



The RELAY)))

October
2026

The Official Publication of the Arrowhead Radio Amateur Club
A.R.A.C. Inc. P.O. Box 7164 Duluth MN 55807-7164 <http://www.thearac.org> Dues: Member \$20/Family \$25

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Autumn 2026



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Shipping on the Great Lakes A Historical Look at Navigation & Communication

Long, long ago, before anyone carried a canoe across a portage, the Great Lakes were already the shape of a sea. Nothing else on Earth holds this much fresh water in one connected system. Made by ice over thousands of years, the great continental sheets pushed south, gouged the river valleys and the soft rock, and piled the spoil into ridges. When the ice withdrew, the basins held the melt: a chain of five lakes, opening to the Atlantic only after a long fall of rapids that were a natural staircase.

Lake Superior is the deepest and the coldest, a vast blue expanse that can hide its far shore and throw a wave like an ocean. Her north coast is cliff and old mountain — basalt and ancient sediment — cut by channels where the rock broke. To the south the shore softens into dune, clay bank, and forest down to the water. Just east in the chain is Lake Michigan, with coastal dunes that rise hundreds of feet above clear blue water, rimmed with miles of sand. Then comes Lake Huron, its water sprinkled with island passages, sea caves, and rock that has worn into pillars.

Next is the shallowest and southernmost of the lakes. Lake Erie's warm waters are flanked by clay bluffs, long sand peninsulas, rocky archipelagos, and still more islands where grapes will grow. As the water leaves Erie it enters the Niagara River, then splits and plummets over the escarpment, dropping about 170 feet as Niagara Falls — Horseshoe, American, and Bridal Veil. At the bottom, the river enters the Niagara Gorge, a seven-mile canyon of old rock layers, cut over thousands of years. Where the gorge ends, the river empties into Lake Ontario's deep basin.

Ontario finishes the chain. Waves on that lake have cut their own shore: clay spires and earthen bluffs above pebble beaches strewn with driftwood. From Ontario the St. Lawrence River carries the whole basin out through the St. Lawrence Estuary, then the Gulf of St. Lawrence, and on to the Atlantic.

Early Navigation

The Great Lakes were a route long before anyone drew them on a chart. From the St. Lawrence to the western



Autumn colors on Lake Superior's Lovers Leap rock formation in Michigan. Image credit: National Park Service

Continued on Page 13



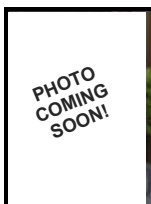
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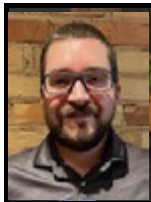
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Randy Wabik

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KD9VKI
Justin Cheever
jcheever13@gmail.com

2ND YEAR BOARD



KFØLFZ
Brian Beckman

1ST YEAR BOARD



AAØAC
Dave Davis
218-348-6649
aaøac@outlook.com

Board Meeting Minutes - September 1, 2026

Present:

Board Members

Gene Ellefsen – NØVRM, Jon Nelson – NØUOZ, Melinda Nelson – AFØET, Randy Wabik – KRØB, Brian Beckman – KFØLFZ

Board Advisors (Non-Board Members)

Doug Nelson – AAØAW, Grant Forsyth – KCØWUP

Guest:

Jeff Nast – KCØMKS

Meeting called to order by President Gene – NØVRM at 18:51 (6:51 pm)

Minutes:

Minutes were sent via email. Motion to approve by Jon Nelson – NØUOZ, seconded by Brain Beckman – KFØLFZ, motion passed.

Treasurer's Report:

Checking: \$377.92

Savings: \$4,559.83

Repeater: \$3,552.68

Subtotal Cash \$8,490.43

Cash on hand: \$129.63

Subtotal COH: \$129.63

Outstanding Checks:

Assets Subtotal: \$8,620.06

Motion made by Brain Beckman – KFØLFZ to accept Treasurer's report as is, seconded by Jon Nelson – NØUOZ I. Motion passed.

Storage Units – Brian is to get paper work and send it to Randy to fill out.

Testing:

Need a copy of the FRN number, an ID, and a copy of your licenses. As always if you are ready to test or know someone who wants to test, please get ahold of Doug Nelson – AAØAW at AAØAW@arri.net.

Repeater:

Jeff Nast – KCØMKS, came to the board looking for money to help fund the Two Harbors Site. Lake County RACE's own the tower and everything with it however they do not own the property that it is on. This has currently been paid for by members of the ARAC Club, Spirit Valley Amateur Club and we are asking if ARAC would be willing to fund this for the year 2027. The rent of property, electricity, and internet is \$150.00 per year due on the first of January. ARAC does have a receive site for the 94 on this repeater as well. They will not come back to ARAC for another donation for this for a couple years.

After discussion from the Board members a motion made by Jon Nelson – NØUOZ, seconded by Brain Beckman – KFØLFZ, motion passed to bring it to the club.

New Business:

Motion to adjourn by Jon Nelson – NØUOZ, seconded by Brain Beckman – KFØLFZ, motion passed at 19:02 (7:02 PM).

Motion to adjourn by Justin Cheever – KD9VKI, seconded by Jon Nelson – NØUOZ, motion passed at 19:09 (7:09 PM).





ARAC Club Meeting Minutes

September 10, 2026

Present:

President: Gene Ellefsen – N0VRM
Vice President: Jon Nelson – N0UOZ
Treasurer/Membership: Randy Wabik – KR0B
Secretary: Melinda Nelson – AF0ET
Second Year Board: Brain Beckman – KF0LFZ
HamFest/Education: Bob Schulz – KC0NFB
Special Events: Open/Gene Ellefsen – N0VRM (acting)
Repeater: Randy Wabik – KR0B
Property/Picnic: Scott Ahlgren – N0VYU
Testing: Doug Nelson – AA0AW

Absent:

First Year Board: Dave Davis – AA0AC
Third Year Board: Justin Cheever – KD9VKI
Repeater: Dave Pyrlík – K0DJP
Parliamentarian: Grant Forsyth – KC0WUP
Newsletter/Historian: Kim Waller – KE0NQS
Newsletter/Historian: Steve Waller – KE0NQT
Web Site: Thomas Dorr – KE0RHA
Chaplin:

Meeting called to order at 19:00 (7:00 PM) by President Gene Ellefsen – N0VRM. 42 (Forty-two) Members were in attendance

Minutes:

Minutes are posted on the website and in the newsletter. Motion to accept by Cindy Fritze – KF0WHZ seconded by Gary Hawkinson – W0ELH, motion Passed.

Treasurer's Report:

Checking: \$377.92
Savings: \$4,559.83
Repeater: \$3,552.68
Subtotal Cash \$8,490.43
Cash on hand: \$129.63
Subtotal COH: \$129.63
Outstanding Checks:
Assets Subtotal: \$8,620.06

Motion made by Rex Bob Schulz – KC0NFB, seconded by John Cavanaugh – KC0AFE. Motion passed.

Two Harbors Tower - Jeff Nast – KC0MKS, came to the board looking for money to help fund the Two Harbors Site. Lake County RACE's own the tower and everything with it however they do not own the property that it is on. This has currently been paid for by members of the ARAC Club, Spirit Valley Amateur Club and we are asking if ARAC would be willing to fund this for the year 2027. The rent of property, electricity, and internet is \$150.00 per year due on the first of January. ARAC does have a receive site for the 94 on this repeater as well. They will not come back to ARAC for another donation for this for a couple years.

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ARAC Club Meeting Minutes continued

The Board Approved to bring this to the club- Seconded by Bill Fleischman – KC0ZZL. Motion passed.

Education

Currently have a Zoom class going.

Testing:

Please make sure that you have the updated syllabus. As always if you are looking to test or upgrade or know of anyone that is interested in testing, please contact Doug Nelson – AA0AW at AA0AW@arrl.net.

Upcoming races

Wild Duluth – Saturday October 17th and Sunday October 18th

New Business:

Silent Key: (Please keep their family in your thoughts)

New members/Returning members (Please welcome them when they get on the radio):

Door Prize: was won by Kenton Asche – KC0NUL

Motion to adjourn by Cliff Tanner – AC0FO, seconded by Mike Lovold – N0PDG, motion passed at 17:15 (7:15 PM).

2026 Program:

October – Free DV

November – DMR

December – Christmas Party

If you are interested in seeing a program, or would like to host a program, please reach out to Jon Nelson at jonbee-yore@outlook.com or 715-817-1986.



CLUB REPEATER
WØGKP
146.94 (-)
CTCSS TONE



Prez Sez

Hi Everyone,

Just a reminder that at the September meeting it was passed to raise the Club dues.

They have not been raised since 1995 and we all know how prices have gone up since then.

The new dues are \$30 for a single and \$40 per Family. The new amounts go in effect for the year 2027.

Gene Ellefsen NØVRM 73



LOOKING for an Amateur Radio License TESTING SESSION?

Schedule your own Testing Session TODAY!

Contact Doug Nelson-AA0AW at aa0aw@arrl.net or 218-391-5874

All Exam Candidates are REQUIRED to have an FCC Registration Number (FRN) before exam day, which will require your email address.

Not Currently Licensed? For New License Candidate FRN registration, go to: www.fcc.gov/new-users-guide-getting-started-universal-licensing-system-uls

**Upgrading to General or Expert Class & not sure you have an FRN number?
go to**

<https://wireless2.fcc.gov/UlsApp/UlsSearch/searchLicense.jsp>

UPGRADE CANDIDATES:

Please bring a copy of your current license to the exam session.

CW Abbreviations

AR End of Message	AS Pse QRX	BK Back to You	SK End of Contact
TU Thank You	PSE Please	K Invite to Transmit	
QST Calling all Amateurs	QRL Are You Busy?	QRU Have anything for me	
QRV Are You Ready?	QRX Standby	QRS Transit Slower	

A ●—	M —●—	Y —●—●—
B —●—●—	N —●—	Z —●—●—
C —●—●—●	O —●—●—	1 ●—●—●—
D —●—●—	P —●—●—●	2 ●—●—●—
E ●—	Q —●—●—●	3 ●—●—●—
F ●—●—●—	R —●—●—	4 ●—●—●—
G —●—●—	S ●—●—	5 ●—●—●—
H ●—●—●—	T —●—	6 —●—●—●—
I ●—	U —●—	7 —●—●—●—
J ●—●—●—	V —●—●—	8 —●—●—●—
K —●—●—	W —●—●—	9 —●—●—●—
L —●—●—	X —●—●—	0 —●—●—●—



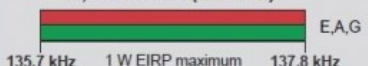
US Amateur Radio Bands

US AMATEUR POWER LIMITS

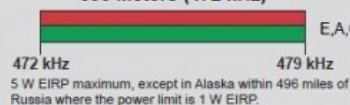
FCC 97.313 An amateur station must use the minimum transmitter power necessary to carry out the desired communications. (b) No station may transmit with a transmitter power exceeding 1.5 kW PEP.

On March 28, 2017, the Federal Communications Commission adopted rules that will allow Amateur Radio access to 472-479 kHz (630 meters) and to 135.7-137.8 kHz (2,200 meters). However, amateurs cannot use these frequencies until 30 days after the Report and Order is published in the Federal Register and the final procedures for registering stations with the Utilities Telecom Council (UTC) have been approved and announced. At the time this chart was created, the Report and Order had not been published and the UTC online registration site is not yet available. Follow ARRL news for further information. New charts will be published at www.arrl.org/graphical-frequency-allocations when the bands are fully available for use.

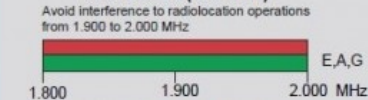
2,200 Meters (135 kHz)



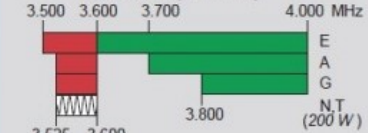
630 Meters (472 kHz)



160 Meters (1.8 MHz)



80 Meters (3.5 MHz)

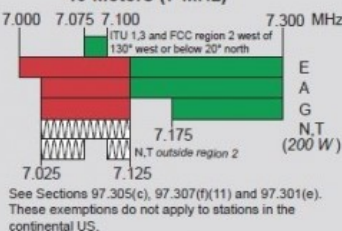


60 Meters (5.3 MHz)

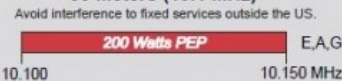


General, Advanced, and Amateur Extra licensees may operate on these five channels on a secondary basis with a maximum effective radiated power (ERP) of 100 W PEP relative to a half-wave dipole. Permitted operating modes include upper sideband voice (USB), CW, RTTY, PSK31 and other digital modes such as PACTOR III. Only one signal at a time is permitted on any channel.

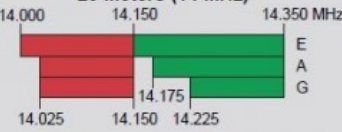
40 Meters (7 MHz)



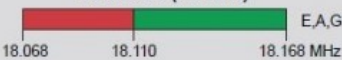
30 Meters (10.1 MHz)



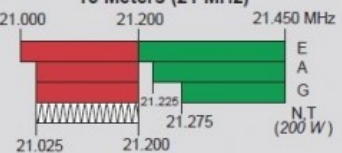
20 Meters (14 MHz)



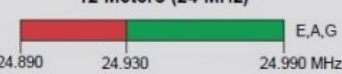
17 Meters (18 MHz)



15 Meters (21 MHz)



12 Meters (24 MHz)



Effective Date for
2,200 and 630 Meters
to be announced



ARRL The national association for
AMATEUR RADIO®

KEY

Note:
CW operation is permitted throughout all amateur bands.

MCW is authorized above 50.1 MHz, except for 144.0-144.1 and 219-220 MHz.
Test transmissions are authorized above 51 MHz, except for 219-220 MHz

- = RTTY and data
- = phone and image
- = CW only
- = SSB phone
- = USB phone, CW, RTTY, and data
- = Fixed digital message forwarding systems only

E = Amateur Extra
A = Advanced
G = General
T = Technician
N = Novice

See ARRLWeb at www.arrl.org for detailed band plans.

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Exams: 860-594-0300 email: vec@arrl.org

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NETS

Have a favorite HF/6m/2m/1.25m/70cm net that you check into or listen in on? Also, please send corrections and we will add it to the list below - Kim KEØNQS at my email KEØNQS.mn@gmail.com.

- **Northland Weather Group Net:** Mondays 2000 on the ARAC repeater (146.940 MHz with a tone of 103.5 and standard offset).
- **Minnesota D-Star Net:** Sundays at 19:30 on Reflector 53A
- **Minnesota Section Net** 1200 and 1730 on 3.860 [Net Manager: NØYR] http://www.mn-section.org/dept_stm.html
- The non-non-net: Evenings 2000 144.200 USB except for Sunday evenings.
- Badger WX Net: 0500-0715 on 3.985. Give 24 hour high/low/current temperature, precipitation and snowfall.
- **PICONET:** 3.925 from 0900-1100 CT Mon-Sat and 1600-1700 CT Mon-Fri. Info at: <http://www.piconet3925.com>
- Michigan Upper Peninsula Net: 1600 (CST) on 3.921 MHz Sun-Sat and 1200 Sun. Info: <http://www.michupnet.com>
- Great Lakes Marine/Maritime Mobile Net: Morning 07:30 - 3.932; 08:15 - 7.261 MHz and evening 18:30 - 3.1730927; 19:15 - 7.268 MHz. Weekend extra net: 10:00 - 7.261/7.268 MHz. All CST, LSB and +/- QRM. See: <http://www.sailblogs.com/member/glmmnet/>
- MIDCARS: 07:30-13:00 - 7.258 MHz. See: <http://www.midcars.net>
- Iowa snowbird net on 14.257MHz, M-W-F at 10:00 am Local Time. This is an open net.
- Spider Web Net (Marco Island FL) on 14.347 every morning at 0730 CST/CDT: <http://www.spiderwebnet.net>
- Maritime Mobile Service Network: Daily at 1100—2100 Central on 14.300. <http://mmsn.org> and <http://www.14300.net>
- RV Radio Network: Every day at 1900 Central on 7.265 MHz. Web site: <http://www.rvradionetwork.com>
- Upper Midwest Ten Meter Net: Every Thursday Evening @ 8 PM – 28.480 MHz USB
- Wisconsin Sideband Net: Daily @ 5:15 PM – 3985 [or 3982.5] KHz LSB
- Hobby Helpers Net - Tuesday @ 8 PM – 28.330 MHz USB (Isanti MN) LSB [Net Manager: WOØA].
- Northstar Trader Net: 3.908 +/- at 0830 CST Sundays
- WARFA: 3.908 +/- Sun/Tue/Thu nights at 2200 CST, <http://warfa.org/>
- Youth Net: 14.320-14330 Sundays 1800-1900 UTC, Net Control: AC8PI
- YACHT: Saturdays 1900 CST on EchoLink #481872, <http://yachthams.webstarts.com>
- Northwestern Ontario ARES Net: Evenings at 20:15 (Central) on +/- 3.750Mhz
- The Iron Range Net: Saturdays at 0800 Central time on or near 3.919 Mhz. Look them up on Facebook!
- FORX Net: Mondays at 1900 Central at 3.941 Mhz +/- QRM. WAØJXT — Grand Forks, North Dakota
- HF CW: Fridays 08:00 CST, 7.112 MHz. Informal slow speed CW Net. W8IRT NCS. Email: w8irt@aol.com
- Minnesota ARES Digital Net: Thursdays at 2000 CST, 3.5835 MHz USB +/- QRM, Mode: Olivia 8/500.
- SARA Digital Net: Sundays at 1900 Local, 3.582.150 MHz USB +/- QRM, Mode: BPSK31/BPSK63
- Spider Web Net (Marco Island FL): 14.347 every morning at 0730 CST/CDT: <http://www.spiderwebnet.net>
- Broadcaster Net: 7.231 or 3.855 M/W/F @ 1500 UTC. 14.255 M-F @ 2130 UTC. <http://www.cbsretirees.com/ham.htm>
- Old Military Radio Net: 7.268 +/- nightly at 0200z. Other times/Frequencies too. See: <http://www.mrca.ar88.net/>
- Rag Chew Crew/Tailgaters/Freewheelers Nets: 3.916 +/- nightly at 1900 CST, <http://www.tailgatersnet.com>
- North South Net: 7.214.6 +/- at 0700 CST, Monday-Saturday



DULUTH AREA REPEATERS

ARAC System WØGKP

Frequency	Offset	Tone	Location
146.940	minus	103.5	Duluth
146.940	minus	107.2	Lakeside (recv)
146.940	minus	151.4	Two Harbors (recv)
146.940	minus	100.0	Gary-New Duluth (recv)
146.940	minus	110.9	Cloquet (recv) Not Operating
147.000	minus	103.5	Mahtowa
444.100	plus	103.5	Duluth UHF Link

N9MMU/N9QWH System (WI)

145.310	minus	110.9	Duluth
145.490	minus	110.9	Solon Springs
147.255	plus	110.9	Hayward
145.110	minus	110.9	Rice Lake
147.345	minus	136.5	Holcombe
145.230	minus	110.9	Eau Claire

WECOMM – WI Statewide Linked System WE9COM

147.075	plus	110.9	Meteor Hill (closest repeater to Duluth)
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LSAC System – some may work/some may still be linked

147.330	plus	151.4	Proctor	Not Operating
147.270	plus	114.8	Two Harbors	
147.270	plus	103.5	Wales	Not Operating
147.090	plus	114.8	Silver Bay	
147.300	plus	114.8	Isabella	Not Operating
145.150	minus	103.5	Washburn, WI	
146.700	minus	103.5	Bayfield, WI	Not Operating
443.850	+5.00	none	Bayfield, WI	
147.165	plus	110.9	Hurley, WI	Not Operating
146.640	minus	151.4	Ely	
443.500	+5.00	141.3	Gilbert	Not Operating
147.060	plus	103.5	Virginia	
147.360	plus	162.2	Cook	Not Operating
147.165	plus	114.8	Coleraine	
443.925	+5.00	110.9	Brainerd	Not Operating
443.200	+5.00	114.8	Tamarack	
147.360	plus	203.5	Aitkin	Not Operating
146.865	minus	146.2	Giese	
443.325	+5.00	146.2	Isanti	Not Operating

Rev. KCØWDQ as of 12/01/24 For ARAC Newsletter

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DULUTH AREA REPEATERS, continued

NARC System NAØRC

147.135	plus	103.5	Knife River
147.135	plus	114.8	Duluth (rcv)

Stand Alone Repeaters

145.210	minus	110.9	Clam Lake, WI
146.880	minus	123.0	Grand Rapids, MN
146.910	minus	146.2	Duxbury, MN
146.955	minus	146.2	Askov, MN
147.105	plus	110.9	Chaffey, WI
444.850	+5.00	141.3	Cloquet, MN

Fusion

Fusion (Analog has tone and C4FM digital with no tone)

147.150	plus	151.4	NTØB Gilbert. MN Fusion Repeater
145.170	minus	110.9	WA9KLM Superior, WI – Douglas County RACES/ARES Fusion Repeater (Digital only) Fusion Room 28373

145.250	minus	103.5	KBØYHX Cloquet, MN – Carlton County RACES/ARES Fusion Repeater
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444.300	+5.00	103.5	NØEO Duluth, MN – Spirit Valley Amateurs Fusion Repeater WIRES-X NØEO (Analog only) Fusion Room 40494
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444.400	+5.00	103.5	NAØRC Knife River, MN – Wires X Connected to NØEO Room 40494
444.500	+5.00	103.5	NØLCR Two Harbors, MN – Wires X Connected to NØEO Room 40494
444.600	+5.00	103.5	NØLCR Silver Bay, MN – Wires X Connected to NØEO Room 40494
444.800	+5.00	103.5	NØLCR Grand Marais, MN – Wires X Connected to NØEO Room 40494
440.400	+5.00	110.9	WØLSA Maple, WI – Wires X Connected to NØEO Room 40494

D-Star

147.375	plus	NØEO D Star
442.200	plus	NØEO D Star

Rev. KCØWDQ as of 12/01/24 For ARAC Newsletter

Elmers

El-mer / el-mər/ [el-mer]

1. a male given name: from Old English words meaning "noble" and "famous."
2. an adhesive used to bond like or unlike materials
3. An experienced ham radio operator who mentors new and prospective hams.

Name	Call Sign	Expertise
Jeff Nast	KCØMKS	APRS, EchoLink, WinLink, Fusion, Contesting
Bob Schulz	KCØNFB	Contesting
Jim Anderson	NØJWA	QsoNet
Doug Nelson	AAØAW	HF, VHF/UHF, Contesting, Packet, APRS, Morse Code, VE testing, Echolink, Allstar, EmCom...



Membership Email Directory

Ahlgren, Scott NØVYU
sahlgren01@msn.com
Anderson, Jim NØJWA
kc0mko@centurylink.net
Anway, Allen KC9LJN
allen@a2d2.com
Bakke, Richard KDØQHE
rabakke46@aol.com
Barnes, Ray KEØZN
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Blodgett, Warren KDØXI
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Blotti, Nick KBØMHD
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Co-Editors,
Kim & Steve Waller
KEØNQS & KEØNQT



SUNDAY NIGHT NETS
 1930 - CW - 28.125 MHz USB-CW
 2000 - USB 28.450 MHz
 2100 - Southern St. Louis County
 Emergency Services Net
MONDAY NIGHT NETS
 2000 - Northland WX Net - ARAC Repeater

OCTOBER

CLUB EVENTS

TUESDAY NIGHT NETS
 2000 - Douglas Cty 145.490 MHz
 2030 - Central Carlton County
WEDNESDAY NIGHT NETS
 1900 - Lake County - LSAC1
 2nd & 4th Wednesdays
 2100 - BWAR

	Mon	Tue	Wed	Thu	Fri	Sat
				1	2 Friday Night 6 meter Gag-Chew 50.125 USB 7 PM	3
4 CW 1930 NØPDG USB 2000 AAØAW ES 2100 WØNWO	5 WX 2000 KCØMKS	6 ARAC BOARD MEETING Sammy's Pizza 6:30 pm DC Net 2000 CC Net 2030	7 2100 -BWAR	8 ARAC Club Meeting Coppertop Church 7 PM	9 Friday Night 6 meter Gag-Chew 50.125 USB 7 PM	10
11 CW 1930 AAØAW USB 2000 KB9WLB ES 2100 NØVRM	12 Columbus Day Douglas County ARES/RACES Mtg 1900 DC E WX 2000 KCØMKS	13 DC Net 2000 CC Net 2030	14 Lake County ARES/RACES Meeting 1900 CC EOC Lake County LSAC1 1900 2100 -BWAR	15	16 Friday Night 6 meter Gag-Chew 50.125 USB 7 PM	17
18 CW 1930 NØPDG USB 2000 AD9DJ ES 2100 KEØYTM	19 WX 2000 KCØMKS	20 DC Net 2000 CC Net 2030	21 2100 -BWAR	22 Carlton County ARES/RACES Meeting 1900 CC EOC	23 Friday Night 6 meter Gag-Chew 50.125 USB 7 PM	24
25 CW 1930 AAØAW USB 2000 KRØB ES 2100 AAØAW	26 WX 2000 KCØMKS	27 DC Net 2000 CC Net 2030	28 Lake County LSAC1 1900 2100 -BWAR	29	30 Friday Night 6 meter Gag-Chew 50.125 USB 7 PM	31 Happy Halloween!
						

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Email Doug AAØAW at
aa0aw@arrl.net

Next Club Meeting:
October 8, 2026 - 7 pm
Coppertop Church

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AAØAW - NØKXT - KCØNFB

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Randy Haglin NØBZZ
Randy Wabik KAØJZV

Contest Calendar at www.contestcalendar.com

National Contest Journal at www.ncjweb.com

QSO Party Note: State/Province/National QSO Parties are abbreviated with the 2 or 3 letter abbreviation for the state/province/national designation followed by QP for QSO Party:

Examples: Minnesota QSO Party is MNQP

British Columbia QSO Party = BCQP

QRZ web site at www.qrz.com

VHF Propagation site at www.aprs.mountainlake.k12.mn.us

Reminder: The Contest Corral monthly listing of contests can be found in each issue of QST. ARRL sponsored contests can be found in Contest Corral, highlighted, or on the ARRL's web site at arrl.org.

Great Lakes Shipping continued from page 1

end of Lake Superior they make one passageway of water, broken by rapids and falls, open for half the year and locked by ice for the rest. People who lived on that passage learned the route by navigating it in canoes.

For hundreds of years (Pre-Columbian era to the 1600s), Dakota Indians heavily navigated the western Great Lakes and surrounding rivers using canoes to fish, hunt, harvest wild rice (manoomin), and trade goods with other peoples. The Dakota used two types of canoes, but they deployed them for entirely different environments:

- ♦ **Dugout log canoes (Čanwáta).** This was their primary, everyday watercraft. Heavy dugouts carved from massive basswood, cottonwood, or pine trunks were exceptionally durable. They were perfect for navigating the rocky river rapids of the Mississippi and St. Croix watersheds, wading into dense marshes to harvest wild rice, and fishing on inland lakes.
- ♦ **Bark canoes.** The Dakota also used larger built-up framed canoes covered in bark, favoring birchbark. When giant paper birch trees became scarce in the territory, they frequently substituted or combined birch bark with sheets of white elm or linden (basswood) bark to skin their framed vessels.

The Canoe Sizes on the Open Great Lakes

When venturing onto the volatile, wide-open waters of the western Great Lakes (such as Lake Superior), the small 12-to-15-foot dugouts used for fishing and rice harvesting were too dangerous and heavy to paddle effectively against massive lake waves.

Instead, the Dakota people navigated big waters in traveling canoes, boats built to carry a family or a trading party rather than one fisher. These were generally 20 to 30 feet long. Their bark hulls had higher, sweeping bows and sterns, shaped to slice a swell and keep choppy lake water from flooding in.



LEFT: 1,200 year old Dakota dugout canoe found in Wisconsin's Lake Mendota in 2021 by Tamara Thomsen, a maritime archaeologist for the Wisconsin Historical Society *Image credit: Wisconsin Historical Society*

RIGHT: Large Birchbark Canoe, in the style of traditional trade canoes of the Great Lakes Indigenous Peoples

Image credit: 2026 Native American Culture on Substack at <https://nativeamericanculture.substack.com/p/indigenous-innovations-across-north>

Great Lakes Trade Network and Supplies

Because the Dakota controlled the unique geographic transition zone where the eastern woodlands met the great western prairies, they operated as key players in a massive, ancient commerce network long before Europeans arrived. Their canoes served as floating cargo transports. They used them to haul highly sought-after regional supplies to trade with neighboring nations, like the Huron, Ottawa, and early Ojibwe.

What they brought: Dakota canoes carried premium bison hides, robes, and jerked prairie meat from the west, alongside wild rice (manoomin) harvested from regional lakes, and highly prized pipestone (catlinite) quarried from their territories.

What they traded for: In exchange at Great Lakes gathering hubs, Dakota traders loaded their canoes with goods they

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could not easily get in the west, such as native copper from Isle Royale and the Keweenaw Peninsula, marine shells traded up from southern networks, and superior quantities of birchbark.

When the French fur trade expanded into Lake Superior in the 1600s, this canoe-based commerce system adapted. The Dakota used their watercraft to bring beaver pelts directly to early island trading posts, exchanging them for European iron tools, wool blankets, and brass kettles. Later, the navigation vessels grew into the massive 36-to-40-foot Montreal canoes that were standardized by French voyageurs to interact with Indigenous groups.

The Dakota Meet Greysolon

The Dakota Nation was well established in the area of Duluth, Minnesota, long before European contact, dominating the western tip of Lake Superior and its surrounding river valleys.

Frenchmen came to the Great Lakes in the seventeenth century, often in canoes built and paddled by Native partners. Étienne Brûlé was on the lakes by the 1620s. Jean Nicolet crossed into Lake Michigan in 1634, for a meeting with a people he had been told might be Chinese. Later came the mission routes of Marquette, the expeditions of La Salle and Father Hennepin — and Daniel Greysolon, Sieur du Lhut.

The Dakota agreed to meet with French explorer Daniel Greysolon, Sieur du Lhut (for whom the city of Duluth was named) on September 15, 1679, on the physical site of present-day Duluth.

Greysolon traveled to the western edge of Lake Superior to act as an adventurous diplomat. The specific purpose of the historic meeting was to negotiate a permanent peace truce between the Dakota and the Anishinaabe.

At the time, escalating territorial and resource tensions threatened to erupt into a massive regional war. For Greysolon and the French crown, a war between the Dakota and the Anishinaabe would disrupt the lucrative fur trade and block his ambitions to explore further west toward the Pacific. The historic meeting was a major diplomatic success for Greysolon and reshaped the geopolitics of the Upper Great Lakes.



Entitled *SIEUR DuLHUT, LITTLE PORTAGE, MINNESOTA POINT, JUNE 27, 1679*
This 1919 oil-on-canvas painting measures 96.5" BY 62.5", and was painted by Duluth artist C.C. Rosenkranz. For many years it hung in the Greysolon Tea Room of the Duluth Glass Block Department Store.

Image Credit: St. Louis County Historical Society Collection

primary inland strongholds at Izatys (Mille Lacs Lake), where he formally raised the French flag and claimed the entire upper Mississippi valley for King Louis XIV.

A European Vessel Launches on the Great Lakes

Le Griffon was a 45-to-60-ton, five-to-seven-cannon wooden barque (a sailing vessel with three or more masts) built in 1679 by the French explorer René-Robert Cavelier, Sieur de La Salle. Launched from its build site on Cayuga Creek near Niagara Falls, it holds the historic distinction of being the first European commercial

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Results of the Greysolon Meeting of 1679

The Tribal Alliance: The Dakota and Anishinaabe agreed to a monumental peace pact and a 57-year alliance. Under the terms of the bargain, the Dakota permitted the Anishinaabe to hunt in certain western woodlands, while the Anishinaabe granted safe passage across Lake Superior so the Dakota could trade directly with the French.

French Economic Monopolization: The meeting successfully secured a massive commercial treaty. The tribes agreed to supply all their highly valuable beaver pelts and furs exclusively to French traders rather than British competitors.

Expansion of French Territory: Having successfully brokered regional peace, Greysolon followed the Dakota back to their

Great Lakes Shipping continued from page 14

sailing vessel to traverse the upper Great Lakes. The construction of Le Griffon was a vital component of La Salle's grand ambition to find the Northwest Passage and explore the mouth of the Mississippi River.

It took approximately seven months to build Le Griffon. In January 1679, the keel of the vessel was formally laid down by La Salle's men and his lieutenant, Henri de Tonti. On August 7, 1679, the finished ship was launched onto the Niagara River to begin its maiden voyage west into Lake Erie. Aboard were La Salle, Father Louis Hennepin (the expedition's chaplain and official journal recorder), plus Captain Luc and 31 other expedition crew. Included in the crew were sailors, blacksmiths, carpenters, and soldiers recruited to handle the sailing and frontier construction.

The ship was to serve two primary economic and logistical purposes:

- >Funding La Salle's original expedition to the Great Lakes by procuring an initial huge load of lucrative fur pelts to pay off his creditors.

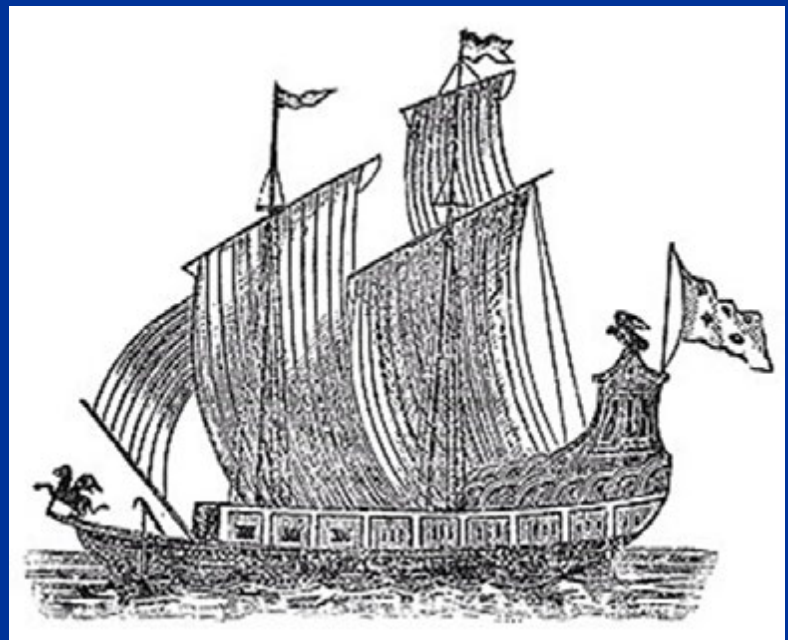
- >Establishing a regular supply route thereafter for vital provisions, rigging, and ammunition, supporting La Salle's continuing overland push toward the Mississippi.

After launching from Cayuga Creek, Le Griffon successfully crossed Lakes Erie, Huron, and Michigan. It anchored at Washington Island, near the mouth of Green Bay, Wisconsin. It was there that La Salle met an advance party that had amassed 12,000 pounds of furs for the return to Cayuga Creek.

La Salle then split the group. He, Father Hennepin, and 26 of the crew stepped off for good and went on expedition by canoe, leaving six men — Captain Luc and five sailors — to take Le Griffon home, heavy with pelts.

Just three days after Daniel Greysolon's meeting with the Dakota and Anishinaabe at present-day Duluth, Le Griffon fired a single cannon shot and stood out of Washington Harbor, the open anchorage area off Washington Island, on September 18, 1679. She was bound east. She subsequently vanished in an autumn storm and was never seen again.

Over the last two centuries, there have been more than 22 high-profile claims of Le Griffon's discovery — ranging from the shores of Manitoulin Island in Lake Huron to Poverty Island in northern Lake Michigan. However, state and maritime archaeologists have consistently debunked or disputed every single artifact found so far. To this day, the final resting place of Le Griffon remains one of North America's greatest maritime mysteries, the location of the wreck remaining completely unknown, making Le Griffon the "Holy Grail" of Great Lakes shipwrecks.



A 17th Century Woodcut/Sketch of Le Griffon

After Le Griffon

Trade did not stop when Le Griffon vanished. Through the eighteenth century the cargo that Europe wanted was beaver pelts, and the vessel that moved it was still bark. French voyageurs ran the large Montreal canoes, thirty-six to forty feet, manned by crews and met at the posts by Indigenous traders who already knew the water. The Dakota, Anishinaabe, Huron, and Ottawa remained on the route, bringing pelts to the islands and the river mouths and taking iron, cloth, and kettles back. A second European sailing ship did not immediately replace the Griffon. After France lost the lakes to Britain in 1763, the fur road passed to the British companies, and canoes still did most of the work.

The nineteenth century is when the lakes became a shipping sea. Schooners, then steam, carried grain, lumber, package freight, and ore. British vessels lingered from the colonial years. American boats multiplied after the American Revolution and the opening of canals that let lake cargo reach the coast. Indigenous trade did not vanish beside that fleet. It continued thriving at the posts and along the rivers, alongside the new traffic rather than instead of it. The waters, of course, stayed temperamental. Approximately six thousand ships are estimated lost on the Great Lakes, many of them never seen again and, in that century, never heard from. Lighthouses went up along the points. Fog-horns were added where a light could not reach a captain's gaze in thick weather. And a ship in trouble could still only burn a flare and hope.

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Radio Communication Enters the Shipping Trade

Then the signal left the flare behind. Samuel Morse's wired telegraph had already tied cities together in the 1840s. Guglielmo Marconi, at the end of the century, cut the wire. His wireless telegraph sent Morse through the air, ship to ship and ship to shore. After the first commercial fittings around 1900, and after the Titanic made a silent ship unbearable to imagine, an operator with a wireless telegraph key became part of a working vessel.

Great Lakes shore stations were on the air by about 1910. A ship carried a radio operator with a telegraph key. He sent the captain's orders and weather in Morse code dits and dahs, to an operator on shore, who sent Morse back and could pass the words on by landline. A captain could now be heard beyond the horizon, not by his own voice, but by the operator at his ship's key. Maritime communication had changed, and the peril of shipping on the Great Lakes had just become safer.

It is now October in the Arrowhead. In Duluth the light slants earlier, the hills go rust and gold, and the harbor begins its long turn toward winter. The shipping board in the Twin Ports begins to tighten and the Great Lakes fleet starts its autumn accounting.

Captains watch the ice forecasts. Dispatchers count the trips still left before the Soo Locks close. Grain still has to move. Taconite has to reach the lower-lakes mills. The last salties have to clear the Seaway before the harbor goes quiet.

Seasonal shipping has been a fact of life in the Northland for generations. What fewer people remember is that for four decades--in a time when wireless Morse and voice transmissions were woven together--a small station on Chase Avenue kept the western end of the Great Lakes shipping season on the air.



LEFT:
The SS South American was one of the last Great Lakes ships to use CW.

Image courtesy of Tom Drake, as posted on the website *Inland Marine Radio Archive*,

Visit them at
<https://imradioha.org/cw.htm>

BELOW:
A Stock Certificate circa 1910 of the Marconi Wireless Telegraph Company of America, issued by the Chase Manhattan Bank.

Ship-to-Shore Station WAS Duluth

By the late 1930s the ore boats no longer had to tap everything out in Morse and wait. Voice had come onto the Lakes from Lorain, Ohio. But a laker working the Head of the Lakes still often sent her docking and loading orders the long way — by radio down to Lake Erie, then a landline back to Duluth. Lake Superior, the westernmost of the Great Lakes, needed her own shore station. In 1938—39 it got one.

In 1938 Lorain County Radio already had a voice on Lake Erie. Ship-to-shore station WMI in Lorain, Ohio, had

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taught the bulk fleet that a captain could pick up a handset instead of waiting on Morse. They applied to the FCC for two more coastal harbor radiotelephone stations, one at Port Washington, Wisconsin, and one at Duluth. The Commission recorded the Duluth grant in its year ending June 30, 1939 — a license issued in the twelve months just past. WAS Duluth was on the books.

The white building that housed WAS Duluth was located on the north end of Chase Avenue at the city's edge. The ship-to-shore station couldn't run itself, of course. This was back in the early days of coastal harbor communication stations on the Great Lakes and nothing was automated.



Top Image: Former home of WAS Station Duluth

Image is based on a photo taken by John Harrison late in 2005 and posted on Inland Marine Radio History Archive at <https://imradioha.org/WAS.htm>.

In the Harrison photo the building was painted reddish brown. We edited the color back to white, as it appeared during the WAS years.

Bottom Image: Location of WAS Duluth, on North end of Chase Avenue. Chase Avenue is still so-named and is a short length route between E. Superior and Hwy 61. *Image credit: Inland Marine Radio History Archive.*

WAS spoke on 2550 kilocycles, a channel just above the AM broadcast band that a home radio used, and it was rated at 400 watts. That was strong enough for a ship on Lake Superior to hear it. The captain called Duluth and Duluth answered.

At this point, Lorain County Radio in Ohio owned ship-to-shore stations WMI on Lake Erie and WAD at Port Washington, Wisconsin. WAS Duluth completed Lorain's reach as its station on the western edge of the Lakes. Another company had station WAY at Lake Bluff, for Chicago. In the FCC year that ended June 30, 1941, Duluth was also allowed channels above 3 megahertz, higher numbers on the dial, for the days when the first channel was crowded or the signal skipped away over the horizon. The set was still a radio that an operator tuned. A ship called and a radio operator answered. A simple, direct process that we'd never had before.

WAS stayed on the air around the clock in season, so operators relieved one another the way sailors relieve the command helm of a ship, every few hours, in watches. A watch is a worker's time on duty at a particular post, then someone else takes their place for the next watch, until they too are relieved.

Two Eras

WAS Duluth had two "watches" of sorts. But these watches weren't hours, they were eras. Two carefully manned eras of WAS, that witnessed how manned ship-to-shore station communication on the Great Lakes changed in just forty years time, before going dark altogether.

The first WAS era was wartime. Mel Werking had the first WAS manager's chair from 1941. He had been at Lorain station WAD in Port Washington, WI when tasked to lead the WAS. Shortly after, he met Margaret Anderson, daughter of Thomas and Goldie Lane Anderson of Duluth, and married her on January 2, 1942.

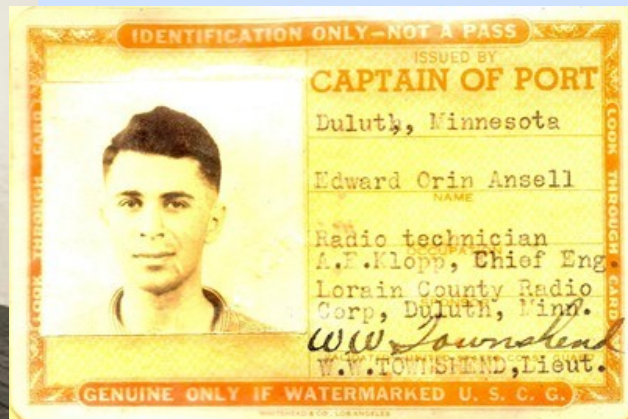
In the spring of 1943, a seventeen-year-old came on the board. Edward Ansell, W9PSA, was a veteran amateur radio operator of several years. When WWII started in Europe, his father had bought him a "brand new" 1939 Hallicrafters Sky Buddy ham radio. In 1943, Edward was a recent high school graduate in Superior, Wisconsin, and he already had earned a First Class Radiotelephone permit in addition to his Amateur Radio Operators license. He worked a short stretch at Twin Ports local broadcast stations, then Lorain County Radio hired him as a radio operator at WAS Duluth.

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Ansell worked the shipping season full-time and put the money toward tuition at Superior State Teachers College across the bridge. When the lakes locked, the station went to weekends. Ansell swept the floor, opened his study books, and called the Sault Ste. Marie Coast Guard on Channel 51 for weather so bush pilot Nick Niemi would know whether the mail plane could fly to Isle Royale.

The work revolved around the shipping fleet. Ore out of the Mesabi, grain for the lower lakes, a captain wanting a dock or a number in Cleveland. The weather report went out two or more times a day. The operating desk, the board where the receivers and the microphone sat, stood watch on 2182 — calling and distress — then dropped to a working channel and patched the boat through the Bell operator. Once in a while, someone at the little WAS station house climbed to the transmitter for maintenance.



LEFT: Hallicrafters 1939 Sky Buddy Ham Radio similar to the one Ansell's father bought him in 1939.
Image Credit: Ebay Seller AntiqueOrchard

RIGHT: Edward Ansell captioned this image, saying:

"...an image of the front of my Waterfront Pass identification card. On the reverse it shows me as being 18 years of age, and an issue date of July 5, 1944. It was required of all persons associated with shipping activities. It also entitled me to a gasoline "C" sticker for my 1942 Plymouth in the summer, and a "B" sticker in the fall and winter."

Visit Inland Marine Radio History Archive page entitled Recollections of Edward Ansell (W9PSA in 1941) at https://imradioha.org/Personal_Pages/Ansell.htm



Lloyd Horton sat at the WAS radio operators desk in the daytime, and after his shift, played string bass with the Duluth Symphony. Jim Scott walked the docks and kept the shipboard radiotelephones running, those Lorain sets that a captain used to call the shore.

In 1944 the chairs changed, and the second "long watch" era of WAS began. Melvin Werking went back to Lorain station WAD in Port Washington, Wisconsin. It was there that Melvin and Margaret had 4 children and eventually went on to run Werking's Dairy, a milk delivery service (see 1957 calendar image at left) and a restaurant called Darihaus.

Albert E. Klopp, W0QXI, took over in 1944 at WAS Duluth. Klopp had started with Lorain at WAD in 1940. Four years after arriving in Duluth, Klopp married Doris Sundstrom, daughter of Peter and Effie Sundstrom and the young couple subsequently had a son named Michael and later bought a cabin at Island Lake. Doris was a 1943 graduate of Duluth Central High School and went on to lead a 45 year career as a secretary for Duluth Public Schools. Albert Klopp would remain in the management chair at WAS Duluth station for the rest of its manned years.

Walter Clayton Toms, W0PIH — Clayt to the men in the room — sat

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as a radio operator beginning in 1944. In late fall of 1945, technology was advancing and Jim Scott was putting the first General Electric VHF radios aboard. Those sets used a higher, shorter-range band. In harbor and close along the shore the voice was clearer than the old medium-frequency channel, and less likely to skip away over the horizon. Don Heisner, a Lorain engineer, came up from Ohio now and then to inspect the modernized plant. Jake Hittler looked after the building after dark.

WAS Technology at a Glance

When WAS Duluth went on the air in 1939, the operating position held a rack of Hammarlund Super-Pro communications receivers—the same family used at Lorain's WMI station. These were big, rack-mount sets (most likely the early SP-10 or the closely related SP-100 / SP-200 series) with two tuned RF stages, continuously variable selectivity, and a crystal filter. An operator dialed them by hand across the medium-frequency marine channels, locking onto 2550 kc or the higher skip frequencies when they were open. A photo of Albert Klopp at the board around 1950 (see below) still shows those Super-Pros lined up, each one a full radio that had to be tuned, peaked, and watched. Nothing was preset; the operator's ear and the dials did the work.

Sometime in the mid-1950s Lorain replaced the Super-Pros with its own marine channel strips—six crystal-controlled receiver modules that plugged into a single rack unit. Each strip was already tuned and locked to one specific marine channel (calling, working, or distress). Instead of hunting the dial, the operator simply selected the strip for the frequency he needed. The change took the guesswork out of tuning, cut the chance of missing a weak call in static, and let the station stay on frequency without constant adjustment. The old Super-Pros that operators had tuned by hand gave way to a rack where the channel was preset and the voice arrived the way a phone call does; select the line, and talk.



LEFT: Al Klopp at the WAS Duluth Operating Console, circa 1950. The Hammarlund receivers seen here were like the ones documented to be in sister station WMI in 1937. As such, these Hammarlund receivers were probably selected by Lorain to be installed as the original WAS Station equipment in 1939. *Image credit: Doris and Al Klopp as posted to Inland Marine Radio History Archive.*

RIGHT: WAS Operating Console configuration beginning in the mid-1950s. The former Hammarlund receivers are gone, and in the left rack the six receiver channel strips from their maritime units. can be seen in their place. This image was taken in 1996 or 1997 by Mark Karney (when the console was at a now-closed museum) and is posted on Inland Marine Radio History Archive of WAS.

Night Shift: The Unforgettable Voice of WAS

Dorothy Wolf came on about 1946 and took the night watch at WAS. Edward Ansell never met her. By this time, he had accepted a position with the FCC in Buffalo, New York, back in October 1945. The captains did know Dorothy — or thought they did. She had a deep smooth voice that carried on the circuit. She was born small, with a curved spine and one leg shorter than the other, and she lived in a house built for her not far from the station. The men on the lake sent bottles of wine to her at Christmas, though they had never seen her. When she signed WAS *Continued on Page 20*

down for the evening, a cascade of her grateful admirers bid her goodnight.

The Gale

On November 9, 1975, the SS Edmund Fitzgerald cleared the Port of Superior, Wisconsin loaded with taconite from the Minnesota iron range, bound for Detroit. Built in 1958 by Great Lakes Engineering Works in Michigan, she was a 729-foot bulk freighter and was the largest ship on North America's Great Lakes when launched, earning nicknames like "Queen of the Lakes" and the "Mighty Fitz".

At 2:39 p.m., minutes after she left the harbor, the National Weather Service issued a gale warning for Lake Superior. Broadcasting weather and storm warnings was part of the work at WAS. Duluth was still a manned station and Klopp and Toms were on watch. The warning went out on the marine circuits.

The SS Arthur M. Anderson was a straight-decker ore carrier that had left Two Harbors about 45 minutes before the Fitzgerald departed Superior. The Fitzgerald was faster and quickly passed the Anderson in the open water of western Lake Superior. The Fitzgerald and the Arthur M. Anderson copied the weather forecasts on their receivers and talked to each other.

And then the gale became a storm.

A gale is a weather system of 34-47 knots (39-54 mph) that warns of danger to small and medium vessels. A "storm" on the Great Lakes is classified as 48-63 knots (55-73 mph) and a high risk to all vessels.



The SS Arthur M Anderson as it looked in 1975, when its Port of Registry was Wilmington, DE.

In a re-organization of the Great Lakes Fleet, her Port of Registry changed to the Port of Duluth. She is currently in Toledo, Ohio in a long-term layup, a state where a commercial vessel is taken out of active service for an extended period, ranging from several months to multiple years. During this time, the ship is safely moored at a dock, its machinery is preserved, and the crew is dismissed except for essential watchmen.

Through November 10, the two captains spoke by radio. The Fitzgerald reported damage, a list, and both radars out. The Anderson kept her in sight as long as the snow and the sea allowed, and passed word. The last exchange was ordinary and terrible. Asked how they were making it, the Fitzgerald answered that they were holding their own. About 7:10 that evening the Anderson lost her on the radar, in the storm, off Whitefish Point, on the northeastern shore of Michigan's upper peninsula. There was no distress call. One moment she was there; the next she was not. Captain Bernie Cooper of the Arthur M. Anderson desperately tried to reach Captain Ernest McSorley of the Edmund Fitzgerald by radio and reported to the U.S. Coast Guard station in Sault Ste. Marie that Fitzgerald was missing and possibly in distress.

By then, facing near-hurricane-force winds and 25-foot waves, the Anderson pushed forward to seek safety inside the protection of Whitefish Bay, arriving in the early hours of November 11. Once there, the Coast Guard informed Captain Cooper that there were no rescue ships capable of braving the open waters in this weather. At immense risk to his own ship and crew, Captain Cooper agreed to turn the Arthur M. Anderson back into the teeth of the storm to look for any trace of the Fitzgerald or survivors.

The Anderson finally did discover significant debris, including the Fitzgerald's mangled lifeboats, but no survivors.

Twenty-nine men were gone. The wreck was found later, in two pieces, on the floor of Superior. The harbor she had left the day before would never see her return. The shock and grief were national. Here in the Twin Ports and the rest of the Arrowhead region it was very personal, and every autumn the names of the souls lost on the Edmund Fitzgerald are still read.

The manned WAS Station on Chase Avenue did not survive the decade. In 1979 Lorain turned the operator's chairs into remotes. A clearer, shorter-range VHF network, and a smaller fleet, had made the old medium-frequency watch too costly to staff. Klopp drove out to the unmanned sites when a circuit failed, and retired in 1980.

After the Manned Stations Were Gone

1980 to the mid-1990s: After the manned operator chairs went empty, the voice on the lakes was VHF. Lorain's network of remote stations, controlled from Ohio over leased telephone lines, still patched a ship into

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the public phone system if the boat was close enough to a shore antenna. In 1984 that network was sold to WJG Maritel. Lorain Electronics closed the next year. The old medium-frequency sets, first AM and then a short single-sideband trial, faded. Weather and distress stayed with the Coast Guard and the National Weather Service, on a schedule, on VHF. A saltie bound through the Seaway might already carry an Inmarsat satellite terminal. A nearshore boat might have a cellular phone. The western lake no longer had a station on Chase Avenue answering by name.

On Mid-1990s to about 2005: The handset was no longer the only circuit. **Digital Selective Calling** began to arrive on VHF: a coded alert that could ring a shore station with the ship's identity and position, instead of a voice shouting into static. The Coast Guard was building toward **Rescue 21**, a chain of shore sites meant to hear those calls and locate them. Ships started fitting **AIS**, the **Automatic Identification System**, a beacon that tells other vessels and the shore who you are, where you are, and where you are headed, without anyone picking up a microphone. Email over satellite reached the salties and then the larger lakers. Company dispatch moved off the marine operator and onto a screen. Public coastal radiotelephone, the WAS kind of communication, was no longer how a captain ordered a dock.

2006 to Present: What watches the lake now is not one station with a call sign. It is several systems at once. AIS reports position continuously. VHF with digital calling still carries distress and bridge-to-bridge talk, and Rescue 21 shore sites listen.

Farther from a harbor antenna, satellite circuits carry voice, weather, and the ship's paperwork. A phone in a wheelhouse can do what a 400-watt station once did, when the boat is near shore. None of it stops a November storm, but it does make a silent ship much harder to lose.

Duluth–Superior is still the farthest inland seaport on the freshwater sea. Lakers and salties still move the cargo, and cruise boats full of tourists have joined them. Ships are being built on these harbors again, and a quicker fleet is in view of the not-so-distant future.

A beacon, a digital call, a satellite overhead. On a November night the harbor still turns toward winter, and the light still slants early off the hills, just like it did in the old days of WAS Duluth. Back then, as the evening faded into dark velvet skies over Lake Superior, ships waited for the evening sign-off from the little station on Chase Avenue. Then came the deep, soothing voice of a lady radio operator who was etched in the memory of the men on the lake. And when she said her last word and the circuit went quiet, the night air was filled with heartfelt replies to WAS Duluth, one after another: "Good night, Dorothy." ★



The SS Edmund Fitzgerald in 1975

For 17 years, *Edmund Fitzgerald* carried taconite (a variety of iron ore) from mines along the Minnesota Iron Range near Duluth, Minnesota, to iron works in Detroit, Michigan; Toledo, Ohio; and other Great Lakes ports. As a workhorse, she set seasonal haul records six times, often breaking her own record.

Image credit: Photo by Bob Campbell, as seen on the Great Lakes Shipwreck Museum site at <https://shipwreckmuseum.com/edmund-fitzgerald/> The site is beautifully produced by [Pro Web Marketing](#)



Contest Calendar - October 2026

+ VHF-UHF FT8 Activity Contest-NA	0000Z-0500Z, Oct 1
+ Walk for the Bacon QRP Contest	0000Z-0100Z, Oct 1 and 0200Z-0300Z, Oct 2
+ CWops Test (CWT)	0300Z-0400Z, Oct 1
+ CWops Test (CWT)	0700Z-0800Z, Oct 1
+ SARL 80m QSO Party	1700Z-2000Z, Oct 1
	1700Z-1800Z, Oct 1 (CW) and 1800Z-1900Z, Oct 1 (SSB) and 1900Z-2000Z, Oct 1 (FM) and 2000Z-2100Z, Oct 1 (Dig)
+ NRAU 10m Activity Contest	2000Z-2200Z, Oct 1
	0000Z to 2400Z, Oct 2
+ SKCC Sprint Europe	0100Z-0130Z, Oct 2
+ URC DX RTTY Contest	0145Z-0215Z, Oct 2
+ NCCC FT4 Sprint	0230Z-0300Z, Oct 2
+ Weekly RTTY Test	2000Z-2100Z, Oct 2
+ NCCC Sprint	2300Z, Oct 2 to 0300Z, Oct 5
+ K1USN Slow Speed Test	0000Z, Oct 3 to 2359Z, Oct 4
+ George Batterson 1936 QSO Party	0600Z, Oct 3 to 1800Z, Oct 4
+ Collegiate QSO Party	0600Z, Oct 3 to 0600Z, Oct 4
+ TRC DX Contest	0600Z, Oct 3 to 0559Z, Oct 4
+ Oceania DX Contest, Phone	0700Z-1000Z, Oct 3
+ Worked All Provinces of China DX Contest	1200Z, Oct 3 to 1159Z, Oct 4
+ German Telegraphy Contest	1400Z, Oct 3 to 1400Z, Oct 4
+ Russian WW Digital Contest	1600Z, Oct 3 to 2200Z, Oct 4
+ IARU Region 1 UHF/Microwaves Contest	1600Z-1800Z, Oct 3 (80m) and 0900Z-1100Z, Oct 4 (40m)
+ California QSO Party	1800Z-2200Z, Oct 3
+ International HELL-Contest	
+ 50 MHz Fall Sprint	

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Contest Calendar - October 2026

+ IARU Region 2 Area G HF SSB Contest	2200Z-2359Z, Oct 3
+ UBA ON Contest, SSB	0600Z-1000Z, Oct 4
+ Peanut Power QRP Sprint	2200Z-2359Z, Oct 4
+ K1USN Slow Speed Test	0000Z-0100Z, Oct 5
+ ICWC Medium Speed Test	1300Z-1400Z, Oct 5
+ OK1WC Memorial (MWC)	1630Z-1729Z, Oct 5
+ RSGB 80m Autumn Series, CW	1900Z-2030Z, Oct 5
+ ICWC Medium Speed Test	1900Z-2000Z, Oct 5
+ ARS Spartan Sprint	0000Z-0200Z, Oct 6
+ Worldwide Sideband Activity Contest	0100Z-0159Z, Oct 6
+ ICWC Medium Speed Test	0300Z-0400Z, Oct 6
+ Tuesday's Telegraphy Contest	1930Z-2030Z, Oct 6
+ Phone Weekly Test	0230Z-0300Z, Oct 7
+ A1Club AWT	1145Z-1300Z, Oct 7
+ CWops Test (CWT)	1300Z-1400Z, Oct 7
+ VHF-UHF FT8 Activity Contest	1700Z-2100Z, Oct 7
+ Mini-Test 40	1700Z-1759Z, Oct 7
+ Mini-Test 80	1800Z-1859Z, Oct 7
+ CWops Test (CWT)	1900Z-2000Z, Oct 7
+ UKEICC 80m Contest	2000Z-2100Z, Oct 7
+ 432 MHz Fall Sprint	2300Z, Oct 7 to 0300Z, Oct 8
+ VHF-UHF FT8 Activity Contest-NA	0000Z-0500Z, Oct 8
+ CWops Test (CWT)	0300Z-0400Z, Oct 8
+ CWops Test (CWT)	0700Z-0800Z, Oct 8
+ NCCC FT4 Sprint	0100Z-0130Z, Oct 9
+ Weekly RTTY Test	0145Z-0215Z, Oct 9
+ NCCC Sprint	0230Z-0300Z, Oct 9
+ K1USN Slow Speed Test	2000Z-2100Z, Oct 9

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Contest Calendar - October 2026

+ Makrothen RTTY Contest

+ QRP ARCI Fall QSO Party

+ 10-10 Int. 10-10 Day Sprint

+ Oceania DX Contest, CW

+ SKCC Weekend Sprintathon

+ Scandinavian Activity Contest, SSB

+ Arizona QSO Party

+ Pennsylvania QSO Party

+ South Dakota QSO Party

+ PODXS 070 Club 160m Great Pumpkin Sprint

+ UBA ON Contest, CW

+ 4 States QRP Group Second Sunday Sprint

+ K1USN Slow Speed Test

+ ICWC Medium Speed Test

+ OK1WC Memorial (MWC)

+ ICWC Medium Speed Test

+ Worldwide Sideband Activity Contest

+ ICWC Medium Speed Test

+ DARC RTTY Sprint

+ Tuesday's Telegraphy Contest

+ NAQCC CW Sprint

+ Phone Weekly Test

+ A1Club AWT

+ CWops Test (CWT)

+ VHF-UHF FT8 Activity Contest

0000Z-0800Z, Oct 10 and

1600Z-2400Z, Oct 10 and

0800Z-1600Z, Oct 11

0000Z-2359Z, Oct 10

0001Z-2359Z, Oct 10

0600Z, Oct 10 to 0600Z, Oct 11

1200Z, Oct 10 to 2400Z, Oct 11

1200Z, Oct 10 to 1200Z, Oct 11

1500Z, Oct 10 to 0500Z, Oct 11

1600Z, Oct 10 to 0400Z, Oct 11
and

1300Z-2200Z, Oct 11

1800Z, Oct 10 to 1800Z, Oct 11

2000Z, Oct 10 to 2000Z, Oct 11

0600Z-1000Z, Oct 11

0000Z-0200Z, Oct 12

0000Z-0100Z, Oct 12

1300Z-1400Z, Oct 12

1630Z-1729Z, Oct 12

1900Z-2000Z, Oct 12

0100Z-0159Z, Oct 13

0300Z-0400Z, Oct 13

1800Z-1929Z, Oct 13

1930Z-2030Z, Oct 13

0030Z-0230Z, Oct 14

0230Z-0300Z, Oct 14

1145Z-1300Z, Oct 14

1300Z-1400Z, Oct 14

1700Z-2100Z, Oct 14

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Contest Calendar - October 2026

+ Mini-Test 40	1700Z-1759Z, Oct 14
+ Mini-Test 80	1800Z-1859Z, Oct 14
+ RSGB 80m Autumn Series, Data	1900Z-2030Z, Oct 14
+ CWops Test (CWT)	1900Z-2000Z, Oct 14
+ VHF-UHF FT8 Activity Contest-NA	0000Z-0500Z, Oct 15
+ Walk for the Bacon QRP Contest	0000Z-0100Z, Oct 15 and 0200Z-0300Z, Oct 16
+ CWops Test (CWT)	0300Z-0400Z, Oct 15
+ CWops Test (CWT)	0700Z-0800Z, Oct 15
+ NTC QSO Party	1900Z-2000Z, Oct 15
+ NCCC FT4 Sprint	0100Z-0130Z, Oct 16
+ Weekly RTTY Test	0145Z-0215Z, Oct 16
+ NCCC Sprint	0230Z-0300Z, Oct 16
+ K1USN Slow Speed Test	2000Z-2100Z, Oct 16
+ JARL WW RTTY Contest	0000Z, Oct 17 to 2400Z, Oct 18
+ 902 MHz and Up Fall Sprint	0800 local - 1400 local, Oct 17
+ New York QSO Party	1400Z, Oct 17 to 0200Z, Oct 18
+ Worked All Germany Contest	1500Z, Oct 17 to 1459Z, Oct 18
+ Stew Perry Topband Challenge	1500Z, Oct 17 to 1500Z, Oct 18
+ Feld Hell Sprint	2000Z-2359Z, Oct 17
+ Argentina National 7 MHz Contest	2130Z-2330Z, Oct 17
+ Asia-Pacific Fall Sprint, CW	0000Z-0200Z, Oct 18
+ UBA ON Contest, 2m	0700Z-1000Z, Oct 18
+ Illinois QSO Party	1700Z, Oct 18 to 0100Z, Oct 19
+ Run for the Bacon QRP Contest	2300Z, Oct 18 to 0100Z, Oct 19
+ K1USN Slow Speed Test	0000Z-0100Z, Oct 19
+ ARRL School Club Roundup	1300Z, Oct 19 to 2359Z, Oct 23
+ ICWC Medium Speed Test	1300Z-1400Z, Oct 19

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Contest Calendar - October 2026

+ OK1WC Memorial (MWC)	1630Z-1729Z, Oct 19
+ ICWC Medium Speed Test	1900Z-2000Z, Oct 19
+ Worldwide Sideband Activity Contest	0100Z-0159Z, Oct 20
+ ICWC Medium Speed Test	0300Z-0400Z, Oct 20
+ Tuesday's Telegraphy Contest	1930Z-2030Z, Oct 20
+ Phone Weekly Test	0230Z-0300Z, Oct 21
+ A1Club AWT	1145Z-1300Z, Oct 21
+ CWops Test (CWT)	1300Z-1400Z, Oct 21
+ VHF-UHF FT8 Activity Contest	1700Z-2100Z, Oct 21
+ Mini-Test 40	1700Z-1759Z, Oct 21
+ Mini-Test 80	1800Z-1859Z, Oct 21
+ AGCW Semi-Automatic Key Evening	1900Z-2030Z, Oct 21
+ CWops Test (CWT)	1900Z-2000Z, Oct 21
+ IRTS 80m Counties Contest	2000Z-2100Z, Oct 21
+ CWops Test (CWT)	0300Z-0400Z, Oct 22
+ CWops Test (CWT)	0700Z-0800Z, Oct 22
+ RSGB 80m Autumn Series, SSB	1900Z-2030Z, Oct 22
+ NCCC FT4 Sprint	0100Z-0130Z, Oct 23
+ Weekly RTTY Test	0145Z-0215Z, Oct 23
+ NCCC Sprint	0230Z-0300Z, Oct 23
+ K1USN Slow Speed Test	2000Z-2100Z, Oct 23
+ CQ Worldwide DX Contest, SSB	0000Z, Oct 24 to 2359Z, Oct 25
+ K1USN Slow Speed Test	0000Z-0100Z, Oct 26
+ QCX Challenge	1300Z-1400Z, Oct 26
+ ICWC Medium Speed Test	1300Z-1400Z, Oct 26
+ OK1WC Memorial (MWC)	1630Z-1729Z, Oct 26
+ QCX Challenge	1900Z-2000Z, Oct 26
+ ICWC Medium Speed Test	1900Z-2000Z, Oct 26

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Contest Calendar - October 2026

+ RSGB FT4 Contest	2000Z-2200Z, Oct 26
+ Worldwide Sideband Activity Contest	0100Z-0159Z, Oct 27
+ QCX Challenge	0300Z-0400Z, Oct 27
+ ICWC Medium Speed Test	0300Z-0400Z, Oct 27
+ Tuesday's Telegraphy Contest	1930Z-2030Z, Oct 27
+ SKCC Sprint	0000Z-0200Z, Oct 28
+ Phone Weekly Test	0230Z-0300Z, Oct 28
+ A1Club AWT	1145Z-1300Z, Oct 28
+ CWops Test (CWT)	1300Z-1400Z, Oct 28
+ Mini-Test 40	1700Z-1759Z, Oct 28
+ Mini-Test 80	1800Z-1859Z, Oct 28
+ CWops Test (CWT)	1900Z-2000Z, Oct 28
+ UKEICC 80m Contest	2000Z-2100Z, Oct 28
+ CWops Test (CWT)	0300Z-0400Z, Oct 29
+ CWops Test (CWT)	0700Z-0800Z, Oct 29
+ NCCC FT4 Sprint	0100Z-0130Z, Oct 30
+ Weekly RTTY Test	0145Z-0215Z, Oct 30
+ NCCC Sprint	0230Z-0300Z, Oct 30
+ Zombie Shuffle	1500-2400 local, Oct 30
+ K1USN Slow Speed Test	2000Z-2100Z, Oct 30
+ ARRL EME Contest	0000Z, Oct 31 to 2359Z, Nov 1
+ UK/EI DX Contest, SSB	1200Z, Oct 31 to 1200Z, Nov 1
+ Russian WW MultiMode Contest	1200Z, Oct 31 to 1159Z, Nov 1

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Visit Bruce at www.contestcalendar.com/contestcal.html

The ARAC RELAY



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