

CLALLAM COUNTY AMATEUR RADIO CLUB



From the Editor:

A big thank you to all who contributed to this Newsletter — ARES EU Bruce Reiter, KD7WBM; Bob Sampson K6MBY; Paula Johnson K7PAX; Charlie Brown WA4DFT; John Dundas W6SU; Stephen N7SB; and Glen Muir WA6RQW.

This was taken this morning at 0630am. Been snowing off and on all day. 73, Chuck



	CCARC QTC Newsletter		
Get Your License Here!	Just a little background on the QTC.		
Next Classes April 1, 8, 15	We use ccarcqtc@yahoo.com as a repository for information for the newsletter. So if you have something for the QTC, please send it to the ya- hoo address. Do not sent it to one of the editors as they will just have to turn around and resend it to the yahoo address.		
The Exam session on 15 @ 1300	Please make sure the article or information is complete. As we rotate editing the newsletter you cannot be sure which editor will be piecing the newsletter together.		
Chuck N7BV ARRL VE-L	Please remove as much formatting from within whatever program you are using if you know how, before sending it to ccarcqtc. We do not edit, except to change fonts to a standard non- serf font (Arial which is easer to read than Times Roman). We will run a spell checker.		
	When first conceived the editors were given free		
February Program	license, it still is that way. It was understood they would endeavor to include everything sub- mitted, within reason. For instance, off color jokes etc. are not going to be printed. Thanks,		
Computer Security	Have an idea for a club program?		
Ву	Pass them along to the members of the		
Bill Peterson K7WWP	program committee: Paula K7PAX, or Chuck N7BV.		
	Thanks.		
We need articles for the QTC newsletter. This is your newsletter.	<u>2 METER NETS</u>		
Tell us how you became interested in Ham Radio. What did you do over the summer (just like school) huh!	CCARC : Every Thursday 7:00 pm on the W7FEL Repeater.		
Did you put up a new antenna, buy a new radio? Tell us about it.	ARES/RACES : Every Tuesday except 1st Tuesday of the		
Did you try a new mode again tell us about it.	month at 7:00 pm on W7FEL Repeater.		
The more you submit the less blank space we will have!	W7FEL Repeater: 146.76 MHz, offset down 600 KHz. with a tone of 100 Hz.		
Thanks, the staff!			

JIL

W7RJW "Net" Working

Some local nets to listen in on/participate in. This is one good way to learn how we communicate on the airwaves as amateur (ham) radio operators. I spent a year just listening to a couple of these nets and how experienced operators talk to each other, before I even tried for my Technician license. It REALLY helped me a lot. I strongly recommend doing this on a regular basis. Enjoy!

Sunday:

LDS (Latter Day Saints) Emergency Net (you don't have to be a member to participate) 6pm on 146.760

Monday:

Elwha Emergency Net 5:30 pm 0n 146.760 WARA (West Coast Amateur Radio Association) Club Net (Victoria, BC Canada) at 7pm on 146.840

Tuesday:

ARES (Amateur Radio Emergency Services) Net 7pm on 146.760 (except for the first Tuesday of the month, when ARES meets at the Clallam County Courthouse)

Wednesday:

WARA (West Coast Amateur Radio Association) Emergency Net 7pm on 146.840 Simplex Net immediately following: on 146.580

Thursday:

CCARC (Clallam County Amateur Radio Club) Net 7pm 146.760

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W7RJW Rebecca J. Winters CCARES Net Control Coordinator

Another 'Mind Bender' for the news letter -- and the answer to last months 'Mind Bender'.

It is a bright sunny day and you are cruising along minding your own business -- enjoying the scenery when all of a sudden -- kershuff -- kerchuffffffttttt -- you just run out of gas. After a few choice expletives -- you decide you have no alternative but to hike it to the nearest gas station.

With compass in hand you walk one hour due south and finding nothing so you start off in an easterly direction for another hour -- again finding nothing you now turn north for another hour -- and -- lo and behold -- there is your out of gas vehicle !!!

What kind of vehicle is it ??????



What's new on Ham Nation?

http://twit.tv/hn

Check out the new format.

Have a cup of coffee, relax and watch one.

FOR SALE or TRADE

One Icom IC-775 DSP transceiver and one Icom PW-1 amplifier for sale. Contact erf4269 at <u>gmail.com</u>.

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Titan DX GAP antenna - used - assembled - on the ground - about 10 years old. New price: \$470 Your price: \$200 OBO (1/2 of proceeds to CCARC).

DX Engineering 5 band Hexx Beam with balun - used about 2 years old - assembled Presently on a pole - I might need help taking it down... New Price: \$900 Your price: \$400 OBO (1/2 of proceeds to CCARC).

Contact Steve N1SB n1sb@arrl.net (360) 808-0830

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Treasurers Report January 2017

January Income

Dues	360.00 (18)
Donated equipment sales	460.00
Total January income	820.00

January expenses

Check for insurance 100.00 (not cashed by payee yet)

Bank Account Balances 2/1/2017

Checking	5558.39
Savings	3028.51
CD	1031.14
Total	9618.04

From the ARES Desk

Mother Nature has not been kind us as we had to cancel both our December and January monthly meetings due to inclement weather. We should be able to get back on track in February. Watching the weather reports from my old stomping grounds in Portland, Oregon vindicates our decision to move to the calmer climate of Port Angeles.

While the weather slowed our gathering, ARES members have been active in a number of areas. The amateur repeater linkage between the West End and the rest of the County has been strengthened with the addition of EchoLink to the IRLP system already in place. We can now get external multiple users on Net which helps us keep contact with our "Snow Birds" and members who might be traveling outside of our normal two-meter range. This has been an ongoing project with members from both ARES and the Club working to make it happen. We especially want to single out Bob, K6MBY for his efforts.

There is a new COML for the County, Dave Sue. He is bringing emergency communications organizations together monthly to coordinate efforts. Our Club President, Dennis, AD7TV was present at the last meeting, representing the Coast Guard Auxiliary as well as CCARC.

FEMA Region 10 is hosting a net on 60 meters. It occurs at 0930 local every third Wednesday through 2017. In January, Channel 1 was used for voice and Channel 2 for digital. The Net is controlled by FEMA and is open to anyone hold-ing the appropriate license. CCARES had eight check-ins in January, mostly from private equipment. We hope to exercise the EOC and ECCs in February.

We have three scheduled exercises or events in March so far with varying levels of participation by ARES. The scenarios aren't fleshed out except for the OAT Run on April 1 (well, almost March). If you are interested in participating, let me know.

Bruce Reiter, KD7WBM

PAUL Honore Says

I want to express my sincere thanks to the many members of CCARC and ARES who helped me through this difficult time of my wife's death. Both the club and ARES can count on my continuing support and participation as long as I am able. Paul W6IAM

Q-What????

If you have been within 10 feet of two Hams talking, you will have heard within the first twenty seconds some arcane and mysterious three letter phrases starting with the letter "Q," (i.e., I had a lot of QRM at my QTH last night, and the QSB was terrible!). If you are not among those in the know, you may be befuddled and wonder whether you are hearing some strange foreign language or your hearing is on the blink.

First of all, the Q Signals have their origin, according to one source, at the Radiotelegraph Convention held in London, 1912. To quote Wikipedia, "The original Q signals were created, circa 1909, by the British government as a "list of abbreviations... prepared for the use of British ships and coast stations licensed by the Postmaster General." The Q codes facilitated communication between maritime radio operators speaking different languages, so they were soon adopted internationally.

Fear not, we will explain all for you. What you are hearing is a special type of verbal shorthand that has its roots in the mid 1800's, predating their official recognition and standardization. Early telegraphers created their own abbreviations to facilitate the handling of messages and information, including weather, train and ship movements, news and all the same stuff found today on the Internet, minus the pictures. So if your kids, grand-kids, and great-grand-kids think that they invented those cute little abbreviations they use to text on their iPhones, well, they are 150 years late to the party.

But what about those "Q" things? Well, when telegraphy moved off of the wires and into the ether, operators modified things a bit so that they could exchange standard questions and replies using "Q Codes" or in the Military, "Z Codes." If you wanted to know the location of the station to which you were talking, you would send "QTH?" with the question mark. If the other operator was sending his code too quickly, you could send "QRS" meaning slow down! At the end of this article I'll give you some links to explore the "Q Codes" at your leisure.

There are several lists of these codes, and using the links I've given, you will learn far more "Q Codes" than you ever wanted to know. We will keep it short for now, giving you the ones you are mostly likely to hear. That brings up a little side note: The "Q Codes" were intended for telegraph (or "code" or Morse code, or CW, all phrases of similar meaning) and NOT for voice use. Over the years, many operators who started out doing code, who learned those "Q Codes" in their formative years, brought them over to voice communications and even to today's digital transmissions. So you are quite likely to hear a voice operator say "QSL and thanks for the QSO..." meaning "I confirm and thank you for the two way communication..." and on the closing lines of a very up-to-date digital mode, and operator might sign, "QSL and thanks for the QSO..."

So here are a few of the most common Q signals you will likely hear in person or on the air or see in Ham Radio articles. Once you learn them, you, too, will be among those who know...

QRL - Are you busy?
I am busy (or I am busy with ____). Please do not interfere.
QRM - Is my transmission being interfered with?
Your transmission is being interfered with ____.
(1. Nil 2. Slightly 3. Moderately 4. Severely 5. Extremely)
QRN - Are you troubled by static?
I am troubled by static ---. (1-5 as under QRM)

QRO - Shall I increase power? Increase power. QRP - Shall I decrease power? Decrease power. QRQ - Shall I send faster? Send faster ____. (WPM) QRS - Shall I send more slowly? Send more slowly ____. (WPM) QRT - Shall I stop sending? Stop sending. QRU - Have you anything for me? I have nothing for you. QRV - Are you ready? I am ready. QRZ - Who is calling me? __ (on ___ kHz). You are being called by QSB - Are my signals fading? Your signals are fading. QSL - Can you acknowledge receipt? I am acknowledging receipt. QSO - Can you communicate with direct or by relay? I can communicate with ____ direct (or by relay through _). QST - General call preceding a message addressed to all amateurs and ARRL members. This is in effect, "CQ ARRL". QSY - Shall I change to transmission on another frequency? Change transmission to another frequency (or kHz). QTC - How many messages have you to send? I have ____ messages for you (or for ____). QTH - What is your location? My location is ____.

http://ac6v.com/Qsignals.htm

https://en.wikipedia.org/wiki/Q_code

http://www.zerobeat.net/qrp/zsiglist.html

(Editor's note: Due to changing standards, the ARRL recomends operator refrain from using Qsignals to alleviate confusion over their meanings, preferring plain language. Thus "I live in Port Angeles" vice "QTH Port Angeles. Most older hams have a good working knowledge of them however and prefer them.)

160m FOLDED COUNTERPOISE

A half wave dipole on 160m is about 258ft total; a 1/4 wave vertical is 129ft tall.

For all of us mortals these lengths are a little large; a dipole would need to be 258ft high to play well or even higher for DX. Most people use a vertically polarized antenna, which with radials needs about 1.8 acres.

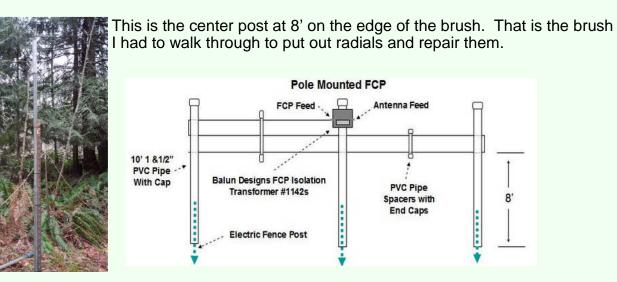
For the past 5-7 years I have been using a vertical coaxial Inverted L with 4-12 radials. My inverted L goes up 90ft in a tree, then out horizontal to achieve resonance. This antenna has worked but is not exactly a barn burner. Over the years I have added radials; moved them from on the ground to about 8ft above ground. These radials were always taking damage from falling trees and limbs during storms requiring almost constant repairs. Making repairs, walking around in the underbrush, I was always twisting my ankles and twice did splits by stepping into holes hidden by the leaves and brush. So about three months ago I ran into info on the web about a 160m Folded Counterpoise which is 66ft long. This would present a much smaller target during storms.

Mark, K7MAE helped to build the FCP (about 15-18 hours). It was very much like working with extra-long wet spaghetti noodles; first we built it at 8ft above ground then moved it up to twelve feet.

They say the proof is in the pudding, well in the CQ WW 160m contest on January 27/28:

Total: QSOs 191 State/Prov 52 Countries 7 Total Score 28,792

Best DX was JA (4746 miles), missed ME and NE for worked all states. These results after 9 hours of operating bode well for this system.



The length of the FCP is 66ft and in my case we used 12ft poles. We had to re-resonate the Coaxial-L to achieve a good SWR.

This Folded Counterpoise is a very good way to get on 160m or 80m within a decent signal in a smaller land area at least I am hoping for in the future.

Tks, 73 Chuck N7BV

Another chapter of My CW Journey – Kit Building By K7PAX – Paula Johnson

I completed Level I of the CW Academy last spring, and am currently enrolled in Level II. Having fun increasing my speed and practicing with Morse Runner – a CW contest simulator. I am anxious to use my new skills to try my hand at some real CW contesting. I have two rigs at my station - an IC7000 used primarily for HF digital modes and VHF phone, and a Kenwood TS-940S which is my "tinkering and experimenting" rig, which will soon have a TL-922A amplifier added to it. This is the station I plan on using for chasing DX and contesting.

Both of these rigs can be controlled by my computer. I have one CW key, a single lever paddle VibroPlex VibroKeyer (misleading name, as it requires a separate electronic keyer). I originally had it interfaced with the IC7000, which has an internal CW keyer, and can also turn off transmit while in CW mode, allowing the radio to double as a practice keyer. I wanted to also use the VibroKeyer with my Kenwood TS-940S so I would be able to amplify my signal once I get the amplifier on line. This would require the addition of an electronic keyer, as the TS-940S does not have one built-in. Fine and dandy, but I can't leave the Vibrokeyer connected to the TS-940S and use it for practice, as I don't have a way to suppress TX like I do on the IC7000, and I don't have a dummy load to work into either, nor would I want to. And, I didn't want to keep switching the Vibrokeyer back and forth from one rig to another.

I started researching options for an external electronic keyer, and found the perfect solution – the WinKeyer USB from <u>www.hamcrafters.com</u>. It comes as a kit, if affordable, and is easy to put together if you have basic soldering skills. Here are some of its features:

Fully featured specification, that matches or exceeds the best of the current standalone keyers Capable of being operated standalone or in conjunction with a host Low cost, simple to build kit

Compact, unit capable of being powered directly the USB port

Best of all, it has two output ports to allow keying two rigs – just what I needed! Unplugged from the rigs, it can still operate as a code practice keyer on battery power.

I built it the night I received it, and had it together and tested in about an hour. Now it is just a matter of clicking a checkbox in my setup software to switch from the IC7000 to the TS-940S and back again. No more moving cables back and forth!

Just waiting on completion of my amplifier upgrades – then I will have all the components of a full-legal limit station for my DX and contesting aspirations. (Not that I will probably ever run at full legal limit, but I am setting up so that all components are capable, nonetheless.) I have been collecting the station components for about two years now. When it is complete, I hope to reach out and touch someone!

73, Paula

CCARC Strays

Mark and I had a look at the trailer. It looks very nice and I have been gathering some ideas. I thought a design that would accommodate anyone who wanted to attend would be good.

Attached is a design that would do it. Of course, I am not privy to the club budget but...no matter, just like spending government money, isn't it? Charlie WA4DFT



AND FROM THE DARK SIDE That would be CA and our very own Snow Bird:

I have started construction of the 1watt 30 meter version of Diz' design xcvr (kitsandparts.com). Chuck won't care about it cuz it's QRPp (you can look that up!) but on the other hand it is CW only. I'll let you know if it works. If it doesn't I won't.

Have also ordered (from Hong Kong or somewhere like that) an adjustable lab-type power supply, 0-32 vdc, and current regulated. Only 5 amps, so you can't run your linear off it. But for \$60 US, and free shipping (by slow boat, I suppose) it's a deal.

And did I mention my new inflatable Barbie Doll? Oops, sorry Chuck

72, John W6SU

Headaches. Dry and itchy eyes. Blurred vision, sore shoulders, muscle spasms and involuntary twitches. All of these are symptoms of digital eye strain caused by hours of staring at screens.

http://www.komando.com/downloads/1583/one-step-to-reduce-eye-strain-and-improve-your-sleep?utm_medium=nl&utm_source=asd&utm_content=2017-01-25-article-title

73, Chuck N7BV

http://www.n6bt.com/NEW-FLYER-2016-apr-rev-3a.pdf

N6BT: founder of Force 12, Inc. antennas, developer of the first trapless tri-banders, the C-3 and C-3S that changed the world of Yagis, then changing the world of verticals. N6BT has designed, built and shipped over 25,000 antennas and now brings you models that include ground-breaking technology for restricted locations, DXpeditions, portable and more. Check em out. 73, Chuck N7BV

New Realtime Band Conditions Web Site

<http://www.cleanairwithultraviolet.com/bandconditions>

The purpose of this experimental Web site is to provide 24-7-365 actual (realtime) band condition information to CW QRPp, QRPe and CW/SSB for Contesters interested in increasing their scores. It can also be of benefit to other Radio Amateurs to determine band conditions for Nets and casual QSO's. This information is NOT based on any software predictions or any kind of satellite based readings. It is based on a new Ionospheric sounding method called "HF Ionospheric Interferometry"; which operates very similarly to the PolSAR system used by NASA. 73, Dave, AA6YQ

When good coax goes bad, it's often due to water ingress. <u>DX Engineering has published a</u> <u>technical tip</u> showing how to use a combination of rubber splicing tape and vinyl tape to make weatherproof coax connectors.

The FlexRadio folks have shared an <u>application note regarding grounding in the shack</u>. Single point grounding and the differences between RF and electrical grounding are among some of the topics discussed.

If you haven't taken advantage of your ARRL membership (or joined) subscribing to ARRL newsletters are a great way to increase your knowledge and keep up with what is going on.

Here is another small antenna used by some to get on the air HF. Where there is a will there is a way!

http://alexloop.com/



In addition to a recent uptick, the first sunspot group of Cycle 25 (12620) appeared on December 18. Carl Luetzelschwab, K9LA has an excellent article about this in the next (February) issue of the Northwest Indiana DX Club newsletter (see <u>http://nwidxclub.weebly.com/newsletters</u> in early February page 5).

During a recent thread on the TowerTalk reflector http://lists.contesting.com/mailman/listinfo/ Towertalk the subject of Heliax coax came up with everyone agreeing to the following.

"As KK9A mentioned, the surplus market for 7/8" and larger coax will be gradually drying up in the future. Virtually all new cell site builds are utilizing tower top radios connected via fiber. 1/2" is still used and will continue to be used for jumpers between the radios and antennas, although we also are currently using "Air" antennas which have the radios built in.

Since the cell market has been the major source of well priced surplus Heliax style cable...get it while you can. -Steve K8LX

Last months Mind Bender solution:- He -- Her -- Hero -- Heroine

Raspberry and TNC-Pi

For some time I have been thinking of learning more about packet. OK, jump right in with a Raspberry Pi and a TNC-Pi from Coastal ChipWorks. The Pi is of course a computer and the TNC-Pi, along with its cousin the TNC-S, are Kiss TNCs. The TNC-Pi is a daughter board that sits on top of the Pi and plugs into the GPIO pins. The X version is made to put into a PC serial port.

The application I chose for the computer was BPQ32 written by John Wiseman (GM8BPQ) of the Isle of Lewis, Scotland. He is actually a close neighbor a number of our cousins that live in his area and we have likely been by his house on visits to the island. He says to stop by next time we are in his area. BPQ32 can run a BBS, as well as an RMS Gateway. I chose the VHF version and landed on 145.090 MHz. I don't know of any other BBS systems in the area but Jim Cornell (WF7W) runs a RMS Gateway on 145.690 MHz. His gateway was actually set up by the Canadians about 10 years ago as a way for them to get "off island" communications in case of an emergency.

The BBS is a little new to me and it does have somewhat of a learning curve to figure out how to get messages in and out. I log into the BBS and leave a message for you. You log into the BBS, see if there are messages for you and if there are you can pick them up. The thing I see about the BBS is the ability to pass messages when there is an internet outage and people are not necessarily on for peer to peer data communications. I don't see how to pass the standard ARES messages yet but there may be a way.

Log into K6MBY-1 on 145.090 MHz. If you hit the "?" key you will get a listing of available commands such as S for send a message, L for list a message, etc. Send me a message by keying in "sp k6mby and return, You should see a line come up that asks for the title of the message. Type one in and hit return. Type on your message. At the end type in "/ex". Your message should then end up in my BBS mailbox. I will send a message back to you.

Log into K6MBY-10 on 145.090 MHz. and you will be attached to a RMS Gateway and connect to a CMS server. Assuming you have a password of Winlink you can then pick up messages from Winlink.

Bob Sampson

Minutes CCARC General Meeting 2017-01-11 1903 Call to order Pledge of Allegiance Introductions all round Call for committees, planning for the year, suggestions list of committees and members created AD7TV - anyone interested in Arduino or Raspberry Pi? KG7WMZ - maker show and tell? N7BV - antenna work KD7DRT - collection taken for Paul Honore W6IAM 2045 adjourned Submitted by Mike KF7VZZ

CCARC Standing Committees

VE Education and Training: Chuck Jones N7BV Field Day Co-Chairs: AI Fisk KD7TFK, Sheldon Koehler N7XEI, Linda Montelius KG7WMS, Ray Montelius KG7WNB Health and Welfare: Nita Lyman KE7DRT Membership Chair: Sheldon Koehler N7XEI **Net Coordinator**: Mike Rice KF7VZZ Program Co-Chairs: Bruce O'Rourke WA7CCC, Bill Peterson K7WWP, Tom Pysher K7YSH Public Relations: Bill McPherson W6JEQ, Bruce Reiter KD7WBM, Herm Halbach KG7WMZ. Sheldon Koehler N7XEI, Bill Todd N7MFB Publications (Newsletter): Chuck Jones N7BV, Herm Halbach KG7WMZ **Technical Committee Coordinator:** Doug Welcker, WB4KGY, Bob Sampson K6MBY, Bill Peter son K7WWP, Merrill Terpstra KA7FAM Web Site Administrators: Sheldon Koehler N7XEI. Mike Rice KF7VZZ **CCARC Special Committees**

Hamfest Table: Mark Ellington K7MAE, Doug Welcker WB4KGY, Andrew Rowland KF7QYL **Trailer:** Mark Ellington K7MAE, Charlie Brown WA4DFT, Andrew Rowland KF7QYL, Bruce O'Rourke WA7CCC, Glen Muir WA6RQW Roster: Sheldon Koehler N7XEI, Chuck Jones N7BV Fireworks: Nita Lyman KE7DRT, Ray Montelius KG7WNB, Bruce O'Rourke WA7CCC

CCARC Board Meeting 2017-01-11

KF7VZZ, N7XEI, WB4KGY, N7BV, K7PAX, AD7TV, KG7WMX, KD7WBM, K7MAE, WA6RQW

1800 Call to order Adding Section 5 to Policies and Procedures "Duties of the Board" between Duties of Officers and Club Dues Discussion of "Lifetime" and "Special" award language Discussion of insurance coverage as raised by K6MBY N7XEI to pursue President: Publication committee created to include Newsletter and other publications N7BV KG7WMZ 1843 adjourned

Submitted by Mike KF7VZZ 2017 CCARC Secretary



NEXT YL Luncheon

February 10, 1130

Dynasty, Sequim

Find us on the web at www.olyham.net Check it out. Lots of information about ham radio in Clallam County! 2017 - CCARC Ladies Luncheon Schedule Reservations are made for 11:30 - 2nd Friday of each month

February – Dynasty – 380 E. Washington St. - Sequim March - Fiesta Jalisco - 636 E. Front St. - Port Angeles April - Oak Table - 292 W. Bell - Sequim May - Downriggers - 115 E. Railroad Ave. - Port Angeles June – Black Bear Diner – 1471 E. Washington - Sequim July - Gordys Pasta and Pizza - 1123 E. First St. - Port Angeles August – Mariners - 609 W. Washington - Sequim September - Cafe Garden - 1506 East 1st St - Port Angeles October – Paradise – 703 No. Sequim Ave – Sequim November - Chestnut Cottage - 929 E. Front - Port Angeles December - Cedars at Dungeness - 1965 Woodcock Rd. - Sequim

Description	Time/Date	Location	Contact
Clallam County ARES/RACES meeting	7 pm, 1st Tue of every month	Clallam County Courthouse EOC, 223 E. 4 th St., PA	Bill Carter 360-681-4375
Clallam County Amateur Radio Club general meeting	7 pm, 2d Wed of every month	Port Angeles Fire Station 5th and Laurel, PA	Chuck Jones N7BV 360-452-4672
Clallam County Amateur Radio Club social breakfast	8 am, 1st Sat of every month	Bi-Monthly Joshua's Restaurant, PA & Mariner Restaurant, Sequim	Chuck Jones N7BV 360-452-4672
Clallam Country Amateur Radio Club YL social lunch	11:45 am 2d Fri of every month	Rotates - announced on Thursday night Net (See QTC Newsletter)	

CC-ARC Welcomes new member/s:

AG7BU Ken Gross K7WWP Bill Peterson

CLUB OFFICERS For 2017

President: Dennis Tilton AD7TV 360-452-1217 ad7tv@wavecable.com Vice President: Mark Ellington KI7DWE Secretary: Mike Rice KF7VZZ (360) 912-2395 kf7vzz@gmail.com Treasurer: Sheldon Koehler, N7XEI (360) 457-3029 Board Member (Chairman): Herm Halbach III, KG7WMZ (360) 504-2226 hermhalbach@centurylink.net Board Member: Paula Johnson K7PAX Board Member: Glen Muir WA6RQW