



CLALLAM COUNTY
AMATEUR RADIO
CLUB

QTC
MARCH 19

BV RAMBLES:

I hope everyone , who went to the Puyallup Flea Market, enjoyed themselves and found lots of treasures. This is the second year in a row I have not been able to make it, last year our presence at the Home Show and this year recovering from surgery interfered.

To those of you who knew and checked in on me I appreciate the thoughts and to the man in the Green Frog hat who came to the hospital while I was under the knife I thank you all.

Dennis and I have been having some conversations about winding baluns for special needs antennas. If your at all interested Jim, K9YC, has published "[A New Choke Cookbook for the 160-10M Bands](#)" on his website.

What are your plans for spring? My plans include repairing my phased 80m wire verticals and building FCP (folded counter poises) for them plus, if I have enough spare parts in my boneyard building a Force-12 C19 Yagi for 20-10m.

That is about it for now.

73, Chuck N7BV

Get Your License Here!

Next Scheduled Training session + Exam

April 20, 27 & May 4

Chuck Jones N7BV
ARRL VE-L

3/13/19

General Meeting Program

Bill K7WWP, Janet WA7JEP and Rick AA0R will present ideas on the clubs Kids Field Day 2019.

Come and learn what they have planned and give your ideas and input for the project.

We need articles and input for the QTC newsletter. This is your newsletter.

Tell us how you became interested in Ham Radio. What did you do over the summer (just like school) huh!

Did you put up a new antenna, buy a new radio? Tell us about it.

Did you try a new mode again tell us about it.

The more you submit the less blank space we will have!

CCARC QTC Newsletter

Just a little background on the QTC.

We use ccarcqtq@yahoo.com as a repository for information for the newsletter. So if you have something for the QTC, please send it to the yahoo 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.

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.

Please remove as much formatting from within whatever program you are using if you know how, before sending it to ccarcqtq. We do not edit, except to change fonts to a standard non-serif font (Arial which is easier to read than Times Roman). We will run a spell checker.

When first conceived the editors were given free license, it still is that way. It was understood they would endeavor to include everything submitted, within reason. For instance, off color jokes etc. are not going to be printed. Thanks,

Have an idea for a club program? Pass them along to the members of the program committee.

Thanks.

2 METER NETS

CCARC :
Every Thursday 7:00 pm on the W7FEL Repeater.

ARES/RACES:
Every Tuesday except 1st Tuesday of the month at 7:00 pm on W7FEL Repeater.

W7FEL Repeater: 146.76 MHz, offset down 600 KHz. with a tone of 100 Hz.

My new mobile solar setup.

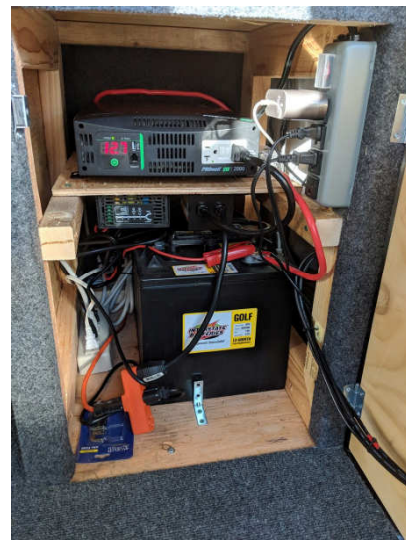
A while ago I posted about the small solar setup on my work van. I had to upgrade my Van last October and decided to go big on the solar.

Using the 2kw pure sine wave inverter from my old van, I added two 100 watt Renogy solar panels to the roof. I hooked them in series and terminated them to a new Renogy MPPT solar controller. I also upgraded the AC charger and still used the RV transfer switch from my old setup as well. For now I am still using two 6 volt golf cart batteries from Costco. Eventually I want to use better batteries.

I only have to plug into shore power about once a month during the winter. Between jobs this is keeping my batteries charged. Since the pictures were taken, I have added a Bluetooth module to the controller so I can monitor. Not really necessary but it is cool!

Weather has prevented me from installing my Ham radio and scanner, but I finally did get the antennas installed.

Sheldon, N7XEI



SNOW WEAK (spelling intended)

Jeannine Tyler KI7WVD
March 3, 2019

Snow week. Sounds like "I's no' weak". Some phrase from England that describes the strength of building materials. This snow storm was not for the weak of body, mind or spirit.

Ross stayed busy on the excavator digging out private driveways, the entrance to our private road for the mailman, and the more than 4 tenths of a mile to our home. His complaints were of the nature of sore neck and shoulders from constantly looking behind as he backed up. He frequently set his frozen feet on the shelf in front of the wood stove while warming his hands and face.

I was on the wrong end of the shovel attempting to keep our second story deck from collapsing and clearing the walkways. In order to keep me from constantly mopping the wood floors, he placed old towels end to end. It looked awful, but I love him for it.

My muscles are reminded of the first weeks of training for track and soccer in high school. It's pleasant too know I can always be in better shape. I took to clearing the deck with a dustpan so I wouldn't scratch the surface of the decking. Talk about quad workouts, I haven't done that many squats in...well never.

We both fell on our a\$\$es on the steep hill leading up to the house. I also face planted on the same hill, about three minutes following the trip onto my butt. Ross had his left knee replaced which hasn't allowed his heel to touch his butt in the squatting position since the replacement. Well, it hit his butt in this crash. Thankfully the knee stayed in its socket and he only had mild soreness for a couple of days.

I tried to be a hero and clear the parking area. Worked for over six hours on the wrong end of the shovel again and literally made myself physically ill. Ross doted on me with kindness making sure I was adequately fed, and he checked on me regularly while I laid prone on the bed. The next day things were back to normal with him kidding me about not working too hard since he wouldn't tolerate my whining one moment more.

I took very hot baths and soaked until the water was tepid. Mostly to ease my angry left ear. I've had issues as far back as I can remember with that ear. Finally had my 'Kissing Tonsils' removed on my 16th birthday. Was just getting back to eating solid food when my high school friends broke me out of the house (I climbed out my bedroom window) to attend the high school talent show. Since my birthday falls at the end of November it was quite cold. Mom never could figure out why I relapsed with my tonsil recovery when I was doing so well.

Sounds from the thirty something offspring of our neighbors ring around the neighborhood. They hazarded their way to us old folks to come help us out. Instead of helping us, we often ended up digging them out of the ditch or thick snow and slush. Lack of experience I would have to say. Sarah, the wife of ham operator Peter, KI7ATZ, is the resident gardener and she keeps her hummingbird feeders out year-round. I filled mine and within 5 minutes of placing them, the hummingbirds were out on the feeders and very happy to see them back up. I knew they overwintered at Sarah's home, but didn't know they would come back to ours since they've been put away for a couple of months.

The grain bird-feeders were relocated underneath the glass umbrella table and even the resident Flicker came in for his share of Quaker Oats and tasty wheat biscuits that Ross cooked especially

for them.

I was not inclined to clear a path out to the deer feeding area so fed them under the deck. I believe they may have stayed a couple of nights there too. One morning there were six standing outside the lower sliding glass door waiting for breakfast. What a sight. We don't have to search for the deer hangouts. It is very easy to follow their tracks to their favorite digs.

Poor puppy Molly disappeared into the snow and had to be carried underneath a tree to do her business. Poopy Puppy Joey took one look at the wall of snow and looked back at me with, what, disgust in her eyes? She wondered what bad thing she had done to deserve such ill treatment.

I dug out my little Rhododendron and it had sadly upheaved itself from the soil with all the weight bending it over. I sure hope the roots stretched and didn't break. It's a beautiful orange and peach colored bloomer and the only one the deer haven't eaten. I thought they didn't eat Rhododendrons. Liar plant sellers anyway.

The next-door neighbors, Cindi, KI7WVI, and Darick, KI7WUY, are both ham operators. They live much closer to the main road than we, which, by the way, was kept plowed and sanded by the county road crew. They took orders for groceries and even delivered them. They got their long driveway plowed by Ross for their efforts. That'll show them. I also delivered a handsome Jade plant to assist with supplying oxygen for all the time spent indoors. They won't be doing us any favors anytime soon.

I've eaten my fair share of canned Mandarins, canned Peaches, Cliff bars, and home-made frozen Rhubarb tapioca pie. Not to mention one night I was so exhausted instead of making venison sausage patties, I cooked the entire package in one big patty, my little hands aching from holding the wrong end of the shovel for so many hours. One neighbor, Bill, stayed out until dark on his Bobcat clearing the road of the 6+ inches of slush. I offered him gas money and his wife, Gay, in turn sent Ross a thank you note. Hmmmm?

I've gained weight, but my jeans are looser, from converting the fat into muscle. I read somewhere that a cubic inch of muscle weighs three times that of a cubic inch of fat? It really isn't your weight you should worry about it's the measurement of the inches around you that matter.

Also bone density matters. If you have dense bones, you will weigh more and be less likely to break them. Unless of course you flip a quad and dislocate your thumb which will cause your wrist to break. You'll be sent directly into shock and be less worried about the way your arm looks than about the tennis shoe you lost while extracting yourself from underneath the heavy machine on top of you. My husband said, "We have to get you to the hospital." I argued back at him, "I can't go to the hospital with only one shoe." And the Devil's Club thicket I landed in – what Devil's Club? I didn't feel one scratch. The complainers complained about not receiving their mail and for having their driveways plowed shut. Rosemary, KI7MZH, threatened to don her woolies and meet the mailman in the middle of the road. Mature at 86, John, K7UC, never slowed down either. Made his way to feed Tango, his Mustang (the cowboy kind), each and every morning and evening and managed to get into town for his heart medicine and to taxi his wife

to work without complaint.

Not a snow shovel to be found on the entire Peninsula and the only working one we had was promptly broken, so Ross had another chore. "Honey, do you have a moment to fix the shovel I broke?"

Our snowbird buddies thought things were hilarious for us. They talked about reapplying sun-screen so they wouldn't get their noses burnt. I replied quite cattily that we also were wearing sun-screen and sunglasses from the sun-glare off the snow.

I practiced 'Resources' the first Saturday on the 2-meter Striped Peak repeater until noon when Paul, W6IAM, took over. I felt the need of others that wanted to report their conditions. I recorded information from KI7WVK, KA7SKY, KE4YPZ, KI7FXE, KG7CUY, N7BV, K7MAE, AA0RD, K7DCJ, K7EKG, and KI7ATZ. Who knew you're supposed to be officially activated before practicing Resources. I spoke with one gentleman from Kingston, KC5WFH, who had no electric power and was trying every repeater he knew of just to hear a voice. Glad I was able to help ease his discomfort. He likely felt like he was in 'The Twilight Zone' being out in the snow alone and with no power, but he had his generator operating and his ham radio up and running on battery power to keep himself from going bonkers.

I mistakenly sent group texts intended for one individual and was rewarded with "huh?" and "what?" and "why do you love the snow, are you crazy?" and, "Now I can't get this lollipop song out of my head." Darn ear-worms! Me? I loved every minute of it. It was good clean hard work, I saw people helping their neighbors, I learned what ham radio is used for, and I found myself fitting a little better into the new group of people who have welcomed me without question of my abilities. Great Big thanks to all of you.

I understand the Federal Mail Personnel in Sequim were open both Sunday and Presidents' Day to hand out packages to a long line of folks in the Post Office. Big thanks to them.

We, thankfully, had very few power outages. Big thanks to the crew of Public Utility District #1. Big thanks to the crews of the Washington State Department of Transportation and the Clallam County Road Department.

Big thanks to the people from ARES who wrote daily updates on weather, road and power outage conditions.

Big thanks to the folks who manned the EOC in Port Angeles and emailed the written road condition reports.

We were tested and we passed. I laughingly suggested, likely giddy from too much exertion, that now would be the time the Big One happens. Big thanks to my Higher Power that it didn't. Until next time. Take care, be safe, and don't be afraid to step outside your comfort zone to lend a helping hand. You just might be rewarded with a Jade plant.

TOTAL SNOW AT OUR HOUSE FOR FEBRUARY 2019 50 INCHES: Yes, Chuck, N7BV, has the right to complain, he lives one-mile due west of our house. I am thankful he was able bodied enough to dig an outhouse for Riley and Foster, his two four-legged best friends.

2/8/2019	6 inches	2/13/2019	1 inch
2/9/2019	22 inches	2/14/2019	6 inches
2/11/2019	7 inches	2/20/2019	1 inch
2/12/2019	6 inches		

Editor's Note: Actually Karen did most of the shoveling.

From: jcowens1@comcast.net <jcowens1@comcast.net>
Sent: Sunday, March 3, 2019 11:27 AM
To: n7bv@yahoo.com

Subject: SK Estate Sale

Would you please send this list to your club members via and email or through the club newsletter.

The following is a list of ham equipment belonging to K7GEX (SK) that I am helping his daughter sell. All of it is in excellent condition and top working order. It came from a non-smoking household. I live in Edmonds and you can view this equipment at my residence in Edmonds, WA by appointment. She prefers sales be handled through her PayPal account using "Friends and Family" option to avoid fees. Cash only is another non-preferred option. No shipping is possible on larger, more costly items.

1. ICOM 7850 50th Anniv Special Transceiver (only 150 \$12,000 (cost over \$16,000 new) made)
2. Alpha 9500 Linear Amplifier \$4,000 (Cost \$8,000 new)
3. Elecraft K3S Transceiver (10W, 2.8kHz and 400HZ \$1700 (Cost \$2800 new) Roofing Filters and 1.0 ppm Osc)
4. Bird Wattmeter(6 slugs, meter, dummy load in \$350 (SOLD) Nice black carrying case
5. Steppir SDA-2000 Optimizer \$500 (SOLD)
6. ICOM 28H UHF Transceiver \$75
7. Collins KWM-2 Transceiver \$700
8. Collins 312B-5 \$650

Other equipment that might soon be available for sale:

9. Array Solutions Impedance Analyzer
10. Drake CS7 Coax Switch
11. ETO Antenna Selector
12. RF Applications Inc P-3000 SWR Meter
13. Steppir DB-11 Antenna
14. 3 Hygain Tailtwister rotators w/ controllers

Call me at 425 745-057

Patrick Barkey, N9RV / n9rvee@gmail.com

CW Contesting: Threatened Species or Growing Trend?

Whither CW?

Morse code seems to have a new lease on life these days. It was 1991 when the FCC dropped the code requirement from its licensing requirement for the Technician class license, amid an avalanche of rhetoric on how voice and data modes had made dots and dashes obsolete. The Morse requirement went away altogether in 2007. Fast forward to today, and what do we see? Massive activity on CW during contests and DXpeditions. Consider the QSO counts by mode for the KH1/KH7 Baker Island DXpedition last summer (see table).

Of course, the really amazing statistic is the explosive growth of FT8 — more than 15,000 contacts. *Wow!* The growth of this new data mode seems to have come at the expense of RTTY, with fewer than 1,000 contacts recorded. Yet eclipsing all of this is the amazing fact that our so-called obsolete mode of CW remains head and shoulders above any of the others. Operators who want to make contacts fast over difficult paths still prefer CW, it seems.

Why is that so? Of course CW is efficient in its use of spectrum space, it is simple in its technical requirements, and it is a skill that hundreds of thousands of people have learned and perfected. But the continued popularity of CW in contesting and DXing comes about for a reason unanticipated by those who developed International Morse Code (the “radio code”) — namely, it is a mode that computers like, perhaps even better than humans do.

The modern CW contest station, particularly in multioperator categories where internet assistance is allowed, has become a giant data-processing machine. Spectrum and waterfall displays show the entire band at a glance, with skimmers (either local or remote) decoding the call signs and laying them out like a dinner menu. With the touch of a key, your software can take you up the band to the next station CQing that isn't already in your log. On the reverse side, you can get an instantaneous picture of propagation, complete with signal reports from the skimmer reports that flow in seconds after your CQ.

The fact that these same amazing capabilities don't exist on SSB has changed the

Mode	SSB	CW	RTTY	FT8	Total	Total %
AF	19	36	0	31	86	0.1%
AS	7,713	12,342	693	6,277	27,025	41.9%
EU	3,042	5,860	35	2,501	11,438	17.8%
NA	6,229	11,219	172	5,779	23,399	36.3%
OC	790	730	25	630	2,175	3.4%
SA	71	168	1	71	311	0.5%
Totals	17,864	30,355	926	15,289	64,434	

competition between these two modes for operator popularity. Multioperator stations in SSB contests still have to tune the bands and copy the call signs. The spots that do come in via the internet are the human-generated kind, which are much, much less numerous (and even less accurate, in some cases). It is almost a complete reversal of the “skill” argument that CW has made for decades. On CW, the contacts are served up on a digital platter, and it is the SSB operator who has to figure things out on his or her own.

The Dirty Little Secret of CW Contesting

All of these trends have given rise to something that might surprise you — the CW operator who doesn't know CW. In DXing this has existed for a long time. An operator who knows where the DX is, knows what the DX's call sign is, and recognizes the sound of their own call sign can hop into a DX pileup with the best of them. Hit the button on the memory keyer or computer, and call away. When you hear the size of some of the pileups on the big DXpeditions, and all of those call signs they contain that you never seem to hear on the air or in contests, you have to wonder how many are doing this?

And then, of course, are the much more numerous contesters who rip along at high speeds doing contest exchanges, but stop dead in their tracks when someone asks them a question or they encounter a situation where they have to go “off script.” Some of these contesters are in the Hall of Fame! It's not a question of CW ability, exactly. At least as far as contesting is concerned. They are great contesters who just don't see the point of using CW to converse, and haven't bothered to master the art.

But the data revolution that has propelled CW activity to greater heights has brought more people into casual contesting — per-

haps from SSB or even data modes — who hardly know the code at all. Much like those DXers calling in pileups, these developing operators can follow skimmer spots to your frequency, check the skimmer spot against a database to see that the call sign is valid, and hit some

computer keys to call and work you. And maybe even use a code reader to help copy the contest exchange.

Before you castigate these newbies for not learning CW “the right way,” consider this question: How else do we expect them to learn? The days of Novice bands, segments of slow-speed CW activity perfect for building skills and confidence, are long gone. For the new operator, it's either dive into a contest, where the speed maybe intimidating but the software tools, data support and predictable format of QSOs makes participation possible — or don't operate CW at all.

And, besides, should “real” CW contesters really complain? Those new operators calling in, even if their computers are doing most of the work, count for points just like anybody else's. And that makes the slow times of a contest go a lot faster.

Getting to the Next Level

Keeping the interest and enthusiasm of these non-CW CW contesters is another matter. They have a very distant relationship with our branch of the hobby and our competitions. At the very least they are learning a lot of bad habits, especially in trusting their computers and data tools instead of their ears. Indeed, they can't trust their ears at all because they have not yet acquired the skill. They are getting their feet wet, and that is great. But how can we get them to the next level, to where they can develop better CW skills?

That is a very difficult question to answer. One thing that we probably don't want to do is to embarrass or shame them. There is no sin in not knowing CW or in not knowing it very well. Communication skills are learned through experience, and we were all inexperienced at one time in our lives.

The ARRL International DX Contest made a big mistake, in my opinion, when it published an “accuracy index” for all logs

submitted for the 2018 CW contest. Making accuracy counts public for top scores is one thing, but I am not sure any useful purpose is served by publishing scores from logs containing 50 contacts that have

20 percent error rates, instead of simply sharing those findings with the participants privately.

I think that the close relationship between computers and CW gives all of us

who love CW contesting a great opportunity to bring more people into our sport, if we can figure out how to motivate them to take the next step and actually learn the code.

The above article was reprinted, with ARRL permission, from the NCJ (National Contest).

As the above article presents, there are a lot of people operating CW who do not really know CW. At first they learn their callsign, and use CW decoders to 'read' CW. In order to do this their skill with computers and networking come into play. The CW readers can be merged into logging programs like N1MM and others. HRD has a built in CW reader as does FLDIGI. Some other programs are out there that integrate also (CWget).

Another thing to pointed out is that on an ordinary day the bands are not crowded (except for a DXpedition or two or a rare country) however during a contest many, many more stations are on the air. Are they all contesters? No, a lot of people consider contesting an on-the-air-participating-event. They set their own goals, 25 contacts, this time maybe 50 next time. Exercise their equipment, antennas to the best of their abilities.

By reading up on contesting they begin to learn short cut ways of operating, which helps they do better each time. They might alternate their goals from number of contact to seeing, as with the 12 hour NAQP (North American QSO Party) to see if they can work all states.

What is happening is people are operating for the sake of the hobby of ham radio. They are leaning copying skills, phonetics, propagation and which band to use at what time to talk to where; all skills that will make them a better operator no matter where they apply them.

Have you ever really listen in on a SSB contest? Noticed how quickly phonetic are used?

Everything is not about planning for the next big earthquake—which could hit anytime in the next 50 years. Have some fun with the hobby of ham radio — get to know your radio/s, propagation, building your own antennas, the better you know them the better operator you will be if the big one hits if you are alive.

73, Chuck N7BV

CCARC Ham Meeting Janu- ary 9, 2019

**Respectfully
submitted,
Rosemary Day
KI7MZH Secre-
tary**



The **PNW DX Convention** has been held every summer since 1955 with the sponsorship rotating between the major DX clubs of the Pacific Northwest. The 64th Convention is hosted by the [Western Washington DX Club](#), the largest and oldest of the clubs.

Together, these organizations have upheld the rich traditions of amateur radio and the pursuit of DX through five solar cycles. Over the decades, we have enjoyed wonderful friendships and the very special international camaraderie that ham radio fosters in the Pacific Northwest and around the world.

Northwest DX and Contest Clubs

- [Spokane DX Association](#) | [Idaho DX Association](#) | [Western Washington DX Club](#)
[Willamette Valley DX Club](#) | [Central Oregon DX Club](#) | [Orca DX and Contest Club](#)
[British Columbia DX Club](#)

Congratulations and thank you to the Orca DX and Contest Club for hosting a great 2018 convention on the banks of the Fraser River in lovely British Columbia!

See: <http://pacificnwdxconvention.com/>

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**Some of the Presentations:**

Dr. Joe Taylor, K1JT  
 "Beyond WSJT-X 2.0"

Dr. Tamitha Skov, WX6SWW  
 "Space Weather Woman"

Ed Muns, W0YK  
 "Contesting Beyond CW, SSB, RTTY "

Mike Mertel, K7IR  
 "The SteppIR (Antenna) Story"

Dinner Banquet and  
Special Guest Speaker  
 Ward Silver, N0AX

Ed Muns, W0YK  
 "Contesting Beyond CW, SSB, RTTY "

**Treasurer Report**

Respectfully, Joe Edwards KI7RBS  
CCARC Treasurer

**FOR SALE or TRADE**

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CCARC Standing Committees

- Field Day Co-Chairs:** Al Fisk KD7TFK, Sheldon Koehler N7XEI
- Health and Welfare:** Rosemary Day KI7MZH
- Membership Chair:** Joe Edwards KI7RBS
- Net Coordinator:** Cori Rice KF7VZZ
- Public Relations:** Jeannine C Tyler
- Publications (Newsletter):** Chuck Jones N7BV,
- Technical Committee Coordinator:** Doug Welcker, WB4KGY, Bob Sampson K6MBY, Bill Peterson K7WWP, Merrill Terpstra KA7FAM
- VE Education and Training:** Chuck Jones N7BV
- Web Site Administrator:** Bill Peterson K7WWP

CCARC Special Committees

Roster: Joe Edwards KI7RBS

NEXT YL Luncheon

**April 12th
Oak Table
292 W. Bell - Sequim**

*Find us on the web at
www.olyham.net
Check it out. Lots of
information about ham
radio in Clallam County!*

2019 - CCARC Ladies Luncheon Schedule

Reservations are made for 11:30 - 2nd Friday of each month

April - Oak Table - 292 W. Bell - Sequim

May - Downriggers - 115 E. Railroad Ave. - Port Angeles

June - Black Bear Diner - 1471 E. Washington - Sequim

July - Gordy's 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	
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 County 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:](#)

CLUB OFFICERS For 2019

President: Mark Ellington K7DWE 360-460-4043 gossamer765@gmail.com

Vice President: Chuck Jones N7BV 360-775-8201 n7bv@yahoo.com

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Treasurer: Joe Edwards KI7RBS 360-808-5282 ki7rbs@gmail.com

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Board Member: Jeannine C Tyler (360) 460-4236 weblairs@olypen.com