



2021 Spring Fishing Harvest Summary  
1837 & 1854 Ceded Territories, Including Mille Lacs  
Fond du Lac Band of Lake Superior Chippewa

Summary prepared for the Ceded Territory & On-Reservation Conservation Committees  
By Brian Borkholder, Fisheries Biologist

Organizational Planning:

*Declarations:* Declarations for walleye harvest were originally made on a total of seven lakes within the 1837 Ceded Territory of Minnesota and 15 lakes in the 1854 Ceded Territory (Table 1). No declarations were made for any Wisconsin 1837 or 1842 Ceded Territory lakes. Cadotte Lake declarations were removed after Fond du Lac's (FDL) electrofishing data suggested an overly-exploited population in need of additional study (Borkholder et al. 2021). Island Lake Reservoir recently underwent changes in harvest management policy, with the State changing bag and size limits to increase the harvest of smaller individuals, and hopefully increase growth rates of remaining walleye. The State DNR asked that FDL use smaller-mesh nets to focus harvest on these smaller, more numerous individuals in the walleye population. FDL Resource Management Division (RMD) decided it wasn't feasible to ask Bandmembers to invest in smaller-mesh nets, and opted to forego harvest until such time as the population in Island Lake has improved.

*Bandmember Sign-Up:* Again in 2021, Fond du Lac (FDL) Bandmembers had the opportunity to sign-up online for spearing and netting activities. By signing up online, individuals provided RMD staff with contact phone numbers and email addresses. Individuals could also call RMD staff during regular work hours to sign up, if this was easier. A total of 68 individuals signed up using this online tool, compared to 98 in 2020, 93 in 2019, 62 in 2018, 90 in 2017 and 61 in 2016. It should be noted that there were several individuals that ultimately ended up participating that never did sign up, but either contacted RMD on a daily basis to inquire about available harvest opportunities or just joined family members that were participating. Also, many individuals that did sign up never actually participated.

*Covid Complications:* During spring 2021, the Band and the nation were still struggling with concerns over the Covid-19 Coronavirus and the availability and distribution of vaccines. The Band's Emergency Operations Center (EOC) initially decided that FDL would again limit the number of participating Band members so that a maximum of 50 folks would be at the landings at any given time. This would include RMD staff and participants. RMD would provide masks, hand sanitizer, and signs reminding folks to social distance.

After discussions with staff, and in the interest of getting members out of the Mille Lacs area quickly, RMD proposed to the EOC that the number of netters be limited each evening, but perhaps not to a set number. It was decided that each participating Band member would be allowed to bring one family member, and the two of them would be allowed to set two gill nets each. RMD decided that limiting members to two nets would spread out the harvest among more family units, as well as limiting the time members and staff would be congregating at the landings cleaning nets and creeling fish.



Table 1. Declarations of walleye by the Fond du Lac Band for lakes within the Minnesota 1837 and 1854 Ceded Territories. Declarations can be in either numbers or pounds. Harvest-to-date is also presented. Highlighted rows indicate lakes where there was FDL Band harvest activity.

Ceded Territory	Most Recent Harvest Date	Lake	Acreage	County	Declaration (no.)	Declaration (lbs)	Harvest to Date
MN 1837		Chisago	873	Chisago	189		
MN 1837		Green	1,715	Chisago	362		
MN 1837	4/12/2021	Mille Lacs	128,227	Mille Lacs		11,853	11,743.4
MN 1837		Platte	1,674	Crow Wing		612	
MN 1837		South Long	1313	Crow Wing		647	
MN 1837		South Lindstrom	450	Chisago	91		
MN 1837		Sullivan	1,221	Morrison	221		
MN 1854		Ball Club	206	Cook		40	
MN 1854		Bear Island	2,362	St. Louis		1248	
MN 1854		Birch	6,908	St. Louis		5837	
MN 1854		Cadotte	288	St. Louis		Removed	
MN 1854		Caribou	721	Cook		394	
MN 1854		Crane	2,997	St. Louis		1418	
MN 1854		Devil Track	1,868	Cook		718	
MN 1854		Four Mile	593	Cook		289	
MN 1854		Island L Res	8,000	St. Louis		Removed	
MN 1854		North McDougal	273	Lake		229	
MN 1854		Pike	814	Cook		174	
MN 1854		Silver Island	1,239	Lake		578	
MN 1854		Tait	355	Cook		136	
MN 1854	4/15/2021	Vermilion, East	11,372	St. Louis		10,000	625.2
MN 1854		White Pine	346	Cook		161	



*Morning Notifications and Issuing Daily Permits:* Each morning, RMD staff would choose lakes or landings to open for that night and determine the number of available permits. Staff would send a mass email AND a mass text message to all individuals that had signed up and provided an email address and / or cell phone number. These email and texts would identify the lake and landing open for the night. Those individuals that were interested and available to participate were given until noon to either call in or respond to the email. RMD staff conducted a lottery-type drawing at noon to distribute the available permits amongst those interested in participating for that night. Bandmembers receiving a gill net permit were not eligible to receive another until all those that had signed up had participated at least once or had declined a permit.

#### Harvest in 1837 Ceded Territory (Inland Lakes):

Due to the Covid-19 pandemic and concerns over the safety of staff and participating Band members, Fond du Lac once again opted to not open any of the 1837 inland lakes to harvest.

#### Mille Lacs Lake:

The walleye quota for 2021 was agreed upon between the State of MN and the Bands at the Winter 1837 Fisheries Technical Committee Meeting at 150,000 lbs. Tribal Allocation for the 2021 fishing season was set at 62,200 pounds of walleye, 50,000 pounds of northern pike, and 135,000 pounds of yellow perch. The State of MN had an allocation for licensed anglers of 87,800 pounds.

The Mille Lacs Band of Ojibwe started harvest activities for walleyes on 5 April, and continued thru the night of 10 May. For all participating Bands, total harvest on Mille Lacs Lake thru June was 50,523.8 pounds, compared to 32,015.6 lbs in 2020 and 47,701.3 lbs in 2019. Last year's low harvest was largely attributable to the Covid virus, with most of the WI Bands opting to not participate in 2020 due to Band-imposed travel restrictions. This year, 2021, we saw a resurgence of interest in this activity as folks learned to adjust to Covid restrictions and the vaccine being readily available to all interested in getting it. An additional 2584.0 pounds of northern pike were harvested by all Bands, well above the 2020 total of 1207.0 pounds and the 2019 total of 2163.1 pounds of northern pike harvested in 2019. Yellow perch harvest by the Bands was 114.8 pounds, well above the 12.6 pounds harvested in 2020.

Fond du Lac's allocation for 2021 was 11,853 pounds of walleye for Mille Lacs. Fond du Lac started netting activities on 8 April, and finished on the night of 12 April, for a total of five nights of harvest activities (Table 2, Figure 1). Total harvest for FDL was 11,743.4 pounds of walleye and 577.6 pounds of northern pike (Tables 1 & 2). FDL reserved the remaining 109.6 pounds of walleye to cover their open water angling fishery. Additional species harvested by FDL bandmembers on Mille Lacs Lake included smallmouth bass (8.8 lbs), yellow perch (2.8 lbs), white sucker (43.4 lbs), rock bass (3.8 lbs), burbot (2.2 lbs), tullibee (9.0 lbs), bowfin (26.6 lbs), and two muskie (75.0 lbs) (Table 3).

Walleye harvest by all participating Bands was concentrated at Cedar Creek (15,261.3 pounds) and North Garrison (13,297.1 pounds) access points (Table 4). Gill net harvest rates (lbs walleye / gill net / night) were highest at the Cove access ( $90.2 \pm 11.2$  lbs / net), followed by Father Hennepin ( $78.2 \pm 5.1$  lbs / net) (Figure 2). Fond du Lac harvested from Cedar Creek ( $52.0 \pm 2.2$  lbs / net) and one night at South Garrison ( $74.1 \pm 7.5$  lbs / net) (Figure 2).



For the Fond du Lac harvesters, walleye catch rate, calculated as the number of pounds of walleye harvested per hour of net effort, was highest on 12 April for netters (8.4 lbs / hr soaked; Table 5). For all participating Bands, gill net harvest per night peaked on 12 April at  $96.6 \pm 14.2$  lbs / net, and declined thereafter. There was a net that harvested just under 300 lbs of walleye on 9 April (Figure 3). In 2020, peak gill net catch was  $118.6 \pm 12.7$  lbs per net. The decline from 118 to 96 may likely be due to continued harvest of the 2013-cohort and their declining numbers in the population.

Participation by FDL was limited each night due to concerns over the transmission of the Covid-19 virus. Maximum number of participating individuals was 34 on 10 April (Table 6) in 16 parties (boats), presumably family members or close friends (Table 7). A total of 79 different FDL Band members participated at Mille Lacs Lake (Table 8), up from 63 in 2020, 56 that participated in 2019 and the 33 that participated in 2018. Four members participated all five nights (Table 8). Three of these four members received six permits each, five nights of gill netting and a single night of spearing. The number of boats used ranged from three to 16 boats per night (Table 7). This made it easier for FDL's Invasive Program to keep all boats cleaned and disinfected. On average, Bandmembers spent  $2.4 \pm 0.2$  nights harvesting on Mille Lacs, up from last year's average of  $1.5 \pm 0.2$ . RMD doesn't know if this is related to easing of Covid restrictions and concerns, or if it just took Bandmembers an extra night of participation to harvest the needed amount of fish for their families.

At Mille Lacs in spring 2021, harvest ranged from 1.7 to 539.2 pounds of walleye per Bandmember (Table 8, Figure 4). The average harvest for walleyes per individual was  $135.3 \pm 18.4$ . Median harvest per Bandmember was 125.6, lower than the 224.2 pounds in 2020 and the 2019 median value of 185.2 pounds per member. This is likely due to the strong 2013 cohort declining with continued harvest.

A total of 6154 walleyes were harvested by FDL (Tables 2 & 5). Lengths of walleye harvested ranged from 14.2 to 25.5 inches (Figures 5a & 5b). Note that in Figure 5b, the males are removed to better show the number of females and unknown-sex fish harvested.

RMD biological staff were instructed by supervisors to limit the time spent at the creel landings, and not place a high priority on collecting otoliths for aging harvested walleyes and building the kill-at-age matrix for the Mille Lacs walleye population models. Creel staff only attempted to collect otoliths when time allowed or from nets set by RMD staff members. The goal has always been to collect otoliths from five individuals per sex and per 0.5-inch group, e.g. five males and five females between 15.0 and 15.49 inches. Ages were interpreted from otoliths collected from 313 of the walleyes (Table 9). The most common ages observed were from the 2013-year class (age-8) and the 2017-year class (age-4) (Table 9 and Figure 6). FDL can expect harvest rates to continue to decline in the future as the 2013-year class numbers decline with State anglers and Bandmembers targeting harvest and hooking mortality on this very strong cohort. Walleye growth rate by sex is presented in Figure 7. Females are typically larger than males at the same age (Figure 7).



Table 2. Harvest by night and by Landing for the Fond du Lac Band on Mille Lacs Lake, spring 2021

	4/8/2021	4/9/2021	4/10/2021	4/11/2021	4/12/2021	Grand Total
<b>Cedar Creek</b>						
Sum of Number of Permits	41	54	65	17		177
Sum of Number of Nets	44	57	59	17		177
Sum of Walleye Number	1474	1455	1784	575		5288
Sum of Walleye Lbs	2804.8	2758.4	3488.2	1099.6		10151
Sum of Northern Number	37	20	17	6		80
Sum of Northern Lbs	171.4	102.2	64	29.8		367.4
Sum of Perch Number			1	1		2
Sum of Perch Lbs			1.4	1.4		2.8
<b>South Garrison</b>						
Sum of Number of Permits					14	14
Sum of Number of Nets					14	14
Sum of Walleye Number					866	866
Sum of Walleye Lbs					1592.4	1592.4
Sum of Northern Number					31	31
Sum of Northern Lbs					210.2	210.2
Sum of Perch Number						
Sum of Perch Lbs						
<b>Total Sum of Number of Permits</b>	<b>41</b>	<b>54</b>	<b>65</b>	<b>17</b>	<b>14</b>	<b>191</b>
<b>Total Sum of Number of Nets</b>	<b>44</b>	<b>57</b>	<b>59</b>	<b>17</b>	<b>14</b>	<b>191</b>
<b>Total Sum of Walleye Number</b>	<b>1474</b>	<b>1455</b>	<b>1784</b>	<b>575</b>	<b>866</b>	<b>6154</b>
<b>Total Sum of Walleye Lbs</b>	<b>2804.8</b>	<b>2758.4</b>	<b>3488.2</b>	<b>1099.6</b>	<b>1592.4</b>	<b>11743.4</b>
<b>Total Sum of Northern Number</b>	<b>37</b>	<b>20</b>	<b>17</b>	<b>6</b>	<b>31</b>	<b>111</b>
<b>Total Sum of Northern Lbs</b>	<b>171.4</b>	<b>102.2</b>	<b>64</b>	<b>29.8</b>	<b>210.2</b>	<b>577.6</b>
<b>Total Sum of Perch Number</b>			<b>1</b>	<b>1</b>		<b>2</b>
<b>Total Sum of Perch Lbs</b>			<b>1.4</b>	<b>1.4</b>		<b>2.8</b>



Table 3. Additional species harvested (lbs) on Mille Lacs Lake, spring 2021, by the Fond du Lac Band participating in harvest activities.

	Date					Grand Total
	4/8/2021	4/9/2021	4/10/2021	4/11/2021	4/12/2021	
Sum of Perch Number	0	0	1	1	0	2
Sum of Perch Lbs	0	0	1.4	1.4	0	2.8
Sum of White Sucker No.	1	1	5	1	14	22
Sum of White Sucker Lbs.	1.8	1.4	17.0	1.8	21.4	43.4
Sum of Burbot No.	0	1	0	0	0	1
Sum of Burbot Lbs.	0	2.2	0	0	0	2.2
Sum of Tullibee No.	0	3	3	0	0	6
Sum of Tullibee Lbs.	0	4.8	4.2	0	0	9
Sum of Smallmouth Bass No.	1	2	0	0	0	3
Sum of Smallmouth Bass Lbs.	4.6	4.2	0	0	0	8.8
Sum of Rock Bass No.	0	0	1	0	5	6
Sum of Rock Bass Lbs.	0	0	0.8	0	3	3.8
Sum of Bowfin No.	0	0	5	0	0	5
Sum of Bowfin Lbs	0	0	26.6	0	0	26.6
Sum of Muskie No.	0	1	1	0	0	2
Sum of Muskie Lbs	0	46	29	0	0	75



Table 4. Harvest of walleye and northern pike (pounds) from each of the landings on Mille Lacs Lake used by Tribal fishers during the spring 2021 harvest season. Data is as of 1 July 2021.

Landing	Values	
	Sum of Walleye Lbs	Sum of Northern Lbs
Cedar	15261.3	456.6
DNR	4493.7	524.5
Hennepin	6088	308.5
Indian Pt	130.5	4.5
Liberty	3344.8	126.7
Malmo	885.5	36
North Garrison	13297.1	329.2
South Garrison	5034.9	448.6
Wealthwood	1224.5	284.6
Wigwam	222	37
Cove	541.5	23
<b>Grand Total</b>	<b>50523.8</b>	<b>2579.2</b>

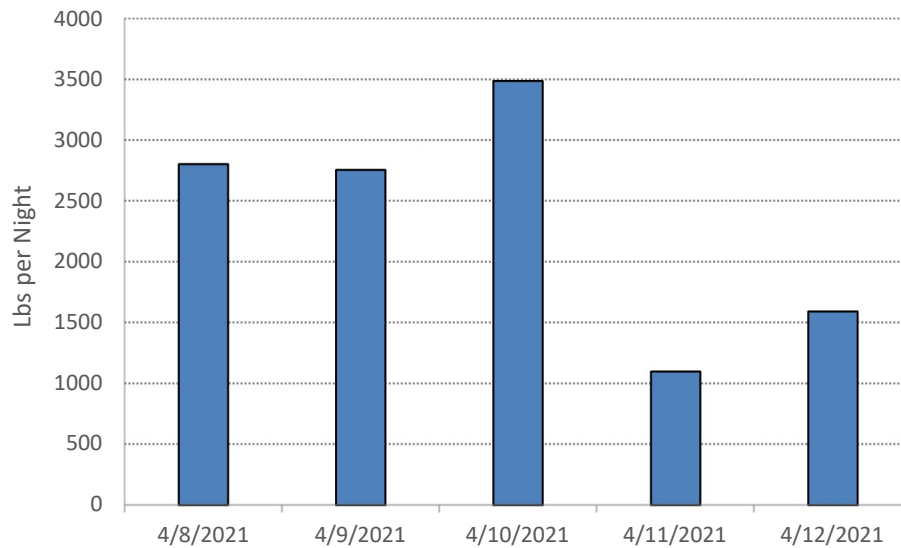


Figure 1. Harvest by walleye pounds for each night of harvest activities by FDL Bandmembers on Mille Lacs Lake, spring 2021.



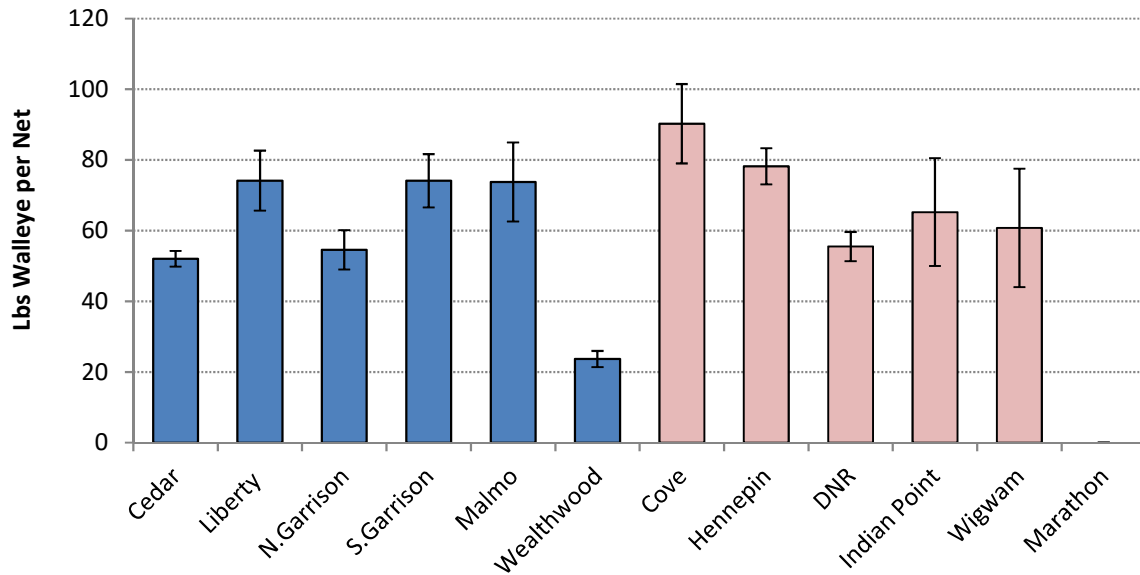


Figure 2. Mean (average  $\pm$  SE) pounds of walleye harvested per gill net at each landing on Mille Lacs Lake, spring 2021, by all participating Bands. Pink bars highlight harvest on the landings within the Mille Lacs Band's exclusive zone, i.e. other Bands are restricted from using these accesses.

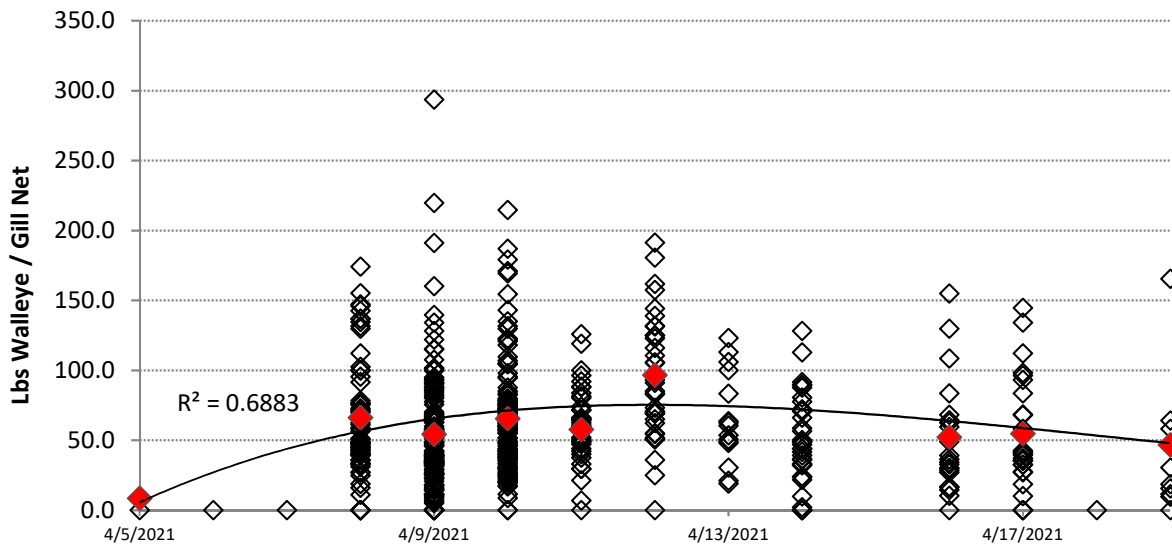


Figure 3. Pounds of walleye harvested per gill net each night of netting on Mille Lacs Lake, spring 2021. Data is from all participating Bands, and not just Fond du Lac. Hollow black diamonds are weights from individual nets, whereas solid red diamonds indicate nightly averages.





Table 5. Harvest effort (no. and lbs. per hour) for Fond du Lac Bandmembers netting walleyes on Mille Lacs Lake, spring 2021. Man-hours is only for spearing hours. Boat hours is actually net-soak hours.

Data and Gear Type	Sum of Boat Hours Fished	Sum of Man Hours Fished	WAE Harvested (no.)	WAE Harvested (Lbs)	No. WAE / Hour	Lbs WAE / Hour
<b>4/8/2021</b>						
Net	577.1		1474	2804.8	2.6	4.9
<b>4/9/2021</b>						
Net	704.7		1455	2758.4	2.1	3.9
<b>4/10/2021</b>						
Net	738.2		1675	3216.6	2.3	4.4
Spear	18.1	42.95	109	271.6	2.5	6.3
<b>4/11/2021</b>						
Net	232.9		575	1099.6	2.5	4.7
<b>4/12/2021</b>						
Net	189.9		866	1592.4	4.6	8.4
<b>Grand Total</b>	<b>2460.8</b>	<b>42.95</b>	<b>6154</b>	<b>11743.4</b>	<b>Mean = 2.7</b>	<b>Mean = 5.4</b>

Table 6. Number of Fond du Lac Bandmembers participating in spring harvest activities on Mille Lacs Lake during spring 2021. Number of Different Individuals reported is not the sum of the number of participants over the five nights of harvest activity, but a count of the number of unique FDL Bandmembers that participated in 2021.

Day	Date	Count of Tribal ID Number
Thur	4/8/2021	23
Fri	4/9/2021	31
Sat	4/10/2021	34
Sun	4/11/2021	9
Mon	4/12/2021	7
<b>No. Different Individuals</b>		<b>79</b>



Table 7. Number of unique boats participating on each night for the Fond du Lac Band on Mille Lacs Lake during spring 2021 spearing harvest activity. Grand Total is not the sum of each night, but the total number of unique boats used by FDL Bandmembers.

Day	Date	Count of Unique Number of Boats
Thur	4/8/2021	9
Fri	4/9/2021	12
Sat	4/10/2021	16
Sun	4/11/2021	3
Mon	4/12/2021	3
<b>Grand Total</b>		<b>30</b>

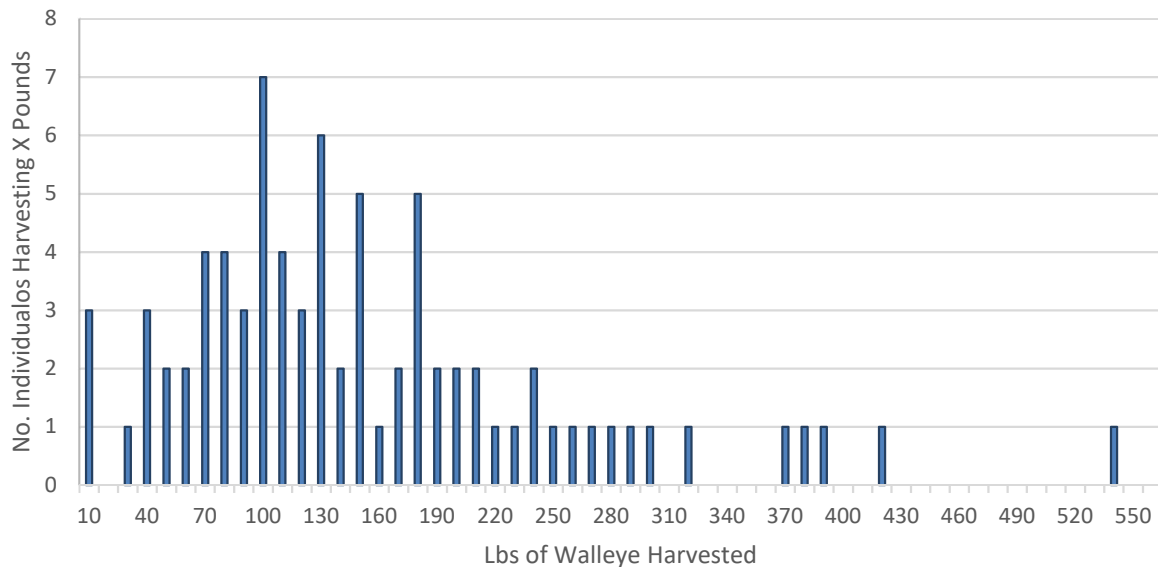


Figure 4. Amount of walleye pounds harvested in Mille Lacs Lake during spring 2021 by the number of Fond du Lac Bandmembers. Category values represent a maximum value, e.g. 130 means that six individuals came to Mille Lacs and harvested between 120.1 and 130.0 pounds of walleye, whereas one individual harvested between 530.1 and 540.0 pounds of walleye. Mean harvest was 135.3 ± 18.4 lbs / member (min 1.7, max 539.2), with a median value of 125.6 lbs.



Table 8. Sum of total walleye and northern pike pounds harvested per Fond du Lac Bandmember on Mille Lacs Lake during spring 2021 spearing and netting activities. Bandmembers participated on average  $2.4 \pm 0.2$  nights.

Tribal ID	Sum of Number of Permits	Sum of Walleye Pounds	Sum of Northern Pike Pounds	TOTAL
3034	2	124.4	0	124.4
3038	2	64.3	1	65.3
3047	2	160.4	7.6	168.0
3076	2	54.2	3.4	57.6
3085	2	217.8	0	217.8
3091	4	261.2	13.6	274.8
3094	4	251.4	12.6	264.0
3117	2	91.8	7	98.8
3129	2	90.6	3	93.6
3140	4	177.0	0	177.0
3179	2	76.8	0	76.8
3182	4	171.0	13.2	184.2
3210	2	112.5	1	113.5
3235	2	123.4	0	123.4
3252	2	116.2	0	116.2
3262	1	1.7	0	1.7
3264	2	120.8	6	126.8
3275	2	78.8	10.2	89.0
3291	1	34.2	2.2	36.4
3295	4	201.3	3.2	204.5
3313	2	191.6	2.6	194.2
3366	4	412.6	26.6	439.2
3435	2	59.6	0	59.6
3519	1	34.0	0	34.0
3521	2	80.4	2.4	82.8
3526	1	69.6	7.2	76.8
3587	2	170.4	0	170.4
3588	5	312.6	1.5	314.1
3596	2	41.0	0	41.0
3597	2	36.0	0	36.0
3628	1	84.0	1.8	85.8
3646	2	285.0	6.2	291.2
3651	2	184.2	3.2	187.4
3672	2	61.8	0	61.8
3700	6	362.2	17	379.2
3776	6	382.2	11.6	393.8
3805	1	1.7	0	1.7
3807	2	93.4	7.6	101.0
3814	4	107.8	0	107.8
3874	2	45.6	6	51.6
3915	2	148.2	1.8	150.0
3962	2	101.6	0	101.6



4150	4	244.2	9	253.2
4153	4	142.4	83.6	226.0
4231	2	94.6	0	94.6
4240	4	200.8	0	200.8
4253	2	71.8	19.2	91.0
4363	1	125.6	11.2	136.8
4439	2	69.4	0	69.4
4445	6	539.2	44.2	583.4
4473	2	119.4	3.2	122.6
4494	2	371.8	23.6	395.4
4533	2	97.0	24.2	121.2
4589	2	128.0	0	128.0
4611	2	153.2	6	159.2
4649	4	186.8	0	186.8
4701	2	221.6	10.6	232.2
4714	4	295.6	8	303.6
4717	4	170.2	0	170.2
4886	2	239.2	0	239.2
4935	1	8.4	0	8.4
4947	2	135.6	55.6	191.2
4956	3	145.0	3	148.0
4963	3	129.9	0	129.9
5198	4	272.8	8.8	281.6
5558	2	101.4	0	101.4
5610	2	78.8	0	78.8
5691	2	198.4	45.4	243.8
5693	2	147.2	0	147.2
5803	2	85.2	3.8	89.0
5815	2	109.8	0	109.8
5898	3	134.6	0	134.6
5978	3	173.7	4.4	178.1
6107	3	161.4	1.5	162.9
6270	2	92.0	2.8	94.8
6297	2	100.0	2	102.0
6433	2	231.4	8	239.4
6469	2	142.4	16.4	158.8
6507	1	29.2	3.6	32.8
<b>Grand Total</b>	<b>197</b>	<b>11743.4</b>	<b>577.6</b>	<b>12321.0</b>



Table 9. Ages assigned to 313 aged walleyes harvested from Mille Lacs Lake during spring 2021 activities by the Fond du Lac Band. Ages were interpreted using otoliths, and are separated by female (F), male (M), and unknown (U) fish.

Cohort	Age	Walleye Sex			Grand Total
		F	M	U	
2017	4		29		29
2016	5	10	6		16
2015	6	11	11		22
2014	7	12	12		24
2013	8	45	102	2	149
2012	9	7	4		11
2011	10	2	8		10
2010	11	3	3		6
2009	12		3		3
2008	13	9	13		22
2007	14	5	3		8
2006	15	4	1	1	6
2005	16	3	1		4
2004	18	2			2
2003	19		1		1
<b>Grand Total</b>		<b>113</b>	<b>197</b>	<b>3</b>	<b>313</b>

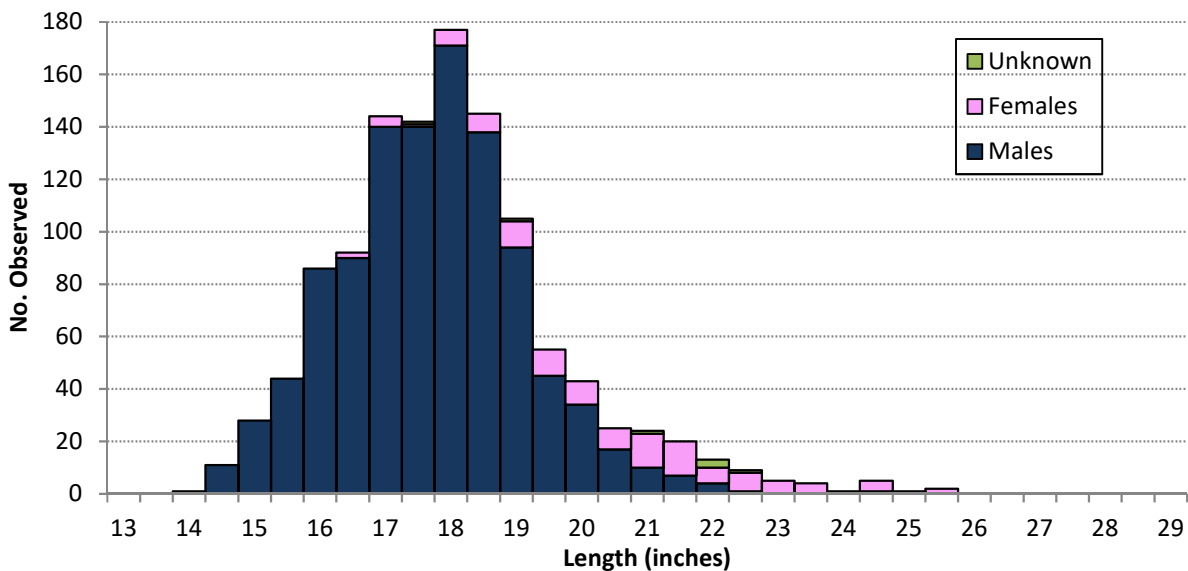


Figure 5a. Length frequency distribution of all walleyes harvested by Fond du Lac Bandmembers on Mille Lacs Lake during spring 2021 harvest activities. Harvest is separated by males (blue bars), females (pink bars), and unknown individuals (green bars). Per the protocols, Fond du Lac measured all fish speared, the first 100 fish from gill nets, and those from the last two (2) gill nets every morning.



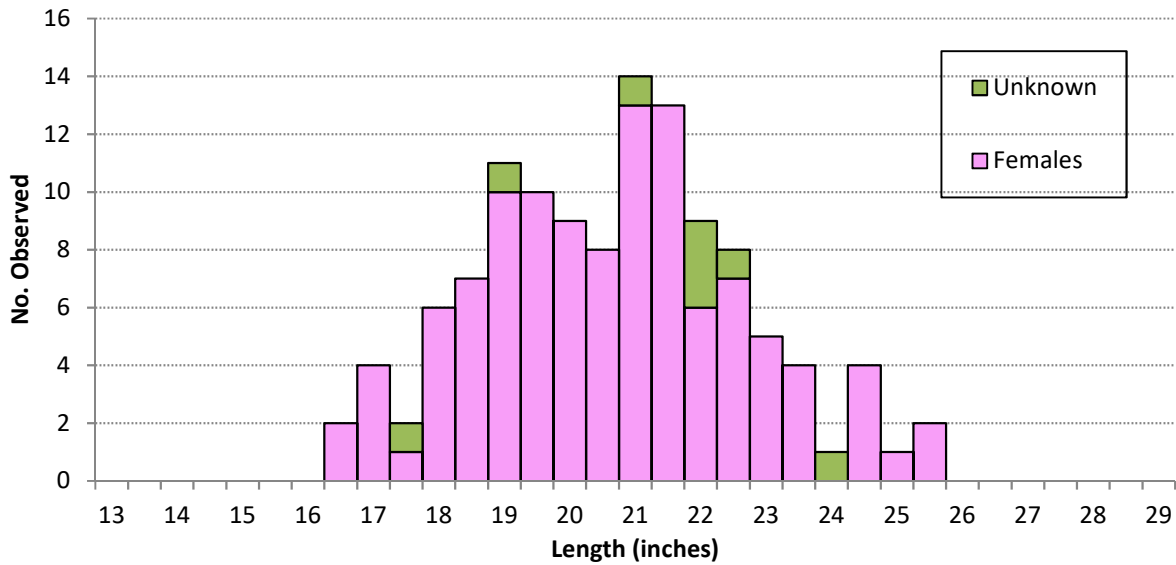


Figure 5b. Length frequency distribution of all female and unknown walleyes harvested by the Fond du Lac Band on Mille Lacs Lake during spring 2021 harvest activities. Per the protocols, Fond du Lac measured all speared fish, the first 100 fish from gill nets, and those from the last two (2) gill nets every morning. This is the same data presented in Figure 5a, with the males removed to change the scale on the No. Observed axis.

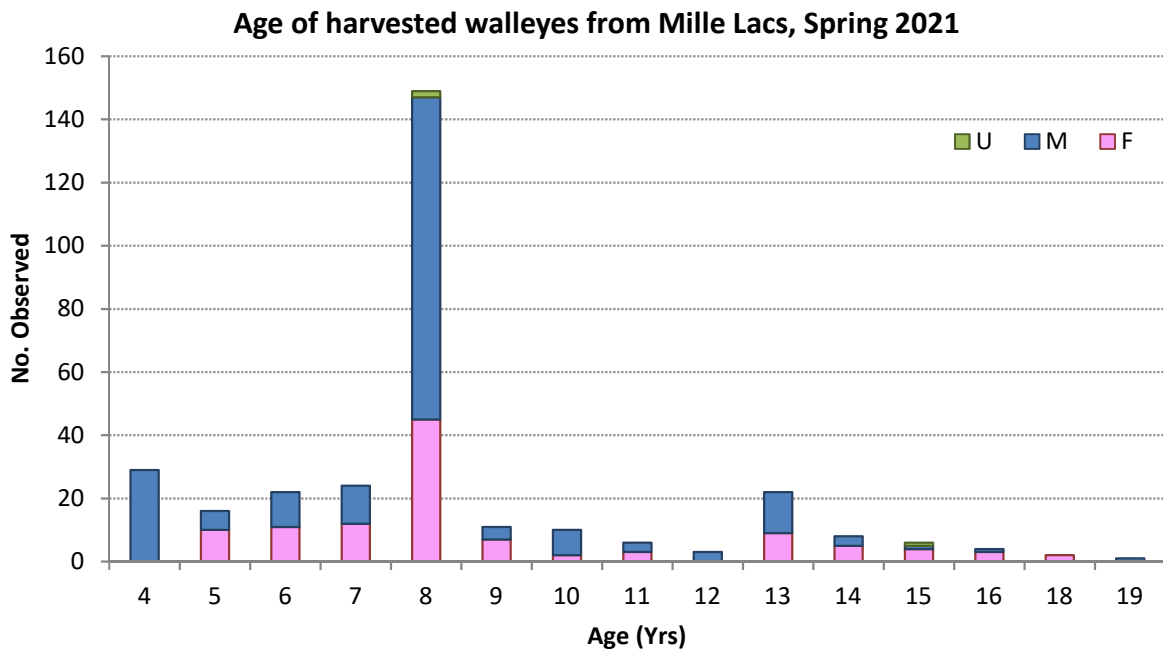


Figure 6. Age Frequency distribution of walleyes collected from Mille Lacs Lake during spring 2021 harvest activities. Ages were interpreted using otoliths, and are separated by males (blue bars), females (pink bars), and unknown individuals (green bars).



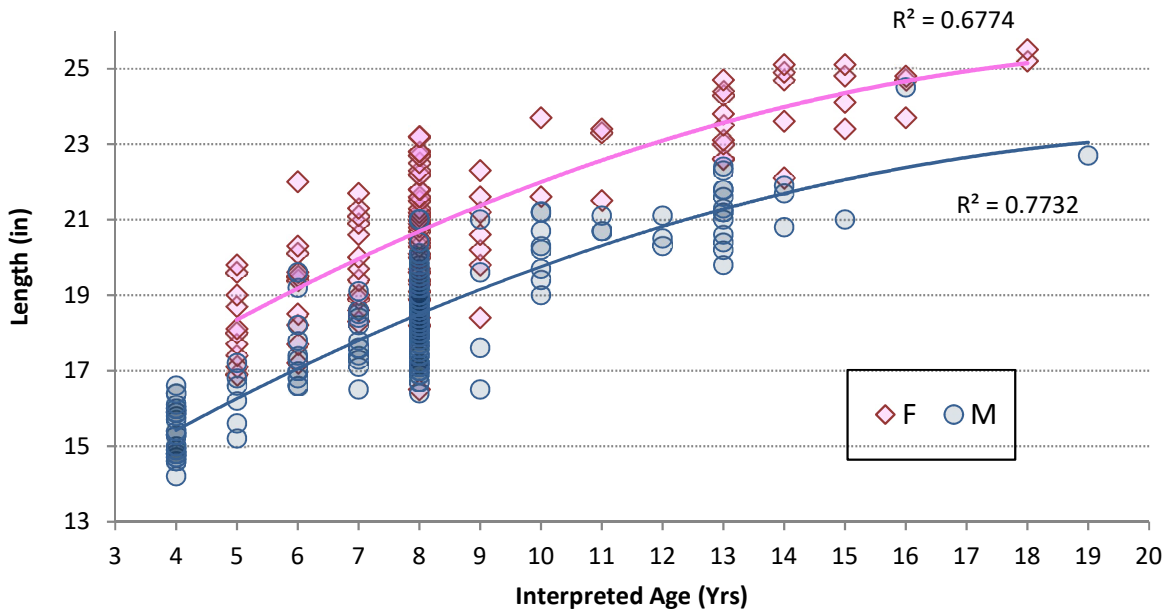


Figure 7. Length at age for male (blue squares) and female (pink diamonds) walleyes collected from Mille Lacs Lake during spring 2021 harvest activities. Interpreted ages were made using otoliths collected at the time of harvest.

#### Harvest in 1854 Ceded Territory:

Due to low participation and reports from Band members that they were done fishing for the spring, FDL only participated in harvest activities for three (3) nights on Lake Vermilion (Tables 1, 10, & 11).

On 15 April, Fond du Lac opened up the Eastern basin of Lake Vermilion for netting. Three to eight individuals set nets on each of the three nights (Table 10). A total of 13 different individuals participated on Lake Vermilion. The 13 FDL netters harvested 625.2 pounds of walleye (N = 422 walleye) from Lake Vermilion (Tables 11 & 12). Length frequency of harvested walleyes are presented in Figure 8, separated by males (blue), females (pink) and unknown sexed fish (green). Harvest of walleyes is separated by sex and gill net type in Table 13. Northern pike harvest was 59.4 pounds (N = 18 pike) (Tables 11 & 12). All northern pike were measured per agreement with Tower Area Fisheries, with data presented in Figure 9.

Additional species harvested from Lake Vermilion are presented in Table 14.

Participation was generally low on Lake Vermilion, with just three (3) boats participating on the first two nights and a single boat on the final night of harvest activity (Table 15).

#### Gill Netting:

Due to past harvest practices on Mille Lacs Lake, FDL and the State of MN entered into an agreement several years ago to spread out harvest over a broader segment of the walleye population in Lake Vermilion. This meant that FDL would not be using gill nets with a single mesh size as in Mille Lacs (1.75-inch bar



measurement). FDL has been providing Band members with experimental multi-panel nets with three different mesh size panels (1.5 inches 1.75 inches, and 2.0 inches), each panel 33 ⅓ feet in length. In the past, perceptions amongst participants and staff were that these experimental nets were useless, with catch rates unacceptably low. In 2021, FDL allowed Bandmembers to set their single-mesh 1.75-inch nets along with an FDL multi-panel net. The purpose was to compare harvest and length distribution between the two nets.

Mille Lacs Lake represents a unique opportunity for Bandmembers to net walleyes and experience exceptional and highly efficient harvest rates (Table 16). Harvest rates for walleyes on Mille Lacs Lake of  $60.4 \pm 4.7$  pounds per net average (Table 16) do not necessarily translate to similar harvest rates on other bodies of water. Harvest rates in Lake Vermilion were much lower at  $17.9 \pm 4.3$  pounds of walleye per net (Table 16). These lower harvest rates may partially explain the lower interest in Lake Vermilion compared to Mille Lacs. On the other hand, by the time Lake Vermilion opened for harvest in 2021, the average FDL participant had already put  $135.3 \pm 18.4$  lbs of walleye into their freezer. Perhaps lower interest may be related to available freezer space.

A total of 18 multi-panel nets were set, along with 17 of the 1.75-inch mesh nets. One less 1.75-inch mesh net was fished due to equipment problems and lost net anchors. The multi-panel experimental nets harvested an average of  $17.6 \pm 5.1$  pounds of walleye per net, while the standard 1.75-inch mesh nets harvested  $18.1 \pm 7.6$  pounds per net (Table 17, Figure 10). There was no statistical difference in catch rate (lbs walleye / net) between the two nets types ( $P = 0.913$ ). Further, the FDL RMD-owned multi-panel nets did accomplish the goal of spreading harvest over a larger segment of the Lake Vermilion walleye population (Figure 11). These multi-panel nets caught more of the smaller fish (< 14 inches) and more of the larger ones (> 18 inches), including the two trophy walleyes over 28.5 inches (Figure 8).

An issue that needs to be addressed is the fallacy that many folks seem to believe, including staff in the FDL Resource Management Division; that gill nets will fish equally in all bodies of water. This is false. Lake Vermilion is not Mille Lacs. Harvest rates will not ever be the same, regardless of the nets used, due to productivity differences between the two fisheries. There is utility in spreading out harvest over a broader part of the population, and not focusing all harvest on the 15 – 17 inch walleyes as was done in the past on Mille Lacs (Figure 11). At this point, FDL RMD would recommend that the FDL RBC continue this paired study in the future, where these multi-panel nets are used in conjunction with the single-panel 1.75 in mesh nets on Lake Vermilion. With a larger sample size of paired nets, FDL RMD can further evaluate differences in catch rates between the two net types, and the effectiveness of spreading out harvest over the entire population while still providing fish for the community.

#### Bandmember Harvest and Participation:

Total walleye harvest within both lakes in the 1837 and 1854 Ceded Territories of Minnesota was 12,368.6 (Table 18), lower than in the last two harvest seasons (2020 was 14,488.4 pounds; 2019 was 13,404.6 pounds). Total harvest of northern pike was 637.0 pounds (Table 18), more than the 462.0 pounds harvested in 2020, but less than the 901.1 pounds harvested in 2019.





Eighty-five different Bandmembers participated in spearing and netting activities during the spring 2021 fishing season (Table 18), up from the 63 that participated in 2020 and the 70 that participated in 2019. Bandmembers harvested between 1.7 and 539.2 pounds of walleye per individual (Table 18, Figure 12), and between 0.0 and 86.0 pounds of northern pike (Table 18). Average walleye harvest per individual Bandmember was  $145.5 \pm 22.9$  pounds of walleye, declining from the 2020 average of  $230.0 \pm 29.5$  pounds and the 2019 average of  $194.3 \pm 32.7$  pounds per member. Median pounds per member (120.8 in 2021) also decreased from the 224.2 pounds in 2020 and 173.8 pounds in 2019. The number of permits claimed per individual ranged from one (eight individuals) to 11 permits (one individual) (Figure 13).

Participating Bandmembers need to be looking around the community for members of the next generation, and begin mentoring these youngsters. If no one shows the next generation how to participate in the springtime harvest opportunities available to the community, interest in spring harvest activities will continue to decline as it has over the last two decades. RMD will continue to provide opportunities for our Bandmembers, but to get fish into the community will require increased interest and participation by Bandmembers in the future.

#### Acknowledgments

FDL RMD staff work incredibly hard every spring to provide these harvest opportunities. Boat landings were patrolled and protected by Officers Duane Barney, Blake Evanson, Darren Seppala, Mike Smith, Josh Whitebird, and Mark Zacher. Fish were creelied by Eli Goodreau, John Goodreau, Sam Johnson, Lance Overland, Kipp Perrault, Terry Perrault, Sean Thompson, and Matt Weske. Daily notifications were sent out by Terri Redding and Virginia Lord.

#### Literature Cited

Borkholder, B.D., N. Bogyo, T. Anselmo, and S. Thompson. 2021. Spring Adult and Fall Juvenile Walleye Population Surveys within the 1854 Ceded Territory of Minnesota, 2020. Issued jointly as FDL Technical Report #55 and 1854 Treaty Authority Report #21-06. <http://www.fdlrez.com/RM/fisheries/2020WalleyeReport2.pdf>



Table 10. Fond du Lac Bandmembers participating each night within 1854 Ceded Territory Lakes during the 2021 spring harvest season. There were no spearing permits issued for any of the 1854 Lakes in 2021. Data presented are the number of gill net permits issued to each individual, one an FDL program net and one of their 1.75-inch net.

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Tribal ID	Sum of No. Nets Set
<b>4/15/2021</b>	<b>14</b>
3588	2
4153	2
4231	2
5019	2
5050	2
6432	2
6433	2
<b>4/16/2021</b>	<b>15</b>
3091	2
3120	2
3526	2
3588	2
5815	1
6171	2
6432	2
6433	2
<b>4/17/2021</b>	<b>6</b>
3588	2
5133	2
6433	2
<b>Grand Total</b>	<b>35</b>

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Table 11. Harvest (pounds) of walleye and northern pike from the 1854 Ceded Territory during the spring 2021 harvest season.

**Pounds of Walleye**

Sum of Walleye Pounds	
Date	Vermilion (East)
4/15/2021	347.6
4/16/2021	180.4
4/17/2021	97.2
<b>Grand Total</b>	<b>625.2</b>

**Pounds of Northern Pike**

Sum of NORTHERN POUNDS	
Date	Vermilion (East)
4/15/2021	33.8
4/16/2021	19.2
4/17/2021	6.4
<b>Grand Total</b>	<b>59.4</b>



Table 12. Harvest (number) of walleye and northern pike from the 1854 Ceded Territory during the spring 2020 harvest season.

**Walleye Numbers**

Sum of Walleye No.	
Date	Vermilion (East)
4/15/2021	244
4/16/2021	123
4/17/2021	55
<b>Grand Total</b>	<b>422</b>

**Northern Pike Numbers**

Sum of Northern No.	
Date	Vermilion (East)
4/15/2021	10
4/16/2021	5
4/17/2021	3
<b>Grand Total</b>	<b>18</b>

Table 13. Number of walleyes harvested using single panel 1.75-in mesh gill nets and multi-panel experimental nets on Lake Vermilion in spring 2021, separated by sex (male, female, and unknown)

Date and Net Type	F	M	U	Grand Total
<b>Vermilion (East)</b>	<b>40</b>	<b>369</b>	<b>13</b>	<b>422</b>
<b>4/15/2021</b>	<b>20</b>	<b>222</b>	<b>2</b>	<b>244</b>
GN(ml)	16	110	1	127
GN(exp)	4	112	1	117
<b>4/16/2021</b>	<b>7</b>	<b>107</b>	<b>9</b>	<b>123</b>
GN(ml)	2	41	5	48
GN(exp)	5	66	4	75
<b>4/17/2021</b>	<b>13</b>	<b>40</b>	<b>2</b>	<b>55</b>
GN(ml)	7	23	1	31
GN(exp)	6	17	1	24
<b>Grand Total</b>	<b>40</b>	<b>369</b>	<b>13</b>	<b>422</b>



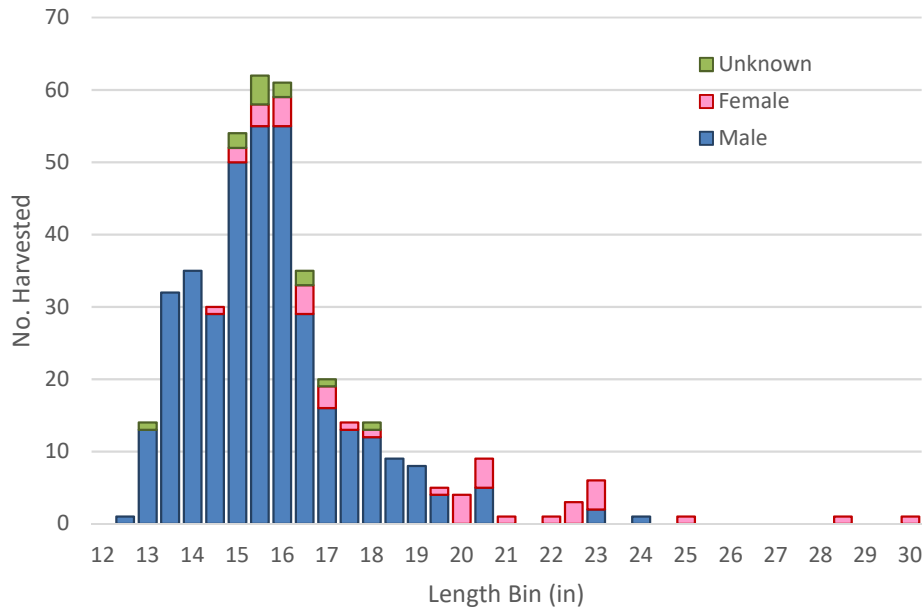


Figure 8. Length frequency distribution of all walleyes harvested by Fond du Lac Bandmembers on Lake Vermilion during spring 2021 harvest activities. Harvest is separated by males (blue bars), females (pink bars), and unknown individuals (green bars). Per agreements with MNDNR, FDL measures all harvested walleyes on the Lake, and does not sub-sample.

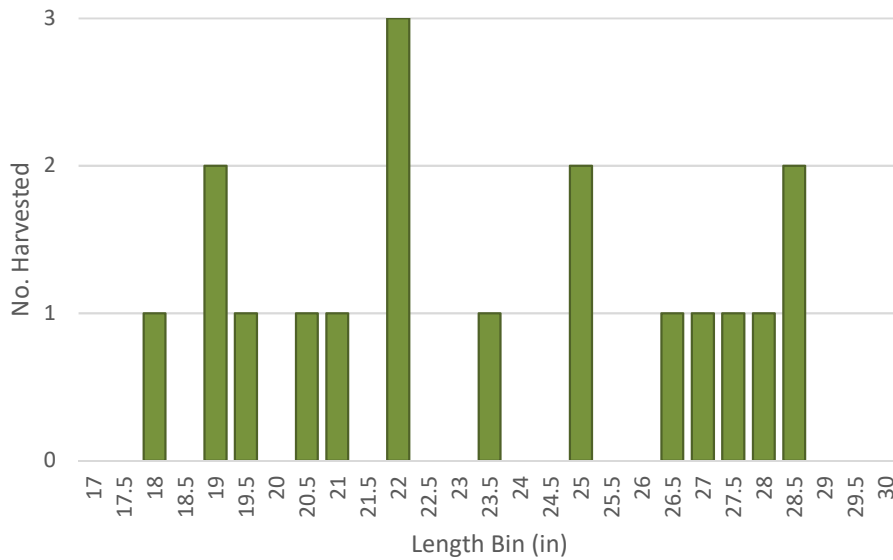


Figure 9. Length frequency distribution of all northern pike harvested by Fond du Lac Bandmembers on Lake Vermilion during spring 2021 harvest activities. Per agreements with MNDNR, FDL measures all harvested northern pike on the Lake, and does not just count and weigh them.



Table 14. Harvest of additional species by Fond du Lac Bandmembers within Lake Vermilion, Minnesota, during spring 2021 harvest activities.

<b>Vermilion (East)</b>	
Sum of Yellow Perch No.	50
Sum of Yellow Perch Lbs	34.4
Sum of Tullibee No.	44
Sum of Tullibee Lbs.	58.6
Sum of White Sucker No.	56
Sum of White Sucker Lbs.	95.6
Sum of Rock Bass No.	1
Sum of Rock Bass Lbs.	0.6
Sum of Black Crappie No.	1
Sum of Black Crappie Lbs.	0.8
Sum of Whitefish No.	7
Sum of Whitefish Lbs.	24

Table 15. The number of boats used each night and on each lake by Fond du Lac Bandmembers while participating in 2021 spring harvest activities within the 1854 Ceded Territory of Minnesota.

<b>Boat Hull ID #</b>	<b>GN (exp)</b>	<b>GN (1.75)</b>	<b>Grand Total</b>
<b>Vermilion (East)</b>			
<b>4/15/2021</b>	<b>7</b>	<b>7</b>	<b>14</b>
MN 6089 LX	2	2	4
MN 3061 HZ	2	2	4
MN 4736 HV	3	3	6
<b>4/16/2021</b>	<b>8</b>	<b>7</b>	<b>15</b>
MN 4736 HV	4	4	8
MN 5011 JK	2	2	4
MN 5598 LY	2	1	3
<b>4/17/2021</b>	<b>3</b>	<b>3</b>	<b>6</b>
MN 4736 HV	3	3	6
<b>Grand Total</b>	<b>18</b>	<b>17</b>	<b>35</b>



Table 16. Mean (average) and median gill net catch rates for walleyes and northern pike within Lakes Mille Lacs and Vermilion, Minnesota, during spring 2021 harvest activities. Note that spearing data is not reported in this table.

	Sum of No. Nets	Sum of WAE No.	Sum of WAE Lbs	Sum of NOP No.	Sum of NOP Lbs	Mean No. WAE / Net	Mean Lbs WAE / Net	Median Lbs WAE / Net	Mean No. NOP / Net	Mean Lbs NOP / Net	Median Lbs NOP / Net
<b>1837</b>											
Mille Lacs	191	6045	11471.8	109	571.6	31.8 ± 2.5	60.4 ± 4.7	55.6	0.6 ± 0.2	3.0 ± 1.2	0
<b>1837 Total</b>	<b>191</b>	<b>6045</b>	<b>11471.8</b>	<b>109</b>	<b>571.6</b>	<b>31.8 ± 2.5</b>	<b>60.4 ± 4.7</b>	<b>55.6</b>	<b>0.6 ± 0.2</b>	<b>3.0 ± 1.2</b>	<b>0</b>
<b>1854</b>											
Vermilion (East)	35	422	625.2	18	59.4	12.1 ± 2.8	17.9 ± 4.3	14.4	0.6 ± 0.2	1.7 ± 0.9	3.5
<b>1854 Total</b>	<b>35</b>	<b>422</b>	<b>625.2</b>	<b>18</b>	<b>59.4</b>	<b>12.1 ± 2.8</b>	<b>17.9 ± 4.3</b>	<b>14.4</b>	<b>0.6 ± 0.2</b>	<b>1.7 ± 0.9</b>	<b>3.5</b>
<b>Grand Total</b>	<b>226</b>	<b>6467</b>	<b>12097</b>	<b>127</b>	<b>631</b>						



Table 17. Summary data for the two net types fished in Lake Vermilion in 2021. Nets were either the single panel 1.75-inch nets, or the three panel experimental nets. Data is reported on the number of pounds harvested, and the mean (average per net) for both walleye and northern pike.

	Sum of Walleye Pounds	Sum of Northern Pounds	Sum of No. Nets Set	Mean lbs / Net (WAE)	Mean lbs / Net (NOP)
<b>Vermilion (East)</b>					
<b>4/15/2021</b>					
GN (1.75)	182.8	13.6	7	26.1	1.9
GN (exp)	164.8	20.2	7	23.5	2.9
<b>4/16/2021</b>					
GN (1.75)	73.2	17.4	7	10.5	2.5
GN (exp)	107.2	1.8	8	13.4	0.2
<b>4/17/2021</b>					
GN (1.75)	51.8	4	3	17.3	1.3
GN (exp)	45.4	2.4	3	15.1	0.8
<b>Grand Total</b>	<b>625.2</b>	<b>59.4</b>	<b>35</b>	<b>17.9</b>	<b>1.7</b>
Mean Exp Nets				17.6 ± 5.1	
Mean 1.75 in Nets				18.1 ± 7.6	





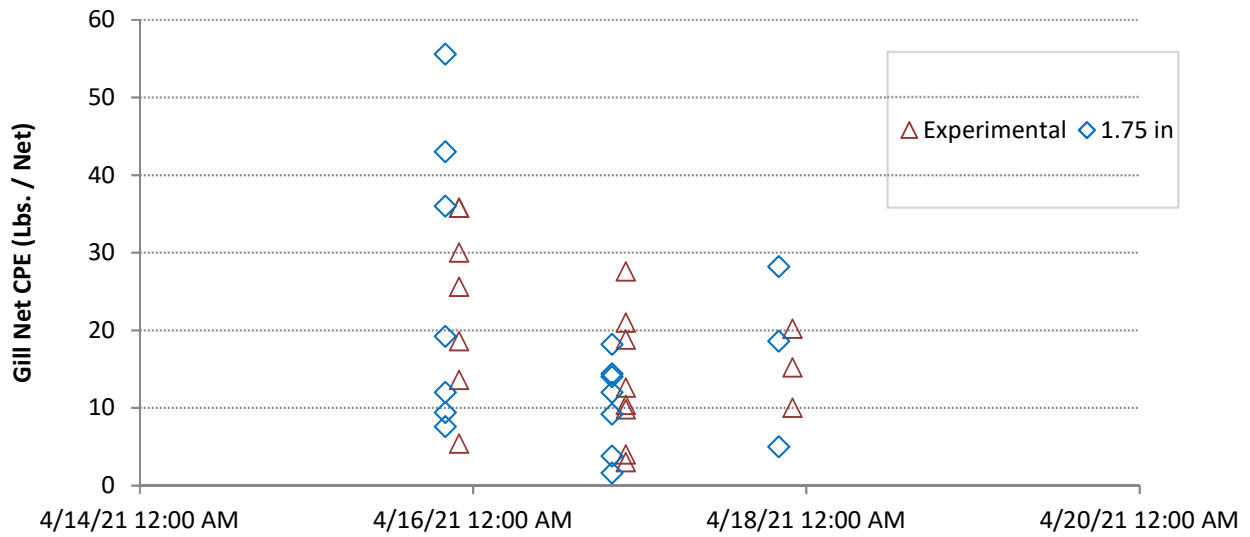


Figure 10. Gill net CPE (walleye lbs / net) for the single-panel 1.75-inch nets (blue diamonds) and the three-panel experimental nets (red triangles) for the three nets of harvest on Lake Vermilion.

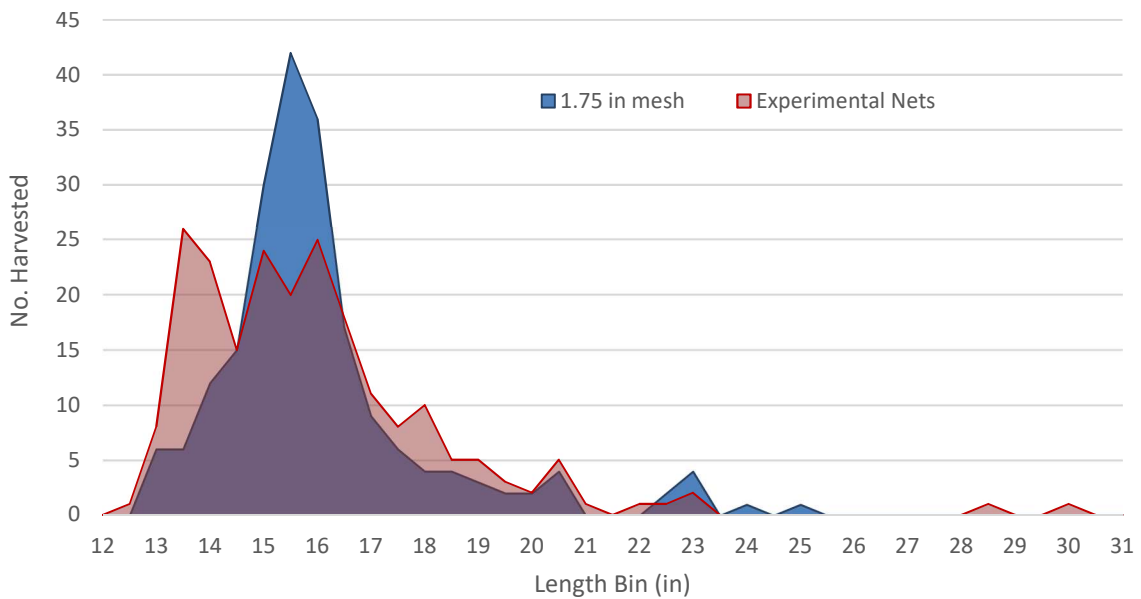


Figure 11. Length frequency distribution of all walleyes harvested by Fond du Lac Bandmembers on Lake Vermilion during spring 2021 harvest activities. Harvest is separated by single-panel 1.75-inch nets (blue area) and the three-panel experimental nets (pink area).



Table 18. Total pounds of walleye and northern pike harvested per Bandmember within Lakes Mille Lacs and Vermilion, Minnesota, during spring 2021 harvest activities.

Tribal License No.	Sum of Number of Permits	Sum of Walleye Pounds	Sum of Northern Pike Pounds	Total Pounds
3034	2	124.4	0	124.4
3038	2	64.3	1	65.3
3047	2	160.4	7.6	168
3076	2	54.2	3.4	57.6
3085	2	217.8	0	217.8
3091	6	277.2	18.6	295.8
3094	4	251.4	12.6	264
3117	2	91.8	7	98.8
3120	2	12	0	12
3129	2	90.6	3	93.6
3140	4	177	0	177
3179	2	76.8	0	76.8
3182	4	171	13.2	184.2
3210	2	112.5	1	113.5
3235	2	123.4	0	123.4
3252	2	116.2	0	116.2
3262	1	1.7	0	1.7
3264	2	120.8	6	126.8
3275	2	78.8	10.2	89
3291	1	34.2	2.2	36.4
3295	4	201.3	3.2	204.5
3313	2	191.6	2.6	194.2
3366	4	412.6	26.6	439.2
3435	2	59.6	0	59.6
3519	1	34	0	34
3521	2	80.4	2.4	82.8
3526	3	92.2	7.2	99.4
3587	2	170.4	0	170.4
3588	11	440.8	5.5	446.3
3596	2	41	0	41
3597	2	36	0	36
3628	1	84	1.8	85.8
3646	2	285	6.2	291.2
3651	2	184.2	3.2	187.4
3672	2	61.8	0	61.8
3700	6	362.2	17	379.2
3776	6	382.2	11.6	393.8
3805	1	1.7	0	1.7
3807	2	93.4	7.6	101
3814	4	107.8	0	107.8
3874	2	45.6	6	51.6
3915	2	148.2	1.8	150
3962	2	101.6	0	101.6



4150	4	244.2	9	253.2
4153	6	233.8	86	319.8
4231	4	112	13.2	125.2
4240	4	200.8	0	200.8
4253	2	71.8	19.2	91
4363	1	125.6	11.2	136.8
4439	2	69.4	0	69.4
4445	6	539.2	44.2	583.4
4473	2	119.4	3.2	122.6
4494	2	371.8	23.6	395.4
4533	2	97	24.2	121.2
4589	2	128	0	128
4611	2	153.2	6	159.2
4649	4	186.8	0	186.8
4701	2	221.6	10.6	232.2
4714	4	295.6	8	303.6
4717	4	170.2	0	170.2
4886	2	239.2	0	239.2
4935	1	8.4	0	8.4
4947	2	135.6	55.6	191.2
4956	3	145	3	148
4963	3	129.9	0	129.9
5019	2	23	6.4	29.4
5050	2	54.6	0	54.6
5133	2	38.2	4.2	42.4
5198	4	272.8	8.8	281.6
5558	2	101.4	0	101.4
5610	2	78.8	0	78.8
5691	2	198.4	45.4	243.8
5693	2	147.2	0	147.2
5803	2	85.2	3.8	89
5815	3	112.8	0	112.8
5898	3	134.6	0	134.6
5978	3	173.7	4.4	178.1
6107	3	161.4	1.5	162.9
6171	2	30.8	6.8	37.6
6270	2	92	2.8	94.8
6297	2	100	2	102
6432	4	86	5.6	91.6
6433	8	333.4	19.8	353.2
6469	2	142.4	16.4	158.8
6507	1	29.2	3.6	32.8
<b>Grand Total</b>	<b>232</b>	<b>12368.6</b>	<b>637</b>	<b>13005.6</b>



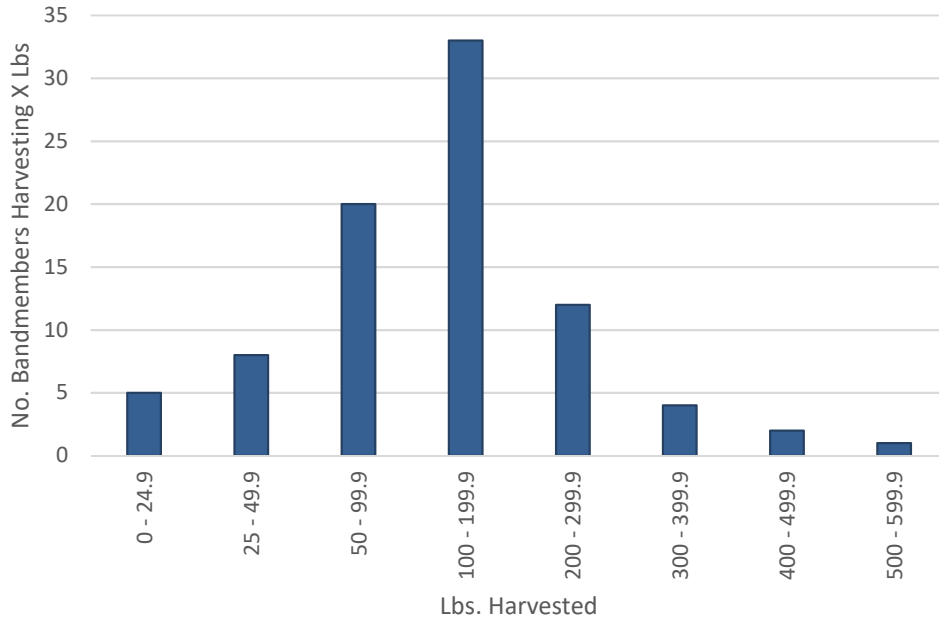


Figure 12. Pounds of walleye harvested per FDL Bandmember during the 2021 spring harvest season, and the number of individuals harvesting at each category.

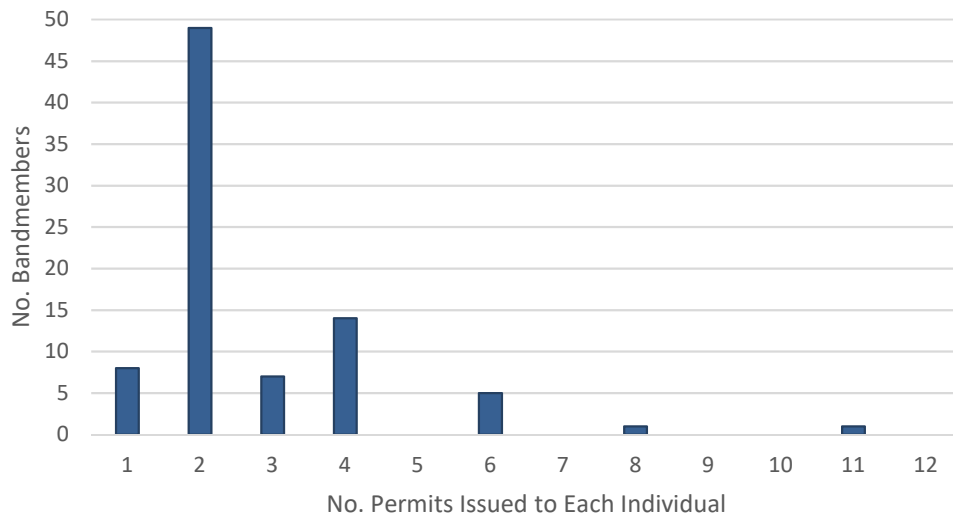


Figure 13. Number of permits claimed by individual Bandmembers during spring 2021 harvest activities in the 1837 & 1854 Ceded Territory lakes.

