

SURVEY OF LAKES IN SUPPORT OF CPAI EXPLORATION PROSPECTS – 2007

Final Report

October 2007



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Prepared for:

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700 G Street
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and

**Anadarko Petroleum Corp.
1201 Lake Robbins Dr
The Woodlands, TX**

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INTRODUCTION

ConocoPhillips Alaska, Inc. is planning to explore for oil and gas deposits in eastern NPRA. Activities associated with exploration require withdrawal of water from lakes during winter to support industrial and domestic needs. During review of permit applications for water withdrawal, information is required on the biological sensitivity of lakes proposed for use. The study was designed to provide physical and biological information on these lakes to understand their use by various fish species. In addition, results of the survey can be used, in concert with previous surveys within the area, to direct any future investigations that may be needed.

This 2007 survey sampled 24 lakes for potential use as water sources during winter exploration. Six of the lakes in the 2007 study were initially surveyed from 1999 to 2001 using older survey methods. This study updates previous estimates using more accurate survey techniques developed in 2002. Objectives of the study were to conduct initial surveys, or re-survey selected lakes, to estimate the volume of water available for use, and to document fish presence and habitat use in lakes for lakes that may be used to support exploration activities.

The objectives of the survey were to:

- 1) obtain up-dated lake bathymetry for selected lakes,
- 2) conduct initial surveys on lakes identified as being desirable water sources,
- 3) evaluate fish species in lakes within the project study area, and
- 4) measure water chemistry parameters to assess suitability of water for potential uses.

The selected lakes are used, or may be used, as sources of freshwater during oil exploration and development for ice road and ice pad construction, as well as for short-term potable water supplies. Permitting decisions on water withdrawal will need to consider potential impacts to fish that depend on an adequate water supply for surviving winter. The inventory of fish and fish habitat provides information for assisting permitting decisions regarding water use and ice road routing.

Lakes surveyed in 2007 were intended to support five potential exploration prospects:

- 1) Char (7 lakes)
- 2) Spark DD (1 lake)
- 3) Stony Hills (13 lakes)
- 4) Rendezvous II (1 lake), and
- 5) Cassin I (2 lakes)

METHODS

Some of the lakes in the 2007 survey had previously been sampled with gill nets or fyke nets targeting sensitive species. Where sensitive species had been previously documented, the lake was not re-sampled. For lakes where fish had not been documented, or where sampling was considered inadequate to detect resistant species, the biological survey consisted of sampling with gill nets, minnow traps and/or seine combined with physical measurements. Lakes were sampled with short-duration gill net sets (typically 4 to 6 hours). The gill nets are multimesh, 120 feet long, with six panels of variable mesh, mesh size ranging from 1 to 3.5 inches stretched mesh. These nets have been previously used to collect inventory-level data from lakes throughout the North Slope for similar surveys. Sets were kept to a short duration to minimize the chance for entangling waterfowl and to minimize fish mortality. Since the objective of the gill netting is to document presence/absence, the nets were pulled after fish were detected. Fish captured were measured and released. Duration of each set was recorded to allow calculation of catch rates.

Minnow traps were used to identify smaller fish species that may not be detected by gill nets. Minnow traps baited with preserved salmon eggs were set in pairs at the edge of surveyed lakes. The traps were set and retrieved in concert with the gill net sampling. At lakes where bottom contours allowed, a 20 ft seine was pulled through vegetation beds along the lakeshore to detect small fishes. Ninespine stickleback are often observed in shallow water along the lake shore. If stickleback were observed, minnow traps and seines were not used.

Water chemistry parameters were measured to assess habitat conditions and provide information on the suitability of the water for domestic and industrial uses. Water chemistry measurements included surface measures of water temperature, specific conductance, dissolved oxygen, pH, and turbidity. Temperature, specific conductance and dissolved oxygen were *in situ* surface measurements taken along the edge of each lake with a YSI Model 85 meter. A sample was returned to the field office to measure pH and turbidity. PH was measured with an Oaktron Acorn Series pH5 meter. Turbidity was measured with an H.F. Scientific DRT15CE turbidity meter. A water sample was sent to Arctic Fox Environmental for laboratory determination of chloride, sodium, calcium, magnesium, and hardness (as CaCO₃).

Bathymetric data were collected to allow estimating lake volume. Location and depth were recorded on a Lowrance Model LCX-15MT integrated GPS/depth sounder. Location and depth were recorded at approximately 1-2 second intervals. The study design was to record at least six to eight depth transects on each lake. Lake volume was estimated by contour mapping of depth intervals. Contour maps were prepared by plotting the position and depth data obtained by GPS on GIS basemaps and plotting the contours in 1 or 2 ft intervals on maps of the surveyed lakes. One foot intervals were plotted for lakes where the maximum depth was 10 ft or less, two foot intervals were used on deeper lakes. The surface area of each contour was obtained, then the volume was estimated using the formula for truncated cones:

$$V = h/3*(A1+A2+(A1*A2) (1/2))$$

Where h = vertical depth of the stratum, A_1 = area of the upper surface, and A_2 = area of the lower surface of the stratum whose volume is to be determined. The volumes of individual strata are summed to obtain the volume of the desired depth intervals.

The amount allowed for winter water withdrawal when sensitive fish species are present is currently set at 15% of the volume of the lake deeper than 7 feet. When resistant fish species (i.e. ninespine stickleback and Alaska blackfish) are present, the current allocation allowed by Alaska Dept. of Natural Resources is 30% of the volume deeper than 5 feet. In 2007, Alaska Department of Natural Resources initiated a limit of 20% of the total lake volume if fish are not present. This amount may or may not be present at the time of withdrawal, depending on ice thickness at the time water is needed.

The area potentially available for ice aggregate was estimated by calculating the area of the lake shallower than 4 feet, assuming that the ice would grow to at least 4 feet prior to the need for aggregate. If the ice is shallower than 4 feet at the time of ice removal, then the area available will be less.

Lake Summaries

This report uses lake numbering based on a researcher/year code. The lake number contains several pieces of information, including the code of the sampler and the year of sampling.

Sampler Code:

MC = McElderry and Craig (1981); fish sampling in 1979

B = Bendock fish sampling from 1977-1986

L = Lobdell; water chemistry sampling in 1991-1999

M = Moulton; fish sampling in 1995-2006

MB = Michael Baker Jr., Inc. water chemistry sampling in 2002-2004

N = Netsch et al. (1977) NPRA fish sampling in 1977

R = Reanier depth sampling in 2000-2007

First Two Numerals:

Year of Initial Sampling

(if Moulton sampled a lake previously sampled by McElderry and Craig, then the McElderry and Craig lake number is used)

Last Two Numerals:

Numbers from 1 to 99 used to identify the individual lake sampled within a given year

Information contained for each surveyed lake (if measured) includes:

1. A diagram of the lake,
2. Other names utilized for the same lake,
3. Lake location, in latitude/longitude,
4. The USGS quadrangle sheet and the township and range in which the lake is situated

5. Surface area in acres, obtained from USGS digital maps,
6. Maximum depth in feet,
7. Presence or absence of an outlet,
8. Calculated total lake volume
9. Water volume under 4 feet of ice,
10. Water volume under 5 feet of ice
11. Water volume under 7 feet of ice
12. Acres of potential ice aggregate for road construction,
13. Gallons of water represented by the surface area available for ice aggregate,
14. Maximum recommended winter water withdrawal, exclusive of volumes related to ice aggregate,
15. Water chemistry measurements,
16. Catch record, including gear used, date sampled, species caught and size range,
17. Where appropriate data exist, the length frequency of dominant species is plotted,
18. Map of potential ice aggregate removal areas, and
19. Map showing measured depth transects.

RESULTS AND DISCUSSION

Biological Observations

Seventeen of the 24 lakes were evaluated for fish for the first time in 2007 (Table 2). One of these lakes (L9809) was a tapped lake that had direct connections to river channels, so a variety of fish are likely to be abundant. Two others (L9301 and L9302) had seasonal connections to the Nigliq Channel and contained least cisco. Northern pike were found in two lakes along the Colville River downstream from Ocean Point (M0708 and M0712). Arctic grayling were observed in two lakes connected to stream systems (L9808 and R0066). Grayling had previously been documented in both lakes. Eleven lakes contained only ninespine stickleback. These lakes lacked a stream connection that would facilitate fish movements, and were often remote from drainages that would supply a source of fish. One of these lakes, L9822 is immediately adjacent to the Ublutuooh River, but is perched high above the channel, which seems to limit fish access. The lake was sampled in 1999 and 2007, but only sticklebacks have been found.

Water Chemistry Measurements

Water chemistry parameters measured in the studied lakes are presented Table 3. Surface water temperature during the August 8-15 sampling in 2007 averaged 13.2°C, ranging from 9.6°C to 15.5°C. As expected for natural surface waters, dissolved oxygen was high, averaging around 10.2 mg/l. Specific conductance ranged from 74 to 339 microSiemens/cm. PH ranged from 7.45 to 8.60.

Evaluation of Fish Concerns

Information from fish sampling and depth measurements was used to evaluate each lake regarding its potential to support fish. Obviously, if fish were captured during gill net sampling, the lake was classified as fish-bearing. Gill net sets were relatively short, however, so absence of catch does not necessarily mean a lake does not support fish. Lakes also were assessed for their proximity to fish-bearing streams and their depth. Lakes deeper than 7 feet are likely to retain unfrozen water during winter, thus have potential to overwinter fish. Deep lakes that are near fish-bearing streams and are likely to have a connection with the stream at some point during the year are classified as potential fish-bearing lakes, with additional sampling needed if further clarification of the designation is desired. Results of the evaluation are included in Table 4.

Lakes in which fish were verified as present are divided into those lakes containing species sensitive to habitat changes likely to be associated with water withdrawal and those containing species more resistant to such changes. Species sensitive to impacts of water withdrawal (such as reduced dissolved oxygen and increased dissolved solids) include lake trout, broad whitefish, least cisco and arctic grayling, while the more resistant species are Alaska blackfish and ninespine stickleback. Alaska blackfish are particularly resistant to low dissolved oxygen, being able to breathe atmospheric oxygen (Armstrong 1994). Residents of the Yukon Delta have reported observing Alaska blackfish oriented along cracks in the ice during winter to use oxygen in ponds that have

gone anoxic. Ninespine stickleback can also withstand low dissolved oxygen (Lewis et al. 1972), although not the same extent as Alaska blackfish. Ninespine stickleback, however, can withstand higher levels of dissolved solids, and often frequent brackish nearshore waters during summer.

When sensitive fish are present, the amount of water available during winter is limited to 15% of the volume under 7 feet of ice. The water withdrawal criteria are relaxed when only resistant fish species are present because of the greater tolerance to lower dissolved oxygen and higher concentrations of dissolved solids. In this case, up to 30% of the water volume under 5 feet of ice is allowed for winter withdrawal. For lakes that do not contain fish, the current policy is to limit the water withdrawal to 20% of the total lake volume. For practical reasons, the volume available may be limited to the volume of unfrozen water under the ice at the time of withdrawal. In most cases, the withdrawal occurs when the ice is 4 feet thick or greater. On some occasions, the limit of 20% of total lake volume may exceed the amount of water available at the time of removal. A closer examination of these water withdrawals may be warranted if large volumes are needed from these lakes.

Based on the above lake evaluation, the 24 lakes surveyed in 2007 for exploration use should provide 191.6 million gallons of water for under-ice withdrawal during winter. This estimate does not include volumes associated with ice aggregate removal.

The area covered by water less than 4 feet deep, and therefore likely to be suitable for removing ice aggregate, was estimated for each lake (Table 5). A map of the potential ice aggregate area for each lake is included in the individual lake summaries. Based on the above analysis, 2,935 acres are likely to be available for ice chips from lakes surveyed for the exploration use, which is equivalent to 229.7 million gallons of water.

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Table 1. Summary of lakes sampled in 2007 for winter water use at CPAI exploration areas

Area	Lake Name	Latitude (NAD83)	Longitude	Town	Range	Section	Surface Area (acres)	Maximum Depth (feet)	Lake Volume (mill. gals)
Char Exploration Project									
	L9301	N70.36637	W151.10253	12N	4E	27	117.5	19.7	284.55
	L9302	N70.36103	W151.09435	12N	4E	27/34	38.3	29.2	142.85
	L9306	N70.29518	W151.10512	11N	4E	22	72.4	12.4	127.40
	L9307	N70.27566	W151.14481	11N	4E	28/29/32/33	678.2	5.9	798.75
	L9808	N70.27367	W151.09346	11N	4E	27	4.3	13.1	8.52
	L9809A	N70.28048	W151.08690	11N	4E	27	30.6	9.0	33.58
	L9809B	N70.27679	W151.08213	11N	4E	27	22.1	9.6	26.36
	N77097	N70.29264	W151.16821	11N	4E	16/17/20/21/ 28/29	855.1	5.1	835.94
Spark DD Exploration Project									
	L9822	N70.25210	W151.28822	10N	3E	1/2	15.0	9.5	26.02
Stony Hills Exploration Prospect									
	L9812	N70.19413	W151.12577	10N	4E	21/22/27/28	383.8	8.1	501.24
	L9816	N70.21639	W151.29693	10N	3E	13/14/23	197.8	7.6	158.44
	M0702	N70.19699	W151.22931	10N	4E	19/30	119.0	6.7	185.94
	M0703	N70.18769	W151.20702	10N	4E	29/30	57.5	6.2	72.03
	M0704	N70.17143	W151.21788	9N/10N	4E	6/31	276.2	6.0	245.04
	M0705	N70.16008	W151.16967	9N	4E	4/5/18	166.6	<4	--
	M0706	N70.14639	W151.21721	9N	4E	7/18	236.3	6.2	303.04
	M0707	N70.14259	W151.17317	9N	4E	8/9/17	328.1	6.4	432.78
	M0708	N70.11917	W151.14527	9N	4E	20/21/28	323.2	28.9	1,137.97
	M0709	N70.11434	W151.23276	9N	4E	19/30	46.0	<4	--
	M0710	N70.13746	W151.27516	9N	3E	11/12/13/14	603.6	6.5	665.61
	M0711	N70.11499	W151.36567	9N	3E	21/22/27/28	124.8	<4	--
	M0712	N70.08758	W151.31745	8N/9N	3E	2/35	109.3	14.4	317.94
Rendezvous II Exploration Prospect									
	R0066	N70.14587	W151.76159	9N	1E/2E	12/7	248.2	9.6	508.99
Cassin I Exploration Prospect									
	M0701	N70.34077	W152.16568	11N/12N	1W	4/5/9/32/33	838.9	11.9	1,152.90
	R0075A	N70.30363	W151.78761	11N	1E	13/14/23/24	244.1	6.6	275.92
	R0075B	N70.29367	W151.78790	11N	1E	23/24	62.0	6.4	46.89

Table 2. Summary of fish sampling for lakes surveyed in 2007 at CPAI exploration areas.

Area	Lake Name	Sample Date	Fyke Nets/Gill Nets		Minnow Traps		Seine or Other	
			Set Duration (hours)	Fish Species ¹	Set Duration (hours)	Fish Species ²	Effort	Fish Species ²
Char Exploration Project								
	L9301	Aug 15 07	--	--	--	--	Observed	LSCS
	L9302	Aug 15 07	--	--	--	--	Observed	LSCS
	L9306	Aug 03 99	6.7	BDWF/LSCS	--	--	--	--
		Jul 23-27, 03	112.1	BDWF/LSCS+others	--	--	--	--
	L9307	Jul 31 99	7.7	None	--	--	--	--
		connected to N77097, same results apply					Observed	NSSB
	L9808	Aug 04 99	1.8	GRAY	--	--	--	--
		Aug 13 07	--	--	--	--	Observed	GRAY
	L9809A	tapped lake connected to Nigliq Channel, not fished						
	L9809B	tapped lake connected to Nigliq Channel, not fished						
	N77097	Jul 19 02	43.1	NSSB	--	--	--	--
		Aug 09 07	13.1	None	--	--	Observed	NSSB
Spark DD Exploration Project								
	L9822	Jul 16 99	6.5	None	--	--	--	--
		Aug 13 07	7.8	None	4.3	NSSB	--	--
Stony Hills Exploration Prospect								
	L9812	Jul 30-Aug 2, 04	87.8	NSSB	--	--	--	--
		Aug 14 07	8.6	None	--	--	--	--
	L9816	Aug 12 07	8.2	None	10.8	None	--	--
	M0702	Aug 12 07	11.1	None	5.3	NSSB	--	--
	M0703	Aug 12 07	0.0	--	4.1	NSSB	--	--
	M0704	Aug 11 07	4.0	None	--	--	Seine	NSSB
	M0705	--	--	--	--	--	--	--
	M0706	Aug 11 07	7.7	None	--	--	Seine	NSSB
	M0707	Aug 11 07	7.5	None	--	--	Seine	NSSB
	M0708	Aug 10 07	2.1	BDWF/RDWF/PIKE	--	--	Observed	NSSB
	M0709	--	--	--	--	--	--	--
	M0710	Aug 10 07	7.7	None	3.8	NSSB	--	--
	M0711	--	--	--	--	--	--	--
	M0712	Aug 10 07	2.0	BDWF/PIKE	--	--	Observed	NSSB

Table 2. Summary of fish sampling for lakes surveyed in 2007 at CPAI exploration areas.

Area	Lake Name	Sample Date	Fyke Nets/Gill Nets		Minnow Traps		Seine or Other	
			Set Duration (hours)	Fish Species ¹	Set Duration (hours)	Fish Species ²	Effort	Fish Species ²
Rendezvous II Exploration Prospect								
	R0066	Jul 22 01	1.0	GRAY/BDWF	--	--	--	--
		Aug 09 07	--	--	--	--	Observed	GRAY
Cassin I Exploration Prospect								
	M0701	Aug 08 07	6.3	LSCS	--	--	Observed	NSSB
	R0075A	Aug 08 07	7.7	None	--	--	Observed	NSSB
	R0075B	Aug 08 07	connected to R0075A, same results apply					

¹ BDWF = broad whitefish, PIKE = northern pike, LSCS = least cisco, RDWF = round whitefish, GRAY = Arctic grayling
+= additional species caught

² NSSB = ninespine stickleback, BKFH = Alaska blackfish

Table 3. Water chemistry parameters measured in conjunction with 2007 lake sampling at CPAI exploration areas.

Area	Lake	Date	Water Temp (°C)	Dissolved Oxygen (mg/l)	Specific Conductance (microS/cm)	Turbidity (NTU)	pH	Calcium (mg/l)	Magnesium (mg/l)	Sodium ¹ (mg/l)	Chloride (mg/l)	Total Hardness [CaCO3] (mg/l)
Char Exploration Project												
	L9301	Aug 15 07	13.5	10.2	321	1.34	7.75	13.9	7.54	40.4	73.9	65.7
	L9302	Aug 15 07	13.4	10.1	224	1.03	7.64	9.56	5.31	28.2	49.4	45.8
	L9306	Aug 13 07	14.8	--	325	0.92	7.70	11.1	6.64	37.8	76.9	55.1
	L9307	Aug 09 07	9.6	10.4	233	2.18	8.03	34.2	4.98	7.53	24.2	106
	L9808	Aug 13 07	14.9	--	149	0.66	8.14	18.3	3.58	5.16	14.2	60.4
	L9809A	Aug 14 07	14.1	--	318	7.30	8.60	34.3	12.5	16.5	19.9	137
	L9809B	Aug 14 07	14.1	--	318	7.30	8.60	34.3	12.5	16.5	19.9	137
	N77097	Aug 09 07	9.9	10.4	260	2.32	8.00	38.3	6.02	8.93	30.2	120
Spark DD Exploration Project												
	L9822	Aug 13 07	14.2	--	95	0.94	7.45	9.85	2.48	3.71	14.9	34.8
Stony Hills Exploration Prospect												
	L9812	Aug 14 07	13.6	--	339	2.34	8.35	59.5	8.39	7.84	33.5	183
	L9816	Aug 12 07	15.3	--	220	1.86	8.10	29.4	4.99	6.14	27.0	94.1
	M0702	Aug 12 07	13.4	--	83	2.36	7.61	10.4	1.97	2.66	8.63	34.1
	M0703	Aug 12 07	13.4	--	84	5.13	7.61	10.1	2.13	3.06	8.33	34.1
	M0704	Aug 11 07	15.5	--	179	1.56	8.09	24.3	4.24	5.37	17.1	78.1
	M0705	Aug 12 07	13.4	--	288	27.2	7.74	38.7	8.84	7.89	17.5	133
	M0706	Aug 11 07	12.1	10.2	216	1.12	8.11	30.0	5.50	5.97	20.3	97.7
	M0707	Aug 11 07	13.1	10.0	74	0.98	7.64	9.52	1.84	2.17	7.03	31.3
	M0708	Aug 10 07	14.3	10.2	78	0.76	7.86	9.66	2.79	1.63	2.24	35.6
	M0709	Aug 11 07	12.4	10.4	98	6.35	7.54	13.3	2.75	2.65	9.28	44.4
	M0710	Aug 10 07	11.9	10.4	194	1.04	8.32	32.2	4.14	3.65	12.7	97.5
	M0711	Aug 11 07	12.2	9.4	167	4.76	7.64	19.2	5.31	5.73	17.0	69.9
	M0712	Aug 10 07	12.8	9.9	83	0.88	7.66	9.47	2.98	1.89	4.04	35.9
Rendezvous II Exploration Prospect												
	R0066	Aug 09 07	14.1	9.8	123	1.25	7.93	15.40	2.51	<1	15	48.7
Cassin I Exploration Prospect												
	M0701	Aug 08 07	10.6	10.8	202	1.40	7.90	29.2	3.55	7.22	19.5	87.5
	R0075A	Aug 08 07	13.5	10.3	125	1.92	7.95	17.0	2.96	4.79	13.5	54.6
	R0075B	Aug 08 07	13.5	10.3	125	1.92	7.95	17.0	2.96	4.79	13.5	54.6

Table 4. Recommended maximum water volumes available for winter water withdrawal from lakes surveyed in 2007 for CPAI exploration needs (does not include volume related to ice aggregate).

(requested water based on 15% of winter volume deeper than 7 ft when sensitive species are present, 30% of winter volume deeper than 5 ft when resistant fish are likely to be present, 20% of total lake volume when no fish are present)

Area	Lake	Surface Area (acres)	Max. Depth (feet)	Calculated Volume (mill. gals)	20% of Total Lake Volume (mill. gals)	30% of Water Under 5 ft of Ice (mill. gals)	15% of Water Under 7 ft of Ice (mill. gals)	Sensitive Fish Species Present ¹	Resistant Fish Species Present ²	Recommended Maximum Winter Withdrawal (mill. gals)
Char Exploration Project										
	L9301	117.5	19.7	284.55	56.91	37.54	10.91	LSCS	--	10.91
	L9302	38.3	29.2	142.85	28.57	24.89	9.07	LSCS	--	9.074
	L9306	72.4	12.4	127.40	25.48	8.26	0.578	BDWF/LSCS	NSSB	0.578
	L9307	678.2	5.9	798.75	159.75	7.09	0.000	None	NSSB	7.085
	L9808	4.3	13.1	8.52	1.70	0.821	0.177	GRAY	--	0.177
	L9809A	30.6	9.0	33.58	6.72	1.43	0.028	BDWF/LSCS	--	0.028
	L9809B	22.1	9.6	26.36	5.27	1.56	0.152	BDWF/LSCS	--	0.152
	N77097	855.1	5.1	835.94	167.19	0.002	0.000	None	NSSB	0.002
Spark DD Exploration Project										
	L9822	15.0	9.5	26.02	5.20	1.75	0.172	None	NSSB	1.746
Stony Hills Exploration Prospect										
	L9812	383.8	8.1	501.24	100.25	9.74	0.015	None	NSSB	9.742
	L9816	197.8	7.6	158.44	31.69	0.434	0.002	None	None	31.689
	M0702	119.0	6.7	185.94	37.19	3.93	0.000	None	NSSB	3.927
	M0703	57.5	6.2	72.03	14.41	0.211	0.000	None	NSSB	0.211
	M0704	276.2	6.0	245.04	49.01	0.564	0.000	None	NSSB	0.564
	M0705	166.6	<4		too shallow to transect, use for ice chips only					--
	M0706	236.3	6.2	303.04	60.61	3.79	0.000	None	NSSB	3.792
	M0707	328.1	6.4	432.78	86.56	5.73	0.000	None	NSSB	5.725
	M0708	323.2	28.9	1,137.97	227.59	193.34	69.98	BDWF/PIKE+	NSSB	69.98
	M0709	46.0	<4		too shallow to transect, use for ice chips only					--
	M0710	603.6	6.5	665.61	133.12	6.06	0.000	None	NSSB	6.057
	M0711	124.8	<4		too shallow to transect, use for ice chips only					--
	M0712	109.3	14.4	317.94	63.59	45.53	13.81	BDWF/PIKE	NSSB	13.81
Rendezvous II Exploration Prospect										
	R0066	248.2	9.6	508.99	101.80	41.47	5.03	GRAY	--	5.035
Cassin I Exploration Prospect										
	M0701	838.9	11.9	1,152.90	230.58	55.62	7.39	LSCS	NSSB	7.393
	R0075A	244.1	6.6	275.92	55.18	3.40	0.000	None	NSSB	3.404
	R0075B	62.0	6.4	46.89	9.38	0.523	0.000	None	NSSB	0.523

¹ Sensitive species include grayling, whitefishes, char, burbot, slimy sculpin, etc.

BDWF = broad whitefish LSCS = least cisco + = additional species also caught

GRAY = Arctic grayling PIKE = northern pike

² Resistant species are Alaska blackfish (BKFH) and ninespine stickleback (NSSB)

-- = not estimated

Table 5. Estimated area available for removing ice aggregate, based on the area covered by water shallower than 4 feet, surveyed in 2007 at CPAI exploration areas.

(ice thickness is typically 4 ft by early January)

Area	Lake	Surface Area (acres)	Max. Depth (feet)	Acres covered by Water shallower than 4 feet	Gallons of Water As Chips (mill. gals)
Char Exploration Project					
	L9301	117.5	19.7	27.7	2.169
	L9302	38.3	29.2	2.5	0.198
	L9306	72.4	12.4	16.1	1.258
	L9307	678.2	5.9	291.7	22.823
	L9808	4.3	13.1	1.3	0.104
	L9809A	30.6	9.0	17.6	1.376
	L9809B	22.1	9.6	12.2	0.956
	N77097	855.1	5.1	669.0	52.347
Spark DD Exploration Project					
	L9822	15.0	9.5	4.3	0.334
Stony Hills Exploration Prospect					
	L9812	383.8	8.1	133.6	10.456
	L9816	197.8	7.6	168.9	13.218
	M0702	119.0	6.7	17.7	1.388
	M0703	57.5	6.2	20.8	1.630
	M0704	276.2	6.0	150.5	11.774
	M0705	166.6	<4	166.6	13.039
	M0706	236.3	6.2	87.1	6.812
	M0707	328.1	6.4	109.8	8.590
	M0708	323.2	28.9	31.4	2.458
	M0709	46.0	<4	46.0	3.596
	M0710	603.6	6.5	234.6	18.357
	M0711	124.8	<4	124.8	9.765
	M0712	109.3	14.4	11.5	0.899
Rendezvous II Exploration Prospect					
	R0066	248.2	9.6	31.0	2.424
Cassin I Exploration Prospect					
	M0701	838.9	11.9	389.8	30.504
	R0075A	244.1	6.6	124.0	9.705
	R0075B	62.0	6.4	44.9	3.509

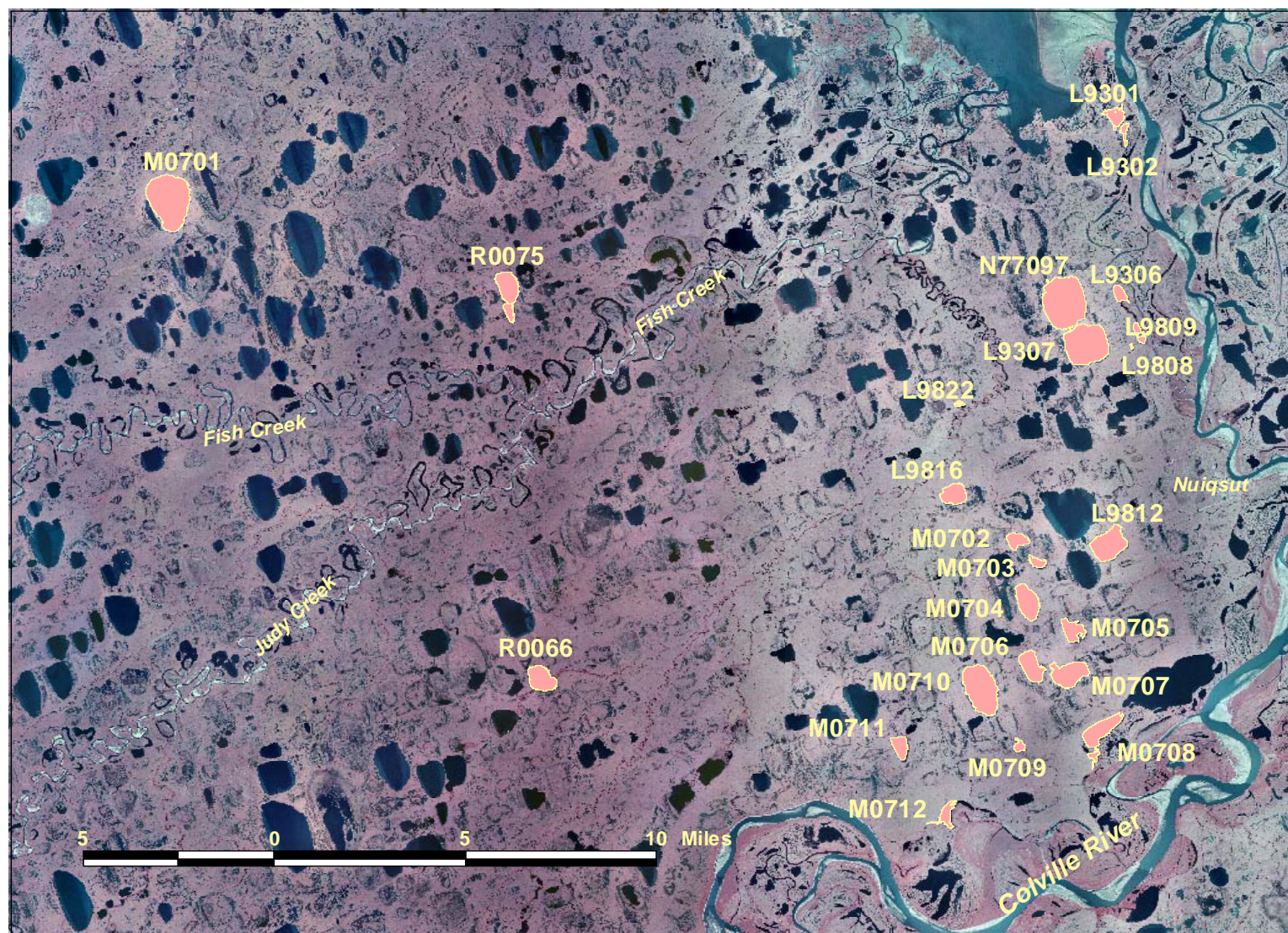


Figure 1. Lakes surveyed for CPAI exploration prospects, 2007 (surveyed lakes in red).

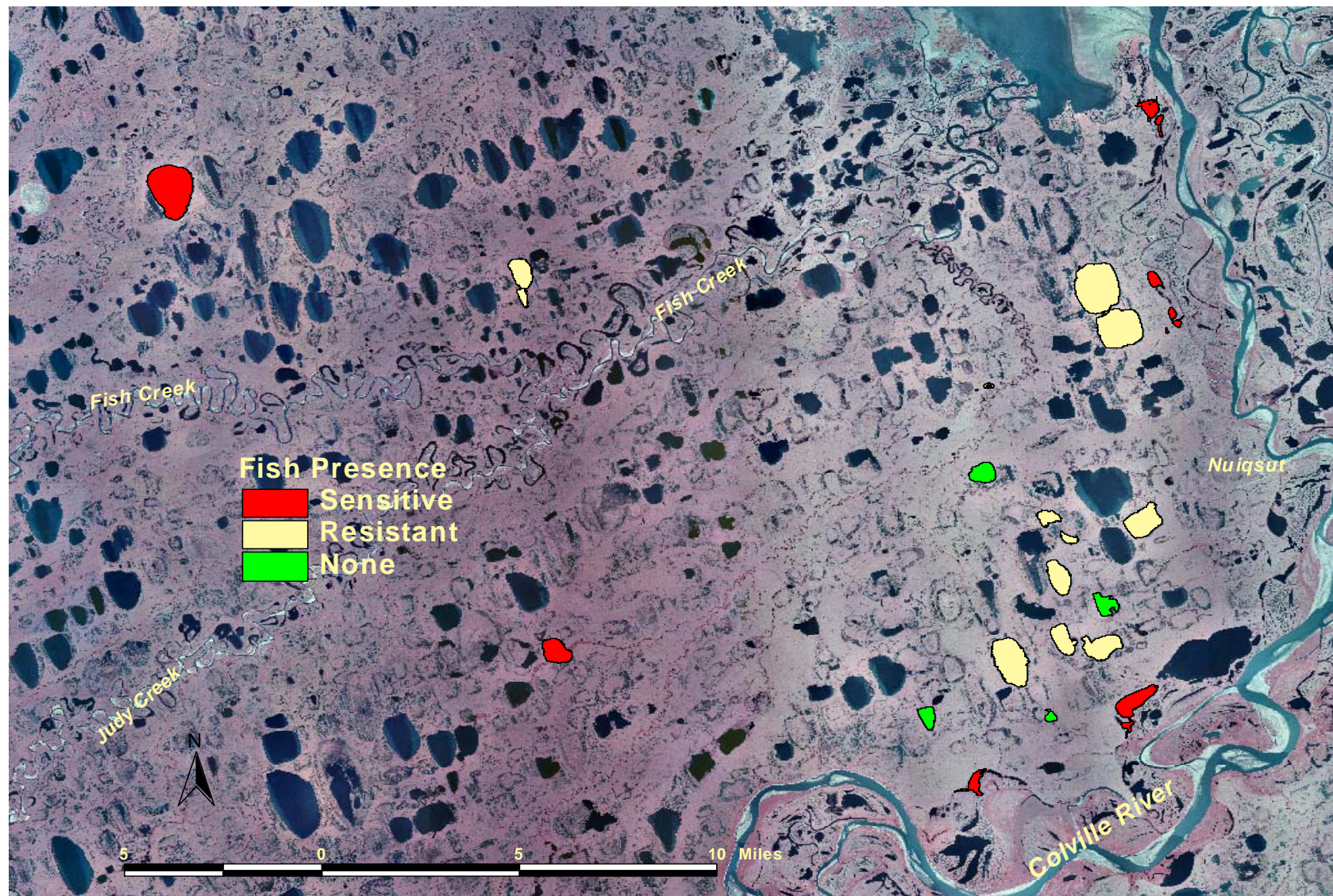
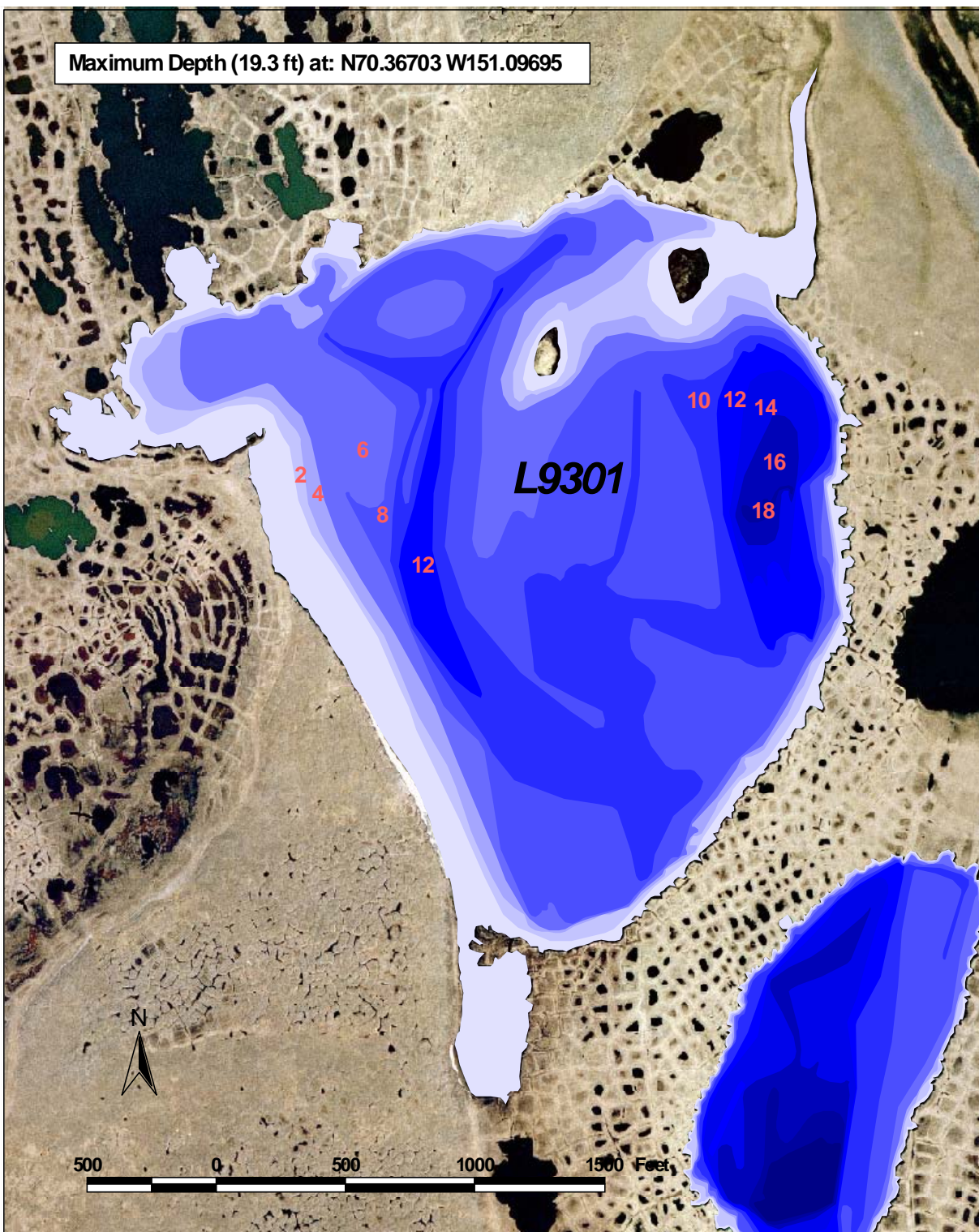


Figure 2. Distribution of sensitive and resistant fish species at lakes sampled during 2007.

Lake Summaries



Depth contours of lake L9301 based on transects surveyed on August 15, 2007
(depths in 2 foot intervals)

(not to be used for navigation or to direct operation of heavy equipment)

Lake L9301

Other Names: R2.1
Location: 70.36637°N 151.10253°W
USGS Quad Sheet: Harrison Bay B-2: T12N R4E Sec. 27
Habitat: Perched Lake (Frequent Flooding)
Area: 118 acres
Maximum Depth: 19.7 feet
Active Outlet:
Total Lake Volume: 284.6 million gallons (2007 data)
Water Volume Under 4 ft of ice: 153.74 million gallons
Water Volume Under 5 ft of ice: 125.13 million gallons
Water Volume Under 7 ft of ice: 72.70 million gallons

Potential Ice Aggregate: 27.72 acres (water depth 4 ft or less)
2.17 million gallons

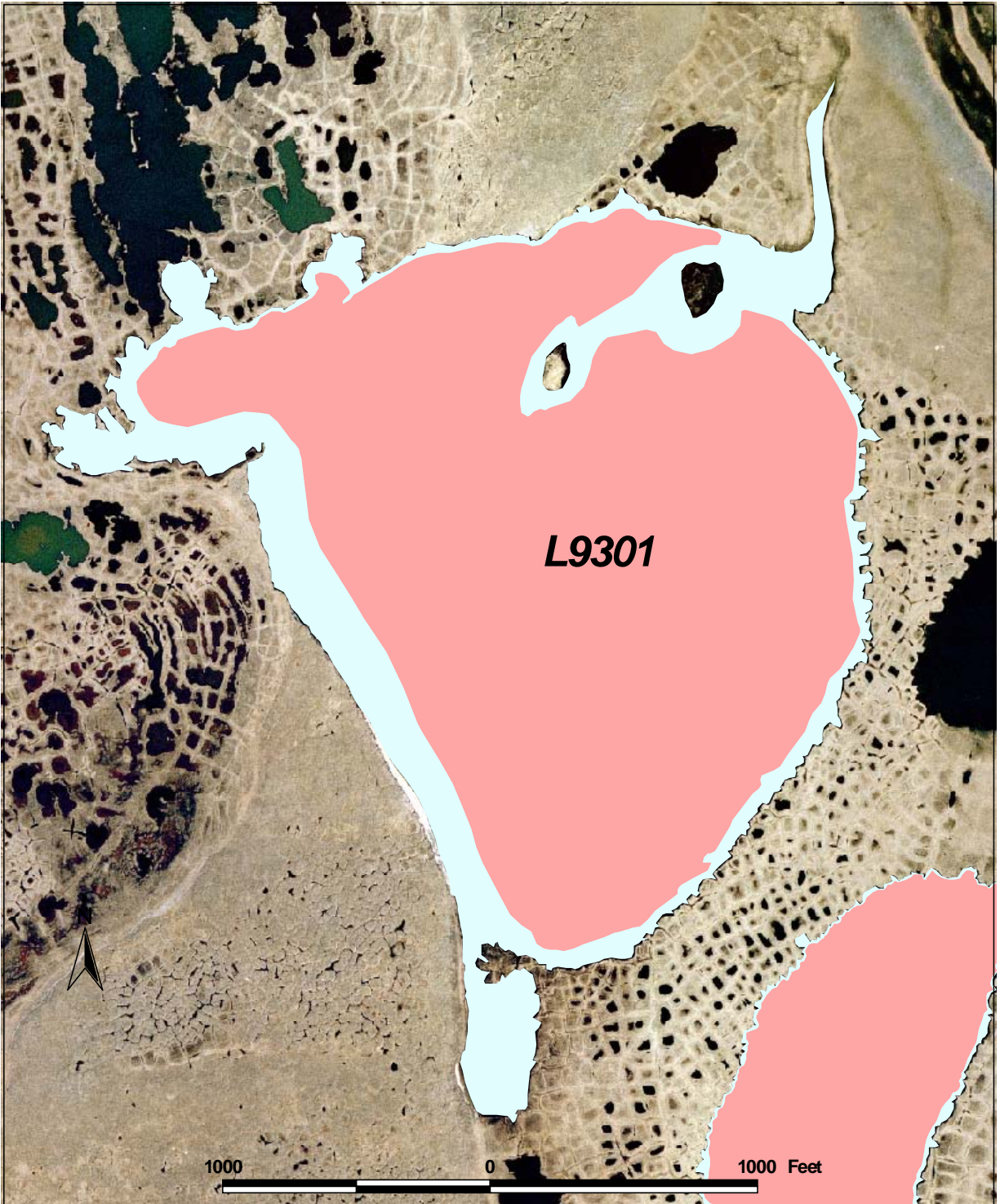
Maximum Recommended Winter Removal: **10.91 million gallons**
(15% of water volume under 7 ft of ice)
(does not include volume associated with ice aggregate)

Water Chemistry:

Year of Test	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Chloride (mg/l)	Total Hardness [CaCO ₃] (mg/l)	Specific Conductance (microS/cm)	Turbidity (NTU)	pH	Source
1993	13.0	5.8	60.0	53.0	57	--	--	--	J. Lobdell
2007	13.9	7.5	40.4	73.9	66	321.1	1.3	7.75	L. Moulton

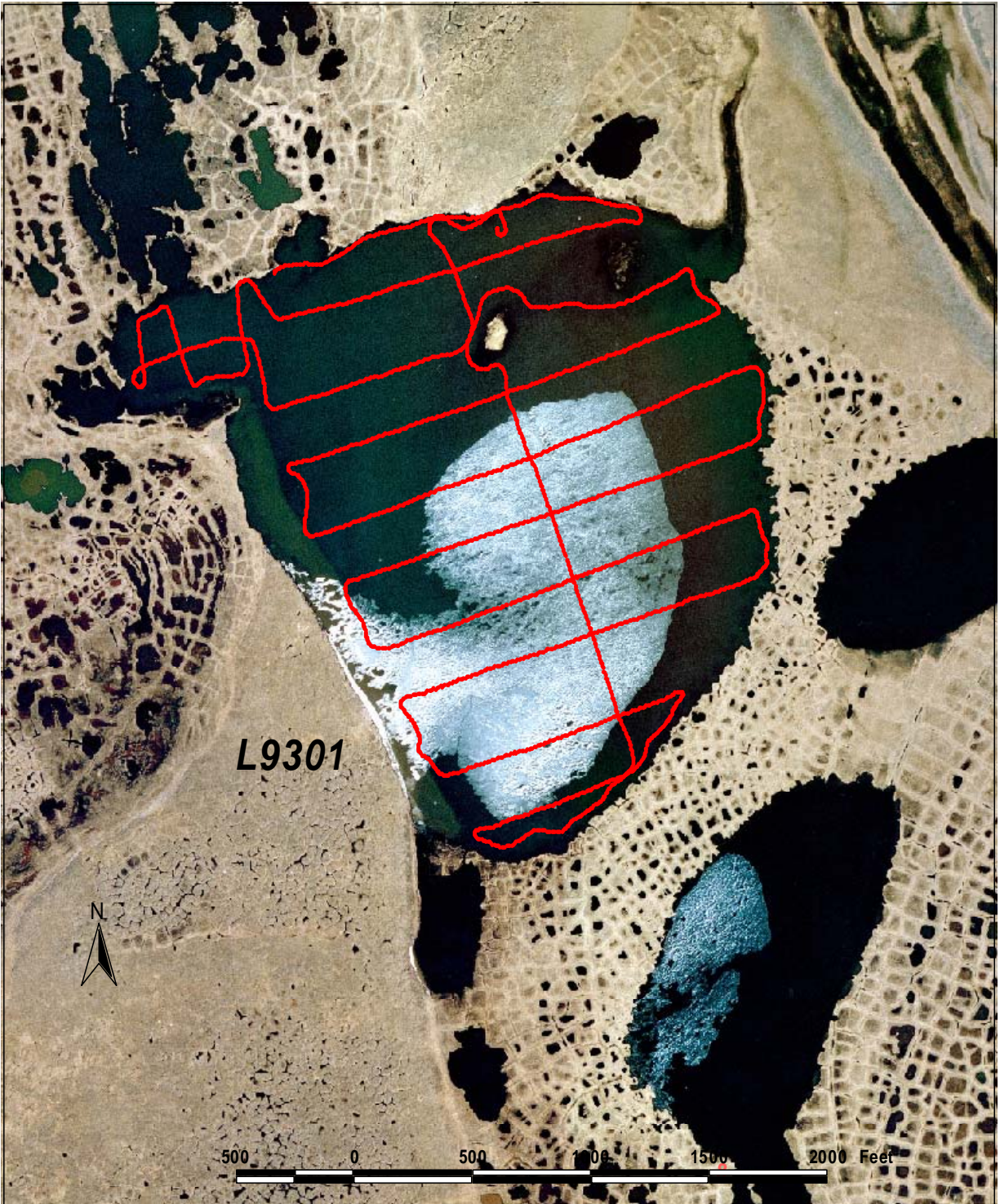
Catch Record:

Gear	Date	Effort (hours)	Species	Number Caught
Observation	Aug 15 07	--	Least cisco	--



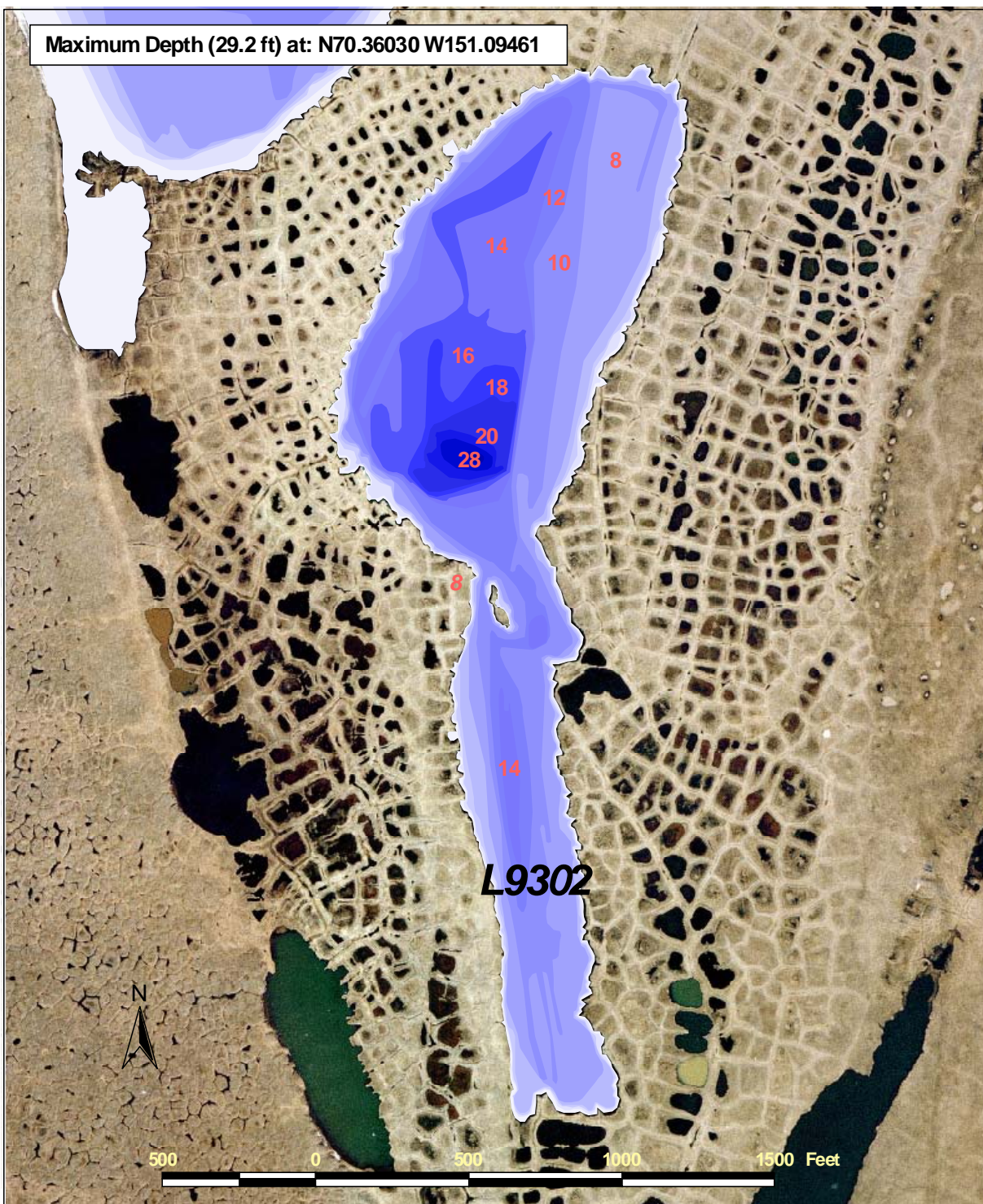
Regions of lake L9301 less than 4 feet deep (light blue) and likely to be available for ice chips, based on transects surveyed on August 15, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth transects surveyed at lake L9301 on August 15, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth contours of lake L9302 based on transects surveyed on August 15, 2007
(depths in 2 foot intervals)

(not to be used for navigation or to direct operation of heavy equipment)

Lake L9302

Other Names: S3.1
Location: 70.36103°N 151.09435°W
USGS Quad Sheet: Harrison Bay B-2: T12N R4E Sec. 27/34
Habitat: Perched Lake (Frequent Flooding)
Area: 38 acres
Maximum Depth: 29.2 feet
Active Outlet: No
Total Lake Volume: 142.85 million gallons (2007 data)
Water Volume Under 4 ft of ice: 94.53 million gallons
Water Volume Under 5 ft of ice: 82.96 million gallons
Water Volume Under 7 ft of ice: 60.49 million gallons

Potential Ice Aggregate: 2.53 acres (water depth 4 ft or less)
0.20 million gallons

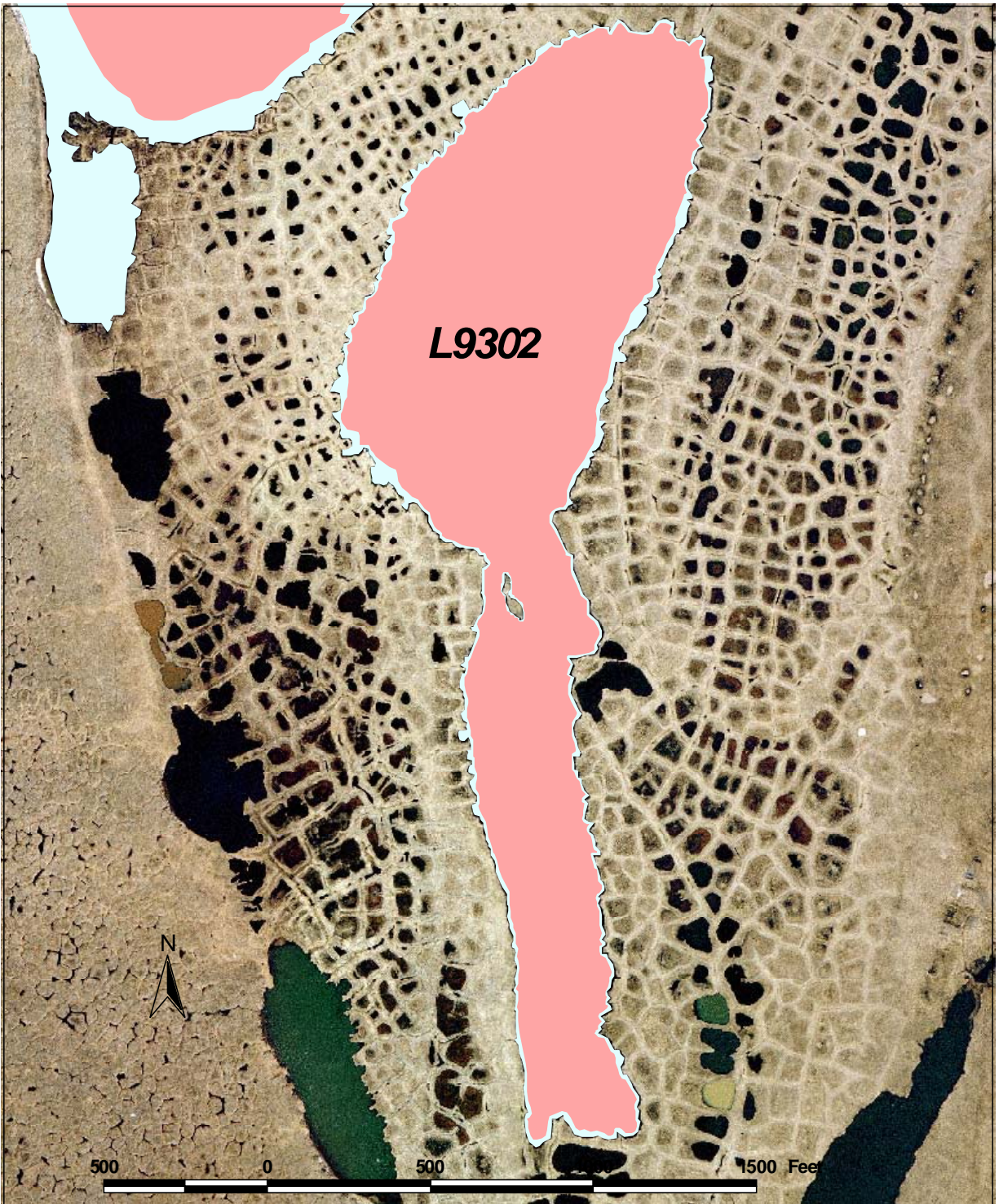
Maximum Recommended Winter Removal: **9.074 million gallons**
(15% of water volume under 7 ft of ice)
(does not include volume associated with ice aggregate)

Water Chemistry:

Year of Test	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Chloride (mg/l)	Total Hardness [CaCO ₃] (mg/l)	Specific Conductance (microS/cm)	Turbidity (NTU)	pH	Source
1993	11.0	4.1	51.0	45.0	43	--	--	--	J. Lobdell
2007	9.6	5.3	28.2	49.4	46	224.3	1	7.6	L. Moulton

Catch Record:

Gear	Date	Effort (hours)	Species	Number Caught
Observation	Aug 15 07	--	Least cisco	--



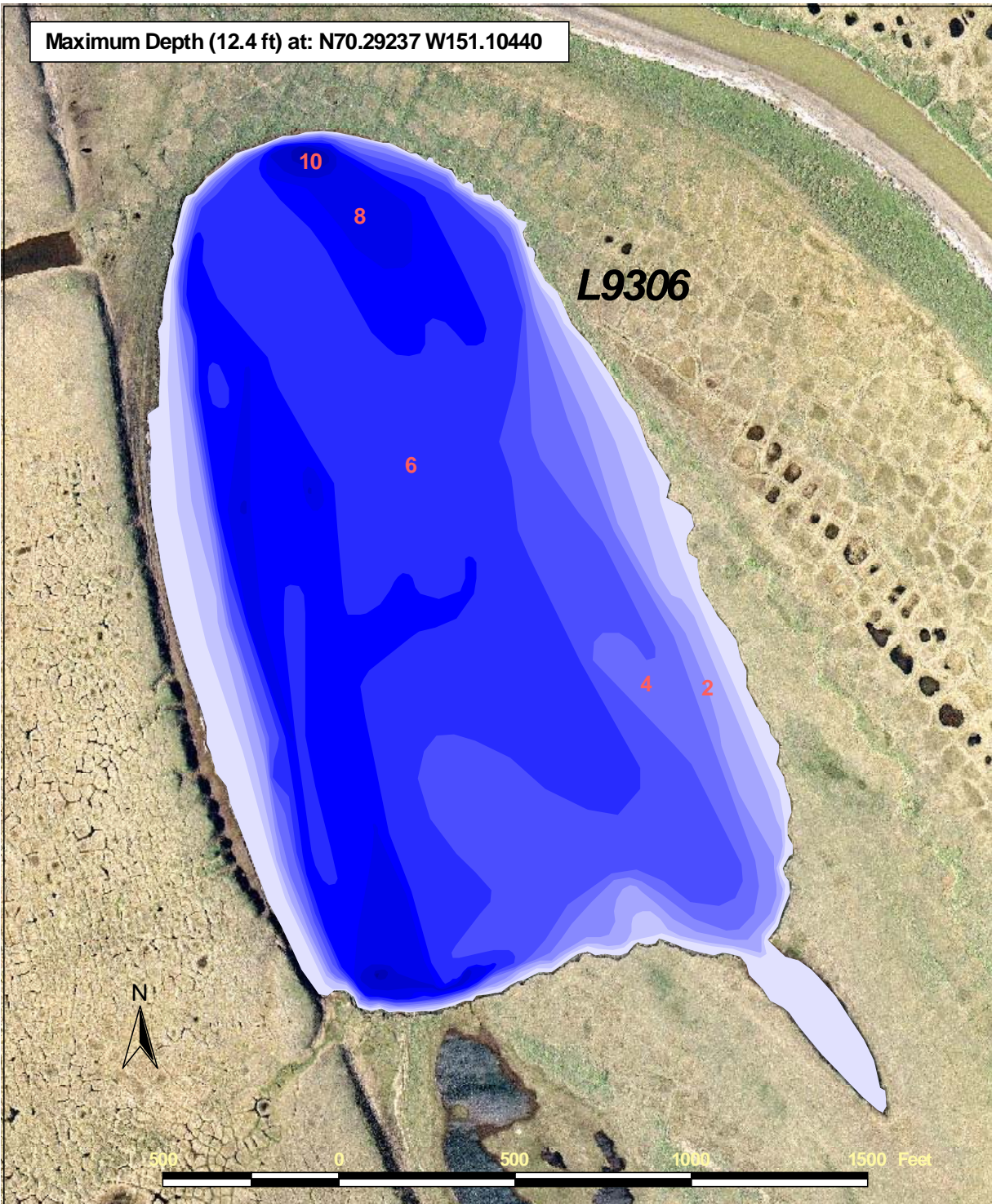
Regions of lake L9302 less than 4 feet deep (light blue) and likely to be available for ice chips, based on transects surveyed on August 15, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth transects surveyed at lake L9302 on August 15, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth contours of lake L9306 based on transects surveyed on August 13, 2007
(depths in 1 foot intervals)

(not to be used for navigation or to direct operation of heavy equipment)

Lake L9306

Other Names: W2.1
Location: 70.29518°N 151.10512°W
USGS Quad Sheet: Harrison Bay B-2: T11N R4E Sec. 22
Habitat: Perched Lake (Frequent Flooding)
Area: 72 acres
Maximum Depth: 12.4 feet
Active Outlet: No
Total Lake Volume: 127.40 million gallons (2007 data)
Water Volume Under 4 ft of ice: 45.07 million gallons
Water Volume Under 5 ft of ice: 27.55 million gallons
Water Volume Under 7 ft of ice: 3.85 million gallons

Potential Ice Aggregate: 16.07 acres (water depth 4 ft or less)
 1.26 million gallons

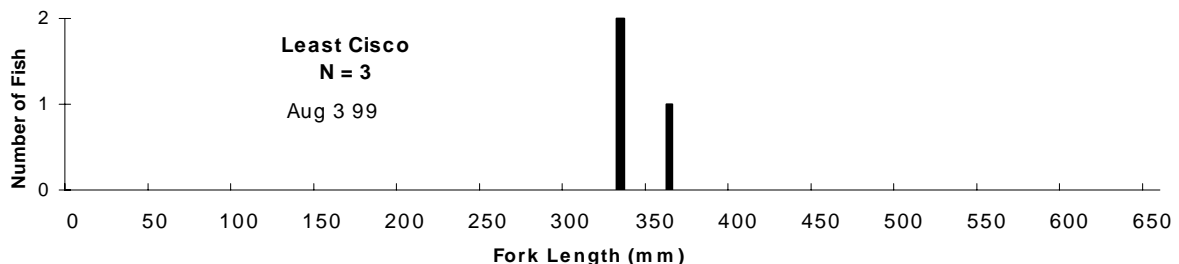
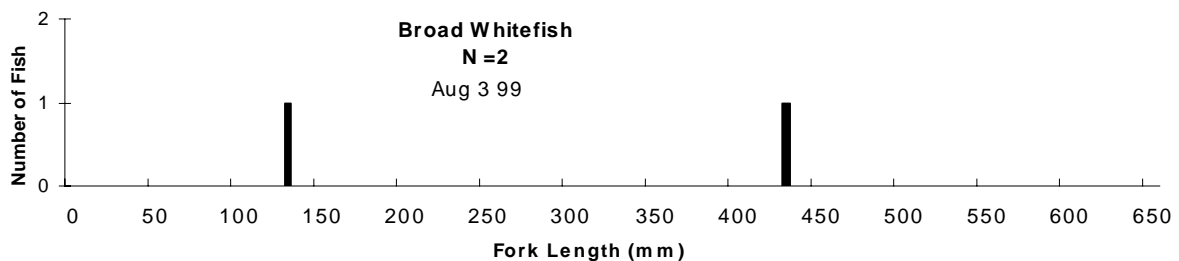
Maximum Recommended Winter Removal: **0.578 million gallons**
 (15% of water volume under 7 ft of ice)
 (does not include volume associated with ice aggregate)

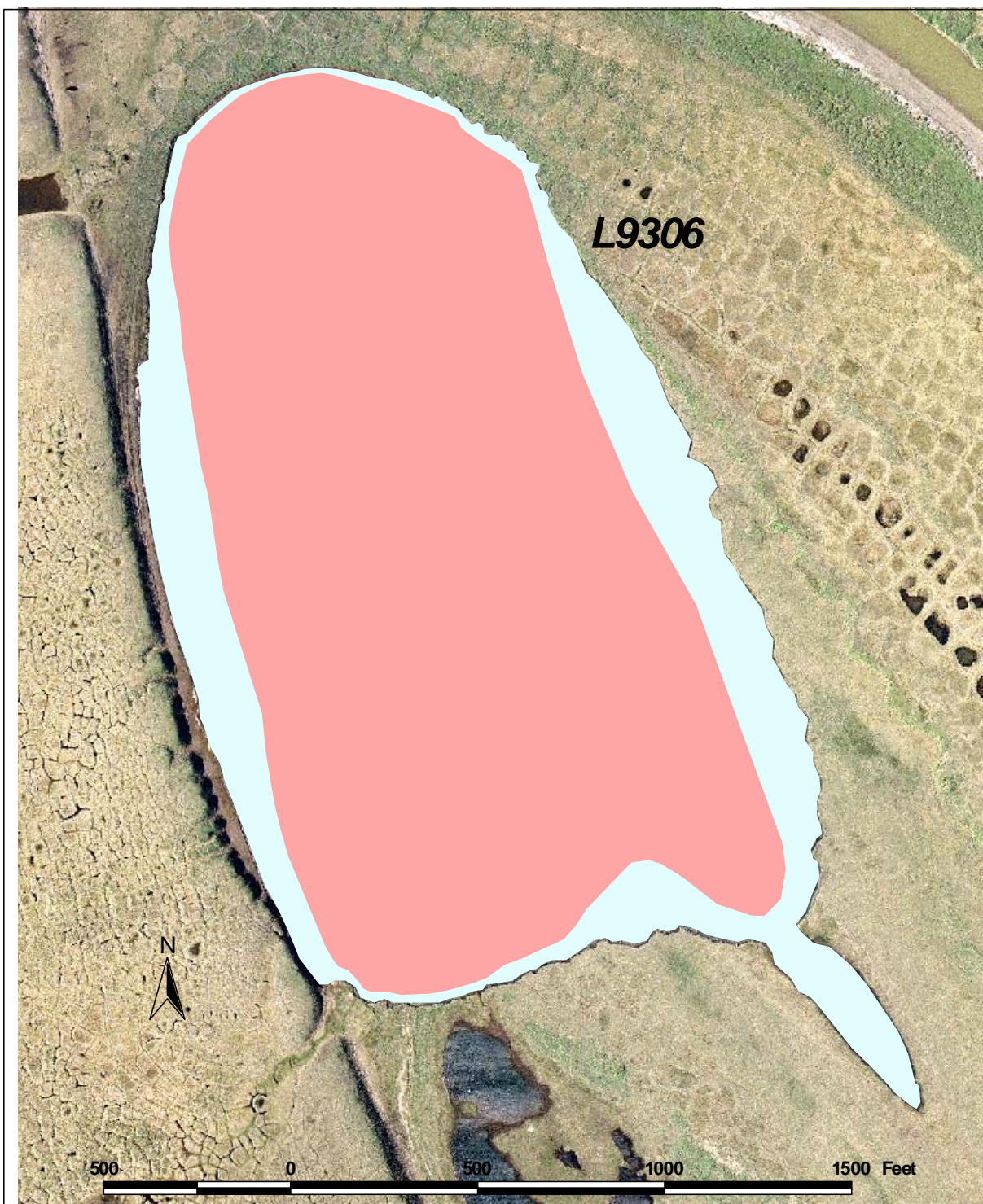
Water Chemistry:

Year of Test	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Chloride (mg/l)	Total Hardness [CaCO ₃] (mg/l)	Specific Conductance (microS/cm)	Turbidity (NTU)	pH	Source
1993	6.0	2.3	13.0	25.0	24	--	110	--	J. Lobdell
1998	7.3	3.1	9.5	21.1	31	--	68	--	J. Lobdell
1999	8.6	4.0	13.7	22.1	38	--	70	--	J. Lobdell
1999	--	--	--	--	--	145	--	7.97	L. Moulton
2007	11.1	6.6	37.8	76.9	55.1	325	0.9	7.70	L. Moulton

Catch Record:

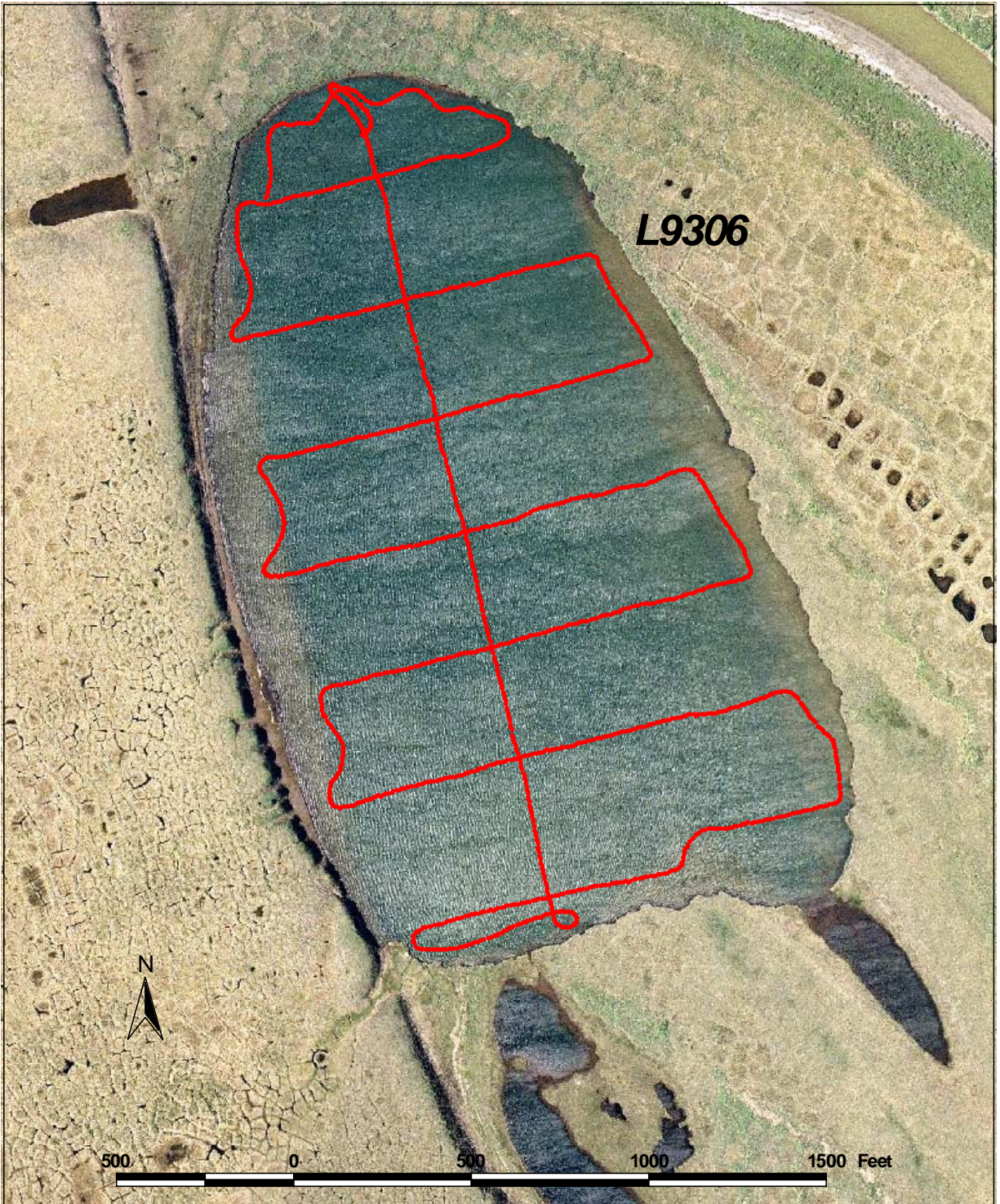
Gear	Date	Effort (hours)	Species	Number Caught	Fork Length (mm)
Gill Net	Aug 3 99	6.7	Broad whitefish	2	131, 433
			Least cisco	3	337-360





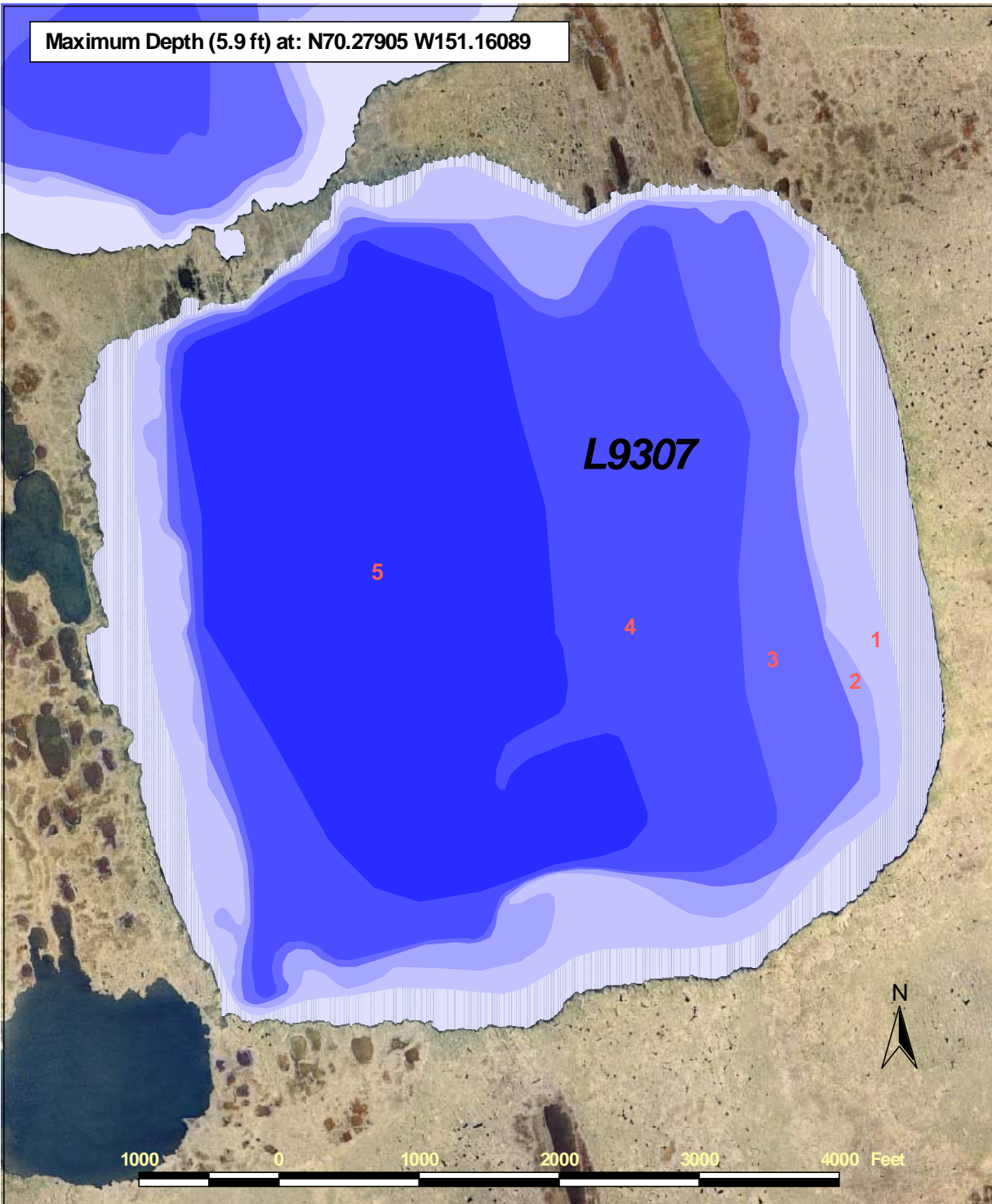
Regions of lake L9306 less than 4 feet deep (light blue) and likely to be available for ice chips, based on transects surveyed on August 13, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth transects surveyed at lake L9306 on August 13, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth contours of lake L9307 based on transects surveyed on August 9, 2007
(depths in 1 foot intervals)

(not to be used for navigation or to direct operation of heavy equipment)

Lake L9307

Other Names: X2.1
Location: 70.27566°N 151.14481°W
USGS Quad Sheet: Harrison Bay B-2: T11N R4E Sec. 28/29/32/33
Habitat: Tundra Lake
Area: 678 acres
Maximum Depth: 5.9 feet
Active Outlet: No
Total Lake Volume: 798.75 million gallons (2007 data)
Water Volume Under 4 ft of ice: 120.71 million gallons
Water Volume Under 5 ft of ice: 23.62 million gallons
Water Volume Under 7 ft of ice: 0.00 million gallons

Potential Ice Aggregate: 291.68 acres (water depth 4 ft or less)
22.82 million gallons

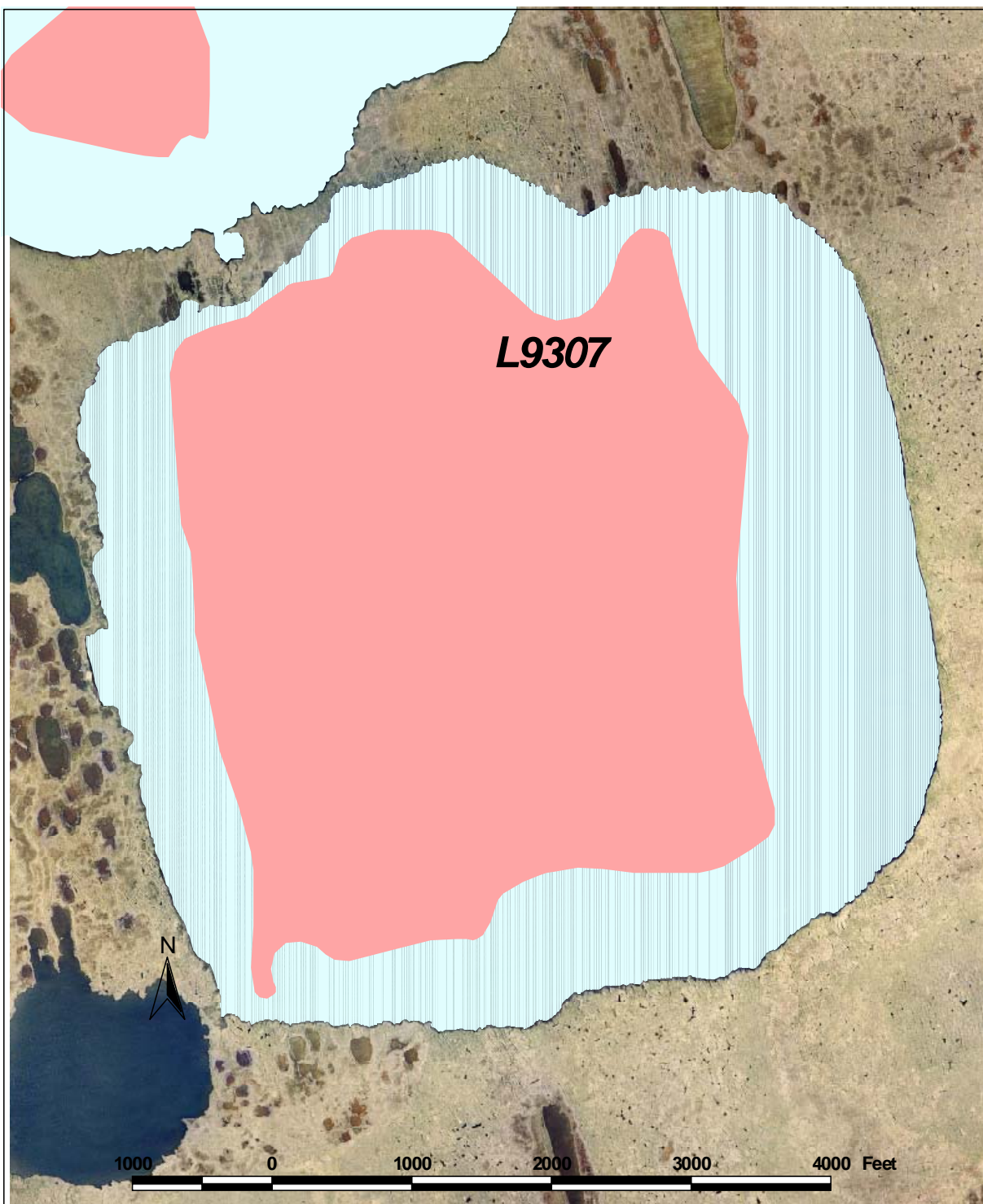
Maximum Recommended Winter Removal: **7.085 million gallons**
(30% of water volume under 5 ft of ice)
(does not include volume associated with ice aggregate)

Water Chemistry:

Year of Test	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Chloride (mg/l)	Total Hardness [CaCO ₃] (mg/l)	Specific Conductance (microS/cm)	Turbidity (NTU)	pH	Source
1999	8.9	4.9	4.9	9.9	42.4	230	52.0	8.03	L. Moulton
2007	34.2	5.0	7.5	24.2	106.0	233	2.2	8.03	L. Moulton

Catch Record:

Gear	Date	Effort (hours)	Species	Number Caught
Gill Net	Jul 31 99	4.1	None	0
	Aug 9 07	13.1	None	0
Observation	Aug 9 07	--	Ninespine stickleback	--



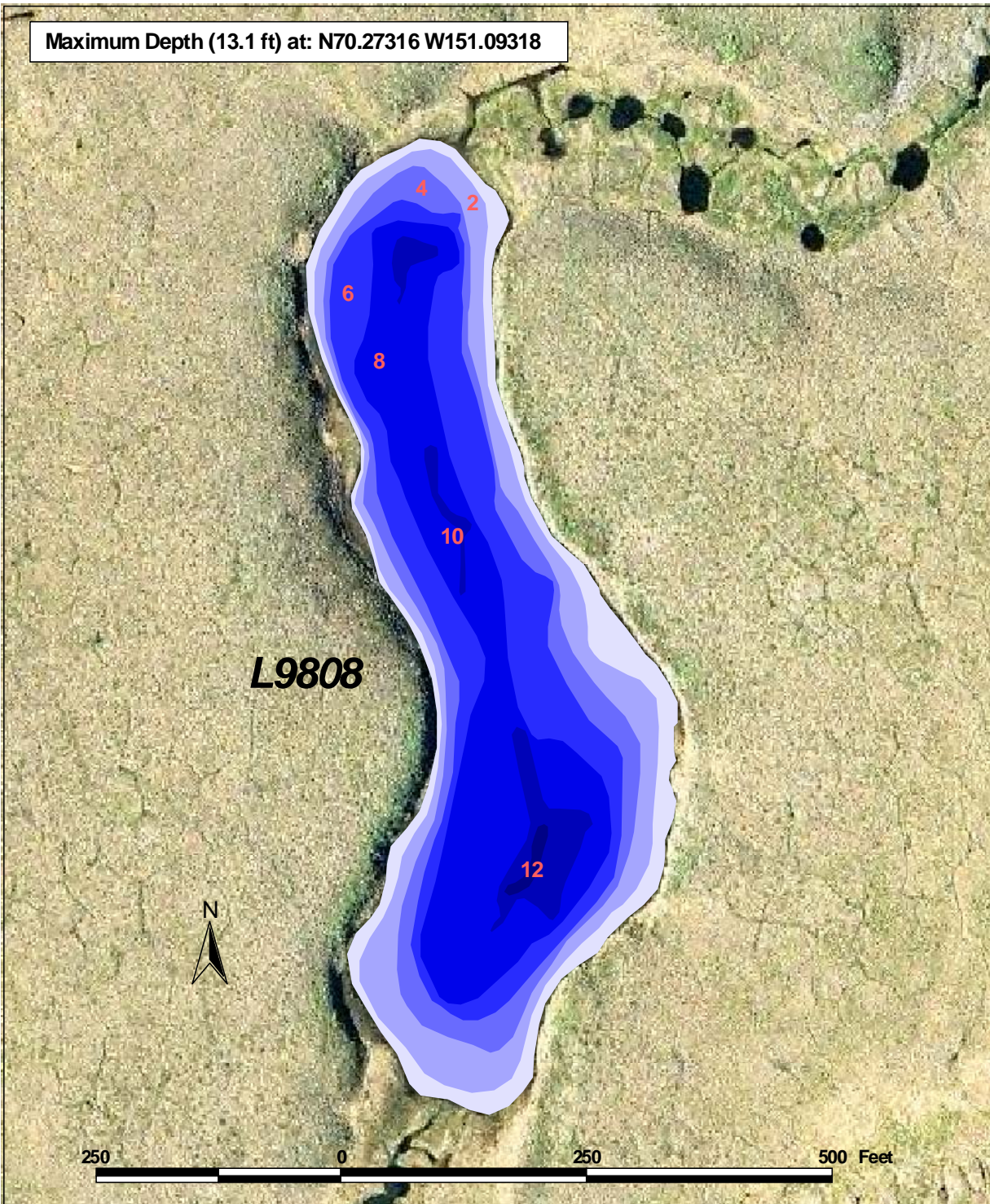
Regions of lake L9307 less than 4 feet deep (light blue) and likely to be available for ice chips, based on transects surveyed on August 9, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth transects surveyed at lake L9307 on August 9, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth contours of lake L9808 based on transects surveyed on August 13, 2007
(depths in 2 foot intervals)

(not to be used for navigation or to direct operation of heavy equipment)

Lake L9808

Other Names: X3.1
Location: 70.27367°N 151.09346°W
USGS Quad Sheet Harrison Bay B-2: T11N R4E Sec. 27
Habitat: Drainage Lake
Area: 4.3 acres
Maximum Depth: 13.1 feet
Active Outlet: Yes
Total Lake Volume: 8.52 million gallons (2007 data)
Water Volume Under 4 ft of ice: 3.67 million gallons
Water Volume Under 5 ft of ice: 2.74 million gallons
Water Volume Under 7 ft of ice: 1.18 million gallons

Potential Ice Aggregate: 1.33 acres (water depth 4 ft or less)
0.10 million gallons

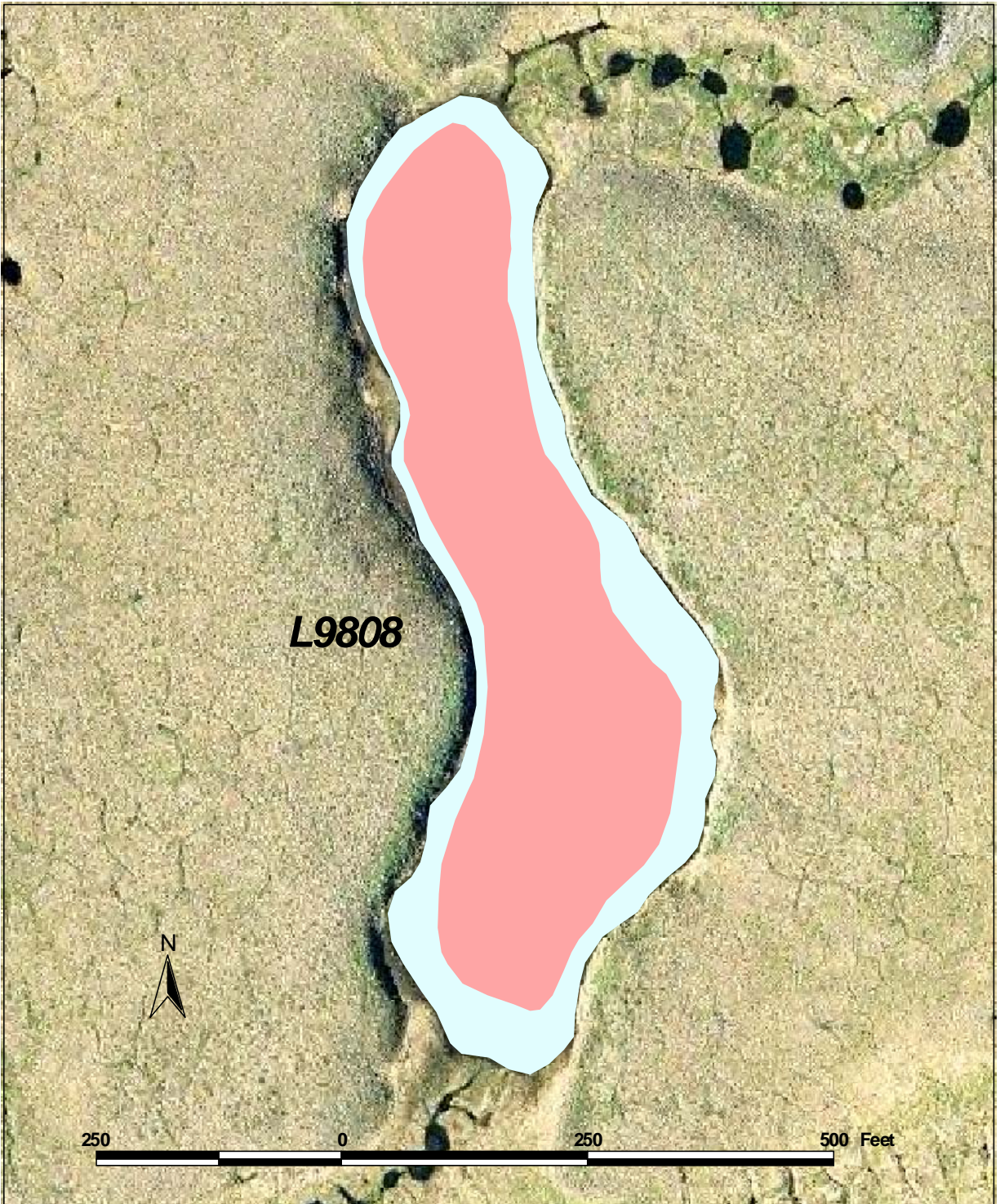
Maximum Recommended Winter Removal: **0.177 million gallons**
(15% of water volume under 7 ft of ice)
(does not include volume associated with ice aggregate)

Water Chemistry:

Year of Test	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Chloride (mg/l)	Total Hardness [CaCO ₃] (mg/l)	Specific Conductance (microS/cm)	Turbidity (NTU)	pH	Source
1999	--	--	--	--	--	153	--	8.20	L. Moulton
2007	18.3	3.6	5.2	14.2	60.4	149	0.7	8.14	L. Moulton

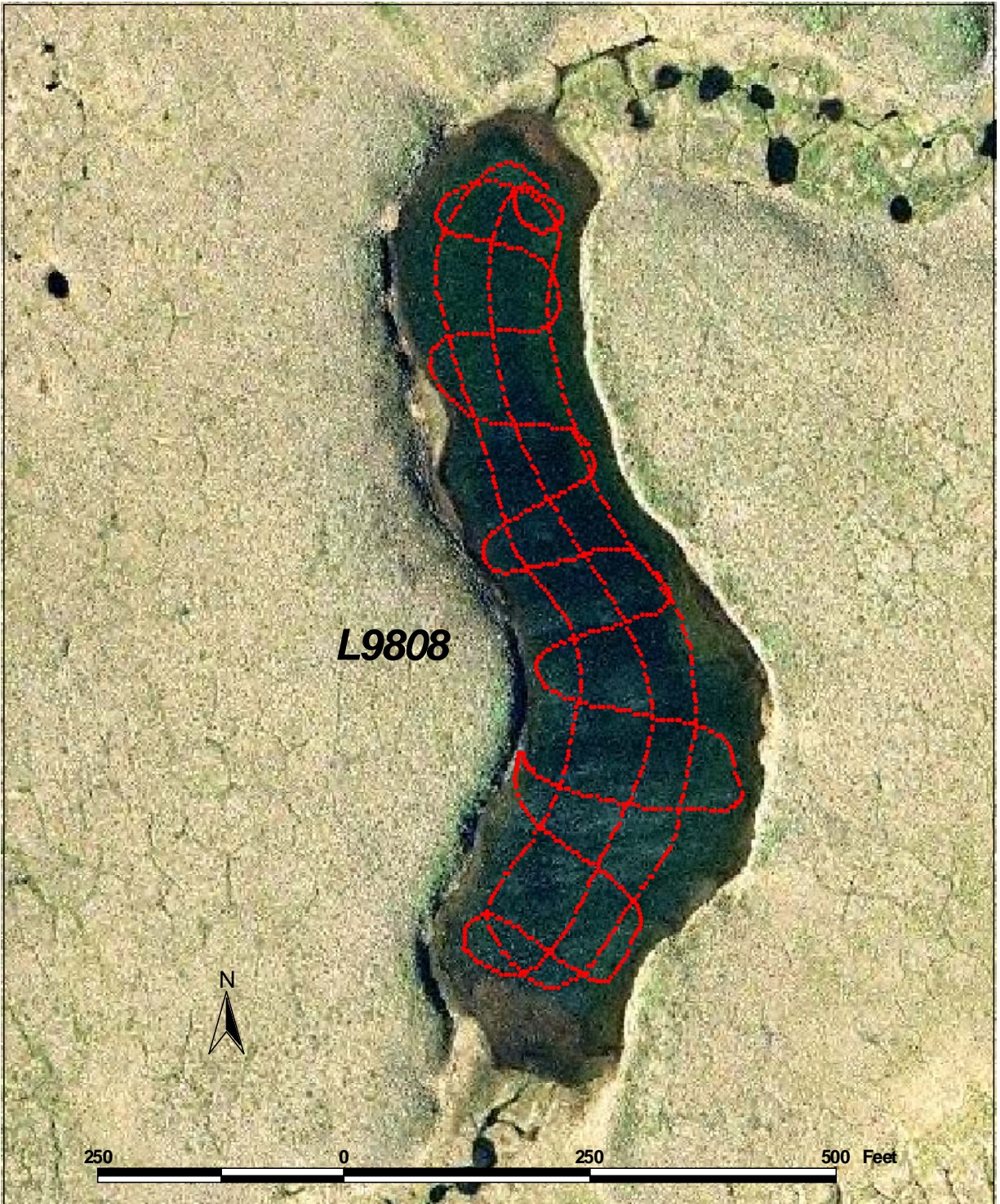
Catch Record:

Gear	Date	Effort (hours)	Species	Number Caught	Fork Length (mm)
Gill Net	Aug 4 99	1.8	Arctic grayling	1	142
Observation	Aug 13 07	--	Arctic grayling	--	



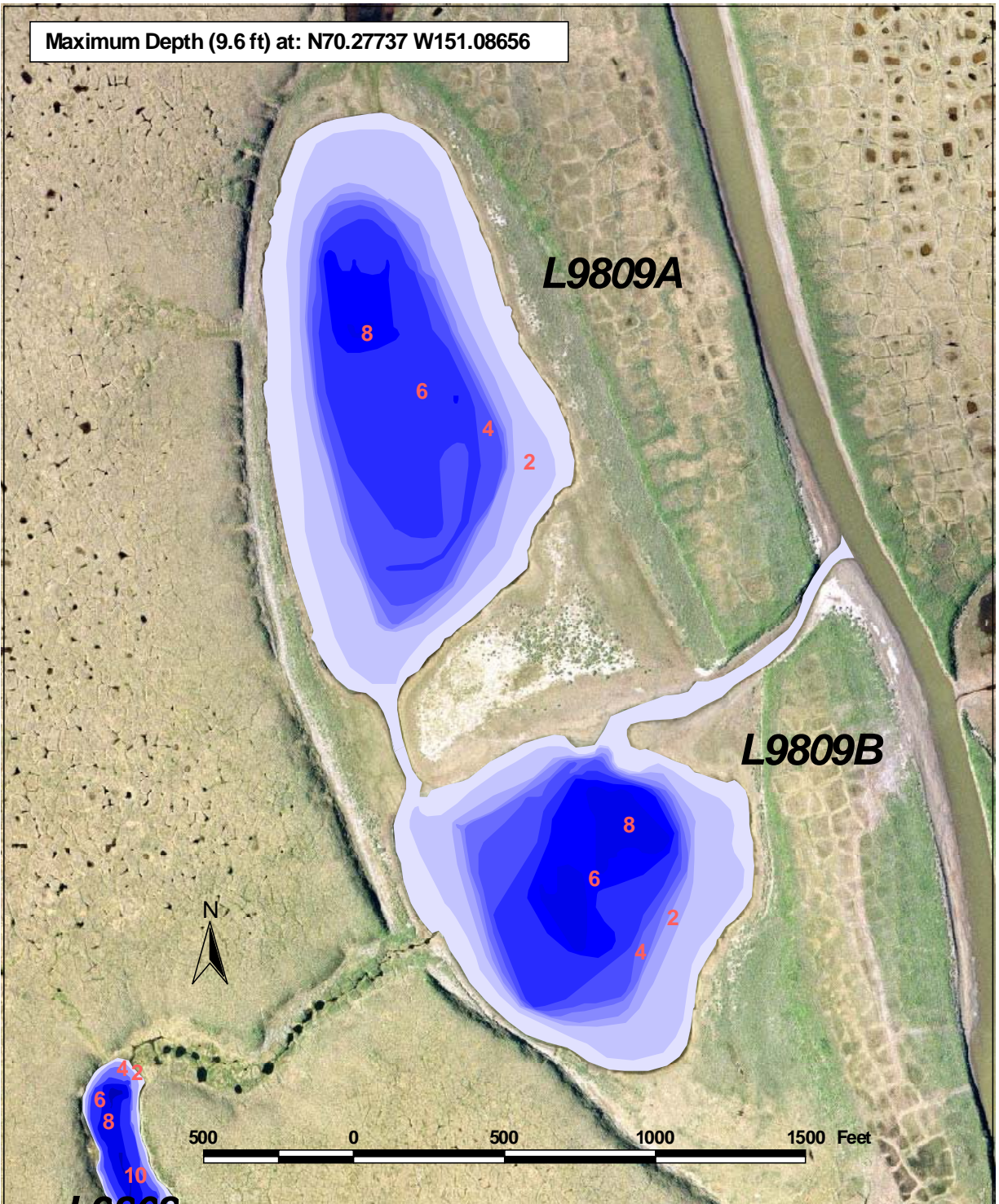
Regions of lake L9808 less than 4 feet deep (light blue) and likely to be available for ice chips, based on transects surveyed on August 13, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth transects surveyed at lake L9808 on August 13, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth contours of lake L9809 based on transects surveyed on August 14, 2007
(depths in 1 foot intervals)

(not to be used for navigation or to direct operation of heavy equipment)

Lake L9809

Other Names: X3.2

	Basin A	Basin B
Location:	70.28048°N 151.08690°W	70.27679°N 151.08213°W
USGS Quad Sheet:	Harrison Bay B-2: T11N R4E Sec. 27	T11N R4E Sec. 27
Area:	30.6	22.1 acres
Maximum Depth:	9.0	9.6 feet
Active Outlet:	Yes	Yes
Total Lake Volume:	33.58	26.36 million gallons
Water Volume Under 4 ft of ice:	8.85	8.24 million gallons
Water Volume Under 5 ft of ice:	4.78	5.21 million gallons
Water Volume Under 7 ft of ice:	0.18	1.02 million gallons
Potential Ice Aggregate:	17.59	12.22 acres (water depth 4 ft or less)
	1.38	0.96 million gallons
	(2007 data)	

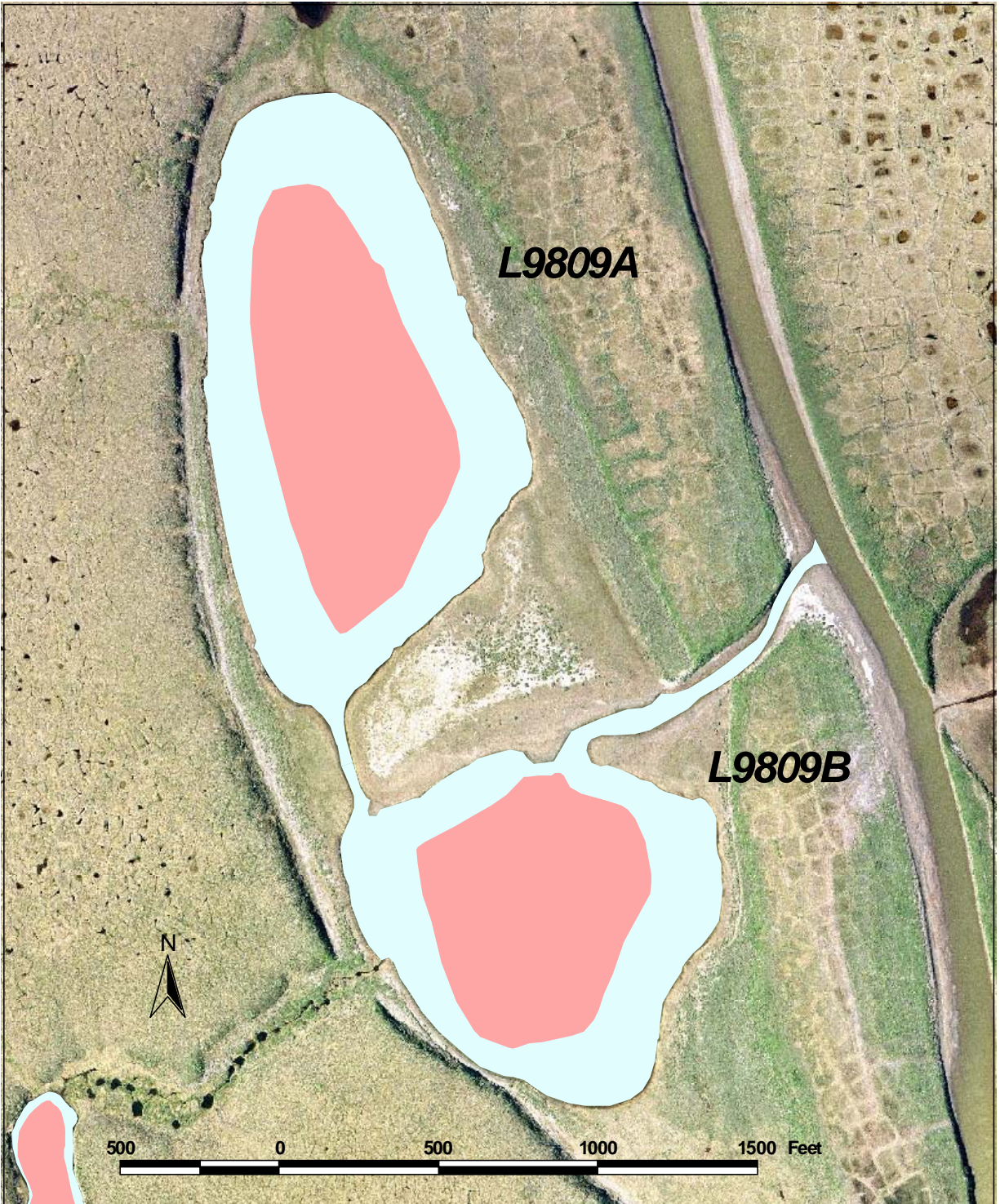
	Basin A	Basin B
Maximum Recommended Winter Removal:	0.028	0.152 million gallons
	(30% of water volume under 5 ft of ice)	
	(does not include volumes related to ice chips)	

Water Chemistry:

Year of Test	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Chloride (mg/l)	Total Hardness [CaCO ₃] (mg/l)	Specific Conductance (microS/cm)	Turbidity (NTU)	pH	Source
2007	34.3	12.5	16.5	19.9	137	318	7.3	8.60	L. Moulton

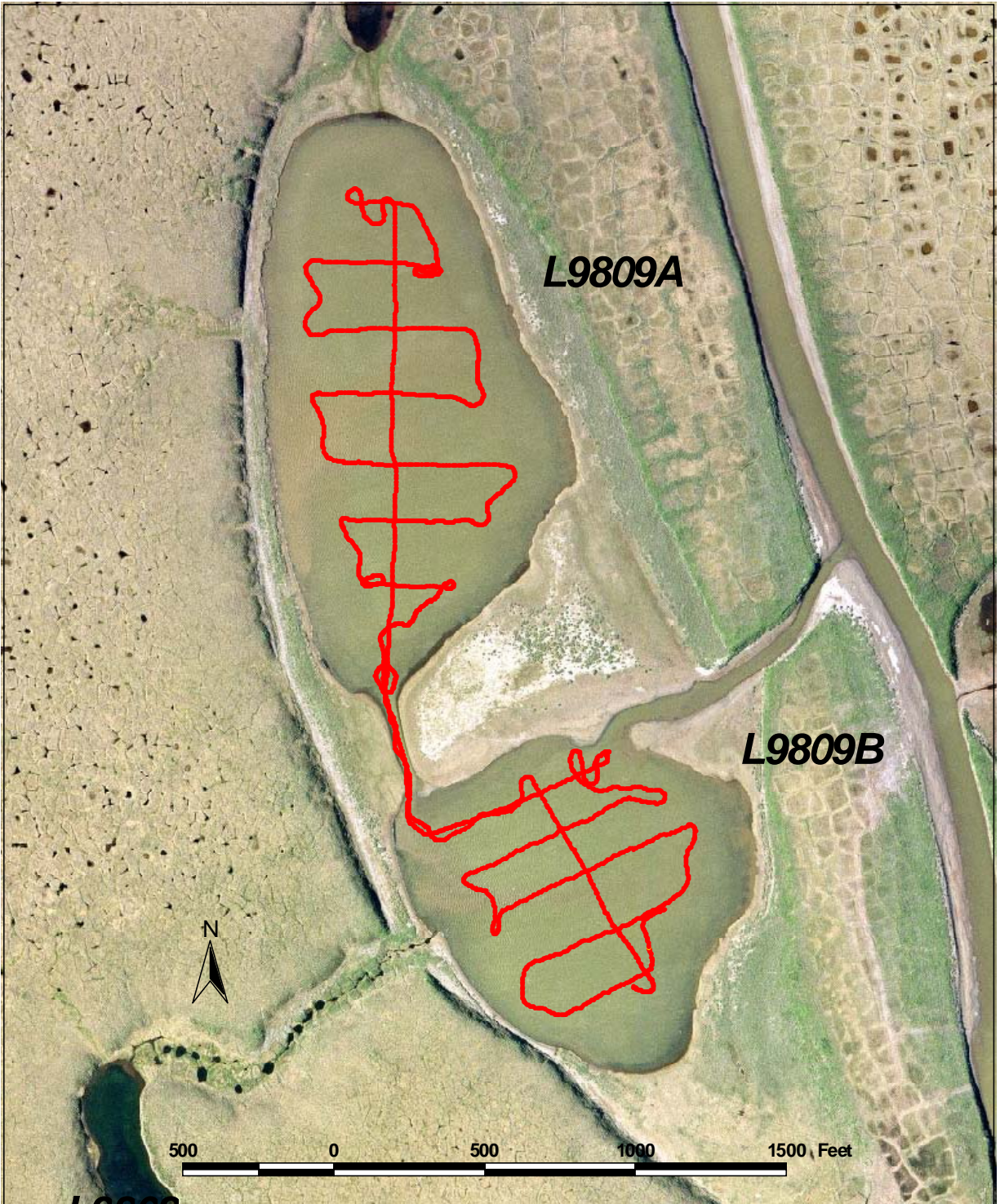
Catch Record:

Gear	Date	Effort (hours)	Species	Number Caught
tapped lake, fish assumed present				



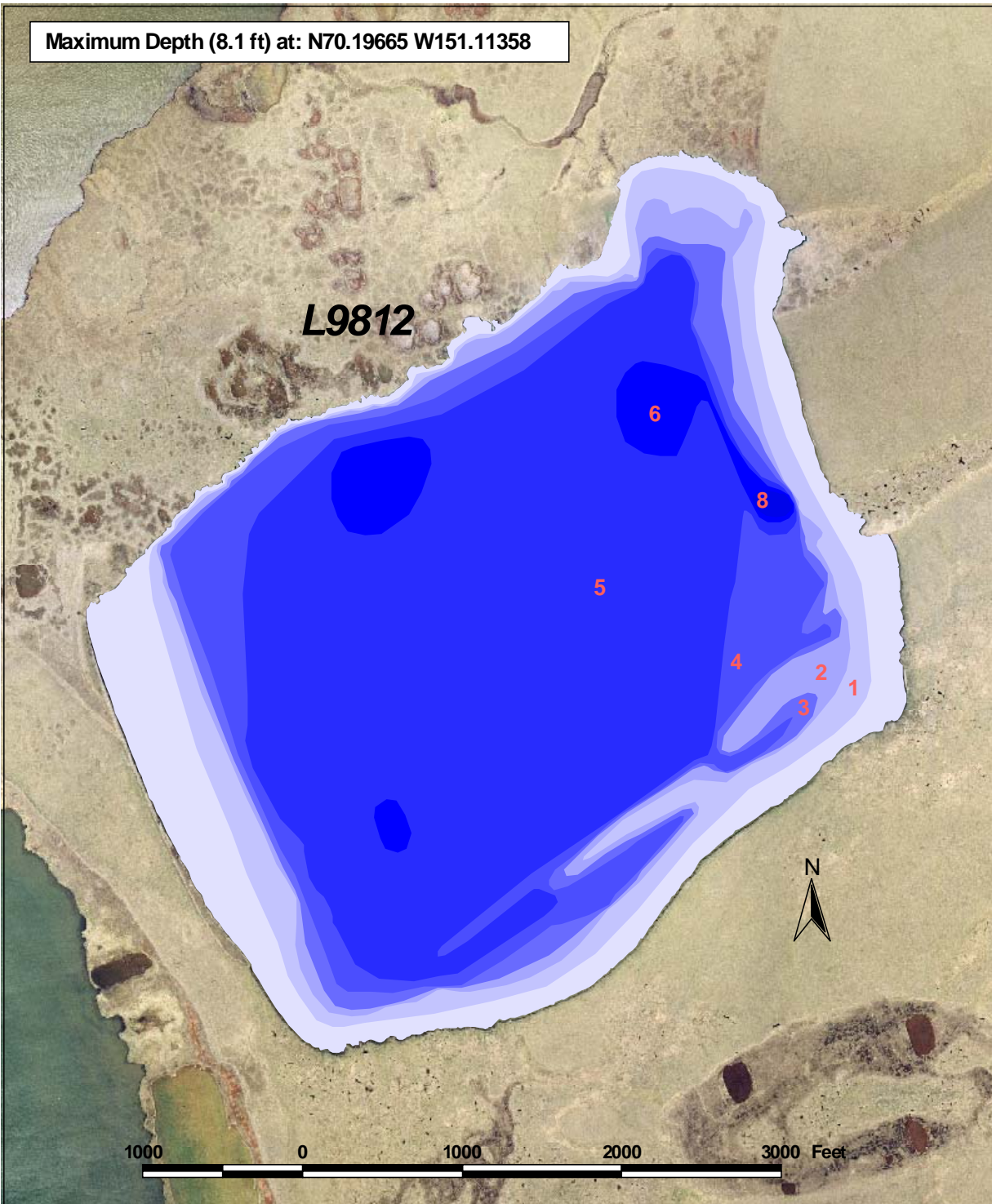
Regions of lake L9809 less than 4 feet deep (light blue) and likely to be available for ice chips, based on transects surveyed on August 14, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth transects surveyed at lake L9809 on August 14, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth contours of lake L9812 based on transects surveyed on August 14, 2007
(depths in 1 foot intervals)

(not to be used for navigation or to direct operation of heavy equipment)

Lake L9812

Other Names: None known
Location: 70.19413°N 151.12577°W
USGS Quad Sheet: Harrison Bay A-2: T10N R4E Sec. 21/22/27/28
Habitat: Tundra Lake
Area: 384 acres
Maximum Depth: 8.1 feet
Active Outlet: No
Total Lake Volume: 501.24 million gallons (2007 data)
Water Volume Under 4 ft of ice: 106.92 million gallons
Water Volume Under 5 ft of ice: 32.47 million gallons
Water Volume Under 7 ft of ice: 0.10 million gallons

Potential Ice Aggregate: 133.63 acres (water depth 4 ft or less)
 10.46 million gallons

Maximum Recommended Winter Removal: **9.742 million gallons**
 (30% of water volume under 5 ft of ice)
 (does not include volume associated with ice aggregate)

Water Chemistry:

Year of Test	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Chloride (mg/l)	Total Hardness [CaCO ₃] (mg/l)	Specific Conductance (microS/cm)	Turbidity (NTU)	pH	Source
Jul 29 04	--	--	--	--	--	326.1	2.0	8.17	L. Moulton
Jul 30 04	--	--	--	--	--	326.3	0.8	8.32	L. Moulton
Jul 31 04	--	--	--	--	--	325.5	0.7	7.72	L. Moulton
Aug 01 04	--	--	--	--	--	326.0	3.6	8.13	L. Moulton
Aug 02 04	--	--	--	--	--	326.4	2.6	8.12	L. Moulton
2007	59.5	8.4	7.8	33.5	183	339	2.3	8.35	L. Moulton

Catch Record:

Gear	Date	Effort (hours)	Species	Number Caught
Fyke Net	Jul 30 to Aug 2 04	87.8	Ninespine stickleback	595
Gill Net	Aug 14 07	8.6	None	0



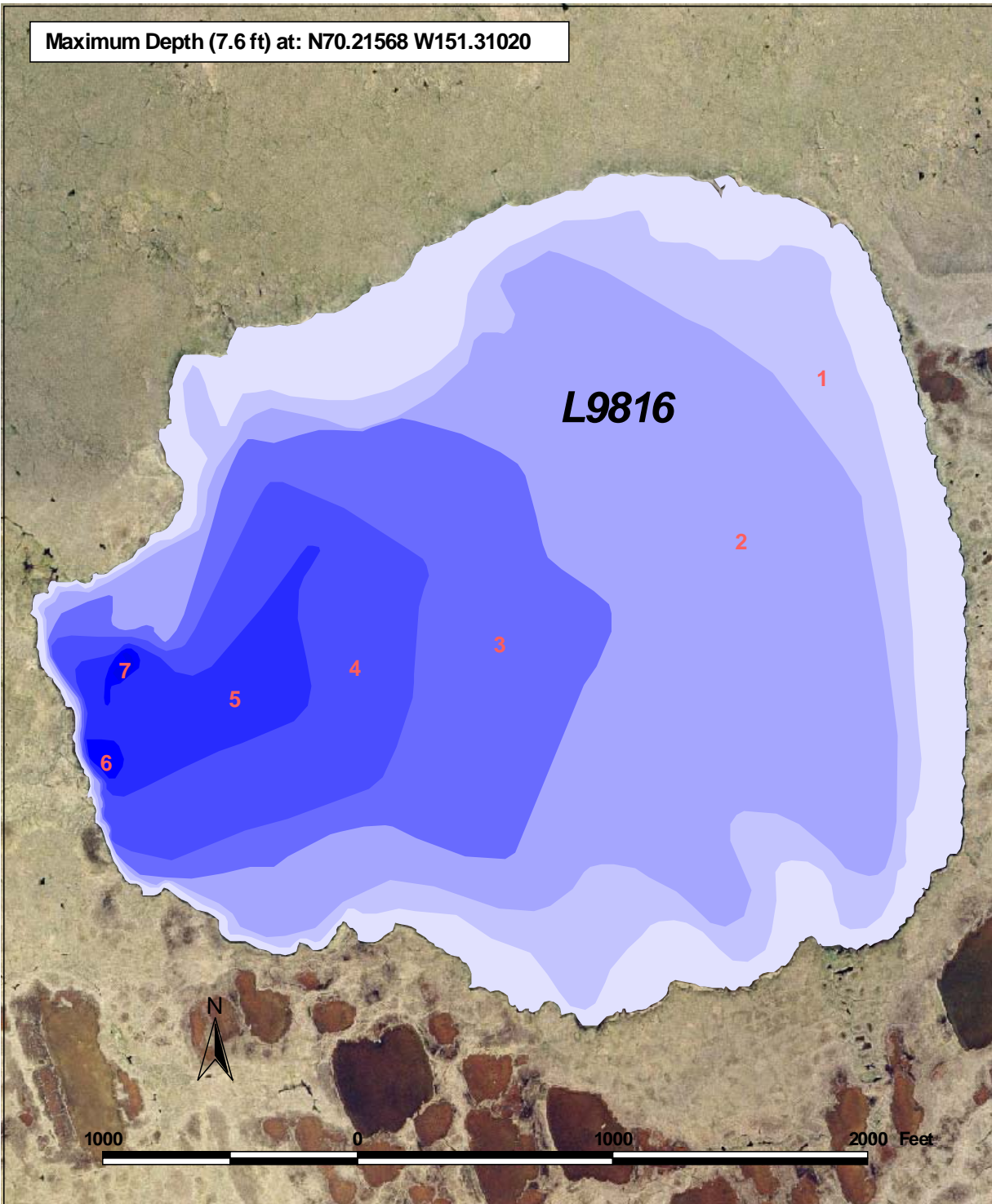
Regions of lake L9812 less than 4 feet deep (light blue) and likely to be available for ice chips, based on transects surveyed on August 14, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth transects surveyed at lake L9812 on August 14, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth contours of lake L9816 based on transects surveyed on August 12, 2007
(depths in 1 foot intervals)

(not to be used for navigation or to direct operation of heavy equipment)

Lake L9816

Other Names: None known
Location: 70.21639°N 151.29693°W
USGS Quad Sheet: Harrison Bay A-3: T10N R3E Sec. 13/14/23
Habitat: Tundra Lake
Area: 198 acres
Maximum Depth: 7.6 feet
Active Outlet: No
Total Lake Volume: 158.44 million gallons (2007 data)
Water Volume Under 4 ft of ice: 7.33 million gallons
Water Volume Under 5 ft of ice: 1.45 million gallons
Water Volume Under 7 ft of ice: 0.01 million gallons

Potential Ice Aggregate: 168.93 acres (water depth 4 ft or less)
13.22 million gallons

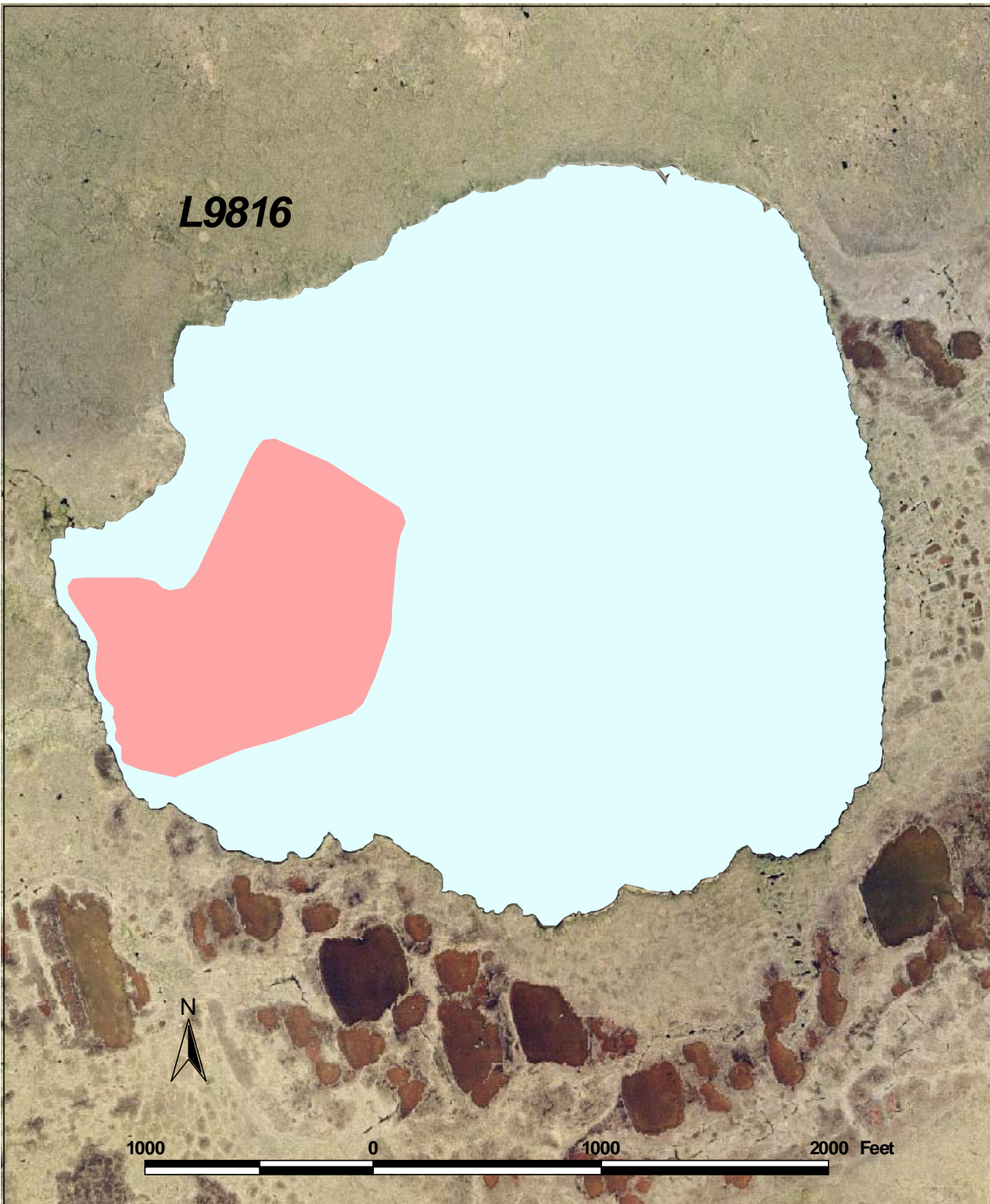
Maximum Recommended Winter Removal: **31.69 million gallons**
(No fish concern, 20% of total lake volume)
(does not include volume associated with ice aggregate)

Water Chemistry:

Year of Test	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Chloride (mg/l)	Total Hardness [CaCO ₃] (mg/l)	Specific Conductance (microS/cm)	Turbidity (NTU)	pH	Source
2007	29.4	5.0	6.1	27.0	94	220	1.9	8.10	L. Moulton

Catch Record:

Gear	Date	Effort (hours)	Species	Number Caught
Gill Net	Aug 12 07	8.2	None	0
Minnow Trap	Aug 12 07	10.8	None	0



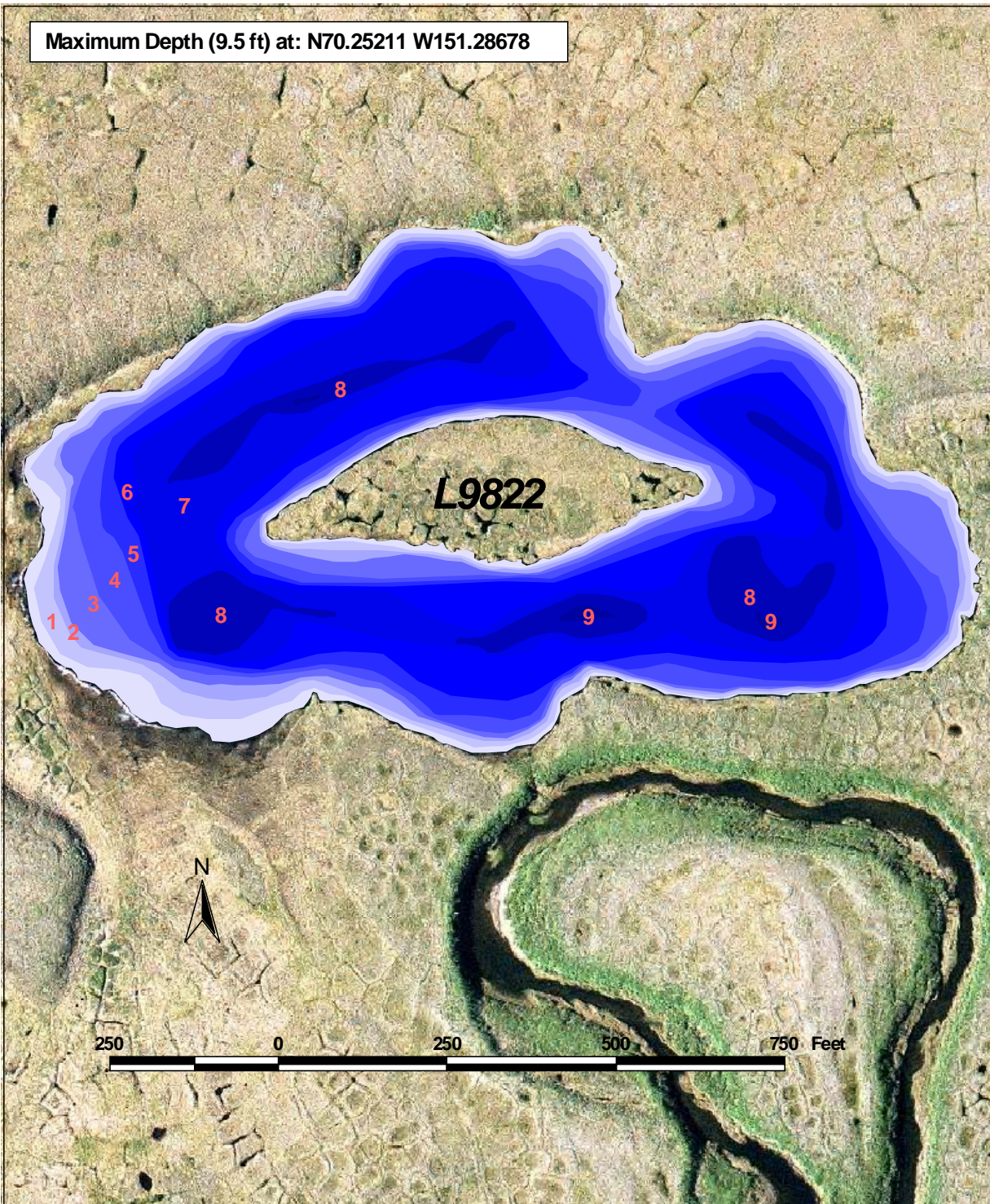
Regions of lake L9816 less than 4 feet deep (light blue) and likely to be available for ice chips, based on transects surveyed on August 12, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth transects surveyed at lake L9816 on August 12, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth contours of lake L9822 based on transects surveyed on August 13, 2007
(depths in 1 foot intervals)

(not to be used for navigation or to direct operation of heavy equipment)

Lake L9822

Other Names: None Known
Location: 70.25210°N 151.28822°W
USGS Quad Sheet: Harrison Bay B-2: T10N R3E Sec. 1/2
Habitat: Oxbow lake (off Ublutuocho R.)
Area: 15 acres
Maximum Depth: 11.0 feet
Active Outlet: No
Total Lake Volume: 26.02 million gallons (2007 data)
Water Volume Under 4 ft of ice: 9.06 million gallons
Water Volume Under 5 ft of ice: 5.82 million gallons
Water Volume Under 7 ft of ice: 1.15 million gallons

4.27 acres (water depth 4 ft or less)
Potential Ice Aggregate: 0.33 million gallons

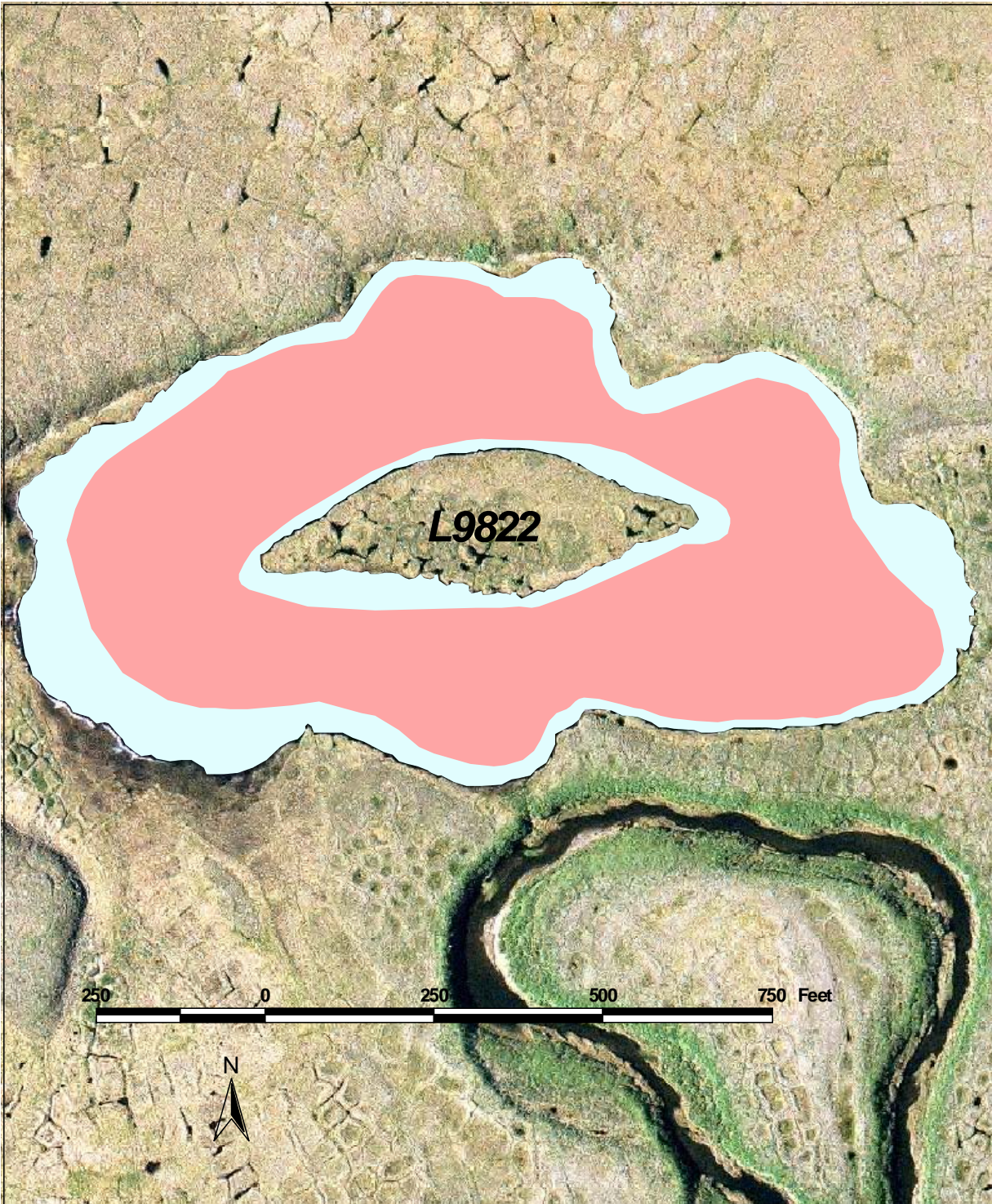
Maximum Recommended Winter Removal: 1.746 million gallons
 (30% of water volume under 5 ft of ice)
 (does not include volume associated with ice aggregate)

Water Chemistry:

Year of Test	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Chloride (mg/l)	Total Hardness [CaCO ₃] (mg/l)	Specific Conductance (microS/cm)	Turbidity (NTU)	pH	Source
1998	8.6	2.2	2.6	12.1	31	--	44	--	J. Lobdell
1999	--	--	--	--	--	108	--	7.89	L. Moulton
2007	9.9	2.5	3.7	14.9	35	95	0.9	7.45	L. Moulton

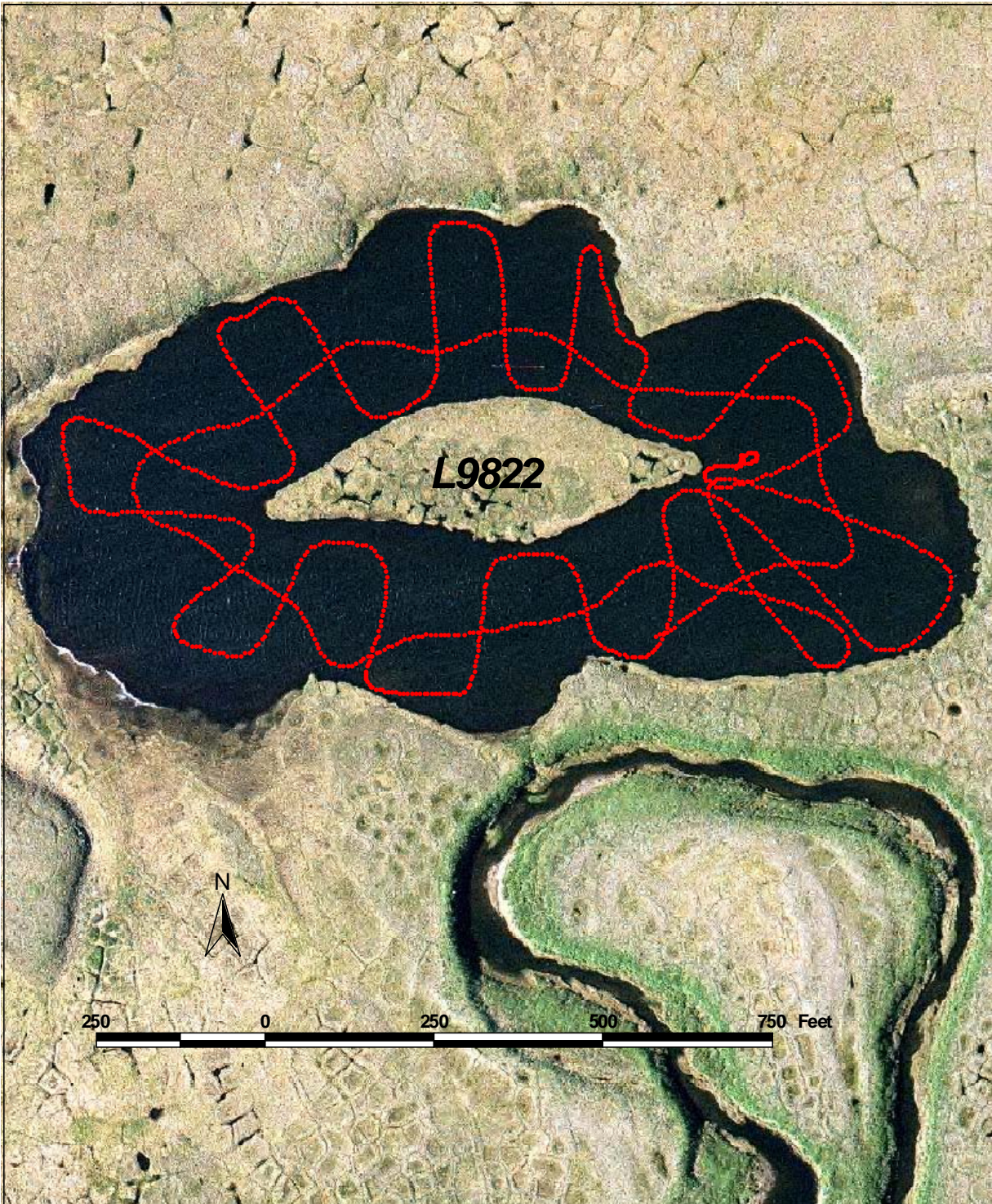
Catch Record:

Gear	Date	Effort (hours)	Species	Number Caught
Gill Net	Jul 16 99	6.5	None	0
	#####	7.8	None	0
Minnow Trap	#####	4.3	Ninespine stickleback	3



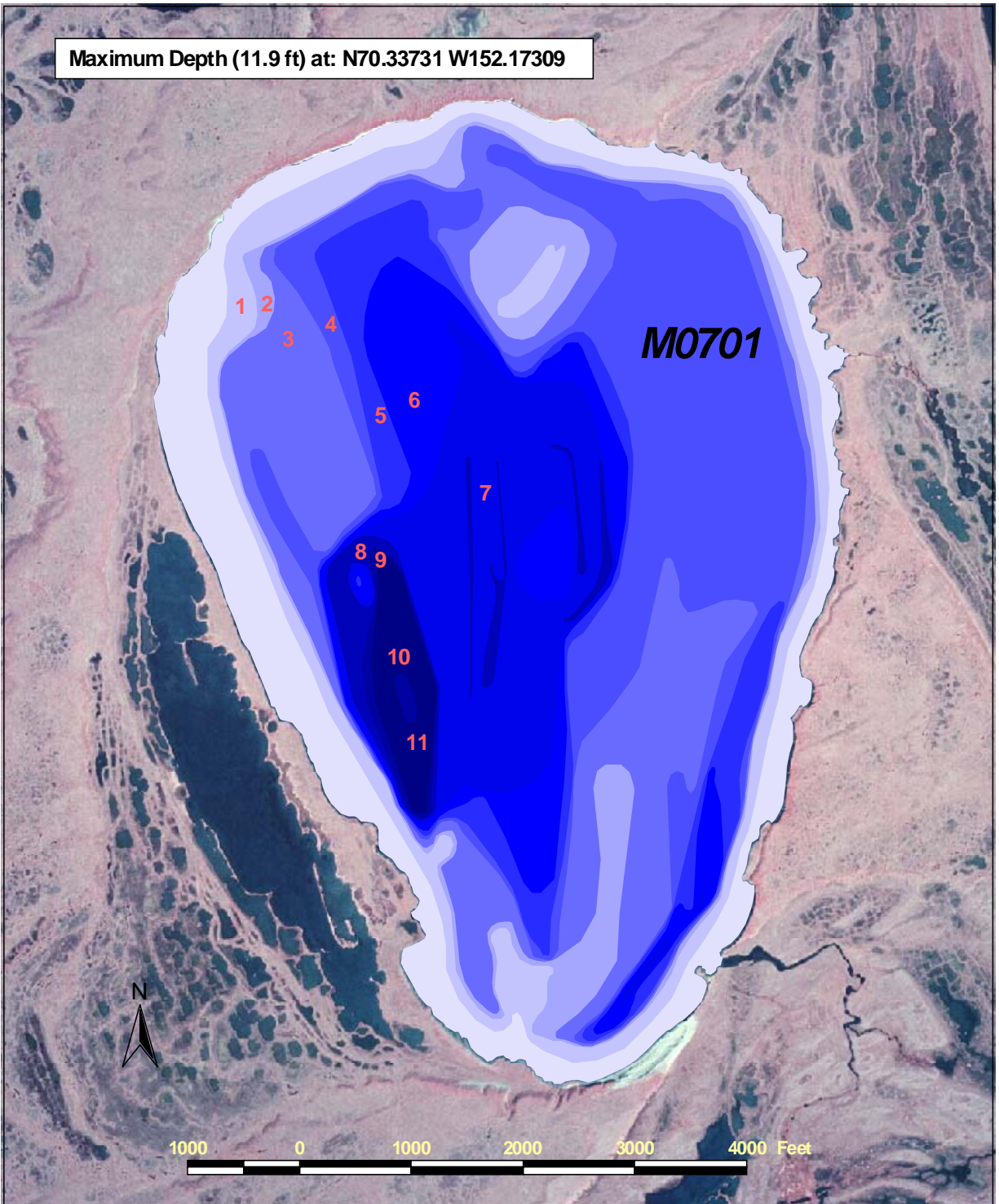
Regions of lake L9822 less than 4 feet deep (light blue) and likely to be available for ice chips, based on transects surveyed on August 13, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth transects surveyed at lake L9822 on August 13, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth contours of lake M0701 based on transects surveyed on August 8, 2007
(depths in 1 foot intervals)

(not to be used for navigation or to direct operation of heavy equipment)

Lake M0701

Other Names: None Known
Location: 70.34077°N 152.16568°W
USGS Quad Sheet: Harrison Bay B-4: T11N/12N R1W Sec. 4/5/9/32/33
Habitat: Drainage Lake
Area: 839 acres
Maximum Depth: 11.9 feet
Active Outlet: Yes
Total Lake Volume: 1152.90 million gallons (2007 data)
Water Volume Under 4 ft of ice: 301.31 million gallons
Water Volume Under 5 ft of ice: 185.40 million gallons
Water Volume Under 7 ft of ice: 49.29 million gallons

Potential Ice Aggregate: 389.85 acres (water depth 4 ft or less)
30.50 million gallons

Maximum Recommended Winter Removal: **7.393 million gallons**
(15% of water volume under 7 ft of ice)
(does not include volume associated with ice aggregate)

Water Chemistry:

Year of Test	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Chloride (mg/l)	Total Hardness [CaCO ₃] (mg/l)	Specific Conductance (microS/cm)	Turbidity (NTU)	pH	Source
2007	29.2	3.6	7.2	19.5	88	202	1.4	7.90	L. Moulton

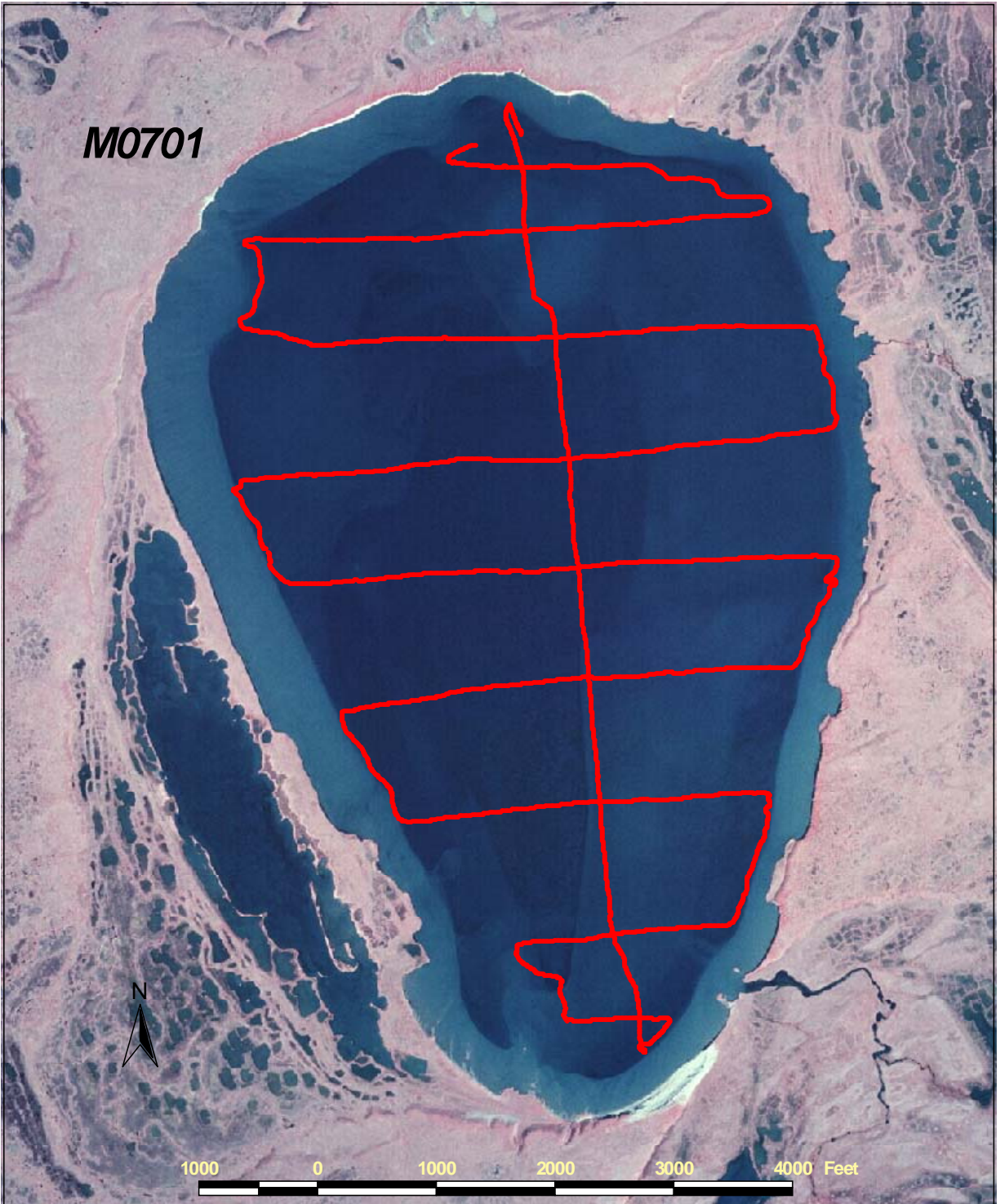
Catch Record:

Gear	Date	Effort (hours)	Species	Number Caught	Fork Length (mm)
Gill Net	Aug 8 07	6.3	Least cisco	13	200-240
Observation	Aug 8 07	--	Ninespine stickleback	--	



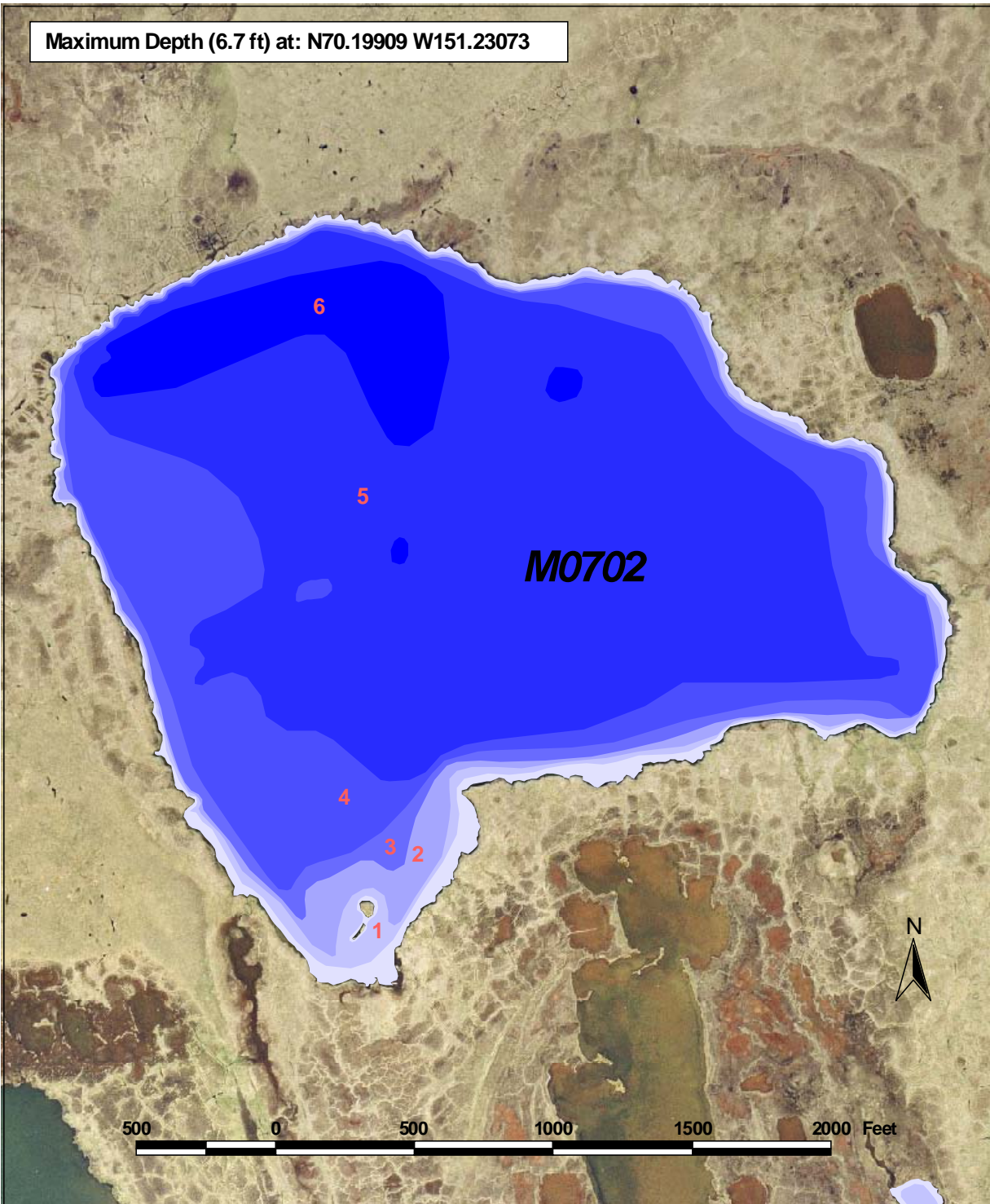
Regions of lake M0701 less than 4 feet deep (light blue) and likely to be available for ice chips, based on transects surveyed on August 8, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth transects surveyed at lake M0701 on August 8, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth contours of lake M0702 based on transects surveyed on August 12, 2007
(depths in 1 foot intervals)

(not to be used for navigation or to direct operation of heavy equipment)

Lake M0702

Other Names: None Known
Location: 70.19699°N 151.22931°W
USGS Quad Sheet: Harrison Bay A-3: T10N R4E Sec. 19/30
Habitat: Tundra Lake
Area: 119 acres
Maximum Depth: 6.7 feet
Active Outlet: No
Total Lake Volume: 185.94 million gallons (2007 data)
Water Volume Under 4 ft of ice: 41.72 million gallons
Water Volume Under 5 ft of ice: 13.09 million gallons
Water Volume Under 7 ft of ice: 0.00 million gallons

Potential Ice Aggregate: 17.75 acres (water depth 4 ft or less)
1.39 million gallons

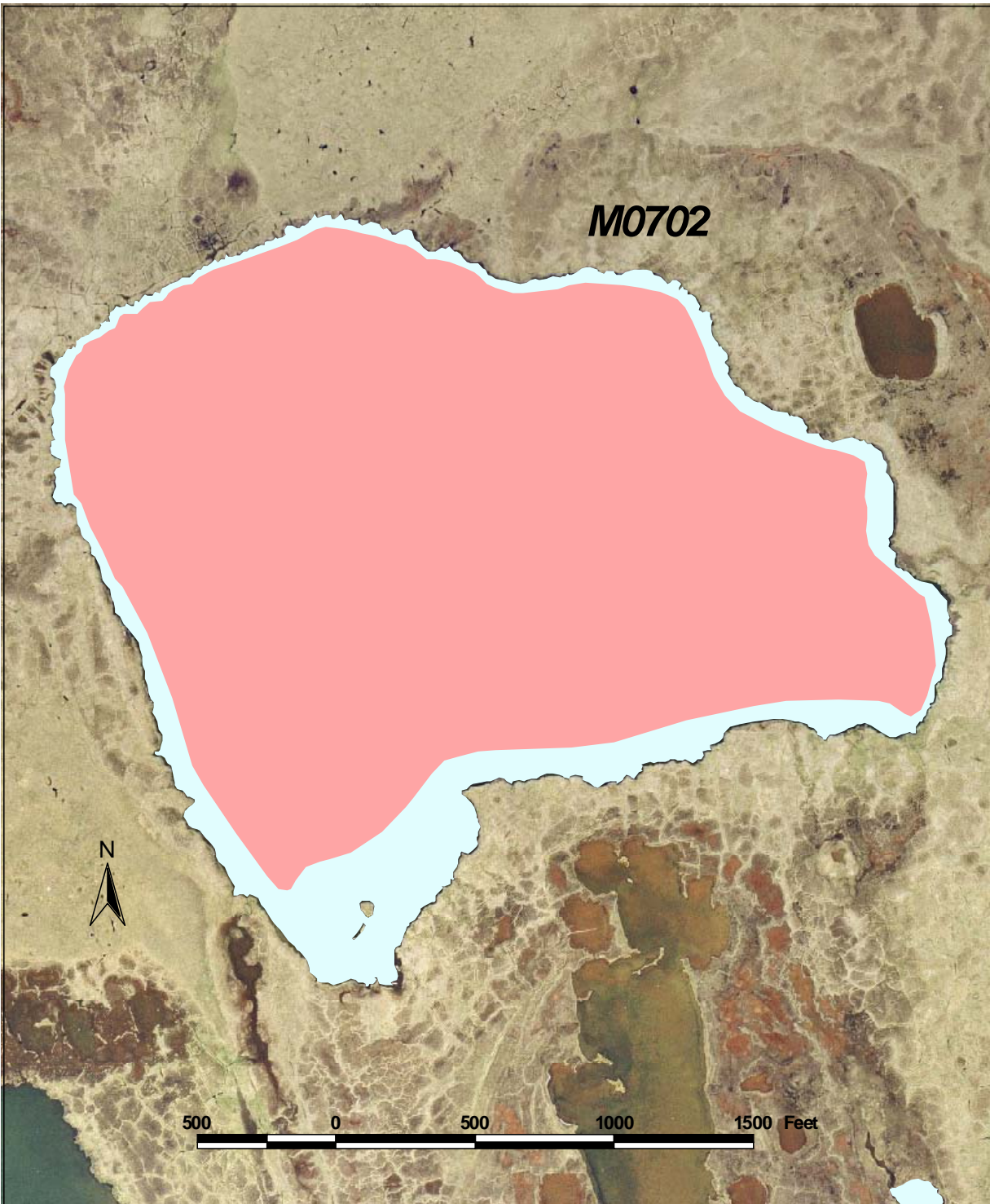
Maximum Recommended Winter Removal: **3.927 million gallons**
(30% of water volume under 5 ft of ice)
(does not include volume associated with ice aggregate)

Water Chemistry:

Year of Test	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Chloride (mg/l)	Total Hardness [CaCO ₃] (mg/l)	Specific Conductance (microS/cm)	Turbidity (NTU)	pH	Source
2007	10.4	2.0	2.7	8.6	34	83	2.4	7.61	L. Moulton

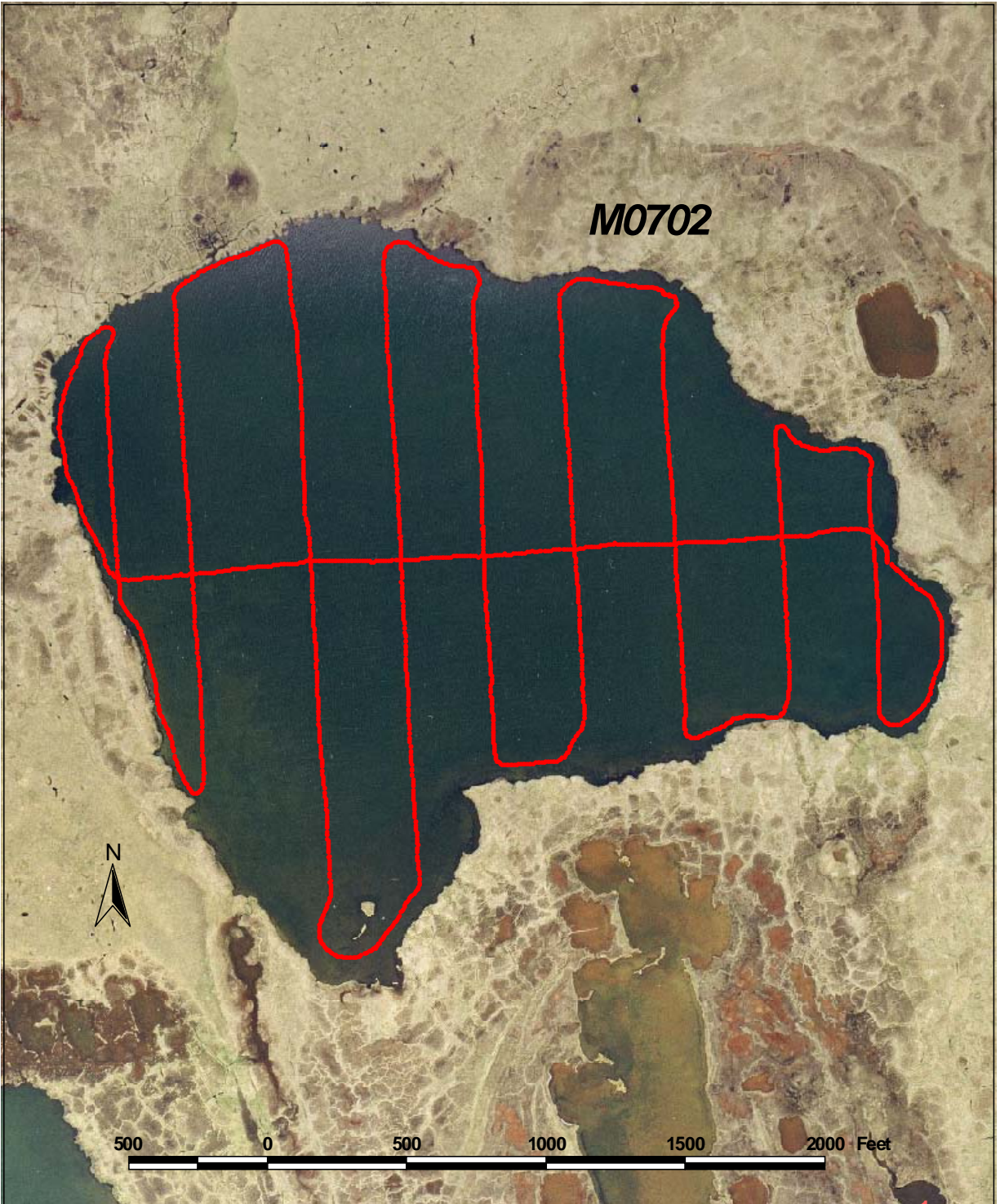
Catch Record:

Gear	Date	Effort (hours)	Species	Number Caught
Gill Net	Aug 12 07	11.1	None	0
Minnow Trap	Aug 12 07	5.3	Ninespine stickleback	7



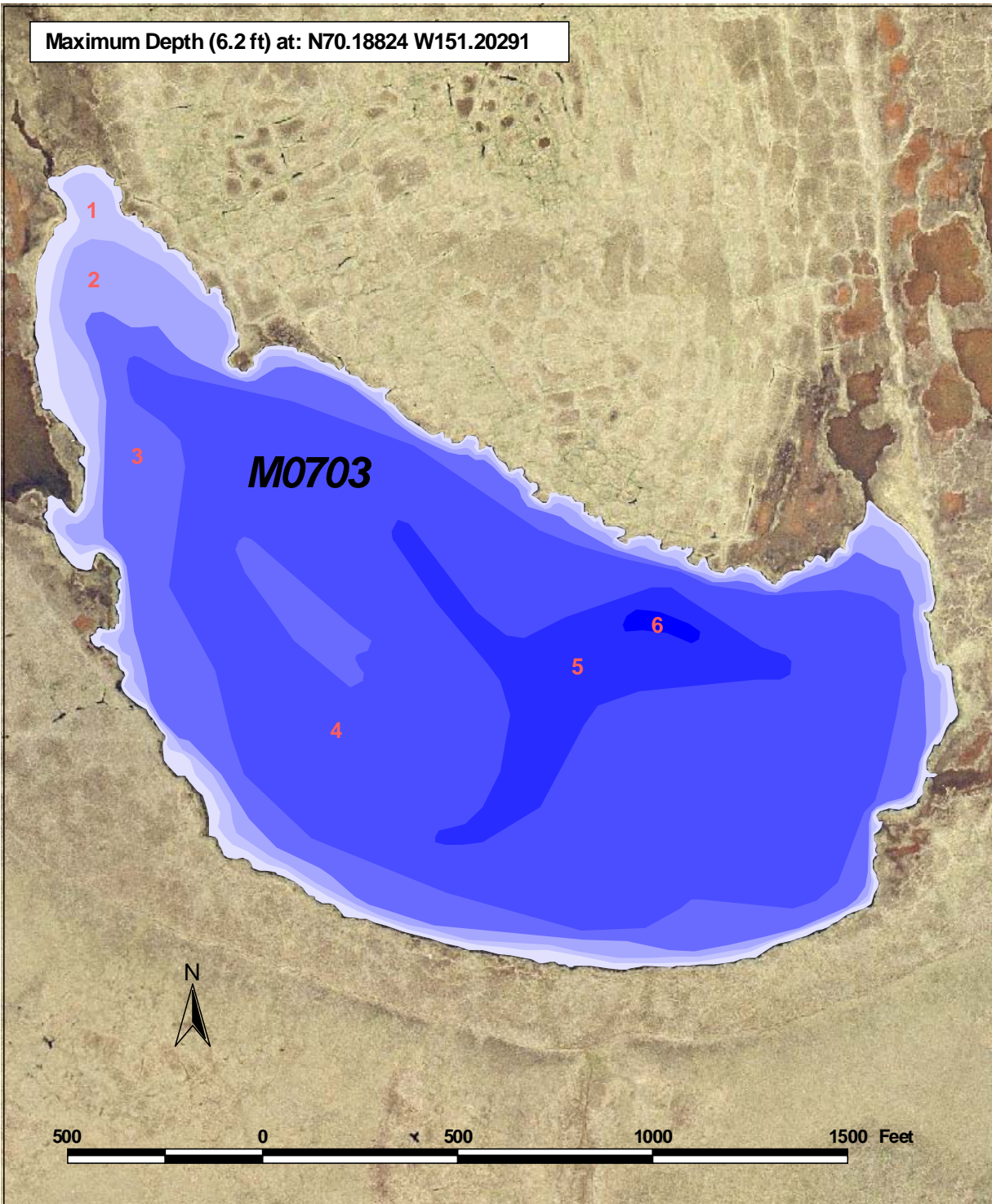
Regions of lake M0702 less than 4 feet deep (light blue) and likely to be available for ice chips, based on transects surveyed on August 12, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth transects surveyed at lake M0702 on August 12, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth contours of lake M0703 based on transects surveyed on August 12, 2007
(depths in 1 foot intervals)

(not to be used for navigation or to direct operation of heavy equipment)

Lake M0703

Other Names: None Known
Location: 70.18769°N 151.20702°W
USGS Quad Sheet: Harrison Bay A-3: T10N R4E Sec. 29/30
Habitat: Tundra Lake
Area: 57 acres
Maximum Depth: 6.2 feet
Active Outlet: No
Total Lake Volume: 72.03 million gallons (2007 data)
Water Volume Under 4 ft of ice: 6.71 million gallons
Water Volume Under 5 ft of ice: 0.70 million gallons
Water Volume Under 7 ft of ice: 0.00 million gallons

Potential Ice Aggregate: 20.83 acres (water depth 4 ft or less)
1.63 million gallons

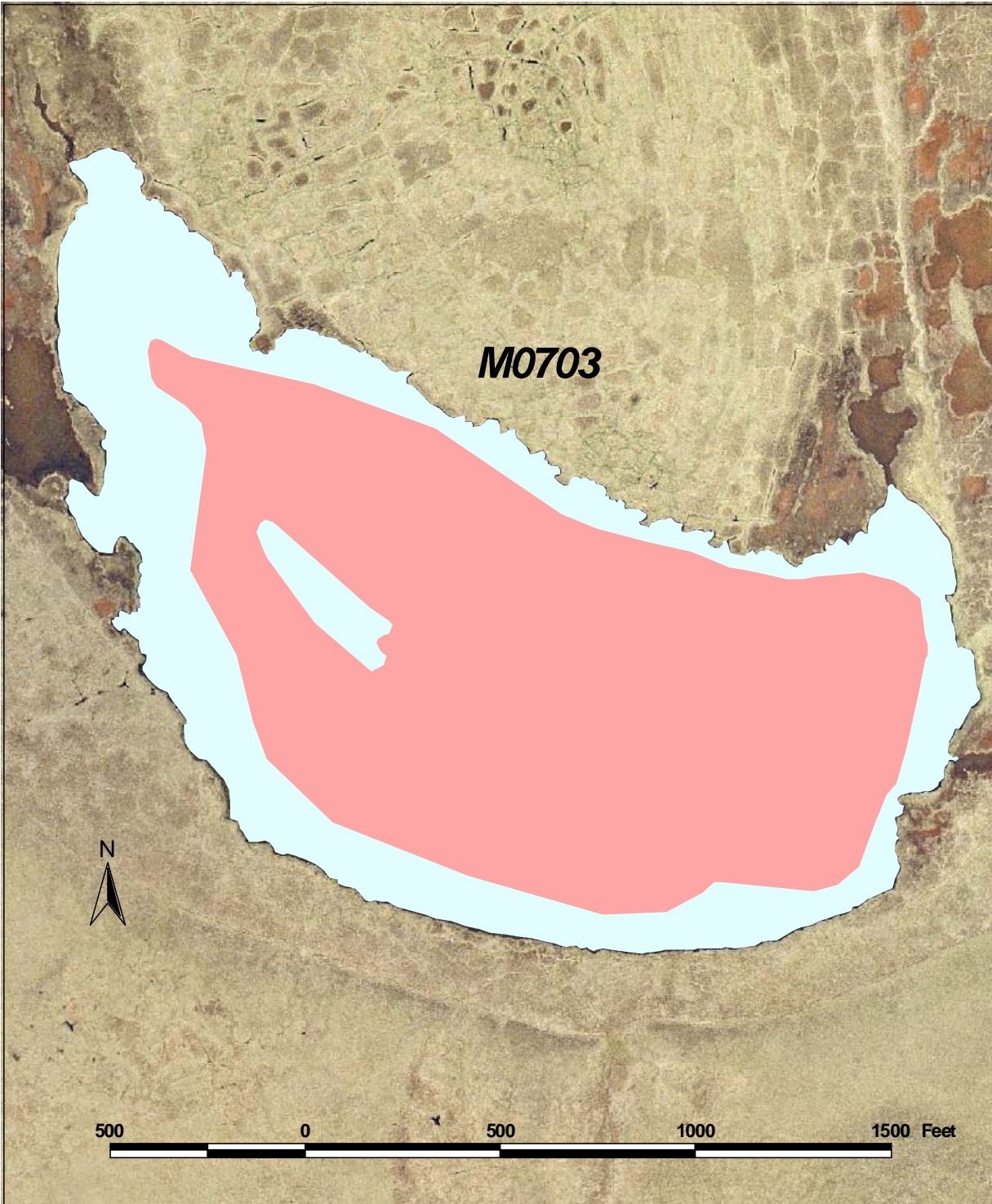
Maximum Recommended Winter Removal: **0.211 million gallons**
(30% of water volume under 5 ft of ice)
(does not include volume associated with ice aggregate)

Water Chemistry:

Year of Test	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Chloride (mg/l)	Total Hardness [CaCO ₃] (mg/l)	Specific Conductance (microS/cm)	Turbidity (NTU)	pH	Source
2007	10.1	2.1	3.1	8.3	34	84	5.1	7.61	L. Moulton

Catch Record:

Gear	Date	Effort (hours)	Species	Number Caught
Gill Net	Aug 12 07	11.1	None	0
(lakes M0702 and M0703 connected, M0702 fished with gill nets)				
Minnow Trap	Aug 12 07	4.1	Ninespine stickleback	5



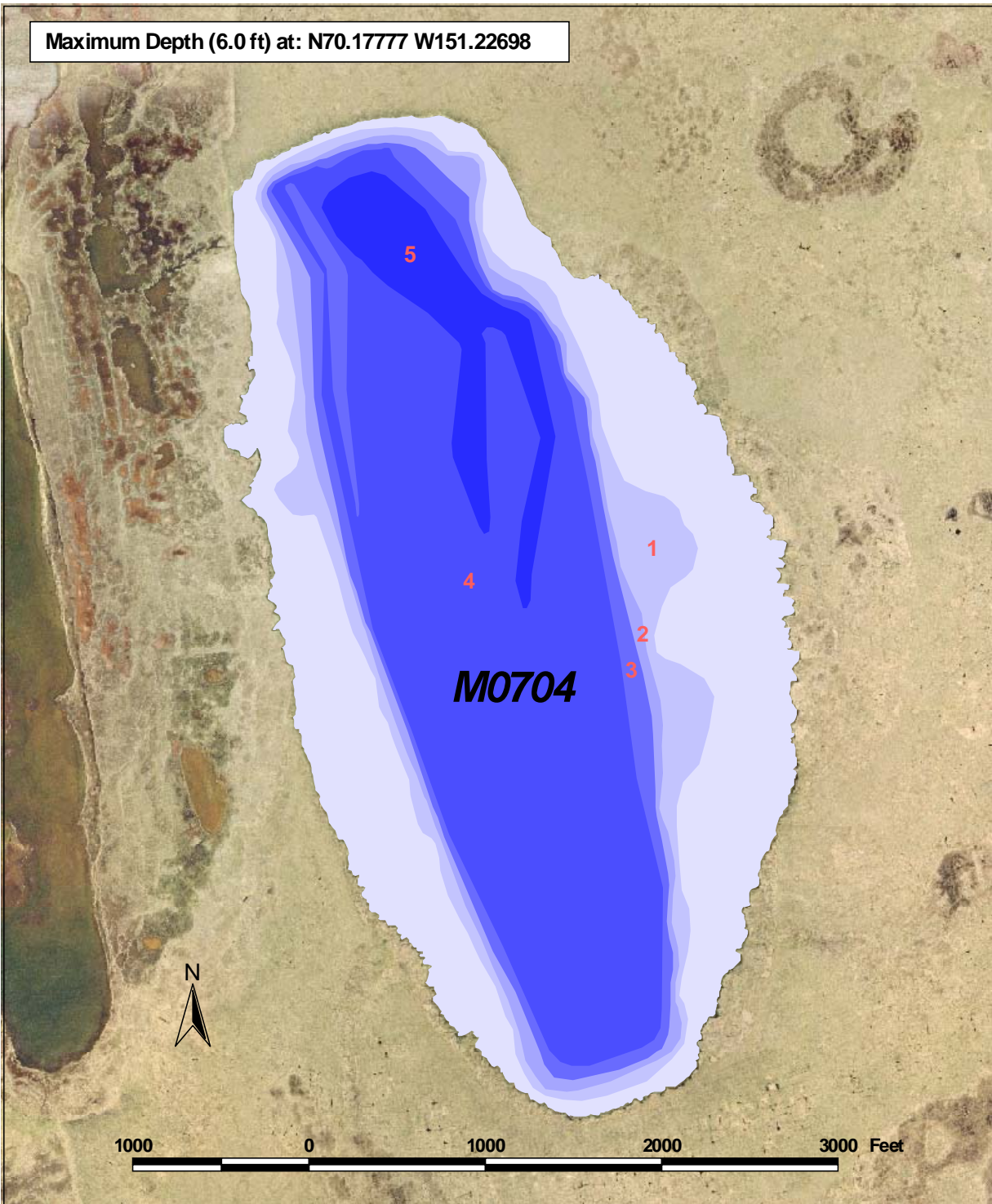
Regions of lake M0703 less than 4 feet deep (light blue) and likely to be available for ice chips, based on transects surveyed on August 12, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth transects surveyed at lake M0703 on August 12, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth contours of lake M0704 based on transects surveyed on August 11, 2007
(depths in 1 foot intervals)

(not to be used for navigation or to direct operation of heavy equipment)

Lake M0704

Other Names: None Known
Location: 70.17143°N 151.21788°W
USGS Quad Sheet: Harrison Bay A-3: T9N/10N R4E Sec. 6/31
Habitat: Tundra Lake
Area: 276 acres
Maximum Depth: 6.0 feet
Active Outlet: No
Total Lake Volume: 245.04 million gallons (2007 data)
Water Volume Under 4 ft of ice: 22.48 million gallons
Water Volume Under 5 ft of ice: 1.88 million gallons
Water Volume Under 7 ft of ice: 0.00 million gallons

Potential Ice Aggregate: 150.48 acres (water depth 4 ft or less)
11.77 million gallons

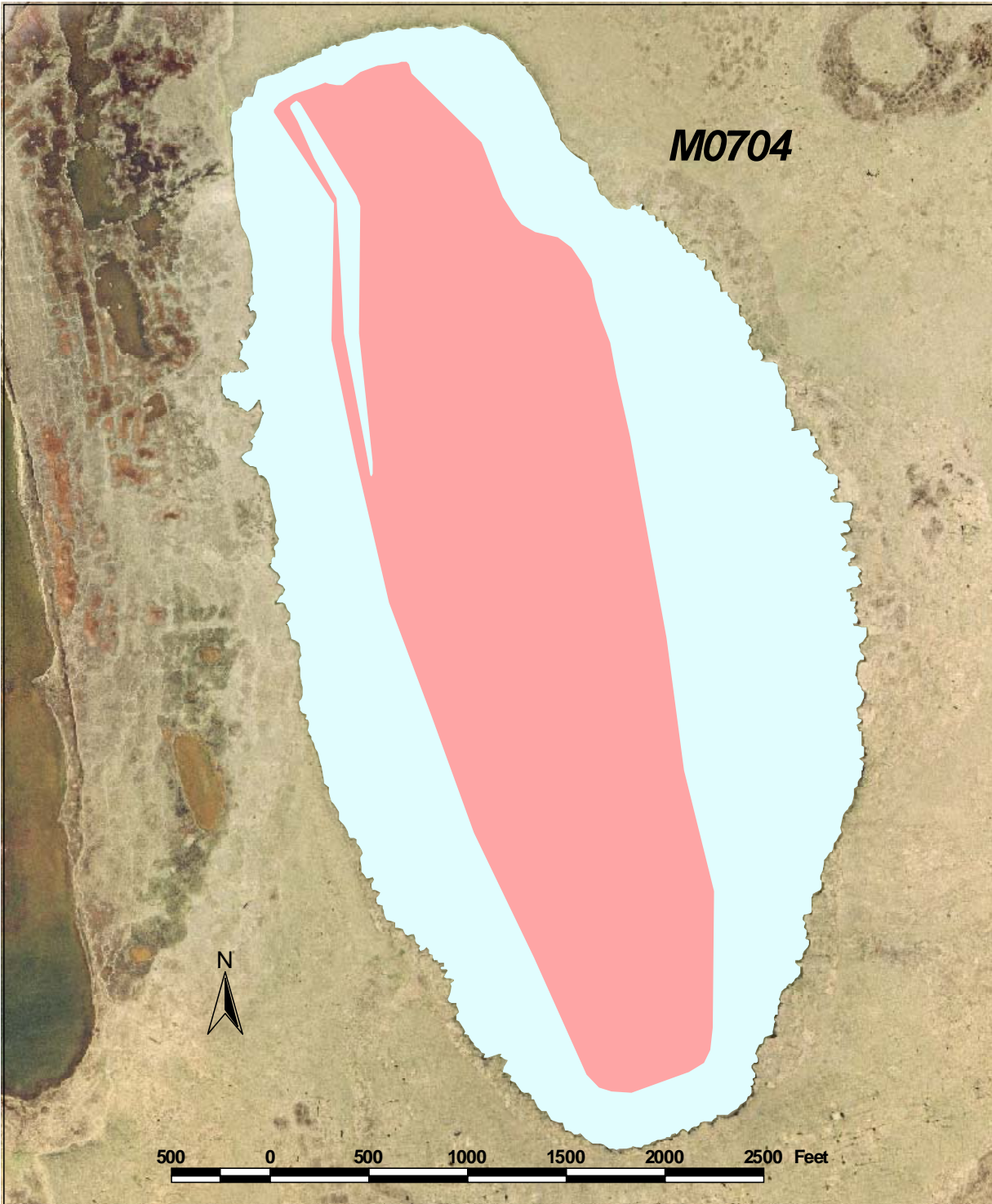
Maximum Recommended Winter Removal: **0.564 million gallons**
(30% of water volume under 5 ft of ice)
(does not include volume associated with ice aggregate)

Water Chemistry:

Year of Test	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Chloride (mg/l)	Total Hardness [CaCO ₃] (mg/l)	Specific Conductance (microS/cm)	Turbidity (NTU)	pH	Source
2007	24.3	4.2	5.4	17.1	78	179	1.6	8.09	L. Moulton

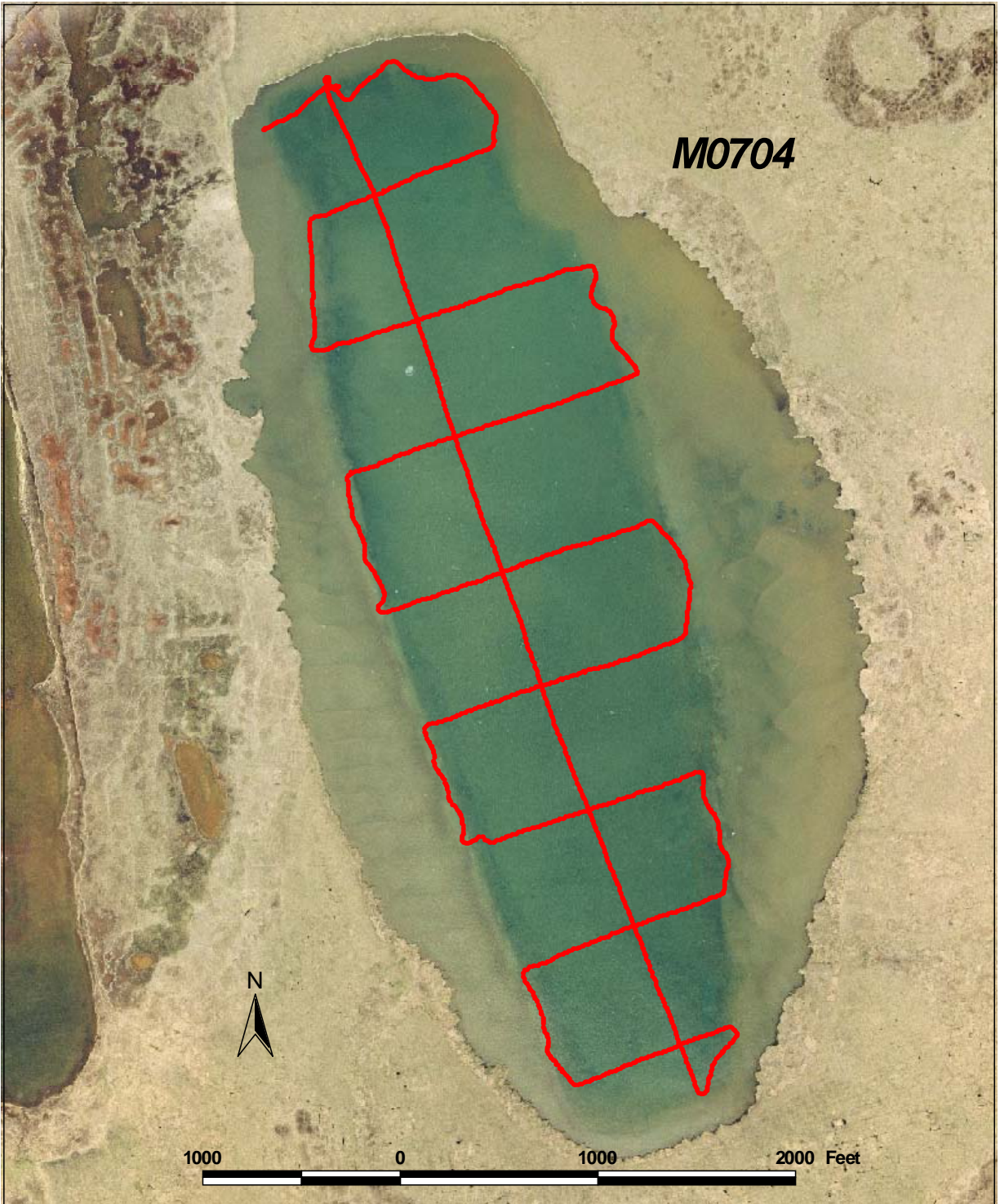
Catch Record:

Gear	Date	Effort (hours)	Species	Number Caught
Gill Net	Aug 11 07	4.0	None	0
Seine	Aug 11 07	--	Ninespine stickleback	14



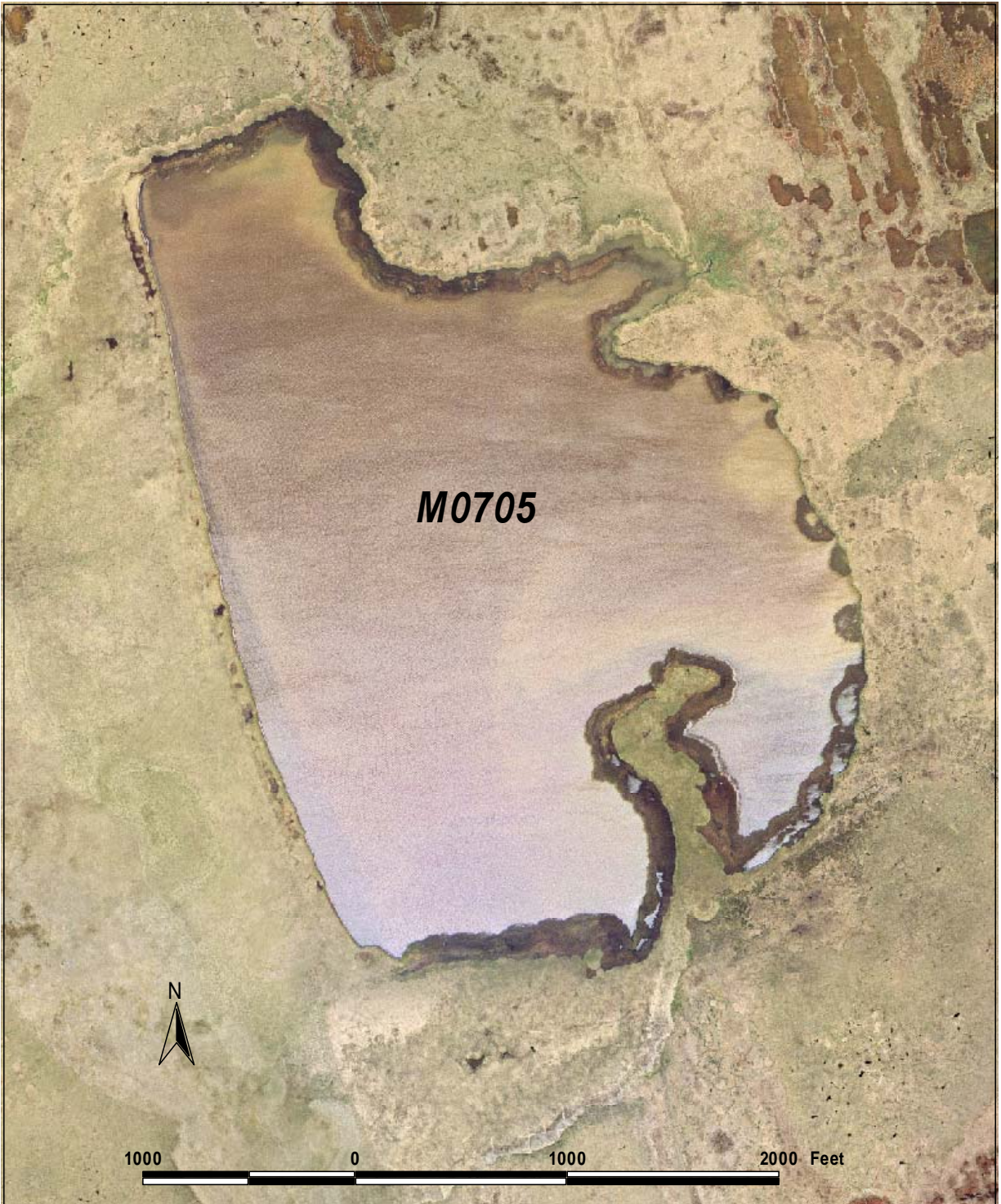
Regions of lake M0704 less than 4 feet deep (light blue) and likely to be available for ice chips, based on transects surveyed on August 11, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth transects surveyed at lake M0704 on August 11, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Lake M0705 was estimated to be too shallow to transect (less than 4 feet deep)
when sampled on August 12, 2007.

(not to be used for navigation or to direct operation of heavy equipment)

Lake M0705

Other Names: None Known
Location: 70.16008°N 151.16967°W
USGS Quad Sheet: Harrison Bay A-2: T9N R4E Sec. 4/5/18
Habitat: Tundra Lake
Area: 167 acres
Maximum Depth: <4 feet
Active Outlet: No
Total Lake Volume: -- million gallons (2007 data)
Water Volume Under 4 ft of ice: 0.00 million gallons
Water Volume Under 5 ft of ice: 0.00 million gallons
Water Volume Under 7 ft of ice: 0.00 million gallons

Potential Ice Aggregate: 166.64 acres (water depth 4 ft or less)
13.04 million gallons

Maximum Recommended Winter Removal: too shallow to transect, use for ice chips only

Water Chemistry:

Year of Test	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Chloride (mg/l)	Total Hardness [CaCO ₃] (mg/l)	Specific Conductance (microS/cm)	Turbidity (NTU)	pH	Source
2007	38.7	8.8	7.9	17.5	133	288	27.2	7.74	L. Moulton

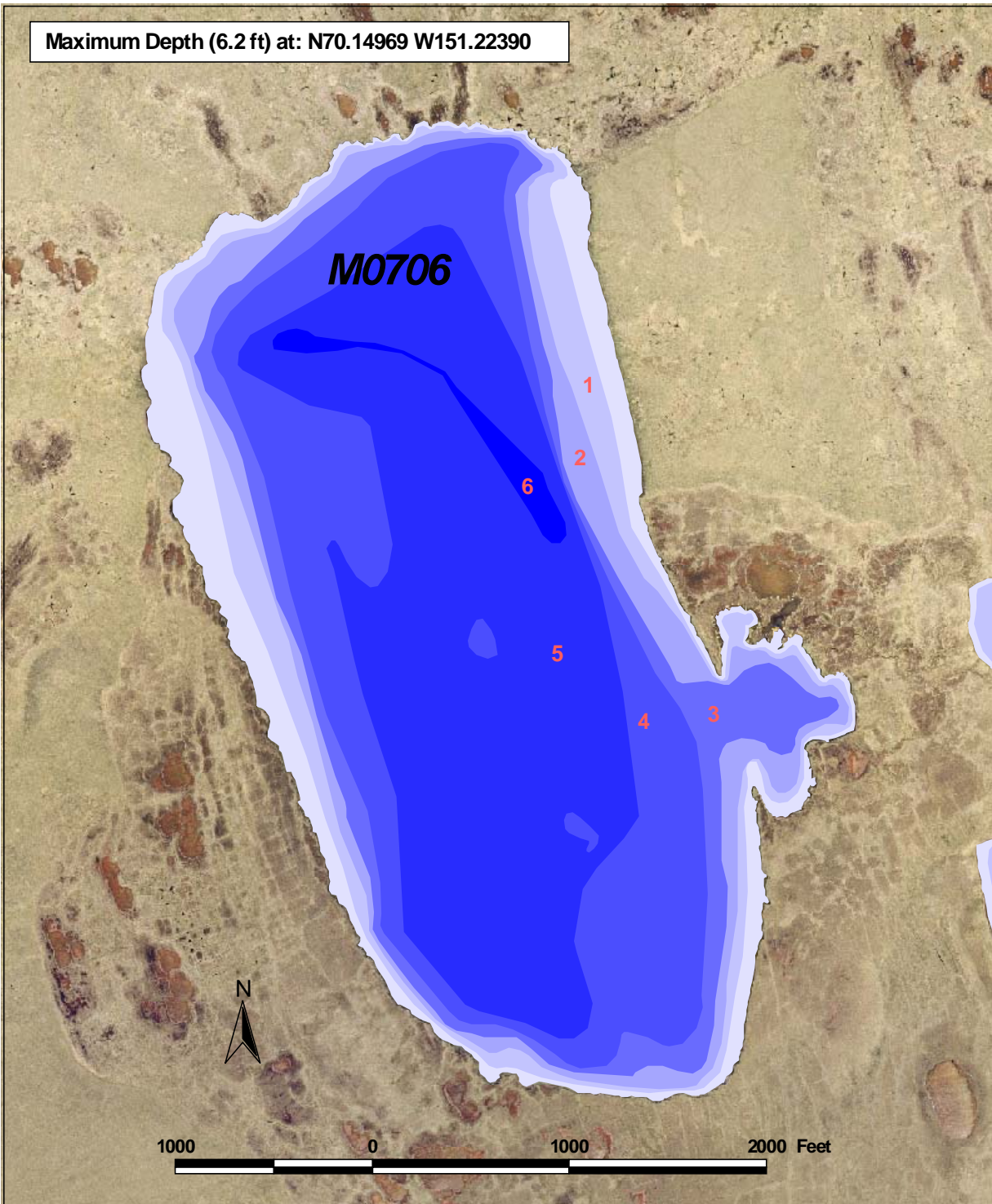
Gear	Date	Effort (hours)	Species	Number Caught
not fished, too shallow				



Lake M07085 was less than 4 feet deep and likely to be available
for ice chips, based on survey of August 12, 2007.

(not to be used for navigation or to direct operation of heavy equipment)

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Depth contours of lake M0706 based on transects surveyed on August 11, 2007
(depths in 1 foot intervals)

(not to be used for navigation or to direct operation of heavy equipment)

Lake M0706

Other Names: None Known
Location: 70.14639°N 151.21721°W
USGS Quad Sheet: Harrison Bay A-3: T9N R4E Sec. 7/18
Habitat: Tundra Lake
Area: 236 acres
Maximum Depth: 6.2 feet
Active Outlet: No
Total Lake Volume: 303.04 million gallons (2007 data)
Water Volume Under 4 ft of ice: 51.62 million gallons
Water Volume Under 5 ft of ice: 12.64 million gallons
Water Volume Under 7 ft of ice: 0.00 million gallons

Potential Ice Aggregate: 87.05 acres (water depth 4 ft or less)
6.81 million gallons

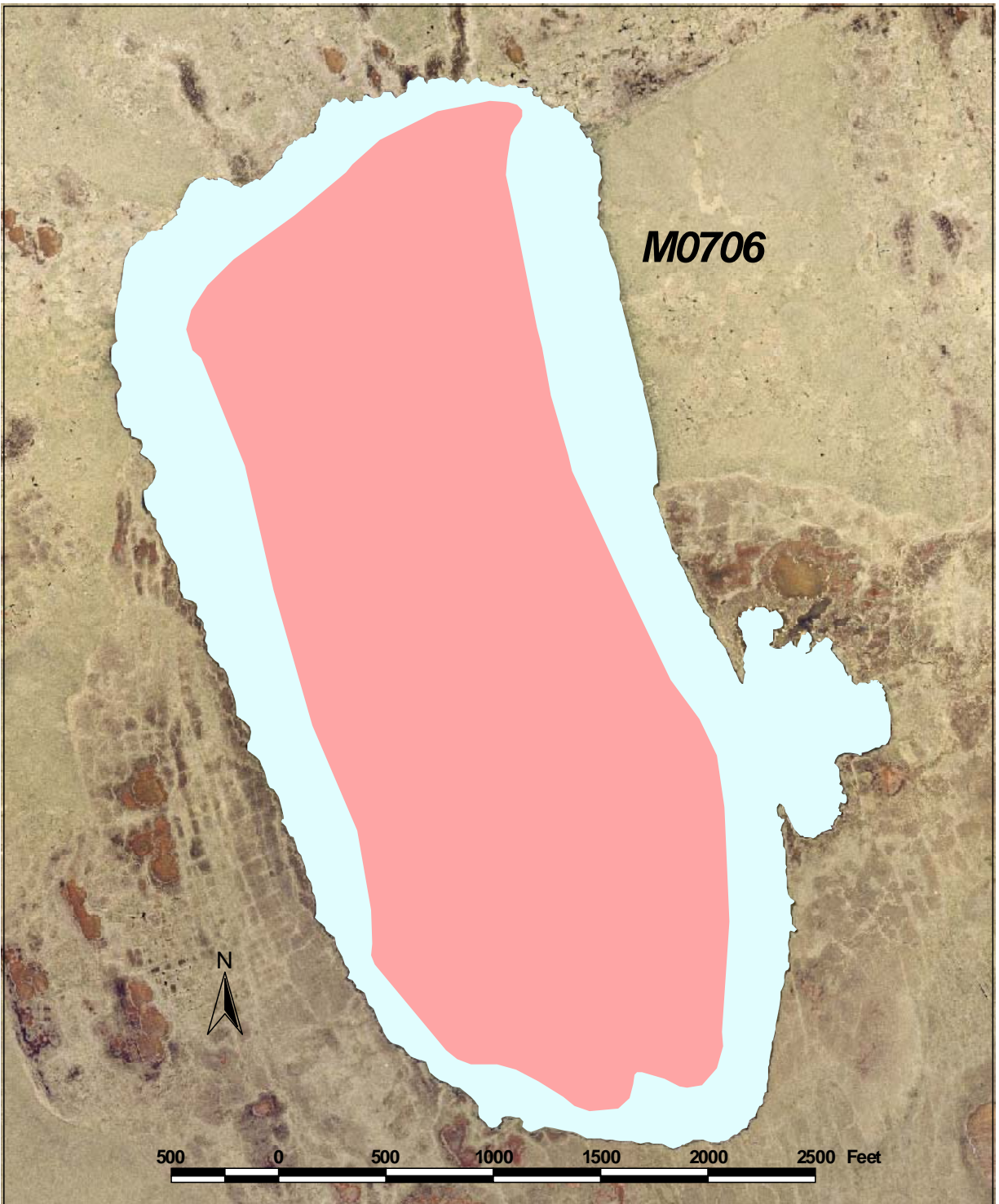
Maximum Recommended Winter Removal: **3.792 million gallons**
(30% of water volume under 5 ft of ice)
(does not include volume associated with ice aggregate)

Water Chemistry:

Year of Test	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Chloride (mg/l)	Total Hardness [CaCO ₃] (mg/l)	Specific Conductance (microS/cm)	Turbidity (NTU)	pH	Source
2007	30.0	5.5	6.0	20.3	98	216	1.1	8.11	L. Moulton

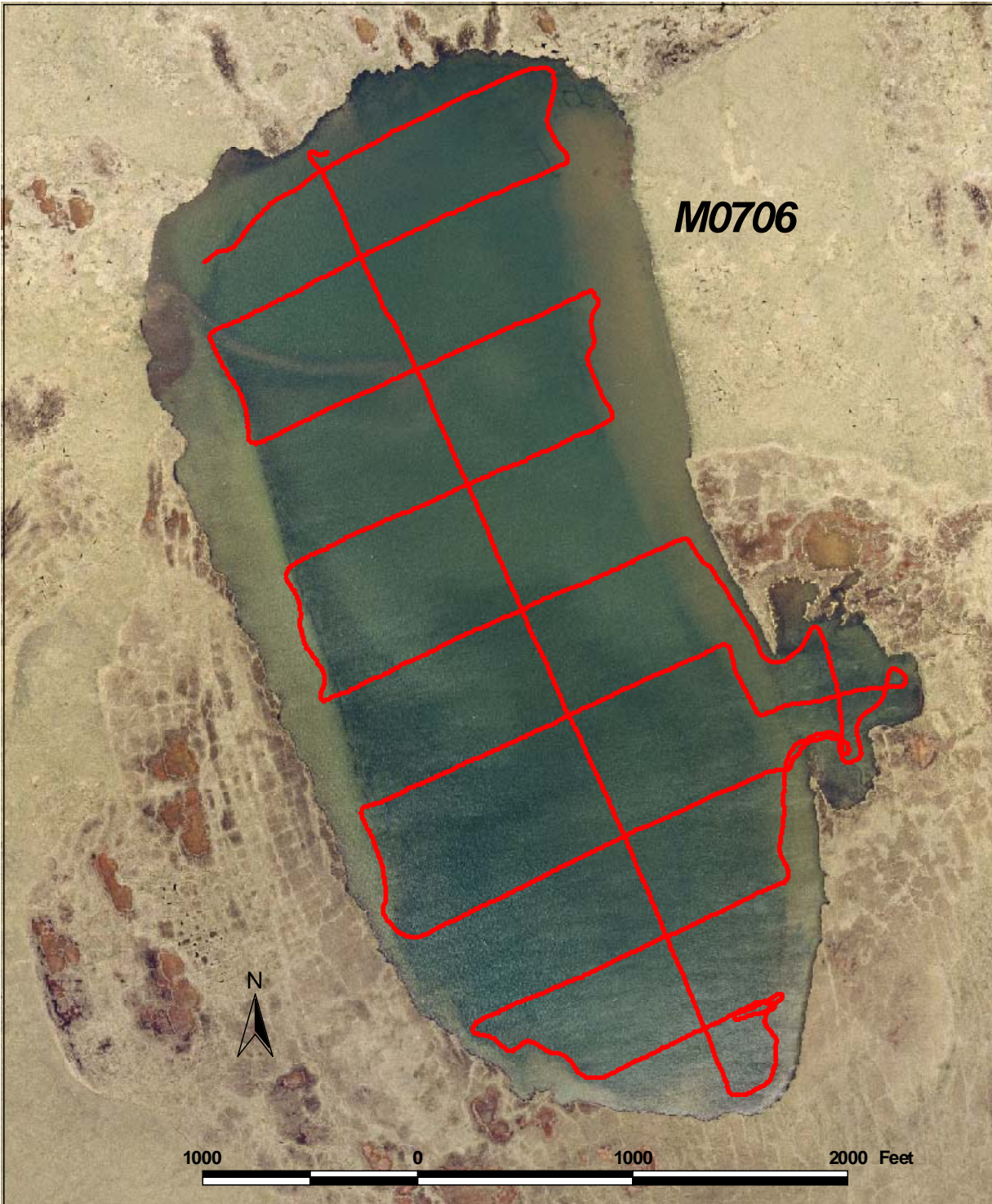
Catch Record:

Gear	Date	Effort (hours)	Species	Number Caught
Gill Net	Aug 11 07	7.7	None	0
Seine	Aug 11 07	--	Ninespine stickleback	1



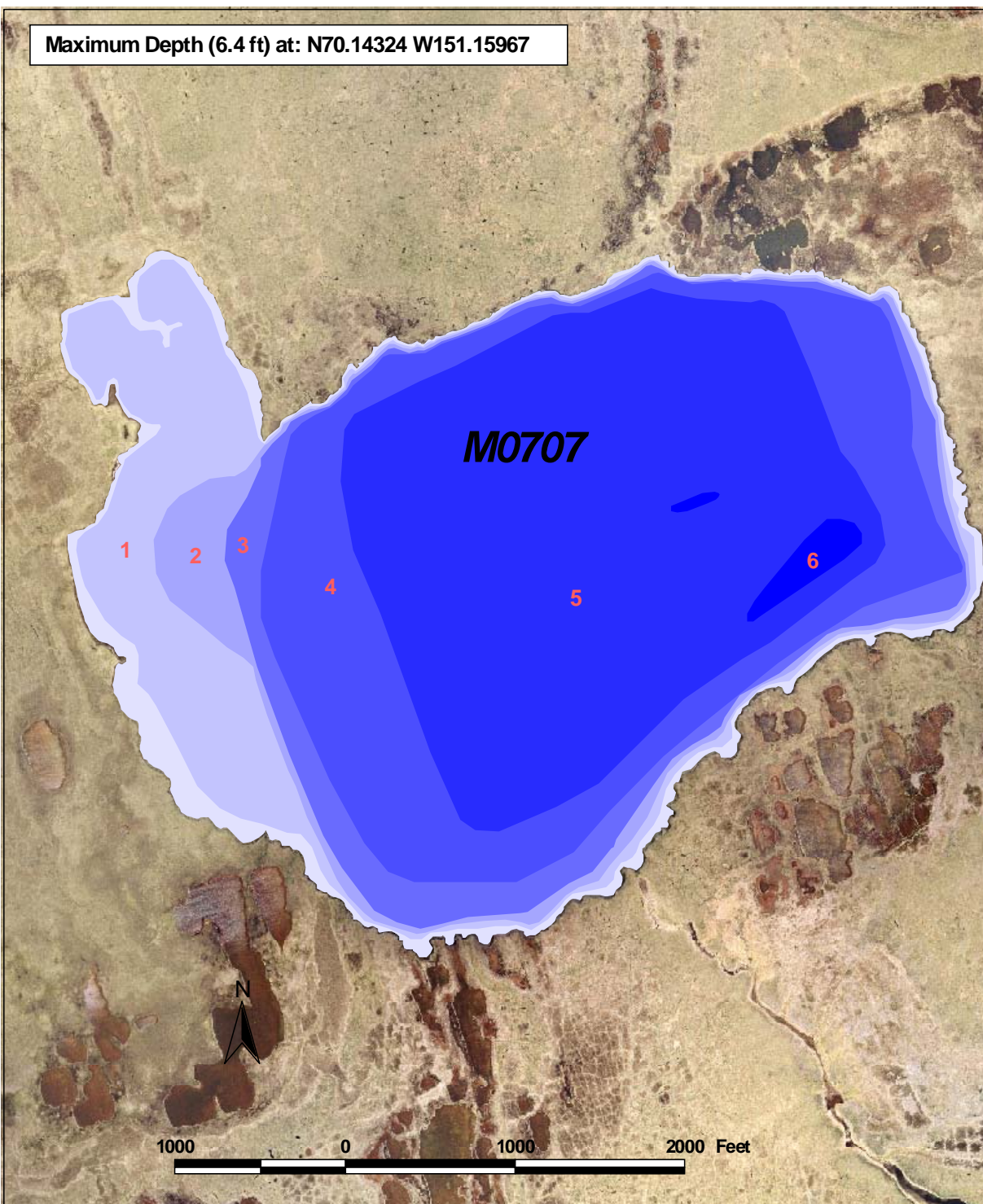
Regions of lake M0706 less than 4 feet deep (light blue) and likely to be available for ice chips, based on transects surveyed on August 11, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth transects surveyed at lake M0706 on August 11, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth contours of lake M0707 based on transects surveyed on August 11, 2007
(depths in 1 foot intervals)

(not to be used for navigation or to direct operation of heavy equipment)

Lake M0707

Other Names: None Known
Location: 70.14259°N 151.17317°W
USGS Quad Sheet: Harrison Bay A-2: T9N R4E Sec. 8/9/17
Habitat: Tundra Lake
Area: 328 acres
Maximum Depth: 6.4 feet
Active Outlet: No
Total Lake Volume: 432.78 million gallons (2007 data)
Water Volume Under 4 ft of ice: 78.07 million gallons
Water Volume Under 5 ft of ice: 19.08 million gallons
Water Volume Under 7 ft of ice: 0.00 million gallons

Potential Ice Aggregate: 109.78 acres (water depth 4 ft or less)
8.59 million gallons

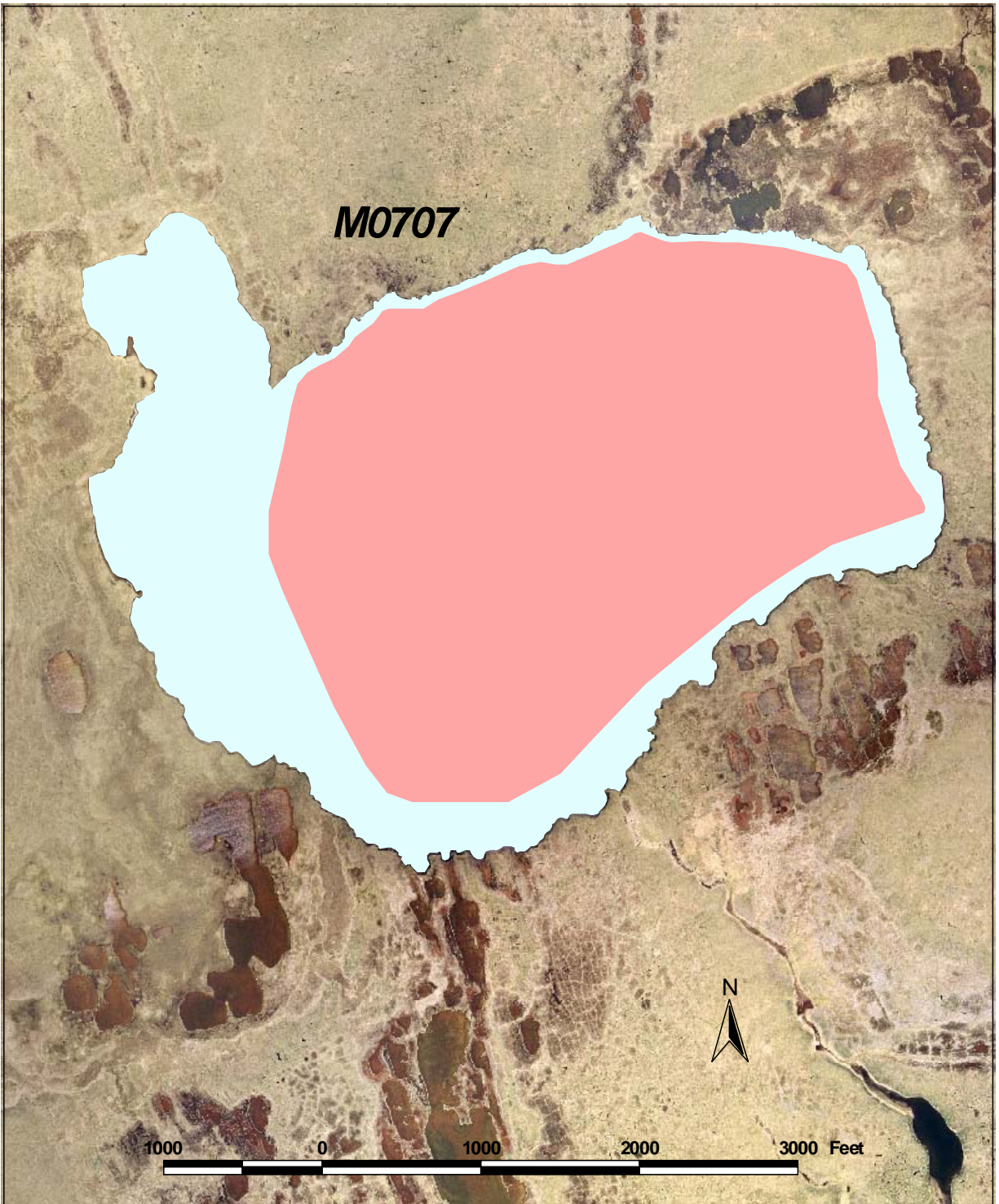
Maximum Recommended Winter Removal: **5.725 million gallons**
(30% of water volume under 5 ft of ice)
(does not include volume associated with ice aggregate)

Water Chemistry:

Year of Test	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Chloride (mg/l)	Total Hardness [CaCO ₃] (mg/l)	Specific Conductance (microS/cm)	Turbidity (NTU)	pH	Source
2007	9.5	1.8	2.2	7.0	31	74	1.0	7.64	L. Moulton

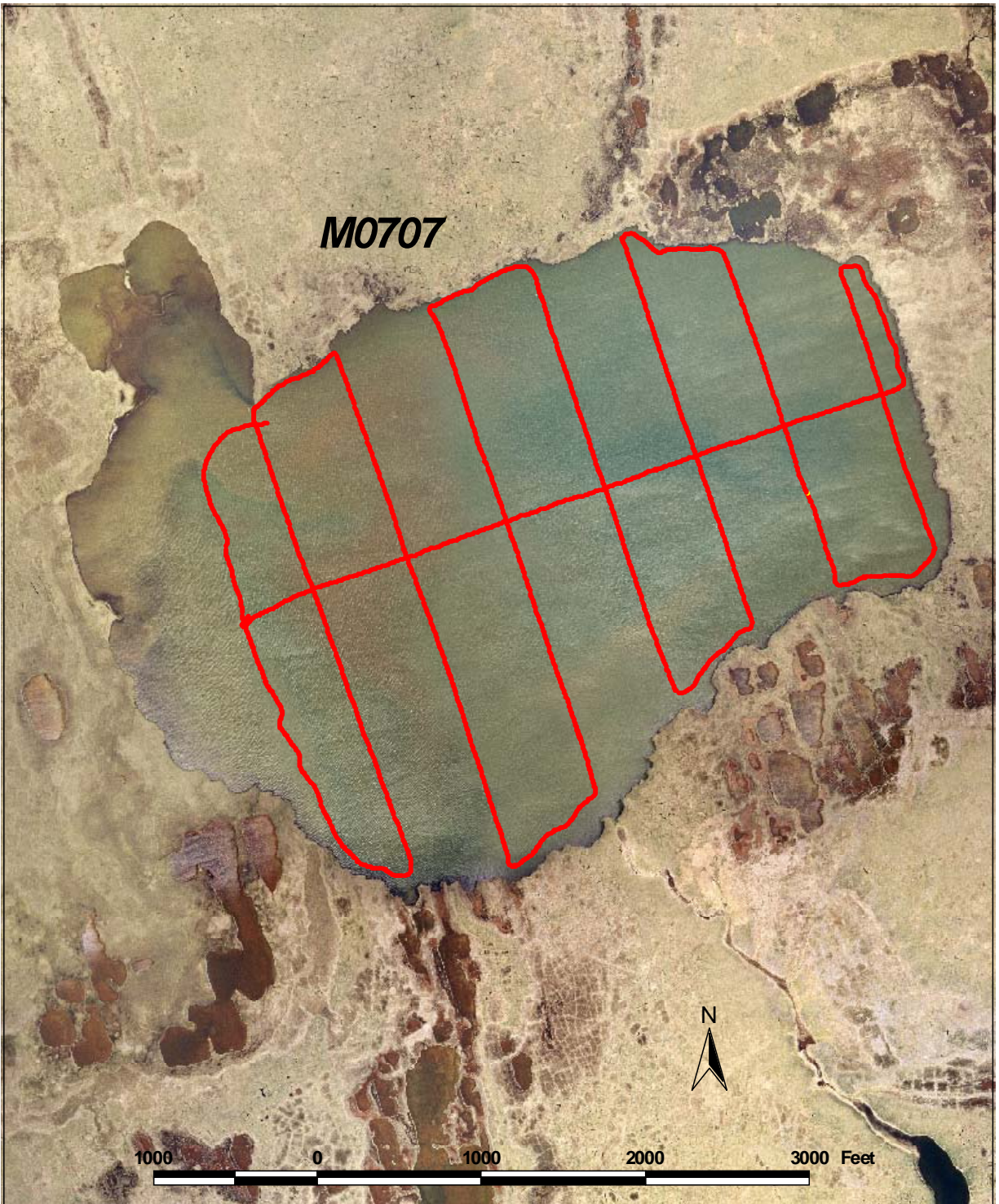
Catch Record:

Gear	Date	Effort (hours)	Species	Number Caught
Gill Net	Aug 11 07	7.5	None	0
Seine	Aug 11 07	--	Ninespine stickleback	1



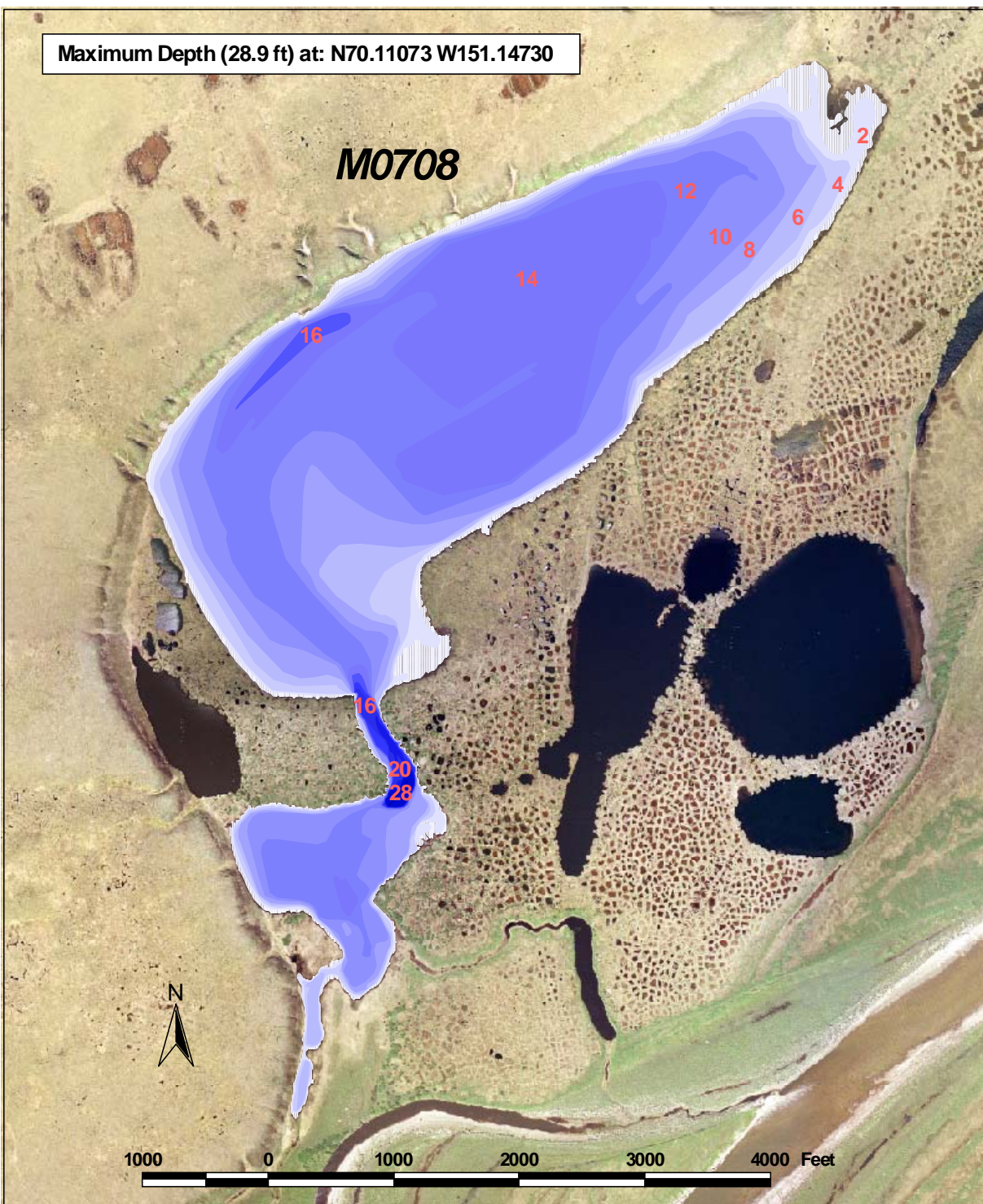
Regions of lake M0707 less than 4 feet deep (light blue) and likely to be available for ice chips, based on transects surveyed on August 11, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth transects surveyed at lake M0707 on August 11, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth contours of lake M0708 based on transects surveyed on August 10, 2007
(depths in 2 foot intervals)

(not to be used for navigation or to direct operation of heavy equipment)

Lake M0708

Other Names: None Known
Location: 70.11917°N 151.14527°W
USGS Quad Sheet: Harrison Bay A-2: T9N R4E Sec. 20/21/28
Habitat: Drainage Lake
Area: 323 acres
Maximum Depth: 28.9 feet
Active Outlet: Yes
Total Lake Volume: 1137.97 million gallons (2007 data)
Water Volume Under 4 ft of ice: 738.09 million gallons
Water Volume Under 5 ft of ice: 644.46 million gallons
Water Volume Under 7 ft of ice: 466.54 million gallons

Potential Ice Aggregate: 31.42 acres (water depth 4 ft or less)
2.46 million gallons

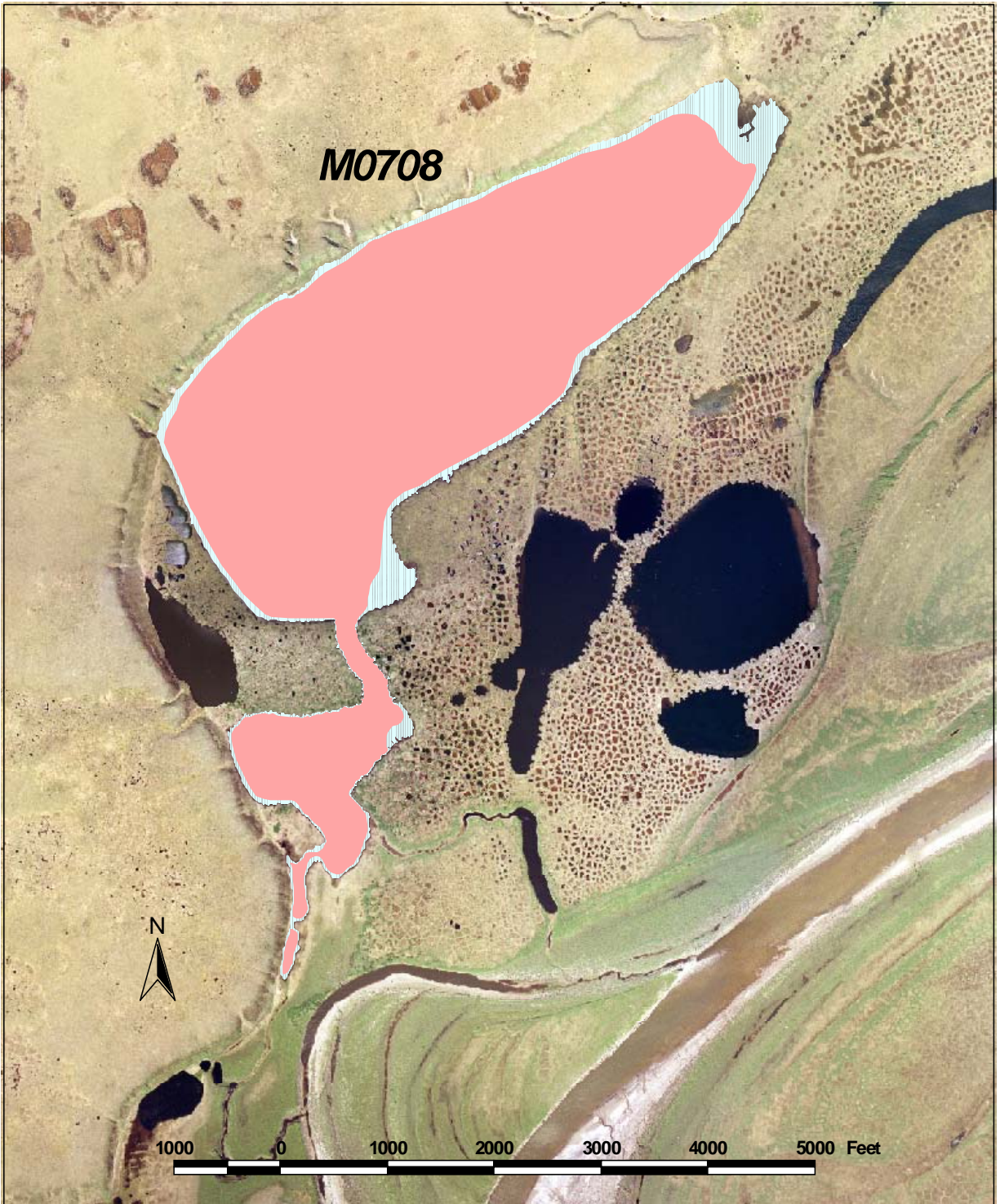
Maximum Recommended Winter Removal: **69.98 million gallons**
(15% of water volume under 7 ft of ice)
(does not include volume associated with ice aggregate)

Water Chemistry:

Year of Test	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Chloride (mg/l)	Total Hardness [CaCO ₃] (mg/l)	Specific Conductance (microS/cm)	Turbidity (NTU)	pH	Source
2007	9.7	2.8	1.6	2.2	36	78	0.8	7.86	L. Moulton

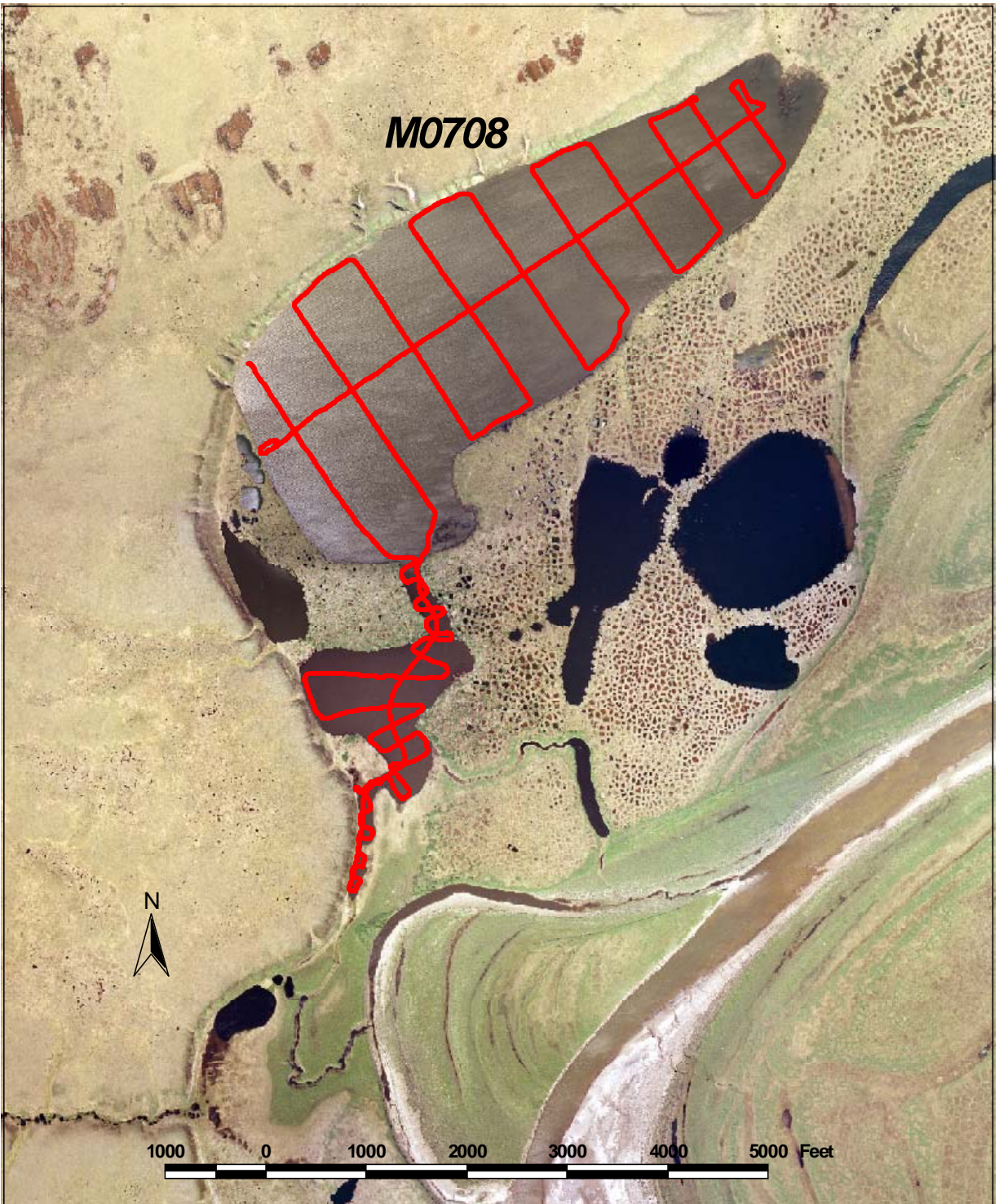
Catch Record:

Gear	Date	Effort (hours)	Species	Number Caught	Fork Length (mm)
Gill Net	Aug 10 07	2.7	Northern pike	1	660
			Broad whitefish	4	358-475
			Round whitefish	1	211
Observation	Aug 10 07	--	Arctic grayling	--	
			Ninespine stickleback	--	



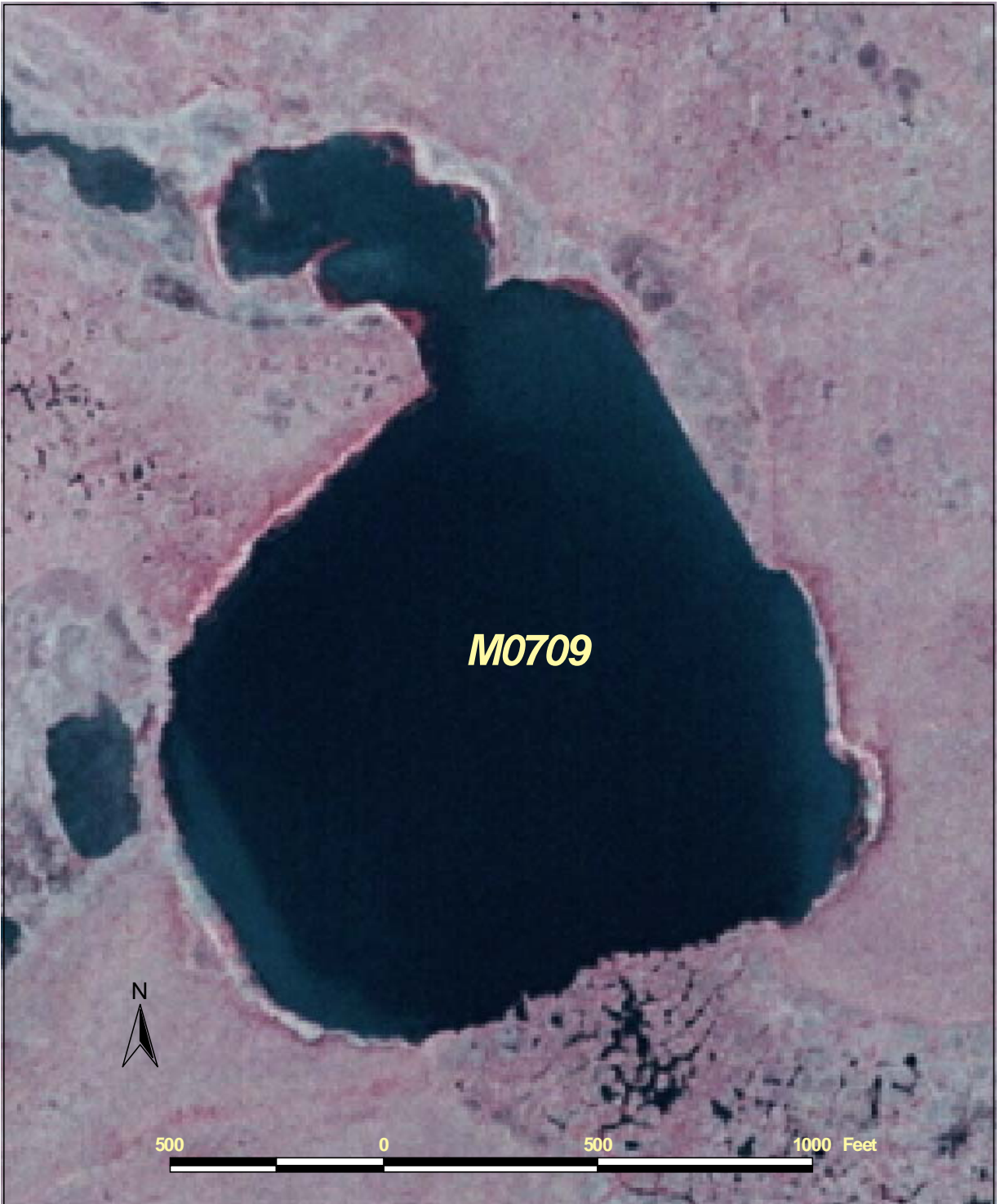
Regions of lake M0708 less than 4 feet deep (light blue) and likely to be available for ice chips, based on transects surveyed on August 10, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth transects surveyed at lake M0708 on August 10, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Lake M0709 was estimated to be too shallow to transect (less than 4 feet deep)
when sampled on August 11, 2007.

(not to be used for navigation or to direct operation of heavy equipment)

Lake M0709

Other Names: None Known
Location: 70.11499°N 151.36567°W
USGS Quad Sheet: Harrison Bay A-3: T9N R3E Sec. 21/22/27/28
Habitat: Tundra Lake
Area: 46 acres
Maximum Depth: <4 feet
Active Outlet: No
Total Lake Volume: -- million gallons (2007 data)
Water Volume Under 4 ft of ice: 0.00 million gallons
Water Volume Under 5 ft of ice: 0.00 million gallons
Water Volume Under 7 ft of ice: 0.00 million gallons

Potential Ice Aggregate: 46.0 acres (water depth 4 ft or less)
3.60 million gallons

Maximum Recommended Winter Removal: too shallow to transect, use for ice chips only

Water Chemistry:

Year of Test	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Chloride (mg/l)	Total Hardness [CaCO ₃] (mg/l)	Specific Conductance (microS/cm)	Turbidity (NTU)	pH	Source
2007	13.3	2.8	2.7	9.3	44	98	6.4	7.54	L. Moulton

Catch Record:

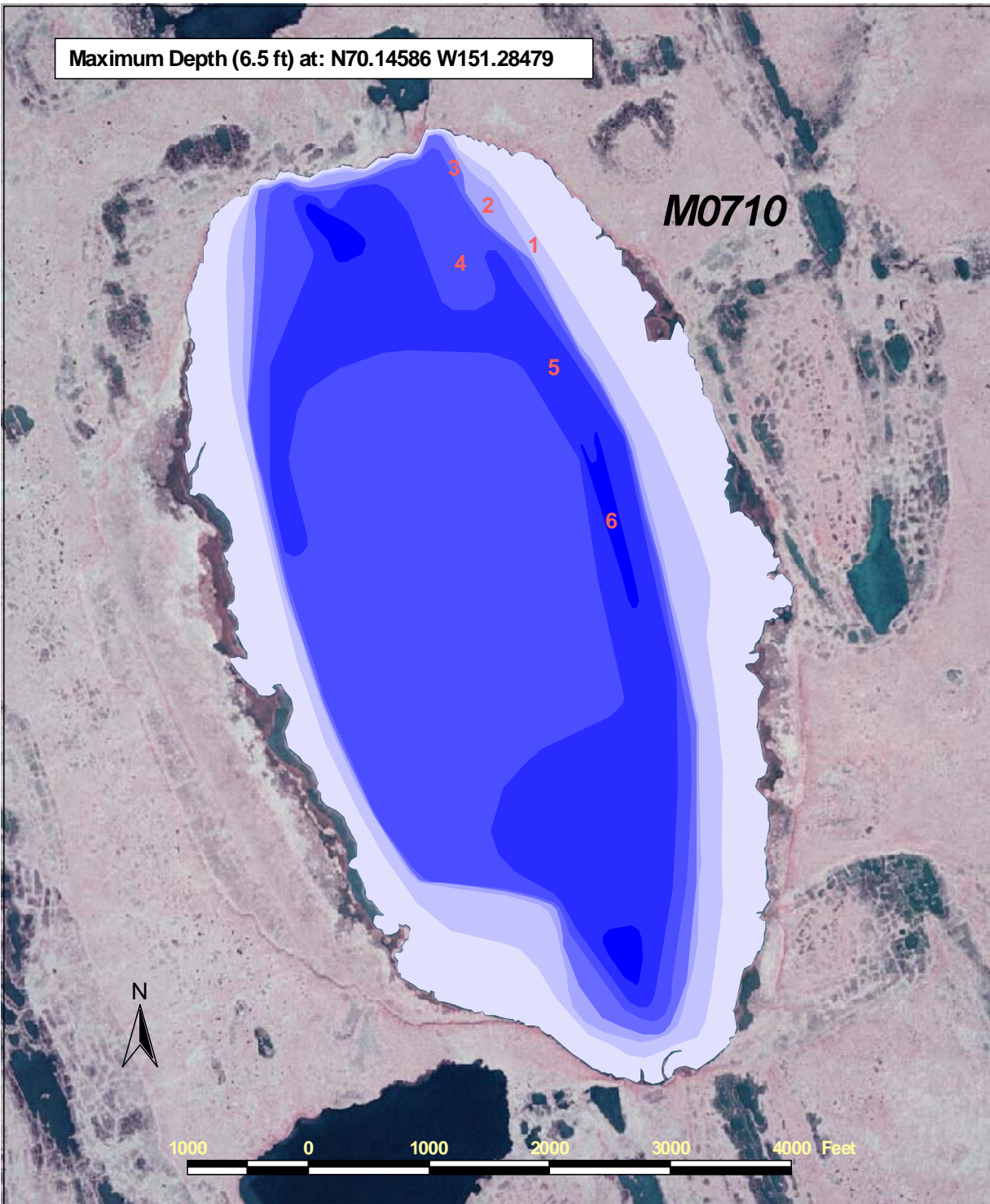
Gear	Date	Effort (hours)	Species	Number Caught
not fished, too shallow				



Lake M0709 was less than 4 feet deep and likely to be available
for ice chips, based on survey of August 11, 2007.

(not to be used for navigation or to direct operation of heavy equipment)

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Depth contours of lake M0710 based on transects surveyed on August 10, 2007
(depths in 1 foot intervals)

(not to be used for navigation or to direct operation of heavy equipment)

Lake M0710

Other Names: None Known
Location: 70.13746°N 151.27516°W
USGS Quad Sheet: Harrison Bay A-3: T9N R3E Sec. 11/12/13/14
Habitat: Tundra Lake
Area: 604 acres
Maximum Depth: 6.5 feet
Active Outlet: No
Total Lake Volume: 665.61 million gallons (2007 data)
Water Volume Under 4 ft of ice: 99.12 million gallons
Water Volume Under 5 ft of ice: 20.19 million gallons
Water Volume Under 7 ft of ice: 0.00 million gallons

Potential Ice Aggregate: 234.61 acres (water depth 4 ft or less)
18.36 million gallons

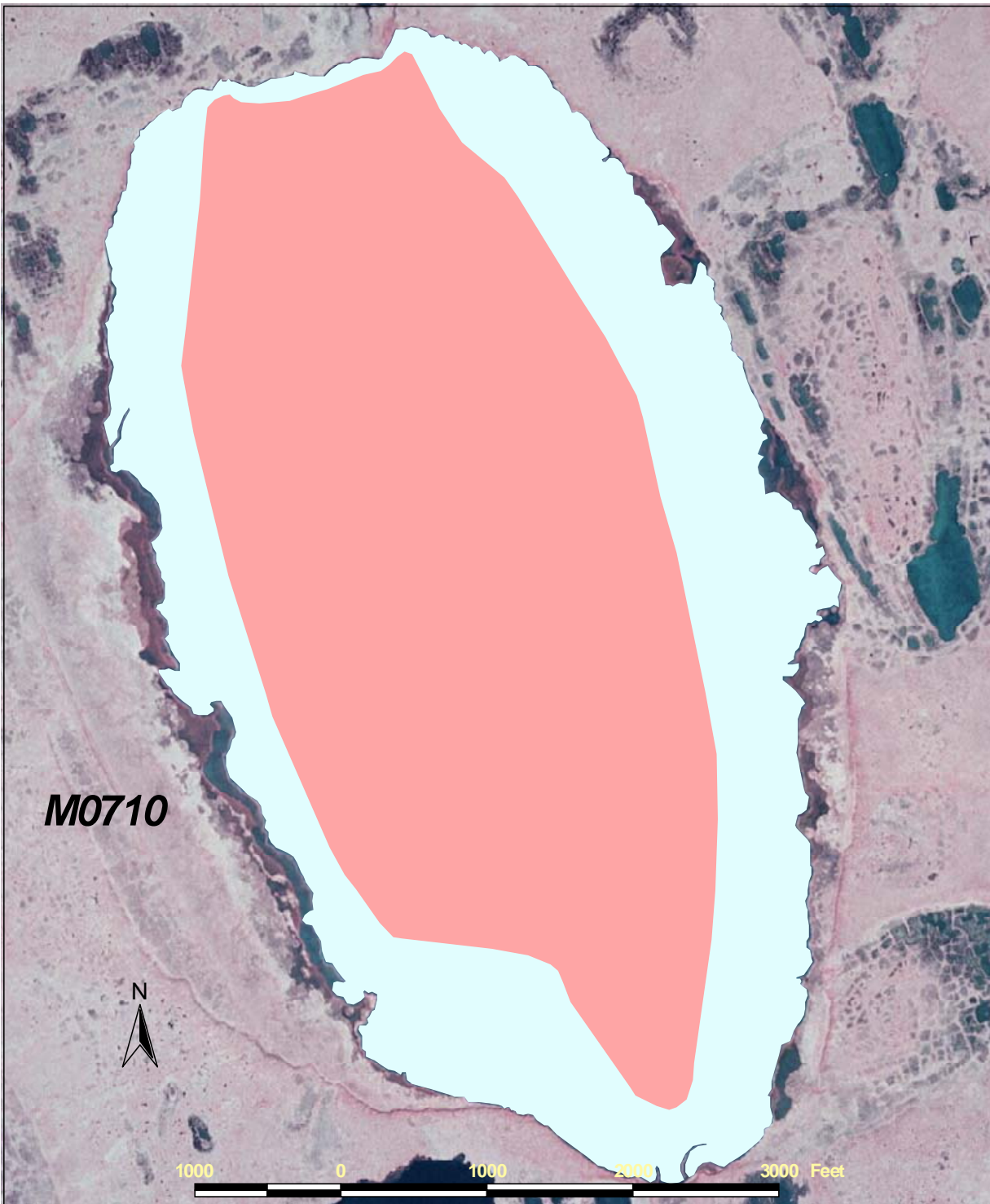
Maximum Recommended Winter Removal: **6.057 million gallons**
(30% of water volume under 5 ft of ice)
(does not include volume associated with ice aggregate)

Water Chemistry:

Year of Test	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Chloride (mg/l)	Total Hardness [CaCO ₃] (mg/l)	Specific Conductance (microS/cm)	Turbidity (NTU)	pH	Source
2007	32.2	4.1	3.7	12.7	98	194	1.0	8.32	L. Moulton

Catch Record:

Gear	Date	Effort (hours)	Species	Number Caught
Gill Net	Aug 10 07	7.7	None	0
Minnow Trap	Aug 10 07	3.8	Ninespine stickleback	27



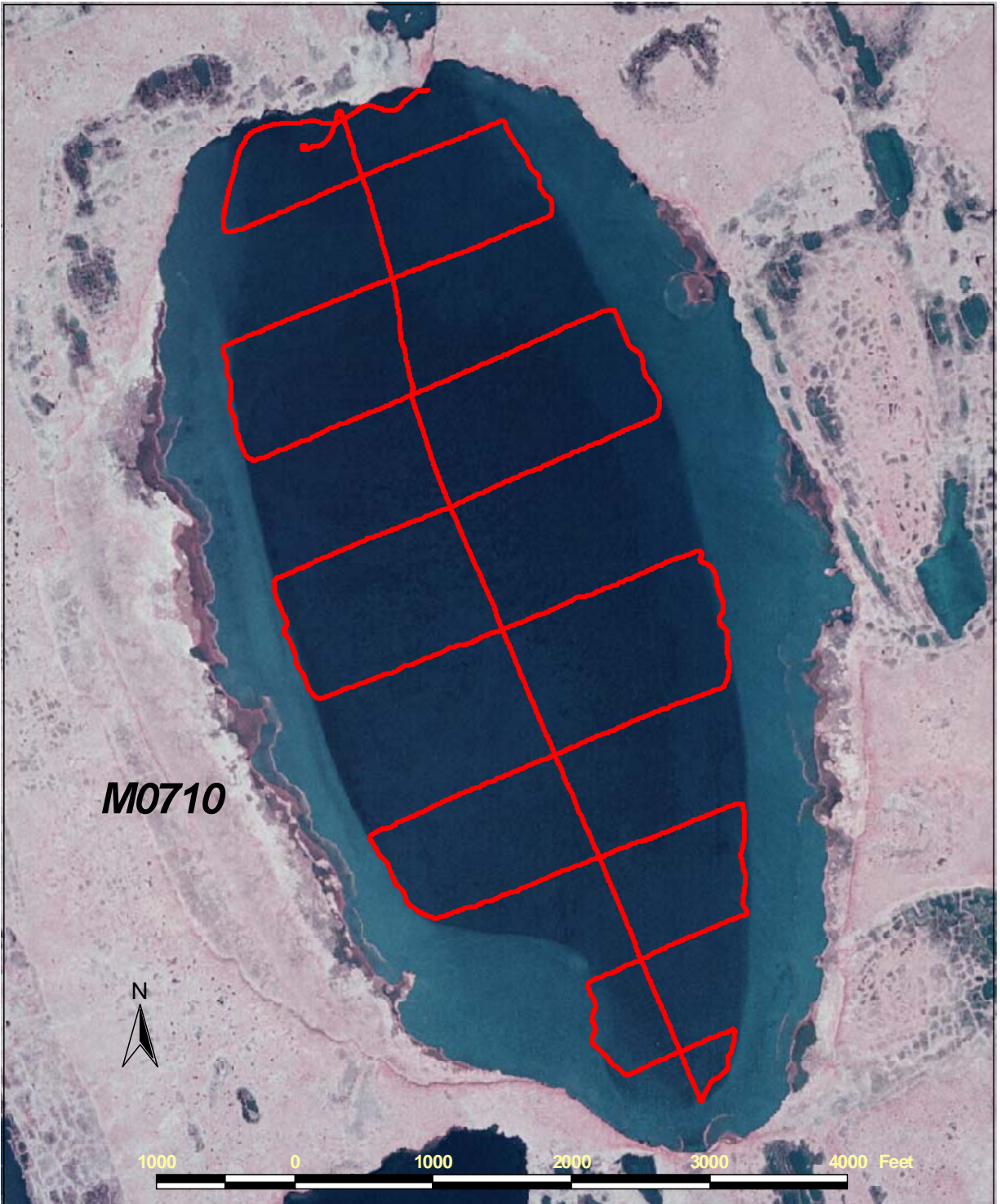
M0710



1000 0 1000 2000 3000 Feet

Regions of lake M0710 less than 4 feet deep (light blue) and likely to be available for ice chips, based on transects surveyed on August 10, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth transects surveyed at lake M0710 on August 10, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Lake M0711 was estimated to be too shallow to transect (less than 4 feet deep)
when sampled on August 11, 2007.

(not to be used for navigation or to direct operation of heavy equipment)

Lake M0711

Other Names: None Known
Location: 70.11499°N 151.36567°W
USGS Quad Sheet: Harrison Bay A-3: T9N R3E Sec. 21/22/27/28
Habitat: Tundra Lake
Area: 125 acres
Maximum Depth: <4 feet
Active Outlet: No
Total Lake Volume: -- million gallons (2007 data)
Water Volume Under 4 ft of ice: 0.00 million gallons
Water Volume Under 5 ft of ice: 0.00 million gallons
Water Volume Under 7 ft of ice: 0.00 million gallons

Potential Ice Aggregate: 124.8 acres (water depth 4 ft or less)
9.77 million gallons

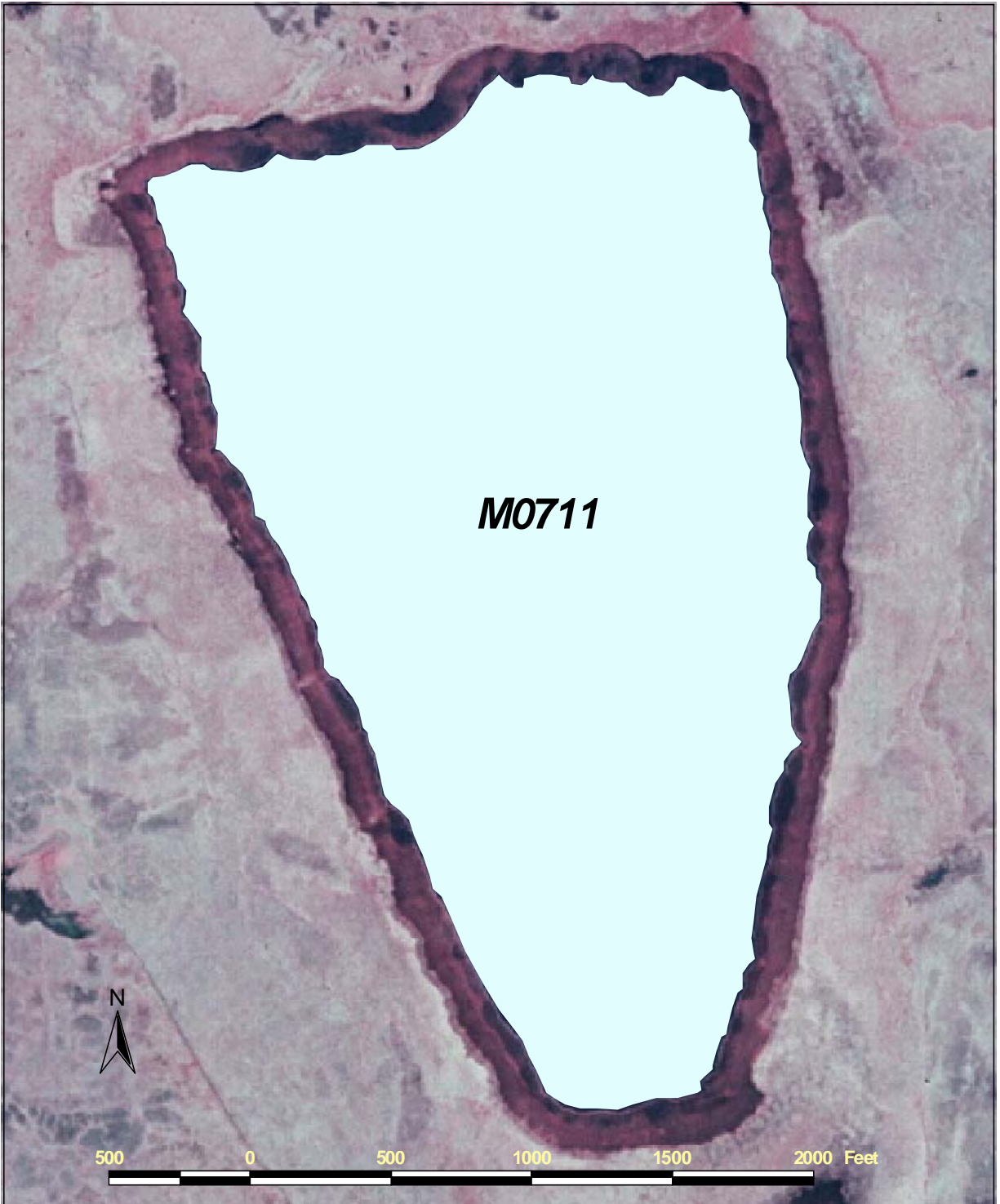
Maximum Recommended Winter Removal: too shallow to transect, use for ice chips only

Water Chemistry:

Year of Test	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Chloride (mg/l)	Total Hardness [CaCO ₃] (mg/l)	Specific Conductance (microS/cm)	Turbidity (NTU)	pH	Source
2007	19.2	5.3	5.7	17.0	70	167	4.8	7.64	L. Moulton

Catch Record:

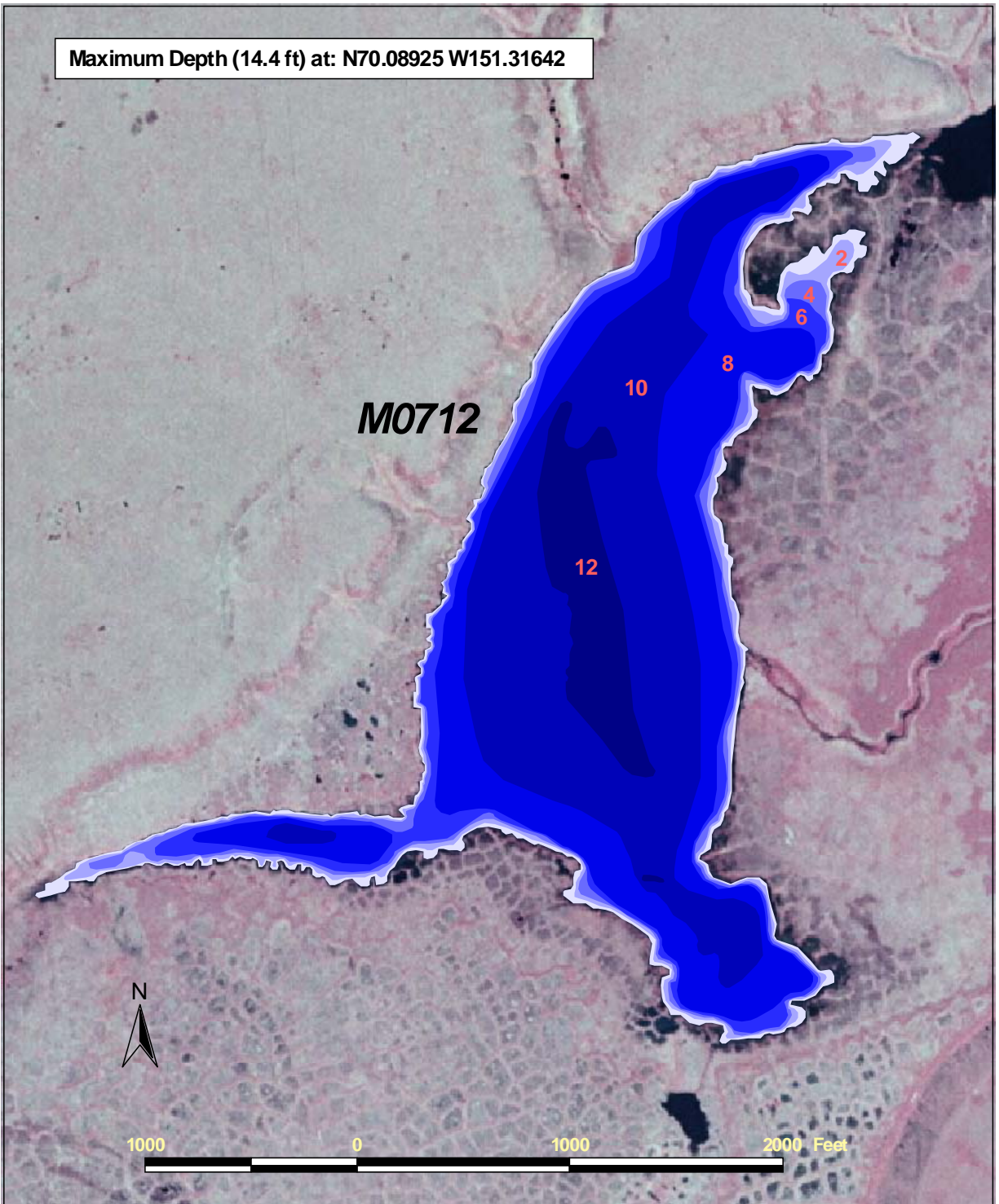
Gear	Date	Effort (hours)	Species	Number Caught
not fished, too shallow				



Lake M0711 was less than 4 feet deep and likely to be available
for ice chips, based on survey of August 11, 2007.

(not to be used for navigation or to direct operation of heavy equipment)

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Depth contours of lake M0712 based on transects surveyed on August 10, 2007
(depths in 2 foot intervals)

(not to be used for navigation or to direct operation of heavy equipment)

Lake M0712

Other Names: None Known
Location: 70.08758°N 151.31745°W
USGS Quad Sheet: Harrison Bay A-3: T8N/9N R3E Sec. 2/35
Habitat: Drainage Lake
Area: 109 acres
Maximum Depth: 14.4 feet
Active Outlet: Yes
Total Lake Volume: 317.94 million gallons (2007 data)
Water Volume Under 4 ft of ice: 183.18 million gallons
Water Volume Under 5 ft of ice: 151.77 million gallons
Water Volume Under 7 ft of ice: 92.04 million gallons

Potential Ice Aggregate: 11.50 acres (water depth 4 ft or less)
0.90 million gallons

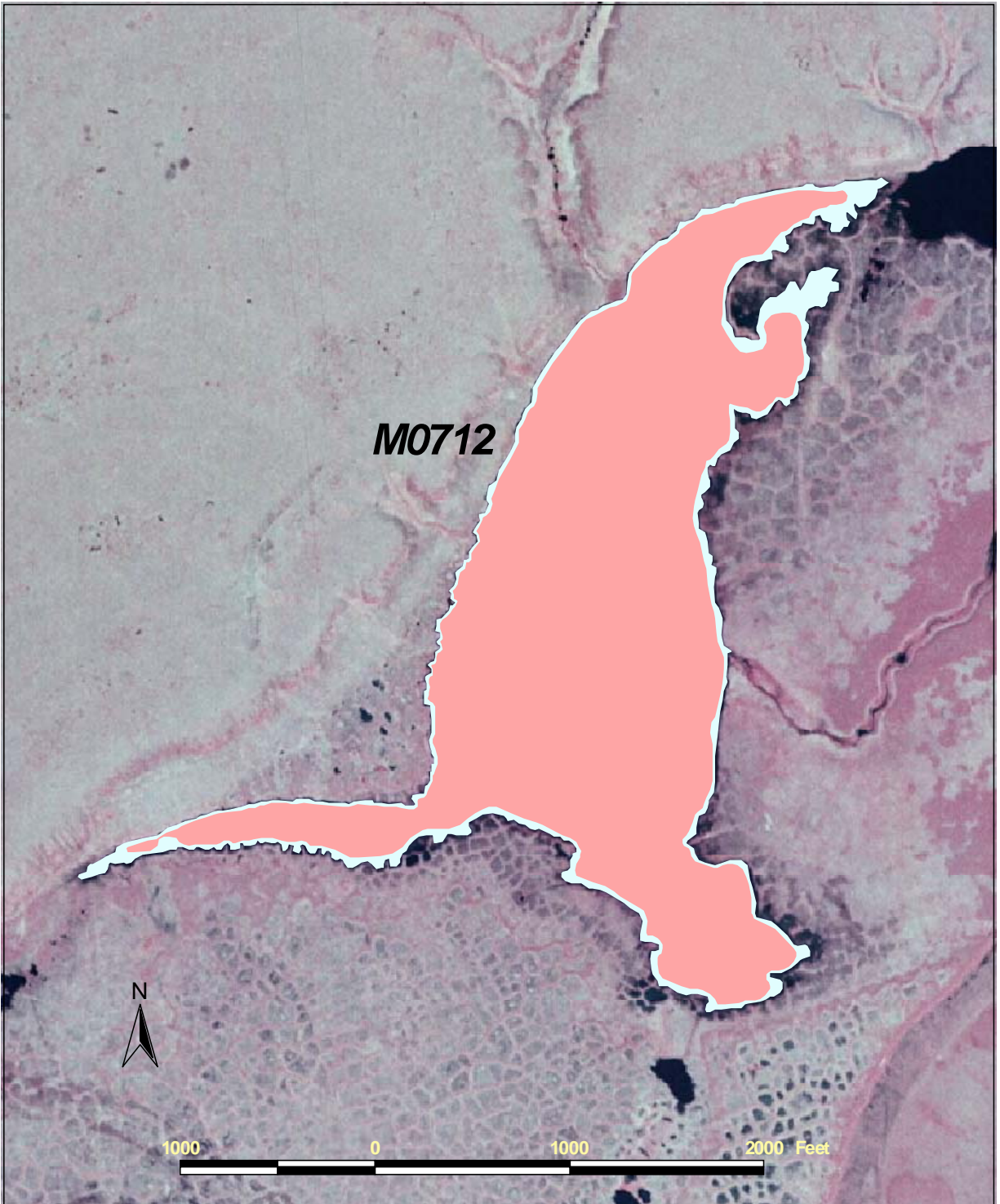
Maximum Recommended Winter Removal: **13.81 million gallons**
(15% of water volume under 7 ft of ice)
(does not include volume associated with ice aggregate)

Water Chemistry:

Year of Test	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Chloride (mg/l)	Total Hardness [CaCO ₃] (mg/l)	Specific Conductance (microS/cm)	Turbidity (NTU)	pH	Source
2007	9.5	3.0	1.9	4.0	36	83	0.9	7.66	L. Moulton

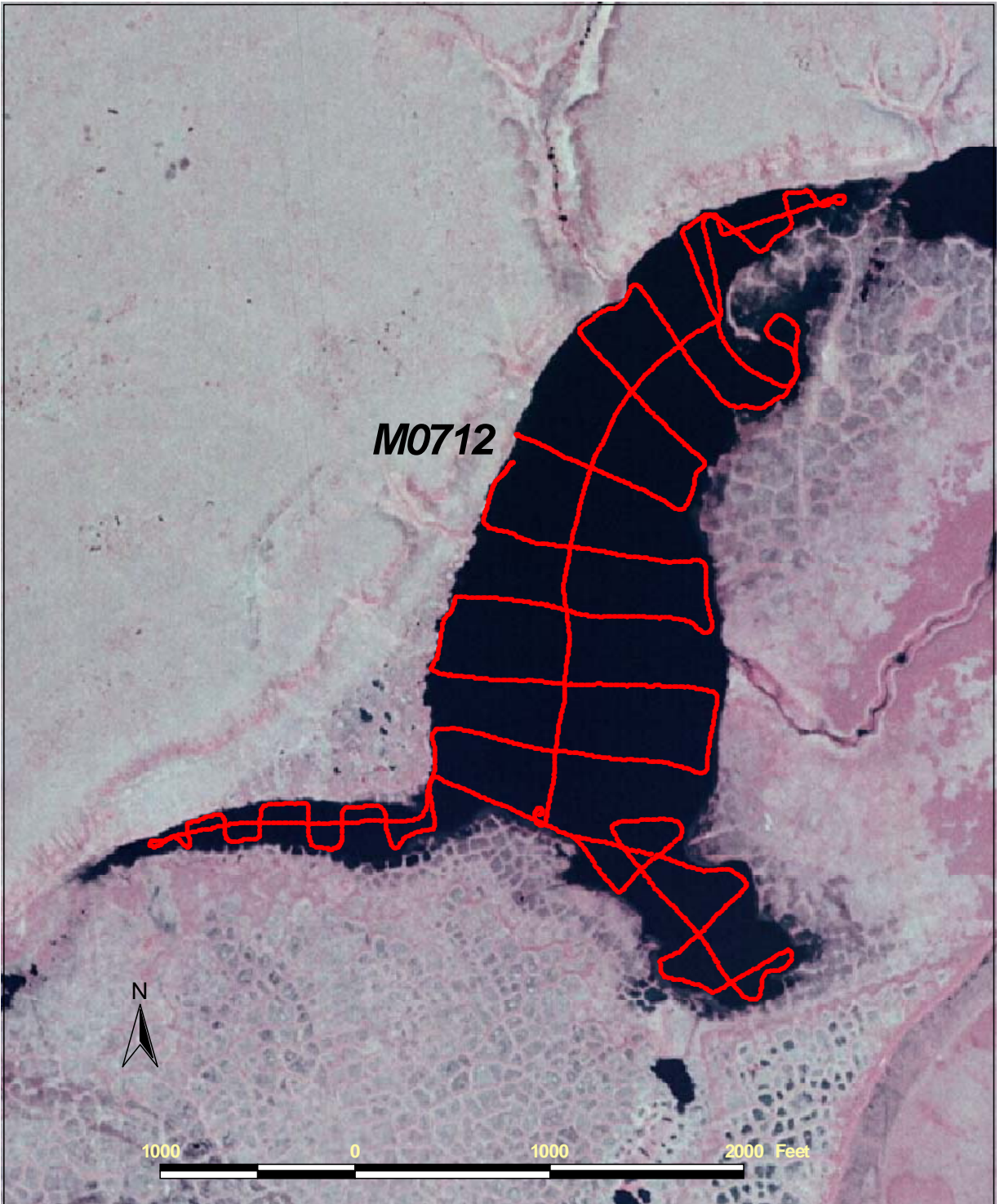
Catch Record:

Gear	Date	Effort (hours)	Species	Number Caught	Fork Length (mm)
Gill Net	Aug 10 07	2.0	Northern pike	1	635
			Broad whitefish	1	300
Observation	Aug 10 07	--	Ninespine stickleback	--	



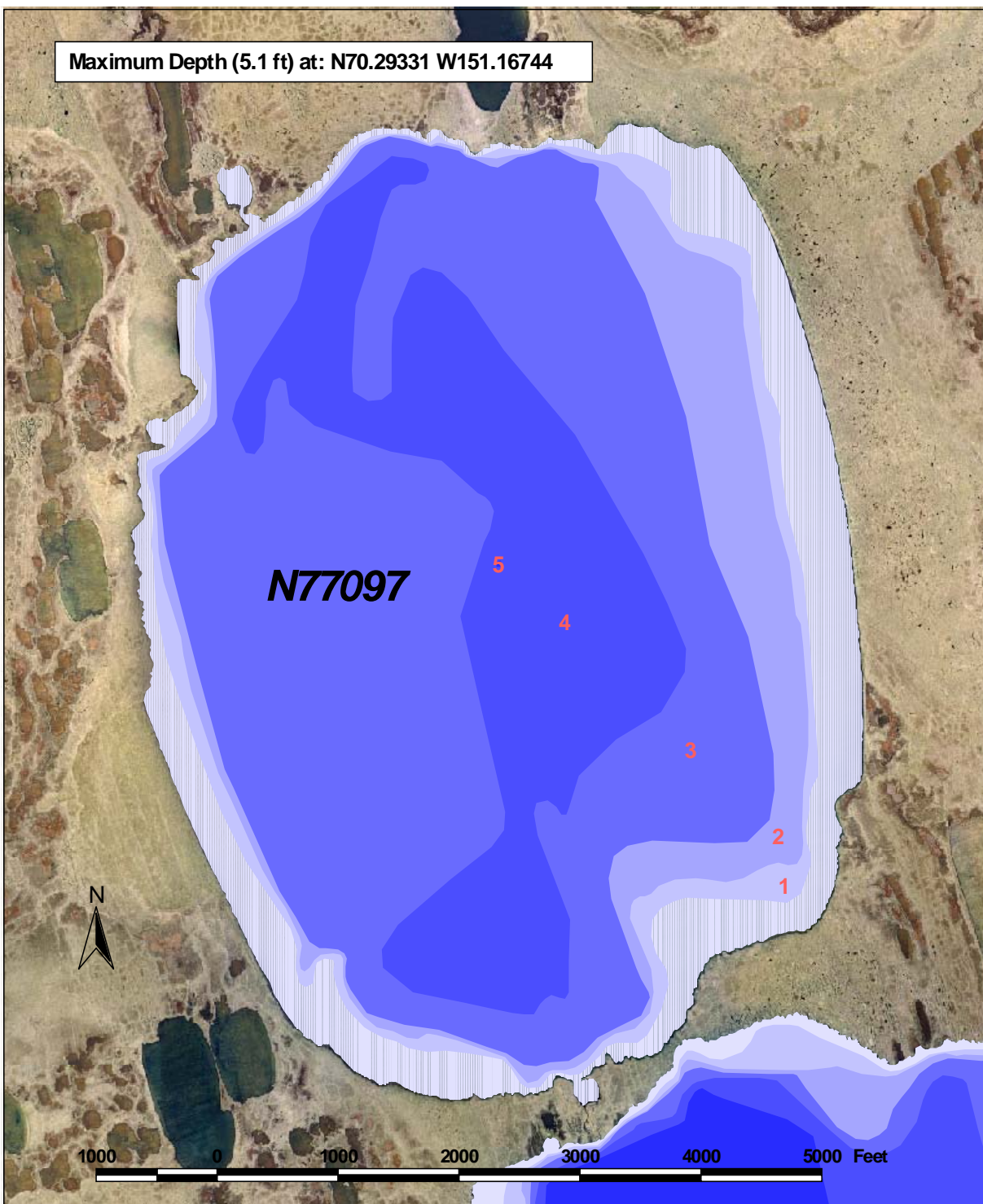
Regions of lake M0712 less than 4 feet deep (light blue) and likely to be available for ice chips, based on transects surveyed on August 10, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth transects surveyed at lake M0712 on August 10, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth contours of lake N77097 (Oil Lake) based on transects surveyed on August 9, 2007
(depths in 1 foot intervals)

(not to be used for navigation or to direct operation of heavy equipment)

Lake N77097

Other Names: Oil Lake
Location: 70.29264°N 151.16821°W
USGS Quad Sheet: Harrison Bay B-2: T11N R4E Sec. 16/17/20/21/28/29
Habitat: Tundra Lake
Area: 855 acres
Maximum Depth: 5.1 feet
Active Outlet: No
Total Lake Volume: 835.94 million gallons (2007 data)
Water Volume Under 4 ft of ice: 20.54 million gallons
Water Volume Under 5 ft of ice: 0.01 million gallons
Water Volume Under 7 ft of ice: 0.00 million gallons

Potential Ice Aggregate: 668.99 acres (water depth 4 ft or less)
52.35 million gallons

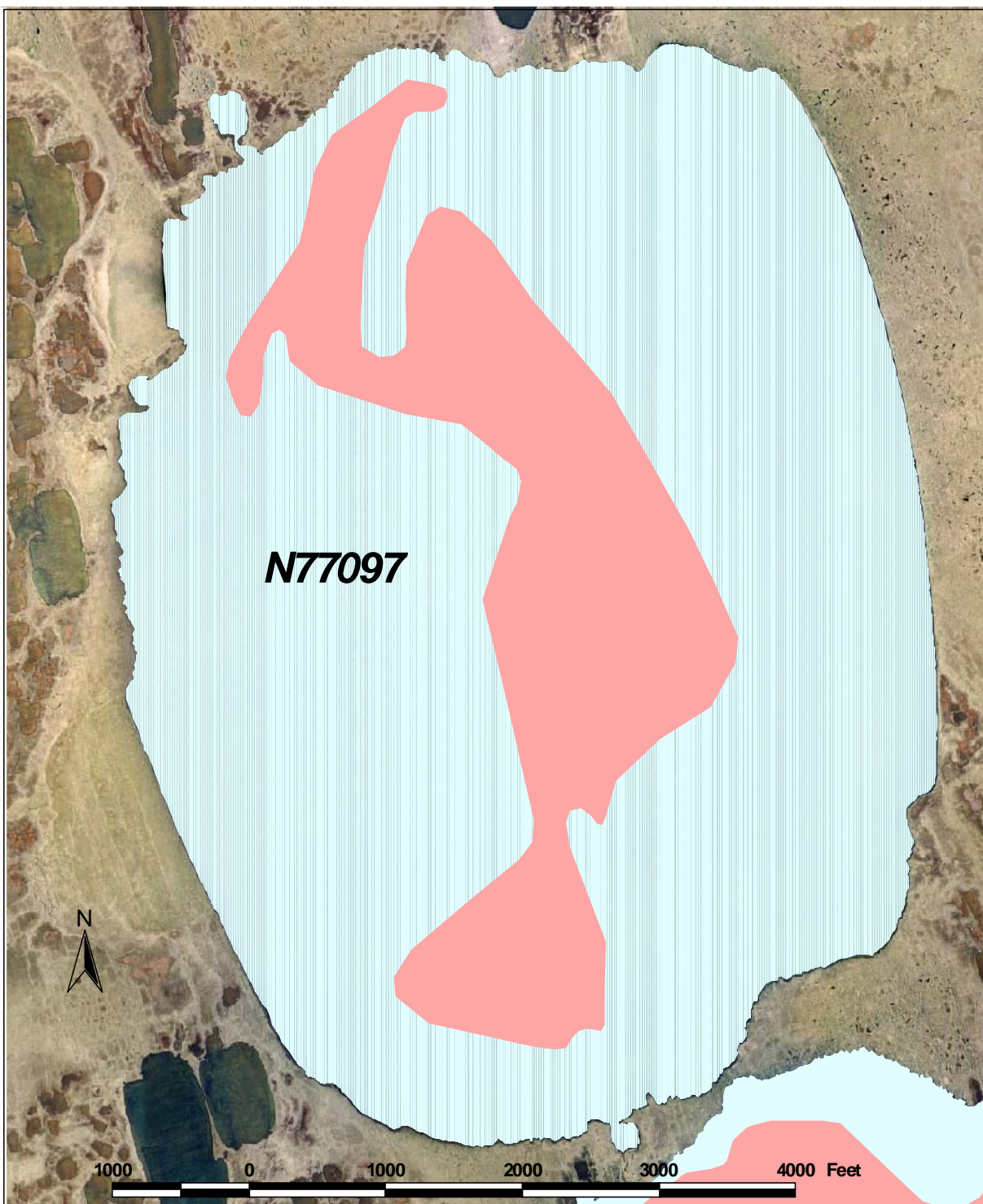
Maximum Recommended Winter Removal: **0.002 million gallons**
(30% of water volume under 5 ft of ice)
(does not include volume associated with ice aggregate)

Water Chemistry:

Year of Test	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Chloride (mg/l)	Total Hardness [CaCO ₃] (mg/l)	Specific Conductance (microS/cm)	Turbidity (NTU)	pH	Source
Jul 19 02	--	--	--	--	--	199.3	2.5	7.92	L. Moulton
2007	38.3	6.0	8.9	30.2	120	260	2.3	8.00	L. Moulton

Catch Record:

Gear	Date	Effort (hours)	Species	Number Caught
Fyke Net	Jul 19 02	43.1	Ninespine stickleback	7,400
Gill Net	Aug 9 07	13.1	None	0
Observation	Aug 9 07	--	Ninespine stickleback	--



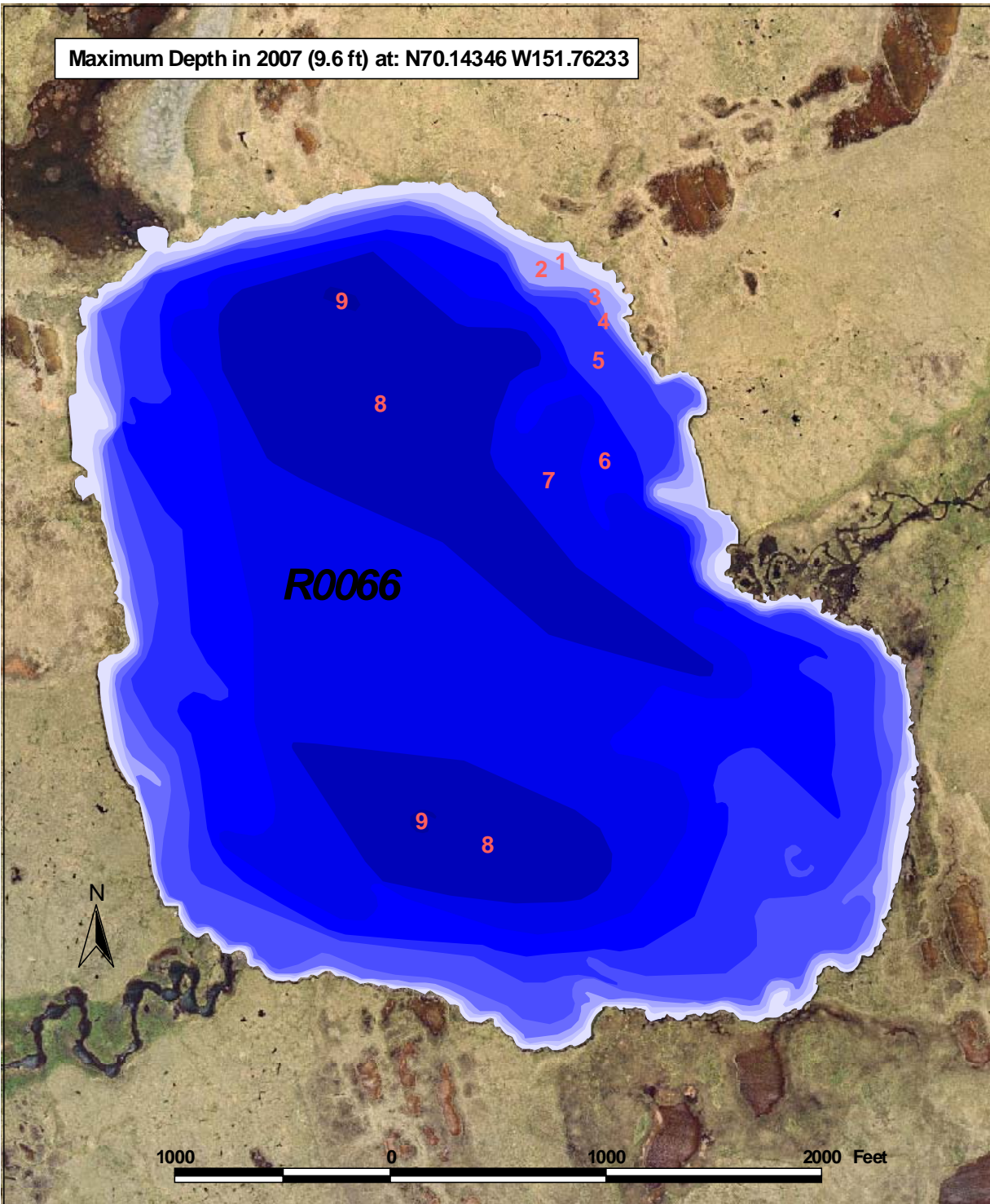
Regions of lake N77097(Oil Lake) less than 4 feet deep (light blue) and likely to be available for ice chips, based on transects surveyed on August 9, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth transects surveyed at lake N77097 (Oil Lake) on August 9, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth contours of lake R0066 based on transects surveyed on August 9, 2007
(depths in 1 foot intervals)

(not to be used for navigation or to direct operation of heavy equipment)

Lake R0066

Other Names: M0151
Location: 70.14587°N 151.76159°W
USGS Quad Sheet: Harrison Bay A-3: T9N R1E/2E Sec. 12/7
Habitat: Drainage Lake
Area: 248 acres
Maximum Depth: 9.6 feet
Active Outlet: Yes
Total Lake Volume: 508.99 million gallons (2007 data)
Water Volume Under 4 ft of ice: 205.62 million gallons
Water Volume Under 5 ft of ice: 138.22 million gallons
Water Volume Under 7 ft of ice: 33.56 million gallons

Potential Ice Aggregate: 30.97 acres (water depth 4 ft or less)
 2.42 million gallons

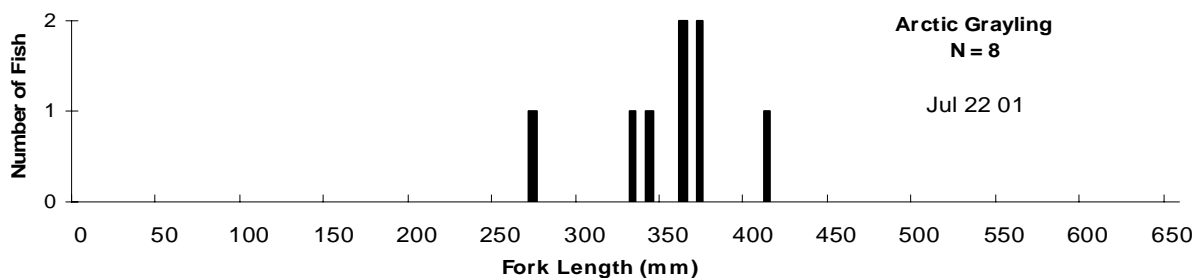
Maximum Recommended Winter Removal: **5.035 million gallons**
 (15% of water volume under 7 ft of ice)
 (does not include volume associated with ice aggregate)

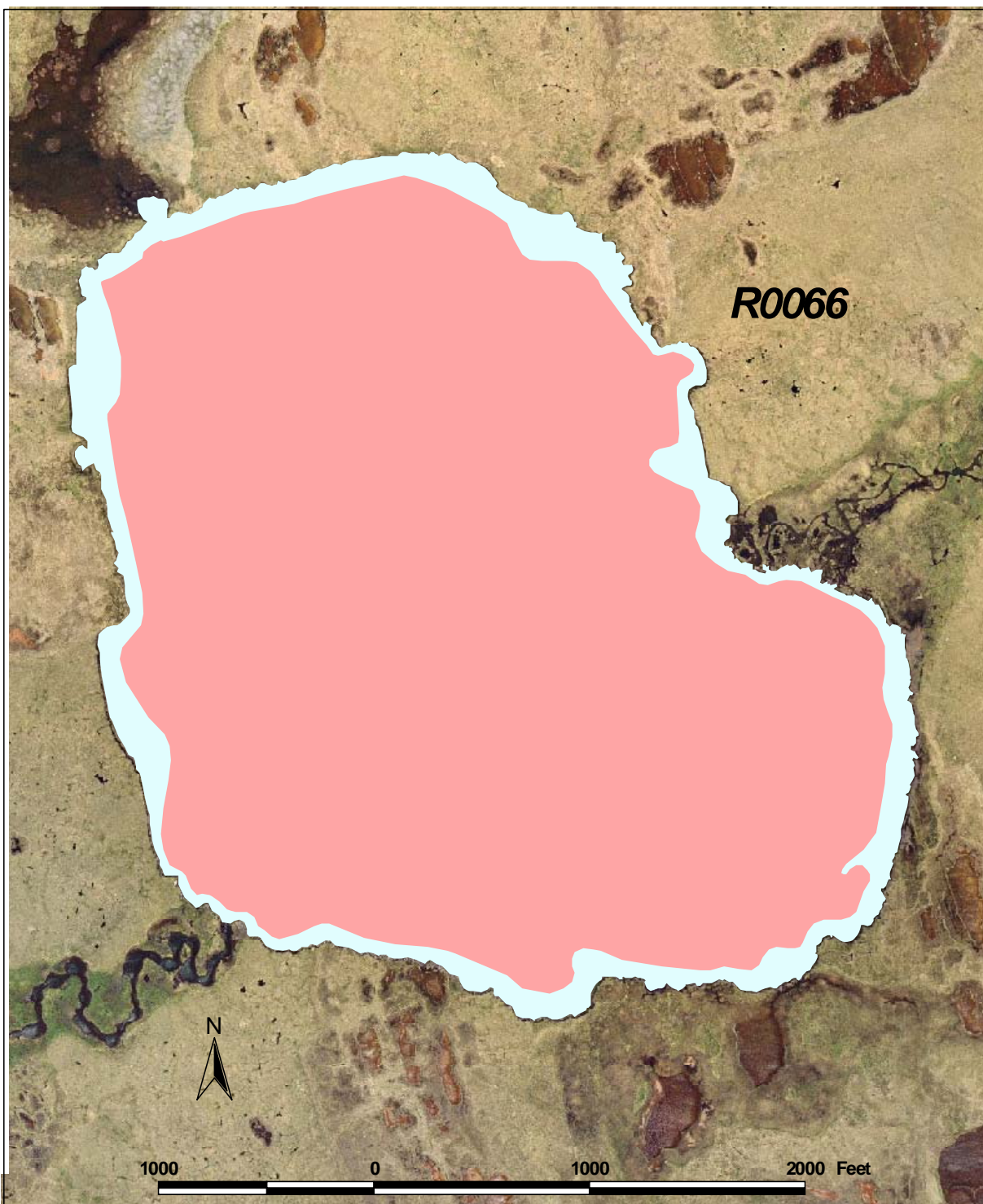
Water Chemistry:

Year of Test	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Chloride (mg/l)	Total Hardness [CaCO ₃] (mg/l)	Specific Conductance (microS/cm)	Turbidity (NTU)	pH	Source
2001	13.0	2.1	4.7	11.0	42	166	--	7.51	L. Moulton
2007	15.4	2.5	<1	15.0	49	123	1.3	7.93	L. Moulton

Catch Record:

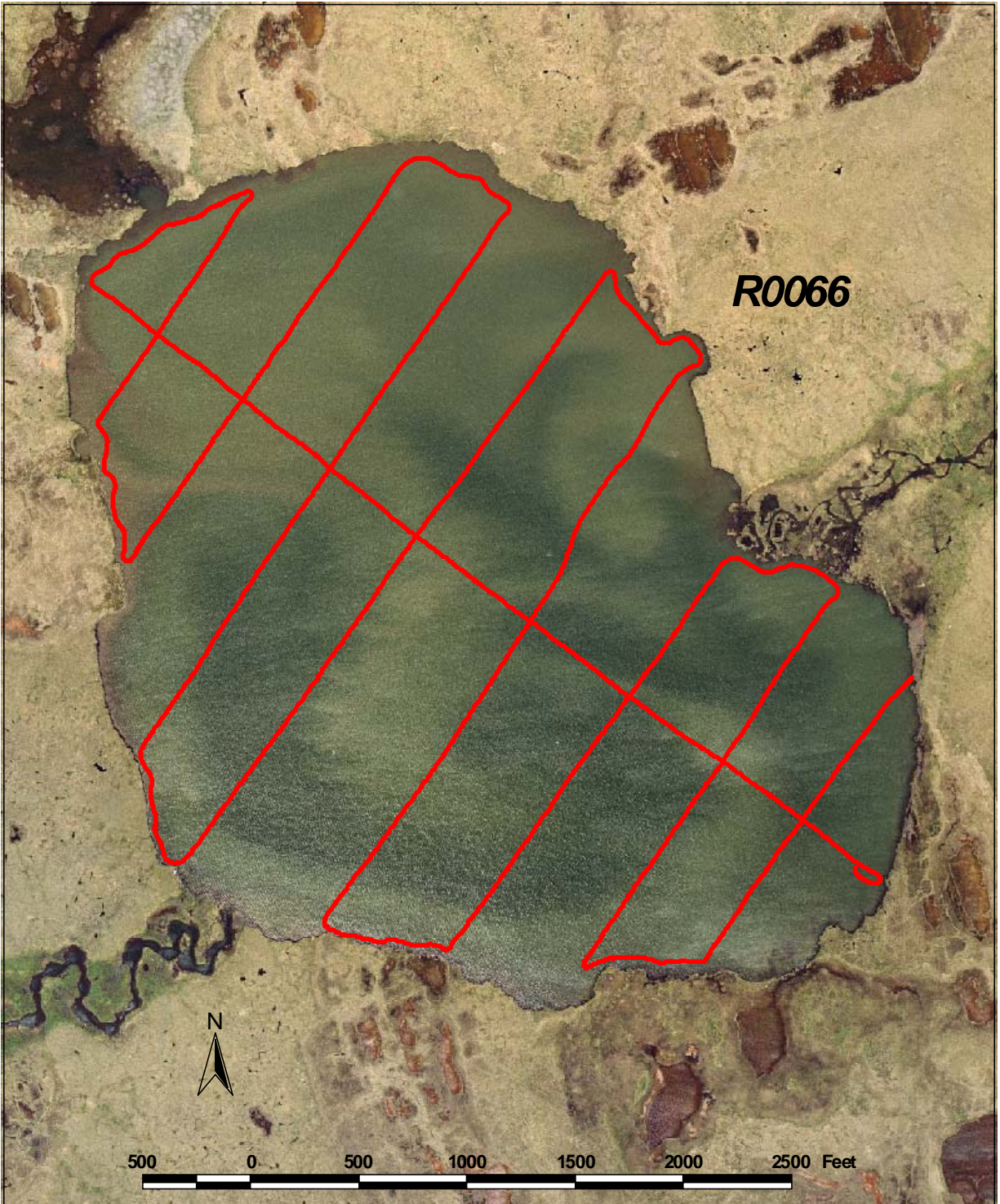
Gear	Date	Effort (hours)	Species	Number Caught	Fork Length (mm)
Gill Net	Jul 22 01	1.0	Arctic grayling	8	270-410
			Broad whitefish	1	600
Observation	Aug 9 07	--	Arctic grayling	~50	





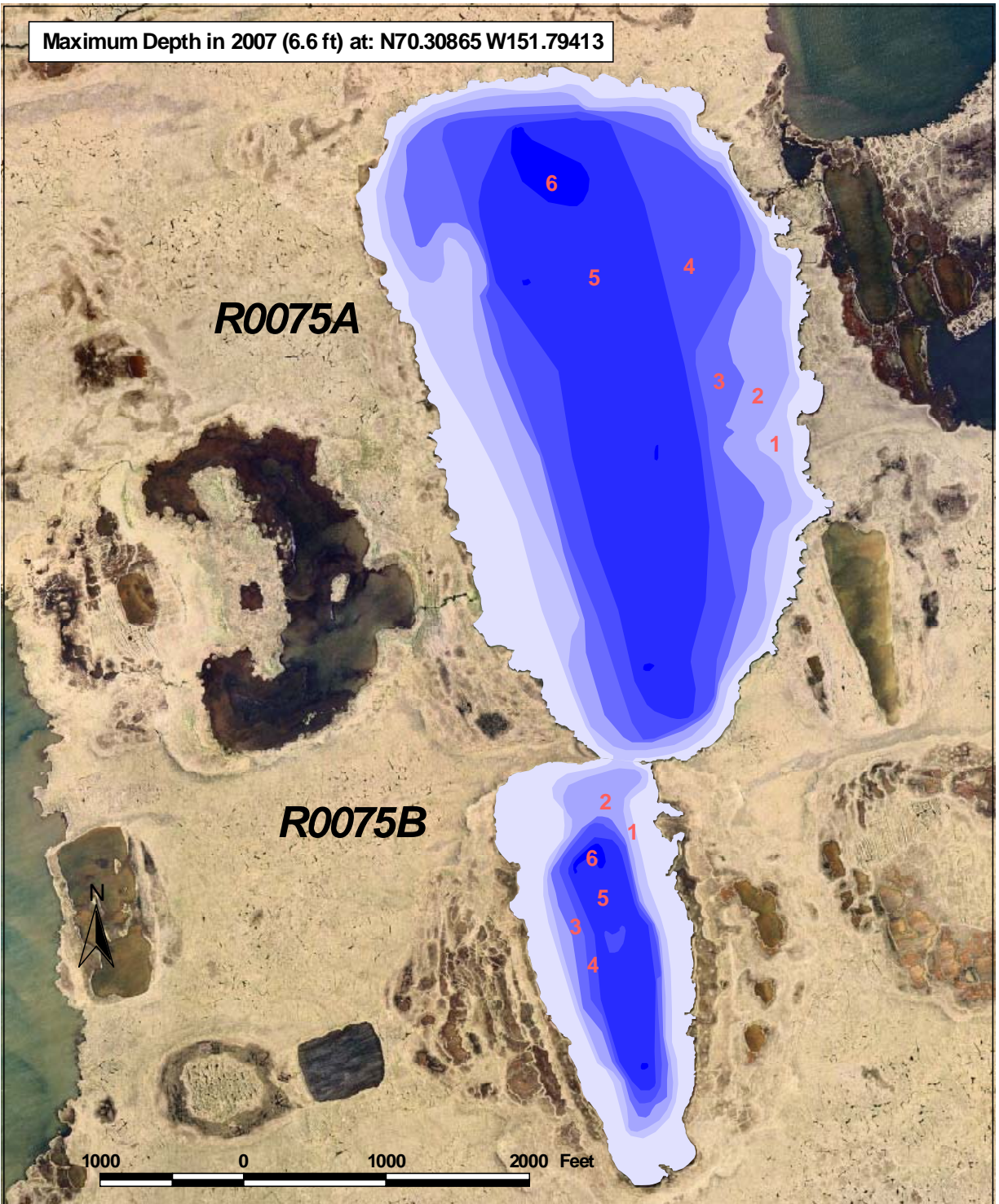
Regions of lake R0066 less than 4 feet deep (light blue) and likely to be available for ice chips, based on transects surveyed on August 9, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth transects surveyed at lake R0066 on August 9, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth contours of lake R0075 based on transects surveyed on August 8, 2007
(depths in 1 foot intervals)

(not to be used for navigation or to direct operation of heavy equipment)

Lake R0075

Other Names: None Known

Basin A
Location: 70.30363°N 151.78761°W
USGS Quad Sheet: T11N R1E Sec. 13/14/23/24
Area: 244.1
Maximum Depth: 6.6
Active Outlet: No
Total Lake Volume: 275.92
Water Volume Under 4 ft of ice: 43.45
Water Volume Under 5 ft of ice: 11.35
Water Volume Under 7 ft of ice: 0.00

Basin B
Location: 70.29367°N 151.78790°W
USGS Quad Sheet: T11N R1E Sec. 23/24
Area: 62.0 acres
Maximum Depth: 6.4 feet
Active Outlet: No
Total Lake Volume: 46.89 million gallons
Water Volume Under 4 ft of ice: 6.58 million gallons
Water Volume Under 5 ft of ice: 1.74 million gallons
Water Volume Under 7 ft of ice: 0.00 million gallons

Potential Ice Aggregate: 124.03 44.85 acres (water depth 4 ft or less)
 9.70 3.51 million gallons

(2007 data)

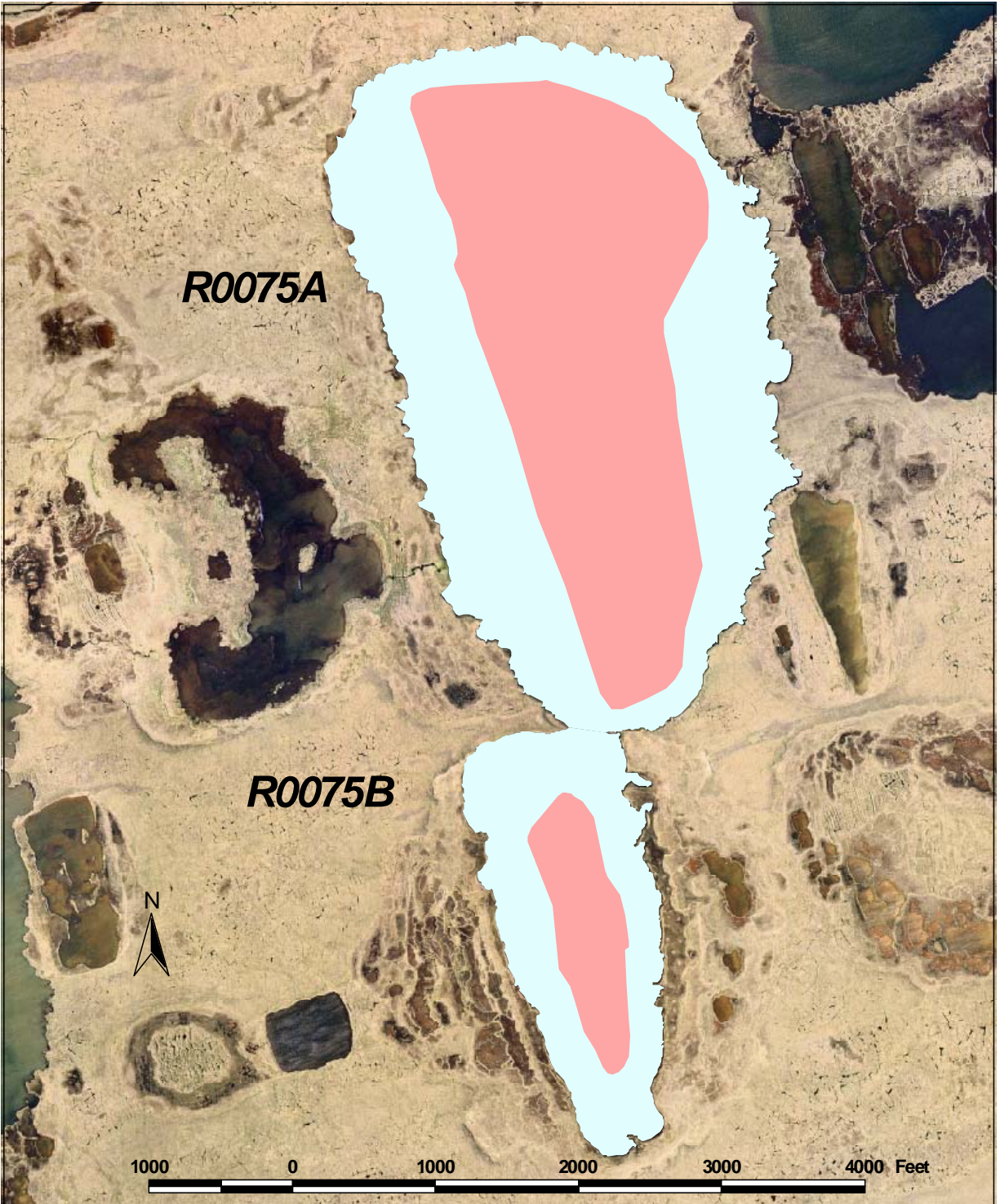
Maximum Recommended Winter Removal: **Basin A 3.404 Basin B 0.523 million gallons**
 (30% of water volume under 5 ft of ice)
 (does not include volumes related to ice chips)

Water Chemistry:

Year of Test	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Chloride (mg/l)	Total Hardness [CaCO ₃] (mg/l)	Specific Conductance (microS/cm)	Turbidity (NTU)	pH	Source
2007	17.0	3.0	4.8	13.5	55	125	1.9	7.95	L. Moulton

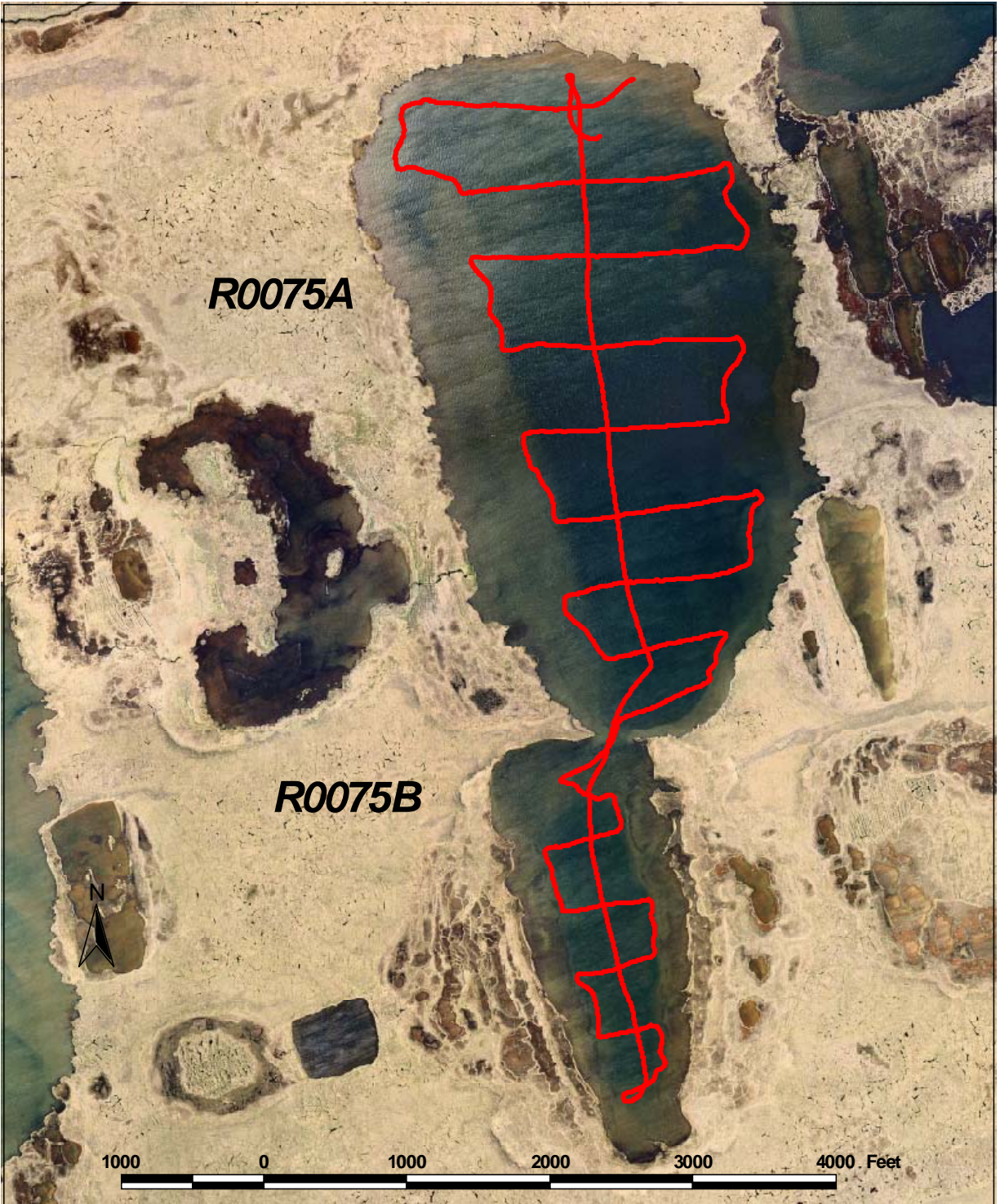
Catch Record:

Gear	Date	Effort (hours)	Species	Number Caught
Gill Net	Aug 8 07	7.7	None	0
Observation	Aug 8 07	--	Ninespine stickleback	--



Regions of lake R0075 less than 4 feet deep (light blue) and likely to be available for ice chips, based on transects surveyed on August 8, 2007.

(not to be used for navigation or to direct operation of heavy equipment)



Depth transects surveyed at lake R0075 on August 8, 2007.

(not to be used for navigation or to direct operation of heavy equipment)