

ZERO BEAT

Southeastern Massachusetts Amateur Radio Association, Inc. 54 Donald Street South Dartmouth, MA 02748



Since 1932

Volume 49 Issue 12

SEMARA-W1AEC

December 2013

Elections - 2014

Slate of 2014 Nominees

President:

Marcel L. Dumont, W1MLD

Vice-President:

Joseph E. Krisnosky, Jr., N1IXC

Secretary:

Marc M. Dumont, KB1ODE

Treasurer:

Michael J. McDonald, KB1NB

Board of Directors (3):

David G. Dean, K1JGV David A. DeCosta, KD1YZ Jean Pierre Chiron AG1Y

Trustee (1) [5 Year Term; Chairman, 2018]:

Martin G. Jordan, KA1YFV

Nominations

The November business meeting set this slate of nominees for the election of 2014 *Officers, Board of Directors*, and a *Trustee*.

SEMARA Election Day is *Thursday*, *December 5*, *2013*. Voting will take place at the end of the business meeting.

Nominations are accepted at the meeting before the election is held. Nominees must be in attendence and be members of SEMARA. For trustee, the nominee must have been a member of SEMARA for at least five years.



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508-997-7070

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2013 SEMARA OFFICERS

President

Marcel Dumont—W1MLD

Vice President

Joe Krisnowsky—N1IXC

Secretary

Marc Dumont—KB1ODE

Treasurer

Mike McDonald—KB1NB

Directors:

Andy Reuter—WA1FNM Dave Dean—K1JGV

Eric Pierce—N1WCO

Trustees: (year term is up)
John Walsh—WA1LSH (2013) (ch)
Louis Mester—W1CH (2014)
Joe Krisnowsky—N1IXC (2015)
Dick Halliwell—K1AHA (2016)

Brad Paiva—W1BEP (2017)

STANDING COMMITTEES

Building and Grounds

Marty Jordan—KA1YFV

Tony Lessa—KB1UAM

Scholarship

Sonny Eddleston—K1USW – chair Chuck Moszczenski—KB1FRL Alan Dulong—WB1FQP

Joe Krisnowsky—N1IXC

Technical/Repeater/Web VACANT —Technical (chair): Rick Cabral—W1RJC: Repeater Rick Cabral—W1RJC: Web

SPECIAL COMMITTEES

Activities VACANT

ARES/SKYWARN/RACES(ACS) Ed Caron—KA1RSY

> QSL Manager John Nery—WA1ESO

Radio Events Bob Kelley—K1KVV

Tech Talk Brad Paiva—W1BEP

It seems to me ... de Bob - K1KVV, Editor



that some of us really enjoy our hobby...

What Can You Do With a Ham Radio License? *

There are so many things, it's a difficult question to answer, but here's some ideas. Can you think of some others?

- 1. Talk to people in foreign countries either by ionospheric propagation or via amateur satellites.
- 2. Talk to people (both local and far away) on your drive to work.
- 3. Help in emergencies by providing communications.
- 4. Provide communications in parades or walkathons.
- 5. Help other people become hams.
- 6. Hook your computer to your radio and communicate by computers.
- 7. Collect QSL cards (cards from other hams) from all over the United States and foreign countries and receive awards.
- 8. Participate in contests or Field Day events.
- 9. Provide radio services to your local Civil Defense organization thru ARES (Amateur Radio Emergency Service) or RACES (Radio Amateur Civil Emergency Service).
- 10. Aid members of the US military by joining MARS (Military Affiliate Radio System).
- 11. Participate in transmitter hunt games and maybe build your own direction-finding equipment.
- 12. Have someone to talk to on those sleepless nights at home.
- 13. Receive weather pictures via satellites.
- 14. Build radios, antennas, learn some electronics and radio theory.
- 15. Send and receive live television pictures.
- * Taken from GroundWave, Nov. 2013, Ottawa Amateur Radio Club newsletter

Bring this up on our evening nets. When *160m LSB* is too noisy, the gang migrates to *6m USB*.

Just when you think you've seen it all, the *6m net* now meets on 50.200 MHz *using FM*, not USB. Why? Because it's quieter!

Interested in re-starting the old *2m evening net*? Let's hear your.ideas.

POINT TO PONDER

"As we express our gratitude we must never forget that the highest appreciation is not to utter words, but to live by them."

~John F. Kennedy

Come One – Come All

Let's make the Holidays Really Joyous this Year



Your Southeastern Massachusetts Amateur Radio
Association is sponsoring a POT LUCK
Christmas Family Get Together

Meet some new friends and/or renew some old ones . . .

SEMARA is the place (54 Donald St., Dartmouth) and **December 12th, 2013** is the date. It's **POT LUCK** so bring your favorite family dish to share

This is a Family Get Together . . . all are welcome

Time: Doors Open6:30 PM

For those who want to participate; there will be a gift exchange! Maximum value is \$5.00. Bring One To Get One.



Coffee and Sodas are Provided. There will be Door Prizes

Please RSVP to n1tf@live.com

Tidbits





ELECTION OF NEW MEMBERS

At the November 7, 2013 business meeting, **Brian Chase** (no call) was accepted as a life member.

Welcome to the club!



NEXT VE SESSION @ SEMARA



December 7, 2013 Clubhouse @ 10:30 AM Contact: Fred Bacon-N1TF exams [at] semara [dot] org 508-748-0047

50/50 RAFFLE

There was no 50/50 raffle November 7.

LOCAL NETS

Everyone is welcome to check in!

147.000+ (PL 67.0 Hz) (FM) — Massachusetts RAC-ES/ACS Drill (Region 2, Sector A) is held on the first Monday of the month at 7:30 PM.

50.200 MHz (FM) — Net is held Wednesdays at 8:30 PM. **Paul, K1PGS** (E. Freetown) is net control.

28.490 MHz (USB) — Net is held Tuesdays at 8:30 PM. **Brad, W1BEP** (E. Freetown) is net control.

1875 kHz (LSB) Net is held Fridays at 7 PM. **Dave, K1JGV** (S. Dartmouth) is net control with back up net control **Dick, K1AHA** (S.Dartmouth).

If QRN is too high, look for them on **50.200 MHz** (USB)

LOCAL REPEATER DIRECTORIES

See http://www.nerepeaters.com/se.htm

144 (http://www.nerepeaters.com/2m.htm)

222 (http://www.nerepeaters.com/222.htm)

440 (http://www.nerepeaters.com/440.htm)

902 (http://www.nerepeaters.com/902.htm)

Club Numbers

GPS Coordinates:

Lat. N 41° 36.795' — Long. W 070° 56.550'

Maidenhead Grid Coordinates: FN41mo

For FISTS Sprints: FISTS #10555

CLUB ACTIVITIES

BUSINESS MEETING

First THURSDAY of the month @ 7 PM

Sunday RAGCHEW 7-10 AM

Thursday COFFEE CROWD

Dunkin Donuts - Dartmouth & Garfield
Dartmouth @ 1 PM

Friday LUNCH BUNCH

Leave for LUNCH at 12 noon

Gather @ clubhouse before 12

Call on the repeater, if you wll be delayed or you can phone the club: 508-997-7070

Official Meeting Minutes



November 7, 2013

The meeting was called to order at 7:06 PM by the President, Marcel (W1MLD) with salute to the flag. The roll was called with 17 members and 1 guest present.

SECRETARY'S REPORT

A motion was made, seconded and unanimously voted to dispense reading the Secretary's Report and accept as posted on the board and in Zero Beat.

TREASURER'S REPORT

In the absence of the Treasurer, there was no Treasurer's Report

STANDING COMMITTEES

Technical

It was mentioned that the IRLP node was down. After contacting **Rick** (W1RJC) by phone, **Chris** (W1EAV) advised that the node would be repaired that night.

SPECIAL COMMITTEES

ARES, RACES, SKYWARN

Joe (N1IXC) advised that the ARES and MARS drills on HF and VHF worked well.

RATIFICATION OF NEW MEMBERS

An application for membership was received from **Brian Chase** (no call), who was present at the meeting. A motion was made, seconded and unanimously approved to accept Brian as a Life Member.

OLD BUSINESS

Fred (N1TF) began discussion regarding a Christmas Party and proposed a potluck dinner on Thursday, December 12. After discussion it was decided to have the party as discussed.

Marcel (W1MLD) advised that he had spoken with Al Costelo regarding the building addition. An agreement was made to offer SEMARA the building installed on our foundation for the amount of \$8000.00. The project would then require an architect to draw specifications for

the foundation and interface with the existing building. A motion was made and seconded to accept the offer to purchase the building from NETCOM to be moved on our foundation for the amount of \$8000.00. The motion was approved unanimously.

NEW BUSINESS

No new business.

FOR THE GOOD OF THE CLUB

It was mentioned that the former Fairhaven (145.49) Mhz) repeater was permanently moving from Fairhaven to Dartmouth in the near future.

It was also mentioned during the meeting that, on Saturday, November 30 at 10:00 AM. a group of Boy Scouts is coming to tour SEMARA, and that volunteers would be needed to operate radios during that time.

NOMINATIONS AND VOTING

A motion was made, seconded and unanimously voted to open nominations for elected positions during the meeting, closing this evening and re-opening prior to the vote at the next meeting for further nominations. Nominations for this evening are as follows:

- President: Marcel Dumont (W1MLD)
- Vice President: **Joseph Krisnosky** (N1IXC)
- Secretary: Marc Dumont (KB1ODE)
- Treasurer: Michael McDonald (KB1NB)
- Trustee: Marty Jordan (KA1YFV)
- Directors: David Dean (K1JGV), David DeCosta (KD1YZ, Jean Pierre Chiron (AG1Y)

A motion was made, seconded and unanimously voted to close nominations until the following meeting.

ADJOURNMENT

A motion was made, seconded and unanimously voted to adjourn the meeting at 7:50 PM.

20, 0001Z-Jan 1, 2359Z

Respectfully Submitted,

1.8-28/50,144

Marc M. Dumont (KB1ODE), Secretary

More Dec. Radio Activity

7, 0000Z-7, 2359Z 1.8 - 28TARA RTTY Melee Digital n2ty.org/seasons/

tara_melee_rules.html

8,0000Z-8,2359Z **Ten Meter RTTY Contest** Digital rttycontesting.com

11,0000Z-11,0200Z -/50-222 **Meteor Scatter Contest** Digital meteorscatter.org 11.1300Z-See website **CWops Mini-CWT Test** CW cwops.org/onair.html 14, 0000Z-15, 2359Z Ph.CW 28MHz SWL Contest 28

Lighthouse Xmas Lights QSO Pty all arlhs.com 1.8-28 28, 0000Z-28, 2359Z 1.8-28/50.144 **RAC Winter Contest** rac.ca/en/rac/programmes/contests Jan 1, 0000Z-Jan 1, 2400Z 3.5 - 28/50 +**ARRL Straight Key Night CW** swl.veron.nl/swlcontest.htm arrl.org/contests

All Else is Just DC... by Rick-W2RG **Battery Power**

Batteries have proved to be so practical in my rover operations that over the past 25 years or so I have also gradually adapted my home station almost entirely to battery power.



By "batteries," I mean lead-acid batteries. And specifically deep-cycle batteries like those shown in the photo. They're available in a good range of sizes from Interstate Batteries, Batteries Plus, Walmart, Sears, and other places. For the ham shack, I use a 90 ampere-hour (A-h), a 70 A-h, and a 35 A-h battery in parallel. plug-in power supply. I like the ad-When I need a battery temporarily somewhere else, such as to go roving, I can just unplug one and take it where it's needed.

One feature hidden inside these battery boxes is the fuses. Good fuses are essential. I've used several kinds and can recommend the two types shown in the photos.





The cartridge fuses are available in automotive supply stores like AutoZone. They come in a range of current ratings. A key feature is that they're designed for 28 to 32 volts. Don't try the similar cartridge fuses meant for houses or industrial equipment, which you'll find at Lowe's etc. They're designed for 120 V and higher, and they have surprisingly high resistances and, therefore, high voltage drops. Get the automotive-type

cartridges!

Or go for in-line fuses. These hold automotive blade-type fuses, which are widely available, inexpensive, and easy to use. I've seen the fuse holders at AutoZone, Lowe's, and many hamfests.

Keeping the batteries charged is a breeze. For many years, I just used a small home-made power supply that would deliver about 4 A and hooked it in parallel to the batteries. Set the power supply voltage to 13.2 - 13.6 V and forget it. When the batteries get discharged a bit after several hours of operating, the power supply delivers up to 4 A and brings the batteries back to full charge overnight. When the battery voltage reaches the same 13.6 V as the power supply, the charging current drops to a low value and the batteries loaf along on a "float charge." Simple and automatic. No fancy circuitry required.

Recently, I've been keeping the batteries charged using solar panels, so my station is off the grid, except for rare use of a 1 kW HF amplifier. But that's material for a future Zero Beat article.

I've never bought a big high-current, vantages batteries offer:

- Pure DC. No ripple, no hum, no spikes, no surges, no RFI to other electronic devices.
- Very high peak current, if needed. The batteries shown in the photo can easily supply 100 amps.
- Graceful failure. You won't find that you're suddenly off the air because your power supply is dead. A battery, or a bank of batteries, slowly loses capacity after years of service. It doesn't abruptly stop providing all power.
- Emergency power. When Nstar is down, I'm still on the air.

Of course, they do have their disadvantages. Mainly, they don't last forever. A properly maintained deep-cycle leadacid battery should last 8 to 10 years. Also, they normally provide slightly less voltage than a plug-in supply, and the power output of most rigs is proportional to the voltage squared. But when you

calculate the difference in decibels, it's negligible.





I find it reassuring to monitor the charge level (battery voltage) and the current drain from the batteries. A couple of cheap Radio Shack panel meters do the job. Of course, they do need a little extra circuitry in the form of a small fixed resistor and a potentiometer to calibrate the voltage reading and a shunt (the air wound coil) for the current meter.



Note the Anderson Power Poles. I use them everywhere. They're a good-quality connector that is cheap, easy to find, and easy to use. They also make it easy to distribute the power to many different devices. I've mounted several of them in parallel on blocks of plastic to serve as simple, neat distribution points. A classier system would use something like Rig Runners, which also have fuses for each line, but this is cheap and does the job.

There's much more to be said about batteries and battery operations. But just making things work well is really quite simple. I think battery power is a great way to go for fixed, portable, and roving stations. It's pretty cool to be operating on emergency power 100% of the time. The next time you're thinking of buying a plug-in power supply, think batteries.



SKYWARN Recognition Day 2013

Fri., December 6, 7 PM thru Sat., December 7, 7 PM

This year's SRD happens to occur on The National Pearl Harbor
Remembrance Day. In an effort to commemorate the day we are asking offices that from 18z-19z to say,
"Conditions at Pearl Harbor on December 7, 1941, were mostly sunny and 75 degrees" instead of the local weather in the exchange.

The National Weather Service in Taunton Amateur Radio Station **WX1BOX** will be active for **SKYWARN** *Recognition Day 2013*. In addition, for the seventh straight year, the National Weather Service Gray, Maine Office will be using callsign **WX1GYX**. The Boston Amateur Radio Club will also be active as they have been over the past several years at the NWS Blue Hill Observatory using callsign **W1BOS** from 9 AM-3 PM Sat., December 7, 2013.

This will be the 15th year of SKYWARN Recognition Day and it's anticipated that over 100 NWS Forecast Offices will be participating this year. A Web link to information on *SKYWARN Recognition Day* can be found at hamradio.noaa.gov.

This is the schedule of repeaters and simplex that will be use odn Saturday at WX1BOX. We hope you will be able to work WX1BOX. If you don't hear us, feel free to call WX1BOX; and if the office is monitoring, a response will be given. When you make contact, give your current sky condition and temperature as required. this is the tentative schedule of operations:

Friday December 6th, 2013

700-7:30 PM 146.970 Paxton(PL 114.8) 7:30-8:00 PM 147.180-Bridgewater(PL 67.0) 8:00-8:30 PM 147.000-Dartmouth(PL 67.0) 8:30-9:00 PM 146.955-Westford(PL 74.4) 9:00-9:30 PM 146.79-Vernon, CT(PL 82.5) (linked via IRLP.) 9:30-10:00 PM 147.225-Killingly, CT(PL 156.7) 10:00-10:30 PM 146.760-Scituate, RI(PL 67.0)

10:30-11:00 PM 145.470-Danvers, MA(PL 136.5)

11:00-11:30 PM 146.955-Barnstable, MA(PL 88.5) or 147.375-Falmouth(PL 110.9)

11:30 PM-12:00 AM 146.640-Waltham

Saturday December 7th, 2013

7:00-8:30 AM 146.595 *Simplex* 8:30-9:00 AM Litchfield County Linked System via **KB1AEV**system 9:00-9:30 AM 145.230-Boston(PL 88.5)

9:00-9:30 AM 145.230-Boston(PL 88.5)

9:30-10:00 AM 146.640-Waltham

10:00-11:00 AM **WX1BOX** participating in the *Eastern Massachusetts Hospital Net* 11:00-11:30 AM 146.895-Walpole(PL 123.0)

11:30-12:00 PM 147.225-Killingly, CT(PL 156.7)

12:00-12:30 PM 145.470-Danvers(PL 136.5) 12:30-100 PM: 146.790-Vernon, CT(Linked via IRLP.)

1:00-1:30 PM 146.595 Simplex

1:30-2:00 PM 145.37-Gardner/145.45-Fitchburg/147.39 via IRLP 9122

2:00-2:30 PM 146.685-Plymouth(PL 82.5)

2:30-3:00 PM 145.130-Gloucester(PL 107.2) 3:00-3:30 PM 146.955-Barnstable (PL 88.5)

or 147.375-Falmouth(PL 110.9)

3:30-4:00 PM 146.955-Westford(PL 74.4) 4:00-4:30 PM 146.970-Paxton(PL 114.8)

4:30-5:00 PM 147.165-Exeter, RI(PL 67.0)

5:00-5:30 PM 146.760-Scituate, RI(PL 67.0) 5:30-6:00 PM 147.000-Fairhaven(PL 67.0)

6:00-6:30 PM 147.180-Bridgewater(PL

67.0)

6:30-7:00 PM 449.375-Pack Monadnock, NH(PL 88.5)

We will also use **6-Meter FM** for the first time during SRD at NWS Taunton. The setup is a Vertical Antenna through an Icom IC-706 Radio.

Saturday December 7, 2013

12:30-12:45 PM 53.31-Mt Wachusett, MA 12:45-1:00 PM 53.07-Hopkinton MA 1:00-1:15 PM 51.74-Hopkinton, MA 1:15-1:30 PM 53.01-Barnstable, MA 1:15-1:30 PM 53.17-Portsmouth, RI (KA1RCI)

1:30-1:45 PM 53.27-Framingham, MA 1:45-2:00 PM 53.81-Marlborough, MA 2:00-2:15 PM 53.830-Fitchburg, MA 2:15-2:30 PM 52.525-*Simplex*

EchoLink/IRLP operations during SKYWARN Recognition Day on the *WX_TALK* Echolink Conference node: 7203/IRLP 9212 system.

Time (UTC) NWS Callsign

0000-0100:	WX0GLD
0100-0200:	WX1GYX
0200-0300:	WX4MLB
0300-0400:	WOABR
0400-0500:	WX1BOX
0500-0600:	WX9GRB
0600-0700:	WX4HUN
0700-0800:	Open
0800-0900:	KL7FWX
0900-1000:	KL7FWX
1000-1100:	KL7FWX
1100-1200:	WX4HUN
1200-1300:	W7NWS
1300-1400:	KL7FWX
1400-1500:	WX7SLC
1500-1530:	WX1BOX
1530-1600:	N0F
1600-1700:	WX4NC
1700-1800:	N0NWS
1800-1900:	WX6MTR
1900-2000:	K0MPX
2000-2100:	WX4MLB
2100-2300:	WX4NHC
2300-2400:	WX6NWS

For more information on *VoIP Technical Configuration Tips*, please go to our web site at http://

www.voipwx.net where we have a link to that information on the main menu of the web site. This announcement will also be on the web site.

Thanks to all for their support!

Robert Macedo (KD1CY)

ARES SKYWARN Coordinator Eastern Massachusetts ARES Section Emergency Coordinator



Some Radio Activity

http://www.arrl.org/contest-calendar

December ARRL Contests

arrl.org/contests

ARRL 160 Meter Contest

Friday, Dec.6, 2200Z - Sunday, Dec.8, 1559Z

ARRL 10 Meter Contest

Saturday, Dec. 14, 0000Z - Sunday, Dec. 15, 2359Z

Rookie Roundup

Sunday, Dec. 22, 1800Z - 2359Z.

http://www.arrl.org/special-event-stations

The First Pilgrim Landing at Plymouth Nov 30-Dec 1, 1300Z-1900Z, WA1NPO, Plymouth, MA. 18.160 14.260 **7.240 3.860** EchoLink: WA1NPO-R, IRLP:8691. Certificate & QSL. Whitman ARC, PO Box 48, Whitman, MA 02382. Times are daily. www.wa1npo.org

SKYWARN Recognition Day Dec 6-Dec 7, 2300Z-2300Z, WX9LOT, Romeoville, IL. 146.520 14.332 7.226 3.870. OSL. National Weather Service Amateur Radio club. 333 West University Dr, Romeoville, IL 60446. www.crh.noaa.gov/lot

Pearl Harbor Dec 7-Dec 8, 1000Z-1630Z, N4WIS, Virginia Beach, VA. 14.264 7.264. QSL. N4WIS, USS Wisconsin Radio Club, PO Box 6682, Virginia Beach, VA 23456. www.n4wis.org/N4WIS/Events.html

Pearl Harbor Commemoration Dec 7-Dec 8, 1300Z-2200Z, W2W, Baltimore, MD. 14.241 14.041 7.241 7.041. Certificate & QSL. W2W – Special Event Station, PO Box 1693, MS 4015, Baltimore, MD 21203. Times are daily.

Pearl Harbor Remembrance Day Dec 14, 1700Z-2359Z, NI6IW, San Diego, CA. 14.320 7.250 SSB; 14.070 PSK31; DSTAR wide area reflectors. QSL. USS Midway Museum Radio Room, 910 N Harbor Dr, San Diego, CA 92101.

Christmas in Bethlehem Dec 18-Dec 24, 1500Z-2300Z, KC5OUR, Belen, NM. 28.483 21.283 14.283 7.283. OSL. Valencia County ARA, PO Box 268, Peralta, NM 87042. www.kc5our.com

Christmas In Bethlehem Dec 21, 1400Z-2200Z, W3C. Bethlehem, MD. 14.255 14.055 7.255 7.055. QSL. Easton Amateur Radio Society, PO Box 311, Easton, MD 21601. All QSLs will be postmarked Bethlehem.

US Claims Midway Island in 1867 Dec 28, 1700Z-2359Z, **NI6IW**, San Diego, CA, SSB **14.320 7.250** SSB: PSK31 14.070; DSTAR wide area reflectors. QSL. USS MIDWAY (CV-41) Museum Radio Room, 910 N Harbor Dr. San Diego, CA 92101.

Ham Radio University / NLI Section Convention Dec 29 -Jan 5, 0000Z-1800Z, W2V, Bethpage, NY. Great South Bay Amateur Radio Club. 21.260 18.130 14.260 7.260; digital and CW. QSL. Phil Lewis, N2MUN, 22 Belle Terre W, Lindenhurst, NY 11757. QSL with SASE to N2MUN, W2 QSL buro or LoTW. hamradiouniversity.org

Local VE Sessions

http://www.arrl.org/

find-an-amateur-radio-license-exam-session

Walk-ins permitted unless otherwise noted.

SEMARA - 10:30 AM

December 7th

Fred Bacon-N1TF

exams [at] semara [dot] org

508-748-0047

December 16th

Fall River, MA – 7:00 PM

Skip Denault-KB1CNB

skip [at] newtestamentschool [dot] org

774-644-3469

Falmouth, MA – 9:00 AM

December 14th

W. Ben Fleck-K2LYE

BenFleck [at] verizon [dot] net

508-540-2583

Middletown, RI – 9:00 AM

December 14th

Jack P. Garforth-K11

k1ig [at] verizon [dot]net

(401) 683-2250

Slatersville, RI – 9:00 AM

December 28th

Robert E Jones-WB1P

bgjones49 [at] arrl [dot] net

401-333-4787

Coming FLEAS & FESTS

www.arrl.org/hamfests/search

2014

15 Feb Marlborough MA Algonquin ARC k1em.org

22 Feb **S** Burlington VT **HAM-CON**

Mitch W1SJ 802 879 6589

15 Mar **Dayville CT**

ECARA Paul KE1LI 860 928 5147

16 Mar **Southington CT**

SARA Flea Market

www.chetbacon.com/flea2013.pdf

28,29 Mar Lewiston ME

AARC ME Conv

27 Apr Middletown NY

Ivan N1OXA 207 784 0350

OCARA

Neil AC2O 914 490 2001 F

2,3 May **Deerfield NH**

NEARfest XV Mike K1TWF 978 250 1235

17 July **Hartford CT**

ARRL Nat'l Centennial Conv

ARRL2014.org