

Northwest Indiana DX CLUB

Volume 5, Issue 4

April 2017

President's Corner

The Club meeting on March 25th was well attended. We had 21 individuals present.

Jerry W9KTP was the guest speaker. He showed how to solder a RG-8X/U coax to a connector that is easy and sturdy.

I want to thank Jerry for his presentation, as even us old-timers learned some new tricks.

With warmer temperatures coming, please be careful when working on antennas. We don't want anyone hurt.

Speaking about antennas, if anyone knows of a tower climber please email me their name and contact information. Thanks.

73

John W3ML

Good DXing!

INSIDE THIS ISSUE

- 1 President Speaks
- 2- Member News/DX News

Don't Forget

DXCC CARD CHECKING

Doctor Richard Lochner, K9CIV is our Official ARRL DXCC Card Checker. Contact Rich to schedule an appointment for card checking.

You may email him at k9civ@arrl.net for details on how to mail your cards to him, if you desire to go that route.

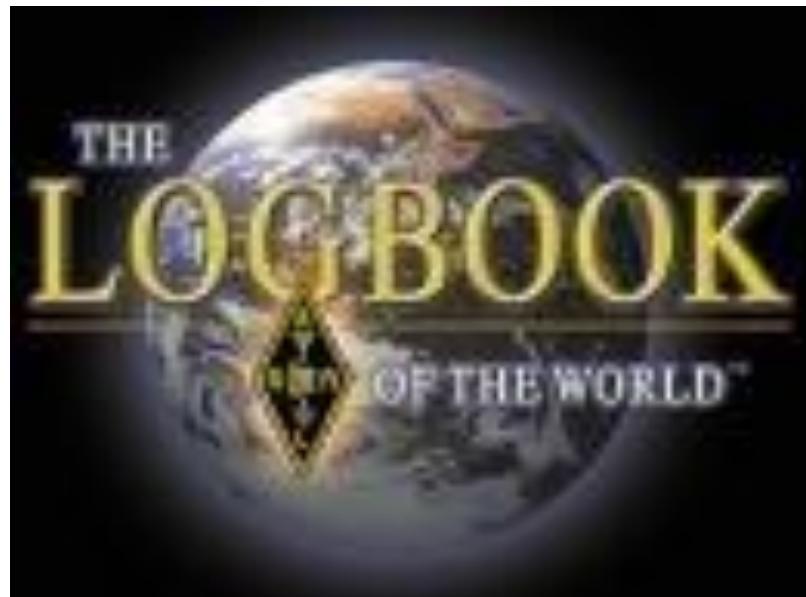


NWI DX Club Website

<http://nwidxclub.weebly.com/>



Jerry Hess, W9KTP teaching how to effectively solder coax to a connector to where the braid will be secured to the connector without fear of it coming loose.



Making Your Signal Stronger at that DX Location

Q Don, KB5DON, asks: I'm thinking about adding an HF linear amplifier to my station. Some hams swear by them, some swear at them — are they really worthwhile?

A I'm not sure if your question is about *linear* or *amplifier*. Probably the latter, because most ham amplifiers these days are linear. It takes a linear amplifier to properly amplify an SSB signal, with its varying amplitude. While CW, some digital modes, and FM signals can also be amplified by linear amplifiers, they can also be amplified by non-linear amplifiers (typically Class C), which are more efficient, but put out more harmonics, so are not frequently encountered in current designs.

So let's look at what a power amplifier can do for you. If someone hears you fine without one, then you don't need one. However, if your signal is near the level of noise or interference, or you are one of 100 guys trying to talk to a rare DX station (okay, maybe one of 1,000), having a stronger signal can make all the difference.

If you use a receiver with a calibrated S-meter, 1 S-unit is the same as a 6 dB difference in received level — that's four times the power. So going from 100 to 400 W will make your signal 1 S-unit stronger. If you are at 20 dB over S-9, it will make you 26 dB over S-9, and the change will not likely be noticed, if the channel is relatively clear. If you are at S-5 and the other station has a lot of local noise, going to S-6 can make the difference between being good copy and not being heard at all.

Another possibility to consider is changing from the popular half-wave wire dipole to a better, or higher, antenna. Let's take a three-element rotatable Yagi beam as a popular example. That will likely get you close to the same increase in signal strength, but will also help on receive and allow you to reduce interference, if coming from a different direction. In addition, it can provide your increased signal to any direction you like. Of course, if you do both, you can get a 2 S-unit increase. This assumes the beam is at a height at which the gain is at an elevation angle useful to get to the other station. In a *QST* article, Contributing Editor Kai Siwiak, KE4PT, suggests heights between 50 and 105 feet as a good compromise for DX operation over HF and 6 meters.¹

Looking more at amplifiers, if you go from 100 to 1,500 W, the increase in power is a factor of 15, or 11.8 dB — almost 2 S-units. This may be even more significant. This can, of course also be combined with that Yagi for a total of almost 3 S-units of increase.

Particularly at the 1,500 W level, and sometimes even at 400 W, you need to consider not only the cost of the amplifier in your deliberations, but also the cost of adding a 20 A, 240 V power source to your station, as well as possibly changing parts of your antenna system to support the higher power.

The DX that is hardest to reach is often at longer distances. This means that the optimum antenna height should be higher to provide the desired lower-elevation angles needed for propagation using the fewest hops. While each

path is different, and will work best with a different height, I have compared the *EZNEC*-modeled elevation patterns on 20 meters of our dipole to a three-element Yagi at 35 and 75 feet, as shown in Figure 1.² The results are summarized in Table 1, with the antenna differences based on a 5° elevation angle, well below the peak of each antenna, as shown in Figure 1. To actually peak at 5° elevation on 20 meters, the antennas would have to be at 200 feet in height! Note that for 10 meters, a wavelength is half as long, and lower antennas are more effective at the low angles. While we've gone as far as we can with transmitter power, the antenna possibilities can go much further with multiple antennas phased in various ways and with adjustable height systems as well.

So, in summary, it all comes down to what your operating objectives are and what you can afford to add to your station, or what kind of antennas you are permitted to have. Keep in mind that many hams have a great time operating with 5 or 10 W output, or even less, and that can be fun too — not to mention being lower in cost and taking up less space — and not dimming the lights when you push the key down.

Table 1
Comparison of DX Effectiveness of Different Station Upgrades on 20 Meters

Configuration	Signal Change in Strength (dB)	S-Meter Increase (S-units)
Baseline; 100 W, dipole at 35 feet	0	0
Linear Amplifier — 500 W	7.0	1.2
Linear Amplifier — 1,000 W	10.0	1.7
Linear Amplifier — 1,500 W	11.8	2.0
Three-Element Yagi at 35 feet	4.5	0.75
Three-Element Yagi at 75 feet	10.7	1.8
Linear 500 W + Yagi at 35 feet	11.5	1.9
Linear 1,500 W + Yagi at 35 feet	16.3	2.7
Linear 1,500 W + Yagi at 75 feet	22.5	3.8

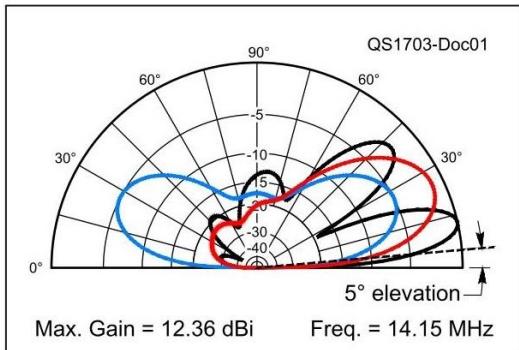


Figure 1 — Comparison of the *EZNEC* elevation patterns of the three antennas used in the comparison. The blue pattern is that of a 20-meter wire dipole 35 feet above typical ground (conductivity, 0.005 S/m, dielectric constant, 13), the red pattern is that of a three-element Yagi at the same height, while that of the same antenna at 75 feet is shown in black. While the peak gain of each may be of interest, the intensity at 5° elevation (dotted line) was used in the comparison, as discussed in the text.

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QSL Card of the Month

A collection of the old, the new, the rare, the exotic or just interesting QSL Cards

Kure Island

KH7K

ClubLog 2017: Most Wanted World Rank: #10

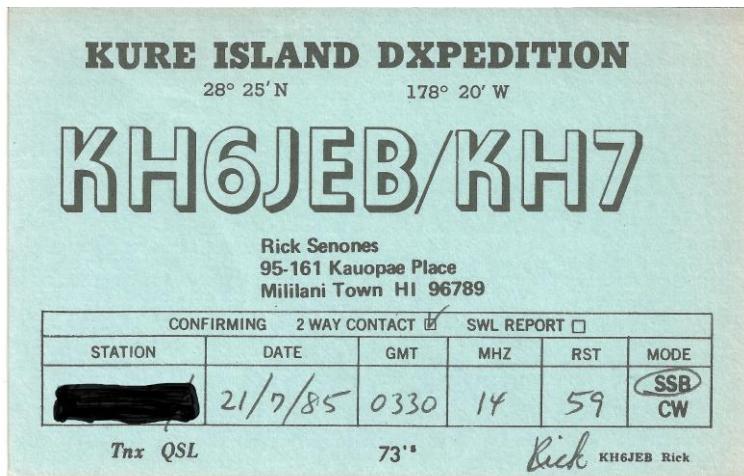
Most Wanted North America Rank: #15

CQ zone: 31 ITU Zone: 61

Continent: OC

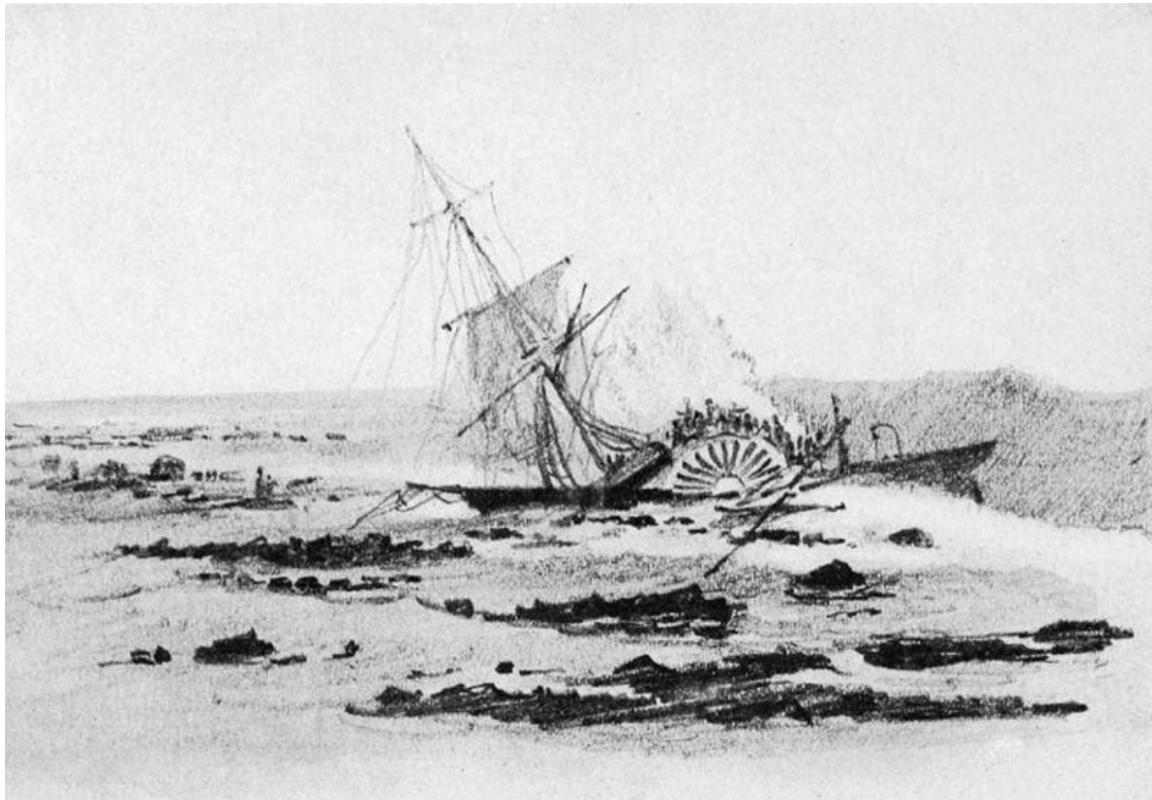
Location: 28°25'N 178°20'W

Beam Headings from Northwestern Indiana: 293°/113° 4969 mi / 19890 mi



Kure Atoll was visited by several ships during the early 1800s and given new names each time. Sometimes spelled Cure, its English name was for a Russian navigator who supposedly sighted the atoll. There is some doubt as to whether he actually saw the place.

Many crews were stranded on Kure Atoll after being shipwrecked on the surrounding reefs and had to survive on the local seals, turtles, and birds. Most of the shipwrecks remain on the reef today, including the USS Saginaw, a Civil War era sidewheel sloop-of-war, which in October 1870, struck an outlying reef and grounded. The latest wreck was in 1998 when the longline fishing vessel Paradise Queen II ran aground on the eastern edge of Green Island of Kure Atoll, spilling approximately 4,000 gallons of diesel fuel before recovery operations could commence. Debris from that shipwreck has continued to pollute the reef and shoreline, endangering wildlife and damaging the coral reef.



The Captain's Depiction of the USS Saginaw Wreck

It was officially named Kure Island in 1924 and then Kure Atoll in 1987.

This is the most remote of the Northwestern Hawaiian Islands, and the northern-most coral atoll in the world. Kure is an oval-shaped atoll, which is 6 miles at its maximum diameter and 55 miles west-northwest of Midway Atoll at the extreme northwest end of the Hawaiian archipelago.

Green Island is the only permanent island in the atoll. The island is a nesting area for shearwaters, petrels, tropicbirds, boobies, frigatebirds, albatrosses, terns and noddies. It is also a wintering area for a variety of migratory bird species from North America and Asia

Though there is no permanent human population, the atoll is politically part of the City and County of Honolulu. It became a state wildlife sanctuary in 1981. Since 1993 the Hawaii Department of Land and Natural Resources and volunteers from the Kure Atoll Conservancy group have worked to restore the atoll to a more natural state.

Kure is located within a major current which washes up debris from the “Great Pacific Garbage Patch” (also known as the “Pacific Trash Vortex”), such as fishing nets, fishing floats and large amounts of plastic waste onto the island. These pose threats to the local animals, especially birds, whose skeletons are frequently found with plastic in the stomach cavity. An estimated 20 tons of debris is washed ashore annually.



Volunteer Tents and Albatrosses on Kure Atoll

Even though Kure Atoll is only 55 miles from another DX entity (Midway Island-KH4), its parent (the State of Hawaii) qualifies it as a stand-alone DX entity because it is physically and politically separated from the parent (*ARRL DXCC Rules-Section II, Paragraph 2-Geographic Separation.*) The Federal Government controls Midway Island while the State of Hawaii governs Kure Atoll.

Between 1960 and 1992, a United States Coast Guard LORAN station was located on Green Island. A short coral runway was built on the island to support Coast Guard operations but it is no longer maintained and is currently unusable. A number of the Coast Guard personnel were amateur radio operators and often provided contacts during that era. The QSL card shown above is from a member of the Coast Guard who was on temporary duty on the atoll.



US Coast Guard Loran Station - 1971

Despite Midway Island being only 55 miles away, there is no readily available transportation from that island to Kure. Groups going to the atoll usually embark on a State of Hawaii provided research vessel for a voyage that takes about 5 to 6 days to reach the atoll.

Kure Island has been the scene of several amateur radio DX expeditions. The radio short path between Kure and Europe runs right over the North Polar Region so the opportunities for contacts with Kure are particularly difficult for European amateurs. The short path from W9 land passes over the US Pacific Northwest bringing the W6/W7 “wall” into play.

The last amateur operation was in 2005 using the call sign: K7C. The team consisted of 12 operators from the United States, Canada, and Germany. The expedition was a scientific/educational endeavor sponsored by the Cordell Foundation with an amateur radio adjunct. A priority project was to help clean the debris from the atoll.

Currently, there are no known plans for an amateur radio expedition to Kure Atoll.

- 73's and Good DX -
Steve Mollman KD9HL

Handy Hint

Making Ladder Line

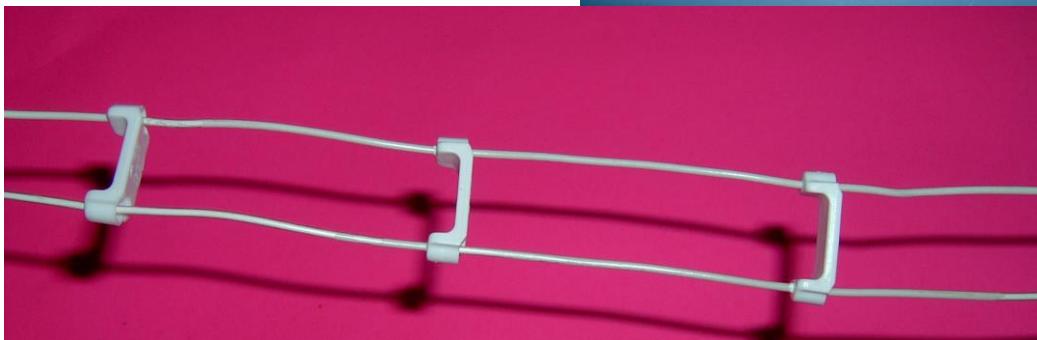
By Steve Mollman-KD9HL

Ladder Line has some advantages over coax. The main one being it is low loss for an efficient feed to antennas. For example:

Db loss / 100ft:

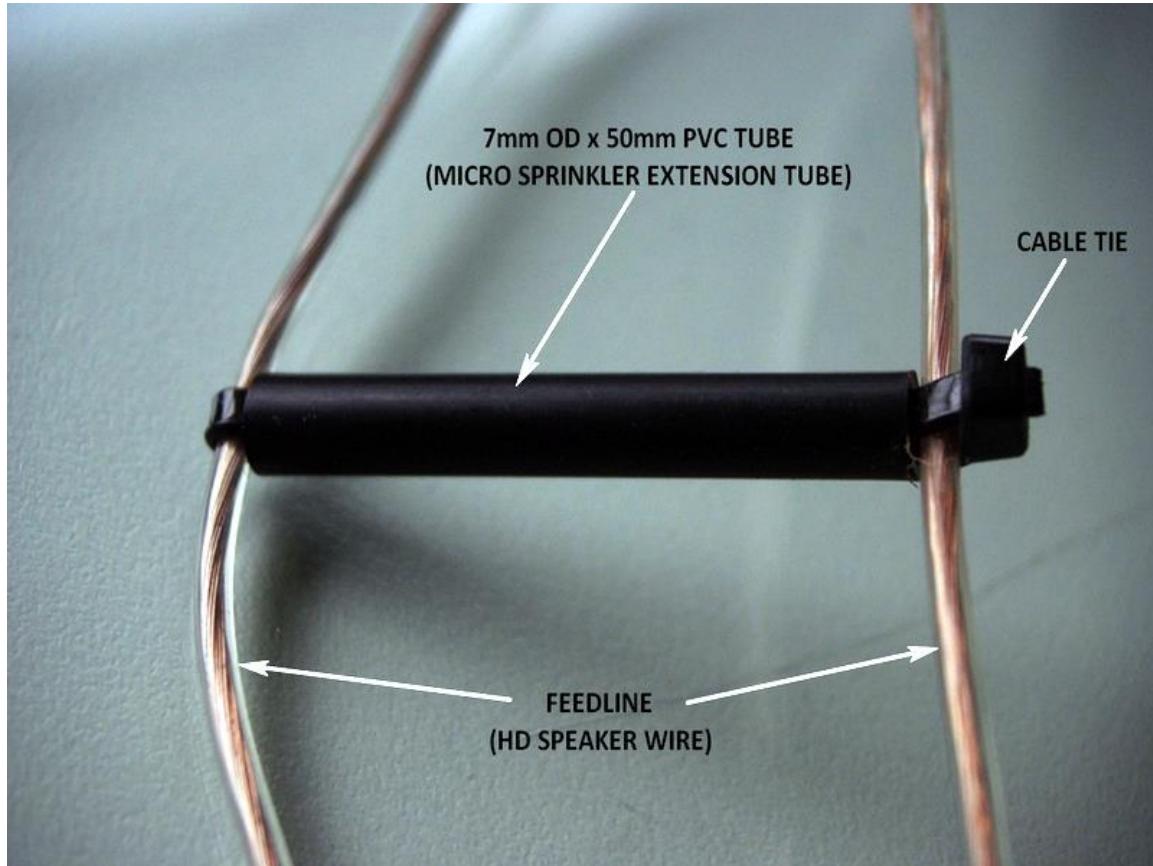
600 Ohm Ladder Line	TMS LMR400
1 MHz : 0.019 dB	1 MHz : 0.120 dB
30 MHz : 0.107 dB	30 MHz : 0.667 dB
100 MHz : 0.200 dB	100 MHz : 1.232 dB
500 MHz : 0.474 dB	500 MHz : 2.841 dB

Do you want to make some ladder line? A simple way is to use "NM Cable Wood Staples" as spacers. Available in several sizes with $\frac{1}{2}$ " and $\frac{3}{4}$ " the most common. Remove the nails and the resulting holes are a nice snug fit for 20 gauge insulated wire.



A 50-piece packet of $\frac{1}{2}$ " staples retails for about \$2.00 at Home Depot. They are labeled as being UV resistant making them acceptable for outdoor use.

Here is an excellent construction suggestion by Leon Salden, VK3VGA. He devised a ladder line spreader built from durable and readily available materials; a black cable tie and black polyethylene (PE) irrigation extension tube.



Ladder line spreader built from black irrigation extension tube and a cable tie

β 73's and Good DX β
Steve Mollman KD9HL

Scarborough Reef (BS7H) What does the Future Bring?

Steve Mollman KD9HL

On Friday, March 17, the AP, Reuters, CNN and other news organizations reported that China announced plans to build a permanent structure on Scarborough Reef, 137 miles off the coast of Luzon Island in the Northwestern Philippines.

China had promised the world they would not militarize the other man-made islands they have created in the South China Sea. They then deployed fighter aircraft and defense weapons systems to the airstrips they built in the region. The communist state is now building “environmental monitoring stations” on islands very near the Philippines, whose ownership has been disputed for some time. Scarborough Reef in the South China Sea, a roughly triangle-shaped chain of coral rocks is at the center of the South China Sea controversy.

The Philippines claim sovereignty of the reef that China seized in 2012. The Philippines territorial claims were upheld by a UN tribunal, but China has ignored the ruling. Philippine President Duterte believes the Philippine government cannot stop China from

taking over Scarborough. “We cannot stop China from doing its thing. Even the Americans were not able to stop them,” “So what do you want me to do? Declare war against China?” Duterte asked. “I can but we’ll lose all our military and policemen tomorrow, and we are a destroyed nation. And we cannot assert even a single sentence of any provision that we signed.”



BS7H - 2007 DXpedition to Scarborough Reef

What does this mean for DX’ers? Scarborough Reef (BS7H) is Number 5 on Clublog’s worldwide most wanted list and Number 4 most wanted in North America. Because of the precarious operating positions on the reef, many hams have nicknamed the place “Scaffold Reef”.

Given the previous difficulties in organizing an operation from the reef, the Chinese military takeover may elevate this entity to the level of North Korea (P5). Maybe-maybe not. “No you can’t go there, but.....” Wait and see. (There were plans by a Chinese group to operate from the reef in late 2016. Equipment was even donated by such vendors as DX Engineering. Nothing has been heard from them since).

As always work first and worry later

Tom, W8FIB sent this in from a friend of his.

NASA is usually pretty tight-lipped about how it does things, but the free software catalog they just released offers details on launching spacecraft, exploring planets and everything in between.

You can browse by category (15 of them) which I did for image processing--I have no idea what most of these do! The Electronics category was a smaller than I hoped as some of the others. Many of the categories have 6 or more pages of software titles with descriptions.

Have fun.

<https://software.nasa.gov/>



Wish everybody followed it.

NORTHWEST INDIANA DX CLUB

W9NWI



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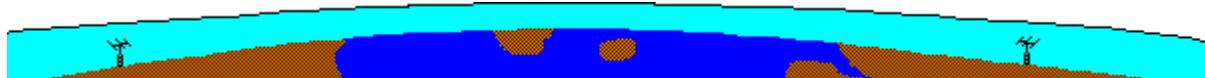


Radio	Confirming QSO						PSE QSL <input type="checkbox"/> TXN QSL <input type="checkbox"/>	
	DAY	MONTH	YEAR	UTC	RST	MHz	MODE	

www.cheapqsls.com

I want to thank those that have been sending in articles for the newsletter. All items are appreciated.

Don't forget to send in any information you would like to share with the Club members.



Until Next Time,

73

John

W3ML

<http://nwidxclub.weebly.com/>



NWI DX CLUB