Attachment A - Monitoring Stations and Depths

Table A-1. Lake Erie Sampling Strategy, Spring Surveys

Lake/ Basin	Station ID	Latitude	Longitude	Approx Station Depth (m)	Estimated Number of Samples			Thermal Structure Sampling Points and Estimated Sampling Depths		
					Rosette	Zooplankton Tows	Ponar Grab	Rosette	Zooplankton Tows	Ponar Grab
Eastern Lake Erie	ER 15 (Master)	42.516667	-79.893333	60	8 grab 1 integrated	6	NA	SRF: 1 m 5 m, 10 m, 20 m, 30 m, 40 m B-10: ~50 m B-1: ~59 m	63 μm: 20 m 153 μm: 58 m	NA
	ER 63	42.416667	-79.800000	45	4 grab 1 integrated	2	NA	SRF: 1 m MID: ~22.5 m B-10: ~35 m B-1: ~44 m	63 μm: 20 m 153 μm: 43 m	NA
	ER 09	42.538333	-79.616667	47	4 grab 1 integrated	2	NA	SRF: 1 m MID: ~23.5 m B-10: ~37 m B-1: ~46 m	63 μm: 20 m 153 μm: 45 m	NA
	ER 10	42.680000	-79.691667	32	4 grab 1 integrated	2	NA	SRF: 1 m MID: ~16 m B-10: ~22 m B-1: ~31 m	63 μm: 20 m 153 μm: 30 m	NA
Central Lake Erie	ER 42	41.965000	-82.041667	22	3 grab 1 integrated	2	NA	SRF: 1 m MID: ~11 m B-1: ~21 m	63 μm: 20 m 153 μm: 20 m	NA
	ER 43	41.788333	-81.945000	23	3 grab 1 integrated	2	NA	SRF: 1 m MID: ~11.5 m B-1: ~22 m	63 μm: 20 m 153 μm: 21 m	NA
	ER 73	41.977778	-81.756944	24	3 grab 1 integrated	2	NA	SRF: 1 m MID: ~12 m B-1: ~23 m	63 μm: 20 m 153 μm: 22 m	NA
	ER 36	41.935000	-81.478333	23	3 grab 1 integrated	2	NA	SRF: 1 m MID: ~11.5 m B-1: ~22 m	63 μm: 20 m 153 μm: 21 m	NA
	ER 37	42.110000	-81.575000	24	3 grab 1 integrated	2	NA	SRF: 1 m MID: ~12 m B-1: ~23 m	63 μm: 20 m 153 μm: 22 m	NA
	ER 38	42.281667	-81.671667	22	3 grab 1 integrated	2	NA	SRF: 1 m MID: ~11 m B-1: ~21 m	63 μm: 20 m 153 μm: 20 m	NA
	ER 78 (Master)	42.116667	-81.250000	23	4 grab 1 integrated	6	NA	SRF: 1 m 5 m, 10 m B-1: ~22 m	63 μm: 20 m 153 μm: 21 m	NA
	ER 30	42.430000	-81.205000	21	3 grab 1 integrated	2	NA	SRF: 1 m MID: ~10.5 m B-1: ~20 m	63 μm: 20 m 153 μm: 19 m	NA

Lake/ Basin	Station ID	Latitude	Longitude	Approx Station Depth (m)	Estimated Number of Samples			Thermal Structure Sampling Points and Estimated Sampling Depths		
					Rosette	Zooplankton Tows	Ponar Grab	Rosette	Zooplankton Tows	Ponar Grab
	ER 31	42.253333	-81.106667	21	3 grab 1 integrated	2	NA	SRF: 1 m MID: ~10.5 m B-1: ~20 m	63 µm: 20 m 153 µm: 19 m	NA
	ER 32	42.081667	-81.011667	22	3 grab 1 integrated	2	NA	SRF: 1 m MID: ~11 m B-1: ~21 m	63 µm: 20 m 153 µm: 20 m	NA
Western Lake Erie	ER 58	41.685000	-82.933333	11.5	3 grab 1 integrated	2	NA	SRF: 1 m MID: ~5.5 m B-1: ~10.5 m	63 µm: 10.5 m 153 µm: 9.5 m	NA
	ER 59	41.726667	-83.150000	10	3 grab 1 integrated	2	NA	SRF: 1 m MID: ~5 m B-1: ~9 m	63 µm: 9 m 153 µm: 8 m	NA
	ER 60	41.891667	-83.196667	9.5	3 grab 1 integrated	2	NA	SRF: 1 m MID: ~4.5 m B-1: ~8.5 m	63 µm: 8.5 m 153 µm: 7.5 m	NA
	ER 61	41.946667	-83.045000	10	3 grab 1 integrated	2	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MID: ~5 m B-1: ~9 m	63 µm: 9 m 153 µm: 8 m	bottom
	ER 91 (Master)	41.840833	-82.916667	10.5	4 grab 1 integrated	6	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m 5 m, 10 m B-1: ~9.5 m	63 µm: 10 m 153 µm: 9 m	bottom
	ER 92	41.950000	-82.686667	11	3 grab 1 integrated	2	NA	SRF: 1 m MID: ~5.5 m B-1: ~10 m	63 µm: 10 m 153 µm: 9 m	NA

‣ A field duplicate, lab duplicate, and field reagent blank are collected with each group of 3, 4, or 5 stations depending on the lake. A Random Number Generator (RNG) is used to determine the stations and depths of these QC samples.

‣ If an integer meter depth falls within 2 m of B-10, then the integer meter depth sample is omitted. If B-10 falls within 2 m of a stratification depth, the B-10 sample is omitted. If an integer meter depth falls within 3 m of a stratification depth, the integer meter depth sample is omitted. If there is a DCL, a sample is taken. If other designated samples are within 3 meters of the DCL, they are not taken. If the UHY sample is between 37 m and 47 m, the 40 m sample is not taken. (These exceptions do not apply to the integrated sample.)

‣ SRF = Surface (1 m), MEP = Mid-epilimnion, LEP = Lower epilimnion, TRM = Thermocline, DCL = Deep Chlorophyll Layer, UHY = Upper hypolimnion, MHY = Mid-hypolimnion, MID = Mid-depth, B-10 = bottom minus 10 m, B-2 = bottom minus 2 m, B-1 = bottom minus 1 m.

‣ Tilde (~) = approximately equal to (i.e. these sampling depths are dependent upon the station depth and thermal profile and may vary from those listed in the table).

‣ Inverse stratification = when any portion of the thermal profile has a temperature greater than 3°C.

‣ For an unstratified water column, the integrated sample is prepared by taking equal volumes of water from SRF (1 m), 5 m, 10 m and 20 meters unless the depth is less than 20 meters. If the total depth is between 15 and 22 meters, the 20 meter sample is replaced by the bottom sample (B-1 or B-2). If the total depth is less than 15 meters, equal volumes are taken from surface, mid-depth, and bottom sample (B-1 or B-2).
For a stratified water column, equal volumes are taken from the surface, 5 m, 10 m, and lower epilimnion (LEP). If the epilimnion is very shallow, equal volumes are taken from a maximum of four sampling depths and a minimum of two sampling depths. The underlying strategy is to collect a representative sample from the epilimnion.

‣ Parameters for samples from Rosette include:
Nutrients - Nitrate + Nitrite, Total P, Total Dissolved P, Chloride, Reactive Silicate, Particulate Organic C, Dissolved Organic C, Particulate Nitrogen, Particulate Phosphorus
Physical - Turbidity, Specific Conductance, pH, Total Suspended Solids, Dissolved Oxygen
Biological - Phytoplankton (INT and DCL samples only), Chlorophyll a

- ‣ Parameters for samples from Tow Net include:
  Biological - Zooplankton
- ‣ Parameters for samples from Ponar Grab include:
  Biological - Benthic Invertebrates

Table A-2. Lake Erie Sampling Strategy, Summer Surveys

Lake/ Basin	Station ID	Latitude	Longitude	Approx Station Depth (m)	Estimated Number of Samples			Thermal Structure Sampling Points and Estimated Sampling Depths		
					Rosette	Zooplankton Tows	Ponar Grab	Rosette	Zooplankton Tows	Ponar Grab
Eastern Lake Erie	ER 15 (Master)	42.516667	-79.893333	60	9 grab 1 integrated	6	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, LEP, TRM, UHY, 40 m, DCL (if present) B-10: ~50 m B-1: ~59 m	63 µm: 20 m 153 µm: 58 m	bottom
	ER 63	42.416667	-79.800000	45	5 grab 1 integrated	2	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, DCL (if present), MHY B-1: ~44 m	63 µm: 20 m 153 µm: 43 m	bottom
	ER 09	42.538333	-79.616667	47	5 grab 1 integrated	2	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, DCL (if present), MHY B-1: ~46 m	63 µm: 20 m 153 µm: 45 m	bottom
	ER 10	42.680000	-79.691667	32	5 grab 1 integrated	2	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, DCL (if present), MHY B-1: ~31 m	63 µm: 20 m 153 µm: 30 m	bottom
Central Lake Erie	ER 42	41.965000	-82.041667	22	5 grab 1 integrated	2	NA	SRF: 1 m MEP, DCL (if present), MHY B-1: ~21 m	63 µm: 20 m 153 µm: 20 m	NA
	ER 43	41.788333	-81.945000	23	5 grab 1 integrated	2	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, DCL (if present), MHY B-1: ~22 m	63 µm: 20 m 153 µm: 21 m	bottom
	ER 73	41.977778	-81.756944	24	5 grab 1 integrated	2	NA	SRF: 1 m MEP, DCL (if present), MHY B-1: ~23 m	63 µm: 20 m 153 µm: 22 m	NA
	ER 36	41.935000	-81.478333	23	5 grab 1 integrated	2	NA	SRF: 1 m MEP, DCL (if present), MHY B-1: ~22 m	63 µm: 20 m 153 µm: 21 m	NA
	ER 37	42.110000	-81.575000	24	5 grab 1 integrated	2	NA	SRF: 1 m MEP, DCL (if present), MHY B-1: ~23 m	63 µm: 20 m 153 µm: 22 m	NA
	ER 38	42.281667	-81.671667	22	5 grab 1 integrated	2	NA	SRF: 1 m MEP, DCL (if present), MHY B-1: ~21 m	63 µm: 20 m 153 µm: 20 m	NA

Lake/ Basin	Station ID	Latitude	Longitude	Approx Station Depth (m)	Estimated Number of Samples			Thermal Structure Sampling Points and Estimated Sampling Depths		
					Rosette	Zooplankton Tows	Ponar Grab	Rosette	Zooplankton Tows	Ponar Grab
	ER 78 (Master)	42.116667	-81.250000	23	8 grab 1 integrated	6	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, LEP, TRM, DCL (if present), UHY, MHY B-1: ~22 m	63 µm: 20 m 153 µm: 21 m	bottom
	ER 30	42.430000	-81.205000	21	5 grab 1 integrated	2	NA	SRF: 1 m MEP, DCL (if present), MHY B-1: ~20 m	63 µm: 20 m 153 µm: 19 m	NA
	ER 31	42.253333	-81.106667	21	5 grab 1 integrated	2	NA	SRF: 1 m MEP, DCL (if present), MHY B-1: ~20 m	63 µm: 20 m 153 µm: 19 m	NA
	ER 32	42.081667	-81.011667	22	5 grab 1 integrated	2	NA	SRF: 1 m MEP, DCL (if present), MHY B-1: ~21 m	63 µm: 20 m 153 µm: 20 m	NA
Western Lake Erie	ER 58	41.685000	-82.933333	11.5	5 grab 1 integrated	2	NA	SRF: 1 m MEP, DCL (if present), MHY B-1: ~10.5 m	63 µm: 10.5 m 153 µm: 9.5 m	NA
	ER 59	41.726667	-83.150000	10	5 grab 1 integrated	2	NA	SRF: 1 m MEP, DCL (if present), MHY B-1: ~9 m	63 µm: 9 m 153 µm: 8 m	NA
	ER 60	41.891667	-83.196667	9.5	5 grab 1 integrated	2	NA	SRF: 1 m MEP, DCL (if present), MHY B-1: ~8.5 m	63 µm: 8.5 m 153 µm: 7.5 m	NA
	ER 61	41.946667	-83.045000	10	5 grab 1 integrated	2	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, DCL (if present), MHY B-1: ~9 m	63 µm: 9 m 153 µm: 8 m	bottom
	ER 91 (Master)	41.840833	-82.916667	10.5	7 grab 1 integrated	6	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, LEP, TRM, DCL (if present), UHY B-1: ~9.5 m	63 µm: 10 m 153 µm: 9 m	bottom
	ER 92	41.950000	-82.686667	11	5 grab 1 integrated	2	NA	SRF: 1 m MEP, DCL (if present), MHY B-1: ~10 m	63 µm: 10 m 153 µm: 9 m	NA

Table A-3. Lake Erie Benthos Sampling Strategies - Summer Surveys

Lake/ Basin	Station ID	Latitude	Longitude	Approx Station Depth (m)	Estimated Number of Samples	Estimated Sampling Depth
					Ponar Grab	Ponar Grab
Eastern Lake Erie	ER 93B	42.616667	-80.000000	43	3 for benthic invertebrates 1 for grain size and chemical analysis	bottom
Central Lake Erie	ER 95B	42.00000	-80.66639	17	3 for benthic invertebrates 1 for grain size and chemical analysis	bottom

▸ A field duplicate, lab duplicate, and field reagent blank are collected with each group of 3, 4, or 5 stations depending on the lake. A Random Number Generator (RNG) is used to determine the stations and depths of these QC samples.

▸ If an integer meter depth falls within 2 m of B-10, then the integer meter depth sample is omitted. If B-10 falls within 2 m of a stratification depth, the B-10 sample is omitted. If an integer meter depth falls within 3 m of a stratification depth, the integer meter depth sample is omitted. If there is a DCL, a sample is taken. If other designated samples are within 3 meters of the DCL, they are not taken. If the UHY sample is between 37 m and 47 m, the 40 m sample is not taken. (These exceptions do not apply to the integrated sample.)

▸ SRF = Surface (1 m), MEP = Mid-epilimnion, LEP = Lower epilimnion, TRM = Thermocline, DCL = Deep Chlorophyll Layer, UHY = Upper hypolimnion, MHY = Mid-hypolimnion, MID = Mid-depth, B-10 = bottom minus 10 m, B-2 = bottom minus 2 m, B-1 = bottom minus 1 m.

▸ Tilde (~) = approximately equal to (i.e. these sampling depths are dependent upon the station depth and thermal profile and may vary from those listed in the table).

▸ Inverse stratification = when any portion of the thermal profile has a temperature greater than 3°C.

▸ For an unstratified water column, the integrated sample is prepared by taking equal volumes of water from SRF (1 m), 5 m, 10 m and 20 meters unless the depth is less than 20 meters. If the total depth is between 15 and 22 meters, the 20 meter sample is replaced by the bottom sample (B-1 or B-2). If the total depth is less than 15 meters, equal volumes are taken from surface, mid-depth, and bottom sample (B-1 or B-2).

For a stratified water column, equal volumes are taken from the surface, 5 m, 10 m, and lower epilimnion (LEP). If the epilimnion is very shallow, equal volumes are taken from a maximum of four sampling depths and a minimum of two sampling depths. The underlying strategy is to collect a representative sample from the epilimnion.

▸ Parameters for samples from Rosette include:
Nutrients - Nitrate + Nitrite, Total P, Total Dissolved P, Chloride, Reactive Silicate, Particulate Organic C, Dissolved Organic C, Particulate Nitrogen, Particulate Phosphorus
Physical - Turbidity, Specific Conductance, pH, Total Suspended Solids, Dissolved Oxygen
Biological - Phytoplankton (INT and DCL samples only), Chlorophyll a

▸ Parameters for samples from Tow Net include:
Biological - Zooplankton

▸ Parameters for samples from Ponar Grab include:
Biological - Benthic Invertebrates

Table A-4. Lake Huron Sampling Strategy, Spring Surveys

Lake/ Basin	Station ID	Latitude	Longitude	Approx Station Depth (m)	Estimated Number of Samples		Thermal Structure Sampling Points and Estimated Sampling Depths	
					Rosette	Zooplankton Tows	Rosette	Zooplankton Tows
Southern Lake Huron	HU 06	43.466667	-82.000000	46	4 grab 1 integrated	2	SRF: 1 m MID: ~23 m B-10: ~36 m B-2: ~44 m (only when inverse stratification is present)	63 µm: 20 m 153 µm: 44 m
	HU 09	43.633333	-82.216667	57	4 grab 1 integrated	2	SRF: 1 m MID: ~28.5 m B-10:~ 47 m B-2: ~55 m (only when inverse stratification is present)	63 µm: 20 m 153 µm: 55 m
	HU 12	43.890000	-82.056667	86	4 grab 1 integrated	2	SRF: 1 m MID: ~43 m B-10: ~76 m B-2: ~84 m (only when inverse stratification is present)	63 µm: 20 m 153 µm: 84 m
	HU 15 (Master)	44.000000	-82.350000	68	9 grab 1 integrated	6	SRF: 1 m 5 m, 10 m, 20 m, 30 m, 40 m, 50 m B-10: ~58 m B-2: ~66 m	63 µm: 20 m 153 µm: 66 m
	HU 93	44.100000	-82.116667	91	4 grab 1 integrated	2	SRF: 1 m MID: ~45.5 m B-10: ~81 m B-2: ~89 m (only when inverse stratification is present)	63 µm: 20 m 153 µm: 89 m
	HU 27	44.198333	-82.503333	50	4 grab 1 integrated	2	SRF: 1 m MID: ~25 m B-10: ~40 m B-2: ~48 m (only when inverse stratification is present)	63 µm: 20 m 153 µm: 48 m
Central Lake Huron	HU 32	44.453333	-82.341667	73	4 grab 1 integrated	2	SRF: 1 m MID: ~36.5 m B-10: ~63 m B-2: ~71 m (only when inverse stratification is present)	63 µm: 20 m 153 µm: 71 m
	HU 37	44.761667	-82.783333	73	4 grab 1 integrated	2	SRF: 1 m MID: ~36.5 m B-10: ~63 m B-2: ~71 m (only when inverse stratification is present)	63 µm: 20 m 153 µm: 71 m
	HU 38	44.740000	-82.060000	137	4 grab 1 integrated	2	SRF: 1 m MID: ~68.5 m B-10: ~127 m B-2: ~135 m (only when inverse stratification is present)	63 µm: 20 m 153 µm: 100 m

Lake/Basin	Station ID	Latitude	Longitude	Approx Station Depth (m)	Estimated Number of Samples		Thermal Structure Sampling Points and Estimated Sampling Depths	
					Rosette	Zooplankton Tows	Rosette	Zooplankton Tows
Northern Lake Huron	HU 45 (Master)	45.136667	-82.983333	110	9 grab 1 integrated	6	SRF: 1 m 5 m, 10 m, 20 m, 30 m, 40 m, 50 m B-10: ~100 m B-2: ~108 m	63 μm: 20 m 153 μm: 100 m
	HU 48	45.278333	-82.451667	115	4 grab 1 integrated	2	SRF: 1 m MID: ~57.5 m B-10: ~105 m B-2: ~113 m (only when inverse stratification is present)	63 μm: 20 m 153 μm: 100 m
	HU 53	45.450000	-82.915000	87	4 grab 1 integrated	2	SRF: 1 m MID: ~59.5 m B-10: ~109 m B-2: ~117 m (only when inverse stratification is present)	63 μm: 20 m 153 μm: 100 m
	HU 54 (Master)	45.516667	-83.416667	91	9 grab 1 integrated	6	SRF: 1 m 5 m, 10 m, 20 m, 30 m, 40 m, 50 m B-10: ~81 m B-2: ~89 m	63 μm: 20 m 153 μm: 89 m
	HU 61	45.750000	-83.916667	120	4 grab 1 integrated	2	SRF: 1 m MID: ~60 m B-10: ~110 m B-2: ~118 m (only when inverse stratification is present)	63 μm: 20 m 153 μm: 100 m

Table A-5. Lake Huron Benthos Sampling Strategies - Spring Surveys

Lake/ Basin	Station ID	Latitude	Longitude	Approx Station Depth (m)	Estimated Number of Samples	Estimated Sampling Depths
					Ponar Grab	Ponar Grab
Saginaw Bay	HU 98B	43.941667	-83.623889	12	3 for benthic invertebrates	bottom

‣ A field duplicate, lab duplicate, and field reagent blank are collected with each group of 3, 4, or 5 stations depending on the lake. A Random Number Generator (RNG) is used to determine the stations and depths of these QC samples.

‣ If an integer meter depth falls within 2 m of B-10, then the integer meter depth sample is omitted. If B-10 falls within 2 m of a stratification depth, the B-10 sample is omitted. If an integer meter depth falls within 3 m of a stratification depth, the integer meter depth sample is omitted. If there is a DCL, a sample is taken. If other designated samples are within 3 meters of the DCL, they are not taken. If the UHY sample is between 37 m and 47 m, the 40 m sample is not taken. (These exceptions do not apply to the integrated sample.)

‣ SRF = Surface (1 m), MEP = Mid-epilimnion, LEP = Lower epilimnion, TRM = Thermocline, DCL = Deep Chlorophyll Layer, UHY = Upper hypolimnion, MHY = Mid-hypolimnion, MID = Mid-depth, B-10 = bottom minus 10 m, B-2 = bottom minus 2 m, B-1 = bottom minus 1 m.

‣ Tilde (~) = approximately equal to (i.e. these sampling depths are dependent upon the station depth and thermal profile and may vary from those listed in the table).

‣ Inverse stratification = when any portion of the thermal profile has a temperature greater than 3°C.

‣ For an unstratified water column, the integrated sample is prepared by taking equal volumes of water from SRF (1 m), 5 m, 10 m and 20 meters unless the depth is less than 20 meters. If the total depth is between 15 and 22 meters, the 20 meter sample is replaced by the bottom sample (B-1 or B-2). If the total depth is less than 15 meters, equal volumes are taken from surface, mid-depth, and bottom sample (B-1 or B-2).
For a stratified water column, equal volumes are taken from the surface, 5 m, 10 m, and lower epilimnion (LEP). If the epilimnion is very shallow, equal volumes are taken from a maximum of four sampling depths and a minimum of two sampling depths. The underlying strategy is to collect a representative sample from the epilimnion.

‣ Parameters for samples from Rosette include:
Nutrients - Nitrate + Nitrite, Total P, Total Dissolved P, Chloride, Reactive Silicate, Particulate Organic C, Dissolved Organic C, Particulate Nitrogen, Particulate Phosphorus
Physical - Turbidity, Specific Conductance, pH, Total Suspended Solids, Dissolved Oxygen
Biological - Phytoplankton (INT and DCL samples only), Chlorophyll a

‣ Parameters for samples from Tow Net include:
Biological - Zooplankton

‣ Parameters for samples from Ponar Grab include:
Biological - Benthic Invertebrates

Table A-6. Lake Huron Sampling Strategy, Summer Surveys

Lake/ Basin	Station ID	Latitude	Longitude	Approx Station Depth (m)	Estimated Number of Samples			Thermal Structure Sampling Points and Estimated Sampling Depths		
					Rosette	Zooplankton Tows	Ponar Grab	Rosette	Zooplankton Tows	Ponar Grab
Southern Lake Huron	HU 06	43.466667	-82.000000	46	6 grab 1 integrated	2	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, DCL (if present), MHY B-10: ~36 m B-2: ~44 m (only if nepheloid layer is present)	63 μm: 20 m 153 μm: 44 m	bottom
	HU 09	43.633333	-82.216667	57	6 grab 1 integrated	2	NA	SRF: 1 m MEP, DCL (if present), MHY B-10: ~47 m B-2: ~55 m (only if nepheloid layer is present)	63 μm: 20 m 153 μm: 55 m	NA
	HU 12	43.890000	-82.056667	86	6 grab 1 integrated	2	NA	SRF: 1 m MEP, DCL (if present), MHY B-10: ~76 m B-2: ~84 m (only if nepheloid layer is present)	63 μm: 20 m 153 μm: 84 m	NA
	HU 15 (Master)	44.000000	-82.350000	68	11 grab 1 integrated	6	NA	SRF: 1 m MEP, LEP, TRM, UHY, 40 m, 50 m, DCL (if present) B-10: ~58 m B-2: ~66 m	63 μm: 20 m 153 μm: 66 m	NA
	HU 93	44.100000	-82.116667	91	6 grab 1 integrated	2	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, DCL (if present), MHY B-10: ~81 m B-2: ~89 m (only if nepheloid layer is present)	63 μm: 20 m 153 μm: 90 m	bottom
	HU 27	44.198333	-82.503333	50	6 grab 1 integrated	2	NA	SRF: 1 m MEP, DCL (if present), MHY B-10: ~40 m B-2: ~48 m (only if nepheloid layer is present)	63 μm: 20 m 153 μm: 49 m	NA
Central Lake Huron	HU 32	44.453333	-82.341667	73	6 grab 1 integrated	2	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, DCL (if present), MHY B-10: ~63 m B-2: ~71 m (only if nepheloid layer is present)	63 μm: 20 m 153 μm: 72 m	bottom
	HU 37	44.761667	-82.783333	73	6 grab 1 integrated	2	NA	SRF: 1 m MEP, DCL (if present), MHY B-10: ~63 m B-2: ~71 m (only if nepheloid layer is present)	63 μm: 20 m 153 μm: 72 m	NA

Lake/ Basin	Station ID	Latitude	Longitude	Approx Station Depth (m)	Estimated Number of Samples			Thermal Structure Sampling Points and Estimated Sampling Depths		
					Rosette	Zooplankton Tows	Ponar Grab	Rosette	Zooplankton Tows	Ponar Grab
	HU 38	44.740000	-82.060000	137	6 grab 1 integrated	2	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, DCL (if present), MHY B-10: ~127 m B-2: ~135 m (only if nepheloid layer is present)	63 µm: 20 m 153 µm: 100 m	bottom
Northern Lake Huron	HU 45 (Master)	45.136667	-82.983333	110	11 grab 1 integrated	6	NA	SRF: 1 m MEP, LEP, TRM, UHY, 40 m, 50 m, DCL (if present) B-10: ~100 m B-2: ~108 m	63 µm: 20 m 153 µm: 100 m	NA
	HU 48	45.278333	-82.451667	115	6 grab 1 integrated	2	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, DCL (if present), MHY B-10: ~105 m B-2: ~113 m (only if nepheloid layer is present)	63 µm: 20 m 153 µm: 100 m	bottom
	HU 53	45.450000	-82.915000	87	6 grab 1 integrated	2	NA	SRF: 1 m MEP, DCL (if present), MHY B-10: ~109 m B-2: ~117 m (only if nepheloid layer is present)	63 µm: 20 m 153 µm: 100 m	NA
	HU 54 (Master)	45.516667	-83.416667	91	11 grab 1 integrated	6	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, LEP, TRM, UHY, 40 m, 50 m, DCL (if present) B-10: ~81 m B-2: ~89 m	63 µm: 20 m 153 µm: 89 m	bottom
	HU 61	45.750000	-83.916667	120	6 grab 1 integrated	2	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, DCL (if present), MHY B-10: ~110 m B-2: ~118 m (only if nepheloid layer is present)	63 µm: 20 m 153 µm: 100 m	bottom

Table A-7. Lake Huron Benthos Sampling Strategies - Summer Surveys

Lake/ Basin	Station ID	Latitude	Longitude	Approx Station Depth (m)	Estimated Number of Samples	Estimated Sampling Depths
					Ponar Grab	Ponar Grab
Southern Lake Huron	HU 98B	43.941667	-83.623889	12	3 for benthic invertebrates 1 for grain size and chemical analysis	bottom
	HU 95B	44.333333	-82.833333	70	3 for benthic invertebrates 1 for grain size and chemical analysis	bottom
Central Lake Huron	HU 97B	44.916667	-83.166667	46	3 for benthic invertebrates 1 for grain size and chemical analysis	bottom
	HU 96B	44.583333	-81.500000	48	3 for benthic invertebrates 1 for grain size and chemical analysis	bottom

▸ A field duplicate, lab duplicate, and field reagent blank are collected with each group of 3, 4, or 5 stations depending on the lake. A Random Number Generator (RNG) is used to determine the stations and depths of these QC samples.

▸ If an integer meter depth falls within 2 m of B-10, then the integer meter depth sample is omitted. If B-10 falls within 2 m of a stratification depth, the B-10 sample is omitted. If an integer meter depth falls within 3 m of a stratification depth, the integer meter depth sample is omitted. If there is a DCL, a sample is taken. If other designated samples are within 3 meters of the DCL, they are not taken. If the UHY sample is between 37 m and 47 m, the 40 m sample is not taken. (These exceptions do not apply to the integrated sample.)

▸ SRF = Surface (1 m), MEP = Mid-epilimnion, LEP = Lower epilimnion, TRM = Thermocline, DCL = Deep Chlorophyll Layer, UHY = Upper hypolimnion, MHY = Mid-hypolimnion, MID = Mid-depth, B-10 = bottom minus 10 m, B-2 = bottom minus 2 m, B-1 = bottom minus 1 m.

▸ Tilde (~) = approximately equal to (i.e. these sampling depths are dependent upon the station depth and thermal profile and may vary from those listed in the table).

▸ Inverse stratification = when any portion of the thermal profile has a temperature greater than 3°C.

▸ For an unstratified water column, the integrated sample is prepared by taking equal volumes of water from SRF (1 m), 5 m, 10 m and 20 meters unless the depth is less than 20 meters. If the total depth is between 15 and 22 meters, the 20 meter sample is replaced by the bottom sample (B-1 or B-2). If the total depth is less than 15 meters, equal volumes are taken from surface, mid-depth, and bottom sample (B-1 or B-2).

   For a stratified water column, equal volumes are taken from the surface, 5 m, 10 m, and lower epilimnion (LEP). If the epilimnion is very shallow, equal volumes are taken from a maximum of four sampling depths and a minimum of two sampling depths. The underlying strategy is to collect a representative sample from the epilimnion.

▸ Parameters for samples from Rosette include:
   Nutrients - Nitrate + Nitrite, Total P, Total Dissolved P, Chloride, Reactive Silicate, Particulate Organic C, Dissolved Organic C, Particulate Nitrogen, Particulate Phosphorus
   Physical - Turbidity, Specific Conductance, pH, Total Suspended Solids, Dissolved Oxygen
   Biological - Phytoplankton (INT and DCL samples only), Chlorophyll a

▸ Parameters for samples from Tow Net include:
   Biological - Zooplankton

▸ Parameters for samples from Ponar Grab include:
   Biological - Benthic Invertebrates

Table A-8. Lake Michigan Sampling Strategy, Spring Surveys

Lake/ Basin	Station ID	Latitude	Longitude	Approx Station Depth (m)	Estimated Number of Samples		Thermal Structure Sampling Points and Estimated Sampling Depths	
					Rosette	Zooplankton Tows	Rosette	Zooplankton Tows
Southern Lake Michigan	MI 11	42.383333	-87.000000	128	4 grab 1 integrated	2	SRF: 1 m MID: ~64 m B-10: ~118 m B-2: ~126 m (only when inverse stratification is present)	63 µm: 20 m 153 µm: 100 m
	MI 17	42.733333	-87.416667	100	4 grab 1 integrated	2	SRF: 1 m MID: ~50 m B-10: ~90 m B-2: ~98 m (only when inverse stratification is present)	63 µm: 20 m 153 µm: 98 m
	MI 18 (Master)	42.733333	-87.000000	161	10 grab 1 integrated	6	SRF: 1 m 5 m, 10 m, 20 m, 30 m, 40 m, 50 m, 100 m B-10: ~151 m B-2: ~159 m	63 µm: 20 m 153 µm: 100 m
	MI 19	42.733333	-86.583333	92	4 grab 1 integrated	2	SRF: 1 m MID: ~46 m B-10: ~82 m B-2: ~90 m (only when inverse stratification is present)	63 µm: 20 m 153 µm: 91 m
	MI 23	43.133333	-87.000000	88	4 grab 1 integrate	2	SRF: 1 m MID: ~44 m B-10: ~78 m B-2: ~76 m (only when inverse stratification is present)	63 µm: 20 m 153 µm: 100 m
Central Lake Michigan	MI 27 (Master)	43.600000	-86.916667	112	10 grab 1 integrated	6	SRF: 1 m 5 m, 10 m, 20 m, 30 m, 40 m, 50 m, 100 m B-10: ~102 m B-2: ~110 m	63 µm: 20 m 153 µm: 100 m
	MI 32	44.140000	-87.233333	159	4 grab 1 integrated	2	SRF: 1 m MID: ~79.5 m B-10: ~149 m B-2: ~157 m (only when inverse stratification is present)	63 µm: 20 m 153 µm: 100 m
	MI 34	44.090000	-86.766667	160	4 grab 1 integrated	2	SRF: 1 m MID: ~80 m B-10: ~150 m B-2: ~158 m (only when inverse stratification is present)	63 µm: 20 m 153 µm: 100 m

Lake/ Basin	Station ID	Latitude	Longitude	Approx Station Depth (m)	Estimated Number of Samples		Thermal Structure Sampling Points and Estimated Sampling Depths	
					Rosette	Zooplankton Tows	Rosette	Zooplankton Tows
Northern Lake Michigan	MI 40	44.760000	-86.966667	160	4 grab 1 integrated	2	SRF: 1 m MID: ~80 m B-10: ~150 m B-2: ~158 m (only when inverse stratification is present)	63 µm: 20 m 153 µm: 100 m
	MI 41 (Master)	44.736667	-86.721667	250	11 grab 1 integrated	6	SRF: 1 m 5 m, 10 m, 20 m, 30 m, 40 m, 50 m, 100 m, 200 m B-10: ~240 m B-2: ~248 m	63 µm: 20 m 153 µm: 100 m
	MI 47	45.178333	-86.375000	186	4 grab 1 integrated	2	SRF: 1 m MID: ~92.5 m B-10: ~176 m B-2: ~183 m (only when inverse stratification is present)	63 µm: 20 m 153 µm: 100 m

Table A-9. Lake Michigan Benthos Sampling Strategies - Spring Surveys

Lake/ Basin	Station ID	Latitude	Longitude	Approx Station Depth (m)	Estimated Number of Samples	Estimated Sampling Depths
					Ponar Grab	Ponar Grab
Northern Basin	MI 50B	45.116667	-87.416667	20	3 for benthic invertebrates	bottom
	MI 49B	45.49361	-87.03278	44	3 for benthic invertebrates	bottom

‣ A field duplicate, lab duplicate, and field reagent blank are collected with each group of 3, 4, or 5 stations depending on the lake. A Random Number Generator (RNG) is used to determine the stations and depths of these QC samples.

‣ If an integer meter depth falls within 2 m of B-10, then the integer meter depth sample is omitted. If B-10 falls within 2 m of a stratification depth, the B-10 sample is omitted. If an integer meter depth falls within 3 m of a stratification depth, the integer meter depth sample is omitted. If there is a DCL, a sample is taken. If other designated samples are within 3 meters of the DCL, they are not taken. If the UHY sample is between 37 m and 47 m, the 40 m sample is not taken. (These exceptions do not apply to the integrated sample.)

‣ SRF = Surface (1 m), MEP = Mid-epilimnion, LEP = Lower epilimnion, TRM = Thermocline, DCL = Deep Chlorophyll Layer, UHY = Upper hypolimnion, MHY = Mid-hypolimnion, MID = Mid-depth, B-10 = bottom minus 10 m, B-2 = bottom minus 2 m, B-1 = bottom minus 1 m.

‣ Tilde (~) = approximately equal to (i.e. these sampling depths are dependent upon the station depth and thermal profile and may vary from those listed in the table).

‣ Inverse stratification = when any portion of the thermal profile has a temperature greater than 3°C.

‣ For an unstratified water column, the integrated sample is prepared by taking equal volumes of water from SRF (1 m), 5 m, 10 m and 20 meters unless the depth is less than 20 meters. If the total depth is between 15 and 22 meters, the 20 meter sample is replaced by the bottom sample (B-1 or B-2). If the total depth is less than 15 meters, equal volumes are taken from surface, mid-depth, and bottom sample (B-1 or B-2).
For a stratified water column, equal volumes are taken from the surface, 5 m, 10 m, and lower epilimnion (LEP). If the epilimnion is very shallow, equal volumes are taken from a maximum of four sampling depths and a minimum of two sampling depths. The underlying strategy is to collect a representative sample from the epilimnion.

‣ Parameters for samples from Rosette include:
Nutrients - Nitrate + Nitrite, Total P, Total Dissolved P, Chloride, Reactive Silicate, Particulate Organic C, Dissolved Organic C, Particulate Nitrogen, Particulate Phosphorus
Physical - Turbidity, Specific Conductance, pH, Total Suspended Solids, Dissolved Oxygen
Biological - Phytoplankton (INT and DCL samples only), Chlorophyll a

‣ Parameters for samples from Tow Net include:
Biological - Zooplankton

‣ Parameters for samples from Ponar Grab include:
Biological - Benthic Invertebrates

Table A-10. Lake Michigan Sampling Strategy, Summer Surveys

Lake/ Basin	Station ID	Latitude	Longitude	Approx Station Depth (m)	Estimated Number of Samples			Thermal Structure Sampling Points and Estimated Sampling Depths		
					Rosette	Zooplankton Tows	Ponar Grab	Rosette	Zooplankton Tows	Ponar Grab
Southern Lake Michigan	MI 11	42.383333	-87.000000	128	6 grab 1 integrated	2	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, DCL (if present), MHY B-10: ~118 m B-2: ~126 m (only if nepheloid layer is present)	63 µm: 20 m 153 µm: 100 m	bottom
	MI 17	42.733333	-87.416667	100	6 grab 1 integrated	2	NA	SRF: 1 m MEP, DCL (if present), MHY B-10: ~90 m B-2: ~98 m (only if nepheloid layer is present)	63 µm: 20 m 153 µm: 99 m	NA
	MI 18 (Master)	42.733333	-87.000000	161	12 grab 1 integrated	6	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, LEP, TRM, UHY, 40 m, 50 m, 100 m, DCL (if present) B-10: ~151 m B-2: ~159 m	63 µm: 20 m 153 µm: 100 m	bottom
	MI 19	42.733333	-86.583333	92	6 grab 1 integrated	2	NA	SRF: 1 m MEP, DCL (if present), MHY B-10: ~82 m B-2: ~90 m (only if nepheloid layer is present)	63 µm: 20 m 153 µm: 91 m	NA
	MI 23	43.133333	-87.000000	88	6 grab 1 integrate	2	NA	SRF: 1 m MEP, DCL (if present), MHY B-10: ~78 m B-2: ~86 m (only if nepheloid layer is present)	63 µm: 20 m 153 µm: 100 m	NA
Central Lake Michigan	MI 27 (Master)	43.600000	-86.916667	112	12 grab 1 integrated	6	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, LEP, TRM, UHY, 40 m, 50 m, 100 m, DCL (if present) B-10: ~102 m B-2: ~110 m	63 µm: 20 m 153 µm: 100 m	bottom
	MI 32	44.140000	-87.233333	159	6 grab 1 integrated	2	NA	SRF: 1 m MEP, DCL (if present), MHY B-10: ~149 m B-2: ~157 m (only if nepheloid layer is present)	63 µm: 20 m 153 µm: 100 m	NA
	MI 34	44.090000	-86.766667	160	6 grab 1 integrated	2	NA	SRF: 1 m MEP, DCL (if present), MHY B-10: ~150 m B-2: ~158 m (only if nepheloid layer is present)	63 µm: 20 m 153 µm: 100 m	NA

Lake/ Basin	Station ID	Latitude	Longitude	Approx Station Depth (m)	Estimated Number of Samples			Thermal Structure Sampling Points and Estimated Sampling Depths		
					Rosette	Zooplankton Tows	Ponar Grab	Rosette	Zooplankton Tows	Ponar Grab
Northern Lake Michigan	MI 40	44.760000	-86.966667	160	6 grab 1 integrated	2	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, DCL (if present), MHY B-10: ~150 m B-2: ~158 m (only if nepheloid layer is present)	63 μm: 20 m 153 μm: 100 m	bottom
	MI 41 (Master)	44.736667	-86.721667	250	11 grab 1 integrated	6	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, LEP, TRM, UHY, 40 m, 50 m, 100 m, 200 m, DCL (if present) B-10: ~240 m B-2: ~248 m	63 μm: 20 m 153 μm: 100 m	bottom
	MI 47	45.178333	-86.375000	186	6 grab 1 integrated	2	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, DCL (if present), MHY B-10: ~176 m B-2: ~184 m (only if nepheloid layer is present)	63 μm: 20 m 153 μm: 100 m	bottom

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Table A-11. Lake Michigan Benthos Sampling Strategies - Summer Surveys

Lake/ Basin	Station ID	Latitude	Longitude	Approx Station Depth (m)	Estimated Number of Samples	Estimated Sampling Depths
					Ponar Grab	Ponar Grab
Southern Lake Michigan	MI 48B	42.683333	-86.33333	53	3 for benthic invertebrates 1 for grain size and chemical analysis	bottom
	MI 46B	43.10306	-86.37222	51	3 for benthic invertebrates 1 for grain size and chemical analysis	bottom
Central Lake Michigan	MI 31B	43.916667	-87.616667	42	3 for benthic invertebrates 1 for grain size and chemical analysis	bottom
	MI 30B	43.933333	-86.566667	39	3 for benthic invertebrates 1 for grain size and chemical analysis	bottom
Northern Lake Michigan	MI 42B	44.77056	-87.21278	49	3 for benthic invertebrates 1 for grain size and chemical analysis	bottom
	MI 50B	45.116667	-87.416667	20	3 for benthic invertebrates 1 for grain size and chemical analysis	bottom
	MI 51B	45.183333	-86.100000	106	3 for benthic invertebrates 1 for grain size and chemical analysis	bottom
	MI 49B	45.49361	-87.03278	44	3 for benthic invertebrates 1 for grain size and chemical analysis	bottom
	MI 52B	45.808333	-86.04556	54	3 for benthic invertebrates 1 for grain size and chemical analysis	bottom
	MI 53B	45.433333	-85.216667	60	3 for benthic invertebrates 1 for grain size and chemical analysis	bottom

▸ A field duplicate, lab duplicate, and field reagent blank are collected with each group of 3, 4, or 5 stations depending on the lake. A Random Number Generator (RNG) is used to determine the stations and depths of these QC samples.

▸ If an integer meter depth falls within 2 m of B-10, then the integer meter depth sample is omitted. If B-10 falls within 2 m of a stratification depth, the B-10 sample is omitted. If an integer meter depth falls within 3 m of a stratification depth, the integer meter depth sample is omitted. If there is a DCL, a sample is taken. If other designated samples are within 3 meters of the DCL, they are not taken. If the UHY sample is between 37 m and 47 m, the 40 m sample is not taken. (These exceptions do not apply to the integrated sample.)

▸ SRF = Surface (1 m), MEP = Mid-epilimnion, LEP = Lower epilimnion, TRM = Thermocline, DCL = Deep Chlorophyll Layer, UHY = Upper hypolimnion, MHY = Mid-hypolimnion, MID = Mid-depth, B-10 = bottom minus 10 m, B-2 = bottom minus 2 m, B-1 = bottom minus 1 m.

▸ Tilde (~) = approximately equal to (i.e. these sampling depths are dependent upon the station depth and thermal profile and may vary from those listed in the table).

▸ Inverse stratification = when any portion of the thermal profile has a temperature greater than 3°C.

▸ For an unstratified water column, the integrated sample is prepared by taking equal volumes of water from SRF (1 m), 5 m, 10 m and 20 meters unless the depth is less than 20 meters. If the total depth is between 15 and 22 meters, the 20 meter sample is replaced by the bottom sample (B-1 or B-2). If the total depth is less than 15 meters, equal volumes are taken from surface, mid-depth, and bottom sample (B-1 or B-2).
For a stratified water column, equal volumes are taken from the surface, 5 m, 10 m, and lower epilimnion (LEP). If the epilimnion is very shallow, equal volumes are taken from a maximum of four sampling depths and a minimum of two sampling depths. The underlying strategy is to collect a representative sample from the epilimnion.

▸ Parameters for samples from Rosette include:
Nutrients - Nitrate + Nitrite, Total P, Total Dissolved P, Chloride, Reactive Silicate, Particulate Organic C, Dissolved Organic C, Particulate Nitrogen, Particulate Phosphorus
Physical - Turbidity, Specific Conductance, pH, Total Suspended Solids, Dissolved Oxygen
Biological - Phytoplankton (INT and DCL samples only), Chlorophyll a

▸ Parameters for samples from Tow Net include:
Biological - Zooplankton

▸ Parameters for samples from Ponar Grab include:
Biological - Benthic Invertebrates

Table A-12. Lake Ontario Sampling Strategy, Spring Surveys

Lake/ Basin	Station ID	Latitude	Longitude	Approx Station Depth (m)	Estimated Number of Samples		Thermal Structure Sampling Points and Estimated Sampling Depths	
					Rosette	Zooplankton Tows	Rosette	Zooplankton Tows
Eastern Lake Ontario	ON 49	43.771667	-77.438333	50	4 grab 1 integrated	2	SRF: 1 m MID: ~25 m B-10: ~40 m B-2: ~48 m (only when inverse stratification is present)	63 µm: 20 m 153 µm: 48 m
	ON 55 (Master)	43.443333	-77.438333	183	10 grab 1 integrated	6	SRF: 1 m 5 m, 10 m, 20 m, 30 m, 40 m, 50 m, 100 m B-10: ~173 m B-2: ~181 m	63 µm: 20 m 153 µm: 100 m
	ON 60	43.580000	-77.200000	148	4 grab 1 integrated	2	SRF: 1 m MID: ~74 m B-10: ~138 m B-2: ~146 m (only when inverse stratification is present)	63 µm: 20 m 153 µm: 100 m
	ON 63	43.731667	-77.016667	82	4 grab 1 integrated	2	SRF: 1 m MID: ~41 m B-10: ~72 m B-2: ~80 m (only when inverse stratification is present)	63 µm: 20 m 153 µm: 80 m
Western Lake Ontario	ON 12	43.503333	-79.353333	98	4 grab 1 integrated	2	SRF: 1 m MID: ~49 m B-10: ~88 m B-2: ~96 m (only when inverse stratification is present)	63 µm: 20 m 153 µm: 96 m
	ON 25	43.516667	-79.080000	133	4 grab 1 integrated	2	SRF: 1 m MID: ~66.5 m B-10: ~123 m B-2: ~131 m (only when inverse stratification is present)	63 µm: 20 m 153 µm: 100 m
	ON 33 (Master)	43.596667	-78.801667	131	10 grab 1 integrated	6	SRF: 1 m 5 m, 10 m, 20 m, 30 m, 40 m, 50 m, 100 m B-10: ~121 m B-2: ~129 m	63 µm: 20 m 153 µm: 100 m
	ON 41	43.716667	-78.026667	122	4 grab 1 integrated	2	SRF: 1 m MID: ~61 m B-10: ~112 m B-2: ~120 m (only when inverse stratification is present)	63 µm: 20 m 153 µm: 100 m

‣ A field duplicate, lab duplicate, and field reagent blank are collected with each group of 3, 4, or 5 stations depending on the lake. A Random Number Generator (RNG) is used to determine the stations and depths of these QC samples.

- If an integer meter depth falls within 2 m of B-10, then the integer meter depth sample is omitted. If B-10 falls within 2 m of a stratification depth, the B-10 sample is omitted. If an integer meter depth falls within 3 m of a stratification depth, the integer meter depth sample is omitted. If there is a DCL, a sample is taken. If other designated samples are within 3 meters of the DCL, they are not taken. If the UHY sample is between 37 m and 47 m, the 40 m sample is not taken. (These exceptions do not apply to the integrated sample.)

- SRF = Surface (1 m), MEP = Mid-epilimnion, LEP = Lower epilimnion, TRM = Thermocline, DCL = Deep Chlorophyll Layer, UHY = Upper hypolimnion, MHY = Mid-hypolimnion, MID = Mid-depth, B-10 = bottom minus 10 m, B-2 = bottom minus 2 m, B-1 = bottom minus 1 m.

- Tilde (~) = approximately equal to (i.e. these sampling depths are dependent upon the station depth and thermal profile and may vary from those listed in the table).

- Inverse stratification = when any portion of the thermal profile has a temperature greater than 3°C.

- For an unstratified water column, the integrated sample is prepared by taking equal volumes of water from SRF (1 m), 5 m, 10 m and 20 meters unless the depth is less than 20 meters. If the total depth is between 15 and 22 meters, the 20 meter sample is replaced by the bottom sample (B-1 or B-2). If the total depth is less than 15 meters, equal volumes are taken from surface, mid-depth, and bottom sample (B-1 or B-2).

  For a stratified water column, equal volumes are taken from the surface, 5 m, 10 m, and lower epilimnion (LEP). If the epilimnion is very shallow, equal volumes are taken from a maximum of four sampling depths and a minimum of two sampling depths. The underlying strategy is to collect a representative sample from the epilimnion.

- Parameters for samples from Rosette include:

  Nutrients - Nitrate + Nitrite, Total P, Total Dissolved P, Chloride, Reactive Silicate, Particulate Organic C, Dissolved Organic C, Particulate Nitrogen, Particulate Phosphorus

  Physical - Turbidity, Specific Conductance, pH, Total Suspended Solids, Dissolved Oxygen

  Biological - Phytoplankton (INT and DCL samples only), Chlorophyll a

- Parameters for samples from Tow Net include:

  Biological - Zooplankton

- Parameters for samples from Ponar Grab include:

  Biological - Benthic Invertebrates

Table A-13. Lake Ontario Sampling Strategy, Summer Surveys

Lake/ Basin	Station ID	Latitude	Longitude	Approx Station Depth (m)	Estimated Number of Samples			Thermal Structure Sampling Points and Estimated Sampling Depths		
					Rosette	Zooplankton Tows	Ponar Grab	Rosette	Zooplankton Tows	Ponar Grab
Eastern Lake Ontario	ON 49	43.771667	-77.438333	50	6 grab 1 integrated	2	NA	SRF: 1 m MEP, DCL (if present), MHY B-10: ~40 m B-2: ~48 m (only if nepheloid layer is present)	63 µm: 20 m 153 µm: 48 m	NA
	ON 55 (Master)	43.443333	-77.438333	183	12 grab 1 integrated	6	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, LEP, TRM, UHY, 40 m, 50 m, 100 m, DCL (if present) B-10: ~173 m B-2: ~181 m	63 µm: 20 m 153 µm: 100 m	bottom
	ON 60	43.580000	-77.200000	148	6 grab 1 integrated	2	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, DCL (if present), MHY B-10: ~138 m B-2: ~136 m (only if nepheloid layer is present)	63 µm: 20 m 153 µm: 100 m	bottom
	ON 63	43.731667	-77.016667	82	6 grab 1 integrated	2	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, DCL (if present), MHY B-10: ~72 m B-2: ~80 m (only if nepheloid layer is present)	63 µm: 20 m 153 µm: 80 m	bottom
Western Lake Ontario	ON 12	43.503333	-79.353333	98	6 grab 1 integrated	2	NA	SRF: 1 m MEP, DCL (if present), MHY B-10: ~88 m B-2: ~96 m (only if nepheloid layer is present)	63 µm: 20 m 153 µm: 96 m	NA
	ON 25	43.516667	-79.080000	133	6 grab 1 integrated	2	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, DCL (if present), MHY B-10: ~123 m B-2: ~131 m (only if nepheloid layer is present)	63 µm: 20 m 153 µm: 100 m	bottom
	ON 33 (Master)	43.596667	-78.801667	131	12 grab 1 integrated	6	NA	SRF: 1 m MEP, LEP, TRM, UHY, 40 m, 50 m, 100 m, DCL (if present) B-10: ~121 m B-2: ~129 m	63 µm: 20 m 153 µm: 100 m	NA
	ON 41	43.716667	-78.026667	122	6 grab 1 integrated	2	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, DCL (if present), MHY B-10: ~112 m B-2: ~120 m (only if nepheloid layer is present)	63 µm: 20 m 153 µm: 100 m	bottom

Table A-14. Lake Ontario Benthos Sampling Strategies - Summer Surveys

Lake/ Basin	Station ID	Latitude	Longitude	Approx Station Depth (m)	Estimated Number of Samples	Estimated Sampling Depths
					Ponar Grab	Ponar Grab
Eastern Lake Ontario	ON 65B	43.283333	-76.950000	25	3 for benthic invertebrates 1 for grain size and chemical analysis	bottom
	ON 64B	43.583333	-76.333333	49	3 for benthic invertebrates 1 for grain size and chemical analysis	bottom
Western Lake Ontario	ON 68B	43.583333	-79.416667	51	3 for benthic invertebrates 1 for grain size and chemical analysis	bottom
	ON 69B	43.318333	-79.000000		3 for benthic invertebrates 1 for grain size and chemical analysis	bottom
	ON 67B	43.37500	-78.729444	56	3 for benthic invertebrates 1 for grain size and chemical analysis	bottom

▸ A field duplicate, lab duplicate, and field reagent blank are collected with each group of 3, 4, or 5 stations depending on the lake. A Random Number Generator (RNG) is used to determine the stations and depths of these QC samples.

▸ If an integer meter depth falls within 2 m of B-10, then the integer meter depth sample is omitted. If B-10 falls within 2 m of a stratification depth, the B-10 sample is omitted. If an integer meter depth falls within 3 m of a stratification depth, the integer meter depth sample is omitted. If there is a DCL, a sample is taken. If other designated samples are within 3 meters of the DCL, they are not taken. If the UHY sample is between 37 m and 47 m, the 40 m sample is not taken. (These exceptions do not apply to the integrated sample.)

▸ SRF = Surface (1 m), MEP = Mid-epilimnion, LEP = Lower epilimnion, TRM = Thermocline, DCL = Deep Chlorophyll Layer, UHY = Upper hypolimnion, MHY = Mid-hypolimnion, MID = Mid-depth, B-10 = bottom minus 10 m, B-2 = bottom minus 2 m, B-1 = bottom minus 1 m.

▸ Tilde (~) = approximately equal to (i.e. these sampling depths are dependent upon the station depth and thermal profile and may vary from those listed in the table).

▸ Inverse stratification = when any portion of the thermal profile has a temperature greater than 3°C.

▸ For an unstratified water column, the integrated sample is prepared by taking equal volumes of water from SRF (1 m), 5 m, 10 m and 20 meters unless the depth is less than 20 meters. If the total depth is between 15 and 22 meters, the 20 meter sample is replaced by the bottom sample (B-1 or B-2). If the total depth is less than 15 meters, equal volumes are taken from surface, mid-depth, and bottom sample (B-1 or B-2).

For a stratified water column, equal volumes are taken from the surface, 5 m, 10 m, and lower epilimnion (LEP). If the epilimnion is very shallow, equal volumes are taken from a maximum of four sampling depths and a minimum of two sampling depths. The underlying strategy is to collect a representative sample from the epilimnion.

▸ Parameters for samples from Rosette include:
Nutrients - Nitrate + Nitrite, Total P, Total Dissolved P, Chloride, Reactive Silicate, Particulate Organic C, Dissolved Organic C, Particulate Nitrogen, Particulate Phosphorus
Physical - Turbidity, Specific Conductance, pH, Total Suspended Solids, Dissolved Oxygen
Biological - Phytoplankton (INT and DCL samples only), Chlorophyll a

▸ Parameters for samples from Tow Net include:
Biological - Zooplankton

▸ Parameters for samples from Ponar Grab include:
Biological - Benthic Invertebrates

Table A-15. Lake Superior Sampling Strategy, Spring Surveys

Lake/ Basin	Station ID	Latitude	Longitude	Approx Station Depth (m)	Estimated Number of Samples		Thermal Structure Sampling Points and Estimated Sampling Depths	
					Rosette	Zooplankton Tows	Rosette	Zooplankton Tows
Eastern Lake Superior	SU 01 (Master)	46.993306	-85.16111	130	10 grab 1 integrated	9	SRF: 1 m 5 m, 10 m, 20 m, 30 m, 40 m, 50 m, 100 m B-10: ~120 m B-2: ~128 m	63 µm: 2 tows from 20 m 153 µm: 1 tow from 100 m
	SU 02	47.36056	-85.62056	185	4 grab 1 integrated	3	SRF: 1 m MID: ~92.5 m B-10: ~175 m B-2: ~183 m (only when inverse stratification is present)	63 µm: 2 tows from 20 m 153 µm: 1 tow from 100 m
	SU 03	46.894444	-85.85139	160	4 grab 1 integrated	3	SRF: 1 m MID: ~80 m B-10: ~150 m B-2: ~158 m (only when inverse stratification is present)	63 µm: 2 tows from 20 m 153 µm: 1 tow from 100 m
	SU 04	47.25917	-86.34833	185	4 grab 1 integrated	3	SRF: 1 m MID: ~92.5 m B-10: ~175 m B-2: ~183 m (only when inverse stratification is present)	63 µm: 2 tows from 20 m 153 µm: 1 tow from 100 m
	SU 05	46.77472	-86.55556	130	4 grab 1 integrated	3	SRF: 1 m MID: ~65 m B-10: ~120 m B-2: ~128 m (only when inverse stratification is present)	63 µm: 2 tows from 20 m 153 µm: 1 tow from 100 m
Central Lake Superior	SU 06	48.55861	-86.37694	165	4 grab 1 integrated	3	SRF: 1 m MID: ~82.5 m B-10: ~155 m B-2: ~163 m (only when inverse stratification is present)	63 µm: 2 tows from 20 m 153 µm: 1 tow from 100 m
	SU 07	48.07417	-86.59139	185	4 grab 1 integrated	3	SRF: 1 m MID: ~92.5 m B-10: ~175 m B-2: ~183 m (only when inverse stratification is present)	63 µm: 2 tows from 20 m 153 µm: 1 tow from 100 m
	SU 08 (Master)	47.60583	-86.81778	284	11 grab 1 integrated	9	SRF: 1 m 5 m, 10 m, 20 m, 30 m, 40 m, 50 m, 100 m, 200 m B-10: ~274 m B-2: ~282 m	63 µm: 2 tows from 20 m 153 µm: 1 tow from 100 m

Lake/ Basin	Station ID	Latitude	Longitude	Approx Station Depth (m)	Estimated Number of Samples		Thermal Structure Sampling Points and Estimated Sampling Depths	
					Rosette	Zooplankton Tows	Rosette	Zooplankton Tows
	SU 09	48.43667	-87.08611	175	4 grab 1 integrated	3	SRF: 1 m MID: ~87.5 m B-10: ~165 m B-2: ~173 m (only when inverse stratification is present)	63 μm: 2 tows from 20 m 153 μm: 1 tow from 100 m
	SU 10	47.51417	-87.54611	130	4 grab 1 integrated	3	SRF: 1 m MID: ~65 m B-10: ~120 m B-2: ~128 m (only when inverse stratification is present)	63 μm: 2 tows from 20 m 153 μm: 1 tow from 100 m
	SU 11	48.34361	-87.82528	230	4 grab 1 integrated	3	SRF: 1 m MID: ~115 m B-10: ~220 m B-2: ~228 m (only when inverse stratification is present)	63 μm: 2 tows from 20 m 153 μm: 1 tow from 100 m
	SU 12	47.85611	-88.04194	250	4 grab 1 integrated	3	SRF: 1 m MID: ~125 m B-10: ~240 m B-2: ~248 m (only when inverse stratification is present)	63 μm: 2 tows from 20 m 153 μm: 1 tow from 100 m
	SU 13	48.22972	-88.54444	150	4 grab 1 integrated	3	SRF: 1 m MID: ~75 m B-10: ~140 m B-2: ~148 m (only when inverse stratification is present)	63 μm: 2 tows from 20 m 153 μm: 1 tow from 100 m
	SU 14	47.740833	-88.73750	210	4 grab 1 integrated	3	SRF: 1 m MID: ~105 m B-10: ~200 m B-2: ~208 m (only when inverse stratification is present)	63 μm: 2 tows from 20 m 153 μm: 1 tow from 100 m
Western Lake Superior	SU 15	48.08278	-89.25333	185	4 grab 1 integrated	3	SRF: 1 m MID: ~92.5 m B-10: ~175 m B-2: ~182 m (only when inverse stratification is present)	63 μm: 2 tows from 20 m 153 μm: 1 tow from 100 m
	SU 16	47.62139	-89.46306	185	4 grab 1 integrated	3	SRF: 1 m MID: ~92.5 m B-10: ~175 m B-2: ~182 m (only when inverse stratification is present)	63 μm: 2 tows from 20 m 153 μm: 1 tow from 100 m
	SU 17 (Master)	47.16444	-89.66194	205	10 grab 1 integrated	9	SRF: 1 m 5 m, 10 m, 20 m, 30 m, 40 m, 50 m, 100 m B-10: ~195 m B-2: ~203 m	63 μm: 2 tows from 20 m 153 μm: 1 tow from 100 m

Lake/ Basin	Station ID	Latitude	Longitude	Approx Station Depth (m)	Estimated Number of Samples		Thermal Structure Sampling Points and Estimated Sampling Depths	
					Rosette	Zooplankton Tows	Rosette	Zooplankton Tows
	SU 18	47.51444	-90.15194	205	4 grab 1 integrated	3	SRF: 1 m MID: ~102.5 m B-10: ~195 m B-2: ~203 m (only when inverse stratification is present)	63 µm: 2 tows from 20 m 153 µm: 1 tow from 100 m
	SU 19	47.37028	-90.85389	190	4 grab 1 integrated	3	SRF: 1 m MID: ~95 m B-10: ~180 m B-2: ~188 m (only when inverse stratification is present)	63 µm: 2 tows from 20 m 153 µm: 1 tow from 100 m

▸ A field duplicate, lab duplicate, and field reagent blank are collected with each group of 3, 4, or 5 stations depending on the lake. A Random Number Generator (RNG) is used to determine the stations and depths of these QC samples.

▸ If an integer meter depth falls within 2 m of B-10, then the integer meter depth sample is omitted. If B-10 falls within 2 m of a stratification depth, the B-10 sample is omitted. If an integer meter depth falls within 3 m of a stratification depth, the integer meter depth sample is omitted. If there is a DCL, a sample is taken. If other designated samples are within 3 meters of the DCL, they are not taken. If the UHY sample is between 37 m and 47 m, the 40 m sample is not taken. (These exceptions do not apply to the integrated sample.)

▸ SRF = Surface (1 m), MEP = Mid-epilimnion, LEP = Lower epilimnion, TRM = Thermocline, DCL = Deep Chlorophyll Layer, UHY = Upper hypolimnion, MHY = Mid-hypolimnion, MID = Mid-depth, B-10 = bottom minus 10 m, B-2 = bottom minus 2 m, B-1 = bottom minus 1 m.

▸ Tilde (~) = approximately equal to (i.e. these sampling depths are dependent upon the station depth and thermal profile and may vary from those listed in the table).

▸ Inverse stratification = when any portion of the thermal profile has a temperature greater than 3°C.

▸ For an unstratified water column, the integrated sample is prepared by taking equal volumes of water from SRF (1 m), 5 m, 10 m and 20 meters unless the depth is less than 20 meters. If the total depth is between 15 and 22 meters, the 20 meter sample is replaced by the bottom sample (B-1 or B-2). If the total depth is less than 15 meters, equal volumes are taken from surface, mid-depth, and bottom sample (B-1 or B-2).
For a stratified water column, equal volumes are taken from the surface, 5 m, 10 m, and lower epilimnion (LEP). If the epilimnion is very shallow, equal volumes are taken from a maximum of four sampling depths and a minimum of two sampling depths. The underlying strategy is to collect a representative sample from the epilimnion.

▸ Parameters for samples from Rosette include:
Nutrients - Nitrate + Nitrite, Total P, Total Dissolved P, Chloride, Reactive Silicate, Particulate Organic C, Dissolved Organic C, Particulate Nitrogen, Particulate Phosphorus
Physical - Turbidity, Specific Conductance, pH, Total Suspended Solids, Dissolved Oxygen
Biological - Phytoplankton (INT and DCL samples only), Chlorophyll a

▸ Parameters for samples from Tow Net include:
Biological - Zooplankton

▸ Parameters for samples from Ponar Grab include:
Biological - Benthic Invertebrates

Table A-16. Lake Superior Sampling Strategy, Summer Surveys

Lake/ Basin	Station ID	Latitude	Longitude	Approx Station Depth (m)	Estimated Number of Samples			Thermal Structure Sampling Points and Estimated Sampling Depths		
					Rosette	Zooplankton Tows	Ponar Grab	Rosette	Zooplankton Tows	Ponar Grab
Eastern Lake Superior	SU 01 (Master)	46.993306	-85.16111	130	12 grab 1 integrated	9	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, LEP, TRM, UHY, 40 m, 50 m, 100 m, DCL (if present) B-10: ~120 m B-2: ~128 m	63 µm: 2 tows from 20 m 153 µm: 1 tow from 100 m	bottom
	SU 02	47.36056	-85.62056	185	6 grab 1 integrated	3	NA	SRF: 1 m MEP, DCL (if present), MHY B-10: ~175 m B-2: ~183 m (only sample if nepheloid layer is present)	63 µm: 2 tows from 20 m 153 µm: 1 tow from 100 m	NA
	SU 03	46.894444	-85.85139	160	6 grab 1 integrated	3	NA	SRF: 1 m MEP, DCL (if present), MHY B-10: ~150 m B-2: ~158 m (only sample if nepheloid layer is present)	63 µm: 2 tows from 20 m 153 µm: 1 tow from 100 m	NA
	SU 04	47.25917	-86.34833	185	6 grab 1 integrated	3	NA	SRF: 1 m MEP, DCL (if present), MHY B-10: ~175 m B-2: ~183 m (only sample if nepheloid layer is present)	63 µm: 2 tows from 20 m 153 µm: 1 tow from 100 m	NA
	SU 05	46.77472	-86.55556	130	6 grab 1 integrated	3	NA	SRF: 1 m MEP, DCL (if present), MHY B-10: ~120 m B-2: ~128 m (only sample if nepheloid layer is present)	63 µm: 2 tows from 20 m 153 µm: 1 tow from 100 m	NA
Central Lake Superior	SU 06	48.55861	-86.37694	165	6 grab 1 integrated	3	NA	SRF: 1 m MEP, DCL (if present), MHY B-10: ~155 m B-2: ~163 m (only sample if nepheloid layer is present)	63 µm: 2 tows from 20 m 153 µm: 1 tow from 100 m	NA
	SU 07	48.07417	-86.59139	185	6 grab 1 integrated	3	NA	SRF: 1 m MEP, DCL (if present), MHY B-10: ~175 m B-2: ~183 m (only sample if nepheloid layer is present)	63 µm: 2 tows from 20 m 153 µm: 1 tow from 100 m	NA
	SU 08 (Master)	47.60583	-86.81778	284	13 grab 1 integrated	9	NA	SRF: 1 m MEP, LEP, TRM, UHY, 40 m, 50 m, 100 m, 200 m, DCL (if present) B-10: ~274 m B-2: ~282 m	63 µm: 2 tows from 20 m 153 µm: 1 tow from 100 m	NA

Lake/ Basin	Station ID	Latitude	Longitude	Approx Station Depth (m)	Estimated Number of Samples			Thermal Structure Sampling Points and Estimated Sampling Depths		
					Rosette	Zooplankton Tows	Ponar Grab	Rosette	Zooplankton Tows	Ponar Grab
	SU 09	48.43667	-87.08611	175	6 grab 1 integrated	3	NA	SRF: 1 m MEP, DCL (if present), MHY B-10: ~165 m B-2: ~173 m (only sample if nepheloid layer is present)	63 μm: 2 tows from 20m 153 μm: 1 tow from 100 m	NA
	SU 10	47.51417	-87.54611	130	6 grab 1 integrated	3	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, DCL (if present), MHY B-10: ~120 m B-2: ~128 m (only sample if nepheloid layer is present)	63 μm: 2 tows from 20 m 153 μm: 1 tow from 100 m	bottom
	SU 11	48.34361	-87.82528	230	6 grab 1 integrated	3	NA	SRF: 1 m MEP, DCL (if present), MHY B-10: ~220 m B-2: ~228 m (only sample if nepheloid layer is present)	63 μm: 2 tows from 20 m 153 μm: 1 tow from 100 m	NA
	SU 12	47.85611	-88.04194	250	6 grab 1 integrated	3	NA	SRF: 1 m MEP, DCL (if present), MHY B-10: ~240 m B-2: ~248 m (only sample if nepheloid layer is present)	63 μm: 2 tows from 20 m 153 μm: 1 tow from 100 m	NA
	SU 13	48.22972	-88.54444	150	6 grab 1 integrated	3	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, DCL (if present), MHY B-10: ~140 m B-2: ~148 m (only sample if nepheloid layer is present)	63 μm: 2 tows from 20 m 153 μm: 1 tow from 100 m	bottom
	SU 14	47.740833	-88.73750	210	6 grab 1 integrated	3	NA	SRF: 1 m MEP, DCL (if present), MHY B-10: ~200 m B-2: ~208 m (only sample if nepheloid layer is present)	63 μm: 2 tows from 20 m 153 μm: 1 tow from 100 m	NA
Western Lake Superior	SU 15	48.08278	-89.25333	185	6 grab 1 integrated	3	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, DCL (if present), MHY B-10: ~175 m B-2: ~183 m (only sample if nepheloid layer is present)	63 μm: 2 tows from 20 m 153 μm: 1 tow from 100 m	bottom
	SU 16	47.62139	-89.46306	185	6 grab 1 integrated	3	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, DCL (if present), MHY B-10: ~175 m B-2: ~183 m (only sample if nepheloid layer is present)	63 μm: 2 tows from 20 m 153 μm: 1 tow from 100 m	bottom
	SU 17 (Master)	47.16444	-89.66194	205	13 grab 1 integrated	9	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, LEP, TRM, UHY, 40 m, 50 m, 100 m, 200 m, DCL (if present) B-10: ~195 m B-2: ~203 m	63 μm: 2 tows from 20 m 153 μm: 1 tow from 100 m	bottom

Lake/ Basin	Station ID	Latitude	Longitude	Approx Station Depth (m)	Estimated Number of Samples			Thermal Structure Sampling Points and Estimated Sampling Depths		
					Rosette	Zooplankton Tows	Ponar Grab	Rosette	Zooplankton Tows	Ponar Grab
	SU 18	47.51444	-90.15194	205	6 grab 1 integrated	3	NA	SRF: 1 m MEP, DCL (if present), MHY B-10: ~195 m B-2: ~203 m (only sample if nepheloid layer is present)	63 μm: 2 tows from 20 m 153 μm: 1 tow from 100 m	NA
	SU 19	47.37028	-90.85389	190	6 grab 1 integrated	3	3 for benthic invertebrates 1 for grain size and chemical analysis	SRF: 1 m MEP, DCL (if present), MHY B-10: ~180 m B-2: ~188 m (only sample if nepheloid layer is present)	63 μm: 2 tows from 20 m 153 μm: 1 tow from 100 m	bottom

Table A-17. Lake Superior Benthos Sampling Strategies - Summer Surveys

Lake/ Basin	Station ID	Latitude	Longitude	Approx Station Depth (m)	Estimated Number of Samples	Estimated Sampling Depths
					Ponar Grab	Ponar Grab
Lake Superior	SU 22B	46.800000	-91.750000	54	3 for benthic invertebrates 1 for grain size and chemical analysis	bottom
	SU 20B	46.883333	-90.283333	116	3 for benthic invertebrates 1 for grain size and chemical analysis	bottom
	SU 21B	47.158333	-87.78611	115	3 for benthic invertebrates 1 for grain size and chemical analysis	bottom
	SU 23B	46.59750	-84.80694	62	3 for benthic invertebrates 1 for grain size and chemical analysis	bottom

‣ A field duplicate, lab duplicate, and field reagent blank are collected with each group of 3, 4, or 5 stations depending on the lake. A Random Number Generator (RNG) is used to determine the stations and depths of these QC samples.

‣ If an integer meter depth falls within 2 m of B-10, then the integer meter depth sample is omitted. If B-10 falls within 2 m of a stratification depth, the B-10 sample is omitted. If an integer meter depth falls within 3 m of a stratification depth, the integer meter depth sample is omitted. If there is a DCL, a sample is taken. If other designated samples are within 3 meters of the DCL, they are not taken. If the UHY sample is between 37 m and 47 m, the 40 m sample is not taken. (These exceptions do not apply to the integrated sample.)

‣ SRF = Surface (1 m), MEP = Mid-epilimnion, LEP = Lower epilimnion, TRM = Thermocline, DCL = Deep Chlorophyll Layer, UHY = Upper hypolimnion, MHY = Mid-hypolimnion, MID = Mid-depth, B-10 = bottom minus 10 m, B-2 = bottom minus 2 m, B-1 = bottom minus 1 m.

‣ Tilde (~) = approximately equal to (i.e. these sampling depths are dependent upon the station depth and thermal profile and may vary from those listed in the table).

‣ Inverse stratification = when any portion of the thermal profile has a temperature greater than 3°C.

‣ For an unstratified water column, the integrated sample is prepared by taking equal volumes of water from SRF (1 m), 5 m, 10 m and 20 meters unless the depth is less than 20 meters. If the total depth is between 15 and 22 meters, the 20 meter sample is replaced by the bottom sample (B-1 or B-2). If the total depth is less than 15 meters, equal volumes are taken from surface, mid-depth, and bottom sample (B-1 or B-2).

For a stratified water column, equal volumes are taken from the surface, 5 m, 10 m, and lower epilimnion (LEP). If the epilimnion is very shallow, equal volumes are taken from a maximum of four sampling depths and a minimum of two sampling depths. The underlying strategy is to collect a representative sample from the epilimnion.

‣ Parameters for samples from Rosette include:
Nutrients - Nitrate + Nitrite, Total P, Total Dissolved P, Chloride, Reactive Silicate, Particulate Organic C, Dissolved Organic C, Particulate Nitrogen, Particulate Phosphorus
Physical - Turbidity, Specific Conductance, pH, Total Suspended Solids, Dissolved Oxygen
Biological - Phytoplankton (INT and DCL samples only), Chlorophyll a

‣ Parameters for samples from Tow Net include:
Biological - Zooplankton

‣ Parameters for samples from Ponar Grab include:
Biological - Benthic Invertebrates