DAWSON 88-008

Technical Cruise Summary

May 01 - May 17, 1988

CRUISE DATES: May 01 - 17, 1988

AREA OF WORK: St. Lawrence

CRUISE PARTICIPANTS:

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SCIENTIFIC OR TECHNICAL OBJECTIVES OF THE CRUISE

1. Increase seismic coverage in Gulf of St. Lawrence, i.e., pick up critical tie-in seismic lines deleted from previous cruises due to equipment break down or weather, so as to ascertain the geometry of Pleistocene and Holocene sedimentary deposits. Through data reduction infer their mechanisms of deposition and thus the paleo-oceanography of the region.

2. Vibrocore in sandy areas nearshore not previously sampled by piston coring for seismic reflection verification and heavy mineral study. Vibrocoring was not available on previous cruises. Onshore coastal studies in 1987 revealed major deposits of heavy minerals. Through inference, we believe such deposits may extend offshore deposited at a time of lowered sea level and high rates of sedimentation. Our seismic data in shallow coastal water is not very good and calibration through core analysis is therefore crucial.

Relationships to the objectives of GSC project (#860026) or related projects supported by this cruise

1. Will link the Rimouski (B. Long) research of the eastern Gulf N. Shore with the McGill (B. D'Anglejan) research of the western St. Lawrence with the ongoing SEDFLUX (Syvitski) research of the central deltas.

2. Will contribute to our advancing knowledge of sediment partitioning in the nearshore at deltaic locales. Specifically, we are interested in areas that received continuous sediment input through times of sea level rise, whereby sediment may have been reworked sufficiently so as to allow for the segregation of minerals into heavy mineral (placer) deposits, and deposits of light minerals.

3. Cruise data will contribute to an understanding of the quantity and type of sediment deposited within the Gulf. This will permit us to ascertain the relationship between high sedimentation during the deglacial period, and intensity and magnitude of prodelta slumping (that based on previous data, appears intimately linked). The cruise will also contribute to our understanding of the architectural growth of sediment facies in these delta/estuarine environments.

Itinerary Accomplished

- Geophysics of St. Lawrence, Gulf of Anticosti area (approximately 1650 kilometers of lines).
- Vibrocoring of Manicouagan, St. Margarite, Moise, Mingan, and Natashquan delta areas (44 collected).
- Floc camera/hydrocast at 6 stations.
- Deployment/recovery of 2 UQAR sediment traps.
- Launch surveys of bottom sediments nearshore (50 sediment samples).

Scientific/Survey Accomplishments

- Very high quality seismics were collected providing an accurate picture of the sediments deposited during the Quaternary and of the bedrock structure beneath.
- We now have a good understanding of how sediment can be loaded by ice; deposited by a retreating ice sheet; how deltas may prograde and slump into basins; how the oceanography has changed during the last 10,000 years; and how heavy mineral deposits accumulate in the nearshore.

SHIP SAMPLING OPERATIONS

Vibrocorer

The vibrocorer was used to collect core samples in locations on North Shore, Sept. Isles and Natashquan. The vibrocore is used to take core samples by vibrating an offset swing hammer. The barrel is 23 ft. long with a 20 ft. liner. The liner diameter is 3 1/2 inches. The vibrocorer gives better coring results in "sand" samples. It appears that longer samples were obtained when vibrating for less than 10 minutes.

Problems encountered early on in the sampling program were cutting of power cables and problems with the extension meter.

FLOC Camera

The AGC FLOC Camera is an underwater camera system capable of taking three-dimensional pictures of particles in the water column (FLOC's). The system consists of 3 Olympus OM-10 35 mm cameras equipped with self winders and digital data backs. Each camera is mounted in a custom pressure case. The system also consists of a flash unit and a microcomputer each mounted in their own pressure case. All components are mounted on an aluminum frame that is lowered very slowly over the side of the ship. The cameras are prefocused in air to a distance of 50 cm and aimed in the centre of the flash pattern. The various cases are interconnected by underwater cables and connectors. The system is controlled by a small Tattle-Tale microcomputer manufactured by the Onset Computer Corp. This computer is programmed to take pictures every 15 meters of water depth (via pressure transducer) to a maximum depth, and then pictures every 25 seconds to a maximum of 36 pictures. When the system is recovered, the FLOC camera computer is connected to a Corona (IBM PC compatible) computer to dump the information and the file is then downloaded to disk. The information in the files contain the frame number, depth, and time (hours, minutes, seconds).

The film used during the cruise was Kodak 400 ASA colour print film, shot at 1/4 second with an F-stop of 8 using 36 exposures.

A total of 6 stations were completed and the system appeared to function properly. Water samples were also taken at each of the FLOC camera stations to help ground truth the pictures.

EQUIPMENT

Geophysical Operations

Air Gun Seismics

Bolt model gun
10 in^3 (xxx cm^3) chamber
RIX K88 air compressor (1500 psi)
NSRF 25' LT06 eel and termination unit
Khron-Hite model 3700R filter (70 Hz - 550 Hz) and filter amplifier displayed
on LSR
Khron-Hite model 3700R filter (300 Hz - 1500 Hz) and filter amplifier displayed
on EPC 4800
AGC high voltage trigger unit
EPC 4800 Precision Graphic Recorder
LSR Raytheon 1811 line scan recorder
HP 3968A 8-channel tape recorder:

Ch. 1 - DR SS ref	Ch. 5 - unused
Ch. 2 - FM airgun trigger	Ch. 6 - unused
Ch. 3 - FM SS Port	Ch. 7 - FM SS Stbrd
Ch. 4 - DR Signal Raw	Ch. 8 - Voice Fix

Huntec Seismics

AGC-3 fish (500 J) with IKU 50 kHz sidescan transducers
Hydro Mac model 7605-30-A winch (200 m cable)
EPC 4100 PGR (internal)
EPC 4600 PGC (external)
HP 3964A 4-channel tape recorder:

Ch. 1 - internal signal	Ch. 3 - external
Ch. 2 - trigger/sync	Ch. 4 - voice

Sidescan Sonar

IKU 50 kHz transducers in Huntec Fish
Klein 421T 2-channel graphic recorder
Sidescan recorded on 3, 7, 1 of HP3968A

Bathymetry

Raytheon model 106C-1 transceiver
Hull-mounted 12 kHz transducers
Raytheon model LSR 1811 Line Scan Recorder to facilitate use of the TSS Record
Annotator

Air Gun Seismics

A bolt 20 in^3 model 600 air gun was used for the first 4 days of the cruise. After trying the 10 in^3 with and without floats, and paying the air gun in and out plus reducing air pressure from 1900 psi to 1500 psi, a considerable improvement to the records was noted. A float with a 1 m strap and gun were towed approximately 8 m behind the stern. This arrangement was used for the duration of the cruise. One O-ring and 6 springs had to be replaced in the air gun. There were nor problems with the air compressor other than to adjust for a lower working pressure.

The NSRF EEL was towed from a small boom 2 m long and 12 m behind the ship.

The seismic signals were displayed on an EPC 4800 with a 1/2 second sweep, filtered 300-1500 Hz and on a Raytheon LSR 1811 with a 1 second sweep 70-550 Hz. Both machines were automatically annotated every 1/2 hours and 5 minutes respectively.

Huntec Seismics

The Huntec Deep Two System (DTS) was towed at an average depth of 150 m and at an average speed of 4-4 1/2 knots. The Huntec DTS was used to record high resolution seismics using both an internal hydrophone (LC10 single element) and external hydrophone (10 element streamer). The record quality was excellent and showed great sub-bottom definition and structures.

With the exception of having to bring the gear onboard when working in the vicinity of ice, there were no Huntec equipment breakdowns.

Water Samples

Water samples were taken at 10 meters, intermediate and bottom depths during the FLOC camera stations. The samples were collected using the standard 5 litre Nisken bottles and messengers. A 1 litre split was taken for later analysis of salinity, SPM and grain size. The remainder of the samples was discarded over the side.

Sediment Trap (N. Silverberg)

The first free-drifting sediment trap was deployed from the central Laurentian Trough between Troid-Pistoles and Bic. A large volume of sedimentary particles was recovered. This was in line with the expected high sedimentation rates during the May runoff period, as well as the unusually high sedimentation rate previously observed at the site.

The first trap was dominated by individual mineral grains, fluffy aggregates and a variety of diatom frustules (some still containing chlorophyll).

The second trap, about 10 miles off the Manicouagan delta provided fewer particles. Also in contrast to the first site, the trap material was dominated by a small diversity as well as very well formed fecal pellets.

The samples will be processed in the laboratory for total sedimentation rate, microphotography and Carbon-Nitrogen analysis.

LAUNCH SAMPLING OPERATIONS

Launch work at Ste. Margaurite River consisted of investigation of raised deltaic sediments deposited in the Goldthwait Sea, and sampling of modern marine sediments. At the east end of the raised delta, an exposed outcrop of coarse-grained gabbro with magnetite crystals has been glacially molded and polished, with roche moutonees and striae indicating glacial flow from north to south. Sinuous erosion marks over the outcrop indicate the presence of subglacial meltwater channels in this area. Quiescent deep water silty grey clay of the Goldthwait Sea outcrop along a creek bed at the eastern extremity of the raised delta, where they are unconformably overlain by deltaic sand. These deposits were sampled, along with thin iron sand layers at the inner edge of the modern beach. Four samples were also taken at various depths along the crest and river side of the sand spit extending across the river mouth. Iron sands are concentrated at the surface, but are uncommon lower down. Seventeen Van Veen Samples were retrieved along a traverse perpendicular to the coast near the river mouth and two other samples were taken inside the river mouth bar where river depths are less than 1 meter. The sediments consisted of fine to coarse sand and granules, locally containing shells and leaves. Some heavy minerals were present in the finer sand samples.

Moisie River work concentrated on sampling of the modern beach, examination of raised deltaic deposits exposed along a 30 m high section of the bluff about 5 km upstream from the river mouth, and grab sampling along an 8 km traverse across the thick accumulations of heavy mineral sands. An upper 2 cm layer of black magnetic sand is underlain by thin layers of red garnet sand and more granitic, brown layers. Three samples were taken from these layers. Other samples of coarse sand were taken from ripples at low tide, and from finer iron sands about 100 metres farther east. Seven Van Veen grab samples collected across the river mouth ranged from coarse to fine sand. the coarser sands were better sorted than the finer, were brown, and contained granitic minerals. The samples of finer sand were less well sorted, grey, and contained more heavy minerals and mica.

Natashquan beach work consisted of examination of sand types along the inner riverine part of the spit, the outer beach, and the sand dunes. The iron sands in these three environments were sampled. Iron sands form the crests of current ripples on the riverine sediments, and form flat thin sheets on the modern beach. They are finer than the granitic sands and retain more moisture. They are less susceptible to wind erosion at low velocities than the coarser granitic sands, which are the main component of wind generated ripple marks. Iron sands are mixed with granitic sand to form dark layers in the dunes, but do not form thick concentrations in that environment. Six Van Veen grab samples were taken near the mouth of the Natashquan River, both

behind and seaward of the spit. The main sediments were well sorted, coarse brown granitic sand. Two samples of finer sand contained a small amount of heavy minerals.

NAVIGATION

Systems

Decca model Loran C Receiver (on bridge)
NavStar 800 Loran C Receiver (on bridge)
Radar Fixes (from Officer of the Watch)

Navigation system consisted of logging the Loran C time delays (TD's) and computed latitudes and longitudes at 1 minute intervals on the shipboard MicroVAX II computer. In parallel, the officer of the watch plotted and recorded the ship's position using the TD's from the 2 Loran C receivers and Radar fixes where possible.

Loran C latitude/longitude were computer using the corrections to the TD's for overland path. These corrections were provided by Nick Stuifbergen of the Navigation Group of the Canadian Hydrographic Service. These corrections were manually entered into the Decca receiver as required as we changed areas.

On a daily basis, the Loran navigation data was plotted and compared to the radar fixes. The navigation files were then edited to obtain a "clean" data set. In general, the final navigation file is a combination of both the Loran C and radar fixes. Navigation for surveys done close to land is exclusively radar fixes. The Loran C did not prove as reliable as previous cruises.

Due to the poor Loran C and Radar targets in the Natashquan area, there is minimal navigation for the area. As a suggestion for future work in the area, the vessel should be outfitted with the GPS receiver. Even if the coverage is minimal, the navigation for the time frame GPS that is available is excellent.

FLOC STATION 1 DAWSON 88008

SAMPLE 88008-002

Exposure	Time	(sec)	Depth
1	2235	0	15
2	2235	0	30
3	2235	0	46
4	2235	0	61
5	2235	0	76
6	2235	0	91
7	2235	0	106
8	2235	0	121
9	2235	0	136
10	2235	0	151
11	2235	0	166
12	2235	0	181
13	2235	0	196
14	2235	0	211
15	2235	0	227
16	2235	0	241
17	2252	44	251
18	2253	5	255
19	2253	26	259
20	2253	47	263
21	2254	8	263
22	2254	29	263
23	2254	50	264
24	2255	11	263
25	2255	32	263
26	2255	53	263
27	2256	14	263
28	2256	35	263
29	2256	56	263
30	2257	17	263
31	2257	38	263
32	2257	59	264
33	2258	20	264
34	2258	41	264
35	2259	2	264
36	2259	23	264

FLOC STATION 2 Dawson 88008

SAMPLE 88008 - 004

Exposure	Time	(sec)	Depth(m)
1	1351	0	16
2	1351	0	31
3	1351	0	46
4	1351	0	61
5	1351	0	76
6	1351	0	91
7	1351	0	106
8	1351	0	121
9	1351	0	136
10	1351	0	151
11	1351	0	166
12	1351	0	181
13	1351	0	197
14	1351	0	211
15	1351	0	226
16	1351	0	241
17	1428	5	251
18	1428	31	255
19	1428	57	255
20	1429	23	255
21	1429	49	255
22	1430	15	255
23	1430	41	255
24	1431	7	256
25	1431	33	256
26	1431	59	257
27	1432	25	257
28	1432	51	257
29	1433	17	258
30	1433	43	258
31	1434	9	259
32	1434	35	259
33	1435	1	259
34	1435	27	259
35	1435	53	252
36	1436	19	239

FLOC STATION - 3 DAWSON 88008

SAMPLE NUMBER 88008-007

Exposure	Time	(sec)	Depth(m)
4	349	0	15
5	349	0	31
6	349	0	46
7	349	0	61
8	349	0	76
9	349	0	91
10	349	0	106
11	349	0	121
12	349	0	136
13	349	0	150
14	349	0	165
15	349	0	180
16	349	0	195
17	349	0	210
18	349	0	226
19	349	0	240
20	505	8	251
21	505	34	256
22	506	0	263
23	506	26	263
24	506	52	263
25	507	18	264
26	507	44	264
27	508	10	263
28	508	36	263
29	509	2	264
30	509	28	264
31	509	54	264
32	510	20	265
33	510	46	265
34	511	12	264
35	511	38	264
36	512	4	264

FLOC STATION 4 Dawson 88008

SAMPLE 88008 - 015

Exposure	Time	(sec)	Depth(m)
1	1616	0	15
2	1616	0	30
3	1616	0	45
4	1616	0	60
5	1616	0	75
6	1616	0	91
7	1616	0	106
8	1616	0	121
9	1616	0	136
10	1616	0	150
11	1616	0	165
12	1616	0	180
13	1616	0	195
14	1616	0	210
15	1616	0	225
16	1616	0	241
17	1724	15	251
18	1724	41	253
19	1725	7	255
20	1725	33	257
21	1725	59	259
22	1726	25	259
23	1726	51	259
24	1727	17	260
25	1727	43	260
26	1728	9	260
27	1728	35	260
28	1729	1	260
29	1729	27	260
30	1729	53	260
31	1730	19	260
32	1730	45	255
33	1731	11	244
34	1731	37	239
35	1732	3	239
36	1732	29	238

FLOC STATION 5 Dawson 88008

SAMPLE 88008 - 066

Exposure	Time	(sec)	Depth(m)
1	1943	0	16
2	1943	0	31
3	1943	0	46
4	1943	0	61
5	1943	0	76
6	1943	0	91
7	1943	0	105
8	1943	0	120
9	1943	0	135
10	1952	10	151
11	1952	36	160
12	1953	2	161
13	1953	28	168
14	1953	54	175
15	1954	20	175
16	1954	46	175
17	1955	12	175
18	1955	38	175
19	1956	4	175
20	1956	30	175
21	1956	56	175
22	1957	22	175
23	1957	48	175
24	1958	14	175
25	1958	40	175
26	1959	6	175
27	1959	32	175
28	1959	58	175
29	2000	24	175
30	2000	50	174
31	2001	16	175
32	2001	42	175
33	2002	8	175
34	2002	34	175
35	2003	0	175
36	2003	26	175

FLOC STATION 6 Dawson 88008

SAMPLE 88008 - 088

Exposure	Time	(sec)	Depth(m)
1	1913	0	16
2	1913	0	30
3	1913	0	46
4	1913	0	60
5	1913	0	76
6	1913	0	91
7	1913	0	107
8	1913	0	121
9	1913	0	136

FLOC STATION 7 Dawson 88008

SAMPLE 88008 - 108

Exposure	Time	(sec)	Depth(m)
1	1521	0	15
2	1521	0	31
3	1521	0	46
4	1521	0	61
5	1521	0	75
6	1521	0	91
7	1521	0	105
8	1521	0	120
9	1521	0	135
10	1241	34	151
11	1242	0	155
12	1242	26	156
13	1242	52	157
14	1243	18	157
15	1243	44	158
16	1244	10	158
17	1244	36	157
18	1245	2	157
19	1245	28	157
20	1245	54	157
21	1246	20	157
22	1246	46	157
23	1247	12	157
24	1247	38	157
25	1248	4	155
26	1248	30	147
27	1248	56	147
28	1249	22	123
29	1249	48	85
30	1250	14	73
31	1250	40	73
32	1251	6	49
33	1251	32	24
34	1251	58	0
35	1252	24	1
36	1252	50	1

TABLE 1

SAMPLE INVENTORY 88-008

SAMPLE NUMBER	SAMPLE TYPE	DAY/TIME (GMT)	LATITUDE	LONGITUDE	DEPTH (METRES)	GEOGRAPHIC LOCATION
1	SEDIMENT TRA	1230130	48 24.07N	69 06.02W	275	ST.LAWRENCE RIVER
2	CAMERA	1230216	48 24.25N	69 06.70W	275	ST.LAWRENCE RIVER
3	WATER	1230230	48 24.30N	69 06.75W	275	ST.LAWRENCE RIVER
4	CAMERA	1231615	48 24.43N	69 09.61W	295	ST.LAWRENCE RIVER
5	WATER	1231629	48 24.43N	69 09.61W	295	ST.LAWRENCE RIVER
6	WATER	1231629	48 55.80N	68 02.90W	295	ST.LAWRENCE RIVER
7	CAMERA	1240745	48 55.29N	67 58.00W	291	ST.LAWRENCE RIVER
8	WATER	1240745	48 55.29N	67 58.00W	291	ST.LAWRENCE RIVER
9	CORE	1241137	48 55.10N	68 35.20W	85	ST.LAWRENCE RIVER NORTH SHORE
10	CORE	1241236	48 57.65N	68 35.35W	36	ST.LAWRENCE RIVER NORTH SHORE
11	CORE	1241339	48 59.20N	68 32.00W	60	ST.LAWRENCE RIVER NORTH SHORE
12	CORE	1241447	48 59.50N	68 30.25W	87	ST.LAWRENCE RIVER NORTH SHORE
13	CORE	1241622	49 02.78N	68 18.56W	44	ST.LAWRENCE RIVER NORTH SHORE
14	CORE	1241745	49 02.79N	68 12.16W	50	ST.LAWRENCE RIVER NORTH SHORE
15	CAMERA	1242029	48 55.30N	68 03.20W	318	ST.LAWRENCE RIVER

TABLE 1

SAMPLE INVENTORY 88-008

SAMPLE NUMBER	SAMPLE TYPE	DAY/TIME (GMT)	LATITUDE	LONGITUDE	DEPTH (METRES)	GEOGRAPHIC LOCATION
16	WATER	1242029	48 55.30N	68 03.20W	318	ST.LAWRENCE RIVER
17	CORE	1251442	49 12.45N	68 01.75W	100	ST.LAWRENCE RIVER BAIE COMEAU
18	CORE	1251545	49 12.36N	68 03.28W	86	ST.LAWRENCE RIVER BAIE COMEAU
19	CORE	1251638	49 12.46N	68 04.51W	72	ST.LAWRENCE RIVER BAIE COMEAU
20	CORE	1251743	49 12.52N	68 04.91W	61	ST.LAWRENCE BAIE COMEAU
21	CORE	1251844	49 08.03N	68 05.57W	50	ST.LAWRENCE
22	CORE	1251959	49 05.20N	68 07.50W	54	ST.LAWRENCE
23	GRAB	1251100	49 01.30N	68 32.80W	4	ST.LAWRENCE
24	GRAB	1251120	49 02.40N	68 32.20W	.5	ST.LAWRENCE
25	GRAB	1251140	49 02.12N	68 33.02W	2	ST.LAWRENCE
26	GRAB	1251200	49 01.82N	68 31.90W	2	ST.LAWRENCE
27	GRAB	1251220	49 00.15N	68 30.09W	12	ST.LAWRENCE
28	GRAB	1251240	48 59.80N	68 31.55W	17	ST.LAWRENCE
29	GRAB	1251300	48 59.40N	68 32.00W	25	ST.LAWRENCE
30	GRAB	1251330	49 00.45N	68 27.35W	20	ST.LAWRENCE
31	GRAB	1251400	49 00.55N	68 28.60W	1	ST.LAWRENCE
32	GRAB	1251430	49 01.50N	68 23.50W	4	ST.LAWRENCE
33	GRAB	1251500	49 02.00N	68 23.75W	1	ST.LAWRENCE
34	GRAB	1251530	49 02.90N	68 19.17W	17	ST.LAWRENCE
35	GRAB	1251600	49 03.15N	68 19.55W	15	ST.LAWRENCE
36	GRAB	1251620	49 04.20N	68 19.30W	1	ST.LAWRENCE

TABLE 1

SAMPLE INVENTORY 88-008

SAMPLE NUMBER	SAMPLE TYPE	DAY/TIME (GMT)	LATITUDE	LONGITUDE	DEPTH (METRES)	GEOGRAPHIC LOCATION
54	GRAB	1281745	50 08.62N	66 36.02W	1	ST.LAWRENCE SEPT. ISLE
55	GRAB	1281745	50 08.62N	66 36.02W	1	ST.LAWRENCE SEPT. ISLE
56	GRAB	1281650	50 08.75N	66 36.30W	2	ST.LAWRENCE SEPT. ISLE
57	GRAB	1281652	50 08.10N	66 36.72W	1	ST.LAWRENCE BAT MAISIE
58	CORE	1291212	50 15.57N	66 02.00W	76	ST.LAWRENCE SEPT. ISLE
59	CORE	1291253	50 13.40N	66 00.95W	20	ST.LAWRENCE SEPT. ISLE
60	CORE	1291403	50 10.60N	66 02.60W	100	ST.LAWRENCE SEPT. ISLE
61	CORE	1291452	50 11.10N	66 03.05W	70	ST.LAWRENCE SEPT. ISLE
62	CORE	1291616	50 12.19N	66 11.31W	65	ST.LAWRENCE SEPT. ISLE
63	CORE	1291707	50 10.20N	66 12.26W	40	ST.LAWRENCE SEPT. ISLE
64	CORE	1291736	50 10.63N	66 10.73W	25	ST.LAWRENCE SEPT. ISLE
65	CORE	1291917	50 11.78N	66 26.10W	16	ST.LAWRENCE SEPT. ISLE
66	CAMERA	1292250	49 59.00N	66 28.90W	190	ST.LAWRENCE SEPT. ISLE
67	WATER	1292255	49 59.00N	66 28.90W	190	ST.LAWRENCE SEPT ISLE
68	BEACH SAMPLE	1291300	50 14.80N	66 01.40W		ST.LAWRENCE MOISIE RIV
69	BEACH SAMPLE	1291500	50 15.10N	66 01.20W		ST.LAWRENCE MOISIE RIV
70	GRAB	1291509	50 12.80N	66 02.70W	1	ST.LAWRENCE MOISIE RIV

TABLE 1

SAMPLE INVENTORY 88-008

SAMPLE NUMBER	SAMPLE TYPE	DAY/TIME (GMT)	LATITUDE	LONGITUDE	DEPTH (METRES)	GEOGRAPHIC LOCATION
37	CORE	1281229	50 09.03N	66 40.28W	55	ST.LAWRENCE SEPT. ISLE
38	CORE	1281321	50 09.39N	66 39.99W	40	ST.LAWRENCE SEPT. ISLE
39	CORE	1281406	50 07.38N	66 35.13W	19	ST.LAWRENCE SEPT ISLE
40	CORE	1281621	50 09.68N	66 36.71W	35	ST.LAWRENCE SEPT. ISLE
41	CORE	1281702	50 06.99N	66 34.09W	49	ST.LAWRENCE SEPT. ISLE
42	CORE	1281754	50 08.33N	66 35.48W	81	ST.LAWRENCE SEPT. ISLE
43	BEACH SAMPLE	1281450	50 08.92N	66 31.30W	0	ST.LAWRENCE SEPT. ISLE
44	BEACH SAMPLE	1281455	50 08.96N	66 31.40W	0	ST.LAWRENCE SEPT. ISLE
45	GRAB	1281531	50 06.62N	66 34.00W	8	ST.LAWRENCE SEPT. ISLE
46	GRAB	1281536	50 06.80N	66 34.37W	5	ST.LAWRENCE SEPT. ISLE
47	GRAB	1281543	50 06.95N	66 34.40W	3	ST.LAWRENCE SEPT. ISLE
48	GRAB	1281548	50 07.10N	66 34.50W	2	ST.LAWRENCE SEPT. ISLE
49	GRAB	1281612	50 07.17N	66 36.32W	1	ST.LAWRENCE SEPT. ISLE
50	GRAB	1281635	50 08.75N	66 36.27W	1	ST.LAWRENCE SEPT. ISLE
51	GRAB	1281638	50 08.91N	66 39.70W	1	ST.LAWRENCE SEPT. ISLE
52	GRAB	1281645	50 08.61N	66 36.05W	1	ST.LAWRENCE SEPT. ISLE
53	GRAB	1281645	50 08.61N	66 36.05W	1	ST.LAWRENCE SEPT. ISLE

TABLE 1

SAMPLE INVENTORY 88-008

SAMPLE NUMBER	SAMPLE TYPE	DAY/TIME (GMT)	LATITUDE	LONGITUDE	DEPTH (METRES)	GEOGRAPHIC LOCATION
71	GRAB	1291516	50 12.05N	66 03.20W	2	ST.LAWRENCE MOISIE RIV
72	GRAB	1291522	50 11.60N	66 03.00W	2	ST.LAWRENCE MOISIE RIV
73	GRAB	1291529	50 11.49N	66 03.50W	2	ST.LAWRENCE MOISIE RIV
74	GRAB	1291535	50 11.00N	66 03.90W	3	ST.LAWRENCE MOISIE RIV
75	GRAB	1291550	50 10.60N	66 05.30W	2	ST.LAWRENCE MOISIE RIV
76	GRAB	1291608	50 10.20N	66 07.40W	3	ST.LAWRENCE MOISIE RIV
77	GRAB	1291300	50 14.80N	66 01.40W		ST.LAWRENCE MOISIE RIV
78	CORE	1331132	50 14.62N	64 09.50W	33	ST.LAWRENCE MINGAN
79	CORE	1331210	50 14.45N	64 09.40W	33	ST.LAWRENCE MINGAN
80	CORE	1331241	50 14.40N	64 09.45W	33	ST.LAWRENCE MINGAN
81	CORE	1331332	50 14.43N	64 09.64W	33	ST.LAWRENCE MINGAN
82	CORE	1331410	50 14.23N	64 09.20W	38	ST.LAWRENCE MINGAN
83	CORE	1331442	50 14.10N	64 09.60W	34	ST.LAWRENCE MINGAN
84	CORE	1331539	50 14.41N	64 10.70W	18	ST.LAWRENCE MINGAN
85	CORE	1331611	50 14.68N	64 11.21W	14	ST.LAWRENCE MINGAN
86	CORE	1331703	50 14.12N	64 09.98W	27	ST.LAWRENCE MINGAN
87	CORE	1331747	50 14.76N	64 09.60W	36	ST.LAWRENCE MINGAN

TABLE 1

SAMPLE INVENTORY 88-008

SAMPLE NUMBER	SAMPLE TYPE	DAY/TIME (GMT)	LATITUDE	LONGITUDE	DEPTH (METRES)	GEOGRAPHIC LOCATION
88	CAMERA	1332227	50 03.10N	64 11.60W	150	ST.LAWRENCE MINGAN
89	WATER	1332236	50 03.10N	64 11.60W	150	ST.LAWRENCE MINGAN
90	WATER	1351124	50 03.10N	64 11.60W	33	ST.LAWRENCE MINGAN
91	CORE	1351124	50 06.50N	61 50.30W	33	ST.LAWRENCE NATASHQUAN
92	CORE	1351211	50 06.50N	61 51.60W	49	ST.LAWRENCE NATASHQUAN
93	CORE	1351246	50 06.70N	61 52.20W	51	ST.LAWRENCE NATASHQUAN
94	CORE	1351552	50 07.50N	61 51.60W	44	ST.LAWRENCE NATASHQUAN
95	CORE	1351703	50 04.20N	61 58.94W	67	ST.LAWRENCE NATASHQUAN
96	CORE	1351823	50 03.58N	61 46.50W	53	ST.LAWRENCE NATASHQUAN
97	CORE	1351916	50 03.45N	61 39.32W	25	ST.LAWRENCE NATASHQUAN
98	GRAB	1351130	50 06.40N	61 47.80W	0	ST.LAWRENCE NATASHQUAN
99	GRAB	1351400	50 05.90N	61 45.20W	0	ST.LAWRENCE NATASHQUAN
100	GRAB	1351410	50 05.50N	61 45.70W	0	ST.LAWRENCE NATASHQUAN
101	GRAB	1351430	50 06.40N	61 46.50W	0	ST.LAWRENCE NATASHQUAN
102	GRAB	1351445	50 06.50N	61 43.60W	.6	ST.LAWRENCE NATASHQUAN
103	GRAB	1351450	50 07.60N	61 43.70W	.6	ST.LAWRENCE NATASHQUAN
104	GRAB	1351500	50 07.60N	61 43.70W	1.5	ST.LAWRENCE NATASHQUAN

TABLE 1

SAMPLE INVENTORY 88-008

SAMPLE NUMBER	SAMPLE TYPE	DAY/TIME (GMT)	LATITUDE	LONGITUDE	DEPTH (METRES)	GEOGRAPHIC LOCATION
105	GRAB	1351510	50 06.80N	61 48.60W	1.8	ST.LAWRENCE NATASHQUAN
106	GRAB	1351520	50 06.70N	61 48.40W	1.8	ST.LAWRENCE NATASHQUAN
107	GRAB	1351530	50 06.60N	61 50.10W	2.0	ST.LAWRENCE NATASHQUAN
10	CAMERA	1361834	45 27.02N	60 25.70W	160	CANSO
10	WATER	1361850	45 27.02N	60 25.70W	160	CANSO
11	SEDIMENT	1240724	48 56.90N	67 57.70W		ST.LAWRENCE

TABLE 2

CORE SAMPLES 88-008

SAMPLE NUMBER	SAMPLE TYPE	JULIAN DAY/TIME	LATITUDE LONGITUDE	DEPTH (MTRS)	CORER LENGTH (CM)	APP. PENN (CM)	CORE LENGTH (CM)	NO OF SECT	GEOGRAPHIC LOCATION	NOTES
9	VIBROCORE	1241137	48 55.10N 68 35.20W	85	600	595	528	4	ST.LAWRENCE RIVER	ALL SECTIONS FULL OF SAND 1130 CORE OVER SIDE 1137 CORE ON BOTTOM 1150 CORE ON DECK
10	VIBROCORE	1241236	48 57.65N 68 35.35W	36	600	0	484	4	ST.LAWRENCE RIVER	SECTION C-D SETTLED TO 132 CM FROM 152CM 1233 CORE OVER SIDE 1236 CORE ON BOTTOM 1244 RETRACTING DAMAGE NOTE - WIRE CUT ON
11	VIBROCORE	1241339	48 59.20N 68 32.00W	60	600	0	294	2	ST.LAWRENCE RIVER	1337 CORE OVER SIDE 1339 CORE ON BOTTOM 1344 RETRACTING 1349 BRINGING IN,FELL OVER BEINGDRAGGED 1359 CORE ON DECK DAMAGE - NO COUNTER
12	VIBROCORE	1241447	48 59.50N 68 30.25W	87	600	0	215	2	ST.LAWRENCE RIVER	1442 CORE OVER SIDE 1447 ON BOTTOM 1452 VIBRO OFF CORE ON DECK DAMAGE NOTE - NO COUNTER
13	VIBROCORE	1241622	49 02.78N 68 18.56W	44	600	0	456	3	ST.LAWRENCE RIVER	1620 CORE OVER SIDE 1622 ON BOTTOM 1632 CORER OFF 1640 ON DECK DAMAGE NOTE - NO COUNTER
14	VIBROCORE	1241745	49 02.79N 68 12.16W	50	600	0	92	1	ST.LAWRENCE RIVER	CORE SAMPLE 92CM + WATER POCKET 1742 CORE OVER SIDE 1745 ON BOTTOM 1755 CORER OFF 1802 ON DECK DAMAGE NOTES - COUNTER INTERMITTING
17	VIBROCORE	1251442	49 12.45N 68 01.75W	100	600	0	254	2	ST.LAWRENCE RIVER	1442 CORE OVER SIDE 1445 ON BOTTOM 1455 STOP RETRACT 1505 ON DECK DAMAGE NOTES - NO COUNTER

TABLE 2

CORE SAMPLES 88-008

SAMPLE NUMBER	SAMPLE TYPE	JULIAN DAY/TIME	LATITUDE LONGITUDE	DEPTH (MTRS)	CORER LENGTH (CM)	APP. PENN (CM)	CORE LENGTH (CM)	NO OF SECT	GEOGRAPHIC LOCATION	NOTES
18	VIBROCORE	1251545	49 12.36N 68 03.28W	86	600	0	137	1	ST.LAWRENCE RIVER	1541 OVER SIDE 1545 ON BOTTOM 1550 STOP , RETRACT 1601 ON DECK DAMAGE NOTES - NO COUNTER
19	VIBROCORE	1251638	49 12.46N 68 04.51W	72	600	104	112	1	ST.LAWRENCE RIVER	1636 OVER SIDE 1638 ON BOTTOM 1648 STOP , RETRACT 1701 ON DECK DONUT AROUND CORE PIPE SHOWS IT WENT DOWN TO FULL EXTENSION ONLY 112 CM. SAMPLE DAMAGE NOTES - NO COUNTER UNTIL RETRACTION 104
20	VIBROCORE	1251743	49 12.52N 68 04.91W	61	600	590	147	1	ST.LAWRENCE BAIE COMEAU	1739 OVER SIDE 1743 ON BOTTOM 1747 STOP , RETRACT 1758 ON DECK
21	VIBROCORE	1251844	49 08.03N 68 05.57W	50	600	0	300	2	ST.LAWRENCE	1842 OVER SIDE 1844 ON BOTTOM 1845 HV TRIP RETRACTING 1846 STOP, RETRACT 1856 ON DECK HV CONNECTOR CAME UNDONE DAMAGE NOTES - ELECTRONIC PACKAGE
22	VIBROCORE	1251959	49 05.20N 68 07.50W	54	600	0	192	1	ST.LAWRENCE	1959 OVER SIDE 2002 ON BOTTOM 2006 STOP , RETRACTING 2016 ON DECK
37	VIBROCORE	1281229	50 09.03N 66 40.28W	55	600	519	469	3	ST.LAWRENCE SEPT. ISLE	1227 OVER SIDE 1229 ON BOTTOM 1235 STOP , RETRACTING 1240 ON DECK DAMAGE NOTES - VIBRATE CABLE SNAPPED AT BUNGE CORD

TABLE 2

CORE SAMPLES 88-008

AMPLE UMBER	SAMPLE TYPE	JULIAN DAY/TIME	LATITUDE LONGITUDE	DEPTH (MTRS)	CORER LENGTH (CM)	APP. PENN (CM)	CORE LENGTH (CM)	NO OF SECT	GEOGRAPHIC LOCATION	NOTES
38	VIBROCORE	1281321	50 09.39N 66 39.99W	40	600	584	479	3	ST.LAWRENCE SEPT. ISLE	1319 OVER SIDE 1321 ON BOTTOM 1323 STOP , RETRACTING 1333 ON DECK
39	VIBROCORE	1281406	50 07.38N 66 35.13W	19	600	150			ST.LAWRENCE SEPT ISLE	1ST ATTEMPT 1405 OVER SIDE 1406 ON BOTTOM 1409 STOP , RETRACTING 1416 ON DECK VERY LITTLE COARSE SAND. TRY AGAIN 2ND ATTEMPT 1430 OVER SIDE 1431 ON BOTTOM 1445 STOP , RETRACTING 1450 ON DECK ON BOTH ATTEMPTS 35-40CM SAMPLES SAVED IN BAGS
40	VIBROCORE	1281621	50 09.68N 66 36.71W	35	600	581	276	2	ST.LAWRENCE SEPT. ISLE	1619 OVER SIDE 1621 ON BOTTOM 1622 STOP, RETRACTING 1633 ON DECK
41	VIBROCORE	1281702	50 06.99N 66 34.09W	49	600	0	472	3	ST.LAWRENCE SEPT. ISLE	1659 OVER SIDE 1702 ON BOTTOM 1705 STOP, RETRACTING 1715 ON DECK
42	VIBROCORE	1281754	50 08.33N 66 35.48W	81	600	519	488	3	ST.LAWRENCE SEPT. ISLE	1749 OVER SIDE 1753 ON BOTTOM CORE WENT OUT FULL LENGTH NOT TURNING ON VIBRATOR 1754 STOP, RETRACTING 1806 ON DECK
58	VIBROCORE	1291212	50 15.57N 66 02.00W	76	600	410	148	1	ST.LAWRENCE SEPT. ISLE	1208 OVER SIDE 1212 ON BOTTOM 1215 STOP, RETRACT 1226 ON DECK CATCHER SAVED IN A PLASTIC BAG

TABLE 2

CORE SAMPLES 88-008

SAMPLE NUMBER	SAMPLE TYPE	JULIAN DAY/TIME	LATITUDE LONGITUDE	DEPTH (MTRS)	CORER LENGTH (CM)	APP. PENN (CM)	CORE LENGTH (CM)	NO OF SECT	GEOGRAPHIC LOCATION	NOTES
59	VIBROCORE	1291253	50 13.40N 66 00.95W	20	600	110	0	0	ST.LAWRENCE SEPT. ISLE	1253 OVER SIDE 1253 ON BOTTOM 1300 STOP, RETRACT 1307 ON DECK SAMPLE 20CM IN BAG VERY COARSE GRAVEL AND HEAVY MINERAL
60	VIBROCORE	1291403	50 10.60N 66 02.60W	100	600	570	150	1	ST.LAWRENCE SEPT. ISLE	1400 OVER SIDE 1403 ON BOTTOM 1408 STOP, RETRACT 1422 ON DECK CATCHER SAMPLE IN BAG
61	VIBROCORE	1291452	50 11.10N 66 03.05W	70	600	290	127	1	ST.LAWRENCE SEPT. ISLE	1449 OVER SIDE 1452 ON BOTTOM 1455 STOP, RETRACT 1504 ON DECK CATCHER SAMPLE IN BAG
62	VIBROCORE	1291616	50 12.19N 66 11.31W	65	600		391	3	ST.LAWRENCE SEPT. ISLE	1611 OVER SIDE 1616 ON BOTTOM 1618 STOP, RETRACT 1630 ON DECK CATCHER SAMPLE IN BAG
63	VIBROCORE	1291707	50 10.20N 66 12.26W	40	600	587	345	3	ST.LAWRENCE SEPT. ISLE	1705 OVER SIDE 1707 ON BOTTOM 1709 STOP, RETRACT 1718 ON DECK
64	VIBROCORE	1291736	50 10.63N 66 10.73W	25	600	586	431	3	ST.LAWRENCE SEPT. ISLE	1734 OVER SIDE 1736 ON BOTTOM 1740 STOP, RETRACT 1750 ON DECK
65	VIBROCORE	1291917	50 11.78N 66 26.10W	16	600	587	412	3	ST.LAWRENCE SEPT. ISLE	A - B 152CM B - C 152CM C - D 108CM
78	VIBROCORE	1331132	50 14.62N 64 09.50W	33	600	286	104	1	ST.LAWRENCE MINGAN	1130 OVER SIDE 1132 ON BOTTOM 1139 STOP , RETRACT 1146 ON DECK

TABLE 2

CORE SAMPLES 88-008

SAMPLE NUMBER	SAMPLE TYPE	JULIAN DAY/TIME	LATITUDE LONGITUDE	DEPTH (MTRS)	CORER LENGTH (CM)	APP. PENN (CM)	CORE LENGTH (CM)	NO OF SECT	GEOGRAPHIC LOCATION	NOTES
79	VIBROCORE	1331210	50 14.45N 64 09.40W	33	600	320	190	2	ST.LAWRENCE MINGAN	1208 OVER SIDE 1210 ON BOTTOM 1215 STOP , RETRACT 1223 ON DECK BOTTOM PLASTIC BAG: FINE TO MEDIUM COARSE SAND CORE : MEDIUM TO COARSE
80	VIBROCORE	1331241	50 14.40N 64 09.45W	33	600	408	251	2	ST.LAWRENCE MINGAN	1240 OVER SIDE 1241 ON BOTTOM 1247 STOP , RETRACT 1255 ON DECK BOTTOM PLASTIC BAG: FINE TO MEDIUM COARSE SAND MEDIUM TO COARSE SAND STRATIFIED HEAVY MINERAL
81	VIBROCORE	1331332	50 14.43N 64 09.64W	33	600	326	147	2	ST.LAWRENCE MINGAN	1330 OVER SIDE 1332 ON BOTTOM 1339 STOP , RETRACT 1346 ON DECK COARSE TO MEDIUM SAND AND HEAVY MINERALS
82	VIBROCORE	1331410	50 14.23N 64 09.20W	38	600	360	173	1	ST.LAWRENCE MINGAN	1408 OVER SIDE 1410 ON BOTTOM 1417 STOP , RETRACT 1426 ON DECK MEDIUM TO COARSE SAND AND HEAVY MINERALS
83	VIBROCORE	1331442	50 14.10N 64 09.60W	34	600	188	0	0	ST.LAWRENCE MINGAN	1440 OVER SIDE 1442 ON BOTTOM 1444 STOP , RETRACT. ICE MOVING IN 1450 ON DECK 15 CM DISTURBED COARSE TO MEDIUM SAND IN PLASTIC BAG
84	VIBROCORE	1331539	50 14.41N 64 10.70W	18	600	324	76	1	ST.LAWRENCE MINGAN	1537 OVER SIDE 1539 ON BOTTOM 1547 STOP , RETRACT. 1553 ON DECK MEDIUM TO COARSE SAND HEAVY MINERALS FEW SHELLS

TABLE 2

CORE SAMPLES 88-008

SAMPLE NUMBER	SAMPLE TYPE	JULIAN DAY/TIME	LATITUDE LONGITUDE	DEPTH (MTRS)	CORER LENGTH (CM)	APP. PENN (CM)	CORE LENGTH (CM)	NO OF SECT	GEOGRAPHIC LOCATION	NOTES
85	VIBROCORE	1331611	50 14.68N 64 11.21W	14	600	315	200	2	ST.LAWRENCE MINGAN	1610 OVER SIDE 1611 ON BOTTOM 1614 STOP , RETRACT. 1620 ON DECK MEDIUM TO COARSE SAND HEAVY MINERALS SHELLS
86	VIBROCORE	1331703	50 14.12N 64 09.98W	27	600	555	67	1	ST.LAWRENCE MINGAN	1646 OVER SIDE 1648 ON BOTTOM WENT OUT 154CM FELL 1614 STOP RETRACT 1620 ON DECK 2ND TIME 1702 OVER SIDE 1703 ON BOTTOM 1716 STOP,RETRACT 1720 ON DECK
87	VIBROCORE	1331747	50 14.76N 64 09.60W	36	600	281	108	1	ST.LAWRENCE MINGAN	1745 OVER SIDE 1747 ON BOTTOM, 1752 STOP , RETRACT. ON DECK MEDIUM TO COARSE SAND HEAVY MINERALS
91	VIBROCORE	1351124	50 06.50N 61 50.30W	33	600	0	135	1	ST.LAWRENCE NATASHQUAN	1122 OVER SIDE 1124 ON BOTTOM 1126 STOP , RETRACT. 1135 ON DECK A-B 135
92	VIBROCORE	1351211	50 06.50N 61 51.60W	49	600	588	407	3	ST.LAWRENCE NATASHQUAN	1207 OVER SIDE 1211 ON BOTTOM 1212 STOP , RETRACT. 1222 ON DECK A-B 152 B-C 152 C-D 103 CUTTER IN BAG
93	VIBROCORE	1351246	50 06.70N 61 52.20W	51	600	444	286	2	ST.LAWRENCE NATASHQUAN	1244 OVER SIDE 1246 ON BOTTOM 1248 STOP , RETRACT. 1257 ON DECK A-B 152 B-C 134 CUTTER IN BAG

TABLE 2

CORE SAMPLES 88-008

SAMPLE NUMBER	SAMPLE TYPE	JULIAN DAY/TIME	LATITUDE LONGITUDE	DEPTH (MTRS)	CORER LENGTH (CM)	APP. PENN (CM)	CORE LENGTH (CM)	NO OF SECT	GEOGRAPHIC LOCATION	NOTES
94	VIBROCORE	1351552	50 07.50N 61 51.60W	44	600	0	286	0	ST.LAWRENCE NATASHQUAN	1554 OVER SIDE 1556 ON BOTTOM , FELL OVER 1556 STOP , RETRACT. 1603 ON DECK BARREL BEND, COUNTER WIRE BROKEN
95	VIBROCORE	1351703	50 04.20N 61 58.94W	67	600	584	398	3	ST.LAWRENCE NATASHQUAN	1701 OVER SIDE 1703 ON BOTTOM 1704 STOP , RETRACT. 1715 ON DECK A-B 152 B-C 152 C-D 94
96	VIBROCORE	1351823	50 03.58N 61 46.50W	53	600	375	137	1	ST.LAWRENCE NATASHQUAN	1820 OVER SIDE 1823 ON BOTTOM 1827 STOP , RETRACT. 1835 ON DECK A-B 137
97	VIBROCORE	1351916	50 03.45N 61 39.32W	25	600	588	585	4	ST.LAWRENCE NATASHQUAN	1921 OVER SIDE 1924 ON BOTTOM 1926 STOP , RETRACT. 1935 ON DECK A-B 138 B-C 152 C-D 152 D-E 143 CUTTER IN BAG

TABLE 3

GRAB SAMPLES 88-008

SAMPLE NUMBER	TYPE OF GRAB	JULIAN DAY/TIME	LATITUDE LONGITUDE	DEPTH (M)	NO OF ATTEMPTS	NO OF SUBSAMPLES	GEOGRAPHIC LOCATION	NOTES
23	VAN VEEN	1251100	49 01.30N 68 32.80W	4	1	AP	ST.LAWRENCE	FINE SAND SAMPLES TAKEN FROM DAWSON LAUNCH LABELLED AS 88008-001
24	VAN VEEN	1251120	49 02.40N 68 32.20W	.5	1	PE	ST.LAWRENCE	COARSE SAND, CALCIUM CARBONATE SHEL SAMPLES TAKEN FROM DAWSON LAUNCH LABELLED AS 88008-002
25	VAN VEEN	1251140	49 02.12N 68 33.02W	2	1	ND	ST.LAWRENCE	MUSSELS FINE SAND SAMPLES TAKEN FROM DAWSON LAUNCH LABELLED AS 88008-003
26	VAN VEEN	1251200	49 01.82N 68 31.90W	2	1	0	ST.LAWRENCE	FINE MEDIUM SAND SOME SHELLS SAMPLES TAKEN FROM DAWSON LAUNCH LABELLED AS 88008-004
27	VAN VEEN	1251220	49 00.15N 68 30.09W	12	1	0	ST.LAWRENCE	FINE MEDIUM SAND SAMPLES TAKEN FROM DAWSON LAUNCH LABELLED AS 88008-005
28	VAN VEEN	1251240	48 59.80N 68 31.55W	17	1	0	ST.LAWRENCE	FINE SAND SAMPLES TAKEN FROM DAWSON LAUNCH LABELLED AS 88008-006
29	VAN VEEN	1251300	48 59.40N 68 32.00W	25	1	0	ST.LAWRENCE	FINE SAND WORMS SAMPLES TAKEN FROM DAWSON LAUNCH LABELLED AS 88008-007
30	VAN VEEN	1251330	49 00.45N 68 27.35W	20	1	0	ST.LAWRENCE	FINE SAND SAMPLES TAKEN FROM DAWSON LAUNCH LABELLED AS 88008-008
31	VAN VEEN	1251400	49 00.55N 68 28.60W	1	1	0	ST.LAWRENCE	MEDIUM SAND SAMPLES TAKEN FROM DAWSON LAUNCH LABELLED AS 88008-009
32	VAN VEEN	1251430	49 01.50N 68 23.50W	4	1	0	ST.LAWRENCE	MEDIUM TO COARSE SAND WITH SHELLS SAMPLES TAKEN FROM DAWSON LAUNCH LABELLED AS 88008-010
33	VAN VEEN	1251500	49 02.00N 68 23.75W	1	1	0	ST.LAWRENCE	COARSE SAND WITH SHELLS

SAMPLES TAKEN FROM DAWSON LAUNCH
LABELLED AS 88008-011

TABLE 3

GRAB SAMPLES 88-008

SAMPLE NUMBER	TYPE OF GRAB	JULIAN DAY/TIME	LATITUDE LONGITUDE	DEPTH (M)	NO OF ATTEMPTS	NO OF SUBSAMPLES	GEOGRAPHIC LOCATION	NOTES
34	VAN VEEN	1251530	49 02.90N 68 19.17W	17	1	0	ST.LAWRENCE	MEDIUM SAND SAMPLES TAKEN FROM DAWSON LAUNCH LABELLED AS 88008-012
35	VAN VEEN	1251600	49 03.15N 68 19.55W	15	1	0	ST.LAWRENCE	MEDIUM SAND CLAY AND GOLDTHWAIT FRAGMENTS SAMPLES TAKEN FROM DAWSON LAUNCH LABELLED AS 88008-013
36	VAN VEEN	1251620	49 04.20N 68 19.30W	1	1	0	ST.LAWRENCE	FINE TO MEDIUM SAND SAMPLES TAKEN FROM DAWSON LAUNCH LABELLED AS 88008-014
45	VAN VEEN	1281531	50 06.62N 66 34.00W	8	1	0	ST.LAWRENCE SEPT. ISLE	FINE SAND (GREY) , SOME SHELL (MACO HEAVY MINERAL SAMPLES TAKEN FROM DAWSON LAUNCH LABELLED AS 88008-017
46	VAN VEEN	1281536	50 06.80N 66 34.37W	5	1	0	ST.LAWRENCE SEPT. ISLE	FINE SAND (CLEAN) SOME LEAVES SAMPLES TAKEN FROM DAWSON LAUNCH LABELLED AS 88008-018
47	VAN VEEN	1281543	50 06.95N 66 34.40W	3	1	0	ST.LAWRENCE SEPT. ISLE	FINE SAND (CLEAN) SMALL PIECE OF S SAMPLES TAKEN FROM DAWSON LAUNCH LABELLED AS 88008-019
48	VAN VEEN	1281548	50 07.10N 66 34.50W	2	1	0	ST.LAWRENCE SEPT. ISLE	MEDIUM SAND (HEAVY MINERAL) SOME SHELL FRAGMENTS SAMPLES TAKEN FROM DAWSON LAUNCH LABELLED AS 88008-020
49	VAN VEEN	1281612	50 07.17N 66 36.32W	1	1	0	ST.LAWRENCE SEPT. ISLE	COARSE SAND (SOME RUBBLE) SOME SHELL SAMPLES TAKEN FROM DAWSON LAUNCH LABELLED AS 88008-021
50	VAN VEEN	1281635	50 08.75N 66 36.27W	1	1	0	ST.LAWRENCE SEPT. ISLE	COARSE GRANITE SAND SAMPLES TAKEN FROM DAWSON LAUNCH LABELLED AS 88008-022
51	VAN VEEN	1281638	50 08.91N 66 39.70W	1	1	0	ST.LAWRENCE SEPT. ISLE	MEDIUM SAND (GREY) SAMPLES TAKEN FROM DAWSON LAUNCH LABELLED AS 88008-023

TABLE 3

GRAB SAMPLES 88-008

SAMPLE NUMBER	TYPE OF GRAB	JULIAN DAY/TIME	LATITUDE LONGITUDE	DEPTH (M)	NO OF ATTEMPTS	NO OF SUBSAMPLES	GEOGRAPHIC LOCATION	NOTES
52	VAN VEEN	1281645	50 08.61N 66 36.05W	1	1	0	ST.LAWRENCE SEPT. ISLE	IRON SAND ON SLOPE OF BROW (TOP 2CM SAMPLES TAKEN FROM DAWSON LAUNCH LABELLED AS 88008-024
53	VAN VEEN	1281645	50 08.61N 66 36.05W	1	1	0	ST.LAWRENCE SEPT. ISLE	SAMPLED BETWEEN 2 - 10 CM SLOPE OF BROW SAMPLES TAKEN FROM DAWSON LAUNCH LABELLED AS 88008-025
54	VAN VEEN	1281745	50 08.62N 66 36.02W	1	1	0	ST.LAWRENCE SEPT. ISLE	CREST OF BROW , UPPER 1 CM MEDIUM SAND SAMPLES TAKEN FROM DAWSON LAUNCH LABELLED AS 88008-026
55	VAN VEEN	1281745	50 08.62N 66 36.02W	1	1	0	ST.LAWRENCE SEPT. ISLE	CREST OF BROW , SAMPLED BETWEEN 2 - BLACK / IRON SAND SAMPLES TAKEN FROM DAWSON LAUNCH LABELLED AS 88008-027
56	VAN VEEN	1281650	50 08.75N 66 36.30W	2	1	0	ST.LAWRENCE SEPT. ISLE	VERY COARSE SAND AND GRAVEL SOME SHELL PIECES SAMPLES TAKEN FROM DAWSON LAUNCH LABELLED AS 88008-028
57	VAN VEEN	1281652	50 08.10N 66 36.72W	1	1	0	ST.LAWRENCE BAT MAISIE	MEDIUM SAND AND GRAVEL SAMPLES TAKEN FROM DAWSON LAUNCH LABELLED AS 88008-029
70	VAN VEEN	1291509	50 12.80N 66 02.70W	1	1	0	ST.LAWRENCE MOISIE RIV	WELL SORTED SAND MIXED LITHOLOGY LABELLED "MOISIE #1"
71	VAN VEEN	1291516	50 12.05N 66 03.20W	2	1	0	ST.LAWRENCE MOISIE RIV	GREY TO FINE MEDIUM SAND MIXED LITHOLOGY LABELLED "MOISIE #2"
72	VAN VEEN	1291522	50 11.60N 66 03.00W	2	1	0	ST.LAWRENCE MOISIE RIV	GREY TO FINE MEDIUM SAND MIXED LITHOLOGY LABELLED "MOISIE #3"
73	VAN VEEN	1291529	50 11.49N 66 03.50W	2	1	0	ST.LAWRENCE MOISIE RIV	WELL SORTED BROWN MEDIUM GRAINED GR LABELLED "MOISIE #4"
74	VAN VEEN	1291535	50 11.00N 66 03.90W	3	1	0	ST.LAWRENCE MOISIE RIV	WELL SORTED BROWN MEDIUM TO COARSE LABELLED "MOISIE #5"

TABLE 3

GRAB SAMPLES 88-008

SAMPLE NUMBER	TYPE OF GRAB	JULIAN DAY/TIME	LATITUDE LONGITUDE	DEPTH (M)	NO OF ATTEMPTS	NO OF SUBSAMPLES	GEOGRAPHIC LOCATION	NOTES
75	VAN VEEN	1291550	50 10.60N 66 05.30W	2	1	0	ST.LAWRENCE MOISIE RIV	WELL SORTED BROWN MEDIUM TO COARSE MACOMA SHELLS LABELLED "MOISIE #6"
76	VAN VEEN	1291608	50 10.20N 66 07.40W	3	1	0	ST.LAWRENCE MOISIE RIV	COARSE GRANITE SAND WITH MACOMA LABELLED "MOISIE #7"
77		1291300	50 14.80N 66 01.40W		1	0	ST.LAWRENCE MOISIE RIV	PIT #2 (SAME AS PIT #1) BUT LOCATE BEACH. COARSE SAND FROM RIPPLES AT MARK.
98		1351130	50 06.40N 61 47.80W	0	1		ST.LAWRENCE NATASHQUAN	DAWSON LAUNCH - PIT SAMPLE FINE BLACK IRON SANDS FROM BACK OF EXTENDING FROM MAINLAND. SMALL CUT BANK , HIGH CURRENT STORED IN BAG "88-008-100"
99		1351400	50 05.90N 61 45.20W	0	1		ST.LAWRENCE NATASHQUAN	DAWSON LAUNCH FINE IRON SANDS FROM BASE OF BLOW O BROWN SAND AND BLACK IRON SAND. AT SURROUNDED BY 10M HIGH DUNES WITH C BAG SAMPLE LABELLED "88-008-101"
100		1351410	50 05.50N 61 45.70W	0	1		ST.LAWRENCE NATASHQUAN	DAWSON LAUNCH MID TIDE LINE MOIST IRON SANDS IN LAYERS BAG SAMPLE LABELLED "88-008-102"
101		1351430	50 06.40N 61 46.50W	0	1		ST.LAWRENCE NATASHQUAN	DAWSON LAUNCH SHORE SAMPLE IRON SANDS FROM RIPPLE MARKS ON RIV BAG SAMPLE LABELLED "88-008-103"
103	VAN VEEN	1351450	50 07.60N 61 43.70W	.6	1		ST.LAWRENCE NATASHQUAN	DAWSON LAUNCH WELL SORTED COARSE BROWN GRANITIC S BAG SAMPLE LABELLED "88-008-105"
104	VAN VEEN	1351500	50 07.60N 61 43.70W	1.5	1		ST.LAWRENCE NATASHQUAN	DAWSON LAUNCH COARSE BROWN GRANITIC SAND, WELL SO BAG SAMPLE LABELLED "88-008-102"
105	VAN VEEN	1351510	50 06.80N 61 48.60W	1.8	1		ST.LAWRENCE NATASHQUAN	DAWSON LAUNCH FINE BROWN SAND SOME HEAVIES AND MICA BAG SAMPLE LABELLED "88-008-109"
106	VAN VEEN	1351520	50 06.70N 61 48.40W	1.8	1		ST.LAWRENCE NATASHQUAN	DAWSON LAUNCH MIDDLE OF CHANNEL INSIDE LONG SHORE BAR

WELL SORTED COARSE BROWN GRANITIC S
BAG SAMPLE LABELLED "88-008-108"

TABLE 3

GRAB SAMPLES 88-008

SAMPLE NUMBER	TYPE OF GRAB	JULIAN DAY/TIME	LATITUDE LONGITUDE	DEPTH (M)	NO OF ATTEMPTS	NO OF SUBSAMPLES	GEOGRAPHIC LOCATION	NOTES
107	VAN VEEN	1351530	50 06.60N 61 50.10W	2.0	1		ST.LAWRENCE NATASHQUAN	DAWSON LAUNCH SURF ZONE, OUTER PART OF CHANNEL MEDIUM TO COARSE BROWN SAND BAG SAMPLE LABELLED "88-008-109"

TABLE 4

FLOC CAMERA STATIONS 88-008

SAMPLE NUMBER	JULIAN DAY/TIME	LATITUDE	LONGITUDE	DEPTH (MTRS)	GEOGRAPHIC LOCATION	ASA	COLOR	FOCUS	f-STOP	FRAMES SHOT	FIRST DEPTH	DEPTH INT	MAX DEPTH	NOTES
2	1230216	48 24.25N	69 06.70W	275	ST.LAWRENCE RIVER	400	Y	50	8	108	15	15	250	WATER SAMPLES TAKEN 10M 130M 250M
4	1231615	48 24.43N	69 09.61W	295	ST.LAWRENCE RIVER	400	Y	50	8	108	15	15	250	WATER SAMPLES TAKEN 10M 130M 250M
7	1240745	48 55.29N	67 58.00W	291	ST.LAWRENCE RIVER	400	Y	50	8	108	15	15	250	WATER SAMPLES TAKEN 10M 130M 250M
15	1242029	48 55.30N	68 03.20W	318	ST.LAWRENCE RIVER	400	Y	50	8	108	15	15	250	WATER SAMPLES TAKEN 10M 130M 250M 1955 AWAY 2045 ON BOARD
66	1292250	49 59.00N	66 28.90W	190	ST.LAWRENCE SEPT. ISLE	400	Y	50	8	108	15	15	250	WATER SAMPLES TAKEN 10M 90M 180M
88	1332227	50 03.10N	64 11.60W	150	ST.LAWRENCE MINGAN	400	Y	50	8	108	15	15	136	WATER SAMPLES TAKEN 10M 70M 150M 9 PICTURE TAKEN TO D OF 136 M. 3 WATER SAMPLES TAKE

TABLE 5

WATER SAMPLES 88-008

SAMPLE NUMBER	SAMPLE TYPE	JULIAN DAY/TIME	LATITUDE	LONGITUDE	DEPTH (MTRS)	BOTTLE VOLUMN	DEPTH 1 DEPTH 2 DEPTH 3	GEOGRAPHIC LOCATION	NOTES
3	WATER	1230230	48 24.30	69 06.75	275	5	10 130 250	ST.LAWRENCE RIVER	TAKEN WITH A FLOC CA
5	WATER	1231629	48 24.43	69 09.61	295	5	10 130 250	ST.LAWRENCE RIVER	TAKEN WITH A FLOC CA
8	WATER	1240745	48 55.29	67 58.00	291	5	10 130 250	ST.LAWRENCE RIVER	TAKEN WITH A FLOC CA
16	WATER	1242029	48 55.30	68 03.20	318	5	10 130 250	ST.LAWRENCE RIVER	TAKEN WITH A FLOC CA
67	WATER	1292255	49 59.00	66 28.90	190	5	10 90 180	ST.LAWRENCE SEPT ISLE	TAKEN WITH A FLOC CA
89	WATER	1332236	50 03.10	64 11.60	150	5	10 70 150	ST.LAWRENCE MINGAN	TAKEN WITH A FLOC CA

TABLE 6

BATHYMETRY RECORDS 88-008

ROLL NUMBERS	START DAY/TIME	STOP DAY/TIME	FREQUENCY	LINE NUMBERS	FIX NUMBERS	GEOGRAPHIC LOCATION	RECORDER	NOTES
001	1221720	1222057	12 KHZ	88-01		ST. LAWRENCE RIVER	L.S.R.	
002	1222057	1231510	12 KHZ	88-01,88-02		ST. LAWRENCE RIVER	L.S.R.	
003	1231610	1231920	12 KHZ	88-03		ST. LAWRENCE RIVER	L.S.R.	
004	1231930	1250606	12 KHZ	88-04,88-05		ST. LAWRENCE RIVER	L.S.R.	
005	1252140	1271530	12 KHZ	88-07,88-08		ST. LAWRENCE RIVER	L.S.R.	
006	1271537	1291130	12 KHZ	88-09,88-10		ST. LAWRENCE RIVER	L.S.R.	
007	1300000	1310010	12 KHZ	88-12		ST. LAWRENCE RIVER	L.S.R.	
008	1310014	1310500	12 KHZ	88-12		ST. LAWRENCE RIVER	L.S.R.	
009	1310508	1320715	12 KHZ	88-12		ST. LAWRENCE RIVER	L.S.R.	
010	1320725	1341140	12 KHZ			ST. LAWRENCE RIVER	L.S.R.	
011	1341142	1350820	12 KHZ			ST. LAWRENCE RIVER	L.S.R.	

TABLE 7

SEISMIC TAPES 88-008

TAPE NUMBERS	START DAY/TIME	STOP DAY/TIME	LINE NUMBERS	FIX NUMBERS	GEOGRAPHIC LOCATION	CHANNEL INFO	SYSTEM / SOUND SOURCE
001	1221720	1230749	88-01,88-02		ST. LAWRENCE RIVER	2-(FM) SHOT 4-(DR) SIGNAL	AGC SINGLE CHANNEL AIRGUN
002	1230752	1232240	88-02,88-03		ST. LAWRENCE RIVER	2-(FM) SHOT 4-(DR) SIGNAL	AGC SINGLE CHANNEL AIRGUN
003	1232247	1250224	88-03,88-04, 88-05		ST. LAWRENCE RIVER	2-(FM) SHOT 4-(DR) SIGNAL	AGC SINGLE CHANNEL AIRGUN
004	1250226	1260700	88-06,88-07		ST. LAWRENCE RIVER	2-(FM) SHOT 4-(DR) SIGNAL	AGC SINGLE CHANNEL AIRGUN
005	1260705	1262000	88-07,88-08		ST. LAWRENCE RIVER	2-(FM) SHOT 4-(DR) SIGNAL	AGC SINGLE CHANNEL AIRGUN
006	1262003	1270852	88-08		ST. LAWRENCE RIVER	2-(FM) SHOT 4-(DR) SIGNAL	AGC SINGLE CHANNEL AIRGUN
007	1270855	1272145	88-08		ST. LAWRENCE RIVER	2-(FM) SHOT 4-(DR) SIGNAL	AGC SINGLE CHANNEL AIRGUN
008	1272146	1281034	88-08,88-09		ST. LAWRENCE RIVER	2-(FM) SHOT 4-(DR) SIGNAL	AGC SINGLE CHANNEL AIRGUN
009	1281037	1290734	88-09,88-10, 88-11		ST. LAWRENCE RIVER	2-(FM) SHOT 4-(DR) SIGNAL	AGC SINGLE CHANNEL AIRGUN
010	1290737	1300830	88-11,88-12		ST. LAWRENCE RIVER	2-(FM) SHOT 4-(DR) SIGNAL	AGC SINGLE CHANNEL AIRGUN
011	1300842	1302130	88-12		ST. LAWRENCE RIVER	2-(FM) SHOT 4-(DR) SIGNAL	AGC SINGLE CHANNEL AIRGUN
012	1302130	1311023	88-12		ST. LAWRENCE RIVER	2-(FM) SHOT 4-(DR) SIGNAL	AGC SINGLE CHANNEL AIRGUN
013	1311026	1312313	88-12		ST. LAWRENCE RIVER	2-(FM) SHOT 4-(DR) SIGNAL	AGC SINGLE CHANNEL AIRGUN

TABLE 7

SEISMIC TAPES 88-008

TAPE NUMBERS	START DAY/TIME	STOP DAY/TIME	LINE NUMBERS	FIX NUMBERS	GEOGRAPHIC LOCATION	CHANNEL INFO	SYSTEM / SOUND SOURCE
014	1312314	1321200	88-12		ST. LAWRENCE RIVER	2-(FM) SHOT 4-(DR) SIGNAL	AGC SINGLE CHANNEL AIRGUN
015	1321204	1330153			ST. LAWRENCE RIVER	2-(FM) SHOT 4-(DR) SIGNAL	AGC SINGLE CHANNEL AIRGUN
016	1330155	1340705			ST. LAWRENCE RIVER	2-(FM) SHOT 4-(DR) SIGNAL	AGC SINGLE CHANNEL AIRGUN
017	1340708	1342001			ST. LAWRENCE RIVER	2-(FM) SHOT 4-(DR) SIGNAL	AGC SINGLE CHANNEL AIRGUN
018	1342002	1350818			ST. LAWRENCE RIVER	2-(FM) SHOT 4-(DR) SIGNAL	AGC SINGLE CHANNEL AIRGUN

TABLE 8

SEISMIC RECORDS 88-008

ROLL NUMBERS	START DAY/TIME	STOP DAY/TIME	HYDROPHONE	LINE NUMBERS	GEOGRAPHIC LOCATION	RECORDER	SYSTEM / SOUND SOURCE
001	1221720	1231510	NSRF	88-01,88-02	ST. LAWRENCE RIVER	L.S.R.	AGC SINGLE CHANNEL
002	1231715	1261605	NSRF	88-03 - 88-08	ST. LAWRENCE RIVER	L.S.R.	AGC SINGLE CHANNEL
003	1261613	1271300	NSRF	88-08,88-09	ST. LAWRENCE RIVER	L.S.R.	AGC SINGLE CHANNEL
004	1271334	1280048	NSRF	88-09	ST. LAWRENCE RIVER	L.S.R.	AGC SINGLE CHANNEL
005	1280059	1291127	NSRF	88-09,88-10	ST. LAWRENCE RIVER	L.S.R.	AGC SINGLE CHANNEL
006	1292334	1311400	NSRF	88-12	ST. LAWRENCE RIVER	L.S.R.	AGC SINGLE CHANNEL
007	1311402	1330652	NSRF		ST. LAWRENCE RIVER	L.S.R.	AGC SINGLE CHANNEL
008	1332314	1340530	NSRF		ST. LAWRENCE RIVER	L.S.R.	AGC SINGLE CHANNEL
009	1340539	1350820	NSRF		ST. LAWRENCE RIVER	L.S.R.	AGC SINGLE CHANNEL
001	1221728	1231510	NSRF		ST. LAWRENCE RIVER	EPC	AGC SINGLE CHANNEL
002	1231714	1240003	NSRF		ST. LAWRENCE RIVER	EPC	AGC SINGLE CHANNEL
003	1240009	1280400	NSRF		ST. LAWRENCE RIVER	EPC	AGC SINGLE CHANNEL
004	1280404	1291126	NSRF		ST. LAWRENCE RIVER	EPC	AGC SINGLE CHANNEL
005	1292332	1302330	NSRF		ST. LAWRENCE RIVER	EPC	AGC SINGLE CHANNEL
006	1302335	1322105	NSRF		ST. LAWRENCE RIVER	EPC	AGC SINGLE CHANNEL
007	1322114	1330650	NSRF		ST. LAWRENCE RIVER	EPC	AGC SINGLE CHANNEL
008	1332212	1350820	NSRF		ST. LAWRENCE RIVER	EPC	AGC SINGLE CHANNEL

TABLE 9

HUNTEC TAPES 88-008

TAPE NUMBERS	START DAY/TIME	STOP DAY/TIME	LINE NUMBERS	GEOGRAPHIC LOCATION	CHANNEL INFO	HUNTEC SYSTEM
001	1221724	1222045	88-01	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
002	1222100	1222340	88-01	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
003	1222345	1230406	88-01,88-02	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
004	1230423	1230721	88-02	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
005	1230726	1231043	88-02	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
006	1231045	1231400	88-02	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
007	1231401	1231919	88-02,88-03	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
008	1231920	1232240	88-03	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
009	1232242	1240138	88-03,88-04	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
010	1240140	1240453	88-04	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3

TABLE 9

HUNTEC TAPES 88-008

TAPE NUMBERS	START DAY/TIME	STOP DAY/TIME	LINE NUMBERS	GEOGRAPHIC LOCATION	CHANNEL INFO	HUNTEC SYSTEM
011	1240453	1242318	88-04,88-05	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
012	1242320	1250236	88-05,88-06	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
013	1250238	1250555	88-06	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
014	1250558	1260026	88-06,88-07	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
015	1260027	1260346	88-07	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
016	1260346	1260700	88-07	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
017	1260700	1261024	88-07	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
018	1261024	1261338	88-07,88-08	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
019	1261340	1261654	88-08	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
020	1261656	1262009	88-08	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3

TABLE 9

HUNTEC TAPES 88-008

TAPE NUMBERS	START DAY/TIME	STOP DAY/TIME	LINE NUMBERS	GEOGRAPHIC LOCATION	CHANNEL INFO	HUNTEC SYSTEM
021	1262009	1262323	88-08	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
022	1262324	1270130	88-08,88-09	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
023	1270139	1270451	88-09	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
024	1270454	1270807	88-09	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
025	1270807	1271120	88-09	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
026	1271122	1271436	88-09	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
027	1271437	1271750	88-09	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
028	1271752	1272100	88-09	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
029	1272100	1280016	88-09,88-10	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
030	1280017	1280330	88-10	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3

TABLE 9

HUNTEC TAPES 88-008

TAPE UMBERS	START DAY/TIME	STOP DAY/TIME	LINE NUMBERS	GEOGRAPHIC LOCATION	CHANNEL INFO	HUNTEC SYSTEM
031	1280330	1280648	88-10	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
032	1280648	1281005	88-10	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
033	1281005	1290147	88-10,88-11	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
034	1290147	1290500	88-11	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
035	1290600	1290816	88-11	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
036	1290816	1291127	88-11	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
037	1292330	1300247	88-12	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
038	1300247	1300600	88-12	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
039	1300600	1300900	88-12	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
040	1300930	1301241	88-12	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3

TABLE 9

HUNTEC TAPES 88-008

TAPE NUMBERS	START DAY/TIME	STOP DAY/TIME	LINE NUMBERS	GEOGRAPHIC LOCATION	CHANNEL INFO	HUNTEC SYSTEM
041	1301242	1301521	88-12	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
042	1301527	1301840	88-12	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
043	1301842	1302155	88-12	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
044	1302156	1310109	88-12	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
045	1310110	1310424	88-12	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
046	1310424	1310740	88-12	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
047	1310740	1311054	88-12	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
048	1311056	1311410	88-12	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
049	1311412	1311716	88-12	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
050	1311718	1311954	88-12	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3

TABLE 9

HUNTEC TAPES 88-008

TAPE UMBERS	START DAY/TIME	STOP DAY/TIME	LINE NUMBERS	GEOGRAPHIC LOCATION	CHANNEL INFO	HUNTEC SYSTEM
051	1311957	1312311	88-12	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
052	1312312	1320226	88-12	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
053	1320229	1320547	88-12	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
054	1320547	1320903	88-12	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
055	1320902	1321218	88-12	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
056	1321220	1321533	88-12	ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
057	1321551	1321847		ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
058	1321848	1322200		ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
059	1322202	1340722		ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
060	1340723	1341036		ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3

TABLE 9

HUNTEC TAPES 88-008

TAPE NUMBERS	START DAY/TIME	STOP DAY/TIME	LINE NUMBERS	GEOGRAPHIC LOCATION	CHANNEL INFO	HUNTEC SYSTEM
061	1341036	1341346		ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
062	1341348	1341700		ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
063	1341703	1342017		ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3
064	1342019	1342113		ST. LAWRENCE RIVER	INTERNAL TRIGGER EXTERNAL VOICE	AGC SYSTEM 3

TABLE 10

HUNTEC RECORDS 88-008

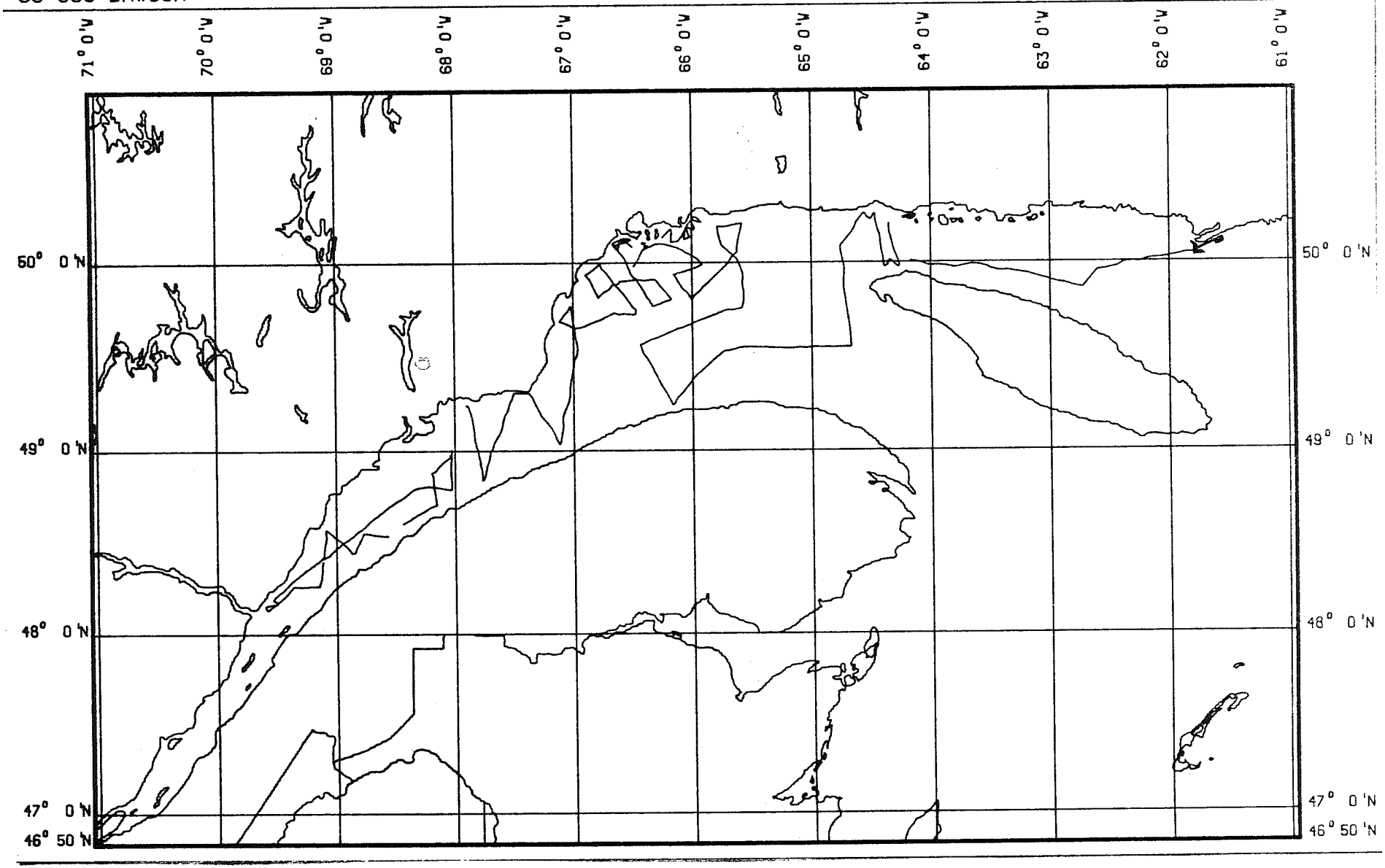
ROLL UMBERS	START DAY/TIME	STOP DAY/TIME	HYDROPHONE	LINE NUMBERS	GEOGRAPHIC LOCATION	RECORDER	HUNTEC SYSTEM
001	1221728	1231024	EXTERNAL	88-01,88-02	ST. LAWRENCE RIVER	EPC	AGC SYSTEM 3
002	1231035	1231510	EXTERNAL	88-02	ST. LAWRENCE RIVER	EPC	AGC SYSTEM 3
003	1231715	1240519	EXTERNAL	88-03,88-04	ST. LAWRENCE RIVER	EPC	AGC SYSTEM 3
004	1240530	1260812	EXTERNAL	88-04,88-05,	ST. LAWRENCE RIVER	EPC	AGC SYSTEM 3
005	1260815	1270725	EXTERNAL	88-07,88-08,	ST. LAWRENCE RIVER	EPC	AGC SYSTEM 3
006	1270728	1280706	EXTERNAL	88-09	ST. LAWRENCE RIVER	EPC	AGC SYSTEM 3
007	1280715	1291126	EXTERNAL	88-09,88-10,	ST. LAWRENCE RIVER	EPC	AGC SYSTEM 3
008	1292335	1300504	EXTERNAL	88-12	ST. LAWRENCE RIVER	EPC	AGC SYSTEM 3
009	1300506	1310601	EXTERNAL	88-12	ST. LAWRENCE RIVER	EPC	AGC SYSTEM 3
010	1310603	1320803	EXTERNAL	88-12	ST. LAWRENCE RIVER	EPC	AGC SYSTEM 3
011	1320805	1341444	EXTERNAL		ST. LAWRENCE RIVER	EPC	AGC SYSTEM 3
012	1341446	1342115	EXTERNAL		ST. LAWRENCE RIVER	EPC	AGC SYSTEM 3
001	1221723	1231510	INTERNAL		ST. LAWRENCE RIVER	EPC	AGC SYSTEM 3
002	1231715	1250503	INTERNAL		ST. LAWRENCE RIVER	EPC	AGC SYSTEM 3
003	1250505	1261958	INTERNAL		ST. LAWRENCE RIVER	EPC	AGC SYSTEM 3
004	1262002	1272124	INTERNAL		ST. LAWRENCE RIVER	EPC	AGC SYSTEM 3
005	1272126		INTERNAL		ST. LAWRENCE RIVER	EPC	AGC SYSTEM 3
006	1290753	1291126	INTERNAL		ST. LAWRENCE RIVER	EPC	AGC SYSTEM 3
007	1292335	1301840	INTERNAL		ST. LAWRENCE RIVER	EPC	AGC SYSTEM 3
008	1301843	1311714	INTERNAL		ST. LAWRENCE RIVER	EPC	AGC SYSTEM 3
009	1311716	1321650	INTERNAL		ST. LAWRENCE RIVER	EPC	AGC SYSTEM 3
010	1321652	1342115	INTERNAL		ST. LAWRENCE RIVER	EPC	AGC SYSTEM 3

TABLE 11

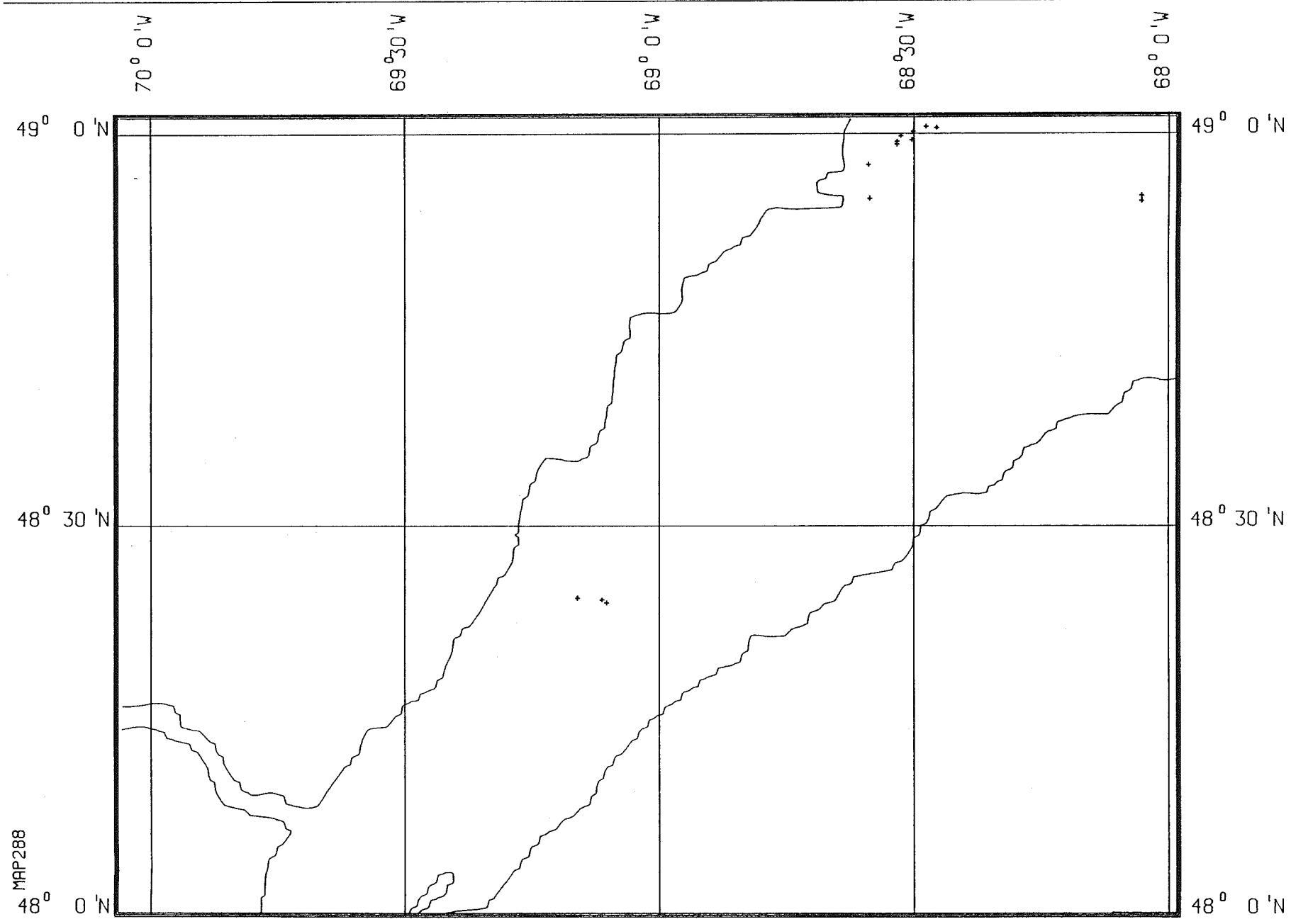
SIDESCAN RECORDS 88-008

ROLL UMBERS	START DAY/TIME	STOP DAY/TIME	LINE NUMBERS	GEOGRAPHIC LOCATION	RECORDER	SIDESCAN SYSTEM
001	1221722	1222111	88-01	ST. LAWRENCE RIVER	KLEIN	AGC HUNTEC SYSTEM 3
002	1230832	1230924	88-01,88-02	ST. LAWRENCE RIVER	KLEIN	AGC HUNTEC SYSTEM 3
003	1250130	1250222	88-05	ST. LAWRENCE RIVER	KLEIN	AGC HUNTEC SYSTEM 3
004	1250228	1250607	88-05	ST. LAWRENCE RIVER	KLEIN	AGC HUNTEC SYSTEM 3
005	1260333	1260422	88-07	ST. LAWRENCE RIVER	KLEIN	AGC HUNTEC SYSTEM 3
006	1261037	1261157	88-07	ST. LAWRENCE RIVER	KLEIN	AGC HUNTEC SYSTEM 3
007	1262350	1270200	88-09	ST. LAWRENCE RIVER	KLEIN	AGC HUNTEC SYSTEM 3
008	1270202	1270507	88-09	ST. LAWRENCE RIVER	KLEIN	AGC HUNTEC SYSTEM 3
009	1271454	1271745	88-09	ST. LAWRENCE RIVER	KLEIN	AGC HUNTEC SYSTEM 3
010	1280934	1281159	88-09	ST. LAWRENCE RIVER	KLEIN	AGC HUNTEC SYSTEM 3
011	1282333	1290641	88-10,88-11	ST. LAWRENCE RIVER	KLEIN	AGC HUNTEC SYSTEM 3
012	1290654	1291021	88-11	ST. LAWRENCE RIVER	KLEIN	AGC HUNTEC SYSTEM 3
013	1291048	1291126	88-11	ST. LAWRENCE RIVER	KLEIN	AGC HUNTEC SYSTEM 3
014	1301734	1301807	88-12	ST. LAWRENCE RIVER	KLEIN	AGC HUNTEC SYSTEM 3
015	1320703	1320801	88-12	ST. LAWRENCE RIVER	KLEIN	AGC HUNTEC SYSTEM 3
016	1321058	1321355	88-12	ST. LAWRENCE RIVER	KLEIN	AGC HUNTEC SYSTEM 3
017	1321359	1321737		ST. LAWRENCE RIVER	KLEIN	AGC HUNTEC SYSTEM 3
018	1321949	1322011		ST. LAWRENCE RIVER	KLEIN	AGC HUNTEC SYSTEM 3
019	1322144	1322226		ST. LAWRENCE RIVER	KLEIN	AGC HUNTEC SYSTEM 3
020	1332339	1340106		ST. LAWRENCE RIVER	KLEIN	AGC HUNTEC SYSTEM 3
021	1340113	1340130		ST. LAWRENCE RIVER	KLEIN	AGC HUNTEC SYSTEM 3

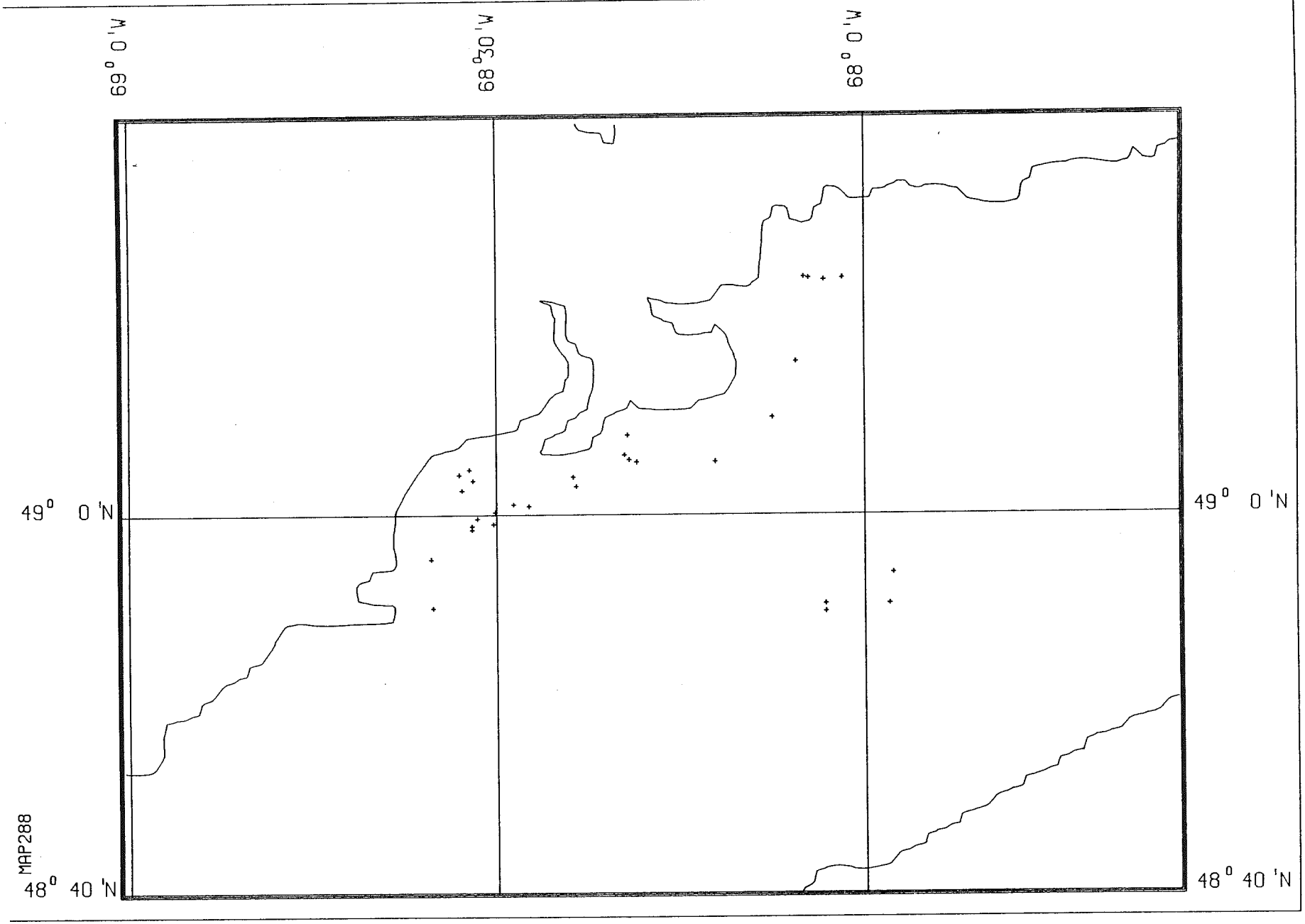
NORTHEAST SAINT LAWRENCE
88-008 DAWSON



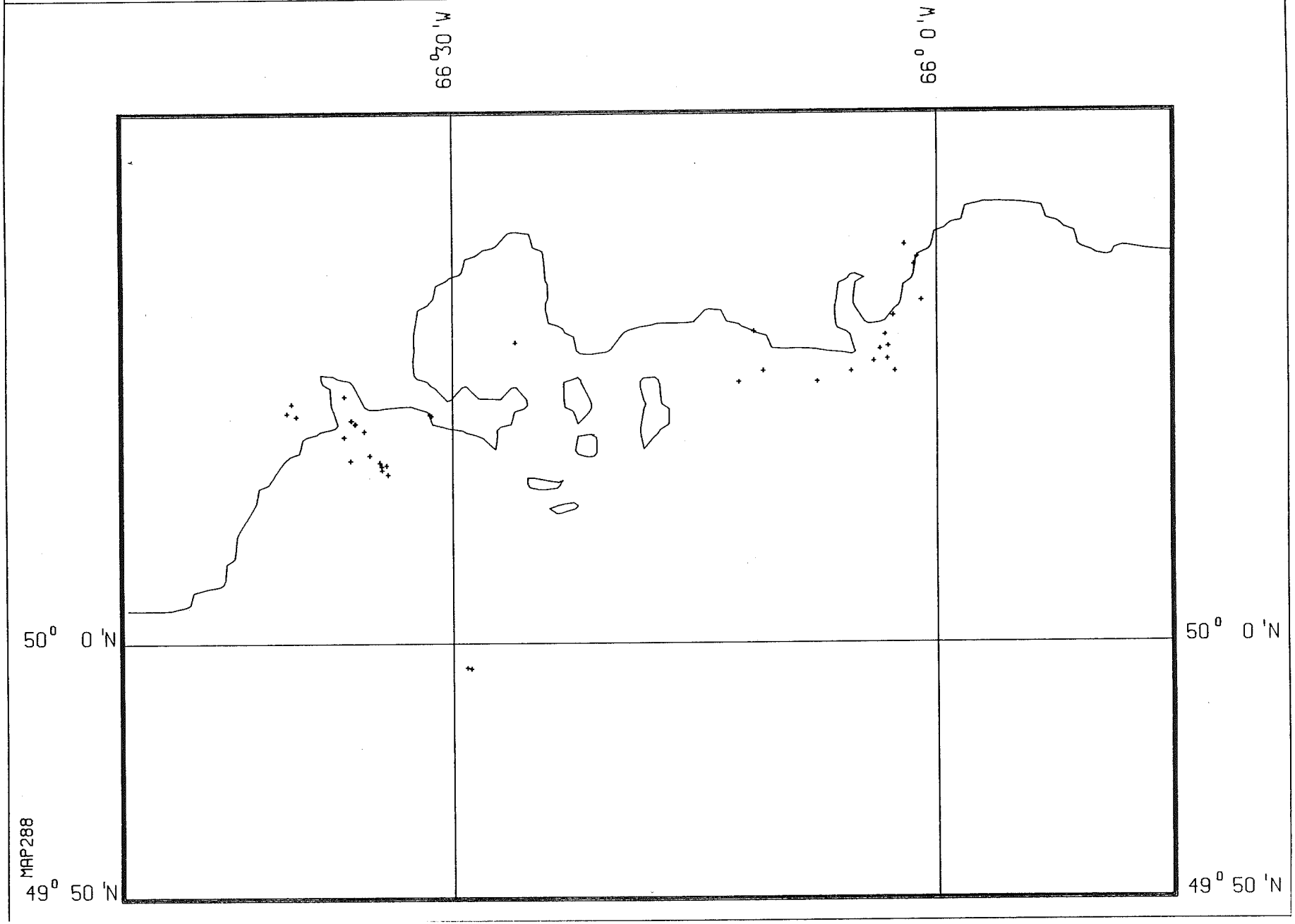
1:650000 (MERCATOR, 50N).



88008 SAMPLE MAP NO.2.
1:450000 (MERCATOR, 50N.)



88008 SAMPLE MAP NO.3.
1:340000 (MERCATOR, 50N.)



88008 SAMPLE PLOT NO.3.
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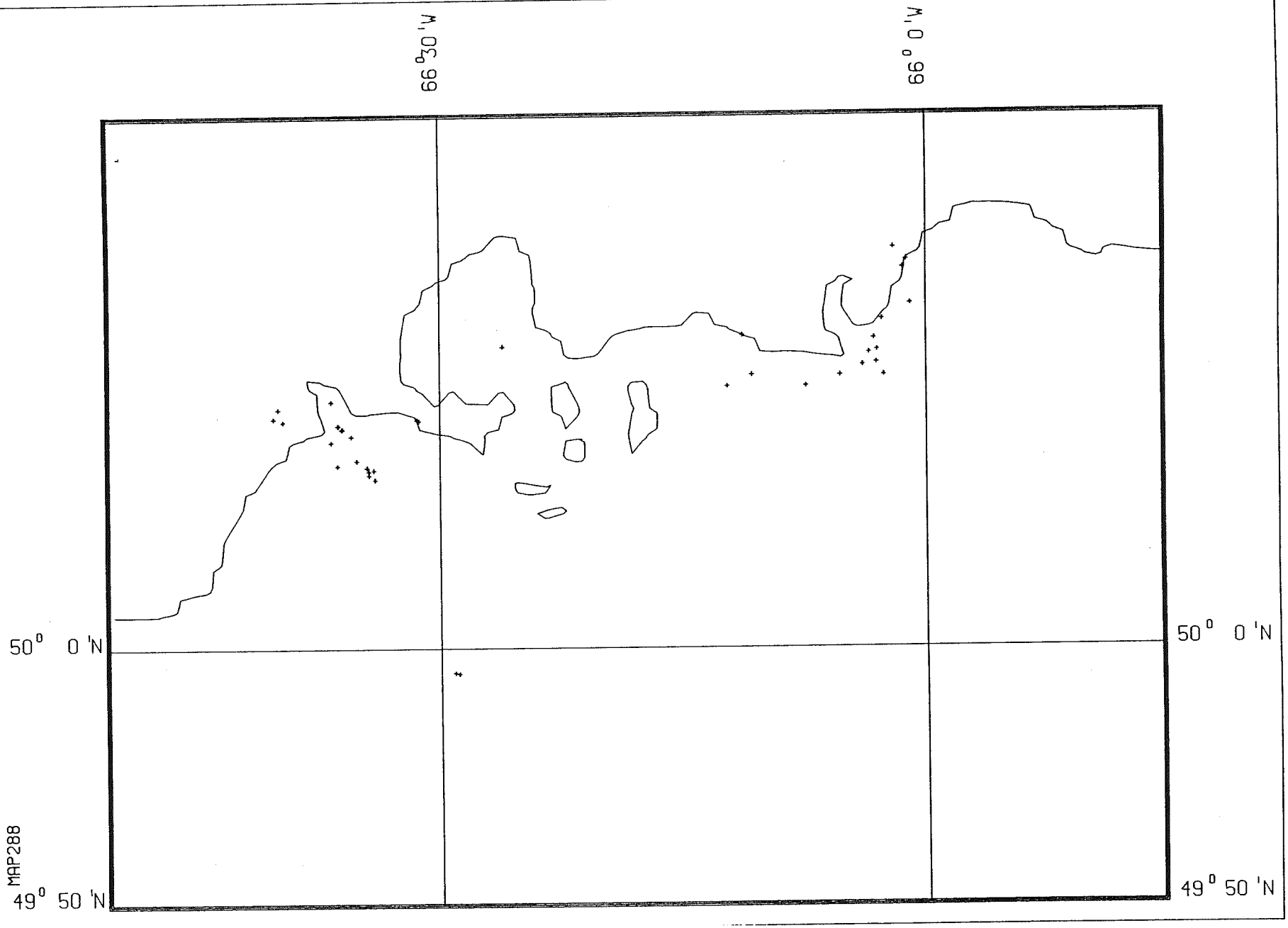
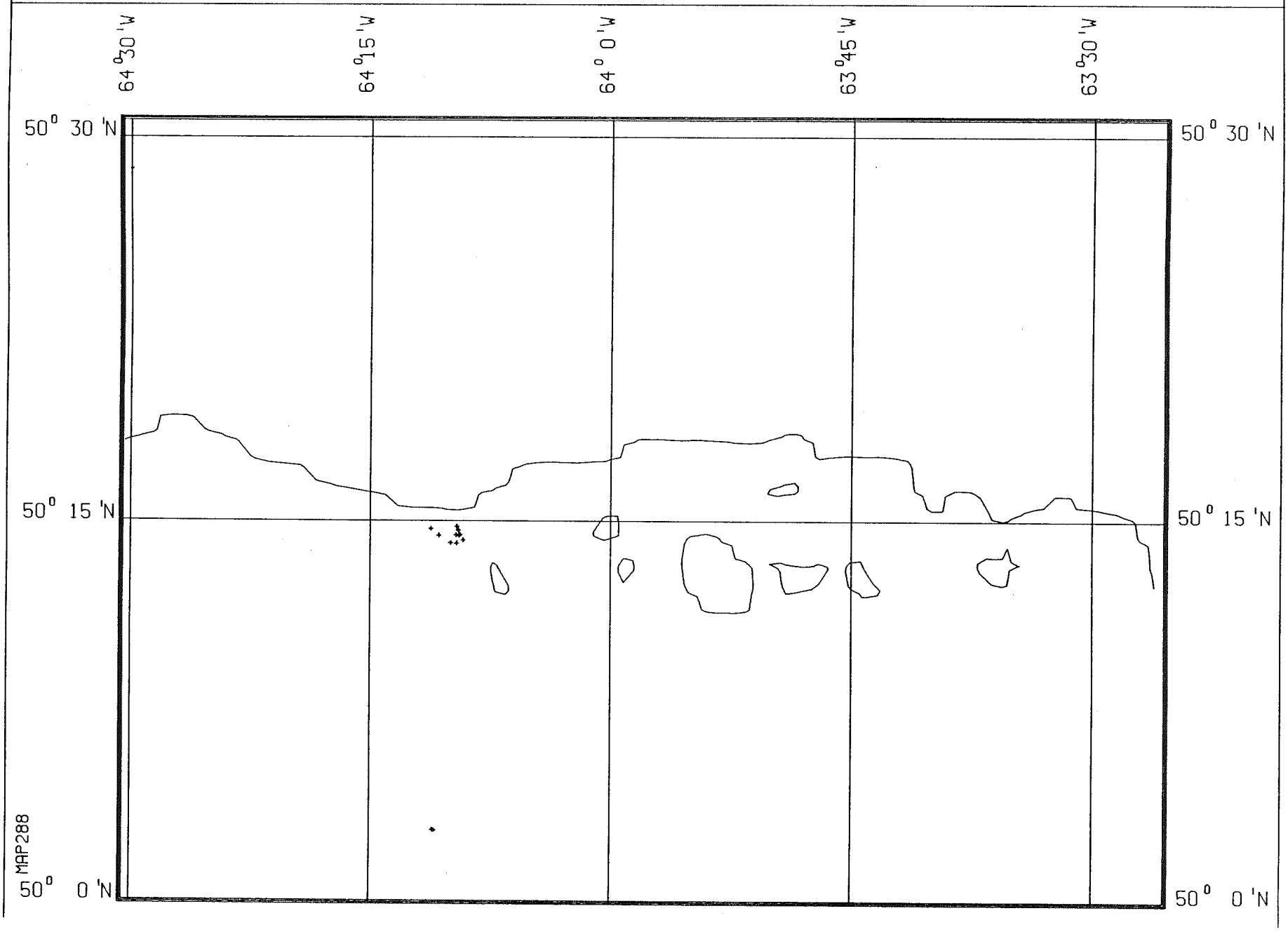


88888 SAMPLE MAP NO.4.
1:340000 (MERCATOR, 50N.)



88008 SAMPLE MAP NO.5.
1:340000 (MERCATOR, 50N.)