# KBARA GAZETTE

Summer, 2010 Kamiak Butte Amateur Repeater Association

**KBARA, PO Box 30801, Spokane WA 99223-3013**

## KBARA Campout and Annual Meeting-
### Thursday July 15th through Sunday the 18th

This summer, the group will be camping at Kettle Falls on Lake Roosevelt-Columbia River. This is just a short drive north of Colville. There is a Group Shelter, water & electricity on site. The cost will be about $5 per day with lots of room for motor homes, trailers & tents. Sorry, no hookups. This is a general invitation to all Radio Clubs in the area to join us for this fun filled weekend. Talk-in frequency will be the 147.36 repeater.

Are you ready to take the test or up-grade your license? W5YI will be testing at 11:00, Saturday. Please contact Betsy, N7WRQ (509) 448-5821 if you would like to test.

The annual meeting will start at 2:00pm on Saturday. The meeting is open to all & helps the officers & owners know how to improve the KBARA system.

The camp is about 80 miles north of Spokane on the Columbia River. You will need to drive North on Hwy 395 past Colville to Kettle Falls. Keep headed North on US395 about 3 more miles. Just before crossing the Columbia River, turn left (west) on Boise Rd. The group site is 2.5 miles from Hwy 395. You will drive past the Kettle Falls camp site. Turn right when you see the sign for the Locust Grove Group Site.

Campers are welcome for any or all 3 nights or just come Saturday for the food & fun.

Group breakfast will start at 8:00 on Saturday hosted by the club. The potluck dinner will be about 4:30. Bring your favorite food to share with the group. Plates & utensils will be provided.

**To reserve your spot, or for more information, contact Mark Van Winkle at K7HPT@ARRL.NET (509) 993-1399 or on the KBARA repeater system.**

- Accessible Group Shelters
- Accessible Picnic Area
- Accessible Pit Restroom
- Administrative Office
- Amphitheater
- Barrier-Free Facilities
- Bbq Grills
- Beach
- Bike Riding
- Biking
- Bird Watching
- Boat Ramp
- Boat Rental
- Boat Slip Rentals
- Boat Trailer Park Lot
- Boating
- Campfire Programs
- Campground Host
- Campground Store
- Canoeing
- Courtesy Dock
- Covered Group Structure
- Group Fire Ring
- Group Shelter
- Hiking
- Information Station
- Interpretive Center
- Interpretive Programs
- Iron Ranger
- Lake
- Multi-laneBoatRamp
- Parking
- Paved Roads
- Photography
- Picnic Shelter
- Picnic Tables
- Play Field
- Playground
- Public Marina
- Restroom
- Safety Programs
- Scenery
- Scuba Diving
- Sightseeing
- Skiing
- Snowshoeing
- Softball Fields
- Swimming
- Trails, Bicycle
- Visitors Center
- Water Skiing
- Wildlife Viewing
- Windsurfing

## CQ Field Day, CQ Field Day, CQ Field Day

Attention all Radio Amateurs. You are all invited to attend the annual ARRL Field Day event on the weekend of June 25th, 26th and 27th, 2010. Once again, this will be held at the Valleyford County Park on the Palouse Highway near Spokane (from the Dishman-Mica Road, Hwy. 27, in Spokane, head west on the Palouse Hwy. The park is on your left just past Madison road and the Fire Station). Bring a friend, bring a spouse, bring your kids – this extravaganza is open to one & all. As in the past, this is not a contest weekend. We consider it a major Amateur Radio social event. Come to operate, learn a new mode, meet some new people & rag chew a bit. Sit back, relax & enjoy the camaraderie. Again, we plan to have a variety of stations on the air: Winlink traffic handling, CW, PSK-31/RTTY, HF SSB, VHF/UHF, and GOTA. Share your knowledge & skills, or learn something new. Set-up begins around noon on Friday June 25th. Come watch us shoot golf balls from spud guns & attempt to assemble the latest & greatest antenna we've just discovered. If you have time on you hands, come say "hi". Friday evening will be a hobo stew/chili potluck. Bring your own everything. Saturday morning radio events begin at 11am local (1800 UTC) & will continue through Sunday morning. Saturday afternoon will be the annual Field Day potluck picnic/barbeque which will commence at 3 pm. Hamburgers, hotdogs, buns, condiments, sodas, plates & silverware will be supplied by Lilac City ARC. We do ask each person or participating family to bring a side dish: i.e. salad, dessert, couple bags of chips etc. We plan to operate through the night for your enjoyment. Last year we had 5 hearty souls still operating at 7 AM Sunday morning. The coffee pot is always on!!! Sunday take down will begin by 11 AM. So mark your calendar & come join the fun. When you get a chance also thank the Spokane County ARES/RACES, KBARA, IE VHF Club and Lilac City ARC members who sponsor this event.

Hope to see you there

73

Bob, *AC7GP*

**Please remember to renew your membership for 2010**

Name_____

Call Sign_____

Address_____

City/State_____Zip_____

Telephone_____ Amount Paid_____

E-Mail_____ ARRL Member?_____

**Would you rather receive the newsletter via computer, instead of receiving it in the mail? _____YES _____NO**

Dues are a minimum of $15.00 per year for individuals and $20.00 for a family (all must be living at the same address), but any amount will be greatly appreciated. Dues are due January of each year. If they are paid between September 1 - December 31, they will be applied through the entire following year. And any additional amount will be gratefully accepted to the Repeater Fund. To support KBARA, please send your contributions to: **KBARA, PO Box 30801, Spokane WA 99223-3013** Please visit our KBARA website for more information: **http: www.kbara.org**

**EME at the Yakima Hamfest by John Dempster, W7OE**

Mark, K7HPT, & I had a great opportunity to contact the Arecibo Club Station, KP4AO, from the Yakima Hamfest via EME (Moon bounce). The Arecibo Amateur Radio Club had the rare opportunity to use their 1000 foot radio astronomy dish for Amateur Radio use April 16-18, 2010. They opted to use the 432 MHz band to make their contacts during this event & used SSB, CW, and a digital mode. On Saturday, April 17, we set up our station from Mark's truck using an ICOM-910 & a solid state 175 watt amplifier. The antenna was a 28 element yagi 9 wavelengths long with about 17dbd gain. Considering line & connector loss, we ran approximately 5000 watts ERP. The Arecibo operation, without their amplifier due to problems, ran 18 watts at the feed point of the dish with 60 dbd antenna gain. The resulting ERP was 18,000,000 watts & the beam width was so narrow that only a 1385 mile diameter beam was projected on the moon's surface at this frequency (-3db main lobe angle). My initial thought was that making contact would be easy with all that antenna gain. But it was not easy. Fewer than 10% of the participants made contact. This was not like a HF pile-up because of the 6 second double-round-trip delay & the relatively slow turn-around speed of the operators. Arecibo was a weak copy on SSB so we did not attempt to make contact until they switched to CW. It took over an hour of calling but finally we made contact 12 minutes before they ended operation for that day. The next day, they had a small amplifier going and they were an easy copy on SSB as well as CW & digital. We used our other call sign on Sunday but the competition was too great to yield a second contact for the event. On Saturday, the skies were cloudy, & everyone who helped had their own opinion regarding the position of the moon. Due to fading, maximum signal strength was only a guess. Jim, N7WRR seemed to be best at figuring out the proper azimuth & elevation so he gets the kudos for the help…. he seemed to be the only one who knew how to properly use a compass. We did not take a video of our activity but we have many photos. Perhaps the video taken by YT5MW in Serbia sums up the experience best!

http://www.youtube.com/watch?v=OBTfQnK5Qic&NR=1

From Dr. Rosenblatt: calculations for the signal strength of the KP4AO EME signal received during the event.

Dish diameter: 1000 feet (305 Meters)

Antenna gain: 60dbi

Tx Power; 30 W

Feedline Loss: 12 W

Tx Frequency: 432.045 Mhz

At 432 Mhz the -3db main lobe angle is equal to: Theta = Wavelength/Diameter = 0.69 Meters/305 Meters = 0.00227 rad.

The above lobe of the dish at the moon at 240,000 miles away projects a signal that is 1385 miles in diameter. Since this is less than the surface view of the moon, all 18 watts that has reached the moon can be reflected back. This is unlike John & Mark's wide-angle 28 element beam where only .05 % of their signal reaches the moon's surface. The reflectivity of the moon is 7 % so the Arecibo signal reflected back is 7% of 18 watts or about 1 watt. With their 22 degree x 22 degree beam width projected by their 28 element yagi, only .05% of John and Mark's signal can be reflected back and the moon only reflects 7% of that! Their wimpy signal is equal to 100W x .0005 x .07 or .003 Watts. These figures are based on using isotropic antennas for comparison. We also suffer from path loss on the signals returning from the moon. At 432 MHz, the path loss is 197db over the 240,000 mile path. This reduces our "isotropic" comparisons of 1 watt & .003 watts to .00000000000000000001 & .00000000000000000000003 watts, respectively. Going back to db, to make the discussion more understandable, suppose your receiver has a typical noise floor of -175dbW. The 1 watt isotropic signal returning from KP4AO would require an antenna with 22 db gain (197 - 175). Since John & Mark's antenna only provided 17 db gain, a preamp would be necessary to allow detection of the signal. A much larger antenna (e.g. Arecibo's 1000 foot dish) would be necessary to detect John & Mark's wimpy signal. John & Mark seemed to prove this theoretical analysis. As can be easily deduced, this is why EME is so difficult, even with a 28 element yagi.

**The K7EFX Multiband "3-Half-Wave 6-Meter," "Half-Wave 17-Meter," Rotatable Antenna**

Author: John A. Brackemyre, K7EFX, Stockton, California © June 1, 2010

**Design Scope**

The purpose of this build was to replace my 12/6-Meter inverted-vee with a rotatable antenna. Being a Special Effects designer and machinist I had all of the parts so I designed around what was in my collection of tubing, clamps and hardware.

Using the 468/F MHz half-wave antenna formula I calculated the 6-meter half-wave length and multiplied by 3 to arrive at the total length for 3 half-waves on 6-meters and a half-wave on 17 meters. I had black plastic tube clamps for one-inch tubing and also two feet of 1-1/8 inch fiberglass tubing (*greenish tubing that I used inside for structural support*). Inside each driven element clamp is a one-foot piece of the fiberglass tubing. A length of 1-1/8 inch .060 aluminum was put over that and sandwiched between the center and outer insulator clamps. (*See the photos* at http://www.smeter.net/antennas/17-meter-6-meter-multiband-rotatable.php)

The outer clamps have a one-inch aluminum tube inside which is inserted inside of the 1-1/8 inch center tube. A sheet metal screw makes electrical connection about 6-inches from the center. All tubes are inserted at least eight-diameters for strength. All tubes are hacksaw-slitted in two directions and debured inside, so hose clamps can tighten and held them in place. All tubing has a light coating of Copper Shield high-current conductive copper paste.

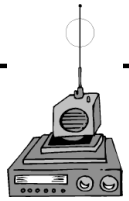
See photos of the RG-58 50-ohm feed-line connecting to the copper 6-32 brass studs and nuts. I only had to lengthen the outer 5/8-inch diameter tube one time after erection to resonate the antenna at the 6-Meter design center frequency. Initial tuning was done on the ground with a 6-foot piece of PVC supporting pipe stuck in a picnic table umbrella stand as a supporting mast and with a 50-length of

coaxial feed-line.The 6-Meter design center frequency was 51 MHz. The calculated half-wavelength at 51 MHz was 9.176 feet, so the calculated length for three half-wavelengths was 27.529 feet. The finished tuned and measured element length is 27.958 feet, which is only slightly longer. At the 51 MHz center frequency the VSWR is 1.3:1 and the feed resistance is 29 Ohms with no reactance.

Analyzer results

| | | | |
|---|---|---|---|
| 50.000 MHz | 1.6:1 | 25 | 0 |
| 50.257 MHz | 1.5:1 | 26 | 0 |
| 50.408 MHz | 1.4:1 | 27 | 0 |
| 50.875 MHz | 1.3:1 | 28 | 0 |
| 50.992 MHz | 1.4:1 | 29 | 0 |
| 51.612 MHz | 1.5:1 | 30 | 0 |
| 51.920 MHz | 1.6:1 | 33 | 9 |
| 52.153 MHz | 1.7:1 | 35 | 12 |
| 52.395 MHz | 1.8:1 | 38 | 18 |
| 52.680 MHz | 1.9:1 | 40 | 20 |
| 52.765 MHz | 2.0:1 | 44 | 22 |
| | | | |
| 18.000 MHz | 1.9:1 | 42 | 22 |
| 18.036 MHz | 2.0:1 | 44 | 15 |
| 18.073 MHz | 2.1:1 | 45 | 16 |
| 18.173 MHz | 2.2:1 | 45 | 17 |
| 18.278 MHz | 2.3:1 | 43 | 17 |
| 18.464 MHz | 2.4:1 | 42 | 8 |
| 18.717 MHz | 2.5:1 | 47 | 9 |

## NOMINATIONS AND ELECTIONS



Nominations for the offices of President, Vice President, Secretary and Treasurer shall be made from the floor, at the annual general business meeting. Nominations will be stated verbally by any member present at the meeting. Nominees will briefly state their qualifications and philosophy. Voting will be accomplished by written secret ballot. Proxy votes must be written and sent to the Secretary no later than 15 days prior to the meeting. The Secretary will validate and cast the proxy ballots. Offices are to be held for a 1 year term. Nominations of a member not in attendance will only be allowed if that member has sent written notice to the Secretary stating his willingness to accept the office. Voting will take place immediately after the nominations close. A majority of votes cast will validate the election of each office.

**On-Air Results**

I received an honest S8 report from W9IMS, the Indianapolis Motor Speedway Special Events station Friday, May 21, 2010 at 5:45 PM PDST on 18.140 MHz (*17-Meters*). The operator was Bill.

Saturday, I worked VE7DAY on Vancouver Island in British Columbia on 6-Meters. He was using a 7-element M2 beam at 50-feet to my three-halfwave rotatable dipole at 30-feet. Signals were S8 to S9 both directions with 100-watts of RF output on both ends.

If there is a lot of interest I can prepare build-able drawings, a list of components, vendors, build notes, and tuning instructions.

Spokane Hamfest Planning Meeting

June 26, 2010, 2:30PM

Valleyford County Park near Spokane

ARRL Field Day site


KBARA is in need of net controls

It's fun, it's good practice & it's for a worthy cause.

Please contact Duff, WA7BFN, on the air

or at thejohnsons8486@msn.com

KBARA Membership / Support Information The KBARA repeater system consists of several privately owned linked Amateur Radio repeaters. It covers an area from northeastern Washington to northeastern Oregon, and from western Montana to central Washington. The KBARA system is also part of the Evergreen Intertie, an interconnected group of repeaters located in western Washington and Oregon. The primary purpose of the KBARA repeaters is to provide a means for emergency communications within the above areas, and secondarily for routine radio traffic. It makes possible a single system of mobile communications coverage, extending the limited range provided by any single repeater operation. The KBARA FM repeaters operate in the VHF bands and are linked by UHF radios. The repeaters' frequencies, call signs, locations and owners are as follows: **KB7ARA REPEATERS**

**146.74 W7HFI** Kamiak Butte, near Pullman, WA, owned by Bob, W7HFI, John, W7OE, & KBARA, KB7ARA

**147.02 K7HPT** Lookout Pass on I-90 on the Idaho-Montana border, owned by Mark, K7HPT, & John, W7OE

**147.28 KD7DDQ** Pikes Peak in the Blue Mountains, SE of Walla Walla, WA, owned by Ken, KD7DDQ & Mark K7HTP

**147.36 N1NG** Stensgar (Stranger) Mountain, near Chewelah, WA, owned by Mike, N1NG, & John, W7OE

**147.38 W7OE** Mica Peak, east of Spokane, WA, owned by John, W7OE

**223.90 AK2O** Stensgar (Stranger) Mountain, near Chewelah, WA, owned by Karl, AK2O

**444.35 N1NG** Mica Peak, east of Spokane, WA, with a 192.8 Hz tone, owned by Mike, N1NG

**53.750 K7MM** Kamiak Butte, near Pullman, WA, owned by KBARA, KB7ARA

**IRLP Node #3957 N1NG** South Hill of Spokane, WA, owned by Mike, N1NG

All licensed Amateur Radio operators are welcome to use this open repeater system. Your support would also be greatly appreciated.

Please visit these websites for more information: http://www.kbara.org and visit http://groups.yahoo.com/group/evergreenintertie

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|---|---|
| To support KBARA, please send your contributions to:<br>KBARA, PO Box 30801<br>Spokane WA 99223-3013 | Annual support is $15 per calendar year for a single membership and $20 for a family membership. Dues are due in January of each year and if paid between September 1 and December 31, they will be applied through the entire following year. Also, any contribution will be gladly accepted to the Repeater Fund. |

**KAMIAK BUTTE AMATEUR REPEATER ASSOCIATION**

PO Box 30801

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