)

Stay tuned...

Feature Article: The IT Guy(s) View of Field Day

By Ken Caruso, WO1N



We declare our final score (before Bonus points and Power Multipliers) to be:

Band	Mode	QSOs	PTs	Pt/Q
3.5	CW	60	120	2.0
3.5	LSB	30	30	1.0
7	CW	231	462	2.0
7	LSB	78	78	1.0
14	CW	50	100	2.0
14	FT4	97	194	2.0
14	FT8	90	180	2.0
14	USB	84	84	1.0
21	FT8	1	2	2.0
21	USB	3	3	1.0
50	FT8	28	56	2.0
50	USB	2	2	1.0
Total		754	1311	1.7

Score : 2,622

Three Club members volunteered to set up the HF and VHF stations this year. The ultimate challenge was getting CW keying and all three networked (and a master) up and running for the start. These were previously unseen laptops by myself. We had 10 minutes to spare. That's a win in my book.

Roughly 16 different operators combined to make the 754Q's. We were on for all 24 hours of the event.

	Band					
Operator	3.5	7	14	21	50	Total
AA1NK	0	17	0	0	0	17
K1TWF	0	81	0	0	0	81
K1VK	0	13	0	0	28	41
KA1INE	0	0	2	0	0	2
KB1KTR	0	1	0	0	0	1
KC1NMX	0	21	0	0	0	21
KC1OAV	0	4	0	0	0	4
KC1ONM	0	8	0	0	0	8
KC1RET	0	0	204	4	0	208
KC1SUY	0	6	0	0	0	6
N1HTS	0	0	59	0	0	59
NF1D	0	14	0	0	0	14
W1KQ	0	48	0	0	0	48
W2IRY	0	23	6	0	0	29
WA1SMB	30	0	0	0	0	30
WO1N	60	73	50	0	2	185
Total	90	309	321	4	30	754

Contacts (Qs) by Operator by Band



AA1NK, Nori and Aki tearing up 40M

Our best hour was early Sunday morning, 1100Z-1200Z with a combined 77Qs across the 3 stations.

This was our third year operating from the Billerica Emergency Management site. Here is a comparison:

Year	Q's	Operators	Hours
2019	755	21	24
2022	270	14	16
2023	754	17	24

Recent efforts

The bands were not in good shape this year with 15 and 10 closed and 6M was mostly closed except for a few minutes on Sunday morning. I think we worked locals N1FD, W1BOS and W1OP on 6M FT8 a half a dozen times each just to pass time.

One of my highlights was working with Ed, WA1SMB early Sunday morning. We were on 80M sideband and it was in great shape. Super quiet and most stations were FM quality copy. In that session Ed, a relative newcomer to HF operations, was able to:

- 1) Steal a frequency (mostly, I suspect the other station just abandoned it)
- 2) Fight off two different interlopers and
- 3) Make 30Qs at an 80Q/hr rate.

Nice work, Ed! That was a ton of fun.



Intensity Plus Fun!

The computer network was a bit more unstable than in past years. N1MM+ was able to tolerate many restarts and unstable IP addresses fairly well. However, it was clear we were missing many FT8 and FT4 Qs at the end. It's looking more like if we want to emphasize the digital modes we will need modern laptops with lots of computing power. 10+ year old laptops just don't cut it any more.

Fortunately, WSJT-X created its own ADIF file and we were able to recover all of the Qs. I say "we" but it was mostly Tim, KC1RET and his SQL skills.

Tim's assistance (both during and post event) and enhancements to the overall IT effort were fantastic. The scrolling status screen

Tim set-up was a great attraction for all. Watching us fill in the country/section map was the best.

Finally, a sincere thank you is offered to the Billerica Emergency Management Team for their hospitality and assistance.

73 and hope to see you next year,

Feature Article: Field Day 2023 Wrap-Up By Mark Nelson, KA1INE

Another Field Day is behind us now and it was a great success for the club! We had roughly 45 people attend including operators and visitors and we reached just over 600 QSO's. There were 5 or 6 brave souls who stayed the night and continued to rack up points using CW, SSB and FT8. Although there were some momentary downpours later in the day, we managed to get the antenna's assembled and in the air before the rain came. Assembly of the tower is always a challenge but with many hands working it went up and down without issues.

I want to thank Tim Carter, KC1RET and Eric Johnson, KC1OAV for generously bringing their stations in for the group to use for Field Day. Eric also brought in a "Fox" so we could show members and visitors how to locate hidden transmitters. Setup of the antenna's, the stations and the towers went smoothly so thank you to all who worked hard to make everything happen. There were no accidents or safety issues due to the top notch guidance by Kevin Fallon, KB1KTR who also made the location possible for us to use. Kayla's "girl scout" voice was a hit and made many contacts as we laughed through the night as we grew tired.

Tom Walsh, K1TW also presented BARS with a Proclamation from the Governor of Massachusetts Maura Healey, dedicating June 24th as Amateur radio day! We as hams have a lot of fun with radio but the community in general does recognize it's importance during emergency situations. We should all be proud to be a part of this great hobby.

Some of the highlights of the event:

- The QSO board showing points added real time was a big hit! Definitely have it again next year, thanks Tim!
- Good company and camaraderie was had by all
- Air conditioned sleeping quarters and cots
- 24 hour coffee and donuts!
- Use of the cherry picker made the tower raising much easier
- Italian food from Stromboli's hit the spot and was plentiful

I'd like to thank all the BARS members, friends and CERT members Ed & Jody for helping to make the weekend so much fun and successful. Ken Caruso, WO1N and Tim also configured the computers and will be adding up the scores to be submitted to the ARRL.

This was another fun event for me and I look forward to next year!

The Electronics of Radio

By Marla Wallace, WA1GSF

This month's first question: What are S units?

Answer: S units are a measure of signal strength. Initially, the S meter of a receiver was simply a relative signal strength indicator and the meter in one receiver might read S5 while another model of receiver might read S3 and a third might read S9. In the modern era, the S meter has been specified such that there is a standardized reference power level (different for HF and VHF receivers) and an increase of one S unit is defined as an increase in received power of 6 dB. In other words, for each S unit increase, the received power is higher by a factor of 4. The S unit scale stops at S-9, which is a 36 dB increase in power (around 4,000X). Above that, the S meter is calibrated in dB, hence the signal report of "20 dB over S-9 here, OM" which would be 400,000X the reference power level. See https://en.wikipedia.org/wiki/S_meter for additional information.

This month's second question: How did the convention of using Lower Side Band below 9 MHz and Upper Side Band above 9 MHz come about?

Answer: Early ham gear for SSB used a 9 MHz IF frequency, so the ham bands below 9 MHz (160m, 80m and 40m back then) were "up converted" by mixing a local oscillator with the received signal and using the sum frequency, while the ham bands above 9 MHz were "down converted" by mixing a local oscillator with the received signal and using the difference frequency. See <https://www.mdarc.org/operating-aids/lbs-or-usb>. By switching sidebands, the demodulation circuitry was simplified. Also, note that the 60m band (5.3 MHz) violates this convention: on 60m, USB is used.

You can submit questions for this column to me at the address in the masthead. Until next time...

Strays

Becoming an ARRL member or is your membership up for renewal?

One of the benefits of being an ARRL Affiliated Club is a commission for recruiting new ARRL members and securing timely ARRL member renewals.

Each new ARRL member earns the club a \$15.00 commission. New members are defined as never having been a member or a returning member that has not been a member for two years. Each renewal earns the club a \$5.00 commission. There is no limit to the amount a club can earn in this program.

Multiyear memberships earn only one commission. Life, Family, International, Blind, and Student memberships are not eligible for

a commission. The member will not be eligible to receive a gift or incentive if the club collects a commission on the membership.

Currently at least 82 BARS members are also ARRL members. If we all renewed through the club we could potentially receive \$410 per year from the ARRL.

If you are interested in renewing your ARRL membership through the club fill out the following form [ARRL Affiliated Club Membership Application \(pdf\)](#). Then forward it to W1LUS@hotmail.com

Is your Email address on the FCC site up to date?

§ 97.23 Mailing and email addresses.

Each license grant must show the grantee's correct name, mailing address, and email address. The email address must be an address where the grantee can receive electronic correspondence. Revocation of the station license or suspension of the operator license may result when correspondence from the FCC is returned as undeliverable because the grantee failed to provide the correct email address.

[85 FR 85533, Dec. 29, 2020]

I recommend that you log on to the your FCC Registration at <https://apps.fcc.gov/coresWeb/updateRegistrationPre.do> to make sure that your email address is up to date. Also in the future should you change your home address or your email address be sure to remember to update it on the FCC site.

[The \$35 FCC application fee applies to new, renewal, rule waiver, and modification applications that request a new vanity call sign. The fee will be per application.

Administrative updates, such as a change of name, mailing or email address, and modification applications to upgrade an amateur radio licensee's operator class or to request a sequentially issued call sign, are exempt from fees. – ed.]

--de Bruce, W1LUS

Upgrading Your License? Here's a Resource

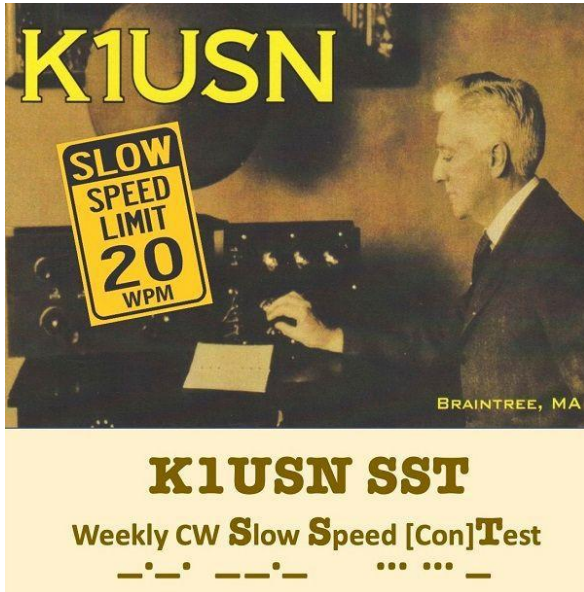
If you are thinking of upgrading your license using one of the Online exam sites. I recommend that you take some free practice exams on HamStudy.org. I recommend it because the software used to generate practice exams on HamStudy.org is the same software that is used to create exams for online tests. By doing that when you take an online upgrade exam the test question format will be familiar. With HamStudy.org practice tests you should use the keyboard to select the answer, A,B,C, or D and not your mouse as that is way online exams are run.

--de Bruce Anderson, W1LUS

Friday and Sunday Night CW Slow Speed Contest

Every Friday and Sunday night, there is a weekly slow-speed CW contest run by the local K1USN guys. This is a good way to polish up your CW skills. See <http://www.k1usn.com/sst.html> for details. Currently, the schedule is:

Fridays 20:00-21:00 UTC (4-5pm EDT) and
Mondays 00:00-01:00 UTC (8-9pm EDT Sunday).



-- de Tom Walsh, K1TW

Making ZOOM available to Elmers

In this time of social distancing we have been using Zoom for our monthly club meetings. I have been thinking that Elmers could also be using Zoom to coach new hams instead of actually going to visit with them. Elmers could perhaps help with programming a new radio with the new ham sharing their computer screen and the Elmer helping to walk them thru the process. An Elmer could have Zoom on their cell phone and show a new ham how their shack was setup. Use your imagination and see how you might use this tool. If you would like to use Zoom for this, contact Bruce, W1LUS@hotmail.com, with a date and a time and a meeting will be setup for you. You may also contact Bruce if you would like training on using Zoom to Elmer someone.

--de Bruce Anderson, W1LUS

Secretary's Reports

from Marla Wallace, WA1GSF, Secretary

BARS General Meeting – June 7

Doug called the meeting to order at 7:05PM.

Mark discussed Field Day plans. We will have two HF stations: 40m and 20/15/10m, plus FT8 on 6m. There will be additional equipment to support demonstrations and a fox hunt. The Chelmsford Boy Scout Troop has been invited. Kayla will be taking pictures.

Club Logo Tee Shirts – we will be offering BARS tee shirts. Details are not quite finalized, but you will order your shirt through the club, and about 2 weeks later it will be ready. We plan to offer most sizes, in three colors (light green, heather gray and tan). The shirt will have the BARS logo on front (in blue, yellow and red) and the club name and the url of our website on the back.

Donna Halper's program started at 7:30PM and ended at 8:40.

There were 21 participants.

Doug adjourned the meeting at 8:45.

There was no BARS Board of Directors Meeting for June

BARS Membership

Our current combined membership is 135. To date 76 members have renewed their 2023 membership. 24 members from 2022 have not yet renewed their membership.

Anyone with a question about their renewal status can email me at W1LUS@hotmail.com to get your current status.

from Bruce Anderson, W1LUS, Treasurer

2023 BARS Member Dues

A \$15 annual BARS membership now runs from January 1st and expires on December 31st. Any renewal or new membership made after September 1 will be valid until December 31st of the next year. Memberships allow us to

- Pay our bills;
- maintain our great web page;
- fund field day;
- and bring the membership a great variety of informative meetings and speakers.

Treasurers Report for July 2023

We are accepting dues for the current year. For 2023 dues will remain at \$15.

Dues can be paid several ways:

- Via bank to bank transfer with Zelle, Venmo, PayPal, etc. by sending \$15 to bars.dues@outlook.com.
- With credit card by using the Join/Renewal membership form on the W1HH.org website
- With cash or check by mailing \$15 to Billerica ARS, PO BOX 832, Nutting Lake, MA 01856

In June, our expenses were:

- Zoom \$16.99,
- PayPal \$1.01.

We had 1 renewal for an income of \$15.00 and one ARRL renewal for \$5.00. We now have \$1858.46 in the Bank and \$323.91 in our PayPal account for a total of \$2182.37. Food expenses for Field Day were \$378.09. The change in Bank balance will show in the July Treasurer's report.

Bruce Anderson
W1LUS

BARS Needs You!!!

We are looking for a few good hams to act as net control on the regularly scheduled Wednesday night nets! All it takes is one night a month; if you are interested contact Doug, N1WRN.

Also, the club needs volunteers for light tasks of ~ 1 hour a month. Are you able to pitch in? Contact Doug Bruce, N1WRN.

Wednesday Night Net

Join us on the Westford 146.955 Repeater for the weekly BARS net each Wednesday at 8:00 PM (**except on the first Wednesday of the month which is club meeting night**). *Note: Thanks to the Westford Police Amateur Radio Team (PART) for their generous act of making their repeater available to us.*

Repeater info:

WB1GOF
146.955 MHz
-600 kHz (normal) offset
Encode CTCSS 74.4 Hz

Reminder: "kerchunking" the repeater is not only impolite, it's illegal. It constitutes an unidentified transmission. If you need to check that you're making the repeater, say something like "This is <your call> standing by on the frequency." Thanks for your courtesy.

Club Meetings

**Club meetings are being held via Zoom until further notice. A link will be sent via the BARS email reflector to all currently paid up members. **

Club meetings are held on the first Wednesday of the month at 7 PM Eastern time.

VE Sessions

Our VE sessions are again being held in-person at the Chelmsford Bible Church. Pre-registration for our in-person exams is suggested. Contact w1lus@hotmail.com for registration information.

VE sessions are held every month on the 2nd Thursday at 7:00 PM at Chelmsford Bible Church, 128 Gorham St., Chelmsford MA. Park in back and enter by rear door. [Chelmsford Bible Church Hall, 128 Gorham St, Rear Door, Chelmsford MA 01824-3220 \(map\)](#)

June VE Session Report

On June 8th, two people showed up at our VE exam session. Two new Technicians were created.

For the second time, we used ExamTools to record the exam session and to send the results to the ARRL. I want to encourage all of BARS VE to become qualified to conduct ExamTools.org based exam sessions. These are still Fully ARRL exams. Just using online tools instead of a lot of paper. Please sign up at ExamTools.org.

Our next exam session will be at the Chelmsford Bible Church on July 13 at 7:00 PM. You may now pre-register for BARS VE exams at <https://HamStudy.org>.

Notice: The August 10, 2023 VE exam has been CANCELED!

Thanks to Ken WO1N and Bill W1ZL for their help in running the session.

--de Bruce Anderson, W1LUS

Club Breakfast every Saturday

On Saturday mornings around 8:30AM, have a virtual Zoom breakfast session (link provided in email if you subscribe).

We also meet in-person weekly at 8:15AM for a casual, social breakfast at Stelio's restaurant.

[Stelio's Family Restaurant, Billerica, MA](#)

Future Meetings

The 8/2 meeting will be held “virtually” via Zoom.

Subscribe to the BARS Mailing List

To subscribe to the BARS email list, send a blank email to bars-subscribe@w1hh.org and watch for an automated reply. Note that bars-subscribe is all one word.

Reply to that message from the list server and you are then subscribed.

To post to the list, address your email to bars@w1hh.org

July Get-on-the-Air Suggestions from Scott Ginsburg, K10A

BARS is a “get-on-the-air” (GOTA) club. We encourage members to participate in the varied events on HF and VHF.

Here are the popular suggestions for this month:

<u>Date</u>	<u>Event</u>
Jul 8-9	IARU HF World Championship ** http://www.arrl.org/iaru-hf-world-championship
Jul 15-16	North American QSO Party, RTTY https://www.ncjweb.com/NAQP-Rules.pdf
Jul 29-30	RSGB IOTA Contest https://www.rsgbcc.org/hf/rules/2023/riota.shtml

** Top recommendation for this month

Recurring Events – visit webpage for exact times and dates:

K1USN Slow Speed Test - Every Friday 20:00 UTC / Every Monday 00:00 UTC <http://www.k1usn.com/sst.html>

Straight Key Century Club (SKCC) Weekend Sprintathon – the Saturday following the 6th of every month at 1200 UTC
http://www.skccgroup.com/operating_activities/weekend_sprintathon

Details on each contest above and more events can be found every week on the WA7BNM contest calendar at:
<https://www.contestcalendar.com/weeklycont.php?mode=current&week=current>

BARS Leadership Team

OFFICERS:

President: Doug Bruce, N1WRN
Vice President: Mark Nelson, KA1INE
Treasurer: Bruce Anderson, W1LUS
Secretary: Marla Wallace, WA1GSF
BoD: Don Melanson, W1DM
BoD: Bill Poulin, WZ1L
Ex Officio: Gary Frascarelli, W1GFF

VOLUNTEERS:

Net Coordinator: Doug Bruce, N1WRN
Newsletter Editor: Marla Wallace, WA1GSF
New Member Outreach: John Fisher, KC1FTJ
Field Day Chair: Mark Nelson, KA1INE