TSUNAMI OF MAY 22, 1960

WEST COAST OF CANADA

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The tsunami generated by the Chilean earthquake of May 22, 1960 reached the British Columbia coast at approximately 12:21 G.M.T., May 23, or 04:21 Pacific Standard Time. Taking the time of origin as 19:11 G.M.T., the travel time was 17 hours and 10 minutes.

Twenty-one tide gauges were in operation, and 17 of these showed either a wave sequence or a marked distortion of the normal tide pattern. Locations of these 17 gauges are shown on figure 1. Tide records from these stations for May 23 have been transcribed, and all are plotted to the same time and height scale on figures 2 and 3.

Size and shape of the waves differed markedly, even on the exposed portions of the coast. Greatest recorded range was shown on the Tofino gauge, with a maximum amplitude of 4.4 feet. Waves of greater amplitudes may have occurred at places without gauges. On the west coast of the Queen Charlotte Islands at Shields Bay, where a tide gauge was installed in July, loggers reported that the water poured in and out of the bay with a violence that resembled Seymour Narrows. One took photographs half an hour apart during the height of the disturbance, and it appeared from these that the maximum wave amplitude was not less than seven feet.

At no gauge station then in operation did the maximum wave crest reach higher than the highest recorded tide. However at Shields Bay large logs were left stranded above the apparent extreme high water. On the west coast of Vancouver Island a playing field at an Indian village was reported inundated.

No assessment has been made of the damage or loss caused on the British Columbia coast by the tsunami. At several points on Vancouver Island and at Shields Bay moored log booms were torn adrift, and the logs scattered.

One of the most striking features of the tsunami was the transmission of the waves through fast running and turbulent passages. The Seymour Inlet area, shown in inset on figure 1, is connected to the ocean through a restricted entrance at Nakwakto Rapids. Current velocities here have not been surveyed, but the tidal streams pour through with great violence. In spite of this the tsunami was recorded on five of the eight gauges during both the flood and ebb streams. Only the gauges at Bamford Lagoon, Frederick Sound, and Allison Sound showed no apparent wave, and in all of these there are additional narrows through which the tide must pass.

The distortion that occurred to the Prince Rupert tide curve is similar to the response there to the 1952 and 1957 tsunamis. Under certain storm conditions a similar oscillation has been noted.

All 21 gauges are listed on the following tabulation. Time of arrival of the tsunami is given where it appears fairly clearly defined. Maximum rise or fall of a single wave has been scaled with the effect of the tide eliminated.

Tide Gauge	Lat.	Long.	Time of Arrival	Max. Rise or Fall	Gauge Status
Barkley Sd	49 00	125 21	04 22	3.4	Temporary
Tofino	49 09	125 55	04 21	4.4	Permanent
Cape St James	51 56	131 01	04 21	1.4	One Year
Copper I	52 21	131 10	04 47	0.7	Temporary
McKenney Is	52 39	129 29	05 03	1.8	Temporary
Prince Rupert	54 19	130 20	Indef	Indef	Permanent
Klemtu	52 36	128 31	05 20	1.3	Temporary
Griffin Pass	52 46	128 21	05 36	1.4	Temporary
Victoria	48 25	123 22	04 58	2.4	Permanent
Fulford Hr	48 46	123 27	Indef	1.0	Permanent
Caulfeild	49 20	123 15	Indef	Indef	Permanent
Vancouver	49 17	123 07	-	-	Permanent
Alert Bay	50 35	126 56	05 45	1.5	Permanent
Johnson Pt	51 07	127 32	07 40	0.5	Temporary
Bamford Lagoon	51 00	127 15	-	-	Temporary
Seymour Inlet	51 05	126 53	Indef	0.1	Temporary
Frederick Sound	51 02	126 44	-	-	Temporary
Nugent Sd	51 05	127 15	08 03	0.5	Temporary
Belize Inlet	51 07	127 17	08 13	0.2	Temporary
Mereworth Sd	51 11	127 25	08 40	0.5	Temporary
Allison Sd	51 10	127 00	-	-	Temporary

TSUNAMI — WEST COAST OF CANADA — MAY 23 1960

0 1 2 3 4 5 6 7 8 9 10 11 NOON 13 14 15 16 17 18 19 20 21 22 23 24

PACIFIC STANDARD TIME

ONE FOOT INTERVALS

BARKLEY SD.

TOFINO

CAPE ST. JAMES

COPPER I.

Mc KENNEY IS.

PRINCE RUPERT

KLEMTU

GRIFFIN PASS

Hydrographic Service, 512 Federal Bldg. Victoria B.C.

130°
125°
55°
50°
ALASKA
Prince of Wales I.
Clarence Strait
Revillagigedo I.
Behm Canal
Portland Canal
Nass River
Skeena R.
Chatham Sd.
PRINCE RUPERT
Dixon Entrance
BRITISH
COLUMBIA
Graham I.
QUEEN CHARLOTTE ISLANDS
Moresby I.
Hecate Strait
Banks I.
MEREWORTH SD
BELIZE INLET
JOHNSON PT
NUGENT SD
SEYMOUR INLET
GRIFFIN PASS
Mc KENNEY IS.
KLEMTU
COPPER I.
CAPE ST. JAMES
Queen Charlotte Sound
Queen Charlotte Str.
ALERT BAY
PACIFIC
OCEAN
VANCOUVER ISLAND
Str. of Georgia
CAULFEILD
TOFINO
BARKLEY SD
FULFORD
VICTORIA
Juan de Fuca Strait
UNITED STATES

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0 1 2 3 4 5 6 7 8 9 10 11 NOON 13 14 15 16 17 18 19 20 21 22 23 24

PACIFIC STANDARD TIME

VICTORIA

FULFORD HR

CAULFEILD

ALERT BAY

ONE FOOT INTERVALS

JOHNSON PT

SEYMOUR INLET

NUGENT SD

BELIZE INLET

MEREWORTH SD

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