

Lake Name: Garfield

Survey Type: Standard Survey

DOW Number: 29-0061-00

Survey ID Date: 07/06/2020

Lake Identification

Alternate Lake Name: N/A
Primary Lake Class ID: 27

DNR Sounding Map Number: B0364
Alternate Lake Class ID: N/A

Lake Location

Primary County: Hubbard

Nearest Town: Laporte

Legal Descriptions

Lake Center: Township - 143N Range - 32W Section - 4
PLS Section Lake Center: 14303204

All Legal Descriptions:

Hubbard County: Township - 143N Range - 32W Sections - 4, 5, 8, 9, 16
Township - 144N Range - 32W Sections - 32, 33

Area Office

Area Name: Park Rapids
Region Name: Northwest

ORG Code: F117
Region Number: 1

Lake Access

(Information based on Standard Survey dated 06/22/2015)

Station ID	Ownership	Public Use	Type	Location / Comments
AC - 1	City	Open to Public use	Concrete	Access is located in the town of Laporte on the southwest shore of the lake.

Lake Characteristics

Lake Area (planimetered acres):	979.00	GIS Shoreline Length (miles):	6.68
GIS Lake Area (acres):	959.62	Maximum Fetch (miles):	2.40
DOW Lake Area (acres):	984.00	Fetch Orientation (degrees):	360
Littoral Area (acres):	521.00	USGS Quad Map Number:	J11b
Area in MN (acres):	959.62	USGS Quad 24K GIS Index:	1821
Maximum Depth (feet):	32.0		
Mean Depth (feet):	15.0		

Watershed Characteristics

Major Watershed

Name: Leech Lake River
Watershed Number: 8
Watershed size (acres): 857,968

Minor Watershed

Name: Kabekona R
Watershed Number: 14
Watershed size (acres): 15,309

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LAKE SURVEY REPORT
STANDARD SURVEY DATED 07/06/2020 FOR DOW NUMBER 29-0061-00

Surveys and Investigations

Initial Survey: 07/14/1958.
Re-Survey: 06/12/2000, 07/07/1977, 08/11/1969.
Population Assessment: 06/16/2010, 06/22/2005, 06/12/1995, 06/11/1990, 06/08/1987, 06/28/1983.
Special Assessment: 09/28/2010, 08/25/2010, 09/30/2008, 09/25/2002, 09/20/2001, 10/02/2000.
Subsurvey: 07/01/2020.
Standard Survey: 07/06/2020, 06/22/2015.
Targeted Survey: 09/19/2019, 06/20/2018, 09/19/2016.

Current Water Level

Station ID	Date	Level	Reading (feet)	Reading Type
BM - 4	07/10/2020	Normal	-2.00	Above or below Benchmark

Notes: BM 1 has been destroyed.

Benchmark and Gauge Descriptions / Locations

Station ID	Location Description
BM - 4	Highest point of 5' wide orange boulder below high banks, north of point on east shore.

Water Level History - Readings

Station ID	Date	Level	Reading (feet)	Reading Type
BM - 1	06/22/2015	Normal	-4.17	Above or below Benchmark
	06/16/2010	Normal	4.15	Above or below Benchmark
BM - 4	07/10/2020	Normal	-2.00	Above or below Benchmark
	06/22/2015	Normal	-2.00	Above or below Benchmark
	06/16/2010	Normal	-2.25	Above or below Benchmark

Water Level History - Station Summary

Station ID	Minimum Level		Maximum Level		Range (feet)	Average Level (feet)	Reading Type (and number of readings)
	Feet	Date	Feet	Date			
BM - 1	-4.17	06/22/2015	4.15	06/16/2010	8.32	-0.01	Above or below Benchmark (2)
BM - 4	-2.25	06/16/2010	-2.00	06/22/2015	0.25	-2.08	Above or below Benchmark (3)

Riparian Landscape Observations

Soil Types (Primary and Secondary): N/A
Soil Comments: N/A
Number of Homes/Cabins: 92
Comments About Shoreline Development: 87 docks

Resorts and Campgrounds

Station ID	Resort/Campground Name	Number of Cabins	Number of Campsites	Comments
RE - 1	Pine Beach Resort	3	N/A	N/A

Dissolved Oxygen and Temperature Profile of Lake Water

Station ID	Sampling Date	Bottom Depth (Feet)	Sample Depth (Feet)	Water Temperature (°F)	Dissolved Oxygen (ppm)
WQ - 1	07/06/2020	30.4	Surface	79.7	9.7
			3.0	80.4	9.7
			6.0	80.4	9.8
			9.0	80.4	9.8
			10.0	80.6	9.8
			11.0	79.7	10.3
			12.0	78.3	10.3
			13.0	78.3	10.2
			14.0	77.5	9.9
			15.0	77.0	9.3
			16.0	75.9	8.7
			17.0	75.0	8.2
			18.0	74.1	8.0
			19.0	73.4	7.4
			20.0	72.7	6.9
			21.0	71.8	5.8
			22.0	71.2	4.8
			23.0	70.5	3.2
			24.0	70.2	2.4
			25.0	69.8	1.6
26.0	69.6	1.1			
29.0	68.2	0.1			
30.0	68.0	0.1			

Field Measurements of Water Quality

Station ID	Sampling Date	Sample Depth (Feet)	Secchi Depth (Feet)	Field pH	Alkalinity (ppm)	Water Color	Color Cause
WQ - 1	07/06/2020	Surface	N/A	N/A	N/A	Brown Grn	N/A

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LAKE SURVEY REPORT
STANDARD SURVEY DATED 07/06/2020 FOR DOW NUMBER 29-0061-00

Net Catch Summary by Numbers for GN

Standard gill net sets

Number of Sets: 12
First Set Date: 07/06/2020
Last Lift Date: 07/10/2020
Target Species: N/A

Abbr	Species	Total Fish	Number Per Set	Quartiles for Lake Class 27*		
				25%	50%	75%
BLC	Black Crappie	9	0.75	0.39	1.00	2.69
BLG	Bluegill	45	3.75	N/A	N/A	N/A
BOF	Bowfin (Dogfish)	6	0.50	0.13	0.17	0.35
BRB	Brown Bullhead	10	0.83	0.32	0.75	1.84
LMB	Largemouth Bass	11	0.92	0.25	0.67	1.40
NOP	Northern Pike	468	39.00	2.76	5.06	9.00
PMK	Pumpkinseed	258	21.50	N/A	N/A	N/A
RKB	Rock Bass	26	2.17	0.60	1.33	3.86
WAE	Walleye	80	6.67	3.25	5.50	8.81
YEB	Yellow Bullhead	57	4.75	1.17	3.49	10.92
YEP	Yellow Perch	290	24.17	7.00	18.17	46.33
Total Fish/Set:			105.00	* Quartiles for Number Per Set		

Net Catch Summary by Weight for GN

Standard gill net sets

Abbr	Species	Total Weight (Pounds)	Pounds Per Set	Mean Weight	Quartiles for Lake Class 27*		
					25%	50%	75%
BLC	Black Crappie	8.22	0.69	0.91	0.25	0.38	0.60
BLG	Bluegill	13.43	1.12	0.30	N/A	N/A	N/A
BOF	Bowfin (Dogfish)	35.12	2.93	5.85	3.11	3.70	4.63
BRB	Brown Bullhead	15.19	1.27	1.52	0.73	0.93	1.20
LMB	Largemouth Bass	18.61	1.55	1.69	0.52	0.77	1.17
NOP	Northern Pike	762.67	63.56	1.63	1.57	2.04	2.75
PMK	Pumpkinseed	27.98	2.33	0.11	N/A	N/A	N/A
RKB	Rock Bass	17.05	1.42	0.66	0.30	0.40	0.51
WAE	Walleye	152.93	12.74	1.91	1.16	1.56	2.05
YEB	Yellow Bullhead	49.43	4.12	0.87	0.60	0.72	0.88
YEP	Yellow Perch	33.27	2.77	0.11	0.11	0.14	0.20
Total Pounds Fish/Set:			94.49	* Quartiles for Mean Weight			

Net Catch Summary by Numbers for TN

Standard 3/4-in mesh, double frame trap net sets

Number of Sets: 12
First Set Date: 07/06/2020
Last Lift Date: 07/10/2020
Target Species: N/A

Abbr	Species	Total Fish	Number Per Set	Quartiles for Lake Class 27*		
				25%	50%	75%
BLC	Black Crappie	3	0.25	0.36	0.90	2.32
BLG	Bluegill	103	8.58	4.39	16.21	48.97
BOF	Bowfin (Dogfish)	25	2.08	0.28	0.64	1.07
BRB	Brown Bullhead	4	0.33	0.25	0.75	1.57
LMB	Largemouth Bass	6	0.50	0.33	0.67	1.25
NOP	Northern Pike	19	1.58	N/A	N/A	N/A
PMK	Pumpkinseed	80	6.67	1.76	3.67	7.78
RKB	Rock Bass	18	1.50	0.55	1.08	2.50
YEB	Yellow Bullhead	41	3.42	1.17	2.40	5.18
YEP	Yellow Perch	2	0.17	0.62	1.30	3.46
Total Fish/Set:			25.08	* Quartiles for Number Per Set		

Net Catch Summary by Weight for TN

Standard 3/4-in mesh, double frame trap net sets

Abbr	Species	Total Weight (Pounds)	Pounds Per Set	Mean Weight	Quartiles for Lake Class 27*		
					25%	50%	75%
BLC	Black Crappie	1.47	0.12	0.49	0.29	0.44	0.63
BLG	Bluegill	14.13	1.18	0.14	0.11	0.16	0.25
BOF	Bowfin (Dogfish)	127.16	10.60	5.09	3.70	4.36	5.09
BRB	Brown Bullhead	4.18	0.35	1.05	0.68	0.91	1.11
LMB	Largemouth Bass	5.79	0.48	0.96	0.21	0.40	0.76
NOP	Northern Pike	31.93	2.66	1.68	N/A	N/A	N/A
PMK	Pumpkinseed	7.63	0.64	0.10	0.13	0.18	0.26
RKB	Rock Bass	3.16	0.26	0.18	0.26	0.36	0.53
YEB	Yellow Bullhead	34.49	2.87	0.84	0.62	0.78	0.94
YEP	Yellow Perch	0.28	0.02	0.14	0.11	0.15	0.21
Total Pounds Fish/Set:			19.18	* Quartiles for Mean Weight			

Length Frequency Distribution for GN

Standard gill net sets

(Field work conducted between 07/06/2020 and 07/10/2020)

	<u>BLC</u>	<u>BLG</u>	<u>BOF</u>	<u>BRB</u>	<u>LMB</u>	<u>NOP</u>	<u>PMK</u>	<u>RKB</u>	<u>WAE</u>	<u>YEB</u>	<u>YEP</u>
< 3.00	-	-	-	-	-	-	-	-	-	-	-
3.00 - 3.49	-	-	-	-	-	-	27	-	-	-	-
3.50 - 3.99	-	1	-	-	-	-	69	1	-	-	-
4.00 - 4.49	-	1	-	-	-	-	58	-	-	-	-
4.50 - 4.99	-	2	-	-	-	-	24	-	-	-	-
5.00 - 5.49	-	4	-	-	-	-	10	2	-	-	12
5.50 - 5.99	-	3	-	1	-	-	21	1	-	-	98
6.00 - 6.49	-	4	-	-	-	-	19	1	-	-	88
6.50 - 6.99	-	8	-	-	-	-	15	-	-	-	35
7.00 - 7.49	1	5	-	-	-	-	9	-	-	1	20
7.50 - 7.99	-	6	-	-	-	-	4	3	-	-	20
8.00 - 8.49	-	7	-	-	-	-	2	-	-	1	12
8.50 - 8.99	-	4	-	-	-	-	-	2	-	2	5
9.00 - 9.49	-	-	-	-	-	-	-	2	1	2	-
9.50 - 9.99	-	-	-	-	-	-	-	5	-	-	-
10.00 - 10.49	1	-	-	-	1	1	-	5	-	7	-
10.50 - 10.99	1	-	-	-	1	-	-	3	-	10	-
11.00 - 11.49	-	-	-	-	-	1	-	1	-	6	-
11.50 - 11.99	2	-	-	-	-	2	-	-	-	5	-
12.00 - 12.99	4	-	-	-	1	2	-	-	8	10	-
13.00 - 13.99	-	-	-	2	2	-	-	-	11	12	-
14.00 - 14.99	-	-	-	4	2	3	-	-	3	1	-
15.00 - 15.99	-	-	-	3	3	4	-	-	-	-	-
16.00 - 16.99	-	-	-	-	1	21	-	-	7	-	-
17.00 - 17.99	-	-	-	-	-	45	-	-	9	-	-
18.00 - 18.99	-	-	-	-	-	100	-	-	15	-	-
19.00 - 19.99	-	-	1	-	-	83	-	-	9	-	-
20.00 - 20.99	-	-	-	-	-	77	-	-	4	-	-
21.00 - 21.99	-	-	-	-	-	57	-	-	6	-	-
22.00 - 22.99	-	-	-	-	-	34	-	-	5	-	-
23.00 - 23.99	-	-	1	-	-	16	-	-	2	-	-
24.00 - 24.99	-	-	-	-	-	8	-	-	-	-	-
25.00 - 25.99	-	-	1	-	-	2	-	-	-	-	-
26.00 - 26.99	-	-	3	-	-	3	-	-	-	-	-
27.00 - 27.99	-	-	-	-	-	4	-	-	-	-	-
28.00 - 28.99	-	-	-	-	-	2	-	-	-	-	-
29.00 - 29.99	-	-	-	-	-	-	-	-	-	-	-
30.00 - 30.99	-	-	-	-	-	1	-	-	-	-	-
31.00 - 31.99	-	-	-	-	-	1	-	-	-	-	-
32.00 - 32.99	-	-	-	-	-	-	-	-	-	-	-
33.00 - 33.99	-	-	-	-	-	1	-	-	-	-	-
34.00 - 34.99	-	-	-	-	-	-	-	-	-	-	-
35.00 - 35.99	-	-	-	-	-	-	-	-	-	-	-
= > 36.00	-	-	-	-	-	-	-	-	-	-	-

	<u>BLC</u>	<u>BLG</u>	<u>BOF</u>	<u>BRB</u>	<u>LMB</u>	<u>NOP</u>	<u>PMK</u>	<u>RKB</u>	<u>WAE</u>	<u>YEB</u>	<u>YEP</u>
Total	9	45	6	10	11	468	258	26	80	57	290
Min. Length	7.48	3.54	19.53	5.55	10.16	10.43	3.23	3.78	9.33	7.48	5.24
Max. Length	12.80	8.86	26.57	15.67	16.06	33.66	8.15	11.10	23.90	14.96	8.86
Mean Length	11.32	6.91	24.64	13.70	13.89	19.89	4.69	8.83	17.52	11.51	6.39
# Measured	9	45	6	10	11	468	257	26	80	57	290
No Lengths for	0	0	0	0	0	0	1	0	0	0	0

Note: Unless all fish were measured in the catch, totals shown for some length-frequency distributions may differ from the total number of fish in the catch, due to rounding of fractions used in the estimation of length frequency from a subsample of measured fish

LAKE SURVEY REPORT
STANDARD SURVEY DATED 07/06/2020 FOR DOW NUMBER 29-0061-00

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Length Frequency Distribution for TN

Standard 3/4-in mesh, double frame trap net sets

(Field work conducted between 07/06/2020 and 07/10/2020)

	<u>BLC</u>	<u>BLG</u>	<u>BOF</u>	<u>BRB</u>	<u>LMB</u>	<u>NOP</u>	<u>PMK</u>	<u>RKB</u>	<u>YEB</u>	<u>YEP</u>
< 3.00	-	-	-	-	-	-	-	-	-	-
3.00 - 3.49	-	15	-	-	-	-	12	1	-	-
3.50 - 3.99	-	13	-	-	-	-	25	4	-	-
4.00 - 4.49	-	16	-	-	-	-	19	6	-	-
4.50 - 4.99	-	5	-	-	-	-	6	2	-	-
5.00 - 5.49	-	9	-	-	-	-	3	-	-	1
5.50 - 5.99	-	8	-	-	-	-	2	1	-	-
6.00 - 6.49	-	11	-	-	-	-	4	-	-	-
6.50 - 6.99	-	18	-	-	1	-	3	-	-	-
7.00 - 7.49	-	4	-	-	1	-	4	-	-	-
7.50 - 7.99	-	4	-	-	1	-	-	1	-	1
8.00 - 8.49	-	-	-	-	-	-	1	-	-	-
8.50 - 8.99	-	-	-	-	-	-	-	-	1	-
9.00 - 9.49	2	-	-	-	1	-	-	2	2	-
9.50 - 9.99	-	-	-	-	-	-	-	1	1	-
10.00 - 10.49	1	-	-	-	-	-	-	-	3	-
10.50 - 10.99	-	-	-	-	-	-	-	-	7	-
11.00 - 11.49	-	-	-	-	1	1	-	-	8	-
11.50 - 11.99	-	-	-	1	-	-	-	-	7	-
12.00 - 12.99	-	-	-	2	-	1	-	-	8	-
13.00 - 13.99	-	-	-	1	-	-	-	-	4	-
14.00 - 14.99	-	-	-	-	-	-	-	-	-	-
15.00 - 15.99	-	-	-	-	-	1	-	-	-	-
16.00 - 16.99	-	-	-	-	-	1	-	-	-	-
17.00 - 17.99	-	-	-	-	-	1	-	-	-	-
18.00 - 18.99	-	-	-	-	1	1	-	-	-	-
19.00 - 19.99	-	-	-	-	-	3	-	-	-	-
20.00 - 20.99	-	-	-	-	-	2	-	-	-	-
21.00 - 21.99	-	-	2	-	-	3	-	-	-	-
22.00 - 22.99	-	-	4	-	-	3	-	-	-	-
23.00 - 23.99	-	-	2	-	-	-	-	-	-	-
24.00 - 24.99	-	-	6	-	-	2	-	-	-	-
25.00 - 25.99	-	-	4	-	-	-	-	-	-	-
26.00 - 26.99	-	-	4	-	-	-	-	-	-	-
27.00 - 27.99	-	-	3	-	-	-	-	-	-	-
28.00 - 28.99	-	-	-	-	-	-	-	-	-	-
29.00 - 29.99	-	-	-	-	-	-	-	-	-	-
30.00 - 30.99	-	-	-	-	-	-	-	-	-	-
31.00 - 31.99	-	-	-	-	-	-	-	-	-	-
32.00 - 32.99	-	-	-	-	-	-	-	-	-	-
33.00 - 33.99	-	-	-	-	-	-	-	-	-	-
34.00 - 34.99	-	-	-	-	-	-	-	-	-	-
35.00 - 35.99	-	-	-	-	-	-	-	-	-	-
= > 36.00	-	-	-	-	-	-	-	-	-	-

	<u>BLC</u>	<u>BLG</u>	<u>BOF</u>	<u>BRB</u>	<u>LMB</u>	<u>NOP</u>	<u>PMK</u>	<u>RKB</u>	<u>YEB</u>	<u>YEP</u>
Total	3	103	25	4	6	19	79	18	41	2
Min. Length	9.37	3.03	21.18	11.77	6.89	11.02	3.11	3.35	8.86	5.47
Max. Length	10.00	7.87	27.20	13.58	18.35	24.21	8.15	9.76	13.62	7.68
Mean Length	9.59	5.17	24.54	12.63	10.10	19.48	4.46	5.29	11.43	6.57
# Measured	3	103	25	4	6	19	75	18	41	2
No Lengths for	0	0	0	0	0	0	5	0	0	0

Note: Unless all fish were measured in the catch, totals shown for some length-frequency distributions may differ from the total number of fish in the catch, due to rounding of fractions used in the estimation of length frequency from a subsample of measured fish

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LAKE SURVEY REPORT
STANDARD SURVEY DATED 07/06/2020 FOR DOW NUMBER 29-0061-00

Other Species

<u>Gear</u>		<u>Total</u>	<u>Number</u>	<u>Length (inches)</u>	<u>Number</u>	<u>Weight (pounds)</u>
<u>Type (1)</u>	<u>Other Species (Gender) (2)</u>	<u>Num</u>	<u>Measured</u>	<u>Min - Mean - Max</u>	<u>Weighed</u>	<u>Min - Mean - Max</u>
TN	Painted Turtle	20	0	N/A	0	N/A

(1) Key to sampling gear abbreviations:

TN = Standard 3/4-in mesh, double frame trap net sets

(2) Gender: If identified and reported.

Species List found in Garfield Lake

COMMON_NAME	SCIENTIFIC_NAME
Bushy Pondweed	Najas flexilis
Canada Waterweed	Elodea canadensis
Chara sp.	Chara sp.
Clasping-leaf Pondweed	Potamogeton richardsonii
common bladderwort	Utricularia vulgaris
Common White Waterlily	Nymphaea odorata
Common Yellow Waterlily	Nuphar variegata
coontail / Common hornwort	Ceratophyllum demersum
flat-stemmed pondweed	Potamogeton zosteriformis
floating pondweed	Potamogeton natans
Fries' pondweed	Potamogeton friesii
Illinois Pondweed	Potamogeton illinoensis
large-leaved pondweed	Potamogeton amplifolius
leafy pondweed	Potamogeton foliosus
Northern Milfoil	Myriophyllum sibiricum
northern wild rice	Zizania palustris (aquatica)
sago pondweed	Stuckenia pectinata
Scirpus sp.	Scirpus sp.
Typha sp.	Typha sp.
Utricularia sp.	Utricularia sp.
Variable -leaf Pondweed	Potamogeton gramineus
Water (wild) Celery	Vallisneria americana
watershield	Brasenia schreberi
White Water Buttercup	Ranunculus aquatilis
white-stemmed pondweed	Potamogeton praelongus

① DNR Doc, every 10 Yr ^{to} 2030
 - Not area or Volume Specific
 - see Above

② Cost = ?

③ Value =

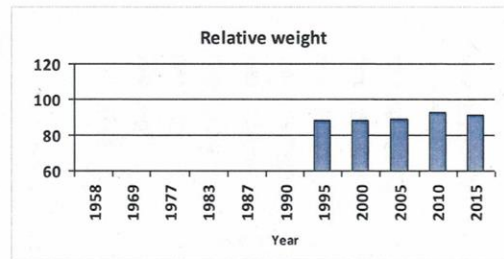
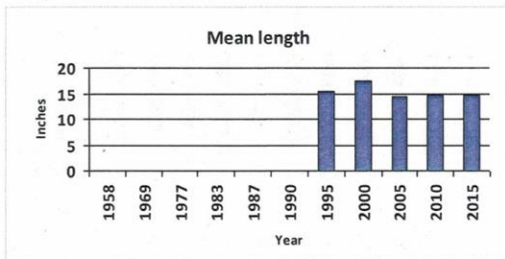
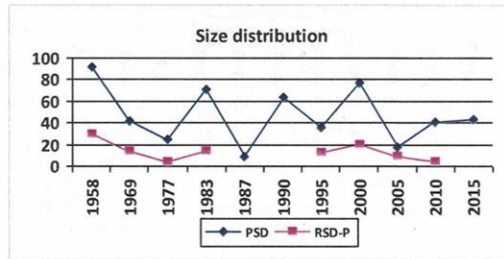
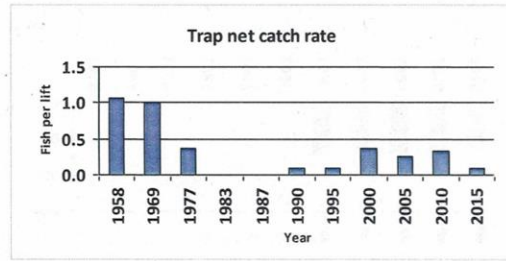
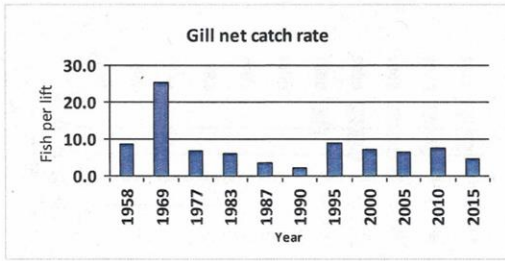
④ Alternative
 a) EYE ON THE WATER - learn ; map
 b) Slarry Trak = Slarry Stonewort

? ⑤ \$ gives - good baseline for EYE ON WATER

29-0061-00

GARFIELD

WALLEYE



29-0061-00

GARFIELD

NORTHERN PIKE

