

BIBLIOGRAPHY

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- Vol. 4: Arctic and Hudson Bay
- Vol. 5: Juan de Fuca and Georgia Straits
- Vol. 6: Barkley Sound and Discovery Passage to Dixon Entrance

SAILING DIRECTIONS

- Newfoundland
- Nova Scotia and Bay of Fundy
- Gulf and River St. Lawrence
- Great Lakes (two volumes)
- British Columbia (two volumes)
- Great Slave Lake and Mackenzie River
- Labrador and Hudson Bay
- Arctic Canada (three volumes)

SMALL CRAFT GUIDES

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CHART NUMBER ONE

(Defines and illustrates chart symbols and abbreviations, including those for tides and currents)

NAVIGATIONAL CHARTS

(Approximately 1 600 in number, most contain some current and tide or water level information)

NOTICES TO MARINERS

(Issued weekly to update information on charts; they are published jointly by the CHS and the Canadian Coast Guard)

TIDES IN CANADIAN WATERS (G.C. Dohler)

(Descriptive pamphlet on the origin and nature of tides, with examples from Canadian waters; 14 pages plus 6 fold-outs)

TIDAL & METEOROLOGICAL INFLUENCES ON THE CURRENT IN LITTLE CURRENT CHANNEL. (W.D. Forrester, 1961)

(Manuscript report, demonstrating the part played by wind set-up, seiche, and tide to produce the reversing current in Little Current Channel between Georgian Bay and the North channel of Lake Huron; 55 pages)

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APPENDIX A

MAJOR TIDAL HARMONIC CONSTITUENTS

This is by no means a complete list of all the possible tidal harmonic constituents, but it does contain all the larger ones.

The "ratio" in column 2 is the amplitude of the constituent in the equilibrium tide divided by the amplitude of the M_2 constituent in the equilibrium tide. The "speed" in column 3 is the angular speed of the constituent in degrees per solar hour.

Description	Symbol	Ratio	Speed
Mean value	Z_o	—	0.0000 °/h
Annual constituent (see section 2.6)	S_a	0.013	0.0411
Semi-annual constituent (see section 2.6)	S_{sa}	0.080	0.0821
Monthly constituent (see section 2.6)	M_m	0.091	0.5444
Fortnightly constituents (see section 2.6)	M_f	0.172	1.0980
	MS_f	0.009	1.0159
Diurnal constituents (section 2.5)	K_1	0.584	15.0411
	O_1	0.415	13.9430
	P_1	0.193	14.9589
Semidiurnal constituents (section 2.5)	M_2	1.000	28.9841
	S_2	0.465	30.0000
	N_2	0.194	28.4397
	K_2	0.127	30.0821
	L_2	0.028	29.5285
	T_2	0.027	29.9589
Quarter-diurnal shallow- water constituents (section 3.5)	M_4	—	57.9682
	MS_4	—	58.9841

SECTION 2. GENERAL INFORMATION

NAME OF STATION LOCATION
 PROVINCE LATITUDE N. LONGITUDE W.
 FIELD SHEETS AFFECTED
 TIME ZONE OF OBSERVATIONS + OR PERIOD GAUGE IN OPERATION: FROM TO
 O.I.C. AGENCY
 MAKE AND MODEL OF GAUGE: SERIAL NO. TYPE OF SENSOR:
 TYPE OF RECORD: RANGE OF GAUGE: m.

SECTION 3. TYPE OF RECORD OBTAINED AND LOCATION OF GAUGING SITE.

Year TYPE OF RECORD: Continuous Or Staff gauge readings: hourly ortimes daily
 The gauge was located
 Year TYPE OF RECORD: Continuous Or Staff gauge readings: hourly ortimes daily
 The gauge was located
 Year TYPE OF RECORD: Continuous Or Staff gauge readings: hourly ortimes daily
 The gauge was located
 Year TYPE OF RECORD: Continuous Or Staff gauge readings: hourly ortimes daily
 The gauge was located

SECTION 4. METHOD BY WHICH BENCH MARK ELEVATIONS WERE ORIGINALLY ESTABLISHED AND WERE MAINTAINED DURING THE PERIODS OF OPERATION OF THE GAUGE SITE.

Year _____
 Year _____
 Year _____

SECTION 5. TABULATION OF BENCH MARK ELEVATIONS

Date	O.I.C.	Establishment	B.M. No.	B.M. No.	B.M. No.	B.M. No.	B.M. No.	Datum Used

SECTION 6. DATUM FOR HEIGHTS above Sounding Datum above Chart Datum

SECTION 7. BENCH MARK DESCRIPTIONS

B.M. NO A (agency) bronze tablet stamped set
 Sounding datum m. below.
 Chart Datum m. below.
 G.S.C. elevation
 IGLD (1955) elev.
 BM condition

correct amended

B.M. NO A (agency) bronze tablet stamped set
 Sounding datum m. below.
 Chart Datum m. below.
 G.S.C. elevation
 IGLD (1955) elev.
 BM condition

correct amended

B.M. NO A (agency) bronze tablet stamped set
 Sounding datum m. below.
 Chart Datum m. below.
 G.S.C. elevation
 IGLD (1955) elev.
 BM condition

correct amended

correct amended

SECTION 8. SKETCH

PLACE

FILE NO.

Temporary Gauge Data

This form combines a computation sheet for datums and Bench Mark elevations, a gauge history for past and present data and a Bench Mark sketch with descriptions along with detailed instructions for standardizing its use. The gauge history will be supplied along with Bench Mark data when required.

Section 1. This section is for computing the elevation of all Bench Marks and the zero of the automatic gauge relative to chart or sounding datum. The Bench Marks should follow the pattern indicated by the letters a and b, and the convention + above and - below should be used throughout *having careful regard to the exact context.*

Section 1A. is used by successive parties when the elevation of Chart Datum below a Bench Mark is known. The elevation of all Bench Marks in the net and the zero of the staff gauge are related to Chart Datum. The zero of the automatic gauge relative to the zero of the staff gauge is found by comparing simultaneous readings recorded on the comparison form and hence the zero of the automatic gauge relative to Chart Datum.

Section 1B. This section is used by the initial party to transfer Chart Datum from a place (Z) where it has already been established. The table should be completed using the days with maximum tidal range available. The mean values are used as indicated to compute r,R,m,M, and hence "d" the amount the zero of the automatic gauge is above (+) or below (-) Sounding Datum. The zero of the staff gauge relative to the zero of the automatic gauge is found by comparing simultaneous readings recorded on the comparison form and hence the zero of the staff gauge is found relative to Sounding Datum. The elevation of all Bench Marks in the net are then computed above Sounding Datum. The Higher High Water Large Tides (HHWLT) datum for heights can be calculated using the HHWLT at (Z) and r/R as indicated. The HHWLT at (Z) is found by applying the HHWLT height difference at Z to the HHWLT height at the appropriate reference port. If this data is not published, it will be supplied by the Tides and Water Levels Section.

Section 2. All parties insert appropriate data (In sections 3, 4 and 5 all parties complete one section of each).

Section 3. Indicate type of record and insert a brief description of the site.

Section 4. Insert a brief description of the method used for establishing the Bench Mark elevations e.g. water level transfer from "Z" or levelling run from Geodetic Bench Mark No. "CCX". Similarly for successive years e.g., levelling run from controlling Bench Mark No. 1.

Section 5. The elevations of Bench Marks are accepted as those computed by the party which establishes them. Successive parties tabulate the results of levelling lines and identify the controlling Bench Mark with an asterisk e.g. 12.23*.

Section 6. The initial party inserts Datum for Heights. The calculation of this Datum in section 1B is a water level transfer and it is therefore referred to Sounding Datum. Its elevation above Chart Datum will be entered by the Tides and Water Levels Section.

Section 7. The initial party inserts Bench Mark data and concise descriptions using the printed format. The elevations of Bench Marks are always above Sounding Datum unless a Bench Mark elevation above Chart Datum has been used in the levelling run. Otherwise, elevations above Chart Datum will be entered by the Tides and Water Levels Section. Photographs of each Bench Mark with their number and location marked, should be submitted along with other gauge data. Successive parties insert the condition of each Bench Mark e.g., good, unreliable, destroyed or not located, and check accuracy of descriptions making amendments if necessary.

Section 8. The initial party draws a sketch showing location of Bench Mark, automatic gauge and staff gauge, showing distances from conspicuous fixed points. Successive parties check for amendments if necessary.

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