CTU Presents

QRP/Low Power Contesting-Tips & Strategies

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Many slides & links so you're probably going to want to review extended version of Today's Presentation

View complete slide show and access links at

tiny.cc/ctu-qrp 🔗

If you need a PDF copy click here
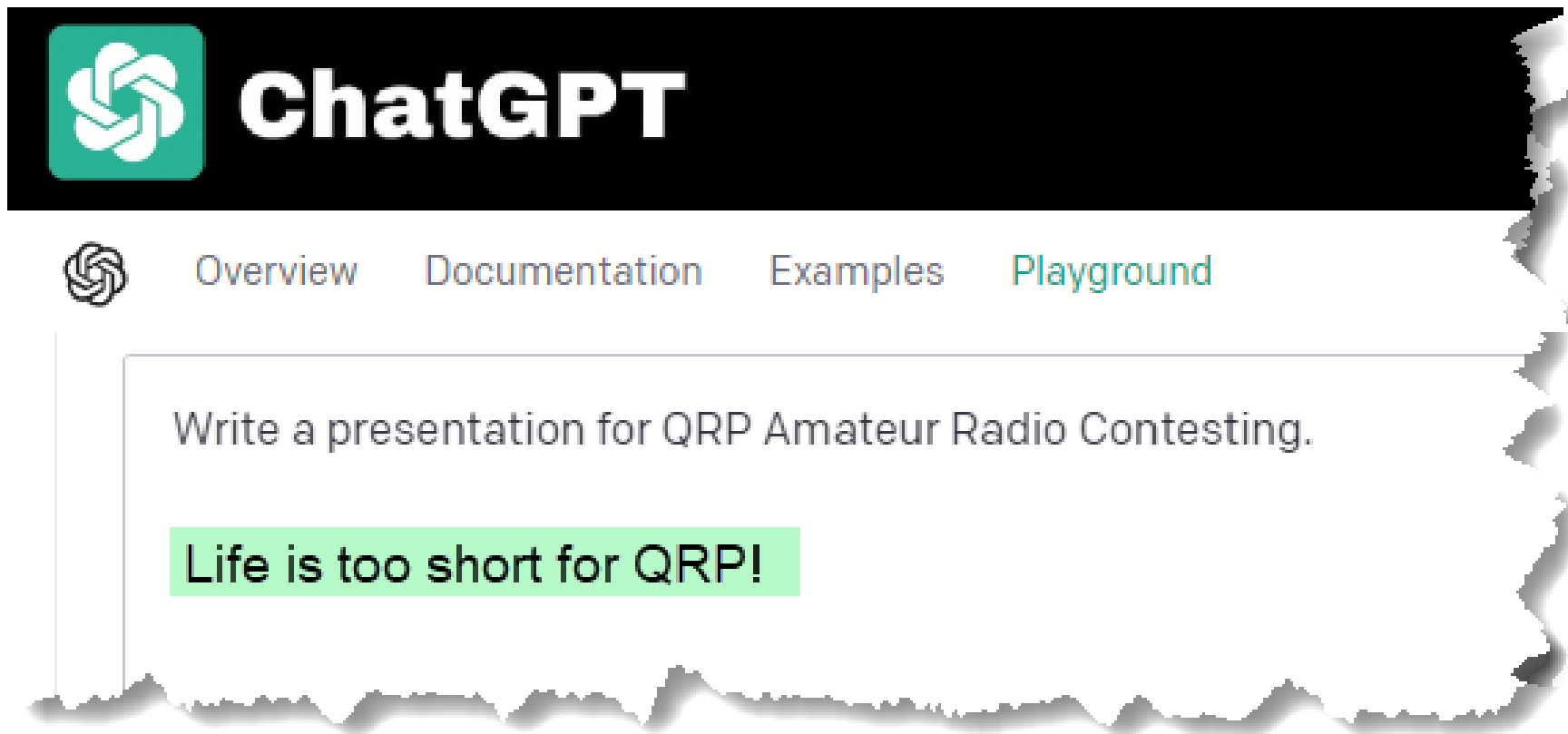
QRP/Lower Power Contesting

- Before we start, a short survey to allow me to best adjust focus of this session
  1. QRP or Low Power?
     - How many are LP power? / How many QRP ops?
  2. How many years of Contesting?
     - Just getting started / Less than 5 years / 5 to 10 years / 10 to 20 years / over 20 years

QRP Contesting

- I thought I could save time by asking Chat GPT to use AI to write this presentation, but...

QRP/Lower Power Contesting

- **Today's Topics**
  - QRP & Low Power Definitions & Why?
  - QRP Myths & Myth Busting
  - Differences in QRP/LP vs. QRO Contesting
  - Getting Started with QRP/LP & Operating Tips
  - Successfully Making Exchange
  - Contest Selection
  - Addendum

Homework Will Be Required!

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Definition- QRP

- Most contests & awards recognize **5 Watts** as **QRP** for all modes

- A small minority of organizations use 10 watts PEP on SSB, but this is not recognized by most award/contest sponsors as QRP

- **QRPp** is name for even lower power also called **Milliwatting** using < 1 watt output power

Definition- Low Power (LP)

- Most contest & awards recognized 100 Watts or less as Low Power for all modes

- A small minority of organizations use 150 watts but this is not recognized by most award/contest sponsors as Low Power

- Recently ARRL has switched from 150 to 100 Watts

Decision- QRP or LP

- Most casual contesters choose Low Power over High Power (1500 Watts) because their radios have 100 Watt output & they have no amplifier
- The decision of Low Power vs. QRP is typically not an equipment issue but one of individual choice, style, challenge, etc.
- Most tips & strategies in this presentation apply to both QRP & Low Power, with exception of calling CQ (running)
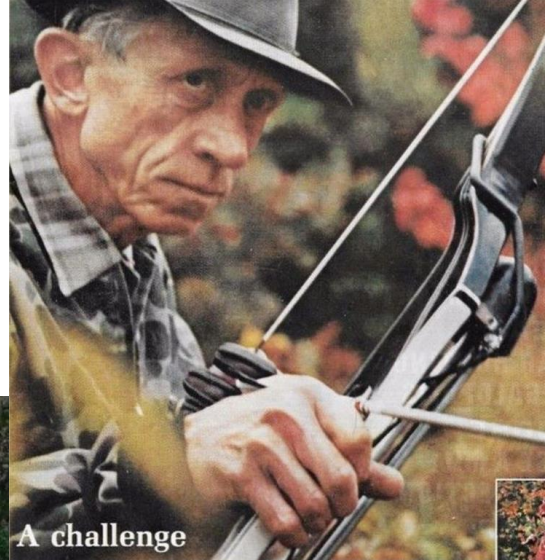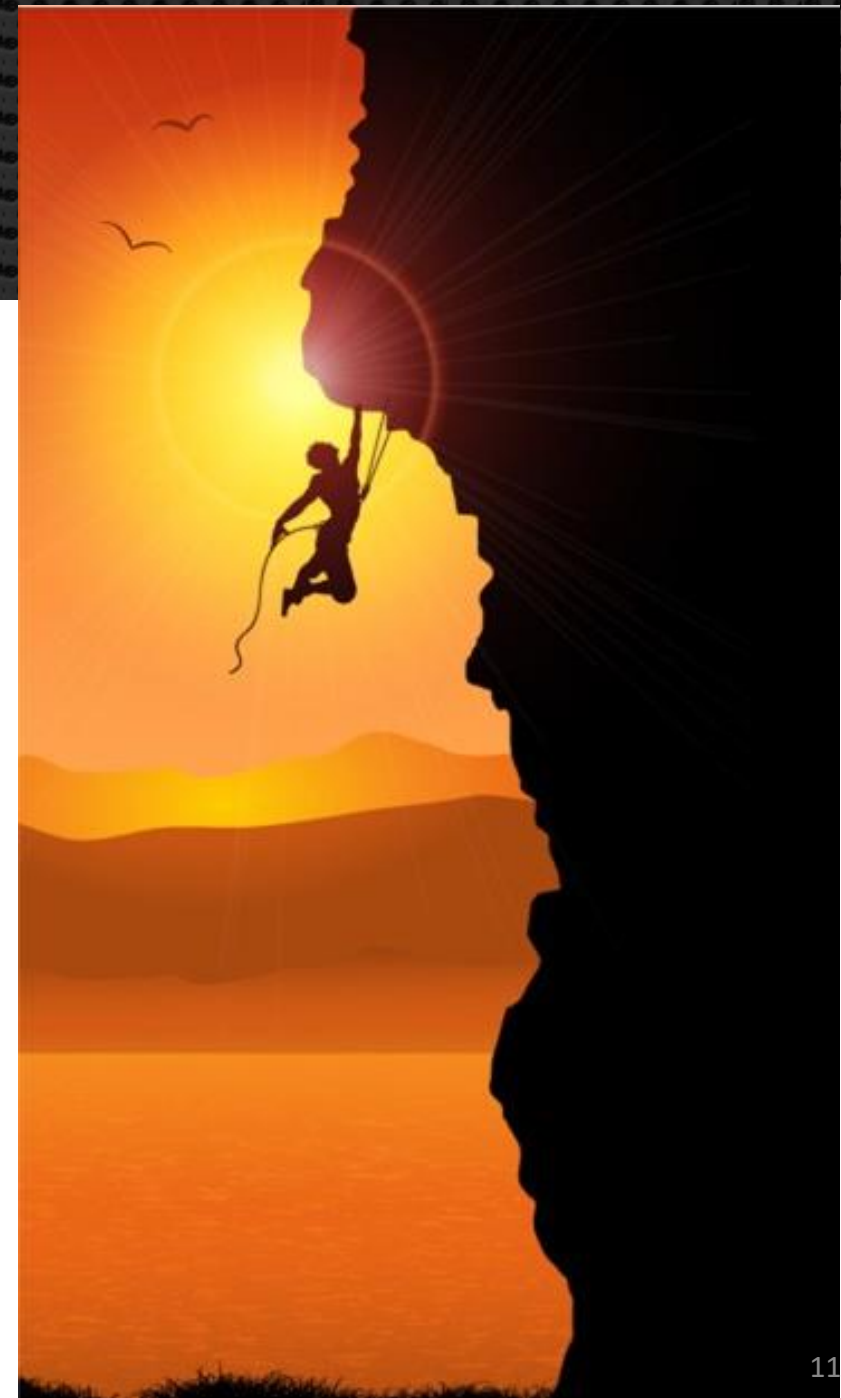
The Challenge?
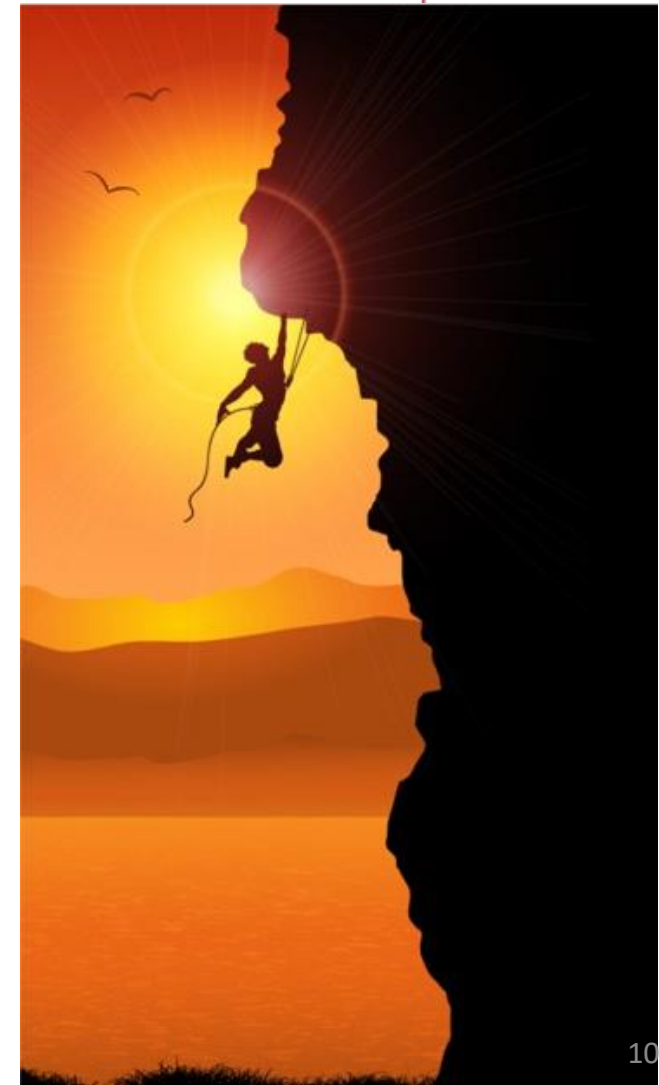
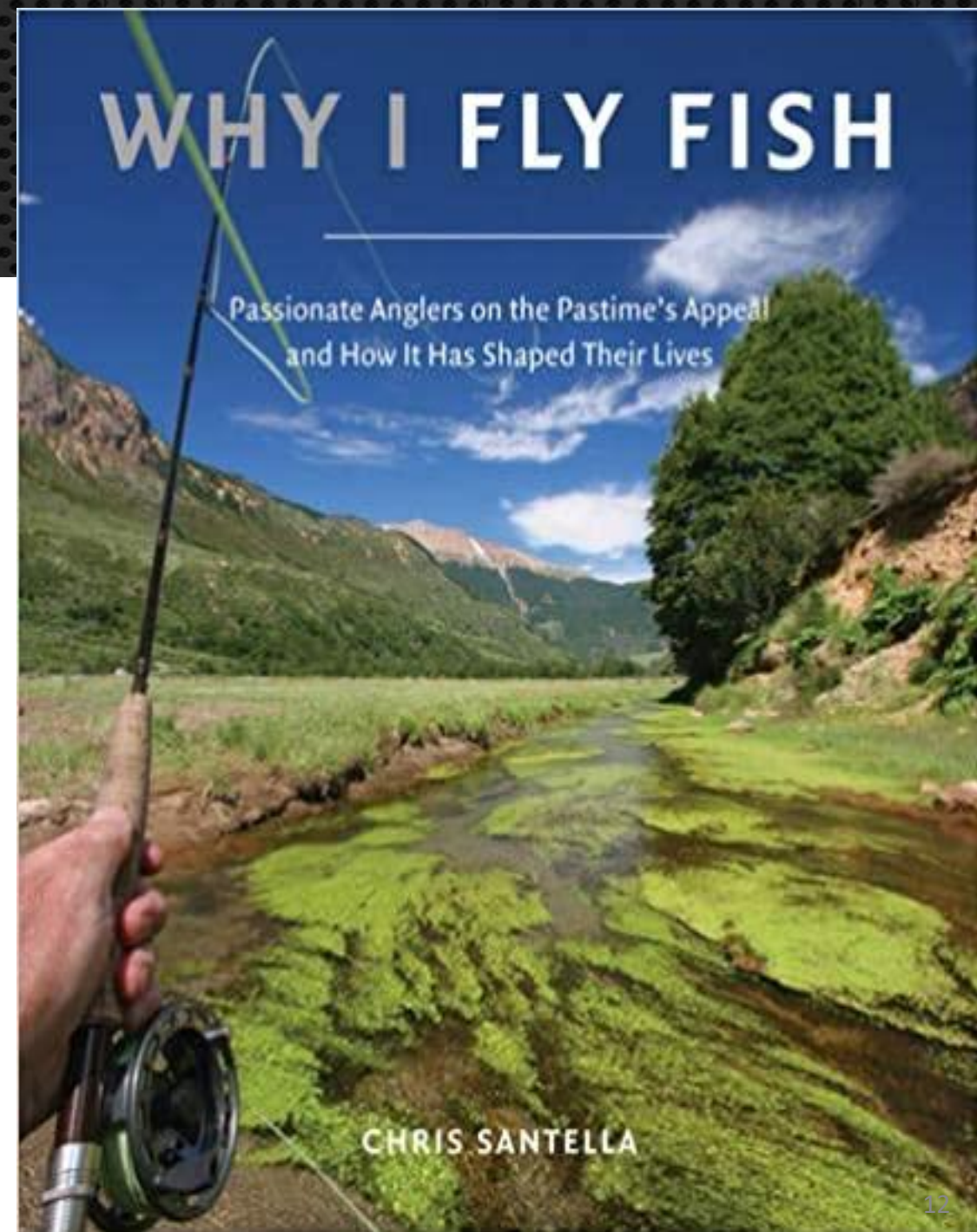# Why QRP?

- Why do contesters choose QRP?
  - **The Challenge**
    - Awards
    - Contests
    - Personal Goals

Why QRP?

- "Why I Operate QRP" is similar to the statement... "Why I Fly Fish"

Why Not QRP?

THERE ARE FAR EASIER WAYS TO CATCH FISH

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QRP Myths

- 🦄 You must use a QRP only radio
- 🦄 You must use CW Only
- 🦄 You can't Win Contests
- 🦄 You can't use beams or good antennas
- 🦄 You cannot work DX
- 🦄 You must use QRP all of the time
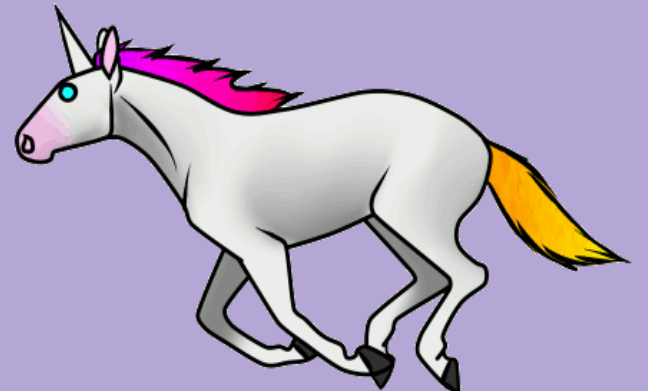
QRP Myth Busting

🚫 You must use a QRP only radio

✓ Most QRO (100 watt) radios can be adjusted for lower power output
- Follow manufacturer's suggestions
- Adjust ALC, turn down drive, etc.
- For further, precise power reduction, use step attenuators

TEN-TEC   POWER OUT WITH 5W INPUT

2.5	1.0	0.5	0.25	0.1	0.02
3db	4db	3db	3db	4db	7db

STEP ATTENUATOR   MODEL 290

QRP Myth Busting

🚫 You must use CW Only

✓ Although a majority of QRP operators historically used CW, many use SSB

✓ Recent popularity of Weak Signal Digital Modes– *FT8 & FT4*🔗 have become very popular for QRP ops

But, If You are Interested in CW

- CW is a potent tool for making QRP contacts
- You do not need to be a CW expert to make CW Contest QSOs
- See presentation *Fun with Morse*⬮ (if you are not a CW op & are interested in getting started)

Having Fun with Morse

N4LQ N4LQ TNX 7

tiny.cc/fwm⬮

QRP Myth Busting

🚫 You can't Win Contests

✅ Most contests have separate categories for QRP operators so you are only competing against other QRP Ops

2014 - SSB
WORLD WIDE DX CONTEST
ANTHONY LUSCRE, K8ZT
winner
U.S.A. - SINGLE OP./ALL BAND QRP
PAT COLLINS, N8VW AWARD
SCORE: 341,620

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QRP Myth Busting

✓ Most contests have separate categories for QRP

2022 CQWW DX SSB TOP SCORES

WORLD — SINGLE OPERATOR

HIGH POWER All Band	LOW POWER All Band	QRP All Band
PJ4K (N6KT)......16,224,072	WP3C 4,528,710	K8ZT 349,160
V47T (K5ZD).....13,340,329	N1UR.................4,035,766	HG6C (HA6IAM) 279,405
P4ØT (VE3DZ) 9,398,793	HI3T 3,397,464	JH1OGC 264,252
CT3KN................9,193,977	CR2B (EA1BP) 2,178,800	UR5FEO 263,228
XL3T (VE3AT) 9,135,758	4XØT (4Z5FI)......2,152,332	MI5JYK 226,252
UPØL (UN9LW) ...8,050,170	K1BX..................1,593,606	JH7UJU 189,981
C4W (5B4WN).....7,784,250	IH9/IK5AEQ 1,558,025	DK8R 167,555
DM6V (DL7FER)..6,035,036	FG5GP 1,336,504	M7XTT 166,014
K4ZW................6,017,235	WW4X) (LZ4AX) ..1,303,932	W6QU (W8QZA).....131,130
S53MM 5,834,028	ED7R (EA7GX)....1,260,336	SO2U 125,292

UNITED STATES — SINGLE OPERATOR

HIGH POWER All Band	LOW POWER All Band	QRP All Band
K4ZW.................6,017,235	N1UR..................4,035,766	K8ZT 349,160
K5TR.................5,005,155	K1BX.................1,593,606	W6QU (W8QZA).....131,130
W9RE................4,980,048	WW4X (LZ4AX) ...1,303,932	W3EK....................77,355
KQ2M...............4,467,840	W6DVS 791,336	KA8SMA................72,695
K3ZO.................4,289,844	K8ZM 740,124	N7JI 35,805
NR3X (N4YDU)...4,127,820	N1NQD 725,637	NF2L 22,892
ND7K(@N6WIN) .3,007,544	K3SWZ 682,348	N3CI 19,926
N2QV...............2,785,321	K5FUV 676,620	KB4FUW...............11,826
KØEJ.................2,636,412	ACØW..................559,721	WC7S 10,296
K7RL.................2,337,120	WA3LXD..............524,210	K7FR 9,316

SINGLE OPERATOR ASSISTED

HIGH POWER All Band	LOW POWER All Band	QRP All Band
PT5J (PP5JR)....11,807,370	TM3Z (F4DSK) 3,736,488	OK2FD..................225,990
KP3DX (NP4Z) ...8,487,812	9A2EU 2,591,238	HG5O (HA5OB) 138,831
OMØR (OM3GI)...8,357,640	UA9MA 2,241,680	HF9CW 136,344
V31XX...............8,312,928	PA9M 1,899,824	SQ5CW 129,024

SINGLE OPERATOR ASSISTED

HIGH POWER All Band	LOW POWER All Band	QRP All Band
K3WW................6,141,828	WE9R 1,740,975	K2PI 19,448
WB9Z.................5,813,697	N2YO 1,539,699	NO5V 8,576
AA3B.................5,674,212	KS1J 1,486,660	
N2IC..................5,410,368	N3AAA...............1,317,580	

QRP Myth Busting

🚫 You can't use beams or other good antennas

✓ You certainly CAN!

✓ Don't confuse low power with poor signals

✓ Unlike high power amps, the gain of antennas benefits you twice– once on transmit and again on receive

QRP Myth Busting

🚫 You should always append QRP to your callsign

✓ You can choose to, but I strongly suggest you DO NOT

✓ Some stations will not answer because they assume it is going to be too hard to complete the QSO

✓ But if a station is calling for QRP stations, feel free to apply if you are operating QRP either way

QRP Myth Busting

🚫 You cannot work DX

✓ Maybe you will not be first to break the pileup but with patience and good operating practices you can work plenty of DX

✓ Many QRPers work contests because they are a good chances for DX

QRP Myth Busting

✓ My QRP Operating Results*

- >110,000 QRP QSOs
- DXCC Mixed 328 (317 Confirmed)
- WAS 11 Bands (160 to 6M)
- WAZ (CQ Worked All Zones)– 3 bands
- ITU Zones 76 out of 77
- DXCC Challenge – 1666
- Grids (AA##) – 2127

Mode	DXCC
CW	315
SSB	305
RTTY	189
FT8/FT4	244
DATA	265
ALL	328

✱ Note this is over a 40+ year operating history with majority in last 20 years

QRP Myth Busting

✓ My QRP Operating Results
  ○ Working QRP DXCC, especially, on lower bands can greatly benefit from FT8/FT4 & CW

Band	CW	SSB	FT8/FT4	RTTY	TOTAL DXCC	Band
Mixed	315	306	244	190	329	Mixed
160M	57	11	67	1	82	160M
80M	102	64	64	10	119	80M
60M	2	3	73	29	77	60M
40M	166	85	56	12	173	40M
30M	139	-	89	-	168	30M
20M	269	227	184	123	299	20M
17M	239	147	184	46	279	17M
15M	242	206	159	99	276	15M
12M	214	252	115	86	233	12M
10M	191	101	120	44	283	10M
6M	23	24	37	1	52	6M

Differences in QRP vs. QRO Contesting

- Besides obvious power difference other differences include
  - Strategy of
    - Planning
    - Operating Style
  - Less margin for error
  - You won't work everyone you hear!

QRP Contesting

- QRP Contesting often seems like you are always climbing uphill...

QRP Contesting

- ...with very little margin for error
- But it can be done successfully!

Winning Contest Factors

Factors Contributing to Contest Scoring Success		
1	**Number of QSOs**	Running (Calling CQ) with prolonged high rates is key to high numbers
2	**Point Values of QSOs**	Can be greatly influenced by Geographic Location
3	**Multipliers**	Importance to Final Score influenced by individual Contest's Rules
4	**Secondary Multipliers**	Varies by Contest, may include Power and/or Mode multipliers, Multipliers by Band, by Mode or One Time, Scoring by Distance, Bonus Points for working certain stations or station types
5	**Accuracy**	Avoiding UBNs, Lost Points, Lost Multipliers, Penalties, etc.
6	**Competition**	Who are you competing against varies by year, category, etc.

Differences in QRP vs. QRO Contesting

- ## Number of QSOs
  - When operating QRO, Calling CQ (a.k.a Running or Park & Bark) is King–
    "If you're not running you're losing"
  - Other option is Answering Others' CQing (a.k.a. Search & Pounce, S & P, Hunt & Pounce or Click & Call)
    - See "*Contesting 101 Operating*" (section on How to Search and Pounce)by K1DG

CQ CQ
CQ TEST

Differences in QRP vs. QRO Contesting

- CQing QRO vs. QRP

Differences in QRP vs. QRO Contesting

- Number of QSOs
    - Most QRPers & many LP contesters do a lot of "Search & Pounce"
    - Most beginning contesters typically use S & P, especially on CW

Differences in QRP vs. QRO Contesting

- Number of QSOs
  - With QRP, Running is Difficult Unless...
    - You are a rare multiplier
    - You have a killer antenna farm
    - You are an elite operator
    - Band has a lot of open space
    - You pick an Opportune time
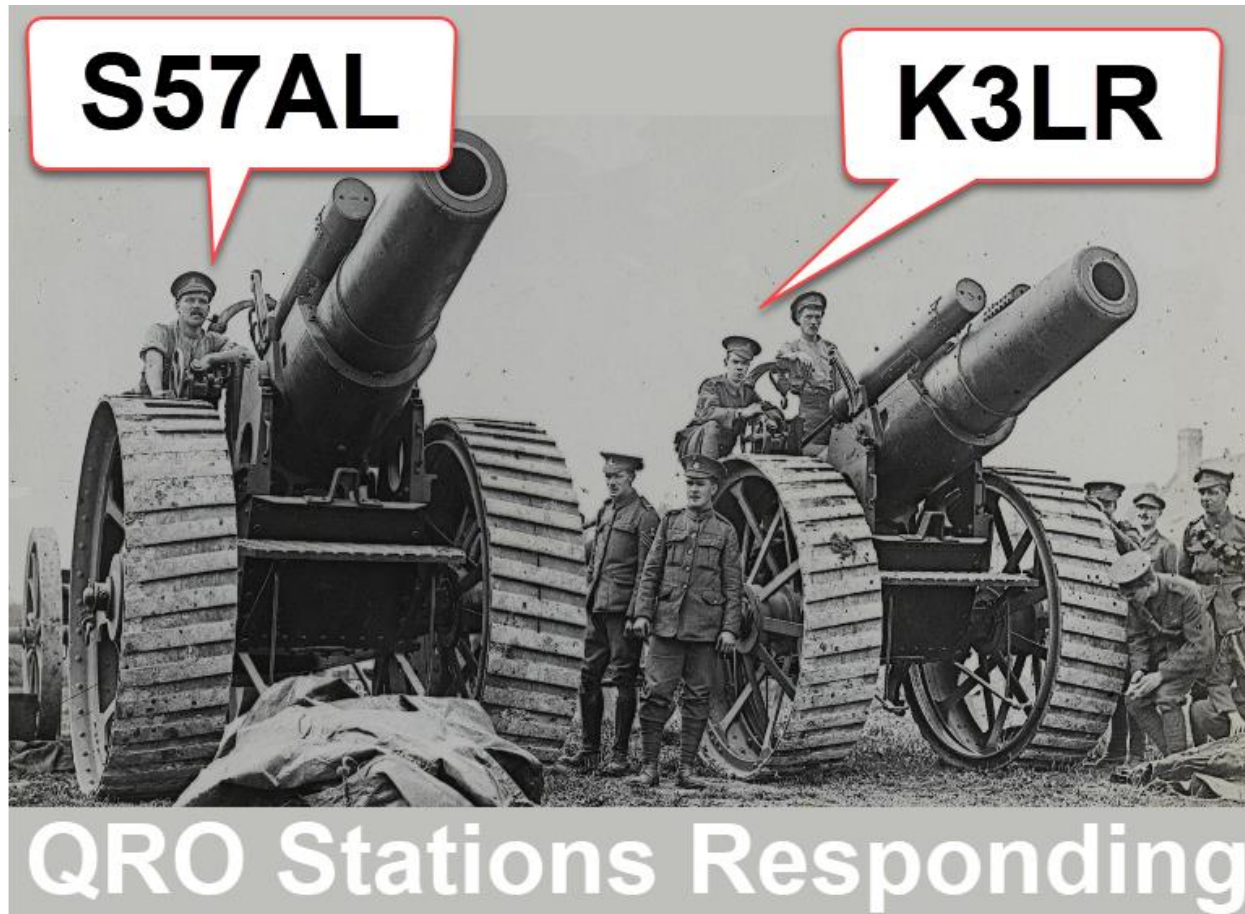   - 2nd day or near end of contest

Why is Running so Hard?

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Differences in QRP vs. QRO Contesting

- ## Number of QSOs
  - ### Search & Pounce Aids
    - #### Logging Software Bandmap
      - Assisted– from spotting & tuning
      - Non–Assisted– from tuning
    - #### Radio Band Scopes or external Waterfalls
      - SDRs & Software
      - See The "*Advantages of Waterfall Displays for Contesting and DXing*" by N6TV
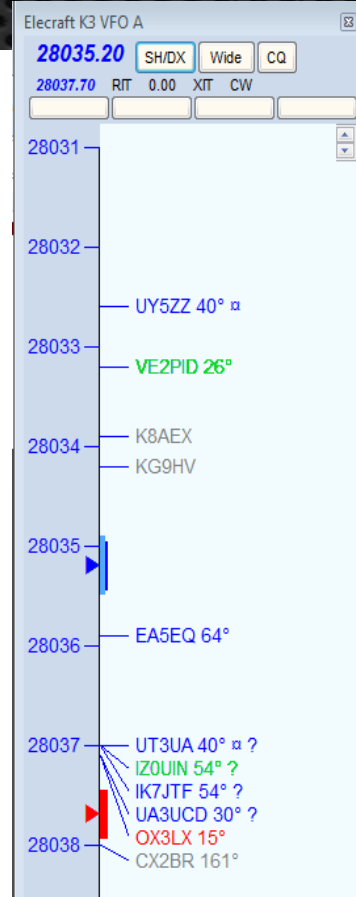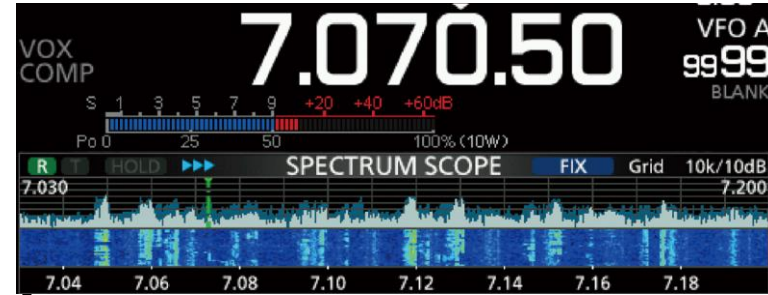
Differences in QRP vs. QRO Contesting

● Search & Pounce– Obstacle to QRPer!
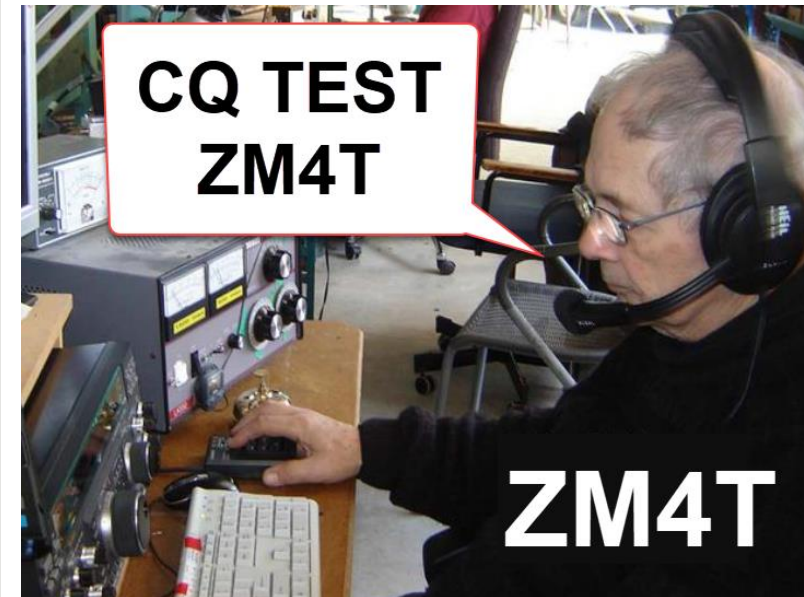
Differences in QRP vs. QRO Contesting

- Number of QSOs
  - You still want to maximize # of Qs with QRP but may need to use special strategies
    - Be there just as band opens or closes
    - Be "fresh meat" near end of contest
    - SOR2 or Modified Hunt & Pounce *2BSIQ* (Two Bands Synchronized Interleaved QSOs) both tricky, but not impossible with QRP
    - Strategic periodic CQs under specific conditions

Differences in QRP vs. QRO Contesting

- Point Values of QSOs
  - On both QRO & QRP, this is all about location, location, location just like real estate
    - In CQ WW your zone and country make a big difference (this is often why contesting stations are where they are)
    - Big difference with QRP is if you are located in a rare or desirable zone or country, you have better chance of running

Differences in QRP vs. QRO Contesting

- Multipliers
  - While working most available Multipliers can be an important part of a Running a QRO station, it is often not as important as high rates
  - With QRP, Multipliers often play a much bigger role in higher scorers
    - Even more important with CQ WW and other contests with double multipliers and lots of mults available on each band

Differences in QRP vs. QRO Contesting

- Multipliers
  - QRP operators need to pick up "cheap mults"
    - Don't forget no point mults in CQ WW
    - Working in All Band category, try to work all open bands even if just for a few minutes as each new contact on new bands are often new mults
    - Have a checklist of expected mults and a strategy/ hourly plan for working them

Differences in QRP vs. QRO Contesting

- ## Finding Multipliers
  - If you are working Assisted you can use Clusters, RBN, even a local Skimmer
  - Unassisted (and Assisted)
    - Have strategies, band change schedule, etc.
    - Understand Propagation
    - If you can't easily work a multi make a note (and/or add to bandmap) for later or next day on same freq or band & time
    - Quick detection of who's there

Multiplier Trap

- Avoiding the Multipliers Only Trap
  - Although multipliers can be important you still need points to multiply them by

Points X Multipliers = Score

Multiplier Trap

- Avoiding the Multipliers Only Trap
  - If you get too focused on mults you will miss points
    - Work the 2nd, 3rd, etc. instance of a mult, not for mult but for points
    - If you are not CQing you need to be **Harvesting Qs**
    - Understand which target Point QSOs prove easier, abundant points
      - Targets usually vary based on geography & band
      - Don't waste too much time on nonproductive bands

Low Hanging Fruit

- Harvesting Points– Low Hanging Fruit (stations vary by your location)

Low Hanging Fruit

- ● Most frequently worked prefixes by Mode from my Ohio location)
  - ○ Factors affecting frequency of contact
    - ■ Ham population of each DXCC
    - ■ % of Contesters in each DXCC
    - ■ Your location & distance/path of DX
    - ■ Propagation
    - ■ Bands being used
    - ■ Mode interest by country

	CW	SSB	RTTY	FT8	ST
1	K	K	K	K	CA
2	VE	VE	VE	VE	TX
3	DL	I	I	DL	FL
4	UA	DL	DL	I	WA
5	I	EA	EA	F	OH
6	G	G	UA	EA	NY
7	OH	LU	UR	G	PA
8	HA	PY	G	PY	NC
9	S5	F	KH6	UA	MI
10	OL	OH	LU	PA	AZ
11	F	UA	XE	SP	VA
12	SM	JA	9A	JA	IL
13	EA	S5	OL	ON	OR
14	SP	SM	ON	LU	GA
15	9A	KP4	P4	ZL	TN
16	PY	ON	YV	XE	CO
17	YU	HA	PY	UR	UT
18	UR	SP	F	UA0	IN
19	KH6	GM	SP	VK	MO
20	LU	XE	PA	GM	NJ
21	UA0	KH6	GM	HI	MA

Differences in QRP vs. QRO Contesting

- Secondary Multipliers
  - Some contests have a point multiplier...
    - for power level
    - for specific modes
    - for specific bands
      - typically lower freq bands in HF
      - typically higher freq bands in VHF/UHF
    - for working a QRP station (Stew Perry Topband)

Differences in QRP vs. QRO Contesting

- Accuracy
  - As a QRP signal you have a greater chance for stations busting your call/exchange
    - Use Standard NATO/ITU Phonetics or carefully selected substitutes for clarity (esp. non-English speakers)
    - Use good CW sending with proper spacing, judicial use of cut numbers, weighting, etc.
    - See "Busted Callsigns"– *link*
    - If your call is problematic consider a Call Sign Change

Differences in QRP vs. QRO Contesting

- Accuracy- Consider a Call Sign Change
  - Slideshow- *tiny.cc/idealcall*🔗
  - Video Recording- *youtu.be/BmI9LGdt6aY*🔗

Phonetics to Definitely Avoid

- Phonetics to Definitely Avoid

Phunny Photenitics		
A- Are	J- Junta	S- Sea
B- Bee	K- Knife	T- Tsunami
C- Cite	L- Llama	U- Understand?
D- Double-U	M- Me	V- Vie
E- Eye	N- Nine	W- Why
F- Five	O- Owe	X- Xylophone
G- Genre	P- Pseudonym	Y- You
H- Honest	Q- Queue	Z- Zero
I- I	R- Rap	

Differences in QRP vs. QRO Contesting

- ## Competition
  - Most contests have separate QRP category or categories, so you are only competing against other QRP stations
  - Often QRP categories have many fewer competitors than Low Power category
  - Just as in QRO categories, who else enters is outside of your control

Getting Started with QRP

- Steps
  1. Get on HF Bands; if you are not already
  2. Try turning down your current rig's output power level or pick up (or borrow) a QRP radio
  3. Check out the Top 15 Tips
  4. Make QRP contacts
  5. Use additional resources to learn
  6. Join a QRP Club
  7. Make more contacts and have fun!

Contesting with QRP

- QRP Only Radio vs. 100 Watt radio with power turned down
  - Just as with low power vs. high power compliance is dependent on the integrity of the operator
  - Turning down your current rig's output power level needs to be confirmed with an accurate meter
  - Avoid temptation of bumping it up "just a tiny bit"
  - Using QRP only radio removes questions

My First Shack

- Ten-Tec Argonaut 515, in an easily moved wooden case
- I didn't listen to "advice" from other hams– "Novices Shouldn't Start with QRP"

Ten Tec

- Odyssey of the Argonauts (and beyond) a story of early Ten Tec QRP Radios
  - Slideshow– *tiny.cc/ooa*🖉
  - *Video*🖉

Odyssey of the Argonauts (and beyond)

Anthony Luscre, K8ZT

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My 4th QRP Shack in a Box

- Elecraft KX3 for details visit– *KX3*

Rapid Deploy Tackle Box Go Kit🔗

Elecraft K3S-10 Current QRP Rig

ICOM IC-705 HF/VHF/UHF QRP TRCVR

- If you are familiar with operating the ICOM IC-7300 the IC-705 has very similar controls & same size display

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Popular QRP Only Rigs

- **Elecraft**
  - K3/10
  - K3s/10
  - KX3
  - KX2
  - K4/10

- **ICOM**
  - IC-705

- **Yaesu**
  - FT-818
  - FT-817

- **ELAD**
  - FDM Duo

- **Xeigu**
  - G90
  - X6100
  - X5105
  - G106

- **QRP Labs**
  - QCX+
  - QCX Mini

- **TenTec**
  - Argonaut VI
  - Argonaut V
  - Argonaut II
  - Argosy

- **Flex**
  - 1500

When you care

QRP

To send the very least!

I ❤ QRP

DO MORE WITH LESS!

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ICOM

Top 15 Tips for QRP Success

1. Use best possible Antennas & feedline for situation
2. Develop Good Operating Techniques
3. Operate during Contests & high volume activities
4. Understand your Radio (know how to use features including filtering, split operation, memories, TX audio tailoring, etc.)
5. Be Persistent (you probably will not be first to break every pileup)

Top 15 Tips for QRP Success

6. Learn to be a skillful Search & Pouncer (but don't be afraid to call CQ at strategic times)
7. Be there near the end of contests as "fresh meat"
8. Don't append QRP to you call (especially in pile ups & contests)
9. Understand Propagation & current conditions
10. Try using highest freq open band

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Top 15 Tips for QRP Success

11. Operate on as many bands as possible, especially lesser used bands (30, 17 & 12)
12. Operate multiple modes, each mode you operate increases your chances (CW, SSB, DATA)
13. If you don't currently operate CW, learn at least enough to make simple Contest & DX contacts
14. If you haven't tried FT8/FT4 you are missing a great weak signal mode
15. Get on the Air as Often as Possible

Develop Good Operating Techniques

- Try to always use the best operating technique, with QRP power you do not have as much margin for error as QRO, if you want to make QSOs

- Listen, Listen, Listen
- Understand the Timing, Rhythm, Rhyme & Dance of QSOs– *tiny.cc/r-r-d*

How to Make That QSO-
Get in the Rhythm,
Know the Rhyme &
Dance the Dance

Anthony Luscre, K8ZT

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Develop Good Operating Techniques

- Mimic efficient and effective operators
- Know Procedures:
  - S.O.P. including typical contest exchanges
  - Variations by
    - Contest
    - Mode
    - Specific Station you are trying to work
- Good Etiquette still matters with QRP

Successfully Making Exchange

- Give your exchange in the expected/accepted order/manner

- Use correct abbrv. for Counties/States

- On phone use phonetics as necessary
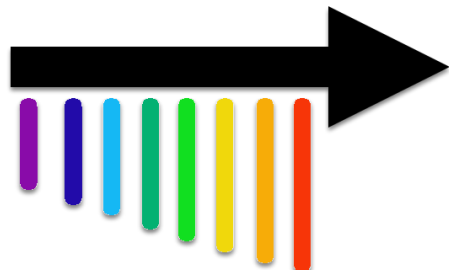
Successfully Making Exchange

- If the station has not successfully received your call or exchange?
  - If CQing station is having a problem with your call and/or exchange, consider repeating it twice but don't get carried away with endless repeating
  - Consider alternative phonetic for missed letter(s)
  - Excessive use of sending double calls/exchanges in good conditions can frustrate other stations and greatly slow things down

Successfully Making Exchange

- On phone, good operators can add a cadence & pitch to the voicing of the exchange that clarifies different portions of the exchange and can enhance the ability to copy it
- On CW, proper spacing is very important
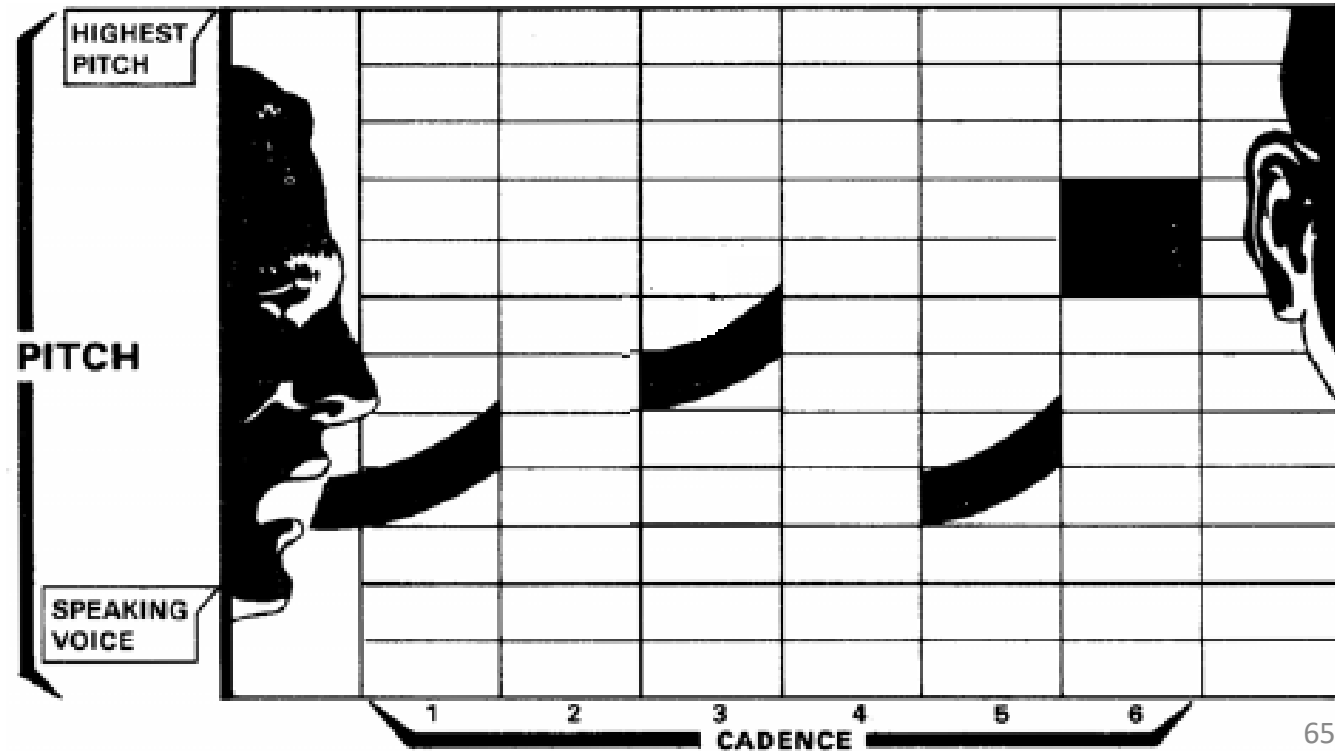
Successfully Making Exchange

- If the station repeats back to your exchange with a ? (Questioning or Please Confirm)
  - **Confirm it, if it was correct–** a quick CFM, RR, Confirm, Roger or QSL will do
  - **If it was wrong–** send NO, NEG or say Negative, then repeat corrected exchange

Successfully Making Exchange

- If the station is not successful at getting your exchange after multiple tries they may send:
  - LATER (Try Later)*
  - NIL (No contact was made, DO NOT LOG)
  - SRI (Sorry)
  - They start just calling CQ or QRZ again with no acknowledgement–
    (No contact was made, DO NOT LOG)

    * Make a note of freq and try later

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OK, SEE
YA LATER

Planning- Picking a Specific Contest

- Unlike most other sports competitions, in Radio Sport, contestants get to choose their own "Playing Field"
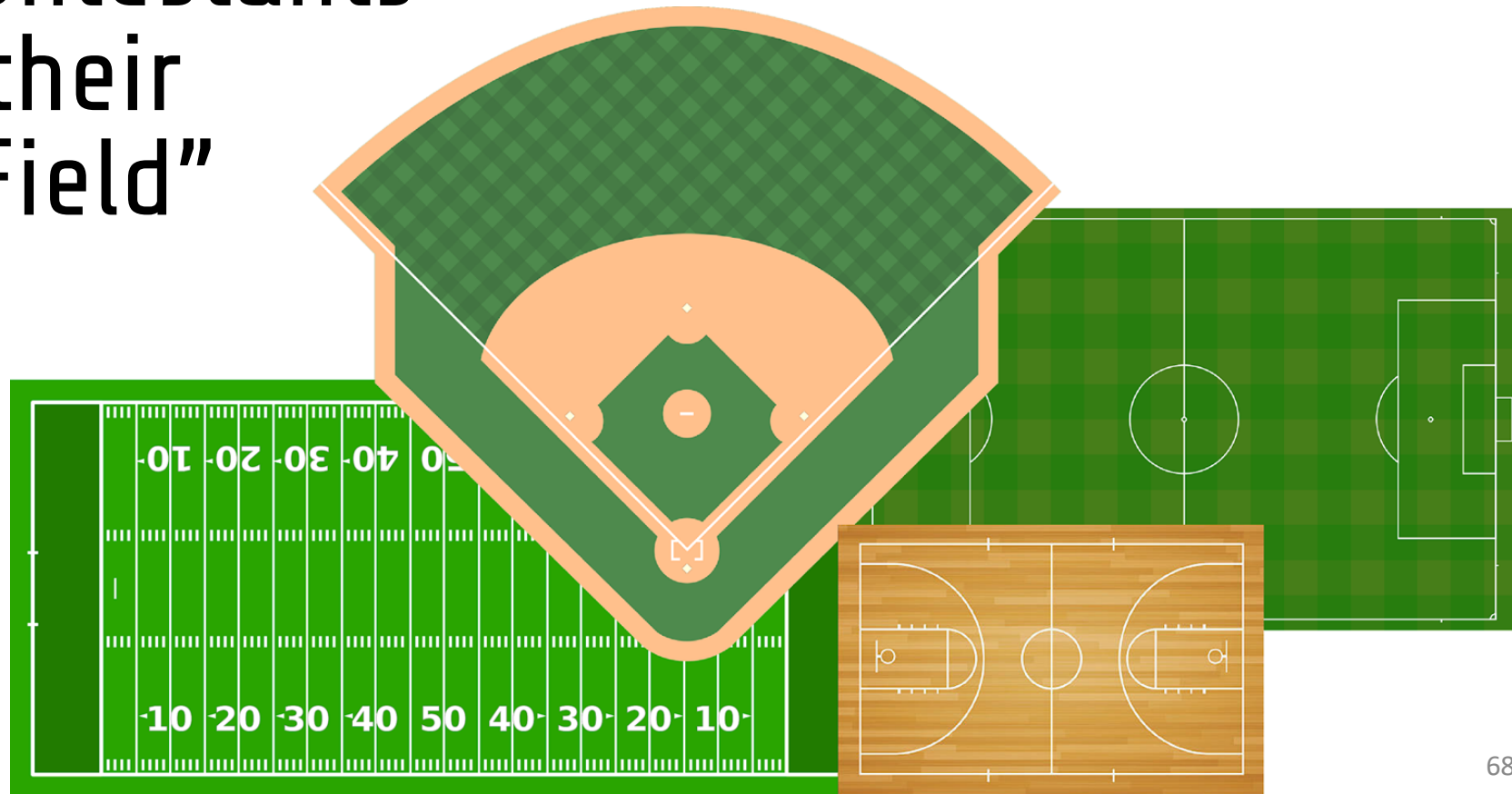
Planning- Picking a Specific Contest

- By choosing specific contests and entry categories you can best match your...
  - Interests & Modes
  - Operating skills
  - Radio equipment & antennas
  - Level of competitiveness

Planning- Picking a Specific Contest

- You can also choose specific contests that also favor...
  - Your Geographic Location
  - Specific Bands
  - Increasing your DXCC, WAS, etc. totals
  - Winning or finishing in a top spot
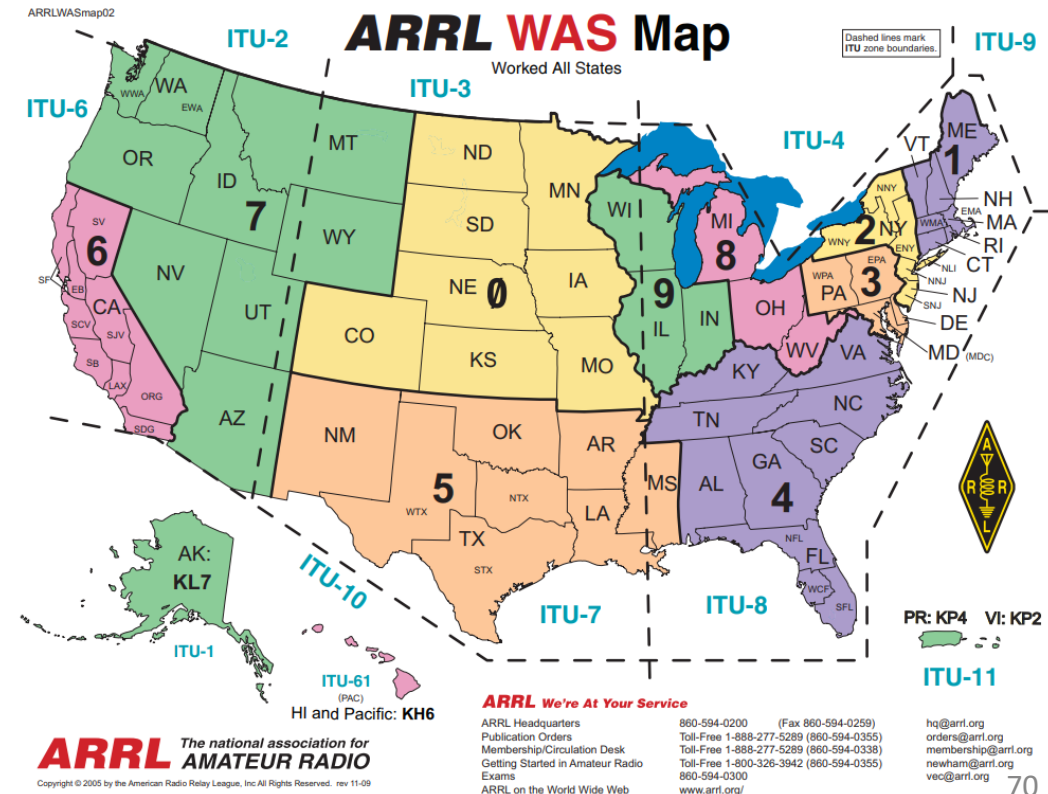
Planning- Strategy & Scheduling

- Know Who Will Be There
  - *NG3K* Amateur Radio Contest/DX Page (ADXO)
  - Learn calls, locations, habits of contesters
    - Especially atypical calls for specific multipliers
  - Who to spend extra time trying to work vs. what will be available throughout contest
  - Who & When to target for rare zone or grid mults

Planning- Strategy & Scheduling

- Know When They Will Be There
  - Propagation Predictions & Previous Results
  - Operator Habits
  - 2nd Day Chances
  - Don't miss short band openings
  - Grey Line can be your low band friend
  - It's hard to beat quality BIC Time to improve score

QRP/LP Contesting Summary

- Work Mults, don't miss extra chances
- Timing & Technique are Critical!
- Harvest Qs, remember points are vital & if not CQing, Harvest
- Call CQ if & when opportune
- Plan ahead– ADXO, Prop, etc.
- BIC– Butt In Chair Time Critical + Persistence

Questions / Comments ?

View this slideshow and access all resources links at

tiny.cc/ctu-qrp 🔗

If you need a PDF copy– *click here* 📄⬇

Addendum

- See following for…
  - QRP Introduction
  - Other Resources

New to QRP Operations ?

- ## *tiny.cc/qar* 🔗

QRP Amateur Radio

Anthony Luscre, K8ZT

QRP Clubs

- I cannot stress how much QRP clubs around the world, both large and small, have contributed to adoption and innovation of QRP operation
- We also owe an immense gratitude to the many individuals that have contributed to QRP & QRP clubs
- Please take a look a list of QRP clubs on next page and consider joining one or more

QRP Clubs

- *Alaska QRP Club*
- *Arizona ScQRPions QRP*
- *Austin QRP Club*
- *Central Florida QRP Group*
- *Explorers Radio Club*
- *Flying Pigs QRP Club*
- *Four State QRP Group*
- **GQRP Club**
- *Hawaii-QRP Club*
- *Michigan QRP Club*
- *New England QRP Club*
- *NOGA QRP Club*
- *NorCal*
- *NORTEX QRP Club*
- *North American QRP CW Club*
- **QRP-ARCI**
- *St. Louis QRP Society*
- *The Colorado QRP Club*
- *Knightlites QRP Club*

Find Your Exchange

- Finding your Grid, CQ Zone & ITU Zone:
- *tiny.cc/findexc*
  - *Finding your Grid Square* (Web & Apps)
  - *Zone-Check*
  - *CQ Amateur Radio*
  - *Mapability EI8IC*
  - *Levin Central*
  - *Amateur Radio Charts & Maps*
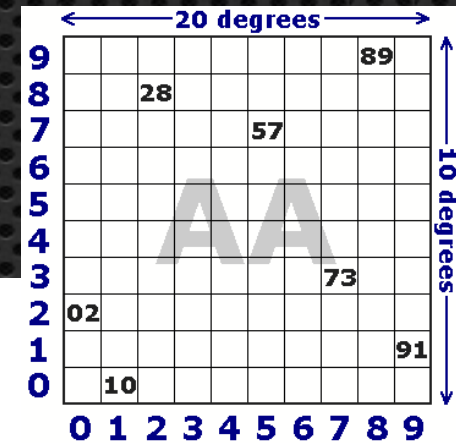
Fig 1: First Sub-Division

CTU CONTEST UNIVERSITY
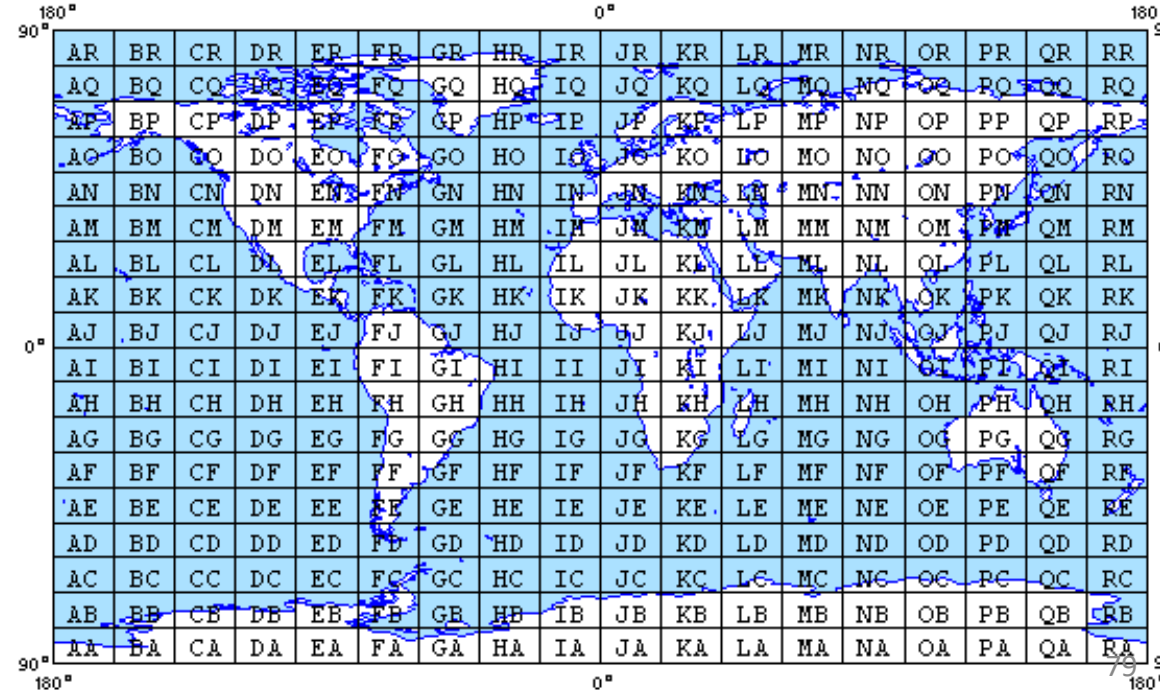
Find Your Exchange

- Finding your Grid, CQ Zone, ITU Zone, Section, etc.
  - Amateur Radio Charts & Maps– *tiny.cc/chart-maps*🔗
  - For a wide variety of location based exchanges resources visit *www.k8zt.com/operating/maps-charts*🔗
  - Always check individual contest rules for any details on exchange

HamWaves Maps

- DXCC & Zones *Map*
- *Russia Map*
- Radio Map of Europe
- IOTA (Islands On The Air) *interactive computer map*
- Mexican Call Areas by State- *interactive map*
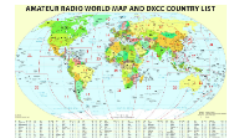
ARRL

- Worked All States (WAS) *Map*
- ARRL Divisions *Map* and *Webpage*
- ARRL Sections- *Webpage*
- National Parks On The Air- *Maps*
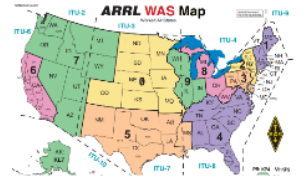
K8ZT Website

- K8ZT Maps & Charts Page- *www.k8zt.com/operating/maps-charts* there are way too many resources there to highlight them all here, so visit the page for more resources
- Create and print an Azimuthal Map centered on your location- an interactive website
- Canadian Prefixes by Province or Territory- *Map*
- Mexican Call Areas by State- *Map*
- The Number Eight in 14 Languages- *link*
- Numbers in 13 Languages- *link*
- Ten Meter Band *Guide*
- ARRL Sections, sorted by number and alpha- *tiny.cc/arrl-sections* & ARRL/RAC Sections *Map*
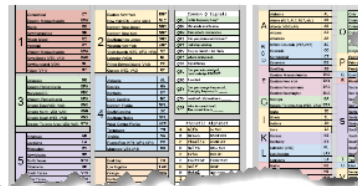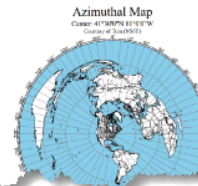
Other Contesting Resources

- *www.k8zt.com* contesting page

Presentations

- If your club is interested in a online presentation I am currently offering multiple options, for a list visit

tiny.cc/k8zt-p

- Email me if interested
  k8zt73@gmail.com

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CONTEST
UNIVERSITY

This list- tiny.cc/k8zt-p	Slideshow	Video
Amateur Radio Logging- ARRL Webinar	tiny.cc/arrl-log	https://ww
Choosing Your Ideal Callsign- QSO Today Expo 2021	TBA	TBA
Dx Engineering Interview by K3LR- K8ZT		https://www
Field Day in Social Distancing	tiny.cc/fdsd	https://yout
FT8/FT4 Digital Modes	tiny.cc/ft8ft4	
Fun with Morse	tiny.cc/fwm	https://yout
Intro to AR Contesting	TBA	TBA
N1MM Contesting Software- Elmering Day	y.cc/n1mm-eln	https://yout
Pandemic Ham Radio Activities An Opportunity to Grow- RATPAC	ny.cc/clubcovi	Jan 27, 20
QRP Amateur Radio	tiny.cc/qar	
QSLing In Digital World	tiny.cc/qx3	https://yout
Radio, Radio, Radio- 100 yrs of Commercial Broadcasting	tiny.cc/rrradio	https://you
RATPAC Programs Listings	ny.cc/ratpac-list	
RATPAC- Ham Radio- Online Meeting Resources	tiny.cc/hromr	https://vime
Software & Web Resources for Contesting	ny.cc/gl-contest	
State QSO Party Challenge	tiny.cc/stqspc	https://yout
Technicians, Life Beyond Repeaters	tiny.cc/btech	
Top Secret Techniques to WAS & DXCC	tiny.cc/ham50	
Youth in Amateur Radio	tiny.cc/yiar	