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Technical Note

# LAC ST-PIERRE BOTTOM TYPES - CHS LABELS

by

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**TITLE:** Lac St-Pierre Bottom Types - CHS Labels

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**STUDY FILE NO:** Study 82021

## 1.0 INTRODUCTION

The Quebec Region of the Canadian Hydrographic Service provided positioning and sounding support for the 1986 bottom-sediment survey of Lac St-Pierre and simultaneously upgraded its own hydrographic records. Hydrographic charts include references to bottom type and these are generally obtained by casts of a sounding lead. In this case, more detailed and better quality data were available from the sampling survey, and CHS requested that they be made available in the form of their standard labels (Appendix 1). This note responds to that request.

## 2.0 BACKGROUND

NWRI's sampling survey was carried out during May and June of 1986. Samples of the top 10 cm of bottom sediment were collected with a double-Shipek grab sampler on a 1.4-km grid along the diagonals of the local UTM grid on the 1:50000 NTS topographic maps. No samples were collected in the southern portion of the lake which is designated as a DND firing zone. Samples were described and photographed upon collection and subsampled for size analysis. Details of the procedures used are available in the operations guide for the survey (Rukavina 1986).

## 3.0 CHS LABELS

CHS labels (Appendix 1) are one or more letter descriptions of bottom type used to describe its suitability for anchorage. Where two or more symbols are used, it is understood that the first is the predominant type and the others are secondary (S Cy, for example, is a clayey sand, whereas Cy S is a sandy clay). Lac St-Pierre has two basic bottom types - cohesive glacial clay and unconsolidated modern sediment. The corresponding symbols are H CY (glacial sediment), and CY (clay), M (mud), S (sand), G (gravel) and B (boulders) for unconsolidated sediment. The geological significance of the grain-size terms is as follows:

Clay: <0.004 mm
Silt: 0.004 - 0.063 mm
Sand: 0.063 - 2 mm
Gravel (pebbles): 2 - 64 mm
Boulder (cobbles, boulders): >64 mm

The same terms are used in combination to label mixtures of sizes. In this case, the labels used follow the definitions in the list below:

| Hydrographic | Geologic |
|---|---|
| CY | sand/gravel<10%, clay>silt |
| M | sand/gravel<10%, silt>clay |
| MS | sand/gravel from 10-50%, gravel<10% |
| SM | sand/gravel from 50-80%, gravel<10% |
| S | sand/gravel>80%, gravel<10% |
| SG | sand/gravel>80%. gravel from 10-50% |
| G | sand/gravel>80%, gravel>50% |
| B | cobbles/boulders>50% |

In cases where the Shipek sample showed evidence of the presence of hard clay glacial sediment within 10 cm of the sediment surface, the bottom type H CY was used regardless of the texture of the overlying sediment.

Results are summarized in Table 1 which lists sample station numbers, UTM coordinates and labels, and are also available as an ASCII file in MS-DOS format or as a communications file which can be downloaded. Figure 1 is a plot of labels a a scale of 1:175000. A larger plot at a scale of 1:50000 has also been supplied under separate cover. Note that labels for sites 85-87, 89-91, and 93-95 have been left off Figure 1 to avoid overprinting.

## REFERENCES CITED

Canadian Hydrographic Service 1984. Symbols and abbreviations used on Canadian nautical charts. Chart No. 1, 34 p.

Rukavina, N.A. 1986. Operations guide - Lac St-Pierre bottom-sediment survey. NWRI Hydraulics Division Technical Note 86-06.

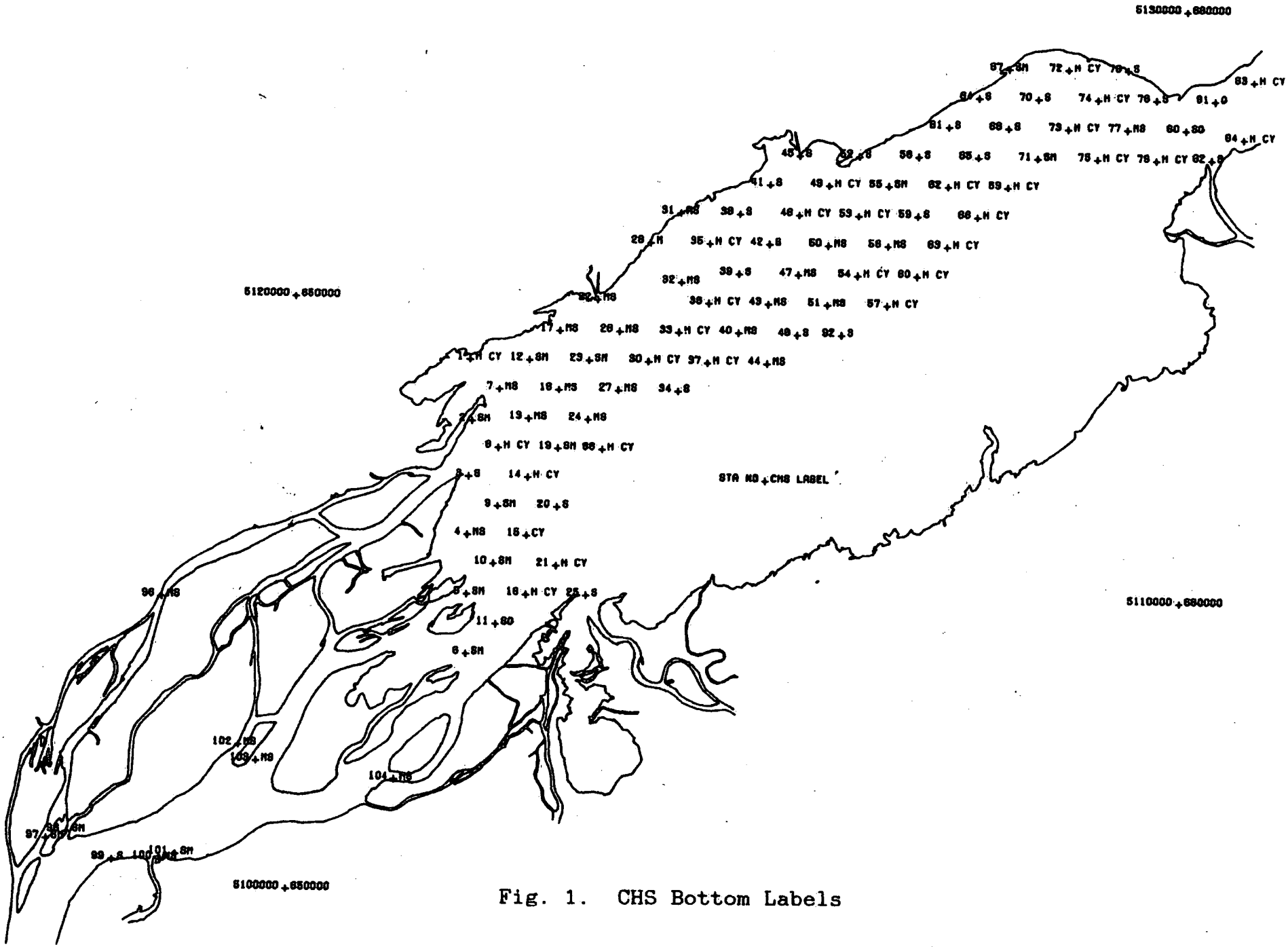


Fig. 1. CHS Bottom Labels

## Appendix 1

CHS Bottom Labels (after CHS 1984, p. 19)

## Quality of the Bottom / Nature du fond

| | | |
|---|---|---|
| 1 | Gd Grd grd | *Ground*<br>*Fond* |
| 2 | S s | *Sand*<br>*Sable* |
| 3 | M m | *Mud ; Muddy*<br>*Vase ; Vaseux* |
| 4 | Oz oz | *Ooze*<br>*Boue ; Fange* |
| 5 | Ml ml | *Marl*<br>*Marne* |
| 6 | Cy Cl cl | *Clay*<br>*Argile* |
| 7 | G g | *Gravel*<br>*Gravier* |
| 8 | Sn shin | *Shingle*<br>*Galets* |
| 9 | P peb | *Pebbles*<br>*Cailloux* |
| 10 | St st | *Stones*<br>*Pierres* |
| 11 | R r Rk rky | *Rock ; Rocky*<br>*Roche ; Rocheux* |
| 11a | B b Bo Blds | *Boulders*<br>*Gros galets* |
| 12 | Ck chk | *Chalk*<br>*Craie* |
| 12a | Ca ca cal | *Calcareous*<br>*Calcaire* |
| 13 | Qz qrtz | *Quartz*<br>*Quartz* |
| 13a | Sch | *Schist*<br>*Schiste* |
| 14 | Co crl | *Coral*<br>*Corail* |
| 23 | Sh sh | *Shells*<br>*Coquilles* |
| 24 | Oy Oys oys | *Oysters*<br>*Huitres* |
| 25 | Ms mus | *Mussels*<br>*Moules* |
| 28 | Wd wd | *Weeds*<br>*Herbes marines* |
| 39 | f fne | *Fine*<br>*Fin* |
| 40 | c crs | *Coarse*<br>*Gros ; Grossier* |
| 41 | so sft | *Soft*<br>*Mou* |
| 42 | h hrd | *Hard*<br>*Dur* |
| 43 | sf stf | *Stiff*<br>*Rigide ; Ferme* |
| 44 | sm sml | *Small*<br>*Petit* |
| 45 | l lrg | *Large*<br>*Gros ; Grand* |
| 46 | sy stk | *Sticky*<br>*Gluant* |
| 47 | bk brk | *Broken*<br>*Brisé* |
| 56 | w wh | *White*<br>*Blanc* |
| 57 | bl blk bk | *Black*<br>*Noir* |
| 59 | b bu | *Blue*<br>*Bleu* |
| 60 | gn | *Green*<br>*Vert* |
| 61 | y yl | *Yellow*<br>*Jaune* |
| 63 | r rd | *Red*<br>*Rouge* |
| 64 | br | *Brown*<br>*Brun* |
| 66 | gy | *Grey*<br>*Gris* |
| 68 | d dk | *Dark*<br>*Foncé* |

## Appendix 2

Sample Locations and CHS Bottom Types, Lac St-Pierre

| STA. | UTM N | UTM E | CHS LABEL |
|---|---|---|---|
| SP1 | 5117990 | 655999 | H CY |
| SP2 | 5115903 | 656096 | SM |
| SP3 | 5113997 | 656007 | S |
| SP4 | 5112008 | 655996 | MS |
| SP5 | 5109994 | 656005 | SM |
| SP6 | 5108003 | 656004 | SM |
| SP7 | 5116996 | 657004 | MS |
| SP8 | 5115004 | 656996 | H CY |
| SP9 | 5112993 | 657006 | SM |
| SP10 | 5111044 | 656894 | SM |
| SP11 | 5109007 | 656996 | SG |
| SP12 | 5118000 | 658000 | SM |
| SP13 | 5116007 | 657997 | MS |
| SP14 | 5113995 | 658005 | H CY |
| SP15 | 5112006 | 657996 | CY |
| SP16 | 5110004 | 658003 | H CY |
| SP17 | 5118999 | 659000 | MS |
| SP18 | 5117000 | 659001 | MS |
| SP19 | 5115005 | 659003 | SM |
| SP20 | 5113001 | 659000 | S |
| SP21 | 5111006 | 659002 | H CY |
| SP22 | 5120055 | 660261 | MS |
| SP23 | 5118008 | 660010 | SM |
| SP24 | 5116002 | 660004 | MS |
| SP25 | 5110010 | 660031 | S |
| SP26 | 5119007 | 661019 | MS |
| SP27 | 5117011 | 661010 | MS |
| SP28 | 5122000 | 662000 | M |
| SP30 | 5118001 | 661998 | H CY |
| SP31 | 5122999 | 663000 | MS |
| SP32 | 5120683 | 663059 | MS |
| SP33 | 5119004 | 663001 | H CY |
| SP34 | 5117013 | 663010 | S |
| SP35 | 5121999 | 664000 | H CY |
| SP36 | 5119994 | 664000 | H CY |
| SP37 | 5117985 | 663993 | H CY |
| SP38 | 5123000 | 665000 | S |
| SP39 | 5120999 | 665000 | S |
| SP40 | 5119018 | 665017 | MS |
| SP41 | 5123995 | 666003 | S |
| SP42 | 5122007 | 666007 | S |
| SP43 | 5119999 | 665999 | MS |
| SP44 | 5117994 | 665994 | MS |
| SP45 | 5124999 | 667000 | S |
| SP46 | 5122999 | 667000 | H CY |
| SP47 | 5120999 | 667000 | MS |

| STA. | UTM N | UTM E | CHS LABEL |
|---|---|---|---|
| SP48 | 5118983 | 666995 | S |
| SP49 | 5123999 | 668000 | H CY |
| SP50 | 5122000 | 668000 | MS |
| SP51 | 5119998 | 667999 | MS |
| SP52 | 5125000 | 669000 | S |
| SP53 | 5123000 | 668999 | H CY |
| SP54 | 5120999 | 668999 | H CY |
| SP55 | 5124000 | 669999 | SM |
| SP56 | 5122000 | 669999 | MS |
| SP57 | 5119999 | 669999 | H CY |
| SP58 | 5124999 | 671000 | S |
| SP59 | 5122999 | 670999 | S |
| SP60 | 5121003 | 671006 | H CY |
| SP61 | 5126009 | 671999 | S |
| SP62 | 5124000 | 671999 | H CY |
| SP63 | 5121999 | 671999 | H CY |
| SP64 | 5127000 | 673000 | S |
| SP65 | 5124999 | 673000 | S |
| SP66 | 5123000 | 672999 | H CY |
| SP67 | 5127999 | 674005 | SM |
| SP68 | 5125999 | 674000 | S |
| SP69 | 5124000 | 674000 | H CY |
| SP70 | 5126999 | 675000 | S |
| SP71 | 5124999 | 675000 | SM |
| SP72 | 5127999 | 676000 | H CY |
| SP73 | 5125998 | 676008 | H CY |
| SP74 | 5127000 | 676998 | H CY |
| SP75 | 5124998 | 677000 | H CY |
| SP76 | 5128000 | 677999 | S |
| SP77 | 5126000 | 678000 | MS |
| SP78 | 5127002 | 678994 | S |
| SP79 | 5124986 | 679003 | H CY |
| SP80 | 5126000 | 680000 | SG |
| SP81 | 5127001 | 680999 | G |
| SP82 | 5125019 | 680900 | S |
| SP83 | 5127657 | 682329 | H CY |
| SP84 | 5125731 | 682009 | H CY |
| SP85 | 5118994 | 658500 | S |
| SP86 | 5118000 | 659001 | SM |
| SP87 | 5117000 | 659500 | MS |
| SP88 | 5114997 | 660498 | H CY |
| SP89 | 5122999 | 666499 | H CY |
| SP90 | 5121999 | 667000 | H CY |
| SP91 | 5120999 | 667499 | MS |
| SP92 | 5118998 | 668499 | S |
| SP93 | 5127000 | 674500 | SM |
| SP94 | 5125999 | 675005 | S |
| SP95 | 5125000 | 675500 | SM |
| SP96 | 5109745 | 645674 | MS |

| STA. | UTM N | UTM E | CHS LABEL |
|---|---|---|---|
| SP97 | 5101550 | 641958 | SM |
| SP98 | 5101783 | 642654 | SM |
| SP99 | 5100871 | 644152 | S |
| SP100 | 5100903 | 645728 | MS |
| SP101 | 5101086 | 646261 | SM |
| SP102 | 5104834 | 648300 | MS |
| SP103 | 5104299 | 648908 | MS |
| SP104 | 5103747 | 653656 | MS |