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ABSTRACT This report describes the analysis of simultaneous observations of tidal velocity, salinity and suspended sediment transport made in April 1978 in the Brisbane port area during the latter stages of a fluvial flood in the Brisbane River. It also describes the results of longitudinal salinity and suspended sediment surveys made prior to and during the course of the fluvial flood. This investigation was made as part of a comprehensive field and numerical model study to determine the hydraulic effects of port developments at the mouth of the tidal river at Fisherman Islands.

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INTRODUCTION

1 In January 1977, the Port of Brisbane Authority (PBA) commissioned the Hydraulics Research Station (HRS) to investigate sediment transport processes in the tidal reaches of the Brisbane River and, subsequently, to predict the effect of the new port developments at Fishermans Islands on siltation in the river estuary. The study comprises a mathematical model and field investigation.

2 An important part of the investigation was the simultaneous collection of hydraulic data in the port area during the dry- and wet-season periods. The results of the dry-season simultaneous exercise are described in the first report in this series (see list at end of report). The field work in both exercises was undertaken by the staff of PBA with the help of specialised equipment and experts from HRS.

3 This report describes the results of an intensive hydraulic survey made in the port area during the latter stages of a moderate fluvial flood in April 1978. The aim of this exercise was to quantify the main features of tidal propagation, saline intrusion and the regime of sediment transport in the river during the passage of a typical fluvial flood to help prove and validate the mathematical models at HRS.

FLUVIAL FLOODS

4 The usual "wet-season" period in Brisbane is from January to March when the average rainfall in the vicinity of Brisbane is about 165mm per month. However, the river flows are flashy with floods of short duration between long periods with negligible flows. In 1978, a drought prevailed in the catchment area for all these months and it was not until early April that enough rain fell to produce adequate fluvial floods to justify an intensive simultaneous field exercise.

5 The criterion for determining the size of a flood was based on a consideration of its volume compared to the volume of saline water held in the upper estuary, because the flood had to be large enough to have a significant flushing effect on the saline intrusion in the estuary. The volume of brackish water held in the estuary upstream of the Port Office (32km) in the dry-season was estimated to be about 60 million m^3. It was therefore recommended that an intensive simultaneous exercise should only be mounted after a period of about 10 days from the beginning of a flood when at least 75 million m^3 of fresh water had entered the estuary.

6 The pattern of saline intrusion and suspended solids in the estuary was monitored week by week using the Rapid Drop Profiler (RDP). PBA had close contact with the Weather Bureau and together they forecast the fluvial flows at Crosby Weir about 7 days in advance. PBA also telexed flows at Crosby Weir and bed and surface salinity at Cairncross Dock to HRS every few days. There was effectively no fluvial flow in the first 20 days of March 1978. The RDP surveys on 1, 7 and 8 March 1978 (Figs 2 (a) – 4) showed that the estuary was in a very well-mixed condition with saline water intruding well into the upper estuary and fairly low concentrations of suspended solids. On 23 March, the flows rose to 40 cumecs only to fall to less than 10 cumecs on 26 March. The flows then rose to a maximum of about 60 cumecs (including the Bremer River) on 28 March but fell to less than 3 cumecs on 1 April. This "second flood" only had a volume of about 20 million m^3 but its effects are shown by the longitudinal RDP survey of 29 March (Figs 5 (a) and 5 (b)). On 2 and 3 April the total daily fluvial discharge into the tidal compartment rose suddenly from 95 to 365 cumecs (Fig 1). The RDP survey on 4 April showed that the estuary was then highly stratified (Figs 6 (a) and 6 (b)) and that the limit of saline intrusion had been pushed seaward.

7 A decision was then made to carry out the exercise on 10 and 11 April and HRS specialists flew to Brisbane, arriving on 8 April. By 10 April, a total of about 110 million m^3 of fresh water flowed into the tidal compartment.

The 2-day intensive simultaneous field exercise was duly carried out on 10 and 11 April 1978.

8 When compared with 9 floods which occurred in the previous 3 years (Eighth Report), the April 1978 flood only ranks about seventh in terms of volume and suspended sediment load carried over Crosby Weir (Table 1), but nevertheless the observations made an important contribution towards a further understanding of sediment transport in the estuary.

OBSERVATIONS

9 The wet-season survey was conducted in a similar manner to the dry-season survey of 15 and 16 August 1977. Vertical profiles of velocity, salinity and suspended solids concentration were recorded simultaneously at 0.5 hour intervals for about 13 hours at 6 stations (omitting station 1) located as for the dry-season exercise (see para 10) and shown in Fig 7. On 10 April, observations were made at Stations 2 – 5 and on 11 April they were made at Stations 4, 6 and 7, using Station 4 to act as a control or check. Boats at Stations 3 and 6 were positioned on the south side of the channel centre-line; all others were to the north. Unfortunately, the boats at Stations 2 and 6 sometimes dragged their anchors into more shallow depths on the edge of the channel as safety reasons forced them to keep clear of mid-channel areas of activity. At Station 7, there was a 2.5 hour gap in the observations while measuring units were untangled from anchor ropes, and the peak readings were missed.

10 The positions of the fixed stations along the port area are as follows:-

Station No.	Distance upstream from Entrance Beacons (km)	
10 April 1978		
2	7.3	Upstream West Inner Bar Beacon
3	10.1	F.I. Swing Basin
4	13.0	Quarantine Flats
5	17.5	Eagle Farm Flats Cutting
11 April 1978		
4	13.0	Quarantine Flats
6	22.3	Hamilton Reach
7	25.9	Bulimba Reach

11 Measurements were taken at 0.25, 0.5, 0.75, 1.0, 2.0, 4.0, 6.0, 8.0, and 10.0 metres above the bed, where depths allowed. The lowest three levels were measured using a bed frame unit and the upper levels measured using a roving unit. These are described in the dry-season report, paragraphs 9 – 11.

12 500 ml water samples were taken at all measuring positions. At the lowest three positions, tidal velocities were recorded using a Braystoke current-meter but no salinities were measured. For the remaining depths, the roving unit was fitted with a Seafarer echo-sounder, a current-meter and a salinometer. Water samples were subsequently analysed for suspended solids concentrations.

13 Tidal levels were recorded on automatic gauges at three stations (Appendix – part 2):

West Inner Bar Beacon	6½ km from Entrance Beacons
Cairncross Dock	22 km from Entrance Beacons
Port Office	31¾ km from Entrance Beacons

At least one water level reading on the gauge board near each automatic gauge was manually recorded each day of the exercise as a check against the level on the automatic gauge at the same time.

14 Several half-tide (ie at time of maximum flood and ebb velocities) longitudinal salinity and suspended solids surveys were made with the RDP between about Km 4 and Km 44 on the following dates preceding, and during, the simultaneous exercise, see Fig 1.

Date	Fig No.	Remarks	
1.3.78	2 (a), 2 (b)	negligible fluvial flows	
7.3.78	3	negligible fluvial flows	Flood tide only
8.3.78	4	negligible fluvial flows	Ebb tide only
29.3.78	5 (a), 5 (b)	middle of small 20 million m^3 flood	
4.4.78	6 (a), 6 (b)	peak of 100 million m^3 flood	
7.4.78	8 (a), 8 (b)	on falling limb of flood	
10 – 11.4.78	9 (a)	on falling limb of flood	Flood tide only Km 4 – Km 92
10 – 11.4.78	9 (b)	on falling limb of flood	Ebb tide only Km 4 – Km 82

15 12½ hour, stationary RDP surveys were made at the following locations and on the following dates preceding the simultaneous exercise.

Date	Fig No.	Location	Remarks
9.3.78	10	Cairncross Dock km 22	In a period of negligible fluvial flow
10.3.78	11	F.I. Swing Basin km 10	In a period of negligible fluvial flow
5.4.78	12	Cairncross Dock km 22	Immediately after the peak of the fluvial flood
6.4.78	13	F.I. Swing Basin km 10	Immediately after the peak of the fluvial flood

16 Concurrent with the observations at the fixed stations, half-tide observations were made along the lower and middle reaches up to the confluence with the Bremer River (82 km upstream from the Entrance Beacons) using the RDP. This instrument, developed at HRS, is lowered at a controlled rate of approximately 0.3 m/s through the depth from a drifting boat where it measures salinity, suspended solids, temperature and water depth. These parameters are simultaneously displayed on two x–y graph plotters on board vessel.

17 On the first day of the simultaneous exercise, an RDP survey was made during maximum flood currents, leaving West Inner Bar Beacon at HW – 2¾ hr (local high-water) and making 'drops' at about 2 km intervals as far as Six Mile Rocks (km 43). The boat then returned to Station 2 (km 7) and at LW – 3hr proceeded upstream again making similar measurements. Each run took about 2 hours to complete and an average of 20 profiles were taken.

18 On the second day, the flood tide RDP run began at Six Mile Rocks (km 43) making 'drops' up to the Bremer River confluence and then returned to Six Mile Rocks to wait for the ebb tide run. The flood run took about 2 hours and the ebb run only 1¼ hours.

RESULTS

19 The Appendix shows a computer listing of all data recorded at the six fixed

stations. Salinity values at Station 5 seemed very erratic and, subsequently, the salinometer broke down. The Queensland Institute of Technology (QIT) therefore analysed each sample bottle for salinity as well as suspended solids concentration at this station and their results are quoted in this report.

Tidal levels

20 Tidal levels were recorded at only three locations, using automatic gauges. The main constituent of the tides at Brisbane is a semi-diurnal one. Shallow-water effects are weak, and the tides are undistorted. The tidal levels recorded on 10 – 11 April 1978 are listed in Part 2 of the Appendix. The propagation of the surface tide in the lower estuary was not significantly affected by the fresh water discharge.

21 The tidal ranges, similar on the two successive days, were smaller for this exercise than for the dry-season one, although both were carried out during a period of mean spring tides.

Velocity patterns in the port area

22 Figs 14 – 20 show tidal velocities plotted against time at the six stations and include the tide curve at West Inner Bar Beacon. Velocities at four depths only are shown for clarity although all measured velocities are listed in the Appendix.

23 The maximum velocities were about 0.9m/s. The peak ebb velocities at the surface at all the stations exceeded the peak flood velocities. The reverse tendency occurred near the bed. With increasing distance upstream, peak flood velocities occurred progressively lower through the depth. At Stations 6 and 7 the flood velocities were lowest near the surface, attaining only 0.1m/s and 0.35m/s, respectively.

24 At Station 2, near Bishop Island, the ebb velocities recorded by the bed unit and those at about mid-depth were all relatively fast at about 0.7m/s but decreased considerably by Station 4 to become lower than flood velocities at the bed, and maintained this progression with stations further upstream. This indicates that the bulk of the tide ebbs in the upper layers. On the second half of the ebb tide, there was no flow near the bed at Station 6 in Hamilton Reach. Part of the ebb tide record was missing at Station 7. Bed velocities at Station 3 in the Swing Basin were low throughout the tidal cycle.

25 The period of slack-water at the end of the ebb tide near the bed increased in the landward direction. Periods varied from half an hour at Station 2 to between 3 and 4 hours at Stations 5, 6 and 7. At all stations, with the exception of Station 2, periods of slack-water at the bed exceeded those in the dry-season exercise. The bed currents started to flood before the surface currents.

Salinity patterns in the port area

26 Although the fluvial flood was past its peak at the time of the exercise, there was enough flow to cause a significant vertical stratification in the port area. The pattern of salinities obtained with the RDP in the port area on 10 – 11 April and shown in Figs 9 (a) and 9 (b) was caused in part by the antecedent fluvial flood flows.

27 Figs 21 and 22 were produced from data at the six fixed stations to show longitudinal salinity patterns at high-water and low-water, respectively. The contours on these figures are interpolated at 5 ppt intervals. The highest salinity recorded at HW was 32.5 ppt at Station 3. The apparently high bed levels at Stations 2 and 6 are explained by the movement of the boats out of the navigation channel.

28 The observations show that there was only a relatively small longitudinal movement of the saline wedge in the lower layers of about 10 km during the spring tidal cycle. The flow was slightly more stratified at LW than at HW.

29 Graphs of salinity plotted as a function of time for each fixed station are shown in Figs 23 – 29. The inter-tidal variations ranged from 8.7 ppt at Station 2 to 12.6 ppt at Station 7 (in the dry-season the values were only 2 – 4 ppt). The maximum instantaneous difference between bed and surface salinity during the tide ranged from about 6 – 11 ppt.

Salinity variations

Station	Maximum bed/ surface difference (ppt)	Inter-tidal variation Range (ppt)	Difference (ppt)
2	5.8	23.8 – 32.5	8.7
3	9 (estimated)	21.9 – 32.5	10.6
4	9.0	20.8 – 32.4	11.6
5	8.5	18.6 – 28.9	10.3
4	8.3	21.3 – 31.8	10.5
6	7.5	17.9 – 27.6	9.7
7	11.2	12.5 – 25.1	12.6

Transient effects caused by the unsteady fluvial flows

30 The average daily fluvial discharge into the head of the estuary was about 25 and 17 cumecs on 10 and 11 April 1978, respectively. However, unlike the dry-season survey, the wet-season simultaneous survey took place immediately after a short period of rapidly varying fluvial flows (Fig 1). The longitudinal RDP surveys showed that the salinity of the surface layers and the degree of vertical stratification reacted relatively quickly to the daily changes in the fluvial flows, as is shown in Table 2.

31 However, both the salinity near the bed of the estuary in the port area (km 20) and the landward limit of saline intrusion (characterised by the position of the 20 ppt isohaline) in the lower layers of the flow did not react nearly so rapidly to the changes in the fluvial flows. It should be noted that the RDP surveys were non-simultaneous and did not necessarily pick up the maximum limit of saline intrusion. The changes of salinity in the lower layers were small compared to changes in the surface layers.

32 It appears therefore that most of the fluvial flood water passed fairly rapidly out of the estuary within a day or so via the surface layers without greatly affecting the longitudinal salinity distribution in the lower layers.

Suspended solids concentration patterns in the estuary

33 The RDP surveys showed that suspended solids concentrations in excess of about 200 ppm remained confined to the reach between about Km 24 and Km 44 throughout the duration of the fluvial flood, as shown in Figs 6 (a), 6 (b) and 8 (a) – 9 (b) and Table 3. The estimated rate of influx of suspended sediment over Crosby Weir during the flood is shown in Fig 30. It shows that the total influx of mud during the flood was about 10,000 tonnes over a period of 10 days. If one considers that the volume of water contained in the estuary (above AHD) landward of Km 22 is about 140 million m^3, then this is equivalent to an increase in suspended solids of 70 ppm, which is significant compared to the average concentration observed in the landward reaches of the estuary.

34 The stationary RDP surveys, before (9/10 March 1978) and during (5/6 April 1978) the peak of the flood, in Fisherman Islands Swing Basin and at Cairncross Dock in Hamilton Reach, showed significant changes in tidal velocities, salinities and suspended solids. These are shown in Figs 10 – 13. They confirmed the change in conditions observed between the dry and wet-season simultaneous exercises on 15/16 August 1977 and 10/11 April 1978, respectively.

35 During the simultaneous exercise, suspended solids concentrations recorded with the RDP did not exceed 400 ppm in the port area, although peak values were probably missed. However, the reach of river with the highest concentrations was well defined on both flood and ebb tides, occurring at 36–43 km from the Entrance Beacons (upstream of Wm Jolly Bridge to Six Mile Rocks) (Figs 9 (a) and 9 (b)). This coincided with the observed limit of saline intrusion. The highest observed flood and ebb concentrations at 1m above the bed was about 2000 ppm and 1000 ppm, respectively.

36 The suspended solids concentrations rapidly decreased upstream of Km 43 from high values near the limit of saline intrusion to approximately 200 ppm by Km 50 on both the flood and ebb tides, and thereafter gradually decreased to 50 ppm at, and beyond, the Bremer River junction (82 km from Entrance Beacons).

Suspended solids concentrations in the port area

37 At the fixed stations in the port area, samples were collected at all depths (see para 11) every half-hour throughout the tidal cycle and these were subsequently taken to QIT for determination of suspended solids concentrations. The results at each station are shown in Figs 31 to 37.

38 The peak concentrations near the bed in the port area generally occurred at the time of maximum tidal velocities near the bed and they were about four times higher than those occurring during the dry-season exercise. The period of lowest concentrations usually occurred at times of slack-water near the bed.

39 There was no evidence of a resuspension of mud from the bed during the ebb tide at Station 3 in the F.I. Swing Basin or at Stations 5, 6 and 7. Suspended mud concentrations in the surface layers were generally less than about 20 ppm and relatively uniform throughout the tidal cycle.

Suspended sediment transport patterns in the port area

40 Tide-averaged concentrations were calculated for three depths at each fixed station and plotted as longitudinal profiles in Fig 38. The general trend is increased concentration with distance upstream and depth, attaining 170 ppm at 0.25m above the bed at Station 7. The near-surface longitudinal profile remains fairly constant at about 10 ppm, only rising at Stations 6 and 7. This indicates very low concentrations near the surface and high concentrations up to about 2.0m above the bed. The highest tide-averaged suspended solids concentrations obtained from the dry-season exercise (Ref 1, Fig 33) were about 50 ppm at 0.25m above the bed at Stations 5 to 7.

41 The flood and ebb suspended solids flux in the river was calculated at three depths for all stations, with the exception of those on the ebb tide at Station 7 where peak data were missed. The results are shown in the form of longitudinal profiles in Fig 39. It may be seen that most of the sediment was transported near the bed on the flood tide, except in the F.I. Swing Basin (Station 3) where greater amounts were transported at higher levels in the flow. The highest flux on the flood tide occurred at Station 7 but there was relatively little transport at Station 6. As in the dry-season exercise, most of the ebb tide transport took place near the surface. This longitudinal circulation, with flood tide transport higher near the bed and ebb tide transport higher near the surface, is caused by the longitudinal density gradient in the lower layers.

42 The total sediment flux passing each station was calculated for flood and ebb tides and these are shown in Fig 40. These values are only approximate as flux rates at the observation stations were assumed to apply to the whole cross-section of flow and this may not have been the case. However, the figures do provide a good indication of the transport of suspended mud. The flood tide values have been normalized to the ebb tidal range for better comparison.

43 The flood transport rose sharply at Station 3 in the wide Swing Basin, then gradually fell through Stations 4, 5 and 6 before rising to a maximum of 1600 tonnes at Station 7. The ebb tide transport followed a very similar longitudinal pattern but with about 40% – 60% lower rates than the flood transport at Stations 3 – 6. With the exception of a balance at Station 2, there was a net landward movement of material at all stations (we can probably assume this for Station 7). The net landward bias at Stations 3, 4 and 5 was consistent at about 500 tonnes per tidal cycle. The net flood bias at the same stations during the dry-season exercise was about 100 tonnes. Station 7 seems to have produced anomalous results.

44 The balance between flood and ebb transports at Station 2 in the entrance channel showed that negligible quantities of suspended sediment were leaving the estuary during the tide. The flood bias at Stations 3, 4 and 5 suggests a redistribution of previously settled bed material from the lower reaches of the port area to Hamilton Reach, where there was only a small landward bias. The pattern of suspended sediment transport in the port area during the latter stages of the fluvial flood was therefore broadly similar to that in the dry-season except that the net transport rates were about five times higher.

DISCUSSION AND CONCLUSIONS

45 The simultaneous field exercise, carried out in the port area at the later stages of a moderate fluvial flood, showed that very little of the suspended sediment brought down by the river leaves the estuary.

46 It appears that most of the fluvial flood water passed fairly rapidly out of the estuary via the surface layers without greatly affecting the longitudinal salinity distribution in the lower layers in the port area. However, there were considerably longer periods of slack-water in the saline wedge near the bed on the ebb tide in the Fisherman Islands Swing Basin and in Hamilton Reach compared with the dry-season exercise.

47 The occurrence of the fluvial flood, which is estimated to have carried about 10,000 tonnes of suspended mud into the tidal compartment, increased suspended solids concentrations about four-fold at the landward limit of saline intrusion which was near Km 40 from Entrance Beacons and also in the lower layers of the flow in the port area, compared with the dry-season conditions. The longitudinal gravitational circulation in the port area traps nearly all the suspended sediment that settles from the brackish surface layers, and deposits it in the zones of low bed stress, i.e. Fisherman Islands Swing Basin and Hamilton Reach.

ACKNOWLEDGEMENTS

48 These observations, of which this is the official Hydraulics Research Station account, were made as part of a study being carried out in Dr T J Weare's Division by Mr N V M Odd's section. The report was written by N V M Odd and Miss J A Openshaw. The observations were planned and supervised by Mr K Mann and Mr C J Teal (Mr M J Crickmore's Field Studies Section). HRS would like to express appreciation to the staff of Port of Brisbane Authority for their co-operation in the field exercise.

REPORTS List of reports from the Port of Brisbane Siltation Study:

Report 1: Dry-season simultaneous exercise, August 1977.

Report 2: Geometry of the tidal reaches of the Brisbane River.

Report 3: Tidal propagation in the Brisbane River in the dry-season.

Report 4: Two-dimensional model studies of peak tidal flows and mud deposition patterns at Fisherman Islands.

Report 5: Properties of Brisbane mud.

Report 6: Wet-season simultaneous exercise, April 1978.

Report 7: An analysis of the distribution of bed sediments in the Brisbane River.

Report 8: The suspended sediment load of the Brisbane River and siltation in the estuary.

APPENDIX -- FIELD RESULTS

PART 1 DATA FROM FIXED STATIONS 10/11 APRIL 1978

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
10 4 78	2	910	0.25	61.8	-99.9	0.23
10 4 78	2	914	0.50	58.4	-99.9	0.23
10 4 78	2	925	0.75	60.5	-99.9	0.22
10 4 78	2	910	1.00	49.9	32.5	0.32
10 4 78	2	918	2.00	64.6	32.1	0.40
10 4 78	2	926	4.00	44.8	31.1	0.52
10 4 78	2	929	6.00	15.2	27.3	0.35
10 4 78	2	930	8.00	10.9	26.8	0.40
10 4 78	2	935	0.25	47.8	-99.9	0.21
10 4 78	2	938	0.50	45.6	-99.9	0.23
10 4 78	2	940	0.75	54.0	-99.9	0.17
10 4 78	2	935	1.00	51.9	32.5	0.31
10 4 78	2	936	2.00	45.0	31.3	0.40
10 4 78	2	940	4.00	33.0	30.8	0.46
10 4 78	2	943	6.00	13.7	27.3	0.37
10 4 78	2	945	8.00	11.0	26.6	0.40
10 4 78	2	948	8.30	11.8	26.6	0.35
10 4 78	2	1002	0.25	51.9	-99.9	0.19
10 4 78	2	1004	0.50	49.2	-99.9	0.20
10 4 78	2	1007	0.75	60.3	-99.9	0.18
10 4 78	2	1000	1.00	59.2	31.8	0.25
10 4 78	2	1003	2.00	56.4	31.4	0.40
10 4 78	2	1004	4.00	36.7	31.1	0.50
10 4 78	2	1005	6.00	15.5	27.9	0.30
10 4 78	2	1006	8.00	11.0	26.9	0.30
10 4 78	2	1012	8.30	8.6	26.9	0.30
10 4 78	2	1030	0.25	30.2	-99.9	0.16
10 4 78	2	1034	0.50	-99.9	-99.9	0.12
10 4 78	2	1052	0.75	19.4	-99.9	0.21
10 4 78	2	1030	1.00	28.3	31.5	0.25
10 4 78	2	1033	2.00	21.8	31.2	0.30
10 4 78	2	1035	4.00	22.6	31.3	0.40
10 4 78	2	1036	6.00	39.0	29.1	0.20
10 4 78	2	1037	8.00	7.1	28.5	0.25
10 4 78	2	1038	8.50	7.5	26.0	0.26
10 4 78	2	1101	0.25	27.3	-99.9	0.10
10 4 78	2	1104	0.50	33.0	-99.9	0.09
10 4 78	2	1106	0.75	39.0	-99.9	0.08
10 4 78	2	1100	1.00	166.4	32.1	0.20
10 4 78	2	1102	2.00	28.0	31.4	0.30
10 4 78	2	1103	4.00	11.4	30.9	0.30
10 4 78	2	1105	6.00	6.5	28.5	0.10
10 4 78	2	1106	8.00	6.2	28.4	0.10
10 4 78	2	1108	8.50	4.4	27.8	0.10
10 4 78	2	1130	0.25	21.7	-99.9	0.12
10 4 78	2	1135	0.50	24.1	-99.9	0.09
10 4 78	2	1138	0.75	15.5	-99.9	0.12
10 4 78	2	1130	1.00	31.8	32.2	0.20
10 4 78	2	1135	2.00	27.0	32.1	0.25
10 4 78	2	1140	4.00	15.5	30.5	0.15
10 4 78	2	1142	6.00	10.9	29.9	0.00
10 4 78	2	1144	8.00	20.6	28.7	0.00
10 4 78	2	1148	8.50	7.7	28.2	0.00

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
10 4 78	2	1200	0.25	15.3	-99.9	0.17
10 4 78	2	1204	0.50	16.2	-99.9	0.14
10 4 78	2	1206	0.75	14.6	-99.9	0.08
10 4 78	2	1200	1.00	16.8	32.3	0.10
10 4 78	2	1202	2.00	14.3	30.9	0.10
10 4 78	2	1204	4.00	12.0	30.8	0.10
10 4 78	2	1205	6.00	10.7	30.1	0.10
10 4 78	2	1206	8.00	10.1	29.6	-0.10
10 4 78	2	1208	10.00	4.5	28.5	-0.10
10 4 78	2	1212	11.00	3.3	27.6	-0.15
10 4 78	2	1230	0.25	13.5	-99.9	0.02
10 4 78	2	1232	0.50	11.0	-99.9	0.01
10 4 78	2	1234	0.75	15.5	-99.9	0.01
10 4 78	2	1230	1.00	15.3	32.3	0.00
10 4 78	2	1231	2.00	11.5	31.7	0.00
10 4 78	2	1233	4.00	11.6	30.5	0.00
10 4 78	2	1234	6.00	6.2	30.2	0.00
10 4 78	2	1235	8.00	9.9	29.6	-0.05
10 4 78	2	1236	10.00	8.6	28.7	-0.15
10 4 78	2	1242	11.00	8.5	28.1	-0.25
10 4 78	2	1308	0.25	45.4	-99.9	-0.19
10 4 78	2	1310	0.50	32.7	-99.9	-0.26
10 4 78	2	1312	0.75	29.7	-99.9	-0.29
10 4 78	2	1300	1.00	30.2	32.4	-0.35
10 4 78	2	1302	2.00	22.6	32.1	-0.45
10 4 78	2	1304	4.00	13.1	31.7	-0.45
10 4 78	2	1305	6.00	7.6	30.9	-0.40
10 4 78	2	1306	8.00	6.3	29.8	-0.30
10 4 78	2	1307	10.00	4.2	28.7	-0.40
10 4 78	2	1309	10.30	4.5	28.4	-0.40
10 4 78	2	1330	0.25	49.0	-99.9	-0.16
10 4 78	2	1332	0.50	46.9	-99.9	-0.21
10 4 78	2	1334	0.75	42.4	-99.9	-0.23
10 4 78	2	1330	1.00	34.9	32.3	-0.30
10 4 78	2	1331	2.00	31.7	32.2	-0.30
10 4 78	2	1333	4.00	18.5	31.5	-0.50
10 4 78	2	1334	6.00	11.6	31.1	-0.55
10 4 78	2	1335	8.00	6.7	29.2	-0.50
10 4 78	2	1336	10.00	12.3	27.1	-0.50
10 4 78	2	1342	10.50	11.0	27.0	-0.50
10 4 78	2	1400	0.25	93.7	-99.9	-0.24
10 4 78	2	1402	0.50	83.3	-99.9	-0.33
10 4 78	2	1404	0.75	58.1	-99.9	-0.40
10 4 78	2	1400	1.00	60.5	30.6	-0.50
10 4 78	2	1402	2.00	25.9	29.1	-0.50
10 4 78	2	1403	4.00	18.5	27.6	-0.70
10 4 78	2	1404	6.00	9.7	25.9	-0.60
10 4 78	2	1430	0.25	30.1	-99.9	-0.54
10 4 78	2	1432	0.50	15.3	-99.9	-0.57
10 4 78	2	1434	0.75	30.4	-99.9	-0.61
10 4 78	2	1430	1.00	34.6	29.7	-0.55
10 4 78	2	1431	2.00	12.3	28.3	-0.70
10 4 78	2	1432	4.00	8.6	27.5	-0.80

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
10 4 78	2	1434	6.00	11.4	25.7	-0.80
10 4 78	2	1500	0.25	21.4	-99.9	-0.66
10 4 78	2	1502	0.50	9.9	-99.9	-0.76
10 4 78	2	1504	0.75	11.0	-99.9	-0.81
10 4 78	2	1500	1.00	24.9	28.8	-0.75
10 4 78	2	1501	2.00	12.9	28.2	-0.85
10 4 78	2	1502	4.00	20.7	26.9	-0.80
10 4 78	2	1503	6.00	9.9	25.6	-0.80
10 4 78	2	1531	0.25	43.7	-99.9	-0.57
10 4 78	2	1533	0.50	24.9	-99.9	-0.71
10 4 78	2	1536	0.75	20.0	-99.9	-0.76
10 4 78	2	1530	1.00	45.4	28.5	-0.65
10 4 78	2	1531	2.00	25.8	27.5	-0.85
10 4 78	2	1533	4.00	14.3	25.8	-0.85
10 4 78	2	1535	6.00	9.9	25.0	-0.90
10 4 78	2	1617	0.25	46.8	-99.9	-0.29
10 4 78	2	1619	0.50	53.3	-99.9	-0.18
10 4 78	2	1621	0.75	30.2	-99.9	-0.18
10 4 78	2	1600	1.00	36.6	27.6	-0.70
10 4 78	2	1602	2.00	15.5	26.8	-0.90
10 4 78	2	1603	4.00	14.3	25.9	-0.70
10 4 78	2	1606	5.50	6.3	24.5	-0.80
10 4 78	2	1630	0.25	48.6	-99.9	-0.12
10 4 78	2	1636	0.50	56.2	-99.9	-0.25
10 4 78	2	1638	0.75	43.4	-99.9	-0.33
10 4 78	2	1630	1.00	33.0	28.2	-0.50
10 4 78	2	1631	2.00	15.8	27.3	-0.75
10 4 78	2	1632	4.00	14.9	25.7	-0.65
10 4 78	2	1636	5.50	11.0	24.0	-0.75
10 4 78	2	1700	0.25	29.8	-99.9	-0.24
10 4 78	2	1702	0.50	31.8	-99.9	-0.26
10 4 78	2	1704	0.75	14.3	-99.9	-0.36
10 4 78	2	1700	1.00	19.4	27.5	-0.50
10 4 78	2	1701	2.00	15.3	26.9	-0.30
10 4 78	2	1702	4.00	12.6	26.6	-0.50
10 4 78	2	1703	6.00	14.3	25.8	-0.60
10 4 78	2	1704	6.10	11.5	26.3	-0.50
10 4 78	2	1730	0.25	20.7	-99.9	-0.18
10 4 78	2	1733	0.50	21.8	-99.9	-0.15
10 4 78	2	1736	0.75	17.7	-99.9	-0.12
10 4 78	2	1730	1.00	35.5	26.9	-0.20
10 4 78	2	1731	2.00	13.3	26.3	-0.30
10 4 78	2	1732	4.00	15.2	24.3	-0.30
10 4 78	2	1733	5.00	15.0	23.8	-0.35
10 4 78	2	1800	0.25	24.1	-99.9	-0.06
10 4 78	2	1802	0.50	11.4	-99.9	-0.06
10 4 78	2	1806	0.75	14.6	-99.9	-0.08
10 4 78	2	1800	1.00	11.4	26.0	-0.15
10 4 78	2	1801	2.00	14.6	26.3	-0.15
10 4 78	2	1802	4.00	4.4	25.4	-0.20
10 4 78	2	1803	5.00	10.1	24.5	-0.20
10 4 78	2	1830	0.25	44.7	-99.9	0.16
10 4 78	2	1832	0.50	47.8	-99.9	0.18

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
10 4 78	2	1834	0.75	54.0	-99.9	0.16
10 4 78	2	1830	1.00	15.0	27.0	0.00
10 4 78	2	1832	2.00	14.6	26.1	0.00
10 4 78	2	1833	4.00	9.7	25.4	0.00
10 4 78	2	1834	4.50	7.5	23.8	-0.05
10 4 78	2	1900	0.25	29.3	-99.9	0.30
10 4 78	2	1902	0.50	25.3	-99.9	0.30
10 4 78	2	1904	0.75	24.1	-99.9	0.31
10 4 78	2	1900	1.00	20.9	29.7	0.30
10 4 78	2	1901	2.00	18.0	28.1	0.40
10 4 78	2	1902	4.00	8.7	25.5	0.20
10 4 78	2	1903	6.00	6.0	24.7	0.25
10 4 78	2	1930	0.25	115.3	-99.9	0.32
10 4 78	2	1932	0.50	90.1	-99.9	0.35
10 4 78	2	1940	0.75	83.7	-99.9	0.41
10 4 78	2	1930	1.00	85.0	30.5	0.30
10 4 78	2	1931	2.00	58.3	29.6	0.40
10 4 78	2	1932	4.00	25.9	26.6	0.40
10 4 78	2	1933	6.00	30.5	25.5	0.50
10 4 78	2	1934	6.20	10.5	25.7	0.50
10 4 78	2	2000	0.25	91.0	-99.9	0.39
10 4 78	2	2002	0.50	61.8	-99.9	0.46
10 4 78	2	2004	0.75	70.7	-99.9	0.48
10 4 78	2	2000	1.00	11.0	30.4	0.45
10 4 78	2	2001	2.00	71.5	30.7	0.50
10 4 78	2	2002	4.00	21.0	27.3	0.30
10 4 78	2	2003	6.00	-99.9	25.7	0.40
10 4 78	2	2004	6.50	7.7	24.9	0.50
10 4 78	2	2030	0.25	44.7	-99.9	0.50
10 4 78	2	2032	0.50	39.6	-99.9	0.56
10 4 78	2	2034	0.75	32.1	-99.9	0.55
10 4 78	2	2030	1.00	66.5	31.0	0.50
10 4 78	2	2031	2.00	35.9	30.5	0.60
10 4 78	2	2032	4.00	30.4	28.2	0.40
10 4 78	2	2033	6.00	18.6	26.7	0.50
10 4 78	2	2035	7.50	9.0	26.1	0.60
10 4 78	2	2100	0.25	69.1	-99.9	0.39
10 4 78	2	2103	0.50	55.7	-99.9	0.38
10 4 78	2	2105	0.75	44.3	-99.9	0.44
10 4 78	2	2100	1.00	10.1	30.9	0.30
10 4 78	2	2101	2.00	42.0	30.9	0.50
10 4 78	2	2102	4.00	34.7	28.1	0.50
10 4 78	2	2103	6.00	16.8	27.4	0.55
10 4 78	2	2104	7.50	11.6	27.1	0.60
10 4 78	2	2131	0.25	45.1	-99.9	0.34
10 4 78	2	2133	0.50	30.4	-99.9	0.40
10 4 78	2	2135	0.75	27.5	-99.9	0.43
10 4 78	2	2130	1.00	46.6	30.8	0.40
10 4 78	2	2131	2.00	30.2	30.5	0.40
10 4 78	2	2132	4.00	24.3	29.1	0.40
10 4 78	2	2134	6.00	12.7	28.0	0.50
10 4 78	2	2135	7.50	12.6	27.7	0.45
10 4 78	2	2202	0.25	37.5	-99.9	-99.90

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
10 4 78	2	2204	0.50	32.1	-99.9	-99.90
10 4 78	2	2206	0.75	26.1	-99.9	-99.90
10 4 78	2	2200	1.00	24.9	31.4	0.40
10 4 78	2	2201	2.00	20.0	30.9	0.50
10 4 78	2	2202	4.00	17.3	30.3	0.55
10 4 78	2	2203	6.00	26.9	28.9	0.35
10 4 78	2	2204	8.00	17.7	29.1	-99.90
10 4 78	2	2205	8.50	14.9	29.1	-99.90

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
10 4 78	3	905	0.25	53.6	-99.9	0.20
10 4 78	3	908	0.50	47.8	-99.9	0.21
10 4 78	3	911	0.75	37.0	-99.9	0.24
10 4 78	3	913	1.00	45.4	31.7	0.15
10 4 78	3	915	2.00	46.8	32.0	0.34
10 4 78	3	916	4.00	41.0	32.0	0.36
10 4 78	3	917	6.00	27.0	31.9	0.46
10 4 78	3	918	8.00	25.9	30.7	0.39
10 4 78	3	919	10.00	24.1	24.8	0.41
10 4 78	3	921	12.00	22.6	28.2	0.59
10 4 78	3	930	0.25	53.3	-99.9	0.15
10 4 78	3	932	0.50	51.6	-99.9	0.22
10 4 78	3	934	0.75	51.4	-99.9	0.23
10 4 78	3	936	1.00	9.0	32.2	0.10
10 4 78	3	937	2.00	46.9	32.0	0.15
10 4 78	3	938	4.00	48.6	32.1	0.29
10 4 78	3	939	6.00	38.7	31.6	0.32
10 4 78	3	940	8.00	39.9	31.5	0.26
10 4 78	3	941	10.00	15.8	31.2	0.22
10 4 78	3	942	12.00	13.0	27.3	0.45
10 4 78	3	1000	0.25	144.4	-99.9	0.23
10 4 78	3	1002	0.50	79.1	-99.9	0.23
10 4 78	3	1004	0.75	54.2	-99.9	0.26
10 4 78	3	1000	1.00	51.3	31.8	0.25
10 4 78	3	1010	2.00	38.0	32.2	0.23
10 4 78	3	1012	4.00	45.3	32.2	0.26
10 4 78	3	1013	6.00	36.1	31.9	0.28
10 4 78	3	1014	8.00	33.7	31.8	0.28
10 4 78	3	1016	10.00	19.8	30.9	0.25
10 4 78	3	1017	12.00	25.5	28.9	0.36
10 4 78	3	1030	0.25	51.9	-99.9	0.10
10 4 78	3	1032	0.50	46.5	-99.9	0.12
10 4 78	3	1035	0.75	42.0	-99.9	0.10
10 4 78	3	1036	1.00	44.5	32.4	0.20
10 4 78	3	1037	2.00	41.3	32.3	0.20
10 4 78	3	1038	4.00	40.7	32.2	0.24
10 4 78	3	1039	6.00	40.0	32.2	0.25
10 4 78	3	1040	8.00	37.0	31.7	0.15
10 4 78	3	1041	10.00	34.9	29.9	0.34
10 4 78	3	1042	12.00	10.5	27.3	0.42
10 4 78	3	1100	0.25	32.1	-99.9	0.06
10 4 78	3	1101	0.50	43.3	-99.9	0.06
10 4 78	3	1102	0.75	42.7	-99.9	0.07
10 4 78	3	1106	1.00	52.2	32.5	0.10
10 4 78	3	1107	2.00	72.0	32.4	-99.90
10 4 78	3	1108	4.00	67.0	32.0	-99.90
10 4 78	3	1109	6.00	49.9	32.1	-99.90
10 4 78	3	1110	8.00	32.5	31.7	0.10
10 4 78	3	1111	10.00	18.0	29.8	0.22
10 4 78	3	1112	12.00	11.4	28.6	0.35
10 4 78	3	1130	0.25	71.5	-99.9	0.06
10 4 78	3	1131	0.50	39.3	-99.9	0.04
10 4 78	3	1132	0.75	49.2	-99.9	0.06

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
10 4 78	3	1135	1.00	44.8	32.3	0.12
10 4 78	3	1136	2.00	45.1	32.0	0.15
10 4 78	3	1137	4.00	32.7	32.1	0.15
10 4 78	3	1138	6.00	34.9	31.9	0.10
10 4 78	3	1139	8.00	20.7	31.7	0.05
10 4 78	3	1140	10.00	11.0	30.8	0.18
10 4 78	3	1141	12.00	7.7	28.8	0.25
10 4 78	3	1200	0.25	49.9	-99.9	0.02
10 4 78	3	1203	0.50	22.9	-99.9	0.08
10 4 78	3	1205	0.75	31.2	-99.9	0.08
10 4 78	3	1207	1.00	44.8	32.2	0.15
10 4 78	3	1208	2.00	36.2	32.2	0.12
10 4 78	3	1209	4.00	27.0	32.1	0.13
10 4 78	3	1210	6.00	19.4	32.1	0.10
10 4 78	3	1211	8.00	14.9	31.5	0.04
10 4 78	3	1212	10.00	12.6	30.7	0.04
10 4 78	3	1213	12.00	13.1	29.3	0.00
10 4 78	3	1230	0.25	92.3	-99.9	0.02
10 4 78	3	1233	0.50	22.6	-99.9	0.01
10 4 78	3	1235	0.75	24.9	-99.9	0.03
10 4 78	3	1237	1.00	24.1	32.0	0.08
10 4 78	3	1238	2.00	12.7	31.5	0.08
10 4 78	3	1239	4.00	15.2	31.1	0.10
10 4 78	3	1240	6.00	9.0	30.8	-0.10
10 4 78	3	1241	8.00	7.1	30.8	-0.10
10 4 78	3	1242	10.00	8.6	29.4	-0.10
10 4 78	3	1243	12.00	8.1	27.7	-0.08
10 4 78	3	1300	0.25	82.4	-99.9	0.01
10 4 78	3	1303	0.50	111.5	-99.9	0.01
10 4 78	3	1305	0.75	79.0	-99.9	0.00
10 4 78	3	1307	1.00	26.1	32.0	0.04
10 4 78	3	1308	2.00	74.1	31.9	0.02
10 4 78	3	1309	4.00	20.0	30.2	0.02
10 4 78	3	1310	6.00	8.5	30.3	-0.14
10 4 78	3	1311	8.00	6.7	30.2	-0.09
10 4 78	3	1312	10.00	6.5	29.8	-0.12
10 4 78	3	1313	12.00	11.0	28.8	-0.16
10 4 78	3	1330	0.25	104.3	-99.9	0.01
10 4 78	3	1332	0.50	41.5	-99.9	0.00
10 4 78	3	1335	0.75	30.1	-99.9	0.00
10 4 78	3	1336	1.00	32.9	32.3	0.00
10 4 78	3	1337	2.00	33.0	31.7	-0.02
10 4 78	3	1338	4.00	31.3	31.6	-0.05
10 4 78	3	1339	6.00	15.3	26.0	-0.20
10 4 78	3	1340	8.00	9.9	30.1	-0.35
10 4 78	3	1341	10.00	10.7	27.8	-0.42
10 4 78	3	1342	12.00	4.5	26.7	-0.30
10 4 78	3	1400	0.25	58.3	-99.9	-0.01
10 4 78	3	1403	0.50	78.0	-99.9	-0.04
10 4 78	3	1405	0.75	67.0	-99.9	-0.02
10 4 78	3	1408	1.00	25.3	31.0	-0.31
10 4 78	3	1409	2.00	24.0	31.0	-0.35
10 4 78	3	1410	4.00	14.9	31.1	-0.39

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
10 4 78	3	1411	6.00	7.7	29.5	-0.34
10 4 78	3	1412	8.00	15.8	27.0	-0.34
10 4 78	3	1413	10.00	4.5	27.5	-0.35
10 4 78	3	1414	12.00	6.5	26.3	-0.36
10 4 78	3	1430	0.25	55.7	-99.9	-0.18
10 4 78	3	1433	0.50	45.6	-99.9	-0.17
10 4 78	3	1436	0.75	13.3	-99.9	-0.17
10 4 78	3	1437	1.00	53.0	31.2	-0.30
10 4 78	3	1438	2.00	28.3	30.9	-0.45
10 4 78	3	1439	4.00	-99.9	29.7	-0.37
10 4 78	3	1440	6.00	18.0	29.4	-0.40
10 4 78	3	1441	8.00	19.8	28.7	-0.48
10 4 78	3	1442	10.00	15.3	28.3	-0.49
10 4 78	3	1443	12.00	6.5	25.7	-0.62
10 4 78	3	1500	0.25	46.8	-99.9	-0.11
10 4 78	3	1502	0.50	36.7	-99.9	-0.09
10 4 78	3	1504	0.75	34.7	-99.9	-0.03
10 4 78	3	1505	1.00	37.0	30.8	-0.26
10 4 78	3	1506	2.00	33.7	30.7	-0.42
10 4 78	3	1507	4.00	24.0	29.7	-0.50
10 4 78	3	1508	6.00	12.0	28.8	-0.46
10 4 78	3	1509	8.00	14.6	28.0	-0.48
10 4 78	3	1510	10.00	11.4	27.2	-0.60
10 4 78	3	1511	12.00	8.5	26.3	-0.62
10 4 78	3	1530	0.25	32.1	-99.9	-0.12
10 4 78	3	1532	0.50	45.0	-99.9	-0.05
10 4 78	3	1536	0.75	38.6	-99.9	-0.02
10 4 78	3	1538	1.00	13.3	30.3	-0.26
10 4 78	3	1539	2.00	9.9	29.7	-0.46
10 4 78	3	1540	4.00	18.0	27.8	-0.52
10 4 78	3	1541	6.00	11.6	27.5	-0.62
10 4 78	3	1542	8.00	12.6	26.3	-0.55
10 4 78	3	1543	10.00	5.6	23.8	-0.65
10 4 78	3	1544	12.00	4.2	22.8	-0.70
10 4 78	3	1600	0.25	38.6	-99.9	-0.05
10 4 78	3	1602	0.50	31.2	-99.9	-0.02
10 4 78	3	1605	0.75	25.3	-99.9	-0.01
10 4 78	3	1607	1.00	19.0	29.8	-0.15
10 4 78	3	1608	2.00	27.7	29.7	-0.32
10 4 78	3	1609	4.00	25.0	29.2	-0.38
10 4 78	3	1610	6.00	15.5	26.1	-0.50
10 4 78	3	1611	8.00	8.5	25.6	-0.45
10 4 78	3	1612	10.00	12.6	24.6	-0.52
10 4 78	3	1613	12.00	18.6	23.1	-0.66
10 4 78	3	1640	0.25	106.1	-99.9	-0.10
10 4 78	3	1642	0.50	26.9	-99.9	-0.11
10 4 78	3	1645	0.75	29.3	-99.9	-0.12
10 4 78	3	1646	1.00	24.5	32.2	-0.04
10 4 78	3	1647	2.00	24.7	31.8	-99.90
10 4 78	3	1648	4.00	20.0	29.5	-0.40
10 4 78	3	1649	6.00	14.0	26.4	-0.50
10 4 78	3	1650	8.00	17.5	25.5	-0.42
10 4 78	3	1651	10.00	19.8	24.9	-0.45

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
10 4 78	3	1652	12.00	10.7	21.9	-0.62
10 4 78	3	1700	0.25	27.0	-99.9	-0.02
10 4 78	3	1702	0.50	25.3	-99.9	-0.02
10 4 78	3	1705	0.75	25.3	-99.9	-0.03
10 4 78	3	1707	1.00	21.8	32.1	-0.02
10 4 78	3	1708	2.00	24.1	32.2	-0.01
10 4 78	3	1709	4.00	20.9	30.1	-0.12
10 4 78	3	1710	6.00	20.7	29.1	-0.35
10 4 78	3	1711	8.00	19.1	24.8	-0.43
10 4 78	3	1712	10.00	10.9	24.9	-0.45
10 4 78	3	1713	12.00	10.5	23.0	-0.49
10 4 78	3	1730	0.25	28.3	-99.9	0.00
10 4 78	3	1732	0.50	27.7	-99.9	0.00
10 4 78	3	1734	0.75	23.3	-99.9	0.00
10 4 78	3	1736	1.00	23.2	31.3	0.00
10 4 78	3	1737	2.00	23.5	31.0	0.00
10 4 78	3	1738	4.00	15.2	30.1	-0.03
10 4 78	3	1739	6.00	12.6	28.6	-0.28
10 4 78	3	1740	8.00	9.7	25.1	-0.32
10 4 78	3	1741	10.00	10.5	24.1	-0.36
10 4 78	3	1742	12.00	13.1	23.3	-0.44
10 4 78	3	1800	0.25	25.9	-99.9	0.00
10 4 78	3	1802	0.50	24.1	-99.9	0.01
10 4 78	3	1804	0.75	22.9	-99.9	0.00
10 4 78	3	1805	1.00	20.4	31.6	0.00
10 4 78	3	1806	2.00	17.4	31.3	0.00
10 4 78	3	1807	4.00	17.3	29.7	0.00
10 4 78	3	1808	6.00	13.0	28.6	0.00
10 4 78	3	1809	8.00	13.3	28.2	-0.12
10 4 78	3	1810	10.00	9.0	25.7	-0.04
10 4 78	3	1811	12.00	4.5	24.6	0.00
10 4 78	3	1838	0.25	28.5	-99.9	0.09
10 4 78	3	1842	0.50	25.0	-99.9	0.05
10 4 78	3	1848	0.75	24.1	-99.9	0.07
10 4 78	3	1844	1.00	24.1	31.5	0.12
10 4 78	3	1845	2.00	16.8	30.8	0.10
10 4 78	3	1846	4.00	16.8	30.8	0.01
10 4 78	3	1847	6.00	11.5	30.9	0.02
10 4 78	3	1848	8.00	4.2	30.0	-0.01
10 4 78	3	1849	10.00	6.3	25.4	0.00
10 4 78	3	1850	12.00	7.6	24.8	0.00
10 4 78	3	1900	0.25	31.2	-99.9	0.04
10 4 78	3	1902	0.50	23.2	-99.9	0.05
10 4 78	3	1905	0.75	22.9	-99.9	0.02
10 4 78	3	1906	1.00	25.3	31.3	0.05
10 4 78	3	1907	2.00	21.1	30.8	0.02
10 4 78	3	1908	4.00	22.3	30.7	0.01
10 4 78	3	1909	6.00	18.6	30.2	0.01
10 4 78	3	1910	8.00	17.7	29.6	0.05
10 4 78	3	1911	10.00	13.3	28.2	0.04
10 4 78	3	1912	12.00	13.0	24.2	0.05
10 4 78	3	1930	0.25	24.1	-99.9	0.02
10 4 78	3	1933	0.50	4.8	-99.9	0.05

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
10 4 78	3	1936	0.75	24.1	-99.9	0.02
10 4 78	3	1937	1.00	53.6	31.3	0.04
10 4 78	3	1938	2.00	64.1	30.6	0.05
10 4 78	3	1939	4.00	68.6	31.0	0.14
10 4 78	3	1940	6.00	28.3	31.1	0.15
10 4 78	3	1941	8.00	13.5	29.8	0.22
10 4 78	3	1942	10.00	12.6	28.9	0.09
10 4 78	3	1943	12.00	5.6	26.9	0.23
10 4 78	3	2000	0.25	48.3	-99.9	0.05
10 4 78	3	2003	0.50	139.0	-99.9	0.05
10 4 78	3	2005	0.75	135.6	-99.9	0.04
10 4 78	3	2007	1.00	40.5	31.0	0.15
10 4 78	3	2008	2.00	121.0	31.1	0.15
10 4 78	3	2009	4.00	129.0	31.1	0.26
10 4 78	3	2010	6.00	114.0	30.8	0.16
10 4 78	3	2011	8.00	35.5	29.3	0.11
10 4 78	3	2012	10.00	17.7	27.6	0.44
10 4 78	3	2013	12.00	9.7	24.8	0.39
10 4 78	3	2030	0.25	129.0	-99.9	-99.90
10 4 78	3	2032	0.50	82.4	-99.9	-99.90
10 4 78	3	2034	0.75	80.7	-99.9	-99.90
10 4 78	3	2036	1.00	70.9	31.9	0.28
10 4 78	3	2037	2.00	62.0	31.7	0.28
10 4 78	3	2038	4.00	42.7	32.2	0.29
10 4 78	3	2039	6.00	28.4	31.3	0.24
10 4 78	3	2040	8.00	11.4	30.6	0.29
10 4 78	3	2041	10.00	8.5	28.1	0.54
10 4 78	3	2042	12.00	9.0	24.4	0.46
10 4 78	3	2100	0.25	84.9	-99.9	0.10
10 4 78	3	2102	0.50	68.4	-99.9	0.03
10 4 78	3	2104	0.75	58.0	-99.9	0.03
10 4 78	3	2105	1.00	58.0	31.8	0.16
10 4 78	3	2106	2.00	56.2	31.6	0.20
10 4 78	3	2107	4.00	63.5	31.7	0.32
10 4 78	3	2108	6.00	46.6	32.0	0.30
10 4 78	3	2109	8.00	40.3	31.2	0.32
10 4 78	3	2110	10.00	30.5	27.5	0.34
10 4 78	3	2111	12.00	22.5	26.6	0.46
10 4 78	3	2130	0.25	67.0	-99.9	0.15
10 4 78	3	2132	0.50	51.3	-99.9	0.15
10 4 78	3	2134	0.75	62.7	-99.9	0.18
10 4 78	3	2136	1.00	50.3	32.5	0.18
10 4 78	3	2137	2.00	44.7	32.5	0.30
10 4 78	3	2138	4.00	39.3	32.0	0.32
10 4 78	3	2139	6.00	33.6	31.9	0.30
10 4 78	3	2140	8.00	37.5	31.9	0.23
10 4 78	3	2141	10.00	23.3	29.7	0.24
10 4 78	3	2142	12.00	6.2	28.7	0.36
10 4 78	3	2200	0.25	47.5	-99.9	0.10
10 4 78	3	2203	0.50	54.6	-99.9	0.10
10 4 78	3	2205	0.75	53.8	-99.9	0.10
10 4 78	3	2206	1.00	36.9	32.1	0.09
10 4 78	3	2207	2.00	57.0	31.8	0.12

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
10 4 78	3	2208	4.00	55.7	32.0	0.19
10 4 78	3	2209	6.00	49.1	31.7	0.29
10 4 78	3	2210	8.00	42.7	31.7	0.22
10 4 78	3	2211	10.00	31.2	30.9	0.19
10 4 78	3	2212	12.00	30.0	28.9	0.50

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
10 4 78	4	900	0.25	52.9	-99.9	0.40
10 4 78	4	907	0.50	48.6	-99.9	0.43
10 4 78	4	912	0.75	-99.9	-99.9	0.51
10 4 78	4	900	1.00	45.6	30.7	0.62
10 4 78	4	910	2.00	34.9	30.7	0.72
10 4 78	4	912	4.00	15.8	29.1	0.83
10 4 78	4	915	6.00	7.7	27.2	0.76
10 4 78	4	917	8.00	6.7	27.0	0.74
10 4 78	4	921	10.00	10.7	26.2	0.65
10 4 78	4	924	12.00	11.4	24.5	0.58
10 4 78	4	930	0.25	80.2	-99.9	-99.90
10 4 78	4	938	0.50	62.2	-99.9	-99.90
10 4 78	4	945	0.75	74.8	-99.9	0.41
10 4 78	4	930	1.00	60.2	30.6	0.45
10 4 78	4	940	2.00	79.0	31.2	0.46
10 4 78	4	945	4.00	78.0	31.0	0.61
10 4 78	4	948	6.00	16.5	29.8	0.68
10 4 78	4	952	8.00	15.5	29.1	0.74
10 4 78	4	955	10.00	18.6	29.0	0.67
10 4 78	4	957	12.00	7.7	26.1	0.60
10 4 78	4	1000	0.25	114.0	-99.9	0.43
10 4 78	4	1005	0.50	57.6	-99.9	0.45
10 4 78	4	1008	0.75	62.7	-99.9	0.44
10 4 78	4	1000	1.00	74.4	31.5	0.58
10 4 78	4	1005	2.00	83.0	31.3	0.59
10 4 78	4	1008	4.00	27.3	30.0	0.67
10 4 78	4	1012	6.00	23.2	29.2	0.66
10 4 78	4	1016	8.00	13.3	28.8	0.59
10 4 78	4	1018	10.00	12.3	28.7	0.63
10 4 78	4	1020	12.00	10.5	25.6	0.57
10 4 78	4	1030	0.25	67.0	-99.9	0.35
10 4 78	4	1040	0.50	62.7	-99.9	0.38
10 4 78	4	1050	0.75	66.0	-99.9	0.30
10 4 78	4	1030	1.00	34.2	31.5	0.56
10 4 78	4	1033	2.00	34.0	31.2	0.59
10 4 78	4	1040	4.00	23.5	30.1	0.45
10 4 78	4	1045	6.00	24.9	30.2	0.53
10 4 78	4	1046	8.00	38.6	30.0	0.66
10 4 78	4	1050	10.00	9.3	26.7	0.59
10 4 78	4	1052	12.00	10.1	25.5	0.45
10 4 78	4	1100	0.25	84.9	-99.9	0.19
10 4 78	4	1105	0.50	75.7	-99.9	0.19
10 4 78	4	1112	0.75	86.1	-99.9	0.20
10 4 78	4	1100	1.00	58.0	32.2	0.28
10 4 78	4	1105	2.00	32.9	31.5	0.36
10 4 78	4	1108	4.00	28.0	31.6	0.43
10 4 78	4	1111	6.00	20.0	30.9	0.38
10 4 78	4	1115	8.00	12.0	29.7	0.43
10 4 78	4	1118	10.00	7.1	28.2	0.47
10 4 78	4	1120	12.00	6.0	25.4	0.32
10 4 78	4	1130	0.25	38.6	-99.9	0.19
10 4 78	4	1133	0.50	40.3	-99.9	0.18
10 4 78	4	1136	0.75	44.5	-99.9	0.16

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
10 4 78	4	1130	1.00	26.9	32.3	0.31
10 4 78	4	1134	2.00	31.3	31.9	0.28
10 4 78	4	1138	4.00	21.8	31.7	0.38
10 4 78	4	1142	6.00	17.5	30.8	0.30
10 4 78	4	1144	8.00	12.3	30.0	0.34
10 4 78	4	1146	10.00	5.2	28.1	0.27
10 4 78	4	1148	12.00	6.5	26.4	0.18
10 4 78	4	1200	1.00	30.4	32.4	0.06
10 4 78	4	1206	2.00	19.8	31.5	0.13
10 4 78	4	1210	4.00	15.5	31.0	0.14
10 4 78	4	1212	6.00	14.0	30.4	0.13
10 4 78	4	1215	8.00	11.0	29.9	0.20
10 4 78	4	1218	10.00	9.1	28.8	0.10
10 4 78	4	1220	12.00	15.0	28.2	0.08
10 4 78	4	1230	0.25	23.2	-99.9	0.01
10 4 78	4	1237	0.50	22.3	-99.9	0.00
10 4 78	4	1242	0.75	23.5	-99.9	0.00
10 4 78	4	1230	1.00	20.0	32.2	-99.90
10 4 78	4	1235	2.00	20.6	32.0	-99.90
10 4 78	4	1240	4.00	26.1	31.7	-0.09
10 4 78	4	1242	6.00	16.2	30.8	-0.10
10 4 78	4	1244	8.00	10.9	30.8	-0.10
10 4 78	4	1245	10.00	6.7	27.6	-0.16
10 4 78	4	1247	12.00	6.6	26.6	-0.20
10 4 78	4	1305	0.25	23.5	-99.9	-0.12
10 4 78	4	1309	0.50	20.9	-99.9	-0.16
10 4 78	4	1312	0.75	17.0	-99.9	-0.16
10 4 78	4	1305	1.00	18.5	31.9	-0.20
10 4 78	4	1308	2.00	20.0	32.2	-0.25
10 4 78	4	1310	4.00	24.1	31.8	-0.23
10 4 78	4	1314	6.00	18.5	31.4	-0.22
10 4 78	4	1318	8.00	55.7	30.9	-0.32
10 4 78	4	1322	10.00	6.0	28.1	-0.40
10 4 78	4	1324	12.00	6.7	25.8	-0.50
10 4 78	4	1330	0.25	139.0	-99.9	-0.13
10 4 78	4	1335	0.50	121.6	-99.9	-0.07
10 4 78	4	1340	0.75	248.4	-99.9	-0.11
10 4 78	4	1330	1.00	14.3	31.7	-0.27
10 4 78	4	1334	2.00	29.3	31.7	-0.22
10 4 78	4	1338	4.00	22.6	31.4	-0.24
10 4 78	4	1340	6.00	15.3	31.0	-0.30
10 4 78	4	1342	8.00	16.8	29.4	-0.41
10 4 78	4	1345	10.00	9.5	26.2	-0.56
10 4 78	4	1350	12.00	9.9	24.5	-0.59
10 4 78	4	1403	0.25	186.3	-99.9	-0.08
10 4 78	4	1409	0.50	148.7	-99.9	-0.11
10 4 78	4	1412	0.75	150.6	-99.9	-0.13
10 4 78	4	1403	1.00	24.1	31.5	-0.28
10 4 78	4	1405	2.00	21.4	30.7	-0.30
10 4 78	4	1407	4.00	17.3	31.0	-0.33
10 4 78	4	1409	6.00	11.4	30.5	-0.34
10 4 78	4	1414	8.00	8.6	28.0	-0.50
10 4 78	4	1416	10.00	8.5	24.2	-0.75

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
10 4 78	4	1418	12.00	10.7	23.1	-0.70
10 4 78	4	1430	0.25	73.9	-99.9	-0.16
10 4 78	4	1435	0.50	52.2	-99.9	-0.21
10 4 78	4	1438	0.75	33.6	-99.9	-0.23
10 4 78	4	1430	1.00	31.2	31.3	-0.33
10 4 78	4	1433	2.00	17.0	31.1	-0.40
10 4 78	4	1436	4.00	16.5	29.9	-0.48
10 4 78	4	1445	6.00	11.4	28.9	-0.57
10 4 78	4	1447	8.00	10.7	26.5	-0.75
10 4 78	4	1450	10.00	10.7	22.5	-0.76
10 4 78	4	1452	12.00	7.6	23.1	-0.68
10 4 78	4	1500	0.25	33.0	-99.9	-99.90
10 4 78	4	1500	1.00	26.9	30.4	-0.37
10 4 78	4	1504	2.00	20.7	30.4	-99.90
10 4 78	4	1530	0.25	30.2	-99.9	-0.26
10 4 78	4	1533	0.50	32.1	-99.9	-0.27
10 4 78	4	1540	0.75	49.2	-99.9	-0.27
10 4 78	4	1530	1.00	25.9	30.3	-0.37
10 4 78	4	1533	2.00	23.2	30.0	-0.51
10 4 78	4	1540	4.00	12.7	27.1	-0.83
10 4 78	4	1545	6.00	9.1	22.2	-99.90
10 4 78	4	1606	0.25	34.9	-99.9	-0.19
10 4 78	4	1609	0.50	35.4	-99.9	-0.24
10 4 78	4	1612	0.75	20.9	-99.9	-0.29
10 4 78	4	1607	1.00	21.4	30.2	-0.31
10 4 78	4	1609	2.00	19.4	29.4	-0.42
10 4 78	4	1611	4.00	17.4	29.0	-0.54
10 4 78	4	1613	6.00	9.0	25.9	-0.84
10 4 78	4	1615	8.00	11.0	21.8	-0.90
10 4 78	4	1618	9.50	9.1	22.2	-0.84
10 4 78	4	1640	0.25	29.0	-99.9	-99.90
10 4 78	4	1640	1.00	29.7	30.0	-0.12
10 4 78	4	1642	2.00	28.3	29.8	-0.22
10 4 78	4	1645	4.00	19.4	29.4	-0.30
10 4 78	4	1648	6.00	13.3	26.7	-0.59
10 4 78	4	1654	8.00	11.4	21.5	-0.82
10 4 78	4	1655	9.00	11.4	21.4	-0.78
10 4 78	4	1700	1.00	29.5	30.2	-0.18
10 4 78	4	1703	2.00	25.3	28.9	-0.43
10 4 78	4	1705	4.00	22.6	28.6	-0.36
10 4 78	4	1708	6.00	11.0	22.7	-0.74
10 4 78	4	1712	7.50	9.9	21.3	-0.34
10 4 78	4	1740	0.25	34.4	-99.9	-99.90
10 4 78	4	1745	0.50	30.0	-99.9	-99.90
10 4 78	4	1750	0.75	32.1	-99.9	-99.90
10 4 78	4	1735	1.00	24.7	29.9	-0.03
10 4 78	4	1737	2.00	29.7	29.8	-0.02
10 4 78	4	1739	4.00	22.4	27.7	-0.17
10 4 78	4	1741	6.00	8.6	24.3	-0.40
10 4 78	4	1750	8.00	16.8	26.2	-0.28
10 4 78	4	1754	10.00	12.3	22.8	-0.46
10 4 78	4	1756	12.00	13.0	20.9	-0.45
10 4 78	4	1800	0.25	60.5	-99.9	0.08

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
10 4 78	4	1806	0.50	71.3	-99.9	0.10
10 4 78	4	1812	0.75	58.4	-99.9	0.13
10 4 78	4	1800	1.00	60.0	29.8	0.17
10 4 78	4	1803	2.00	33.6	29.6	0.12
10 4 78	4	1805	4.00	27.7	29.0	0.10
10 4 78	4	1808	6.00	20.6	28.0	-0.18
10 4 78	4	1810	8.00	10.7	25.6	-0.23
10 4 78	4	1812	10.00	12.6	21.8	-0.36
10 4 78	4	1815	12.00	13.3	21.1	-0.34
10 4 78	4	1830	0.25	38.6	-99.9	0.24
10 4 78	4	1835	0.50	36.6	-99.9	0.24
10 4 78	4	1840	0.75	33.7	-99.9	0.27
10 4 78	4	1830	1.00	29.3	29.3	0.40
10 4 78	4	1835	2.00	17.7	29.0	0.43
10 4 78	4	1838	4.00	16.5	27.5	0.21
10 4 78	4	1840	6.00	11.8	26.3	0.10
10 4 78	4	1842	8.00	12.3	25.7	0.00
10 4 78	4	1845	10.00	13.3	22.5	-0.06
10 4 78	4	1847	11.25	12.3	20.8	-0.10
10 4 78	4	1910	0.25	54.9	-99.9	0.34
10 4 78	4	1912	0.50	59.4	-99.9	0.34
10 4 78	4	1915	0.75	56.6	-99.9	0.33
10 4 78	4	1910	1.00	28.3	29.5	0.48
10 4 78	4	1912	2.00	22.9	28.0	0.51
10 4 78	4	1914	4.00	11.5	26.6	0.45
10 4 78	4	1916	6.00	10.7	25.3	0.39
10 4 78	4	1919	8.00	10.7	24.0	0.29
10 4 78	4	1921	10.00	8.6	23.6	0.25
10 4 78	4	1923	11.50	8.5	21.7	0.22
10 4 78	4	1935	0.25	62.2	-99.9	0.25
10 4 78	4	1942	0.50	58.0	-99.9	0.32
10 4 78	4	1948	0.75	58.1	-99.9	0.41
10 4 78	4	1935	1.00	50.3	29.4	0.39
10 4 78	4	1940	2.00	32.7	29.3	0.67
10 4 78	4	1945	4.00	14.9	26.2	0.62
10 4 78	4	1947	6.00	11.0	23.9	0.44
10 4 78	4	1949	8.00	9.3	22.2	0.35
10 4 78	4	1952	10.00	24.1	22.2	0.40
10 4 78	4	1955	11.00	10.1	22.2	0.33
10 4 78	4	2000	0.25	148.7	-99.9	0.36
10 4 78	4	2006	0.50	135.6	-99.9	0.41
10 4 78	4	2009	0.75	103.0	-99.9	0.46
10 4 78	4	2000	1.00	95.5	29.5	0.53
10 4 78	4	2005	2.00	53.3	28.7	0.66
10 4 78	4	2009	4.00	9.0	25.7	0.68
10 4 78	4	2011	6.00	8.5	24.3	0.55
10 4 78	4	2015	8.00	10.7	23.7	0.47
10 4 78	4	2017	10.00	10.7	22.9	0.48
10 4 78	4	2019	11.75	11.0	23.0	0.36
10 4 78	4	2035	0.25	72.0	-99.9	0.46
10 4 78	4	2042	0.50	60.5	-99.9	0.49
10 4 78	4	2048	0.75	45.0	-99.9	0.54
10 4 78	4	2035	1.00	37.0	31.0	0.69

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
10 4 78	4	2037	2.00	26.4	30.2	0.80
10 4 78	4	2040	4.00	12.7	28.1	0.80
10 4 78	4	2042	6.00	13.0	27.1	0.80
10 4 78	4	2045	8.00	10.9	26.3	0.75
10 4 78	4	2047	10.00	9.0	25.2	0.70
10 4 78	4	2049	11.00	11.4	24.2	0.61
10 4 78	4	2100	0.25	54.7	-99.9	0.38
10 4 78	4	2104	0.50	52.2	-99.9	0.41
10 4 78	4	2112	0.75	53.8	-99.9	0.43
10 4 78	4	2100	1.00	45.8	30.1	0.63
10 4 78	4	2104	2.00	30.0	29.6	0.69
10 4 78	4	2106	4.00	25.9	29.5	0.77
10 4 78	4	2108	6.00	13.5	28.8	0.84
10 4 78	4	2110	8.00	13.7	27.6	0.74
10 4 78	4	2114	10.00	8.6	26.0	0.84
10 4 78	4	2116	11.50	10.9	24.8	0.85
10 4 78	4	2130	0.25	72.9	-99.9	0.40
10 4 78	4	2134	0.50	77.1	-99.9	0.39
10 4 78	4	2137	0.75	77.3	-99.9	0.41
10 4 78	4	2130	1.00	60.5	31.2	0.63
10 4 78	4	2135	2.00	57.6	30.9	0.61
10 4 78	4	2138	4.00	60.3	30.9	0.64
10 4 78	4	2140	6.00	47.1	29.9	0.66
10 4 78	4	2142	8.00	23.7	29.5	0.78
10 4 78	4	2144	10.00	12.6	29.1	0.90
10 4 78	4	2148	12.00	9.1	28.2	0.81
10 4 78	4	2200	0.25	71.3	-99.9	0.37
10 4 78	4	2204	0.50	73.1	-99.9	0.37
10 4 78	4	2206	0.75	64.0	-99.9	0.41
10 4 78	4	2200	1.00	74.1	31.6	0.52
10 4 78	4	2204	2.00	68.6	31.3	0.57
10 4 78	4	2206	4.00	64.3	31.3	0.53
10 4 78	4	2210	6.00	47.5	30.1	0.59
10 4 78	4	2212	8.00	33.7	30.2	0.71
10 4 78	4	2215	10.00	15.5	29.2	0.82
10 4 78	4	2217	12.00	11.8	28.5	0.81

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
11 4 78	4	1000	1.00	47.1	30.0	0.48
11 4 78	4	1003	2.00	41.5	30.4	0.47
11 4 78	4	1007	4.00	37.7	29.9	0.55
11 4 78	4	1010	6.00	22.9	30.4	0.59
11 4 78	4	1014	8.00	9.9	28.5	0.75
11 4 78	4	1016	10.00	10.7	27.2	0.42
11 4 78	4	1018	12.00	7.1	24.8	0.51
11 4 78	4	1030	0.25	65.4	-99.9	0.20
11 4 78	4	1035	0.50	68.6	-99.9	0.25
11 4 78	4	1037	0.75	46.5	-99.9	0.30
11 4 78	4	1030	1.00	54.2	31.0	0.45
11 4 78	4	1035	2.00	54.0	31.2	0.39
11 4 78	4	1037	4.00	47.1	30.8	0.51
11 4 78	4	1040	6.00	13.1	29.5	0.62
11 4 78	4	1042	8.00	17.3	29.0	0.60
11 4 78	4	1045	10.00	10.5	28.3	0.65
11 4 78	4	1048	12.50	9.3	25.7	0.44
11 4 78	4	1100	0.25	73.0	-99.9	0.10
11 4 78	4	1100	1.00	56.0	30.9	0.29
11 4 78	4	1103	2.00	56.0	31.2	0.32
11 4 78	4	1107	4.00	46.8	31.2	0.33
11 4 78	4	1111	6.00	18.6	30.4	0.49
11 4 78	4	1114	8.00	11.0	29.3	0.49
11 4 78	4	1116	10.00	7.7	28.5	0.54
11 4 78	4	1119	12.50	8.1	24.8	0.43
11 4 78	4	1134	1.00	44.5	31.3	0.26
11 4 78	4	1136	2.00	34.4	31.6	0.27
11 4 78	4	1138	4.00	28.4	31.2	0.32
11 4 78	4	1141	6.00	17.0	30.2	0.38
11 4 78	4	1144	8.00	11.8	28.8	0.42
11 4 78	4	1147	10.00	9.1	27.2	0.38
11 4 78	4	1149	12.50	10.1	26.0	0.23
11 4 78	4	1202	0.25	43.6	-99.9	0.15
11 4 78	4	1206	0.50	39.3	-99.9	0.17
11 4 78	4	1205	0.75	36.1	-99.9	0.18
11 4 78	4	1202	1.00	32.1	31.8	0.24
11 4 78	4	1206	2.00	29.6	31.7	0.24
11 4 78	4	1205	4.00	24.7	31.6	0.23
11 4 78	4	1209	6.00	15.5	30.0	0.25
11 4 78	4	1212	8.00	10.1	28.3	0.31
11 4 78	4	1215	10.00	11.6	27.3	0.21
11 4 78	4	1217	12.50	11.5	25.1	0.14
11 4 78	4	1230	0.25	33.6	-99.9	0.11
11 4 78	4	1232	0.50	32.9	-99.9	0.11
11 4 78	4	1234	0.75	28.5	-99.9	0.09
11 4 78	4	1230	1.00	25.5	31.8	0.16
11 4 78	4	1234	2.00	23.5	31.1	0.18
11 4 78	4	1236	4.00	20.9	31.4	0.12
11 4 78	4	1238	6.00	15.3	30.0	0.13
11 4 78	4	1241	8.00	12.0	29.4	0.10
11 4 78	4	1244	10.00	9.9	27.5	0.11
11 4 78	4	1246	12.50	11.0	24.9	0.02
11 4 78	4	1300	0.25	24.7	-99.9	0.04

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
11 4 78	4	1304	0.50	22.3	-99.9	0.06
11 4 78	4	1309	0.75	24.1	-99.9	0.05
11 4 78	4	1300	1.00	18.5	31.8	0.07
11 4 78	4	1304	2.00	21.4	31.3	0.09
11 4 78	4	1306	4.00	28.3	30.7	0.09
11 4 78	4	1307	6.00	11.8	29.7	-0.03
11 4 78	4	1309	8.00	9.7	27.8	-0.05
11 4 78	4	1312	10.00	13.1	26.9	-0.08
11 4 78	4	1314	12.50	10.7	25.6	-0.04
11 4 78	4	1339	0.25	25.0	-99.9	-0.05
11 4 78	4	1343	0.50	25.3	-99.9	-0.07
11 4 78	4	1345	0.75	19.0	-99.9	-0.09
11 4 78	4	1339	1.00	24.7	31.8	-0.12
11 4 78	4	1343	2.00	16.8	31.6	-0.11
11 4 78	4	1345	4.00	14.9	31.2	-0.09
11 4 78	4	1348	6.00	9.5	29.5	-0.16
11 4 78	4	1350	8.00	6.7	29.0	-0.26
11 4 78	4	1352	10.00	6.7	25.9	-0.36
11 4 78	4	1354	11.00	8.1	24.2	-0.44
11 4 78	4	1400	0.25	51.9	-99.9	-0.11
11 4 78	4	1402	0.50	17.3	-99.9	-0.13
11 4 78	4	1404	0.75	15.3	-99.9	-0.17
11 4 78	4	1400	1.00	4.5	31.4	-0.18
11 4 78	4	1402	2.00	12.7	29.8	-0.14
11 4 78	4	1404	4.00	13.3	31.2	-0.16
11 4 78	4	1406	6.00	6.7	28.9	-0.25
11 4 78	4	1408	8.00	7.4	27.3	-0.31
11 4 78	4	1410	10.00	6.3	25.0	-0.52
11 4 78	4	1413	11.00	4.5	24.3	-0.49
11 4 78	4	1430	0.25	21.4	-99.9	-0.12
11 4 78	4	1432	0.50	23.3	-99.9	-0.15
11 4 78	4	1438	0.75	20.0	-99.9	-0.16
11 4 78	4	1430	1.00	16.2	31.0	-0.19
11 4 78	4	1432	2.00	13.3	31.3	-0.19
11 4 78	4	1434	4.00	18.6	30.4	-0.21
11 4 78	4	1436	6.00	14.9	29.3	-0.35
11 4 78	4	1438	8.00	6.3	27.0	-0.51
11 4 78	4	1441	10.00	7.4	25.2	-0.54
11 4 78	4	1443	11.00	8.6	24.3	-0.51
11 4 78	4	1505	0.25	25.3	-99.9	-0.12
11 4 78	4	1507	0.50	25.0	-99.9	-0.16
11 4 78	4	1510	0.75	27.7	-99.9	-0.14
11 4 78	4	1505	1.00	23.5	31.0	-0.21
11 4 78	4	1506	2.00	25.3	30.8	-0.21
11 4 78	4	1509	4.00	20.6	30.4	-0.29
11 4 78	4	1512	6.00	18.6	28.2	-0.46
11 4 78	4	1514	8.00	11.5	25.8	-0.66
11 4 78	4	1516	10.00	7.4	23.1	-0.70
11 4 78	4	1518	10.50	8.5	22.8	-0.69
11 4 78	4	1531	0.25	39.3	-99.9	-0.14
11 4 78	4	1533	0.50	33.0	-99.9	-0.15
11 4 78	4	1535	0.75	28.4	-99.9	-0.17
11 4 78	4	1531	1.00	23.5	30.6	-0.23

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
11 4 78	4	1533	2.00	29.3	30.4	-0.23
11 4 78	4	1535	4.00	15.3	29.3	-0.37
11 4 78	4	1538	6.00	11.0	28.1	-0.56
11 4 78	4	1541	8.00	9.3	25.7	-0.70
11 4 78	4	1544	10.00	6.0	22.5	-0.71
11 4 78	4	1546	10.50	3.3	22.3	-0.73
11 4 78	4	1600	0.25	31.7	-99.9	-0.17
11 4 78	4	1608	0.50	27.7	-99.9	-0.15
11 4 78	4	1612	0.75	21.8	-99.9	-0.17
11 4 78	4	1600	1.00	27.5	30.1	-0.23
11 4 78	4	1603	2.00	28.3	30.1	-0.25
11 4 78	4	1605	4.00	20.0	29.2	-0.48
11 4 78	4	1608	6.00	11.5	27.1	-0.66
11 4 78	4	1610	8.00	9.1	23.5	-0.89
11 4 78	4	1613	10.00	8.6	22.3	-0.74
11 4 78	4	1630	0.25	28.4	-99.9	-0.13
11 4 78	4	1634	0.50	25.9	-99.9	-0.16
11 4 78	4	1635	0.75	24.0	-99.9	-0.17
11 4 78	4	1630	1.00	31.8	29.9	-0.20
11 4 78	4	1633	2.00	27.3	29.3	-0.26
11 4 78	4	1635	4.00	19.4	29.1	-0.39
11 4 78	4	1638	6.00	15.0	25.2	-0.68
11 4 78	4	1640	8.00	9.0	23.3	-0.84
11 4 78	4	1642	10.00	10.7	22.2	-0.72
11 4 78	4	1700	0.25	25.0	-99.9	-0.08
11 4 78	4	1702	0.50	22.6	-99.9	-0.09
11 4 78	4	1705	0.75	23.3	-99.9	-0.09
11 4 78	4	1700	1.00	24.1	29.3	-0.13
11 4 78	4	1702	2.00	22.6	29.6	-0.20
11 4 78	4	1704	4.00	20.3	29.0	-0.27
11 4 78	4	1707	6.00	15.3	26.3	-0.62
11 4 78	4	1710	8.00	15.0	23.1	-0.81
11 4 78	4	1712	10.00	13.3	21.9	-0.76
11 4 78	4	1740	0.25	21.4	-99.9	-0.09
11 4 78	4	1742	0.50	21.8	-99.9	-0.05
11 4 78	4	1744	0.75	21.1	-99.9	-0.02
11 4 78	4	1730	1.00	24.1	29.2	-0.09
11 4 78	4	1732	2.00	23.5	29.0	-0.13
11 4 78	4	1734	4.00	21.7	28.9	-0.20
11 4 78	4	1737	6.00	19.1	25.2	-0.59
11 4 78	4	1740	8.00	11.6	22.5	-0.73
11 4 78	4	1742	10.00	11.8	21.3	-0.68
11 4 78	4	1800	0.25	22.9	-99.9	0.08
11 4 78	4	1803	0.50	22.6	-99.9	0.09
11 4 78	4	1806	0.75	23.3	-99.9	0.09
11 4 78	4	1800	1.00	21.4	28.5	0.01
11 4 78	4	1802	2.00	22.6	28.8	-0.02
11 4 78	4	1804	4.00	17.7	28.3	-0.12
11 4 78	4	1808	6.00	15.0	24.7	-0.33
11 4 78	4	1810	8.00	11.4	22.4	-0.47
11 4 78	4	1813	10.00	9.5	21.3	-0.46
11 4 78	4	1830	0.25	40.5	-99.9	0.14
11 4 78	4	1834	0.50	35.4	-99.9	0.11

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
11 4 78	4	1836	0.75	29.3	-99.9	0.20
11 4 78	4	1830	1.00	17.7	29.1	0.29
11 4 78	4	1832	2.00	15.2	28.7	0.16
11 4 78	4	1836	4.00	28.3	27.5	0.04
11 4 78	4	1838	6.00	18.6	24.6	-0.26
11 4 78	4	1841	8.00	10.9	23.6	-0.27
11 4 78	4	1843	9.50	10.7	21.9	-0.28
11 4 78	4	1900	0.25	27.5	-99.9	0.21
11 4 78	4	1903	0.50	25.9	-99.9	0.23
11 4 78	4	1906	0.75	21.1	-99.9	0.27
11 4 78	4	1900	1.00	10.4	29.2	0.34
11 4 78	4	1903	2.00	22.3	27.7	0.37
11 4 78	4	1907	4.00	12.7	27.2	0.15
11 4 78	4	1909	6.00	8.6	25.9	-0.02
11 4 78	4	1911	8.00	10.7	23.3	-0.12
11 4 78	4	1914	9.50	-99.9	21.7	-0.07
11 4 78	4	1932	0.25	32.9	-99.9	0.28
11 4 78	4	1934	0.50	27.7	-99.9	0.33
11 4 78	4	1940	0.75	30.2	-99.9	0.34
11 4 78	4	1932	1.00	22.9	29.7	0.42
11 4 78	4	1934	2.00	-99.9	27.9	0.49
11 4 78	4	1936	4.00	10.7	25.8	0.29
11 4 78	4	1939	6.00	9.0	24.2	0.10
11 4 78	4	1941	8.00	10.7	23.0	0.22
11 4 78	4	1944	9.50	10.5	21.8	0.08
11 4 78	4	2002	0.25	-99.9	-99.9	0.37
11 4 78	4	2005	0.50	28.4	-99.9	0.37
11 4 78	4	2007	0.75	25.0	-99.9	0.42
11 4 78	4	2002	1.00	20.9	27.3	0.47
11 4 78	4	2005	2.00	21.1	26.4	0.45
11 4 78	4	2008	4.00	13.1	25.7	0.55
11 4 78	4	2010	6.00	11.5	25.1	0.35
11 4 78	4	2013	8.00	14.0	23.0	0.21
11 4 78	4	2015	10.00	16.2	22.2	0.34
11 4 78	4	2030	0.25	50.3	-99.9	0.35
11 4 78	4	2032	0.50	53.6	-99.9	0.27
11 4 78	4	2034	0.75	57.0	-99.9	0.46
11 4 78	4	2030	1.00	21.1	29.7	0.46
11 4 78	4	2032	2.00	27.3	29.6	0.52
11 4 78	4	2034	4.00	16.8	26.2	0.55
11 4 78	4	2037	6.00	13.3	24.8	0.45
11 4 78	4	2039	8.00	14.6	23.2	0.42
11 4 78	4	2042	10.50	13.1	22.6	0.33

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
10 4 78	5	830	0.25	190.5	-99.9	-99.90
10 4 78	5	833	0.50	142.1	-99.9	-99.90
10 4 78	5	837	0.75	107.8	-99.9	-99.90
10 4 78	5	830	1.00	107.5	23.5	0.43
10 4 78	5	840	2.00	51.9	26.9	0.52
10 4 78	5	844	4.00	24.5	27.2	0.65
10 4 78	5	847	6.00	4.1	24.0	0.60
10 4 78	5	850	8.00	4.5	23.5	0.46
10 4 78	5	853	10.00	4.4	22.0	0.31
10 4 78	5	857	12.00	4.0	20.7	0.40
10 4 78	5	900	0.25	129.9	-99.9	0.23
10 4 78	5	903	0.50	95.8	-99.9	0.26
10 4 78	5	905	0.75	156.4	-99.9	0.27
10 4 78	5	905	1.00	71.3	26.6	0.32
10 4 78	5	907	2.00	67.2	27.3	0.37
10 4 78	5	909	4.00	35.9	26.2	0.49
10 4 78	5	915	6.00	4.2	24.8	0.73
10 4 78	5	919	8.00	2.0	21.4	0.68
10 4 78	5	925	10.00	1.4	20.7	0.57
10 4 78	5	928	12.00	3.1	20.1	0.58
10 4 78	5	931	0.25	-99.9	-99.9	0.22
10 4 78	5	934	0.50	101.3	-99.9	0.25
10 4 78	5	937	0.75	106.3	-99.9	0.26
10 4 78	5	931	1.00	85.7	26.9	0.31
10 4 78	5	936	2.00	64.0	27.2	0.34
10 4 78	5	939	4.00	29.7	26.9	0.43
10 4 78	5	941	6.00	3.7	24.7	0.74
10 4 78	5	943	8.00	1.7	22.8	0.62
10 4 78	5	946	10.00	3.3	21.1	0.62
10 4 78	5	949	11.00	2.4	19.2	0.67
10 4 78	5	1000	0.25	82.0	-99.9	0.20
10 4 78	5	1004	0.50	78.0	-99.9	0.24
10 4 78	5	1006	0.75	65.0	-99.9	0.26
10 4 78	5	1001	1.00	51.9	27.1	0.27
10 4 78	5	1003	2.00	48.6	27.3	0.31
10 4 78	5	1005	4.00	30.0	27.2	0.40
10 4 78	5	1008	6.00	13.7	24.6	0.57
10 4 78	5	1010	8.00	2.0	22.1	0.66
10 4 78	5	1013	10.00	2.6	21.3	0.55
10 4 78	5	1016	11.00	1.8	18.9	0.67
10 4 78	5	1031	0.25	118.2	-99.9	0.20
10 4 78	5	1034	0.50	-99.9	-99.9	0.22
10 4 78	5	1036	0.75	110.6	-99.9	0.24
10 4 78	5	1032	1.00	95.7	26.9	0.28
10 4 78	5	1034	2.00	108.0	26.6	0.29
10 4 78	5	1037	4.00	83.8	26.5	0.38
10 4 78	5	1039	6.00	13.3	25.6	0.61
10 4 78	5	1041	8.00	10.7	23.0	0.59
10 4 78	5	1044	10.00	8.7	21.1	0.45
10 4 78	5	1047	10.75	8.7	20.9	0.59
10 4 78	5	1101	0.25	241.8	-99.9	0.17
10 4 78	5	1104	0.50	205.8	-99.9	0.24
10 4 78	5	1106	0.75	220.4	-99.9	0.27

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
10 4 78	5	1100	1.00	114.0	27.0	0.28
10 4 78	5	1102	2.00	116.1	27.8	0.24
10 4 78	5	1104	4.00	49.1	27.4	0.30
10 4 78	5	1107	6.00	23.7	26.7	0.45
10 4 78	5	1109	8.00	7.6	23.8	0.42
10 4 78	5	1112	10.00	4.4	20.9	0.30
10 4 78	5	1132	0.25	159.7	-99.9	0.13
10 4 78	5	1135	0.50	144.4	-99.9	0.16
10 4 78	5	1137	0.75	180.0	-99.9	0.20
10 4 78	5	1134	1.00	104.3	27.4	0.19
10 4 78	5	1136	2.00	95.5	27.6	0.25
10 4 78	5	1138	4.00	19.1	27.4	0.36
10 4 78	5	1140	6.00	12.3	25.5	0.35
10 4 78	5	1145	8.00	6.3	22.8	0.19
10 4 78	5	1148	10.00	4.4	22.3	0.07
10 4 78	5	1152	12.00	6.3	21.3	0.01
10 4 78	5	1201	0.25	85.3	-99.9	0.08
10 4 78	5	1203	0.50	62.4	-99.9	0.10
10 4 78	5	1206	0.75	60.3	-99.9	0.07
10 4 78	5	1200	1.00	53.5	27.9	0.17
10 4 78	5	1203	2.00	32.1	27.8	0.19
10 4 78	5	1206	4.00	27.0	27.8	0.21
10 4 78	5	1208	6.00	8.6	26.7	0.22
10 4 78	5	1211	8.00	3.4	25.3	0.23
10 4 78	5	1213	10.00	0.5	22.9	0.01
10 4 78	5	1215	12.00	1.8	20.9	-0.04
10 4 78	5	1233	0.25	42.7	-99.9	0.04
10 4 78	5	1236	0.50	36.7	-99.9	0.04
10 4 78	5	1238	0.75	35.4	-99.9	0.05
10 4 78	5	1231	1.00	33.7	28.9	0.07
10 4 78	5	1234	2.00	31.7	27.7	0.06
10 4 78	5	1236	4.00	20.4	28.9	0.07
10 4 78	5	1238	6.00	7.7	26.9	0.02
10 4 78	5	1241	8.00	4.5	25.6	0.04
10 4 78	5	1243	10.00	3.3	21.9	-0.15
10 4 78	5	1246	11.00	1.5	20.4	-0.02
10 4 78	5	1303	0.25	55.0	-99.9	0.00
10 4 78	5	1306	0.50	46.9	-99.9	0.00
10 4 78	5	1308	0.75	38.0	-99.9	0.00
10 4 78	5	1301	1.00	31.2	28.4	-0.01
10 4 78	5	1305	2.00	24.7	28.1	-0.03
10 4 78	5	1307	4.00	23.3	27.1	0.00
10 4 78	5	1309	6.00	7.4	26.7	0.00
10 4 78	5	1312	8.00	6.2	24.9	-0.06
10 4 78	5	1314	10.00	5.6	22.1	-0.28
10 4 78	5	1317	11.00	0.9	21.0	-0.30
10 4 78	5	1332	0.25	29.3	-99.9	-0.03
10 4 78	5	1334	0.50	32.5	-99.9	-0.05
10 4 78	5	1336	0.75	31.0	-99.9	-0.08
10 4 78	5	1331	1.00	25.3	28.5	-0.11
10 4 78	5	1333	2.00	22.6	27.4	-0.08
10 4 78	5	1335	4.00	18.6	27.4	-0.12
10 4 78	5	1338	6.00	6.2	26.6	-0.11

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
10 4 78	5	1340	8.00	3.4	24.5	-0.22
10 4 78	5	1343	10.00	2.6	22.4	-0.46
10 4 78	5	1345	11.00	-99.9	21.5	-0.62
10 4 78	5	1403	0.25	31.2	-99.9	-0.09
10 4 78	5	1405	0.50	21.4	-99.9	-0.12
10 4 78	5	1408	0.75	23.3	-99.9	-0.11
10 4 78	5	1400	1.00	26.1	27.3	-0.13
10 4 78	5	1403	2.00	14.3	27.6	-0.14
10 4 78	5	1408	4.00	17.5	27.9	-0.16
10 4 78	5	1411	6.00	2.2	25.9	-0.17
10 4 78	5	1413	8.00	2.0	24.2	-0.42
10 4 78	5	1415	10.00	6.3	21.0	-0.65
10 4 78	5	1418	11.00	5.6	20.7	-0.63
10 4 78	5	1431	0.25	32.9	-99.9	-0.11
10 4 78	5	1435	0.50	36.2	-99.9	-0.13
10 4 78	5	1437	0.75	22.6	-99.9	-0.14
10 4 78	5	1431	1.00	26.6	27.2	-0.17
10 4 78	5	1433	2.00	18.5	28.0	-0.17
10 4 78	5	1437	4.00	12.7	27.2	-0.21
10 4 78	5	1440	6.00	11.4	27.0	-0.36
10 4 78	5	1445	8.00	4.5	25.3	-0.57
10 4 78	5	1447	10.00	6.0	21.7	-0.77
10 4 78	5	1451	11.00	6.5	20.9	-0.75
10 4 78	5	1514	0.25	28.3	-99.9	-0.05
10 4 78	5	1516	0.50	17.3	-99.9	-0.07
10 4 78	5	1518	0.75	17.3	-99.9	-0.08
10 4 78	5	1502	1.00	16.0	25.6	-0.11
10 4 78	5	1505	2.00	22.4	27.7	-0.12
10 4 78	5	1507	4.00	20.9	27.2	-0.23
10 4 78	5	1510	6.00	16.2	26.8	-0.39
10 4 78	5	1513	8.00	11.4	23.9	-0.70
10 4 78	5	1516	10.00	4.1	20.9	-0.88
10 4 78	5	1532	0.25	22.4	-99.9	-0.02
10 4 78	5	1535	0.50	19.6	-99.9	-0.04
10 4 78	5	1537	0.75	20.6	-99.9	-0.05
10 4 78	5	1532	1.00	30.0	27.4	-0.06
10 4 78	5	1535	2.00	34.2	27.0	-0.20
10 4 78	5	1537	4.00	28.0	26.5	-0.36
10 4 78	5	1540	6.00	17.3	26.0	-0.41
10 4 78	5	1544	8.00	3.0	22.6	-0.77
10 4 78	5	1547	10.00	4.8	19.3	-0.91
10 4 78	5	1602	0.25	39.3	-99.9	-0.02
10 4 78	5	1605	0.50	20.0	-99.9	-0.03
10 4 78	5	1625	0.75	29.6	-99.9	0.00
10 4 78	5	1602	1.00	33.0	27.6	-0.09
10 4 78	5	1605	2.00	45.4	26.7	-0.16
10 4 78	5	1608	4.00	45.1	25.9	-0.27
10 4 78	5	1612	6.00	23.2	25.5	-0.48
10 4 78	5	1615	8.00	10.7	21.2	-0.77
10 4 78	5	1618	10.00	4.0	19.3	-0.91
10 4 78	5	1630	0.25	30.0	-99.9	0.00
10 4 78	5	1633	0.50	32.9	-99.9	0.00
10 4 78	5	1636	0.75	30.4	-99.9	0.00

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
10 4 78	5	1630	1.00	43.4	26.7	-0.05
10 4 78	5	1633	2.00	39.4	27.3	-0.07
10 4 78	5	1636	4.00	20.9	25.5	-0.28
10 4 78	5	1638	6.00	17.7	25.0	-0.47
10 4 78	5	1641	8.00	9.1	23.0	-0.65
10 4 78	5	1643	10.00	6.0	19.6	-0.91
10 4 78	5	1705	0.25	31.8	-99.9	0.00
10 4 78	5	1709	0.50	35.4	-99.9	0.02
10 4 78	5	1711	0.75	26.9	-99.9	0.00
10 4 78	5	1707	1.00	32.9	25.5	-0.02
10 4 78	5	1710	2.00	37.0	26.1	-0.06
10 4 78	5	1712	4.00	46.8	25.2	-0.13
10 4 78	5	1714	6.00	19.4	23.4	-0.30
10 4 78	5	1717	8.00	17.3	19.1	-0.27
10 4 78	5	1719	10.00	12.7	19.2	-0.46
10 4 78	5	1732	0.25	31.7	-99.9	0.07
10 4 78	5	1735	0.50	31.7	-99.9	0.08
10 4 78	5	1738	0.75	26.9	-99.9	0.08
10 4 78	5	1732	1.00	28.9	25.2	-0.01
10 4 78	5	1736	2.00	31.2	25.1	0.00
10 4 78	5	1739	4.00	30.0	23.9	-0.01
10 4 78	5	1741	6.00	25.3	23.7	-0.30
10 4 78	5	1744	8.00	24.9	20.1	-0.21
10 4 78	5	1746	10.00	10.9	19.2	-0.59
10 4 78	5	1802	0.25	38.0	-99.9	0.05
10 4 78	5	1804	0.50	27.3	-99.9	0.08
10 4 78	5	1806	0.75	28.4	-99.9	0.09
10 4 78	5	1802	1.00	29.0	25.9	0.10
10 4 78	5	1805	2.00	23.5	25.4	0.08
10 4 78	5	1807	4.00	22.3	24.5	0.00
10 4 78	5	1810	6.00	19.0	23.3	-0.17
10 4 78	5	1813	8.00	19.1	19.7	-0.05
10 4 78	5	1815	10.00	19.4	19.5	-0.22
10 4 78	5	1831	0.25	190.5	-99.9	0.24
10 4 78	5	1835	0.50	120.4	-99.9	0.27
10 4 78	5	1838	0.75	84.3	-99.9	0.30
10 4 78	5	1831	1.00	40.6	26.3	0.32
10 4 78	5	1835	2.00	22.3	24.5	0.34
10 4 78	5	1838	4.00	17.5	24.3	0.14
10 4 78	5	1841	6.00	17.3	22.5	0.00
10 4 78	5	1843	8.00	14.9	20.0	0.00
10 4 78	5	1845	10.00	15.5	19.5	0.00
10 4 78	5	1902	0.25	115.0	-99.9	0.25
10 4 78	5	1905	0.50	81.3	-99.9	0.30
10 4 78	5	1907	0.75	60.3	-99.9	0.34
10 4 78	5	1902	1.00	51.4	26.0	0.35
10 4 78	5	1905	2.00	45.6	25.9	0.35
10 4 78	5	1907	4.00	11.4	25.3	0.35
10 4 78	5	1910	6.00	13.3	21.9	0.12
10 4 78	5	1914	8.00	19.0	20.3	0.00
10 4 78	5	1917	10.00	11.5	19.5	0.01
10 4 78	5	1932	0.25	157.3	-99.9	0.30
10 4 78	5	1934	0.50	116.1	-99.9	0.33

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
10 4 78	5	1936	0.75	105.2	-99.9	0.36
10 4 78	5	1931	1.00	13.3	25.9	0.42
10 4 78	5	1934	2.00	49.2	25.4	0.42
10 4 78	5	1936	4.00	18.6	25.8	0.55
10 4 78	5	1939	6.00	9.0	23.7	0.45
10 4 78	5	1941	8.00	14.9	19.8	0.11
10 4 78	5	1945	10.00	11.4	19.3	0.00
10 4 78	5	2000	0.25	-99.9	-99.9	0.39
10 4 78	5	2003	0.50	122.3	-99.9	0.37
10 4 78	5	2005	0.75	125.6	-99.9	0.40
10 4 78	5	2002	1.00	73.0	25.9	0.27
10 4 78	5	2006	2.00	20.7	25.5	0.62
10 4 78	5	2008	4.00	11.0	25.4	0.62
10 4 78	5	2010	6.00	10.9	23.1	0.56
10 4 78	5	2013	8.00	21.4	20.8	0.39
10 4 78	5	2015	10.00	6.0	18.8	0.16
10 4 78	5	2032	0.25	107.5	-99.9	0.43
10 4 78	5	2037	0.50	75.4	-99.9	0.40
10 4 78	5	2040	0.75	72.9	-99.9	0.36
10 4 78	5	2038	1.00	56.2	25.8	0.53
10 4 78	5	2041	2.00	55.7	25.9	0.43
10 4 78	5	2043	4.00	33.7	26.1	0.59
10 4 78	5	2045	6.00	8.6	24.4	0.69
10 4 78	5	2047	8.00	9.9	22.1	0.70
10 4 78	5	2049	10.00	9.9	18.6	0.62
10 4 78	5	2100	0.25	120.4	-99.9	0.25
10 4 78	5	2103	0.50	79.6	-99.9	0.26
10 4 78	5	2105	0.75	95.0	-99.9	0.26
10 4 78	5	2100	1.00	67.8	26.2	0.35
10 4 78	5	2103	2.00	51.6	26.4	0.42
10 4 78	5	2105	4.00	41.3	26.3	0.53
10 4 78	5	2107	6.00	36.1	24.3	0.75
10 4 78	5	2109	8.00	10.9	21.5	0.78
10 4 78	5	2111	10.00	40.3	19.8	0.75
10 4 78	5	2130	0.25	80.4	-99.9	0.32
10 4 78	5	2132	0.50	75.7	-99.9	0.26
10 4 78	5	2134	0.75	98.8	-99.9	0.29
10 4 78	5	2131	1.00	71.5	27.5	0.34
10 4 78	5	2133	2.00	72.5	26.9	0.37
10 4 78	5	2135	4.00	51.4	26.7	0.43
10 4 78	5	2137	6.00	33.7	25.1	0.63
10 4 78	5	2140	8.00	7.1	23.4	0.79
10 4 78	5	2142	10.00	7.7	20.0	0.67
10 4 78	5	2200	0.25	137.9	-99.9	0.26
10 4 78	5	2202	0.50	177.2	-99.9	0.31
10 4 78	5	2204	0.75	130.4	-99.9	0.35
10 4 78	5	2201	1.00	92.3	27.0	0.38
10 4 78	5	2203	2.00	80.4	26.7	0.44
10 4 78	5	2205	4.00	51.6	26.0	0.49
10 4 78	5	2207	6.00	17.5	24.3	0.74
10 4 78	5	2209	8.00	9.1	23.5	0.74
10 4 78	5	2211	10.00	11.6	22.7	0.70

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
11 4 78	6	740	0.25	88.3	-99.9	0.14
11 4 78	6	745	0.50	66.2	-99.9	0.09
11 4 78	6	748	0.75	52.9	-99.9	-99.90
11 4 78	6	735	1.00	129.5	17.2	0.23
11 4 78	6	740	2.00	43.0	17.2	0.05
11 4 78	6	742	4.00	34.9	16.9	0.05
11 4 78	6	750	6.00	33.7	16.5	0.00
11 4 78	6	757	8.00	30.1	16.5	0.00
11 4 78	6	803	0.25	148.7	-99.9	0.10
11 4 78	6	807	0.50	137.9	-99.9	0.07
11 4 78	6	808	0.75	126.6	-99.9	-99.90
11 4 78	6	802	1.00	105.7	17.4	0.28
11 4 78	6	805	2.00	55.2	16.9	0.25
11 4 78	6	806	4.00	25.9	16.9	0.10
11 4 78	6	807	6.00	22.9	16.8	0.05
11 4 78	6	809	8.00	24.9	16.6	0.00
11 4 78	6	830	0.25	205.7	-99.9	-99.90
11 4 78	6	836	0.50	194.9	-99.9	-99.90
11 4 78	6	840	0.75	153.0	-99.9	-99.90
11 4 78	6	830	1.00	110.8	17.6	0.25
11 4 78	6	836	2.00	43.0	17.4	0.35
11 4 78	6	840	4.00	20.0	17.1	0.20
11 4 78	6	843	6.00	25.3	16.7	0.05
11 4 78	6	846	8.00	23.3	16.6	0.00
11 4 78	6	900	0.25	449.2	-99.9	0.17
11 4 78	6	905	0.50	258.9	-99.9	0.23
11 4 78	6	912	0.75	217.0	-99.9	0.26
11 4 78	6	900	1.00	201.4	25.7	0.25
11 4 78	6	905	2.00	103.0	25.9	0.30
11 4 78	6	912	4.00	25.5	23.8	0.00
11 4 78	6	918	6.00	19.0	20.5	0.00
11 4 78	6	924	8.00	24.0	20.5	0.00
11 4 78	6	930	0.25	201.4	-99.9	-99.90
11 4 78	6	936	0.50	185.4	-99.9	-99.90
11 4 78	6	942	0.75	141.2	-99.9	-99.90
11 4 78	6	930	1.00	114.6	25.6	0.30
11 4 78	6	933	2.00	90.5	25.3	0.35
11 4 78	6	936	4.00	31.0	23.8	0.30
11 4 78	6	939	6.00	13.7	21.4	0.20
11 4 78	6	942	8.00	17.3	20.8	0.10
11 4 78	6	945	10.00	17.5	20.6	0.10
11 4 78	6	1000	0.25	119.4	-99.9	0.23
11 4 78	6	1006	0.50	106.0	-99.9	0.27
11 4 78	6	1012	0.75	96.5	-99.9	0.29
11 4 78	6	1000	1.00	114.0	27.0	0.28
11 4 78	6	1003	2.00	74.1	26.5	0.28
11 4 78	6	1006	4.00	61.0	25.4	0.25
11 4 78	6	1009	6.00	31.7	21.4	0.23
11 4 78	6	1012	8.00	11.4	21.1	0.10
11 4 78	6	1015	10.00	13.5	20.7	0.10
11 4 78	6	1030	0.25	110.6	-99.9	0.24
11 4 78	6	1036	0.50	128.6	-99.9	0.25
11 4 78	6	1042	0.75	90.9	-99.9	0.26

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
11 4 78	6	1040	1.00	86.1	26.8	0.30
11 4 78	6	1045	2.00	78.4	26.6	0.28
11 4 78	6	1048	4.00	39.6	25.0	0.32
11 4 78	6	1051	6.00	6.7	21.7	0.25
11 4 78	6	1054	8.00	11.4	21.1	0.05
11 4 78	6	1057	10.00	12.7	20.8	0.05
11 4 78	6	1100	0.25	156.4	-99.9	0.17
11 4 78	6	1106	0.50	155.2	-99.9	0.19
11 4 78	6	1112	0.75	157.3	-99.9	0.24
11 4 78	6	1100	1.00	116.7	26.2	0.25
11 4 78	6	1103	2.00	101.3	26.8	0.30
11 4 78	6	1106	4.00	49.0	26.1	0.30
11 4 78	6	1109	6.00	-99.9	22.4	0.23
11 4 78	6	1112	8.00	10.1	21.4	0.00
11 4 78	6	1115	10.00	11.6	20.9	0.00
11 4 78	6	1130	0.25	110.6	-99.9	0.11
11 4 78	6	1136	0.50	48.5	-99.9	0.14
11 4 78	6	1142	0.75	90.1	-99.9	0.11
11 4 78	6	1130	1.00	53.2	26.4	0.25
11 4 78	6	1133	2.00	60.3	27.2	0.30
11 4 78	6	1136	4.00	30.2	25.3	0.25
11 4 78	6	1139	6.00	13.1	21.8	0.20
11 4 78	6	1142	8.00	20.3	21.4	0.00
11 4 78	6	1145	10.00	7.1	19.5	0.00
11 4 78	6	1200	0.25	94.7	-99.9	0.06
11 4 78	6	1206	0.50	115.0	-99.9	0.07
11 4 78	6	1212	0.75	87.0	-99.9	0.08
11 4 78	6	1200	1.00	94.7	27.6	0.15
11 4 78	6	1203	2.00	51.6	26.8	0.15
11 4 78	6	1206	4.00	26.1	25.7	0.10
11 4 78	6	1209	6.00	7.7	22.1	0.20
11 4 78	6	1212	8.00	7.7	21.2	0.00
11 4 78	6	1215	10.00	60.3	20.8	0.00
11 4 78	6	1230	0.25	77.3	-99.9	0.06
11 4 78	6	1236	0.50	72.5	-99.9	0.06
11 4 78	6	1242	0.75	66.0	-99.9	0.06
11 4 78	6	1230	1.00	59.0	27.0	0.10
11 4 78	6	1233	2.00	50.3	27.2	0.00
11 4 78	6	1236	4.00	36.9	25.1	0.00
11 4 78	6	1239	6.00	13.0	22.5	0.05
11 4 78	6	1242	8.00	93.6	21.8	0.05
11 4 78	6	1245	10.00	12.7	21.5	0.00
11 4 78	6	1300	0.25	42.7	-99.9	-0.02
11 4 78	6	1302	0.50	43.4	-99.9	0.00
11 4 78	6	1304	0.75	42.0	-99.9	0.00
11 4 78	6	1300	1.00	43.6	27.3	0.00
11 4 78	6	1302	2.00	38.0	26.7	0.00
11 4 78	6	1303	4.00	22.4	24.5	-0.15
11 4 78	6	1305	6.00	11.4	22.6	0.00
11 4 78	6	1307	8.00	9.1	21.7	0.00
11 4 78	6	1308	10.00	8.5	21.6	-0.08
11 4 78	6	1330	0.25	34.7	-99.9	-0.08
11 4 78	6	1332	0.50	54.7	-99.9	-0.12

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
11 4 78	6	1334	0.75	47.8	-99.9	-0.13
11 4 78	6	1330	1.00	32.9	27.4	-0.10
11 4 78	6	1332	2.00	30.0	27.0	-0.20
11 4 78	6	1334	4.00	21.8	26.0	-0.10
11 4 78	6	1336	6.00	6.5	23.2	0.00
11 4 78	6	1338	8.00	13.3	22.6	0.00
11 4 78	6	1340	9.50	6.3	22.0	-0.10
11 4 78	6	1400	0.25	55.7	-99.9	-0.05
11 4 78	6	1402	0.50	51.9	-99.9	-0.08
11 4 78	6	1406	0.75	34.4	-99.9	-0.12
11 4 78	6	1400	1.00	21.4	26.2	-0.20
11 4 78	6	1402	2.00	29.3	26.1	-0.22
11 4 78	6	1404	4.00	13.7	24.4	-0.15
11 4 78	6	1406	6.00	8.6	22.7	-0.10
11 4 78	6	1409	8.00	9.9	21.5	-0.22
11 4 78	6	1412	9.50	13.3	20.8	-0.35
11 4 78	6	1430	0.25	56.9	-99.9	-0.12
11 4 78	6	1433	0.50	33.0	-99.9	-0.11
11 4 78	6	1436	0.75	47.3	-99.9	-0.12
11 4 78	6	1430	1.00	29.3	26.0	-0.10
11 4 78	6	1432	2.00	13.7	25.8	-0.10
11 4 78	6	1434	4.00	6.3	25.3	-0.12
11 4 78	6	1436	6.00	12.7	22.3	-0.20
11 4 78	6	1438	8.00	6.7	21.2	-0.32
11 4 78	6	1440	9.50	10.7	20.9	-0.30
11 4 78	6	1500	0.25	55.7	-99.9	-0.13
11 4 78	6	1502	0.50	51.8	-99.9	-0.16
11 4 78	6	1504	0.75	38.2	-99.9	-0.17
11 4 78	6	1500	1.00	24.1	25.9	-0.25
11 4 78	6	1502	2.00	11.6	25.2	-0.15
11 4 78	6	1504	4.00	10.5	23.0	-0.25
11 4 78	6	1506	6.00	13.5	22.5	-0.25
11 4 78	6	1508	8.00	8.6	21.3	-0.25
11 4 78	6	1510	9.00	6.5	20.4	-0.35
11 4 78	6	1530	0.25	58.0	-99.9	-0.12
11 4 78	6	1533	0.50	47.5	-99.9	-0.15
11 4 78	6	1535	0.75	45.0	-99.9	-0.13
11 4 78	6	1530	1.00	44.5	26.1	-0.20
11 4 78	6	1533	2.00	36.2	26.1	-0.20
11 4 78	6	1535	4.00	12.6	24.0	-0.24
11 4 78	6	1538	6.00	4.4	22.3	-0.35
11 4 78	6	1540	8.00	8.6	20.1	-0.35
11 4 78	6	1542	9.00	6.2	19.6	-0.50
11 4 78	6	1605	0.25	60.0	-99.9	0.00
11 4 78	6	1609	0.50	55.0	-99.9	0.00
11 4 78	6	1612	0.75	56.9	-99.9	0.00
11 4 78	6	1605	1.00	49.9	26.6	0.00
11 4 78	6	1609	2.00	19.1	25.0	-0.20
11 4 78	6	1611	4.00	4.2	23.5	-0.20
11 4 78	6	1613	6.00	11.0	21.7	-0.45
11 4 78	6	1615	8.00	9.0	19.5	-0.50
11 4 78	6	1630	0.25	41.7	-99.9	0.03
11 4 78	6	1633	0.50	38.0	-99.9	0.03

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
11 4 78	6	1635	0.75	38.2	-99.9	0.00
11 4 78	6	1630	1.00	34.2	26.0	0.00
11 4 78	6	1632	2.00	31.3	25.9	0.00
11 4 78	6	1634	4.00	20.9	23.0	-0.25
11 4 78	6	1636	6.00	21.8	21.0	-0.30
11 4 78	6	1638	8.00	12.0	19.6	-0.42
11 4 78	6	1700	0.25	36.2	-99.9	0.01
11 4 78	6	1703	0.50	30.5	-99.9	0.00
11 4 78	6	1705	0.75	30.4	-99.9	0.00
11 4 78	6	1700	1.00	31.0	26.1	0.00
11 4 78	6	1702	2.00	30.2	23.5	-0.05
11 4 78	6	1704	4.00	32.9	23.3	-0.30
11 4 78	6	1706	6.00	28.5	21.5	-0.30
11 4 78	6	1708	8.00	20.7	19.6	-0.40
11 4 78	6	1730	0.25	34.7	-99.9	0.00
11 4 78	6	1732	0.50	36.6	-99.9	-0.02
11 4 78	6	1734	0.75	39.3	-99.9	-0.02
11 4 78	6	1730	1.00	-99.9	26.1	0.00
11 4 78	6	1732	2.00	33.7	24.5	0.00
11 4 78	6	1734	4.00	27.5	23.8	-0.05
11 4 78	6	1736	6.00	16.8	20.6	-0.25
11 4 78	6	1738	8.00	21.8	19.6	-0.45
11 4 78	6	1800	0.25	36.9	-99.9	0.00
11 4 78	6	1803	0.50	30.1	-99.9	0.00
11 4 78	6	1806	0.75	28.3	-99.9	0.00
11 4 78	6	1800	1.00	23.7	24.7	0.00
11 4 78	6	1802	2.00	20.6	23.7	0.00
11 4 78	6	1804	4.00	25.9	22.6	-0.10
11 4 78	6	1806	6.00	29.0	19.7	-0.35
11 4 78	6	1809	8.00	30.2	19.4	-0.40
11 4 78	6	1830	0.25	91.2	-99.9	0.00
11 4 78	6	1833	0.50	-99.9	-99.9	0.00
11 4 78	6	1835	0.75	98.8	-99.9	0.00
11 4 78	6	1830	1.00	17.5	24.7	0.10
11 4 78	6	1832	2.00	26.1	23.3	0.10
11 4 78	6	1834	4.00	25.0	21.8	0.00
11 4 78	6	1836	6.00	26.1	19.5	0.00
11 4 78	6	1838	8.00	25.9	18.3	-0.30
11 4 78	6	1900	0.25	180.0	-99.9	0.00
11 4 78	6	1902	0.50	140.0	-99.9	0.00
11 4 78	6	1904	0.75	126.9	-99.9	0.00
11 4 78	6	1900	1.00	67.8	25.4	0.20
11 4 78	6	1902	2.00	25.9	23.3	0.15
11 4 78	6	1904	4.00	28.4	21.8	0.05
11 4 78	6	1906	6.00	22.3	18.9	0.00
11 4 78	6	1908	8.00	15.0	18.7	-0.15
11 4 78	6	1930	0.25	214.4	-99.9	0.00
11 4 78	6	1932	0.50	190.5	-99.9	0.00
11 4 78	6	1933	0.75	194.9	-99.9	0.00
11 4 78	6	1930	1.00	178.6	24.5	0.00
11 4 78	6	1932	2.00	53.6	24.5	0.20
11 4 78	6	1934	4.00	24.5	21.7	0.20
11 4 78	6	1936	6.00	18.6	19.4	0.00

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
11 4 78	6	1938	8.00	28.4	18.1	0.10
11 4 78	6	2000	0.25	230.4	-99.9	0.00
11 4 78	6	2003	0.50	22.6	-99.9	0.00
11 4 78	6	2006	0.75	197.2	-99.9	0.00
11 4 78	6	2000	1.00	150.6	25.0	0.15
11 4 78	6	2003	2.00	20.0	23.2	0.34
11 4 78	6	2006	4.00	22.4	20.4	0.15
11 4 78	6	2009	6.00	22.6	18.9	0.14
11 4 78	6	2012	8.00	20.4	17.9	0.00
11 4 78	6	2030	0.25	371.3	-99.9	0.19
11 4 78	6	2036	0.50	321.3	-99.9	0.20
11 4 78	6	2042	0.75	411.9	-99.9	0.23
11 4 78	6	2030	1.00	294.2	25.5	0.30
11 4 78	6	2032	2.00	168.5	25.6	0.30
11 4 78	6	2034	4.00	15.5	21.9	0.32
11 4 78	6	2036	6.00	17.0	18.5	0.10
11 4 78	6	2038	8.00	16.5	18.1	0.00

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
11 4 78	7	750	0.25	784.0	-99.9	0.27
11 4 78	7	752	0.50	388.0	-99.9	0.34
11 4 78	7	754	0.75	298.0	-99.9	0.38
11 4 78	7	730	1.00	187.6	20.2	0.35
11 4 78	7	731	2.00	117.0	19.4	0.16
11 4 78	7	732	4.00	78.0	17.5	0.00
11 4 78	7	733	6.00	66.7	15.8	0.00
11 4 78	7	734	8.00	37.0	13.9	-0.25
11 4 78	7	735	10.00	34.6	14.0	-0.10
11 4 78	7	815	0.25	260.0	-99.9	0.27
11 4 78	7	817	0.50	287.2	-99.9	0.30
11 4 78	7	819	0.75	251.2	-99.9	0.32
11 4 78	7	800	1.00	425.2	20.1	0.30
11 4 78	7	801	2.00	178.4	20.0	0.50
11 4 78	7	802	4.00	-99.9	18.2	0.20
11 4 78	7	803	6.00	49.1	17.2	0.05
11 4 78	7	804	8.00	31.8	15.0	-0.10
11 4 78	7	806	10.00	24.0	12.9	-0.20
11 4 78	7	842	0.25	192.7	-99.9	0.43
11 4 78	7	844	0.50	717.7	-99.9	0.36
11 4 78	7	846	0.75	664.5	-99.9	0.41
11 4 78	7	830	1.00	-99.9	20.3	0.35
11 4 78	7	831	2.00	78.0	19.8	0.45
11 4 78	7	832	4.00	69.4	19.1	0.45
11 4 78	7	833	6.00	23.3	17.3	0.25
11 4 78	7	834	8.00	22.3	15.3	0.05
11 4 78	7	835	10.00	15.3	13.8	0.00
11 4 78	7	836	10.50	19.0	13.5	-0.05
11 4 78	7	900	0.25	546.4	-99.9	0.40
11 4 78	7	902	0.50	466.0	-99.9	0.46
11 4 78	7	904	0.75	381.8	-99.9	0.49
11 4 78	7	900	1.00	580.8	22.5	0.50
11 4 78	7	901	2.00	360.2	22.6	0.70
11 4 78	7	902	4.00	22.6	19.5	0.50
11 4 78	7	903	6.00	20.9	18.4	0.45
11 4 78	7	904	8.00	21.4	17.1	0.35
11 4 78	7	905	10.00	22.4	15.5	0.10
11 4 78	7	906	10.50	14.3	13.6	0.00
11 4 78	7	930	0.25	324.9	-99.9	0.41
11 4 78	7	932	0.50	270.4	-99.9	0.44
11 4 78	7	934	0.75	236.0	-99.9	0.47
11 4 78	7	930	1.00	283.2	23.3	0.38
11 4 78	7	931	2.00	250.6	23.1	0.45
11 4 78	7	932	4.00	112.9	21.5	0.43
11 4 78	7	935	6.00	24.1	19.1	0.40
11 4 78	7	936	8.00	18.6	17.1	0.30
11 4 78	7	938	10.00	15.5	15.6	0.12
11 4 78	7	940	11.00	10.7	13.4	0.04
11 4 78	7	1000	0.25	330.1	-99.9	0.33
11 4 78	7	1002	0.50	320.8	-99.9	0.39
11 4 78	7	1004	0.75	328.9	-99.9	0.41
11 4 78	7	1000	1.00	328.6	23.3	0.42
11 4 78	7	1001	2.00	260.5	23.4	0.46

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
11 4 78	7	1002	4.00	202.7	22.6	0.56
11 4 78	7	1003	6.00	85.0	21.7	0.55
11 4 78	7	1004	8.00	17.3	18.7	0.52
11 4 78	7	1006	10.00	19.4	17.7	0.40
11 4 78	7	1007	11.20	14.3	15.0	0.35
11 4 78	7	1030	0.25	194.9	-99.9	0.30
11 4 78	7	1032	0.50	171.0	-99.9	0.49
11 4 78	7	1034	0.75	185.4	-99.9	0.50
11 4 78	7	1030	1.00	163.1	23.4	0.50
11 4 78	7	1031	2.00	197.2	23.3	0.55
11 4 78	7	1032	4.00	136.3	22.9	0.60
11 4 78	7	1033	6.00	46.6	21.0	0.55
11 4 78	7	1034	8.00	17.4	18.3	0.55
11 4 78	7	1035	10.00	16.5	16.6	0.40
11 4 78	7	1036	11.60	12.7	14.8	0.30
11 4 78	7	1100	0.25	130.4	-99.9	0.37
11 4 78	7	1102	0.50	171.0	-99.9	0.45
11 4 78	7	1104	0.75	166.4	-99.9	0.46
11 4 78	7	1100	1.00	146.6	23.8	0.50
11 4 78	7	1101	2.00	111.8	23.8	0.60
11 4 78	7	1102	4.00	122.5	24.2	0.60
11 4 78	7	1103	6.00	107.5	22.8	0.40
11 4 78	7	1104	8.00	16.5	18.7	0.50
11 4 78	7	1105	10.00	13.3	18.9	0.50
11 4 78	7	1106	11.80	11.0	16.5	0.20
11 4 78	7	1131	1.00	135.6	24.0	0.50
11 4 78	7	1132	2.00	116.1	24.2	0.50
11 4 78	7	1133	4.00	85.7	23.7	0.50
11 4 78	7	1134	6.00	44.3	22.2	0.55
11 4 78	7	1135	8.00	13.3	20.5	0.50
11 4 78	7	1136	10.00	14.3	19.3	0.50
11 4 78	7	1138	11.80	12.7	16.6	0.05
11 4 78	7	1200	0.25	168.5	-99.9	0.23
11 4 78	7	1202	0.50	157.3	-99.9	0.23
11 4 78	7	1204	0.75	180.0	-99.9	0.25
11 4 78	7	1200	1.00	182.0	24.1	0.30
11 4 78	7	1201	2.00	160.8	24.3	0.30
11 4 78	7	1202	4.00	94.3	24.2	0.30
11 4 78	7	1203	6.00	34.7	23.3	0.40
11 4 78	7	1204	8.00	14.0	20.8	0.40
11 4 78	7	1205	10.00	11.8	19.8	0.30
11 4 78	7	1206	11.80	11.4	17.6	0.00
11 4 78	7	1230	0.25	142.1	-99.9	0.18
11 4 78	7	1232	0.50	155.2	-99.9	0.19
11 4 78	7	1234	0.75	114.0	-99.9	0.19
11 4 78	7	1230	1.00	190.5	24.7	0.20
11 4 78	7	1231	2.00	172.0	24.6	0.25
11 4 78	7	1232	4.00	103.0	24.7	0.25
11 4 78	7	1233	6.00	31.7	23.7	0.40
11 4 78	7	1234	8.00	14.0	21.9	0.45
11 4 78	7	1235	10.00	7.1	19.7	0.15
11 4 78	7	1236	12.00	7.6	18.0	0.00
11 4 78	7	1300	0.25	85.0	-99.9	0.04

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
11 4 78	7	1302	0.50	79.3	-99.9	0.03
11 4 78	7	1304	0.75	69.4	-99.9	0.05
11 4 78	7	1300	1.00	82.6	25.0	0.00
11 4 78	7	1301	2.00	63.4	24.7	0.00
11 4 78	7	1302	4.00	-99.9	24.8	0.00
11 4 78	7	1303	6.00	18.0	23.4	0.00
11 4 78	7	1304	8.00	9.9	21.9	0.00
11 4 78	7	1305	10.00	-99.9	20.1	0.00
11 4 78	7	1306	12.00	6.3	19.3	0.00
11 4 78	7	1340	0.25	52.3	-99.9	-0.05
11 4 78	7	1342	0.50	47.8	-99.9	-0.07
11 4 78	7	1344	0.75	40.7	-99.9	-0.06
11 4 78	7	1330	1.00	43.0	25.1	0.00
11 4 78	7	1331	2.00	37.5	24.8	0.00
11 4 78	7	1332	4.00	25.3	24.6	0.00
11 4 78	7	1333	6.00	14.9	23.4	0.00
11 4 78	7	1334	8.00	11.0	21.9	0.00
11 4 78	7	1335	10.00	7.4	19.5	-0.25
11 4 78	7	1336	12.00	2.4	17.7	-0.05
11 4 78	7	1400	0.25	17.3	-99.9	-0.15
11 4 78	7	1402	0.50	12.7	-99.9	-0.13
11 4 78	7	1404	0.75	25.9	-99.9	-0.13
11 4 78	7	1400	1.00	39.3	24.7	-0.10
11 4 78	7	1401	2.00	29.7	24.7	-0.15
11 4 78	7	1402	4.00	21.1	24.7	-0.10
11 4 78	7	1403	6.00	15.0	24.1	-0.10
11 4 78	7	1404	8.00	10.5	21.4	-0.20
11 4 78	7	1405	10.00	7.7	18.1	-0.30
11 4 78	7	1406	12.00	4.5	18.0	-0.53
11 4 78	7	1430	0.25	17.0	-99.9	-0.14
11 4 78	7	1432	0.50	22.3	-99.9	-0.18
11 4 78	7	1434	0.75	12.0	-99.9	-0.17
11 4 78	7	1430	1.00	31.3	24.3	-0.10
11 4 78	7	1431	2.00	25.3	24.2	-0.20
11 4 78	7	1432	4.00	15.0	23.8	-0.20
11 4 78	7	1433	6.00	17.5	23.2	-0.30
11 4 78	7	1434	8.00	9.5	19.5	-0.40
11 4 78	7	1435	10.00	14.3	17.9	-0.70
11 4 78	7	1436	11.00	7.7	17.6	-0.79
11 4 78	7	1500	0.25	45.6	-99.9	-0.12
11 4 78	7	1502	0.50	67.4	-99.9	-0.16
11 4 78	7	1504	0.75	60.5	-99.9	-0.12
11 4 78	7	1500	1.00	43.4	24.2	-0.20
11 4 78	7	1503	2.00	46.1	24.2	-0.32
11 4 78	7	1504	4.00	34.2	22.6	-0.46
11 4 78	7	1506	6.00	17.7	21.8	-0.57
11 4 78	7	1508	8.00	8.5	19.8	-0.61
11 4 78	7	1509	10.00	6.2	18.1	-0.75
11 4 78	7	1509	11.10	7.1	17.7	-0.65
11 4 78	7	1530	0.25	106.0	-99.9	-0.17
11 4 78	7	1532	0.50	103.3	-99.9	-0.20
11 4 78	7	1534	0.75	71.5	-99.9	-0.21
11 4 78	7	1530	1.00	74.2	24.2	-0.25

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
11 4 78	7	1531	2.00	-99.9	23.9	-0.20
11 4 78	7	1533	4.00	84.3	23.4	-0.32
11 4 78	7	1534	6.00	67.2	21.4	-0.63
11 4 78	7	1535	8.00	32.1	21.3	-0.67
11 4 78	7	1536	10.00	16.8	18.7	-0.73
11 4 78	7	1537	11.00	12.3	17.8	-0.58
11 4 78	7	1800	0.25	-99.9	-99.9	0.10
11 4 78	7	1800	1.00	164.2	23.5	0.05
11 4 78	7	1804	2.00	-99.9	22.0	-0.02
11 4 78	7	1806	4.00	88.3	18.7	-0.14
11 4 78	7	1808	6.00	65.8	17.0	-0.38
11 4 78	7	1810	8.00	60.3	14.2	-0.60
11 4 78	7	1811	10.00	54.7	13.9	-0.50
11 4 78	7	1830	0.25	129.0	-99.9	0.25
11 4 78	7	1832	0.50	94.3	-99.9	0.18
11 4 78	7	1834	0.75	103.5	-99.9	0.24
11 4 78	7	1832	1.00	110.6	23.3	0.20
11 4 78	7	1833	2.00	90.1	21.7	0.15
11 4 78	7	1834	4.00	91.7	18.0	0.00
11 4 78	7	1836	6.00	74.8	16.0	-0.32
11 4 78	7	1838	8.00	91.7	13.9	-0.50
11 4 78	7	1840	9.90	53.3	13.3	-0.45
11 4 78	7	1900	0.25	174.5	-99.9	0.23
11 4 78	7	1902	0.50	112.5	-99.9	0.14
11 4 78	7	1904	0.75	93.5	-99.9	0.32
11 4 78	7	1900	1.00	140.0	22.7	0.25
11 4 78	7	1901	2.00	106.5	21.1	0.26
11 4 78	7	1902	4.00	70.9	18.4	0.00
11 4 78	7	1903	6.00	79.3	16.4	-0.20
11 4 78	7	1904	8.00	36.9	14.3	-0.40
11 4 78	7	1906	9.90	61.8	13.4	-0.40
11 4 78	7	1930	0.25	83.7	-99.9	0.28
11 4 78	7	1935	0.50	83.3	-99.9	0.30
11 4 78	7	1940	0.75	63.0	-99.9	0.32
11 4 78	7	1930	1.00	60.5	18.6	0.25
11 4 78	7	1931	2.00	139.8	18.5	0.32
11 4 78	7	1932	4.00	60.5	18.5	0.20
11 4 78	7	1933	6.00	-99.9	17.9	0.00
11 4 78	7	1935	8.00	75.7	17.6	-0.15
11 4 78	7	1936	9.90	60.3	12.5	-0.35
11 4 78	7	2000	0.25	184.2	-99.9	0.35
11 4 78	7	2002	0.50	266.0	-99.9	0.34
11 4 78	7	2004	0.75	216.7	-99.9	0.36
11 4 78	7	2000	1.00	51.6	21.7	0.38
11 4 78	7	2001	2.00	183.0	21.1	0.35
11 4 78	7	2002	4.00	82.3	17.5	0.30
11 4 78	7	2003	6.00	50.3	16.2	0.20
11 4 78	7	2004	8.00	57.1	14.0	0.00
11 4 78	7	2006	9.90	49.2	12.7	0.00
11 4 78	7	2030	0.25	219.2	-99.9	0.40
11 4 78	7	2032	0.50	193.9	-99.9	0.37
11 4 78	7	2034	0.75	225.5	-99.9	0.37
11 4 78	7	2030	1.00	-99.9	23.8	0.45

DATE	STATION	TIME	HEIGHT ABOVE BED (M)	S.S. CONC. (PPM)	SALINITY (PPT)	VELOCITY (M/S)
11 4 78	7	2031	2.00	274.3	23.6	0.45
11 4 78	7	2032	4.00	88.0	21.5	0.55
11 4 78	7	2033	6.00	39.3	17.1	0.30
11 4 78	7	2034	8.00	46.9	15.3	0.12
11 4 78	7	2036	10.00	51.4	13.1	0.00
11 4 78	7	2038	10.50	43.7	12.6	0.00

PART 2 OBSERVED TIDAL LEVELS ON 10/11 APRIL 1978

Tidal levels (m Australian Height Datum)

	Time	West Inner Bar	Cairncross Dock	Port Office
10.4.78	0000	0.95	1.12	1.21
	0030	0.80	0.96	1.08
	0100	0.60	0.75	0.89
	0130	0.38	0.55	0.69
	0200	0.16	0.34	0.49
	0230	– 0.03	0.13	0.27
	0300	– 0.20	– 0.07	0.06
	0330	– 0.40	– 0.25	– 0.12
	0400	– 0.55	– 0.45	– 0.31
	0430	– 0.66	– 0.62	– 0.49
	0500	– 0.73	– 0.73	– 0.62
	0530	– 0.76	– 0.78	– 0.70
	0600	– 0.72	– 0.78	– 0.73
	0630	– 0.61	– 0.69	– 0.71
	0700	– 0.46	– 0.52	– 0.59
	0730	– 0.27	– 0.34	– 0.41
	0800	– 0.10	– 0.12	– 0.21
	0830	0.10	0.07	0.00
	0900	0.28	0.27	0.18
	0930	0.44	0.44	0.38
	1000	0.59	0.60	0.56
	1030	0.68	0.75	0.71
	1100	0.73	0.83	0.84
	1130	0.72	0.85	0.88
	1200	0.64	0.79	0.87
	1230	0.49	0.67	0.79
	1300	0.31	0.49	0.63
	1330	0.15	0.30	0.46
	1400	– 0.04	0.11	0.28
	1430	– 0.23	– 0.07	0.11
	1500	– 0.39	– 0.24	– 0.10
	1530	– 0.54	– 0.42	– 0.26
	1600	– 0.69	– 0.58	– 0.44
	1630	– 0.79	– 0.75	– 0.60
	1700	– 0.84	– 0.85	– 0.73

	Time	West Inner Bar	Cairncross Dock	Port Office
	1730	– 0.86	– 0.89	– 0.80
	1800	– 0.78	– 0.88	– 0.83
	1830	– 0.64	– 0.75	– 0.79
	1900	– 0.46	– 0.56	– 0.65
	1930	– 0.26	– 0.34	– 0.46
	2000	– 0.07	– 0.11	– 0.23
	2030	0.16	0.12	– 0.01
	2100	0.36	0.36	0.23
	2130	0.56	0.60	0.47
	2200	0.74	0.80	0.70
	2230	0.92	0.95	0.87
	2300	1.01	1.10	1.02
	2330	1.06	1.16	1.13
11.4.78	0000	1.04	1.17	1.19
	0030	0.96	1.09	1.19
	0100	0.81	0.96	1.11
	0130	0.62	0.77	0.91
	0200	0.41	0.57	0.72
	0230	0.21	0.38	0.52
	0300	0.04	0.18	0.32
	0330	– 0.15	0.02	0.13
	0400	– 0.32	– 0.18	– 0.06
	0430	– 0.46	– 0.38	– 0.25
	0500	– 0.57	– 0.52	– 0.41
	0530	– 0.65	– 0.65	– 0.53
	0600	– 0.68	– 0.71	– 0.63
	0630	– 0.66	– 0.71	– 0.67
	0700	– 0.57	– 0.65	– 0.65
	0730	– 0.44	– 0.49	– 0.55
	0800	– 0.29	– 0.33	– 0.38
	0830	– 0.13	– 0.16	– 0.21
	0900	0.05	0.03	– 0.04
	0930	0.20	0.19	0.13
	1000	0.35	0.34	0.29
	1030	0.47	0.50	0.47
	1100	0.55	0.62	0.57
	1130	0.60	0.70	0.70

Time	West Inner Bar	Cairncross Dock	Port Office
1200	0.61	0.72	0.76
1230	0.54	0.69	0.76
1300	0.43	0.60	0.71
1330	0.28	0.44	0.60
1400	0.13	0.28	0.44
1430	– 0.04	0.13	0.27
1500	– 0.20	– 0.06	0.10
1530	– 0.35	– 0.30	– 0.06
1600	– 0.50	– 0.36	– 0.23
1630	– 0.63	– 0.53	– 0.39
1700	– 0.73	– 0.68	– 0.55
1730	– 0.77	– 0.78	– 0.66
1800	– 0.78	– 0.82	– 0.74
1830	– 0.70	– 0.79	– 0.75
1900	– 0.59	– 0.68	– 0.70
1930	– 0.43	– 0.51	– 0.56
2000	– 0.25	– 0.32	– 0.40
2030	– 0.05	– 0.10	– 0.21
2100	0.13	0.14	0.01
2130	0.32	0.36	0.23
2200	0.50	0.55	0.44
2230	0.70	0.75	0.65
2300	0.90	0.93	0.85
2330	0.96	1.03	1.00
0000	1.00	1.09	1.09

TABLES

TABLE 1 RANKING OF FLUVIAL FLOODS IN THE BRISBANE RIVER 1975 – 1978

Period beginning	Last day	No. of days	Peak daily discharge† (cumecs)	Flood volume (m^3 x 10^6)	Total suspended sediment load (Tonnes)	Rank by vol.	Rank by sediment load
3.9.75	11.9.75	9	86	25.1	759	10	10
22.12.75	31.12.75	10	358	143.6	32,534	5	4
19.1.76	2.2.76	15	1513	432.6	70,126	1	3
9.2.76	22.2.76	14	723	218.1	92,720	4	1
23.2.76	5.3.76	12	869	418.6	75,200	2	2
6.3.76	18.3.76	13	396	306.7	32,473	3	5
1.11.76	9.11.76	9	355	99.8	22,550	6	6
13.11.76	26.11.76	14	94	65.8	5,717	8	8
13.3.77	22.3.77	10	110	28.1	4,965	9	9
2.4.78	12.4.78*	11	307	89.1	11,681	7	7

* covers period of wet-season simultaneous exercise

† over Crosby Weir

TABLE 2 TRANSIENT EFFECTS – SALINITY DISTRIBUTION

Date of RDP survey	Average daily freshwater discharge into the head of the estuary (cumecs)	Salinity near the surface at Km 20 (ppt)	Salinity near the bed at Km 20 (ppt)	Average difference in bed/surface salinity at Km 20 (ppt)	Maximum recorded landward limit of intrusion of the 20 ppt isohaline at the bed (km)
1.3.78	nil	32	33	1	37
7.3.78	nil	33.5	34	0.5	42
29.3.78	50	22	29	7	30
4.4.78	350	7	27	20	26
7.4.78	70	15	25	10	27
10.4.78	25	21	27	6	30

TABLE 3 TRANSIENT EFFECTS – SUSPENDED SOLIDS DISTRIBUTION

Date of RDP survey	Average daily freshwater discharge into the head of the estuary (cumecs)	Peak concentration 1 m above the bed		Limits of reach where concentration near the bed exceeds 20 ppm (km)
		Magnitude (ppm)	Position (km)	
1.3.78	nil	400	29	24 – 34
7.3.78	nil	300	29	22 – 36
29.3.78	50	1000	34	22 – 44
4.4.78	350	500	26	22 – 40
7.4.78	70	900	33	26 – 44
10.4.78	25	1800	40	30 – 46

FIGURES

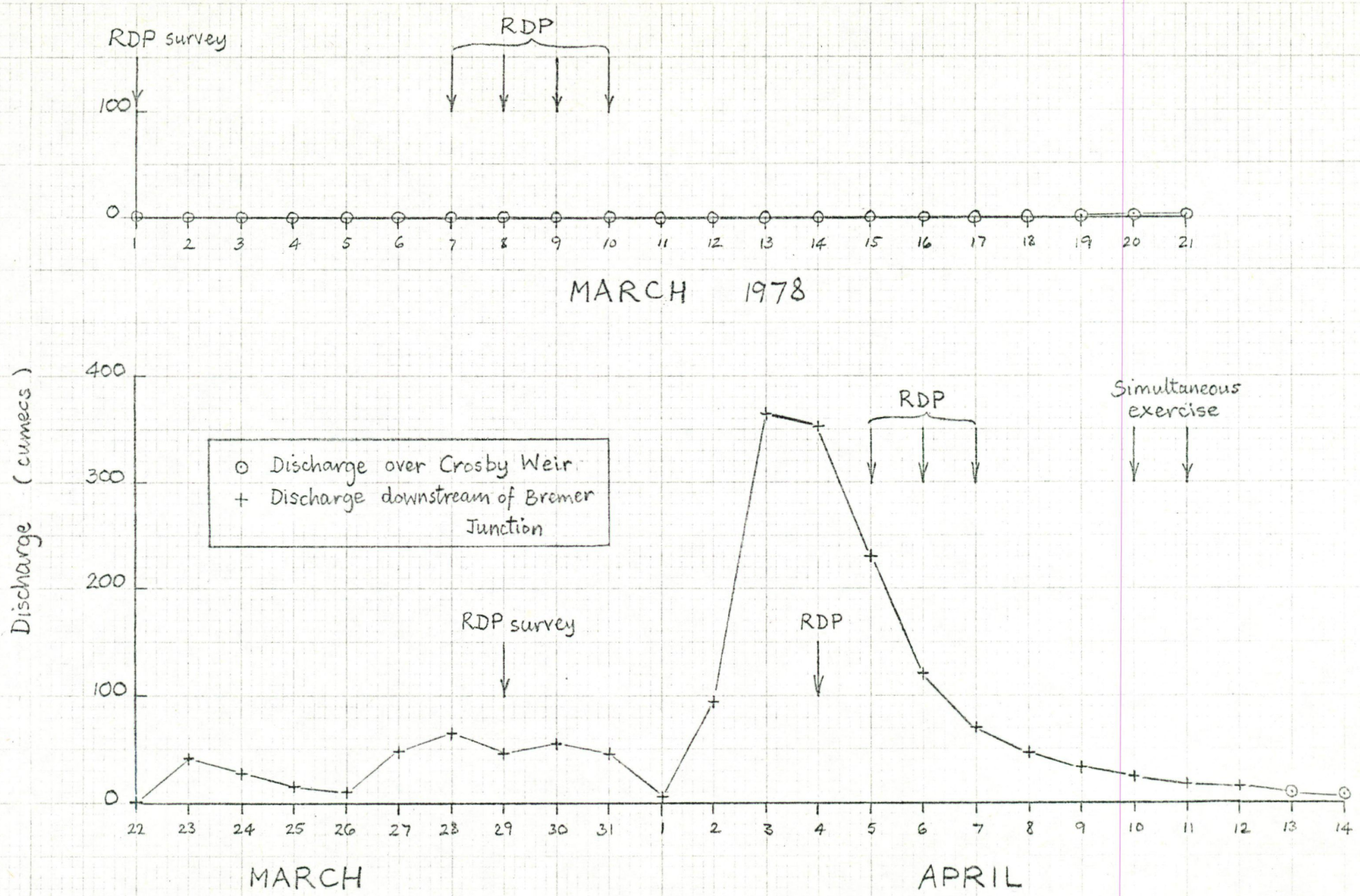


Fig. 1

Brisbane River fluvial flood hydrograph & RDP surveys – Mar./Apl. 1978

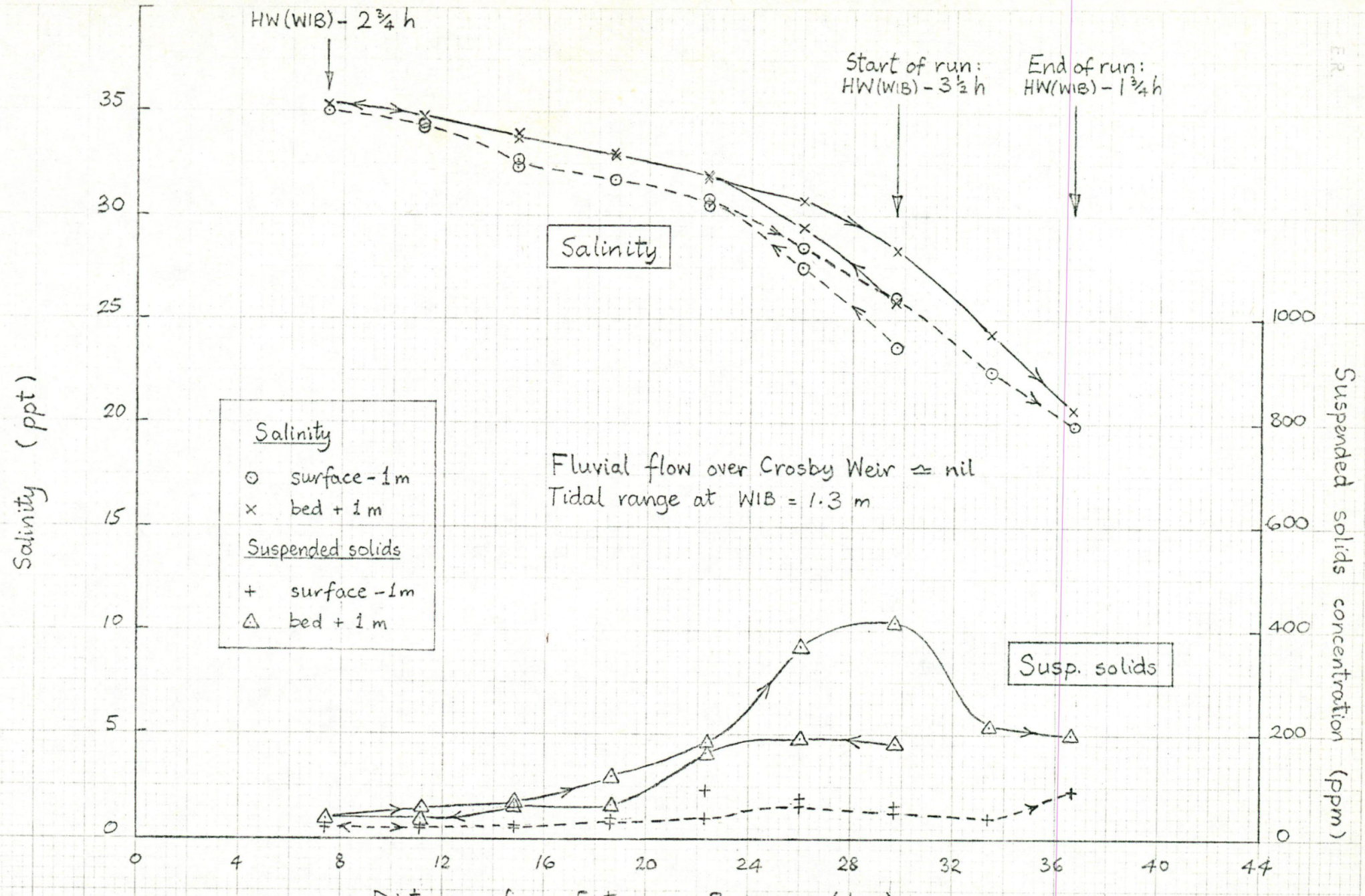


Fig 2(a) Longitudinal profile with RDP. Flood tide on 1 March 1978

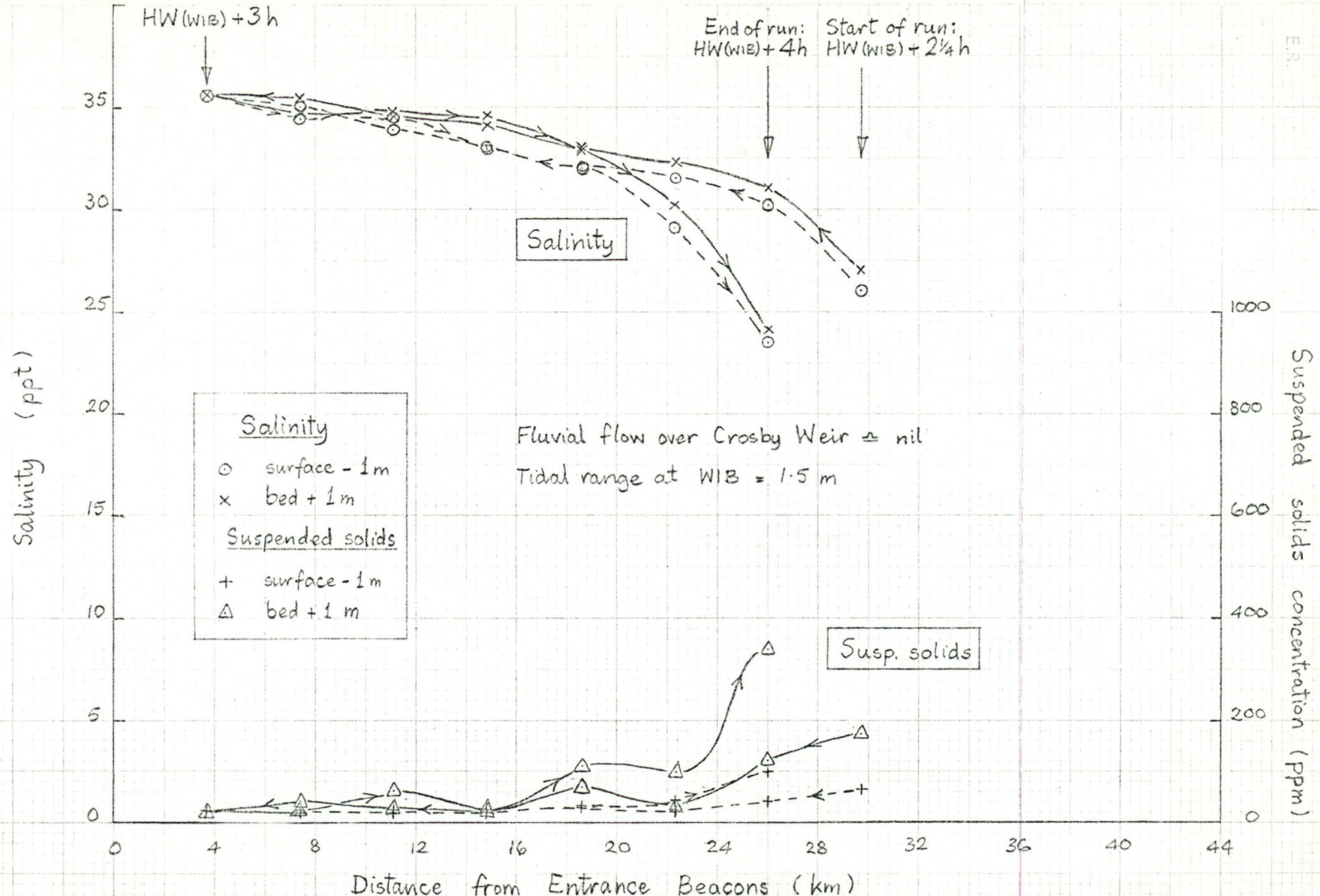


Fig 2(b)

Longitudinal profile with RDP. Ebb tide on 1 March 1978

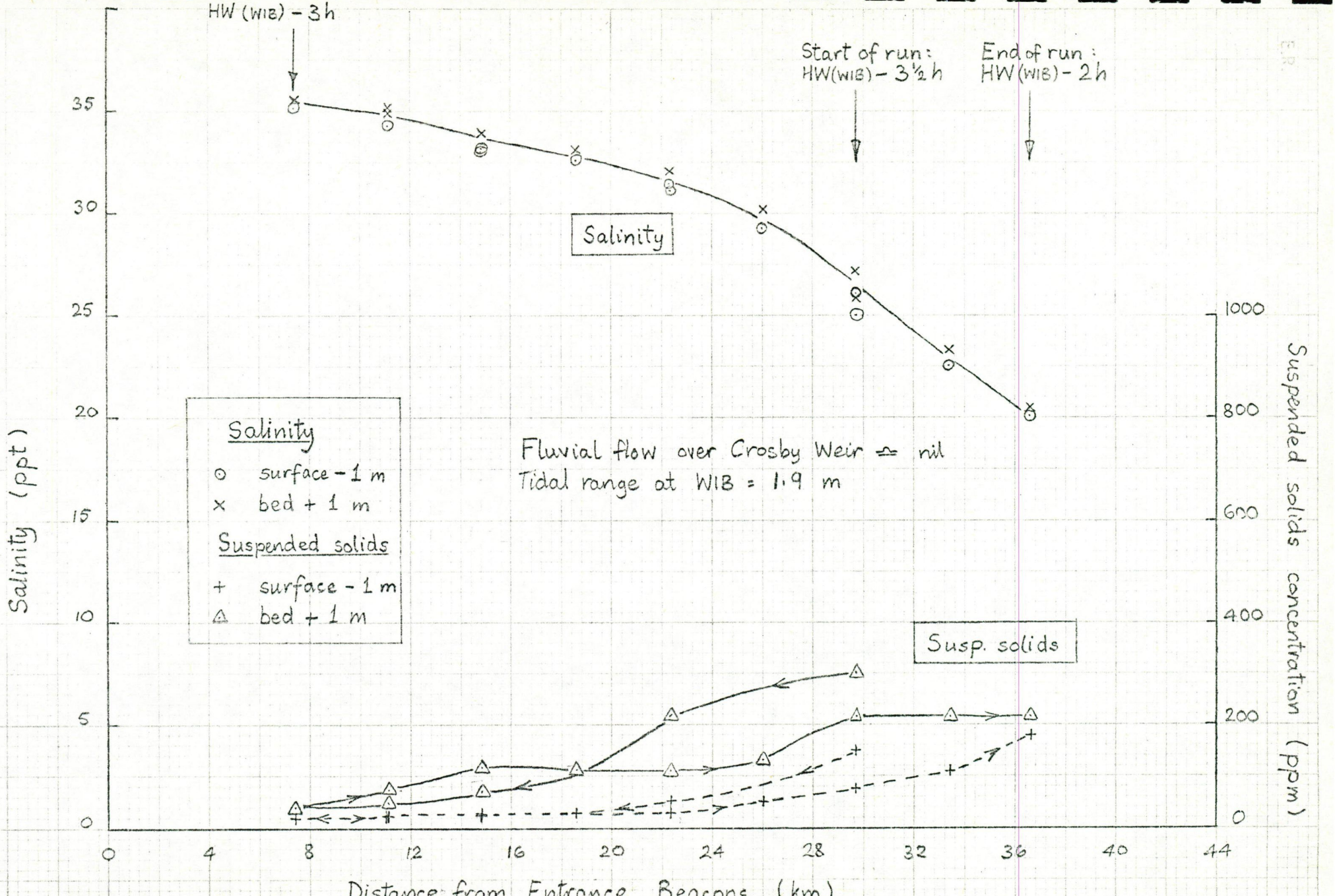


Fig 3

Longitudinal profile with RDP. Flood tide on 7 March 1978

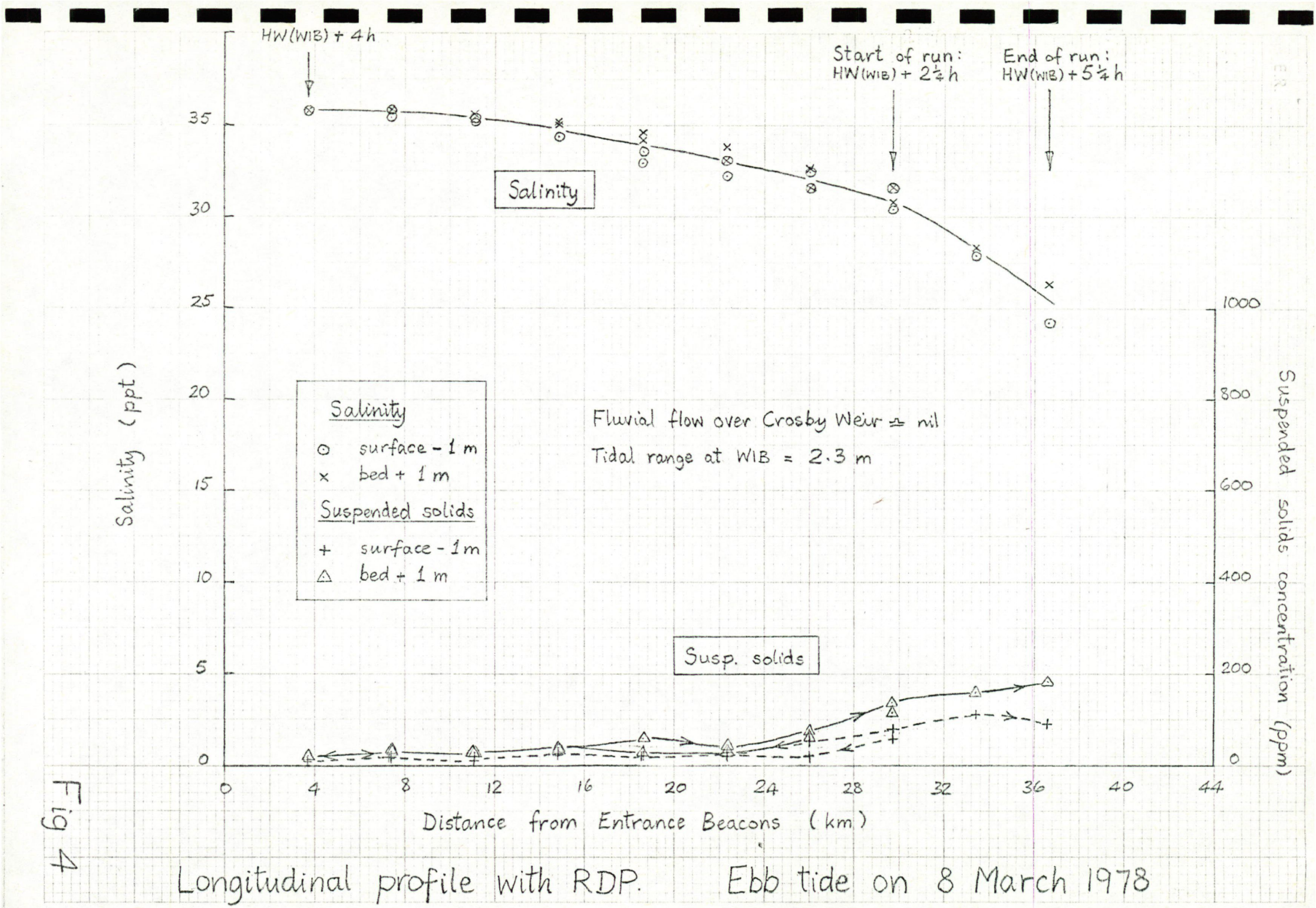


Fig 4

Longitudinal profile with RDP. Ebb tide on 8 March 1978

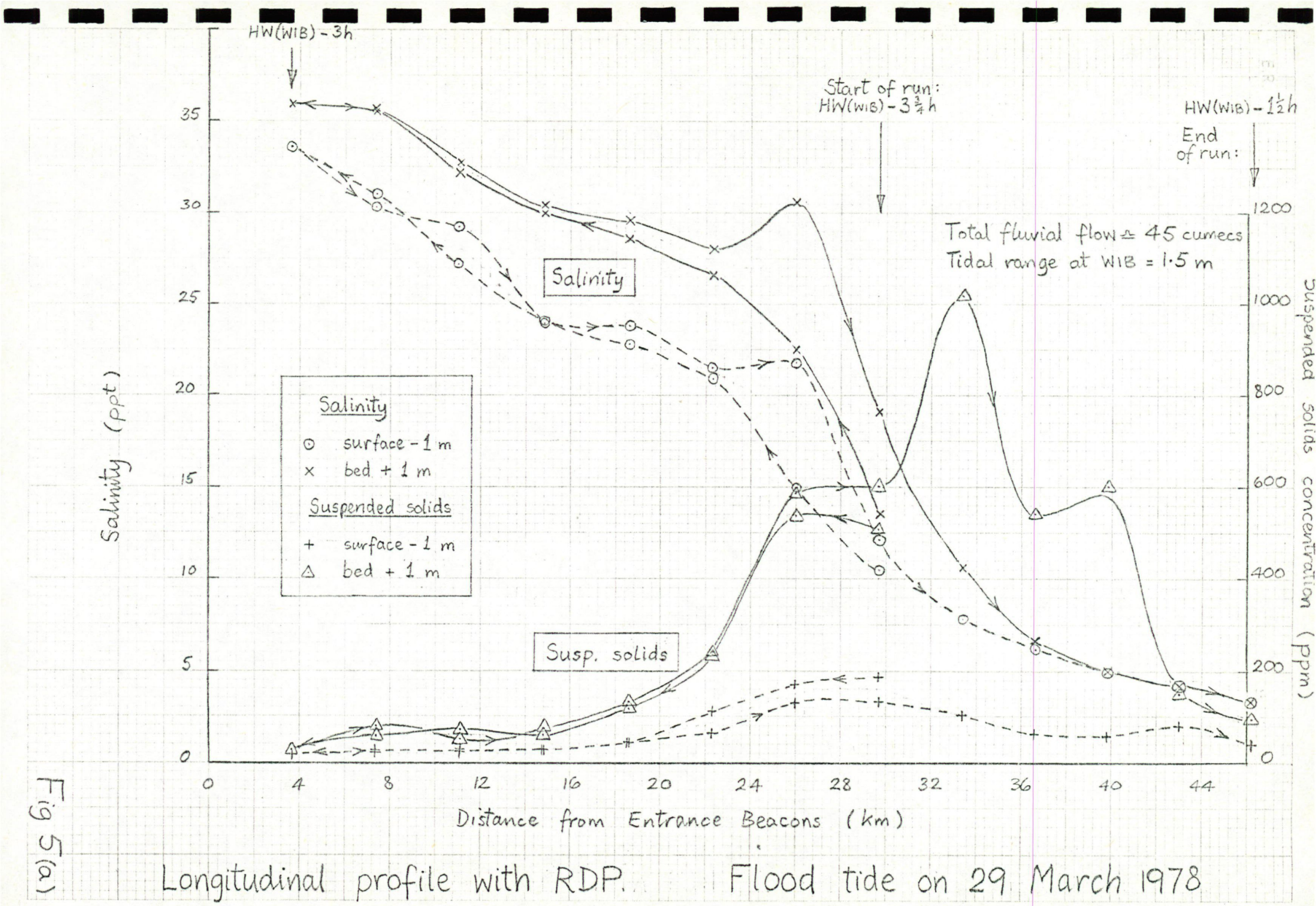


Fig 5(a)

Longitudinal profile with RDP. Flood tide on 29 March 1978

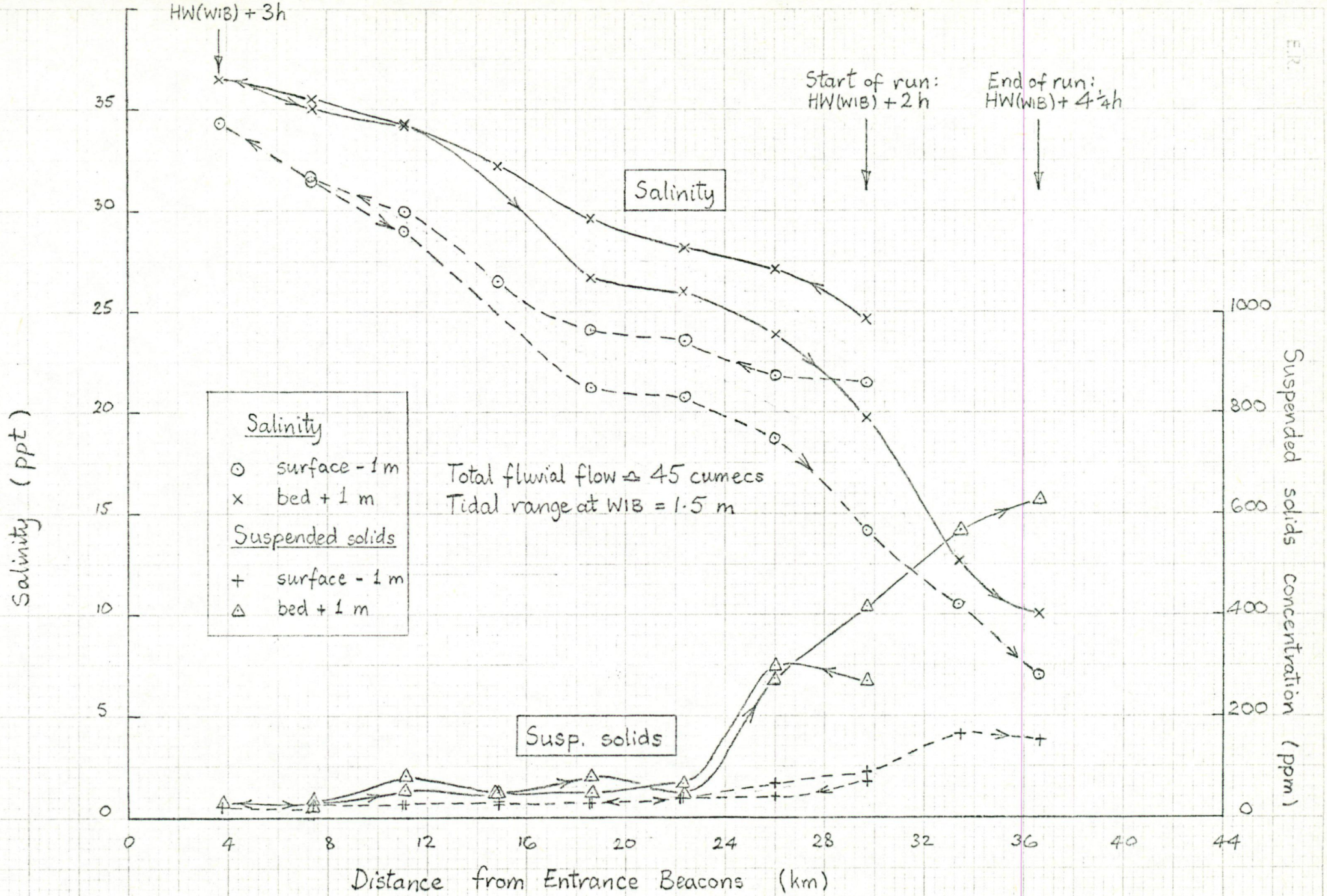


Fig 5 (9)

Longitudinal profile with RDP. Ebb tide on 29 March 1978

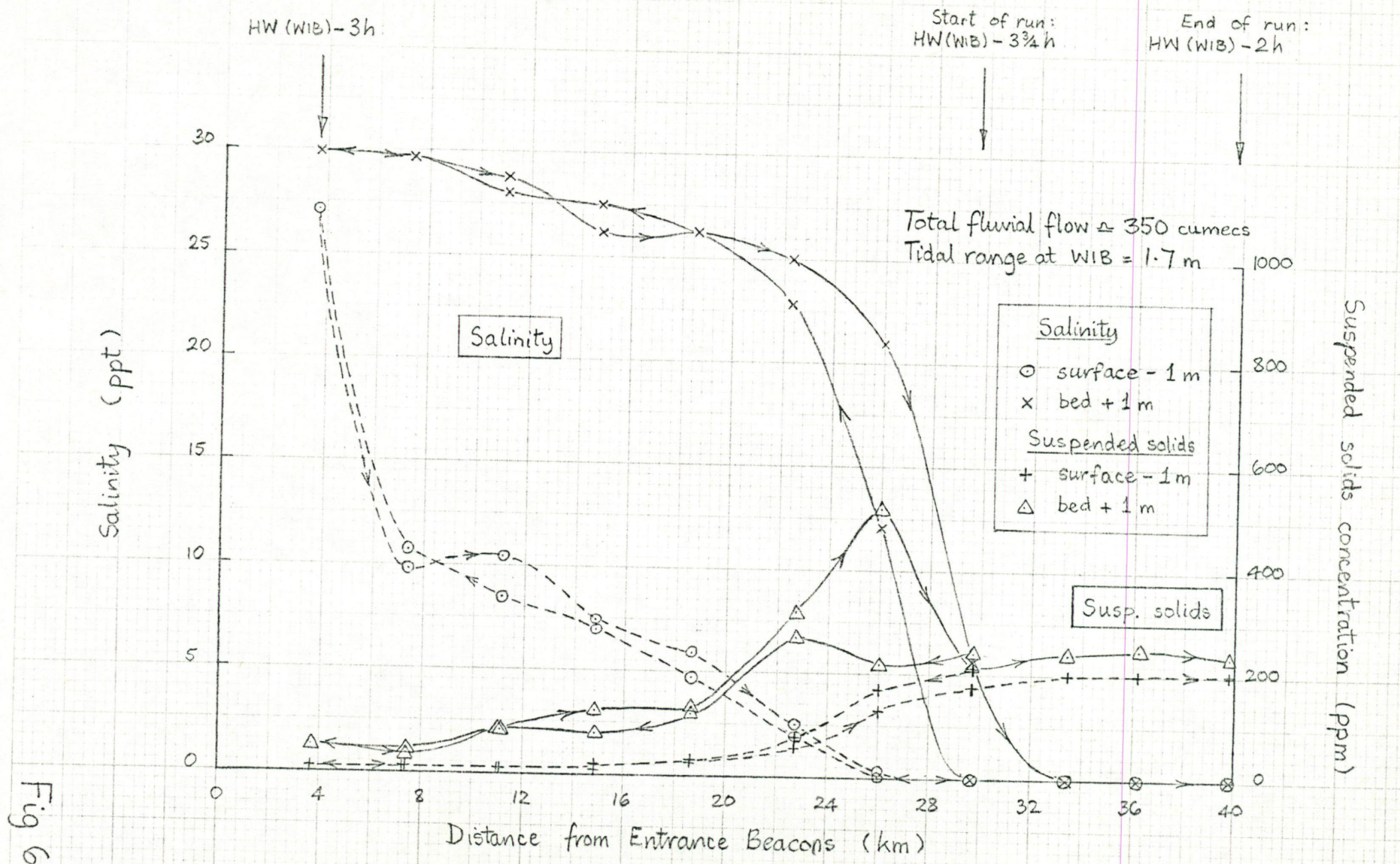


Fig 6(a)

Longitudinal profile with RDP. Flood tide on 4 April 1978

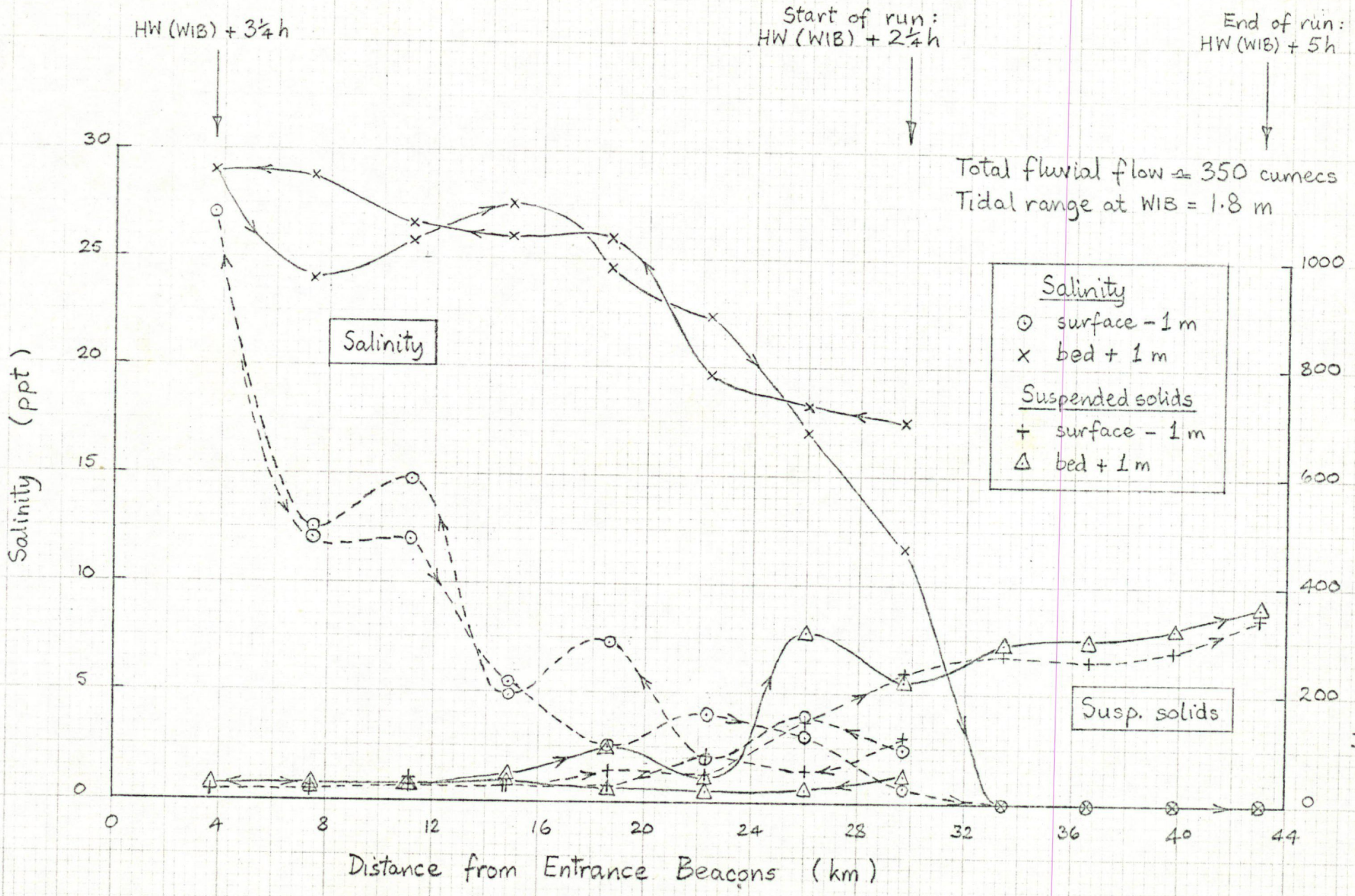


Fig 6 (a)

Longitudinal profile with RDP. Ebb tide on 4 April 1978

Pine River

Bramble

Bay

Moreton Bay

N

Old Bar Cutting

* Entrance Beacons

** Middle Cutting Beacon

Mud Island

5

** West Inner Bar Beacon

⊙ Fixed station:
Nº 2-5 10/4/78
Nº 4,6&7 11/4/78

⊙2

Bishop Island

5 — Distance from Entrance Beacons (km)

10 Swing Basin

Fisherman Islands

St. Helena Island

Boat Passage

Scale
0 1 2 3 4 5 km

Bulwer Island

Whyte Island

⊙4

Lytton

Eagle Farm

Pinkenba

15

Green Island

City of

Hamilton

⊙6

20

Brisbane River

⊙5

Cairncross Dock

25

Bulimba

⊙7

Port Office

Waterloo Bay

Wellington Point

Brisbane

Location of fixed stations

Fig 7

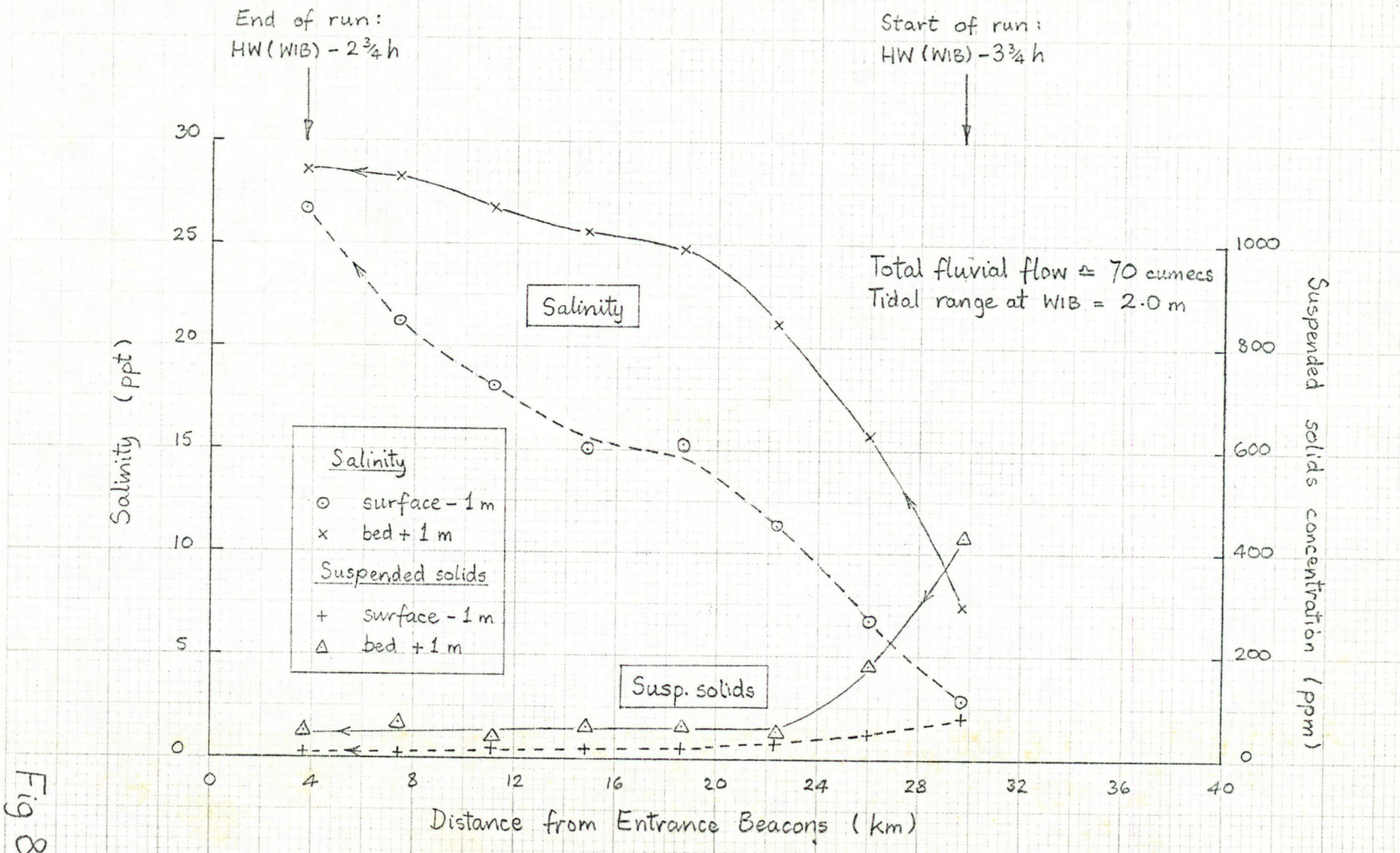


Fig 8(a)

Longitudinal profile with RDP. Flood tide on 7 April 1978

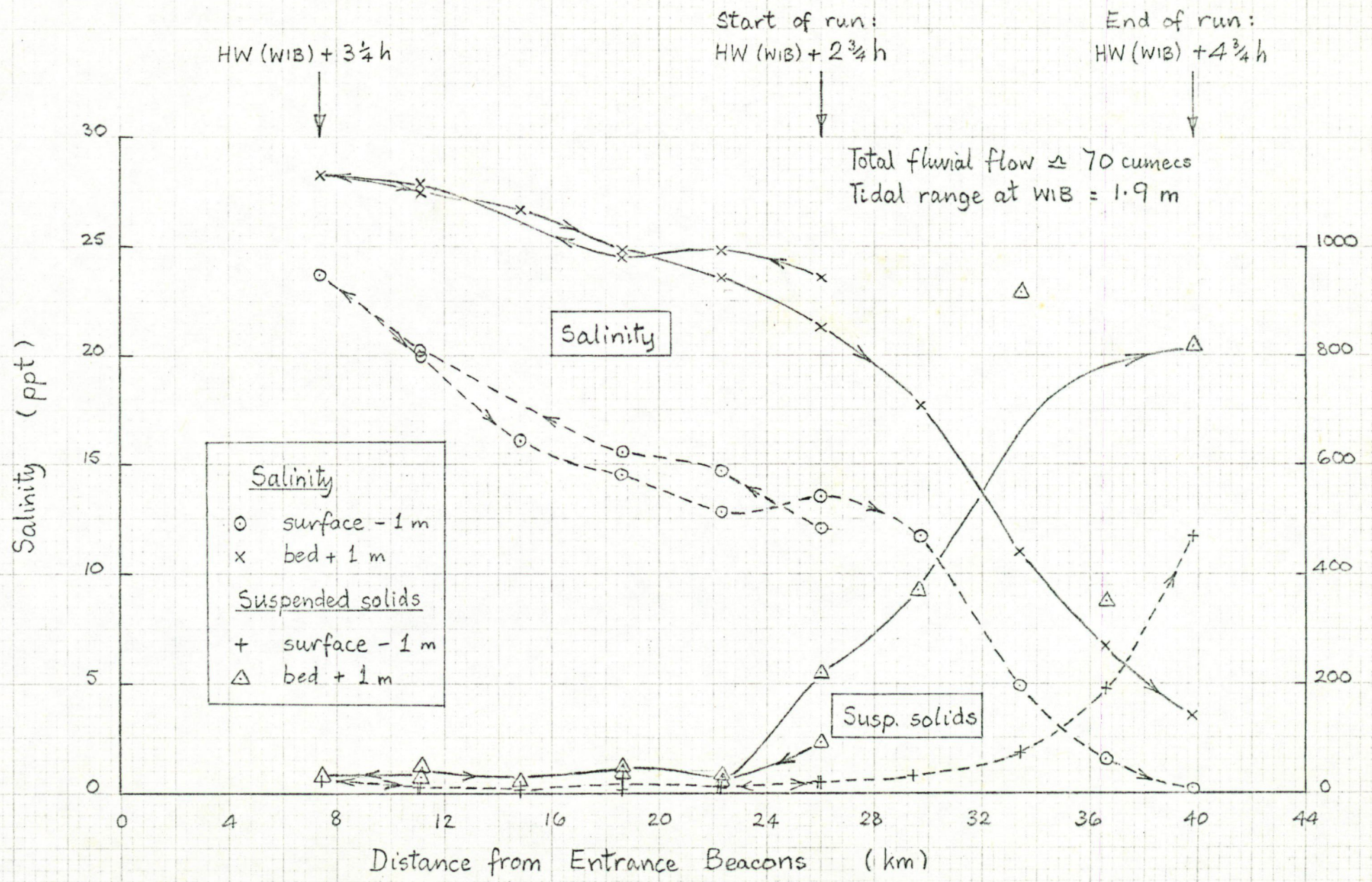
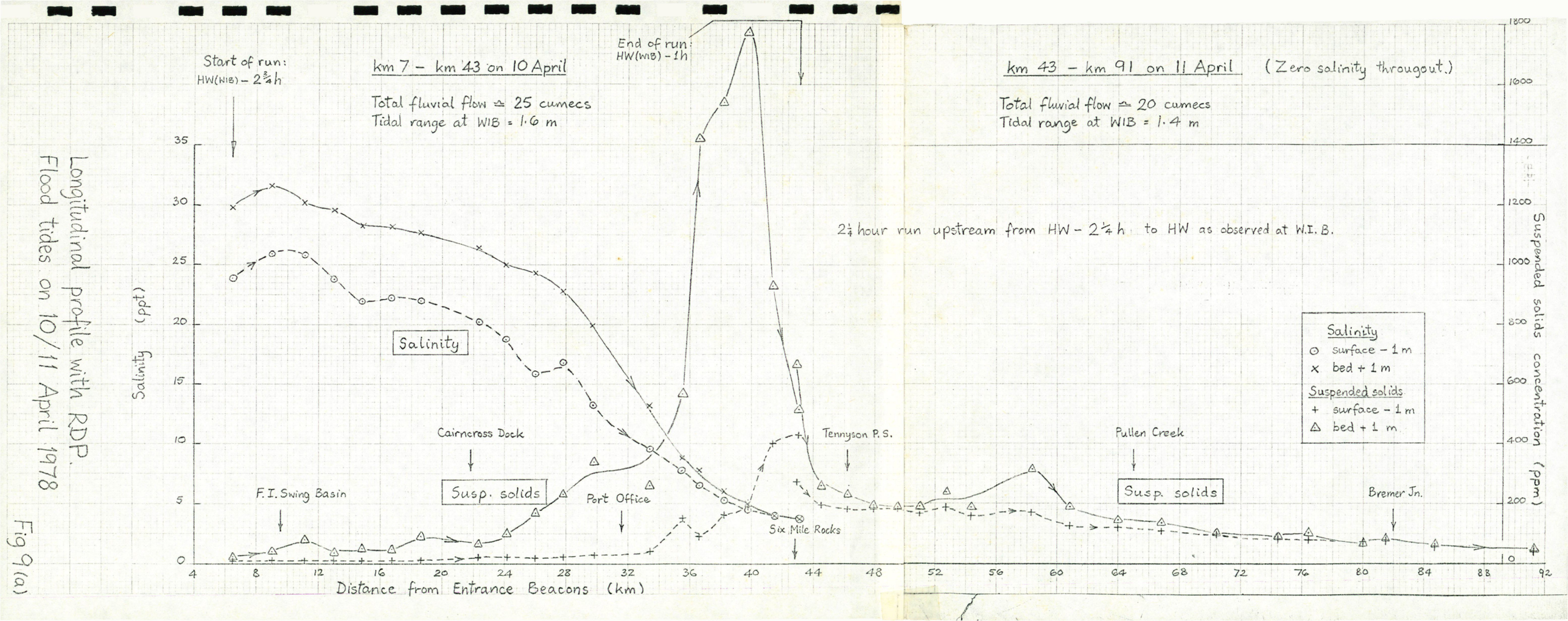


Fig 8 (b)

Longitudinal profile with RDP. Ebb tide on 7 April 1978



Longitudinal profile with RDP.
Flood tides on 10/11 April 1978

Fig 9(a)

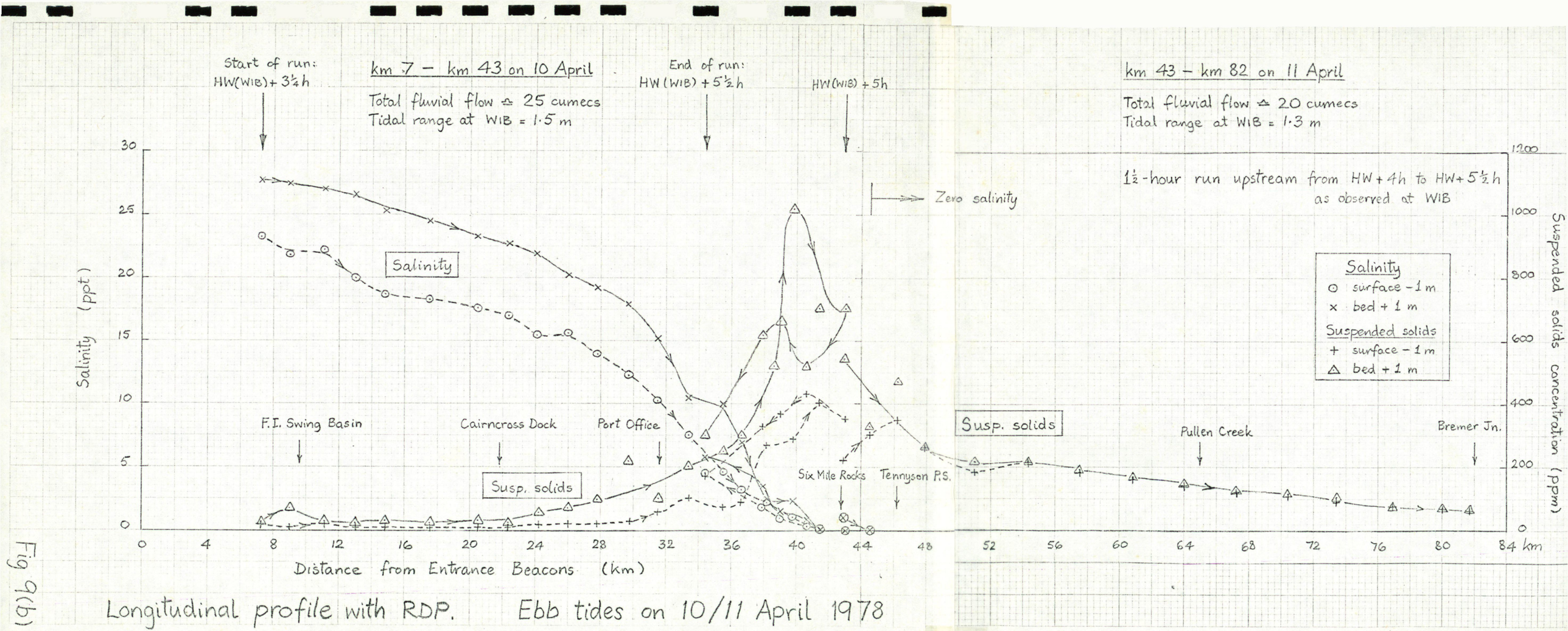
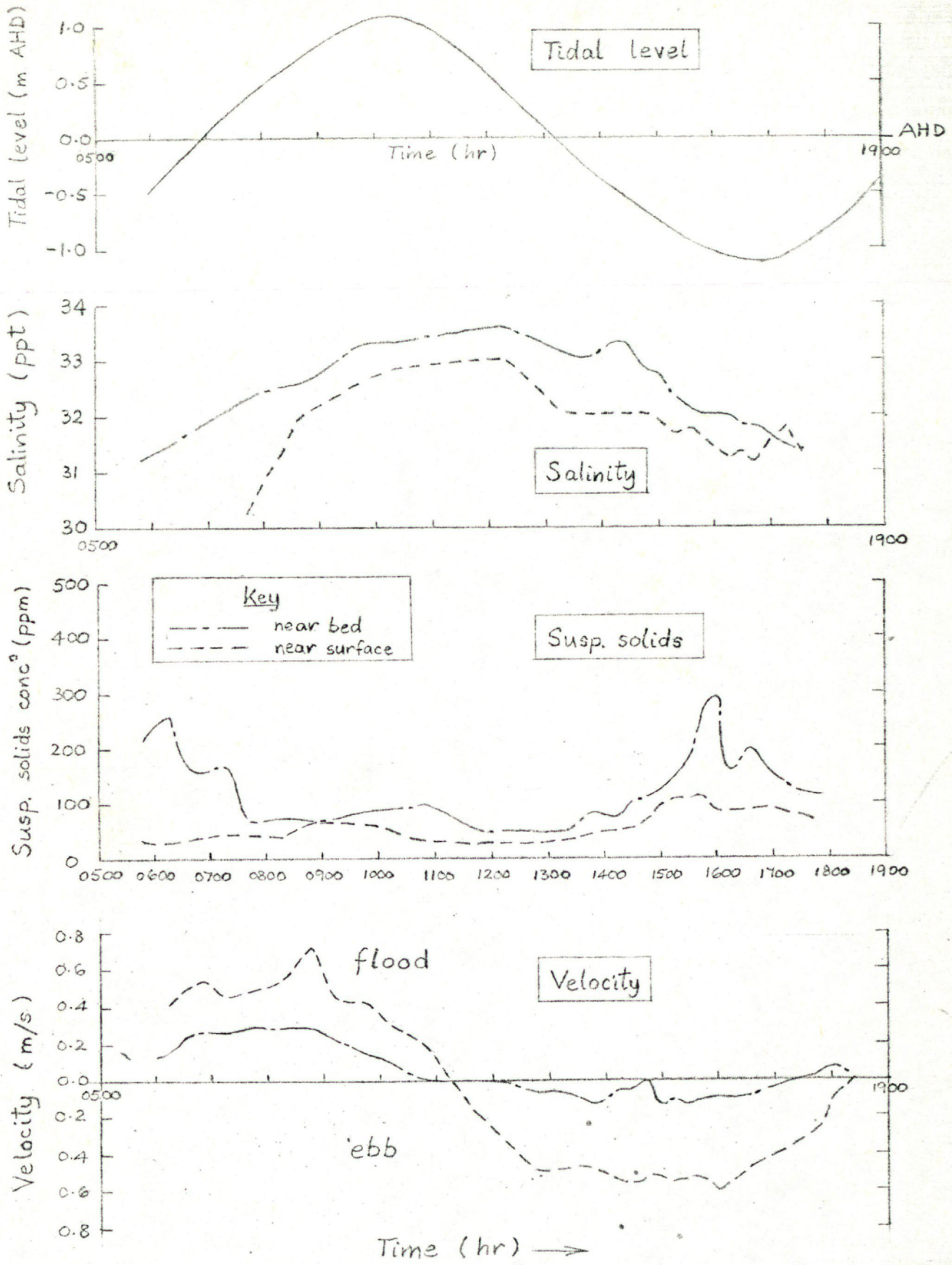


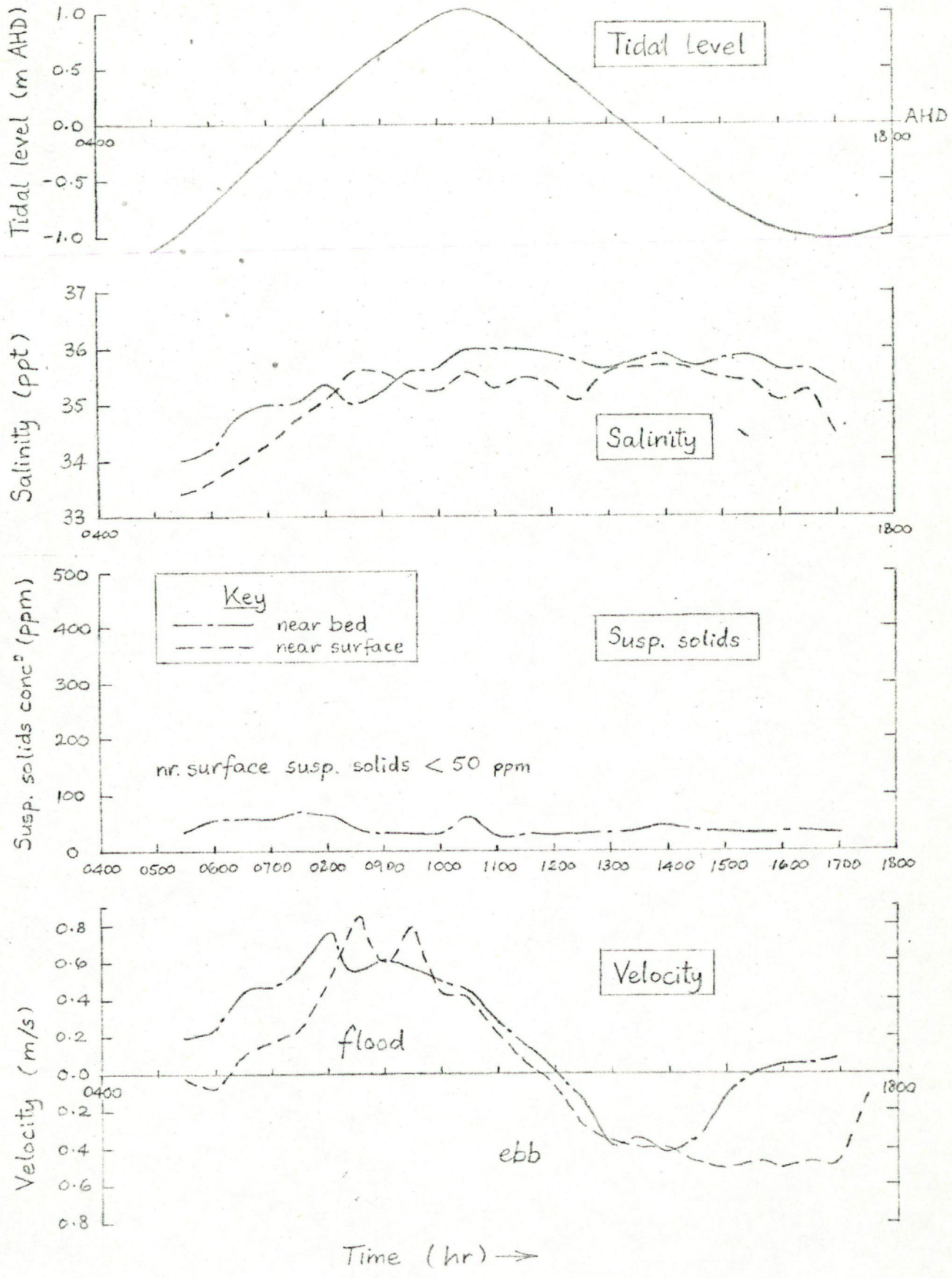
Fig 9(b)

Longitudinal profile with RDP. Ebb tides on 10/11 April 1978



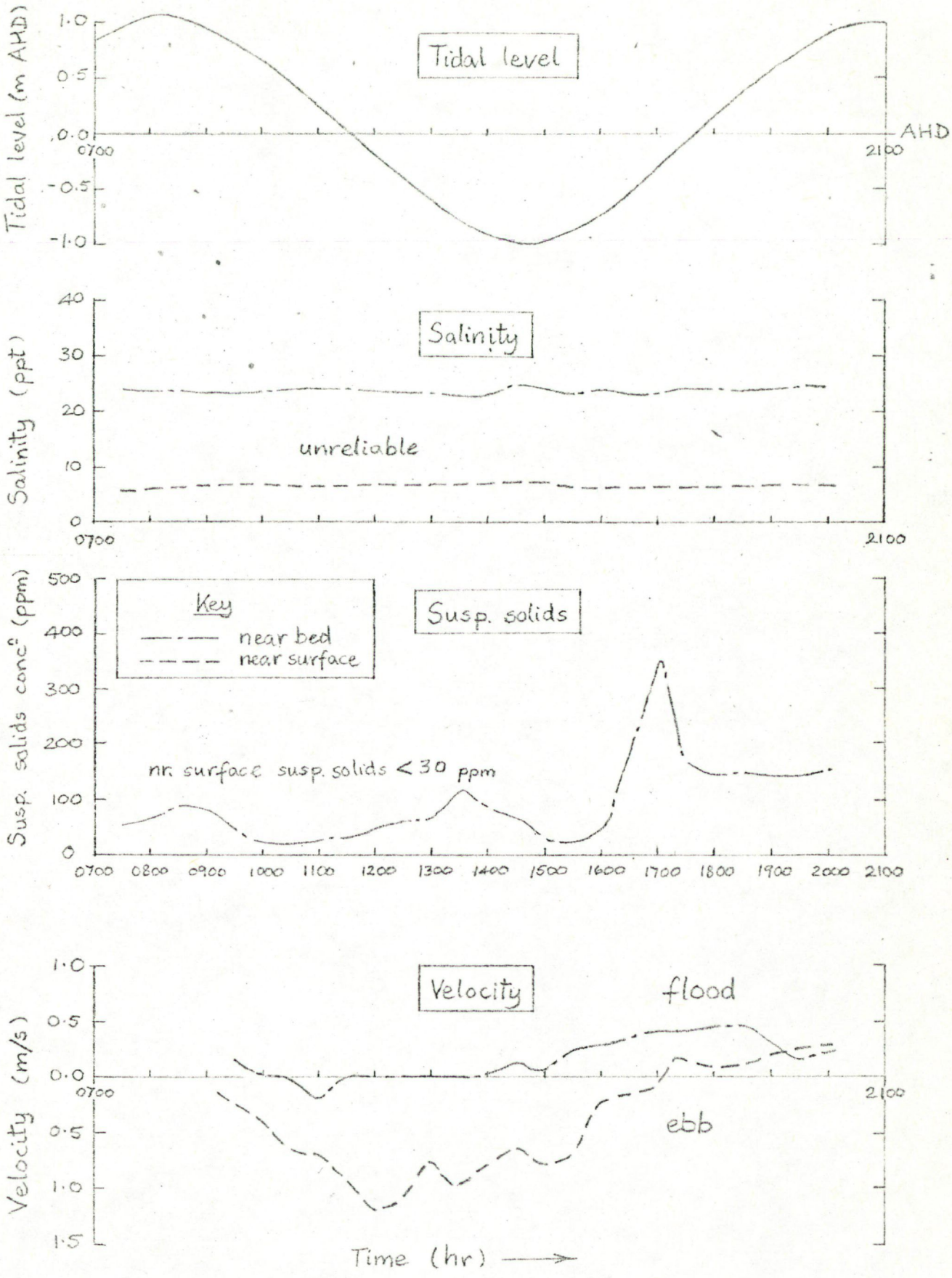
Observations at Cairncross Dock
on 9 March 1978

Fig 10



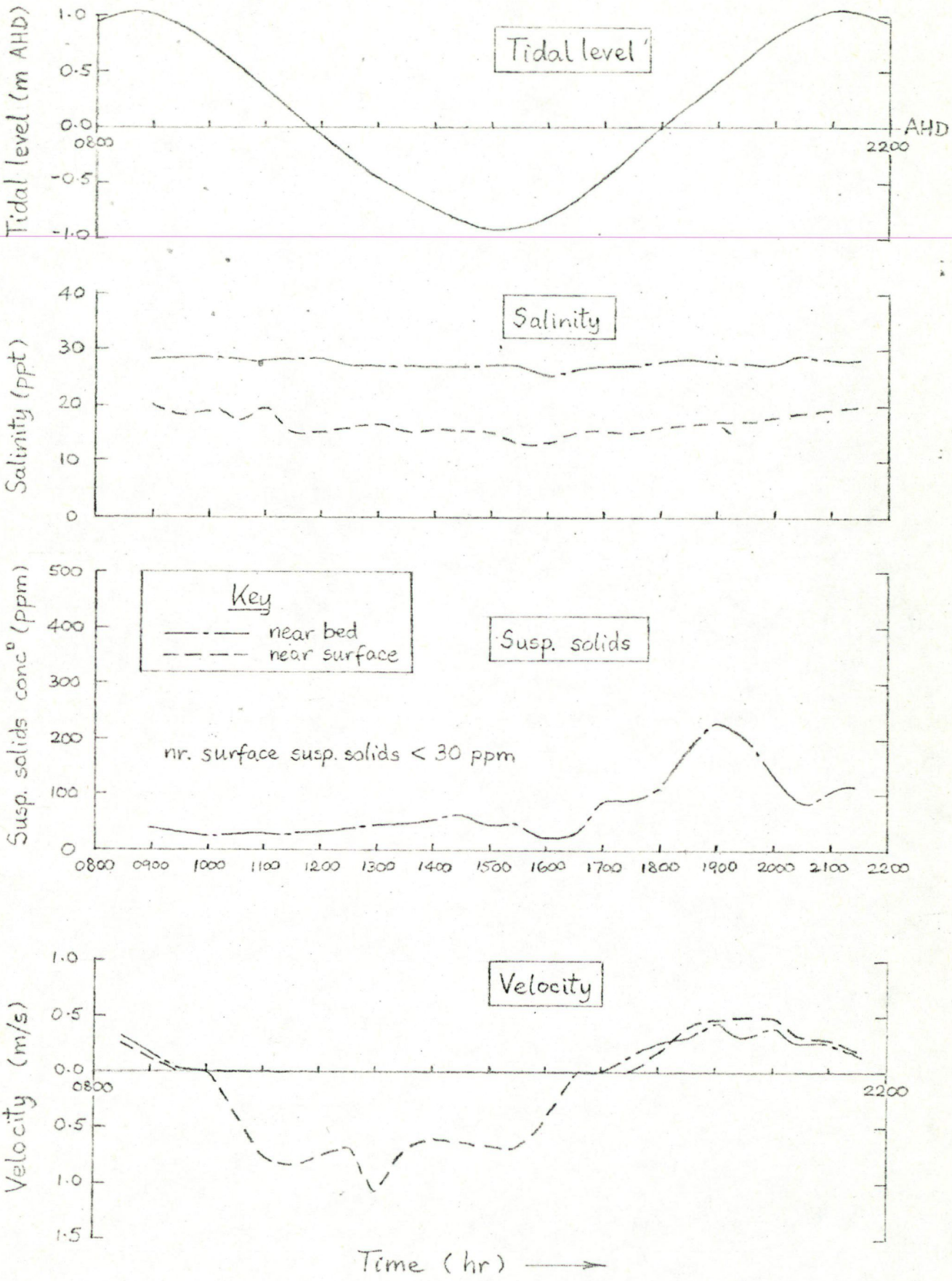
Observations at Fisherman Islands Swing Basin on 10 March 1978

Fig 11



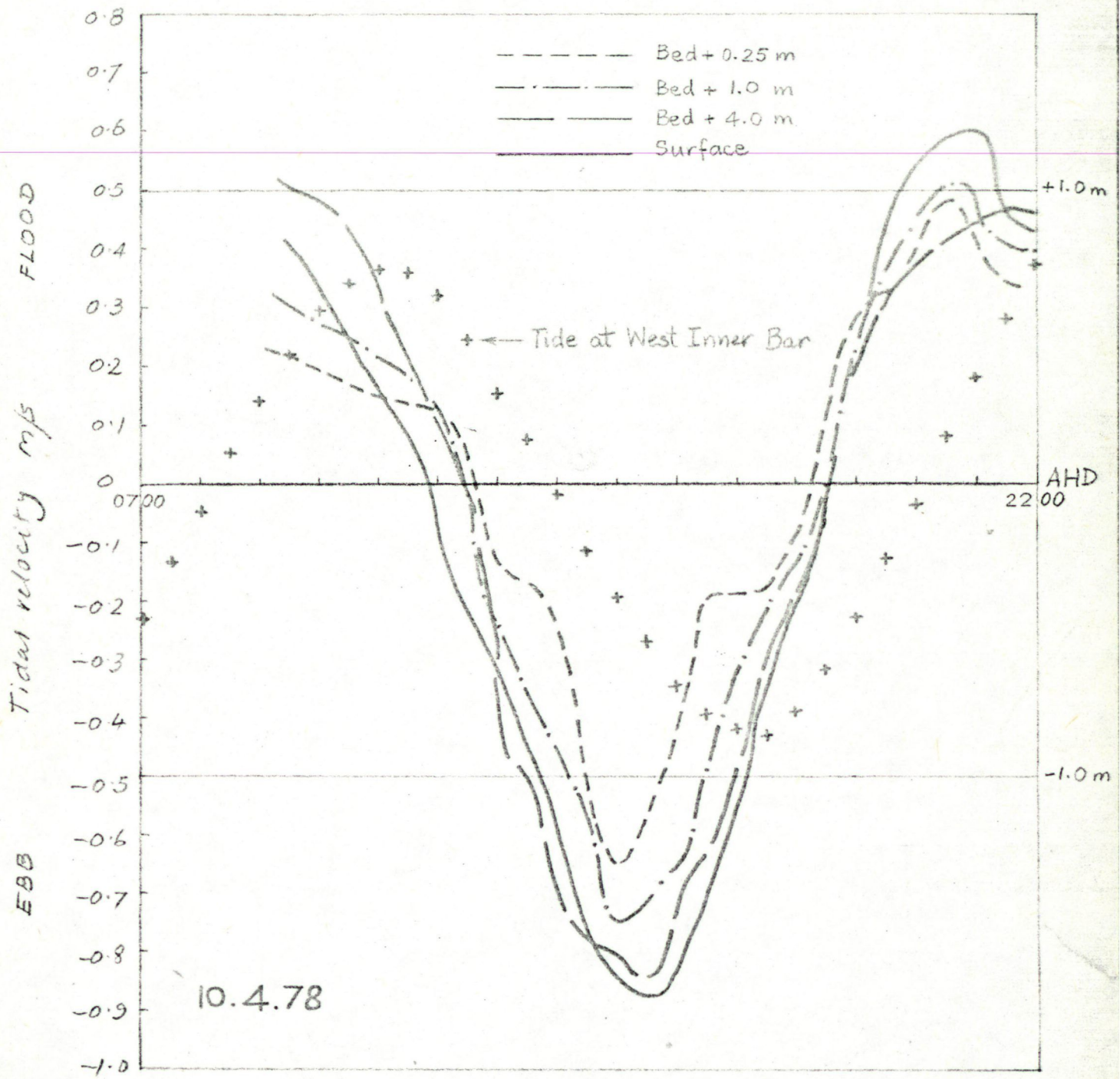
Observations at Cairncross Dock
on 5 April 1978

Fig 12



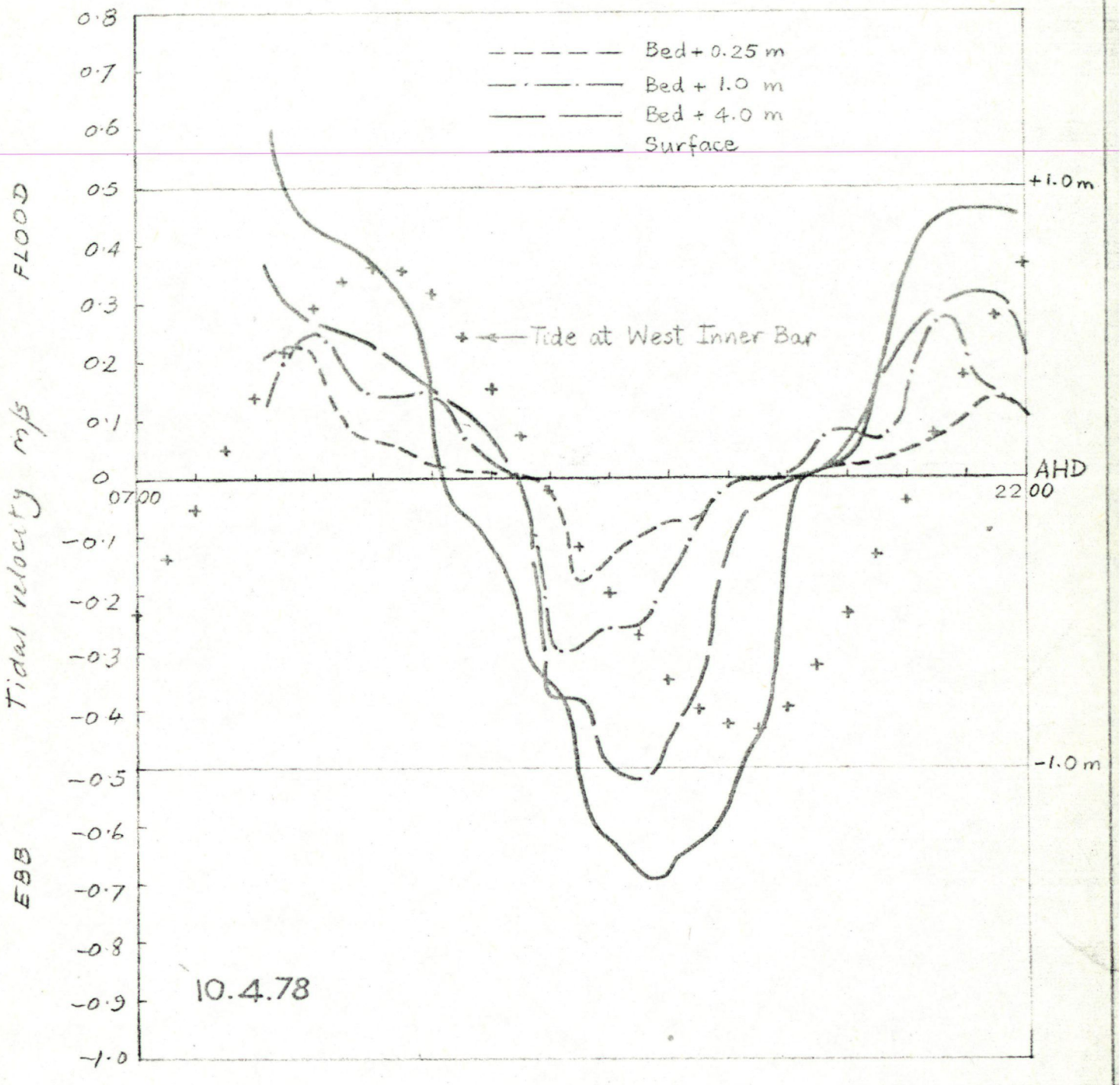
Observations at Fisherman Islands Swing Basin on 6 April 1978

Fig 13



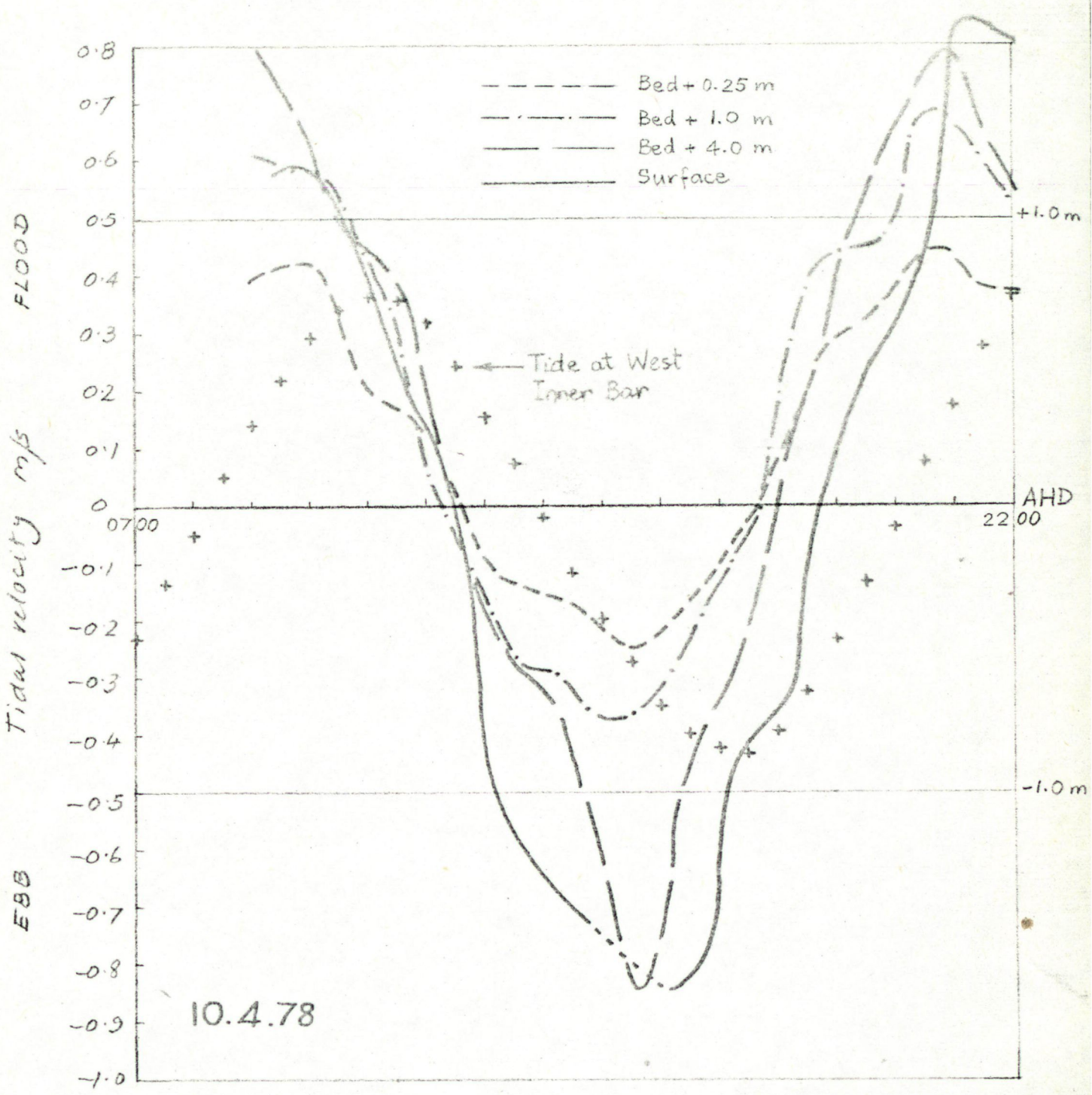
TIDAL VELOCITIES AT STATION 2

Fig 14



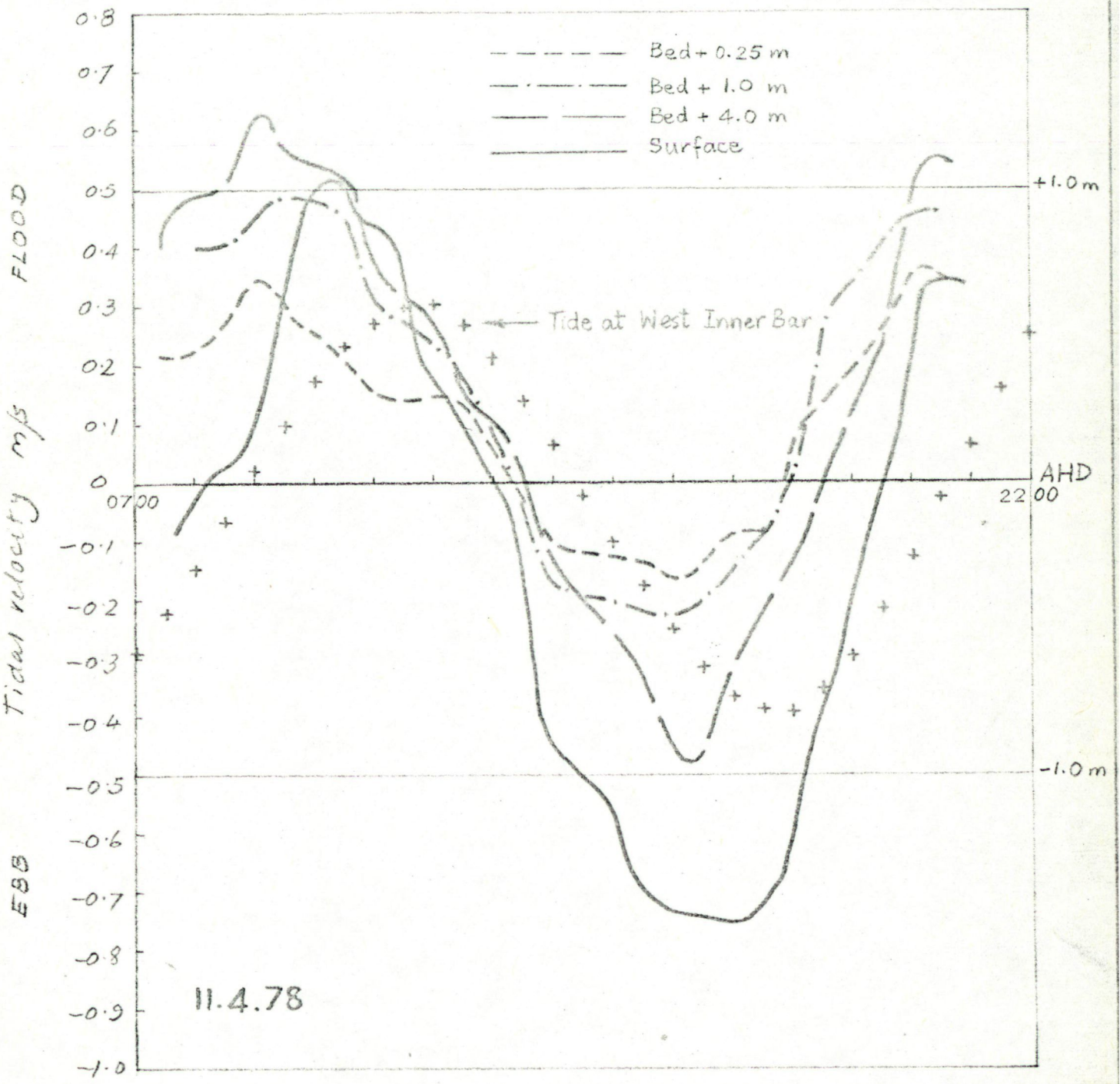
TIDAL VELOCITIES AT STATION 3

Fig 15



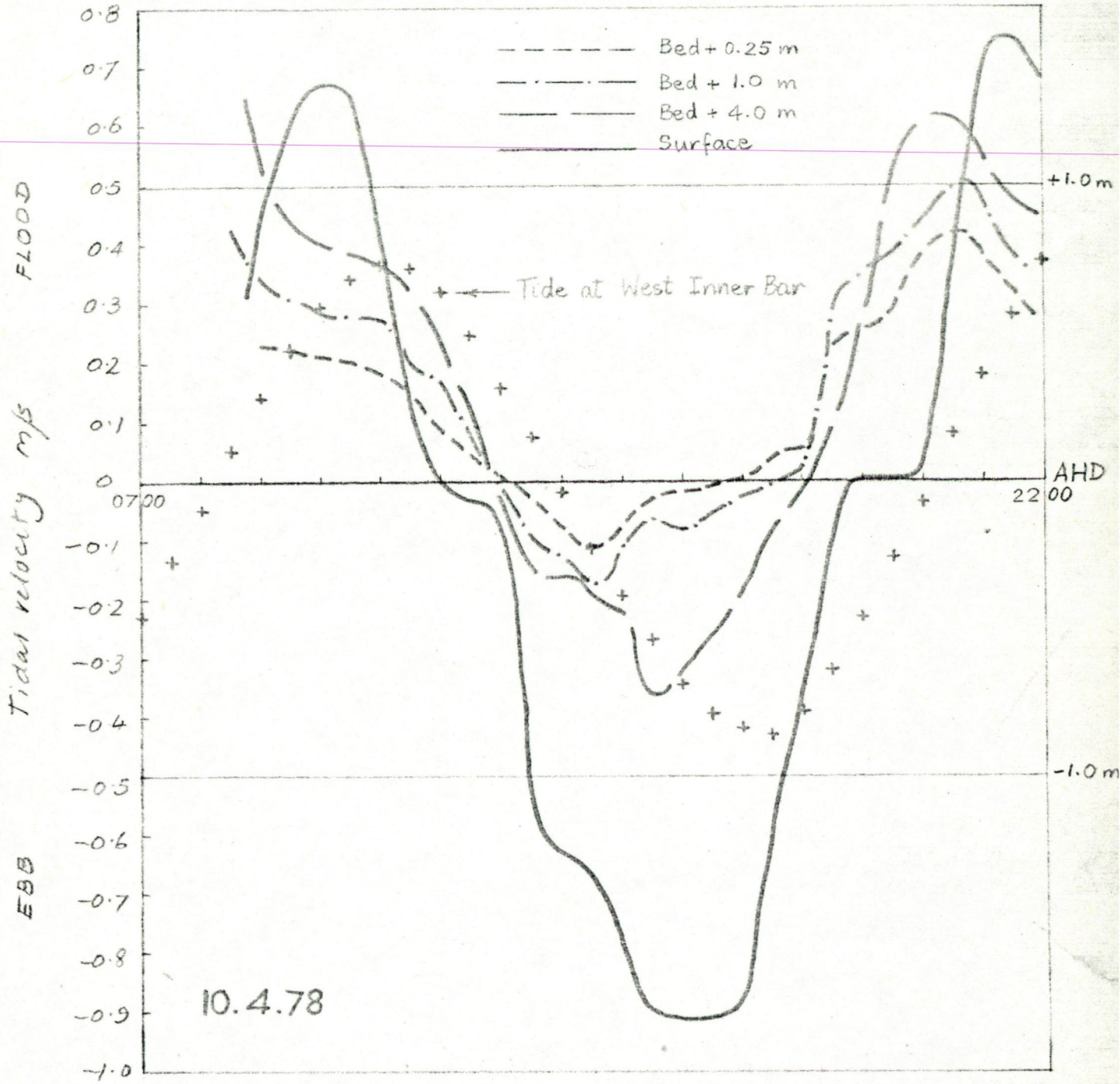
TIDAL VELOCITIES AT STATION 4

Fig 16



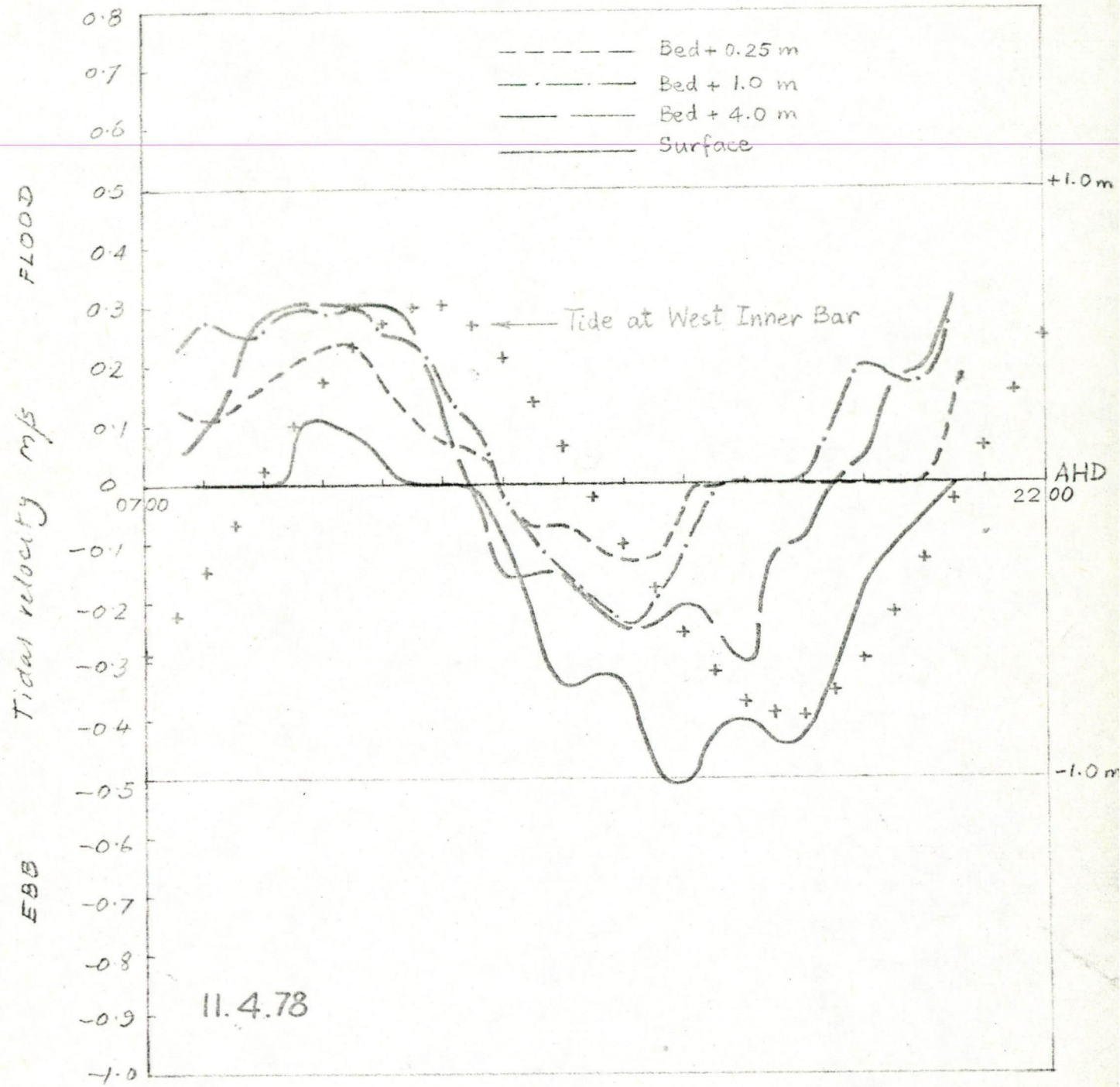
TIDAL VELOCITIES AT STATION 4

Fig 17



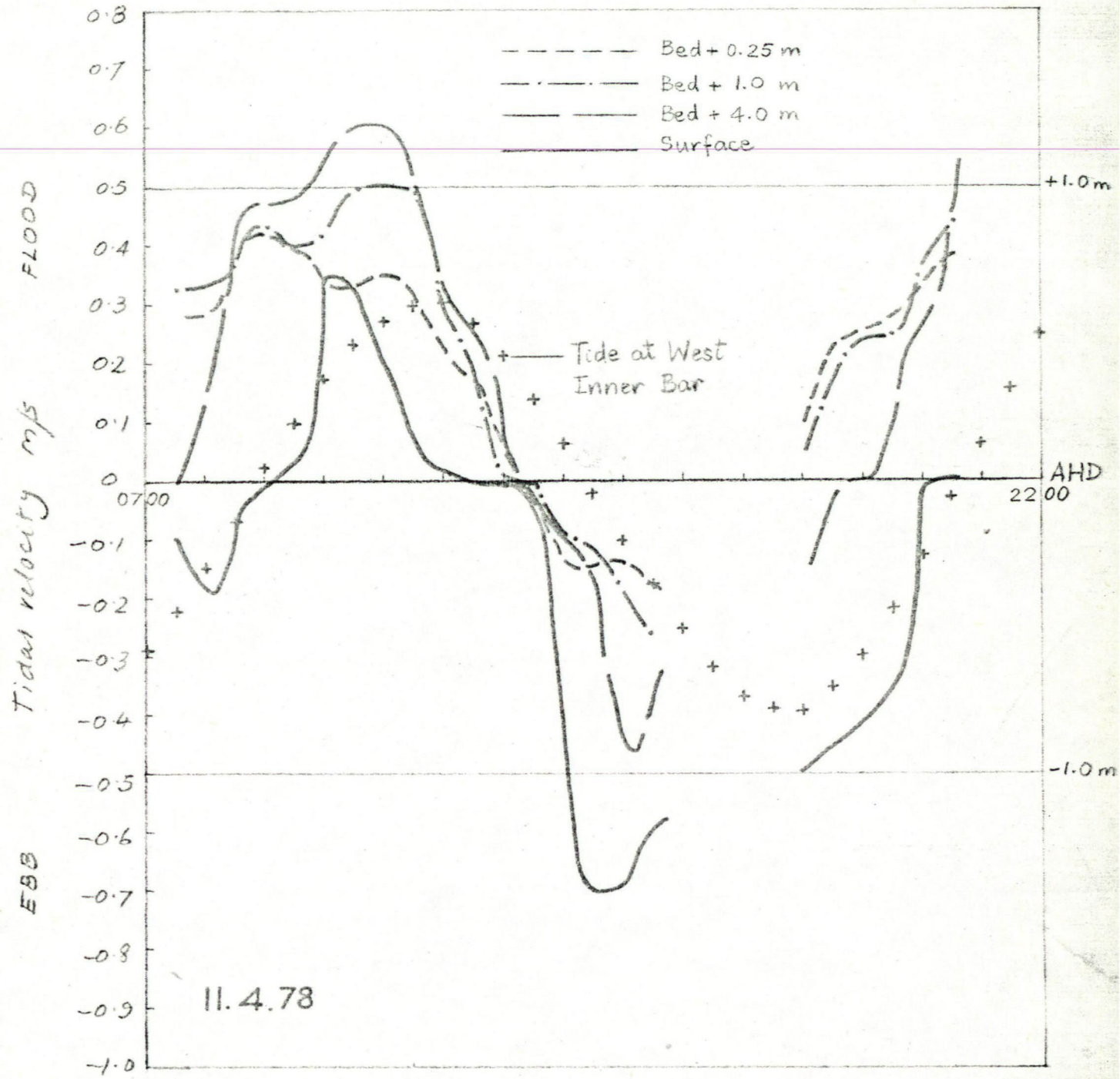
TIDAL VELOCITIES AT STATION 5

Fig 18



TIDAL VELOCITIES AT STATION 6

Fig 19



TIDAL VELOCITIES AT STATION 7

Fig 20

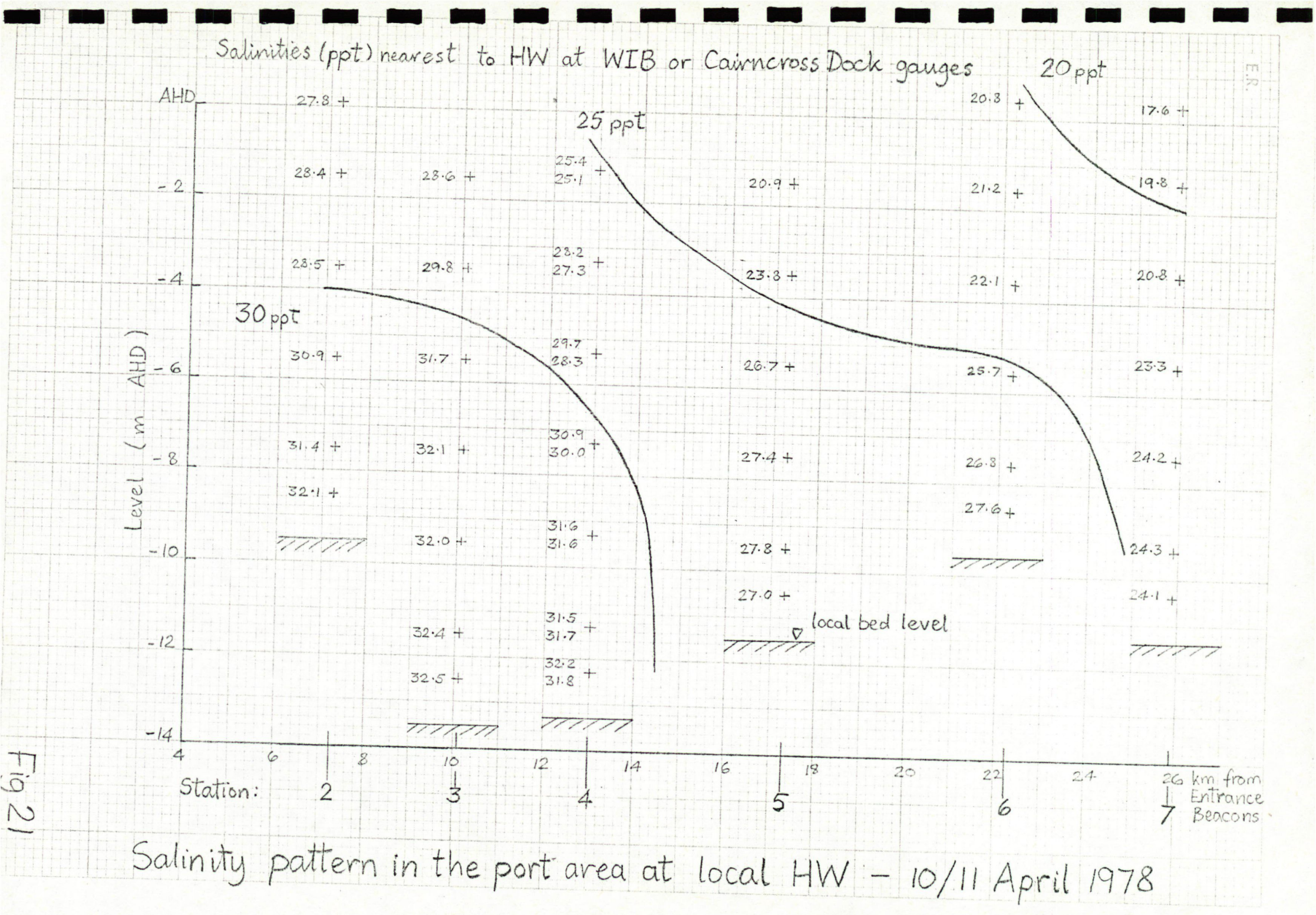


Fig 21

Salinity pattern in the port area at local HW – 10/11 April 1978

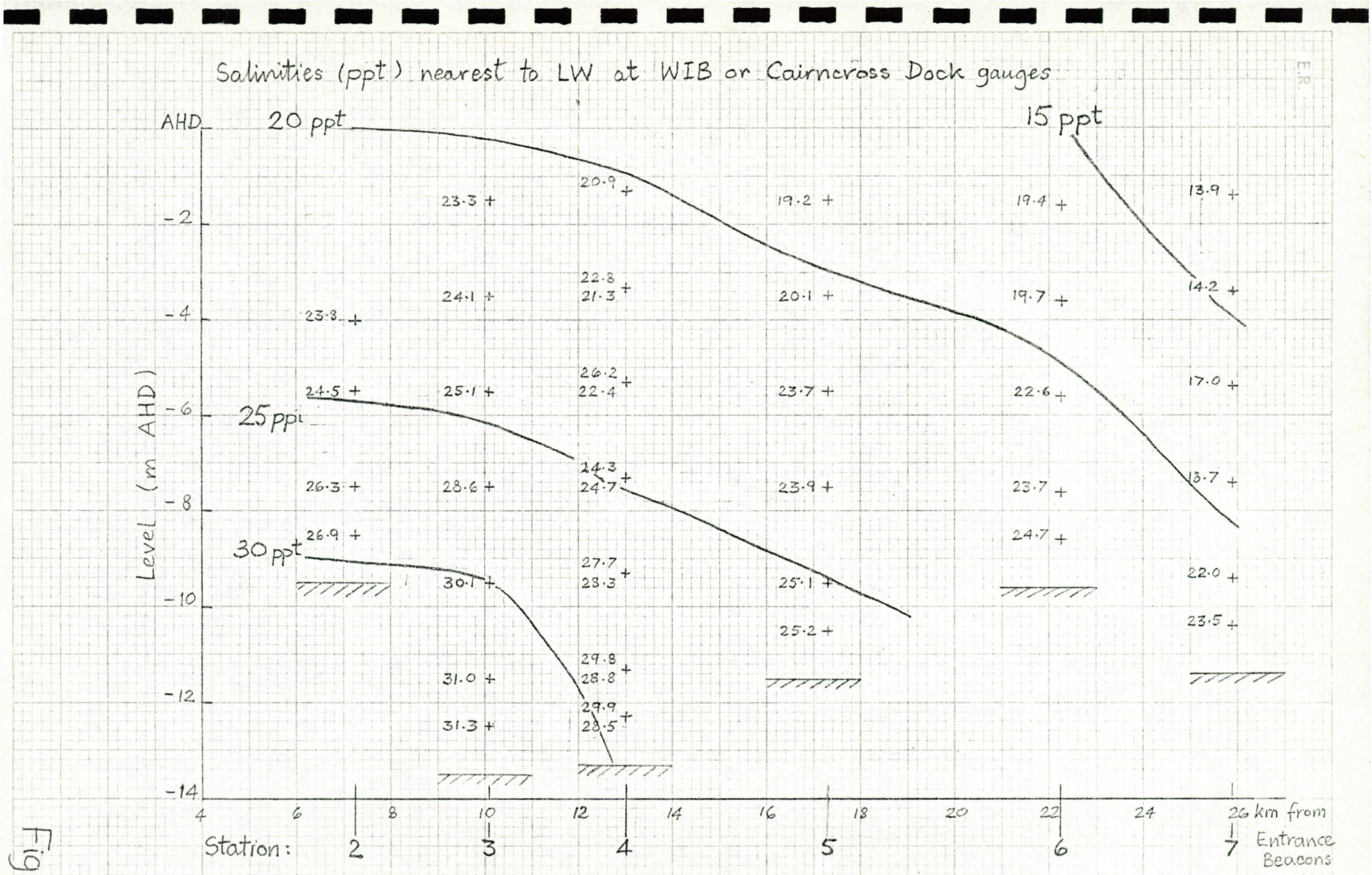
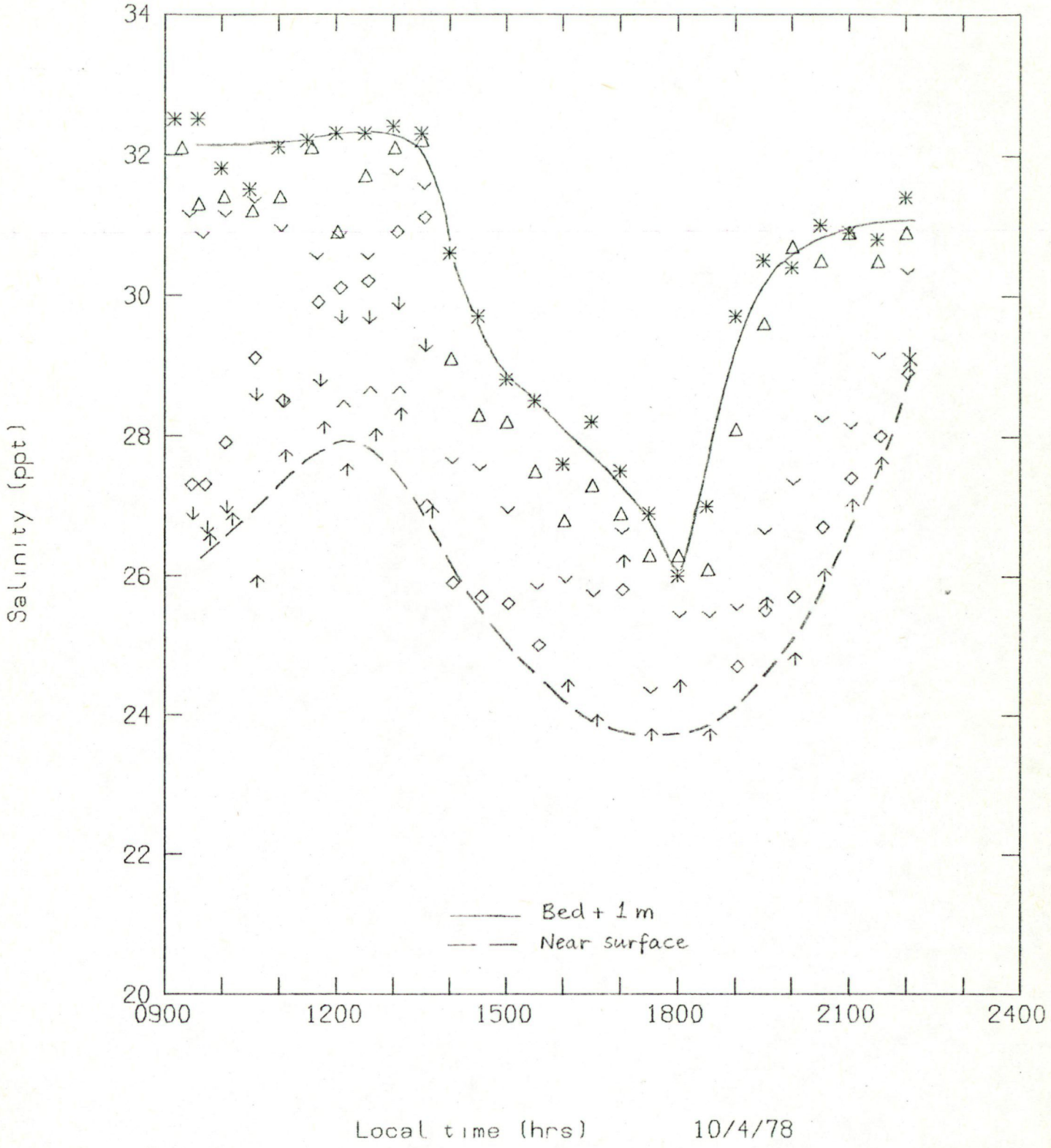


Fig 22

Salinity patterns in the port area at local LW – 10/11 April 1978

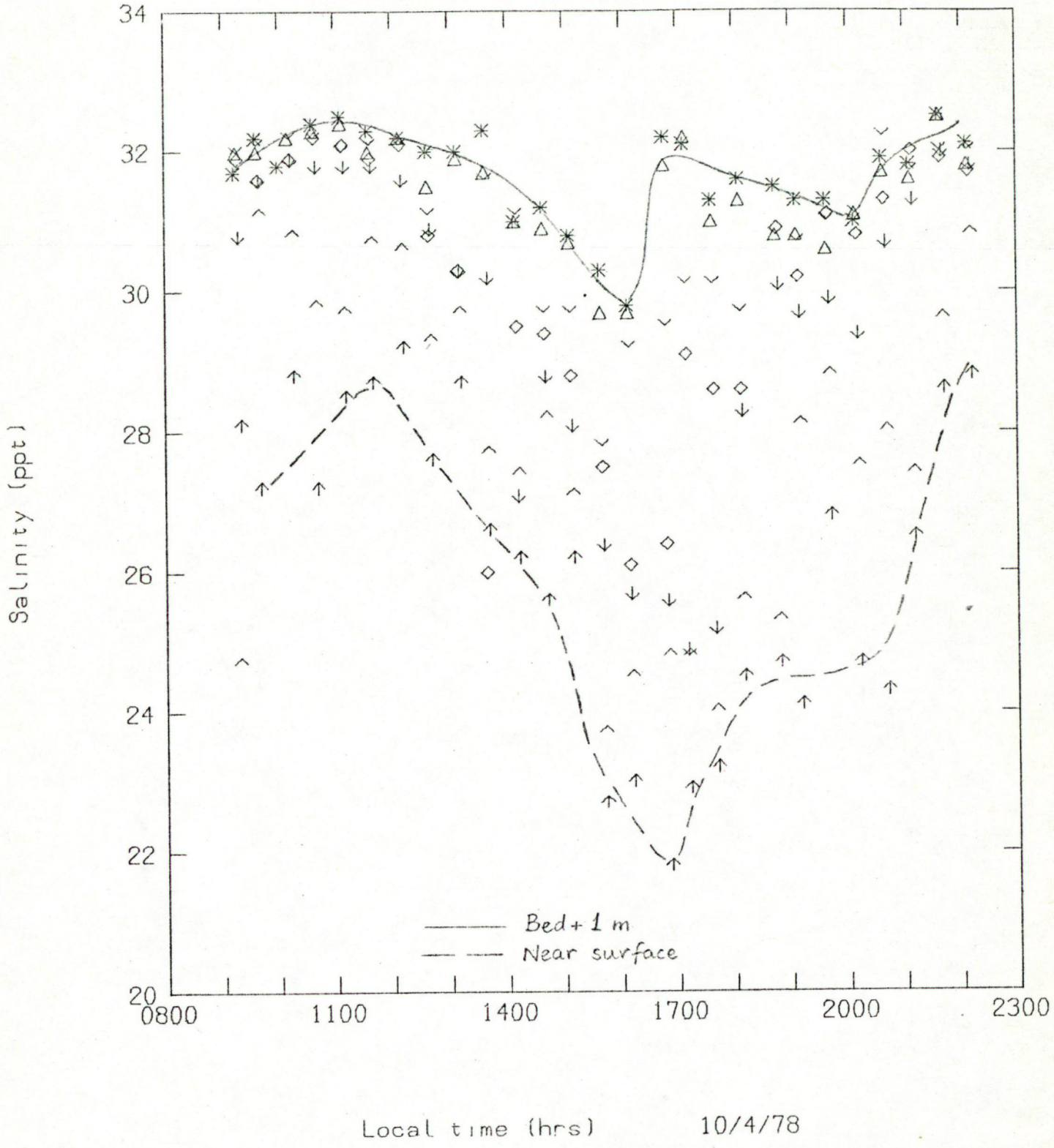
Key for Figs 23 – 29 and Figs 31 – 37

Height above bed (m)	Symbol
0.25	+
0.50	×
0.75	□
1.0	✳
2.0	△
4.0	∨
6.0	◇
8.0	↓
10.0	∧
12.0 near surface	↑



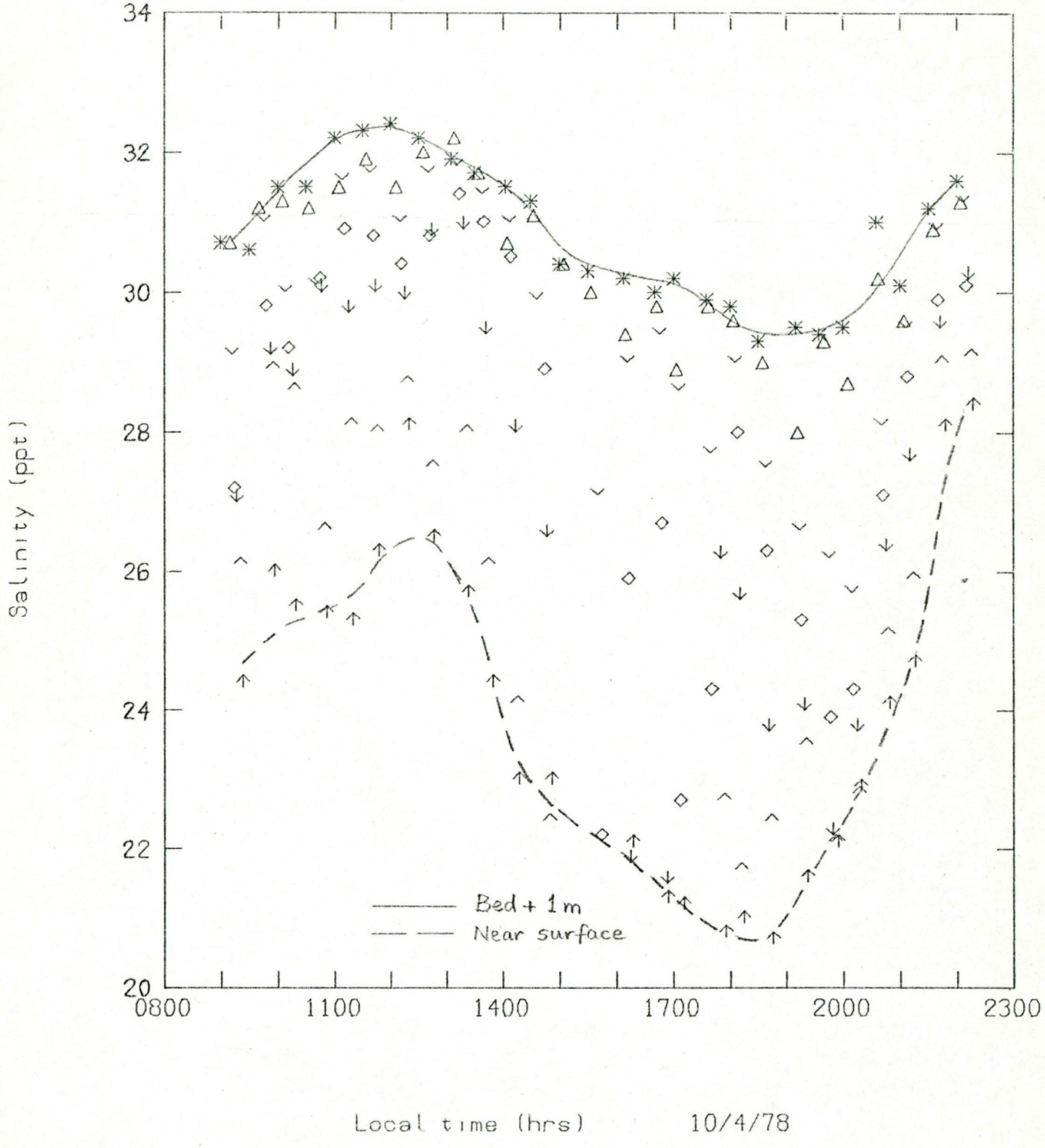
SALINITY AT STATION 2

Fig 23



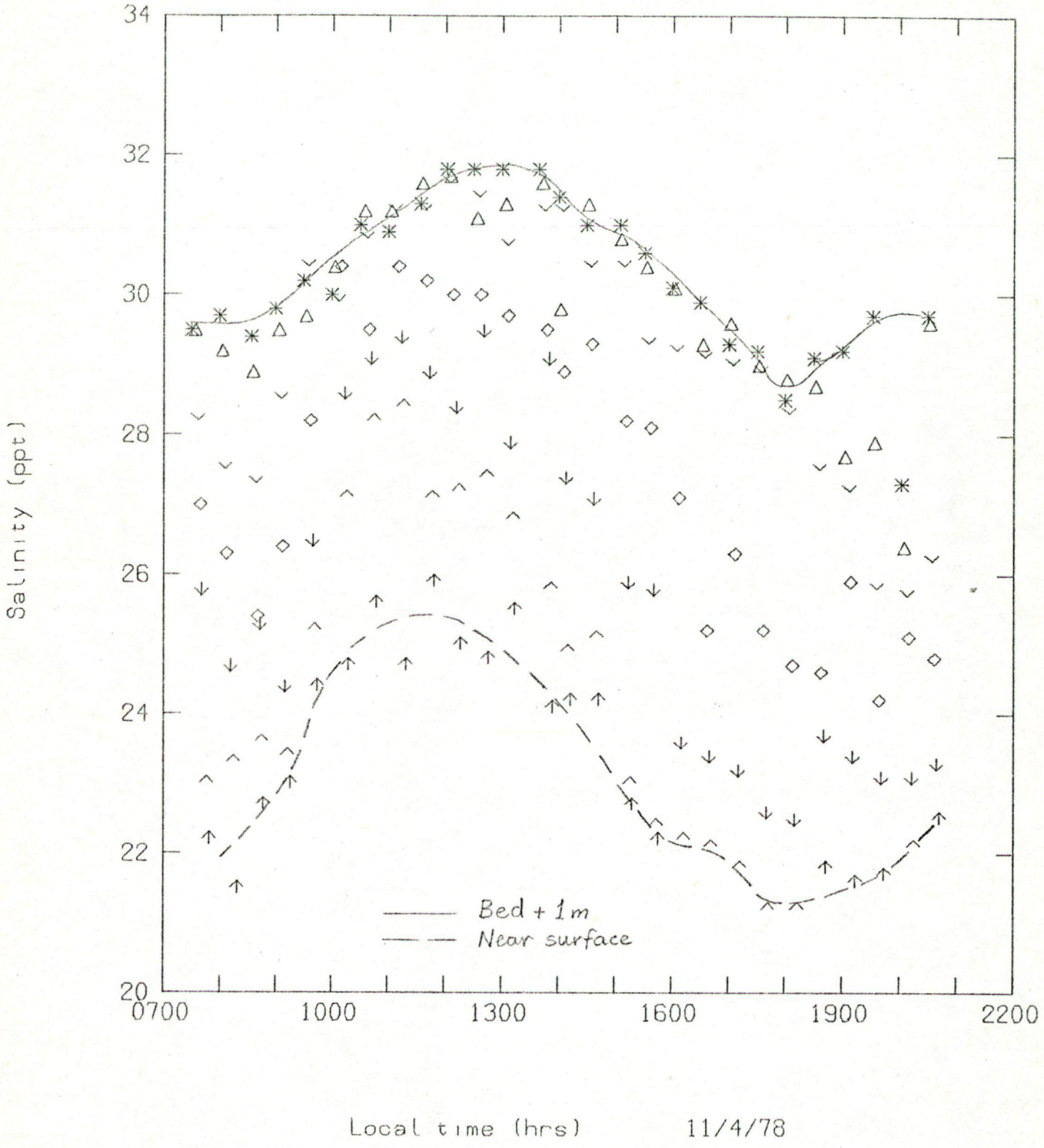
SALINITY AT STATION 3

Fig 24



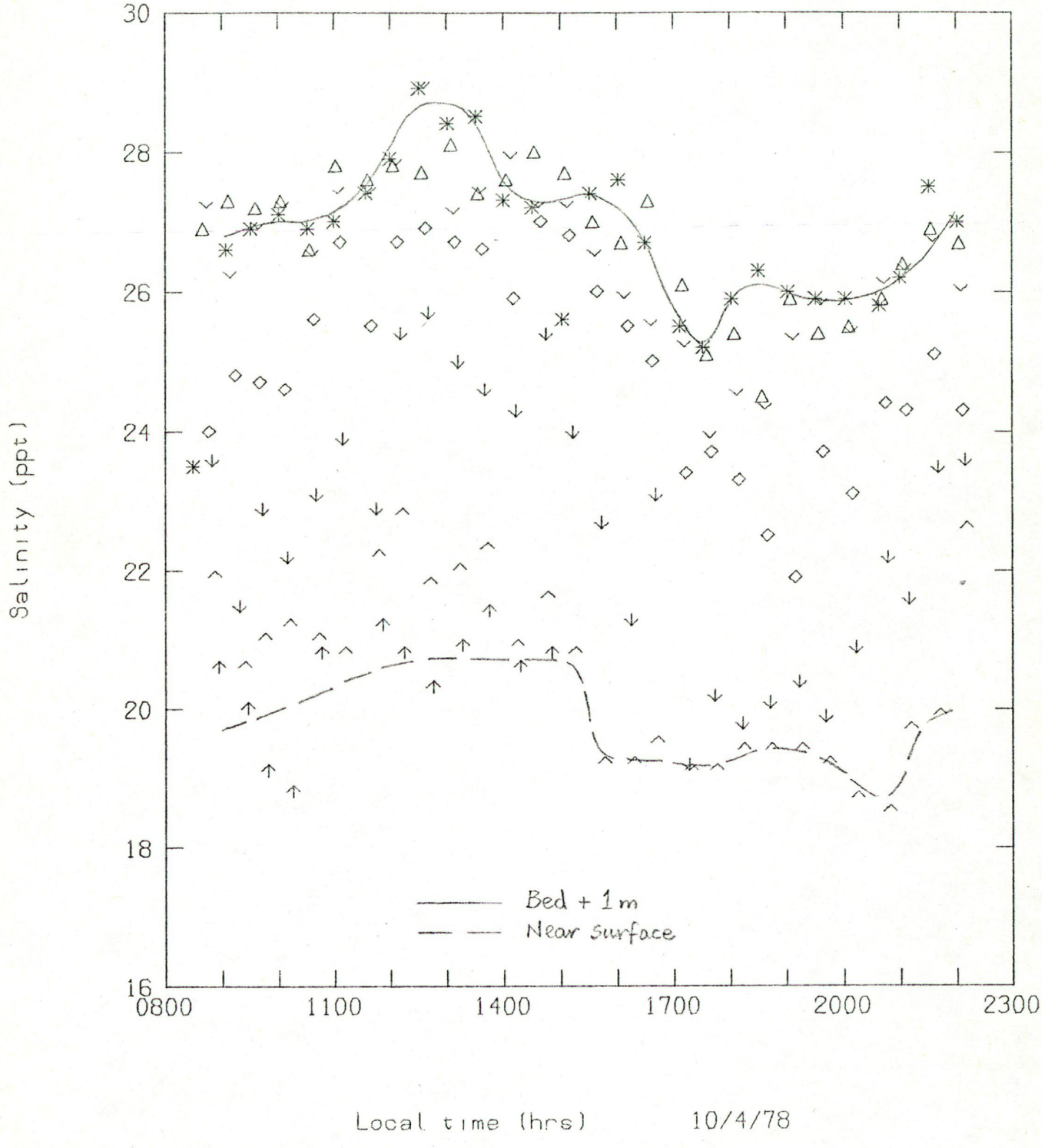
SALINITY AT STATION 4

Fig 25



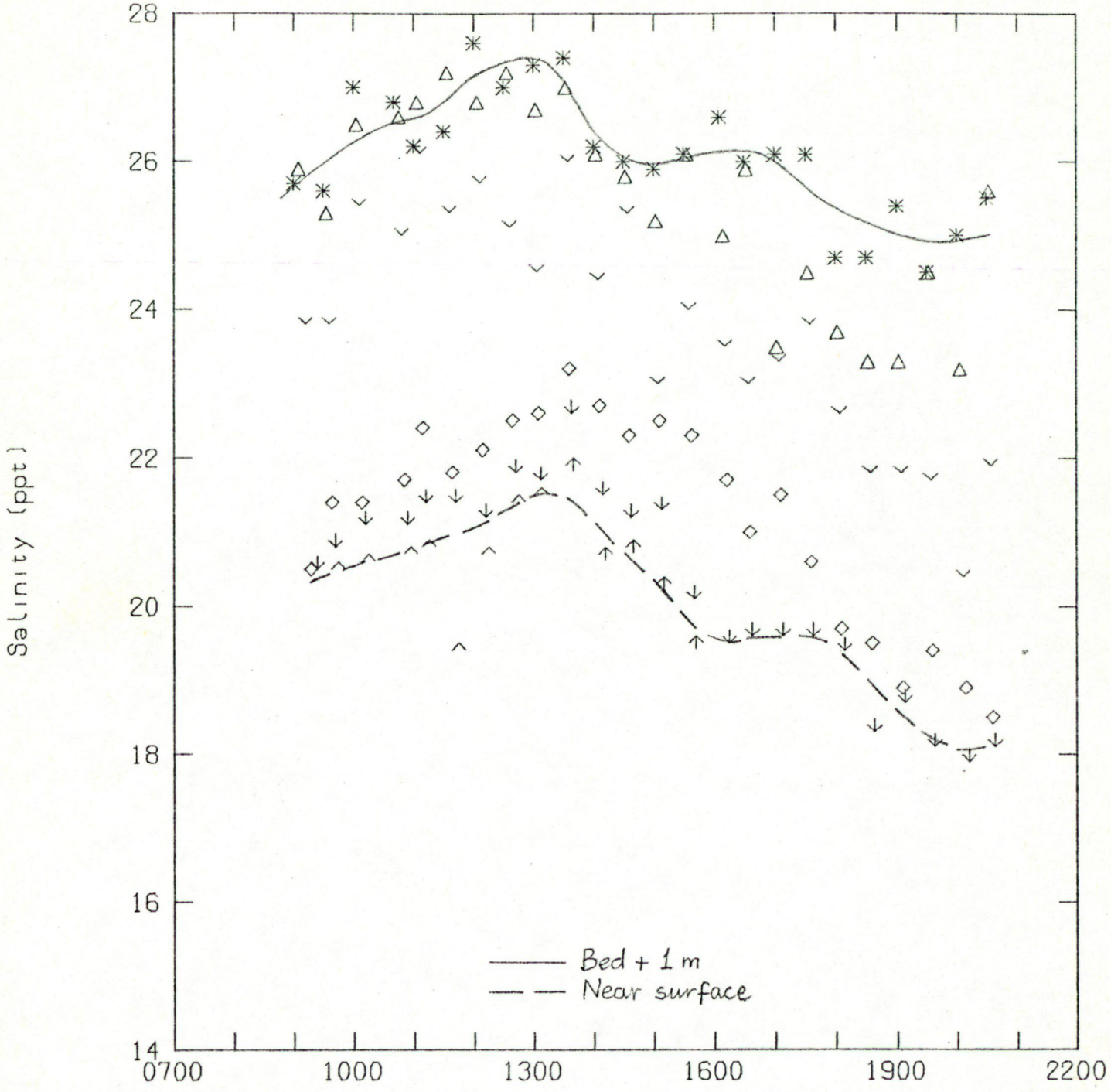
SALINITY AT STATION 4

Fig 26



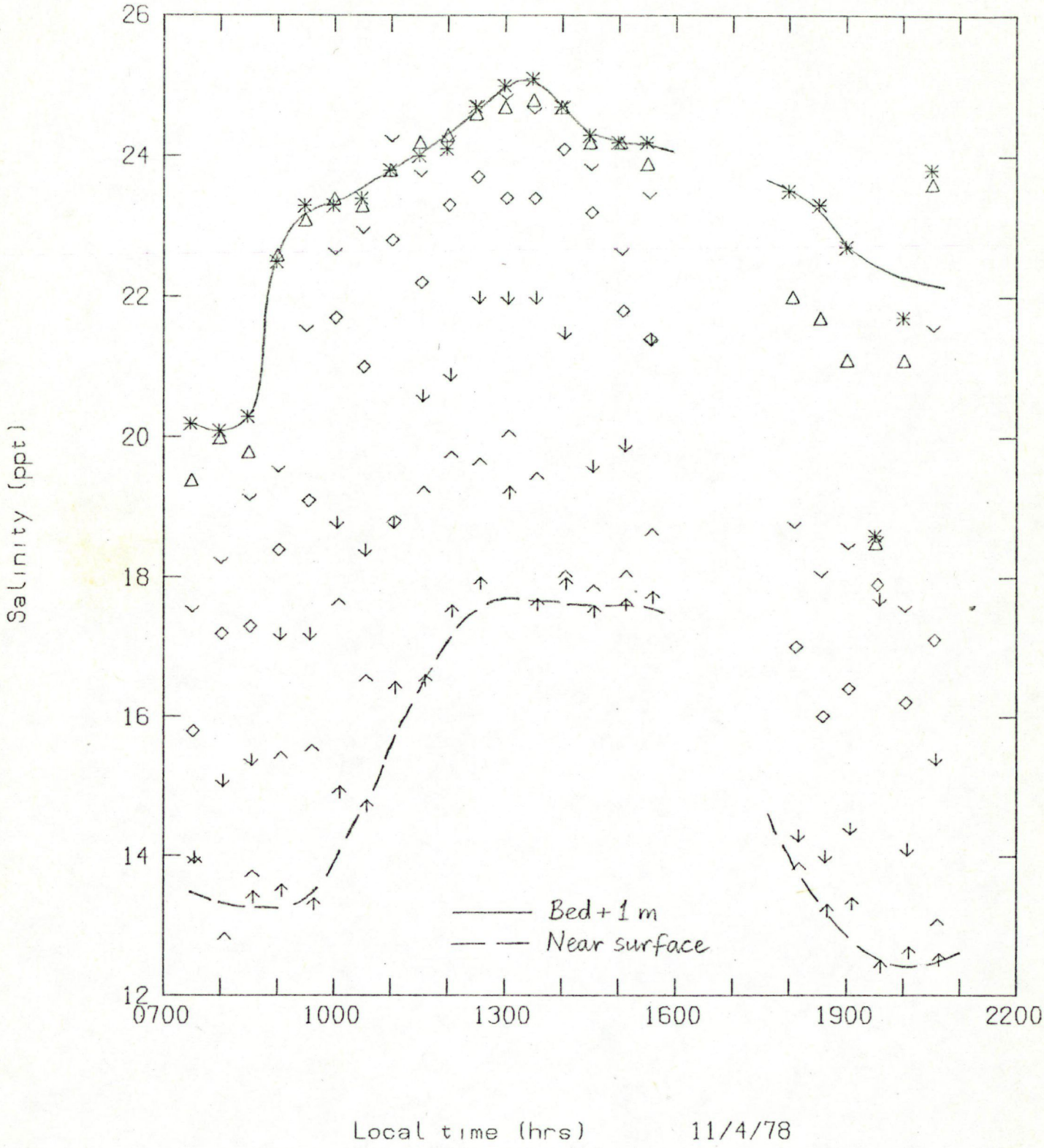
SALINITY AT STATION 5

Fig 27



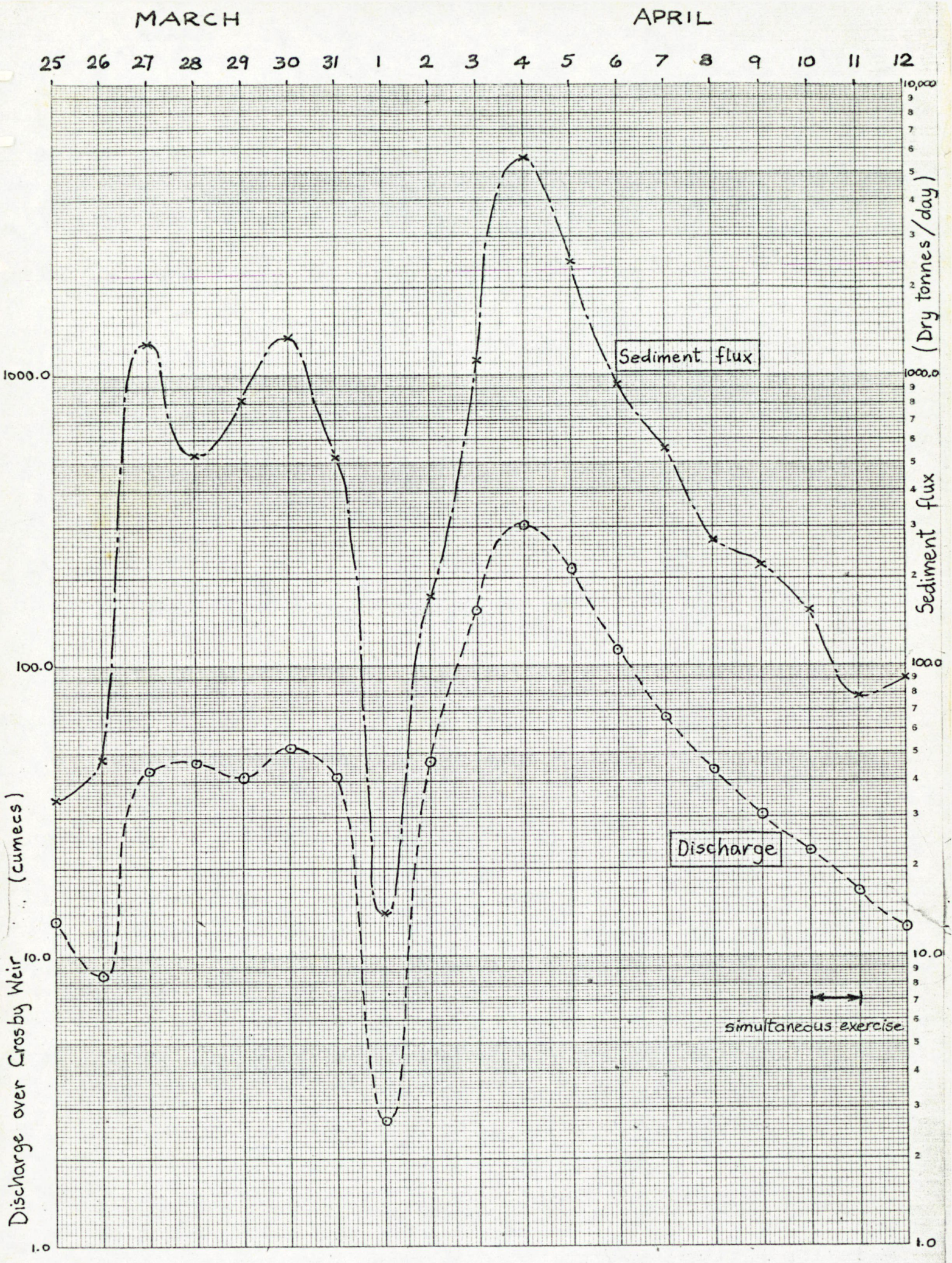
SALINITY AT STATION 6

Fig 28

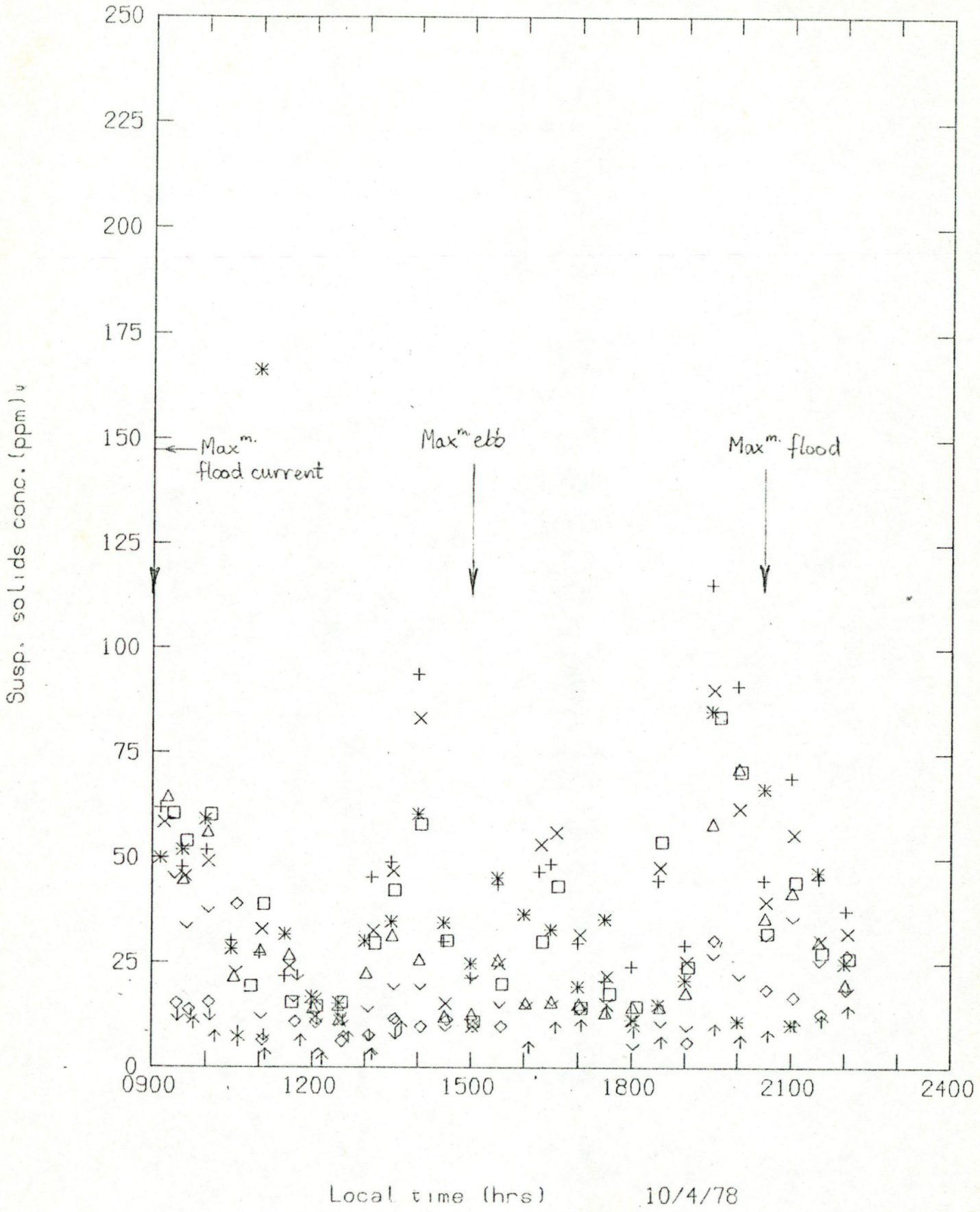


SALINITY AT STATION 7

Fig 29

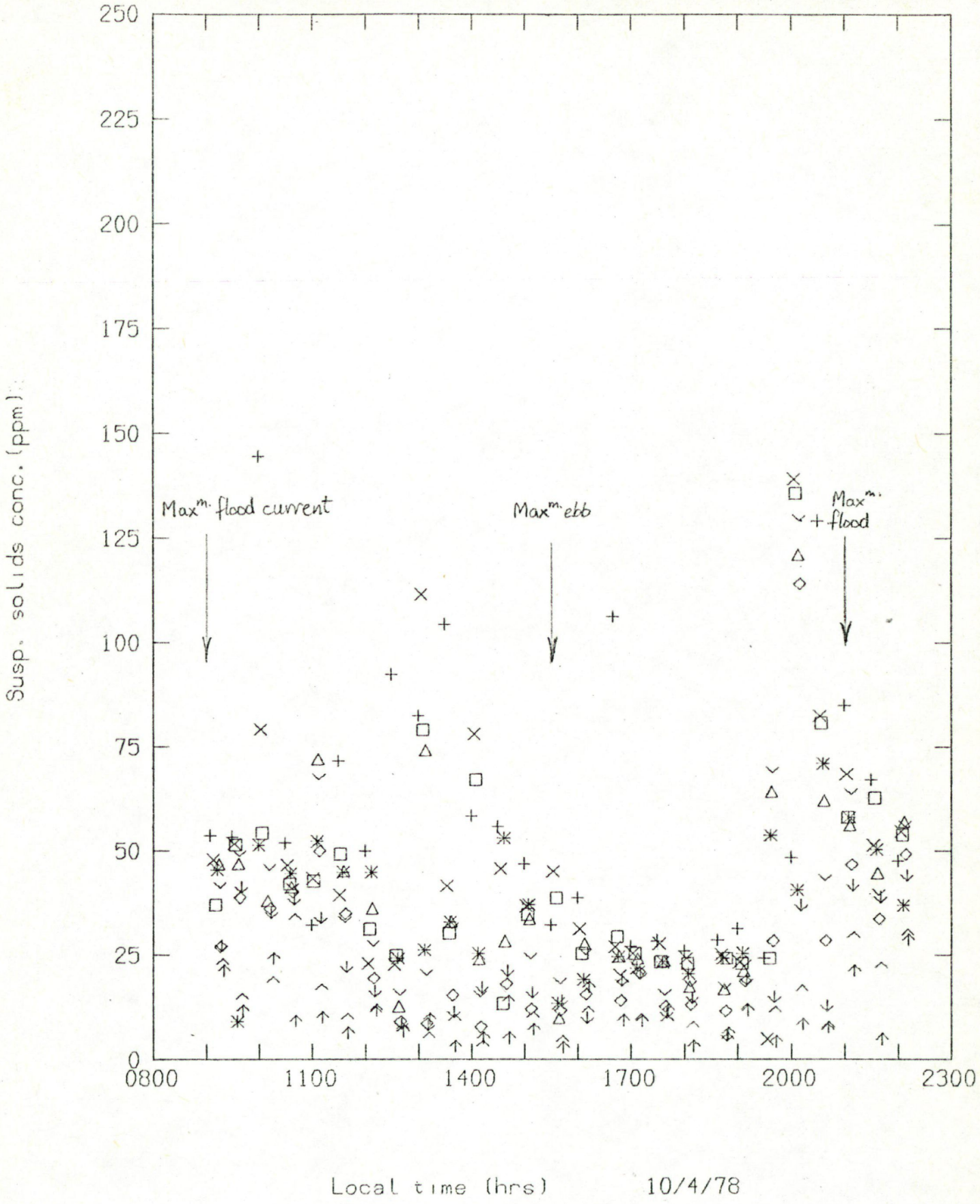


Estimated sediment flux over Crosby Weir during the fluvial flood of March/April 1978 Fig 30



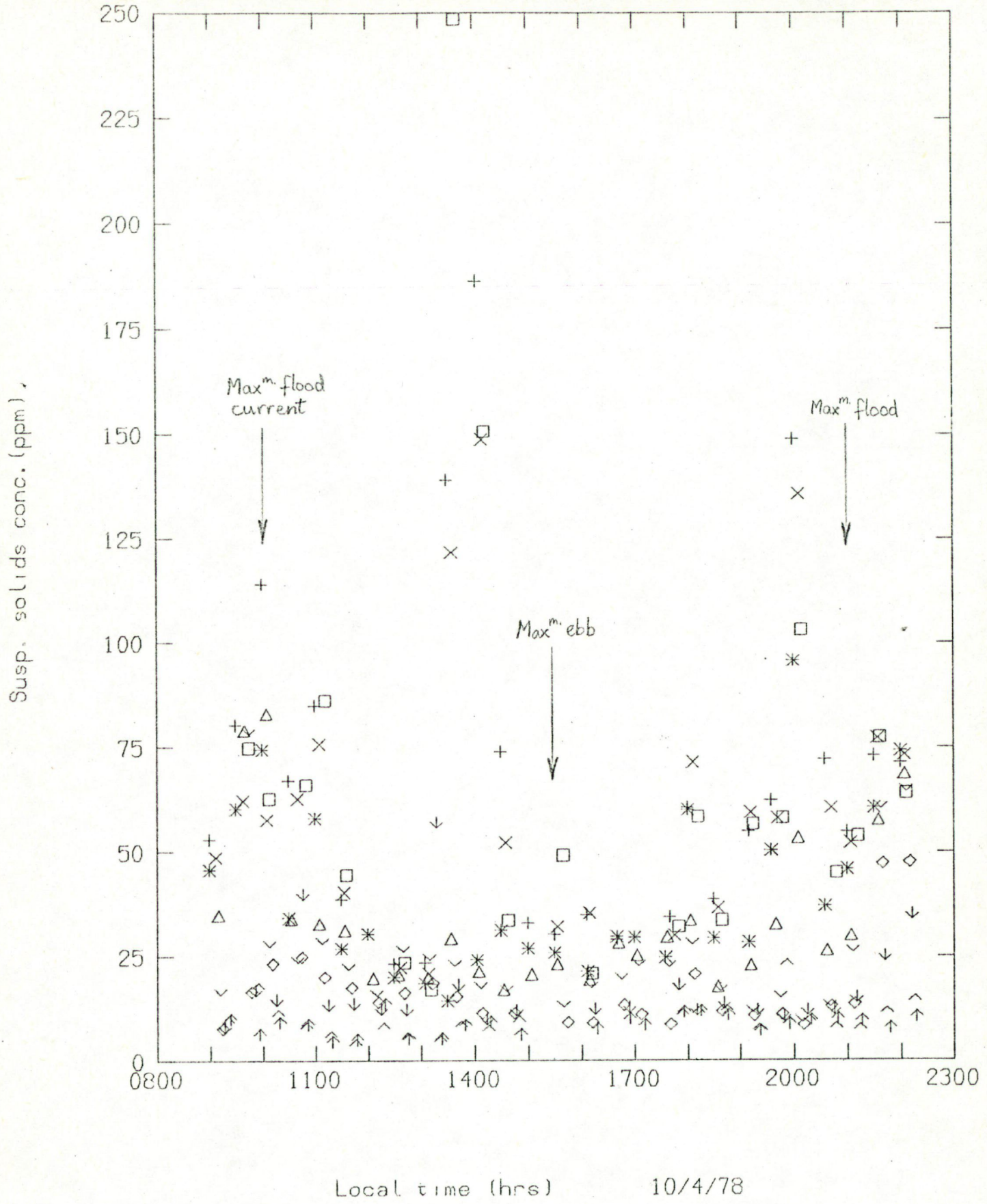
SUSPENDED SOLIDS CONCENTRATION AT STATION 2

Fig 31



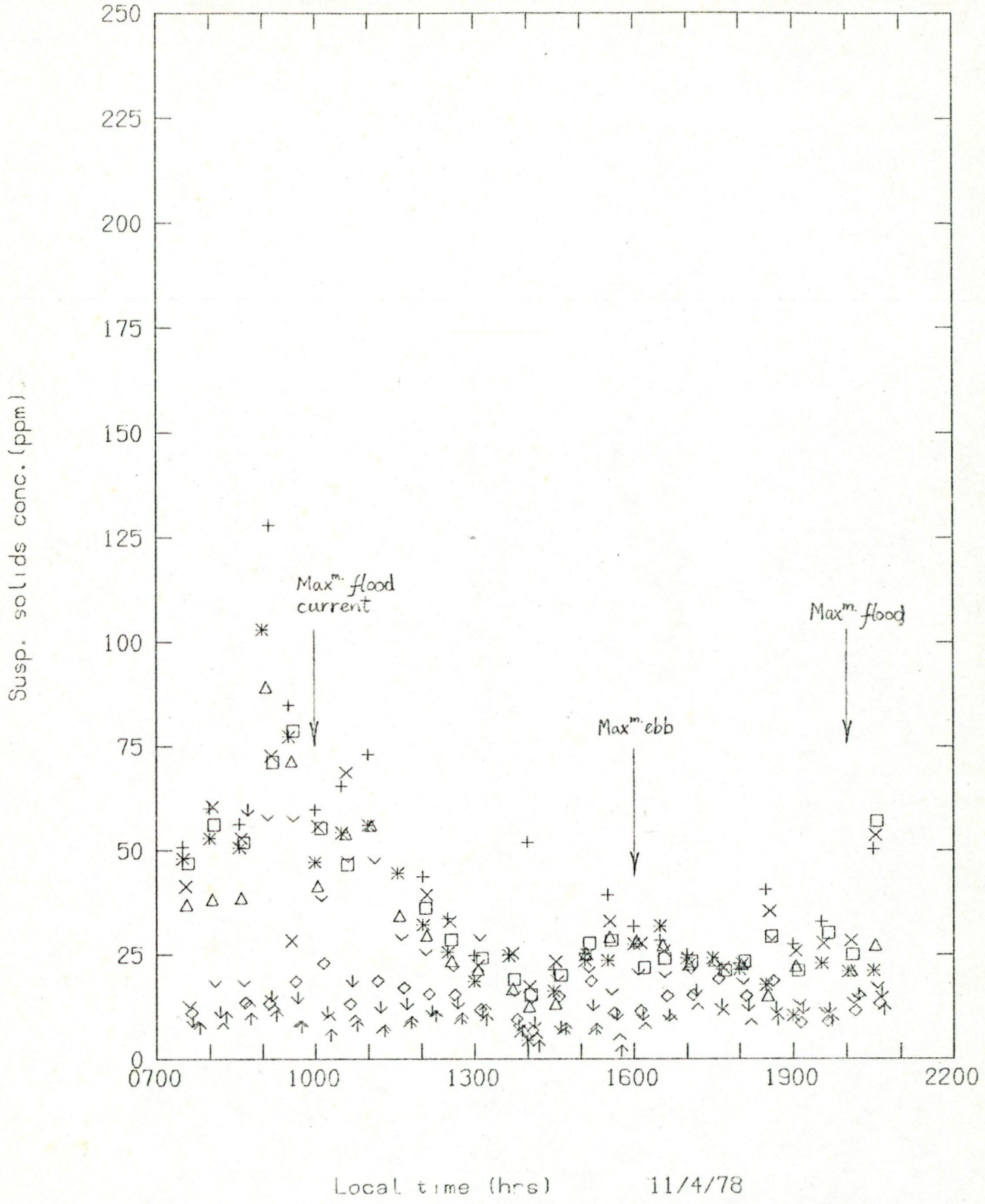
SUSPENDED SOLIDS CONCENTRATION AT STATION 3

Fig 32



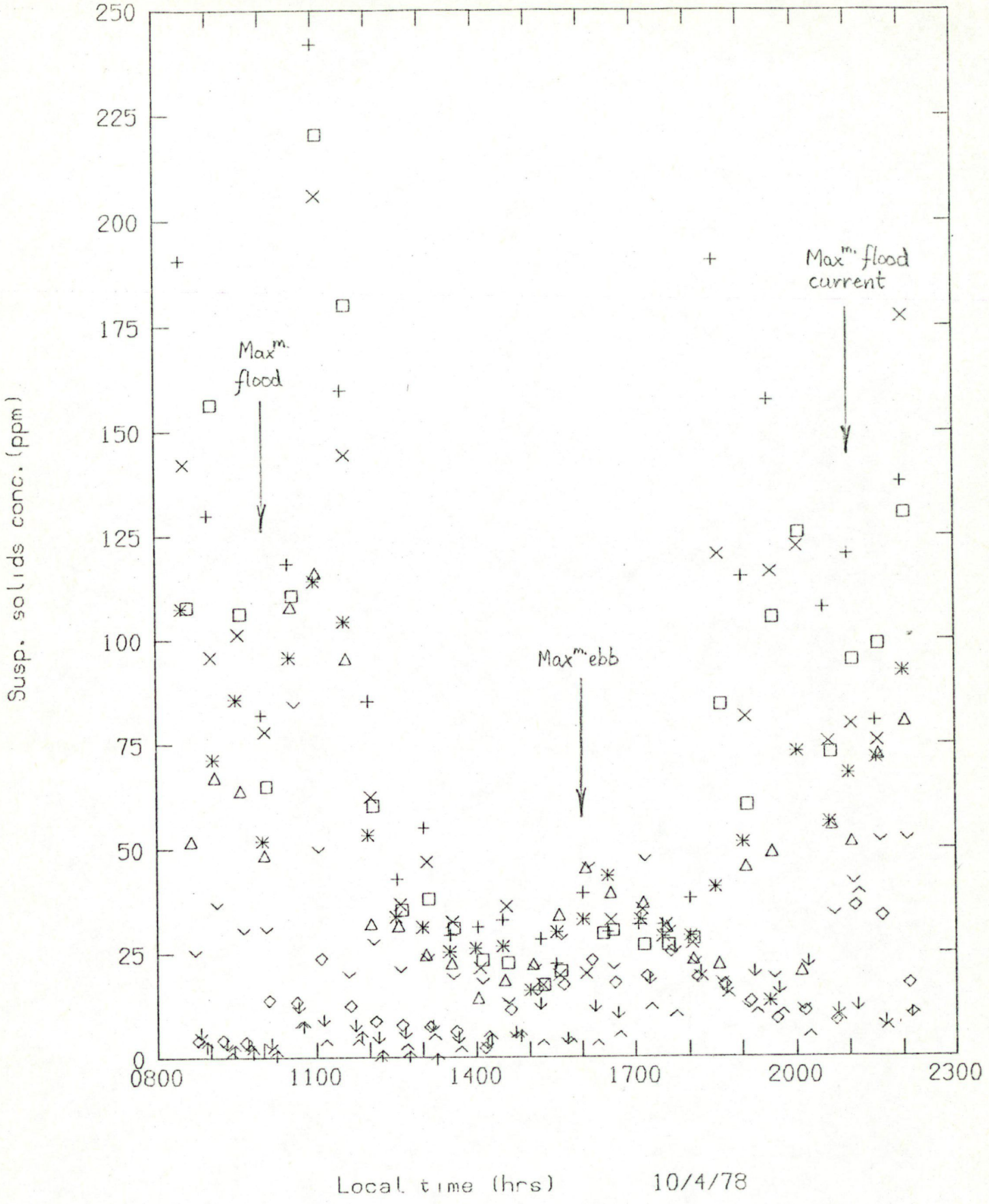
SUSPENDED SOLIDS CONCENTRATION AT STATION 4

Fig 33



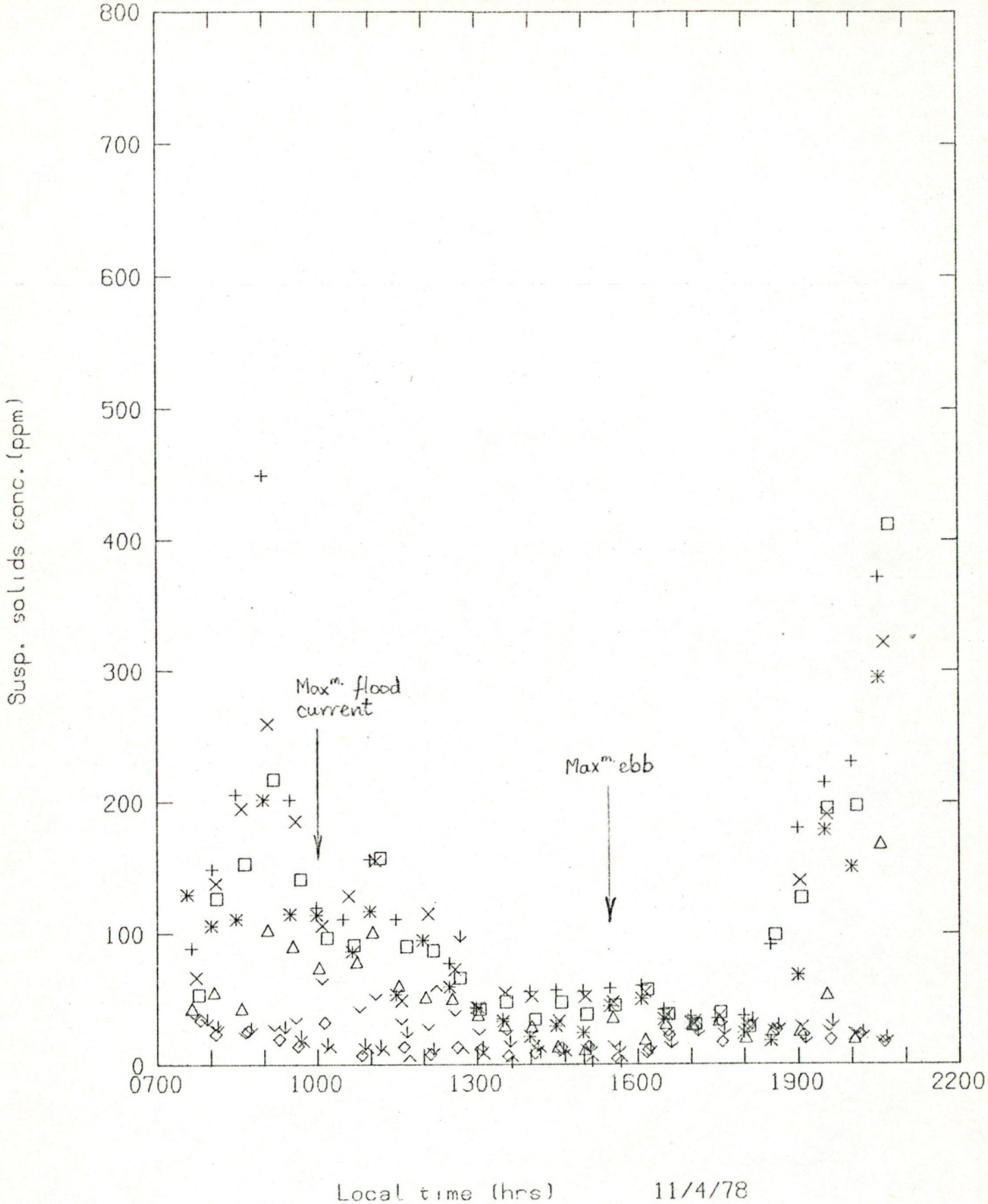
SUSPENDED SOLIDS CONCENTRATION AT STATION 4

Fig 34



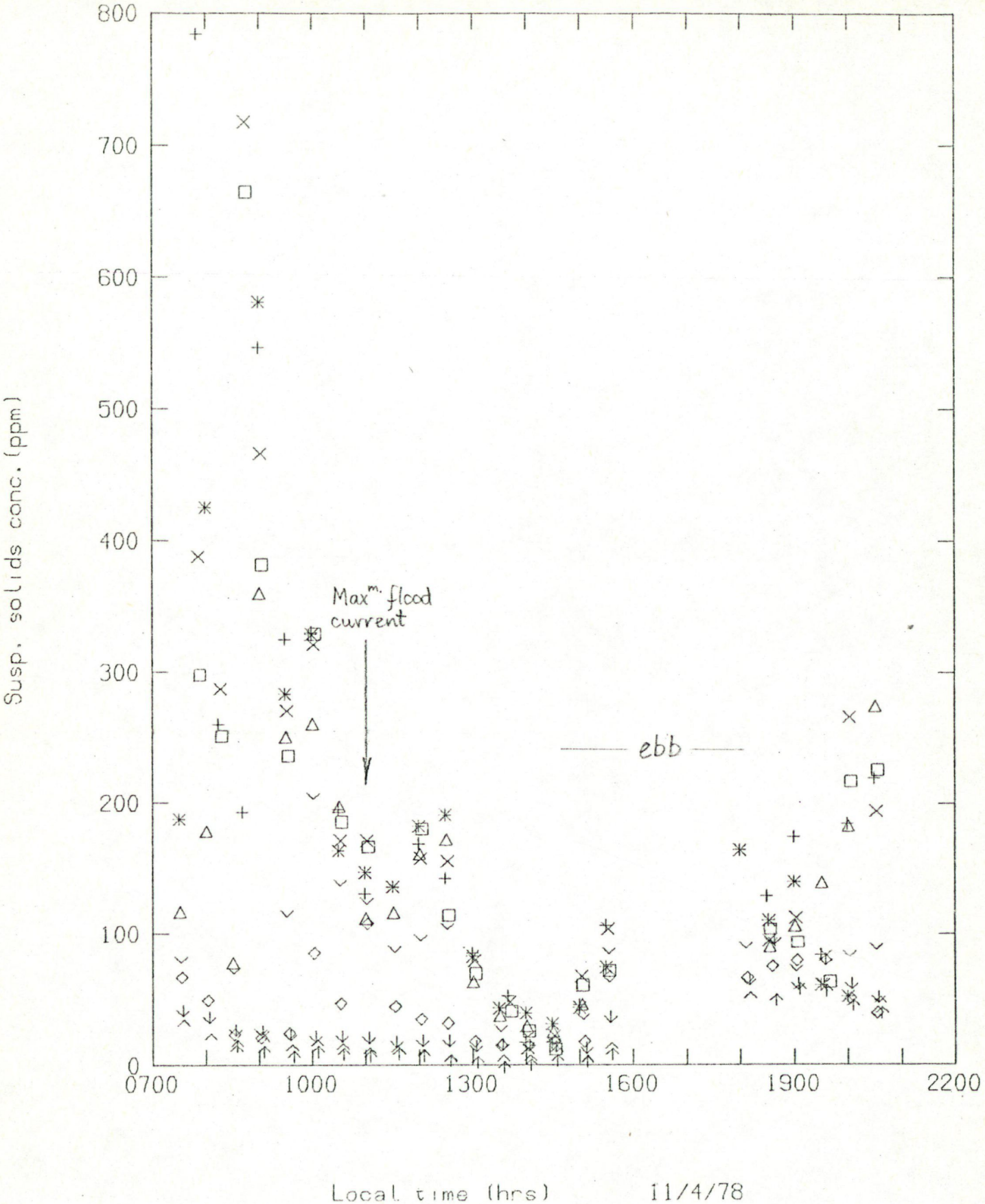
SUSPENDED SOLIDS CONCENTRATION AT STATION 5

Fig 35



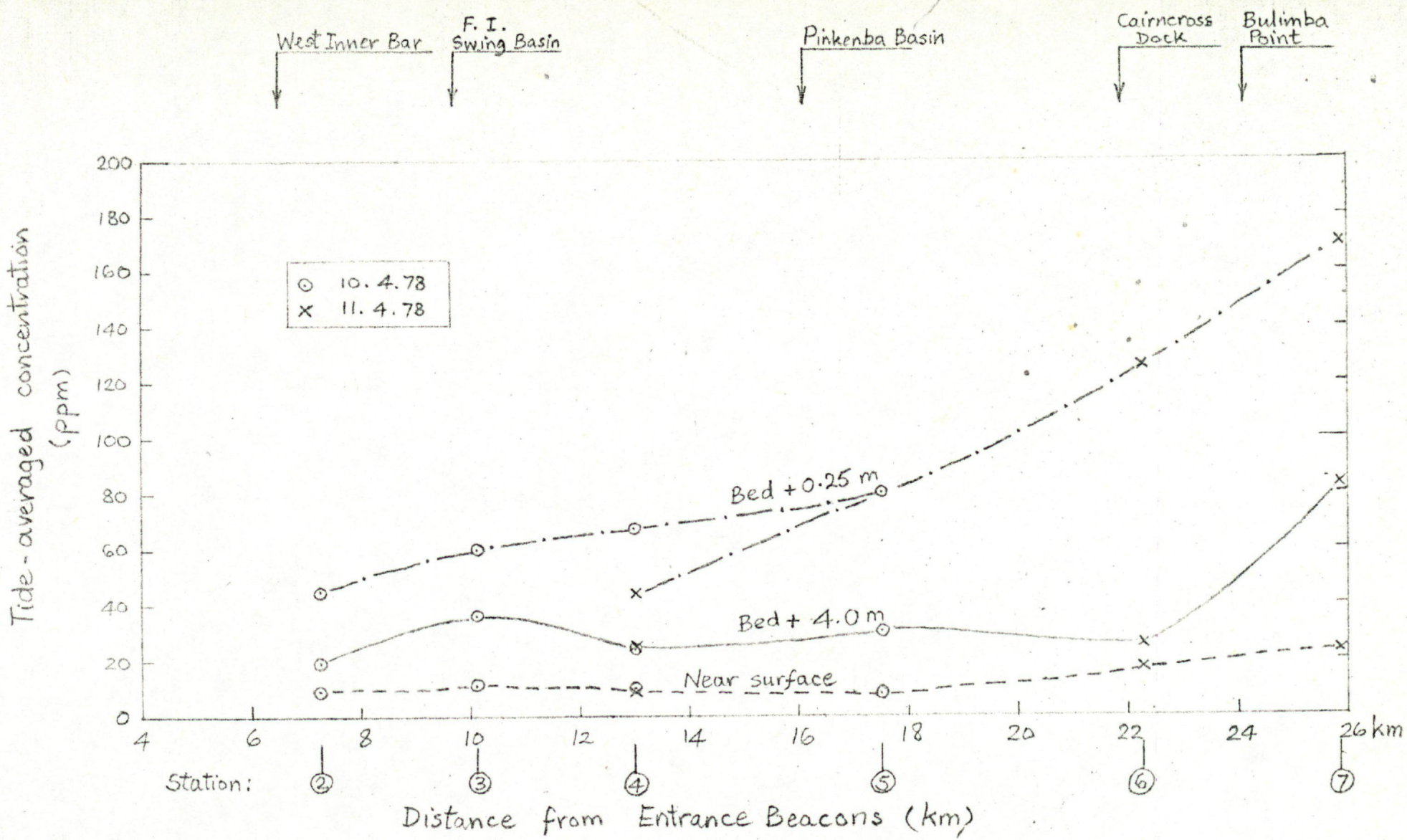
SUSPENDED SOLIDS CONCENTRATION AT STATION 6

Fig 36



SUSPENDED SOLIDS CONCENTRATION AT STATION 7

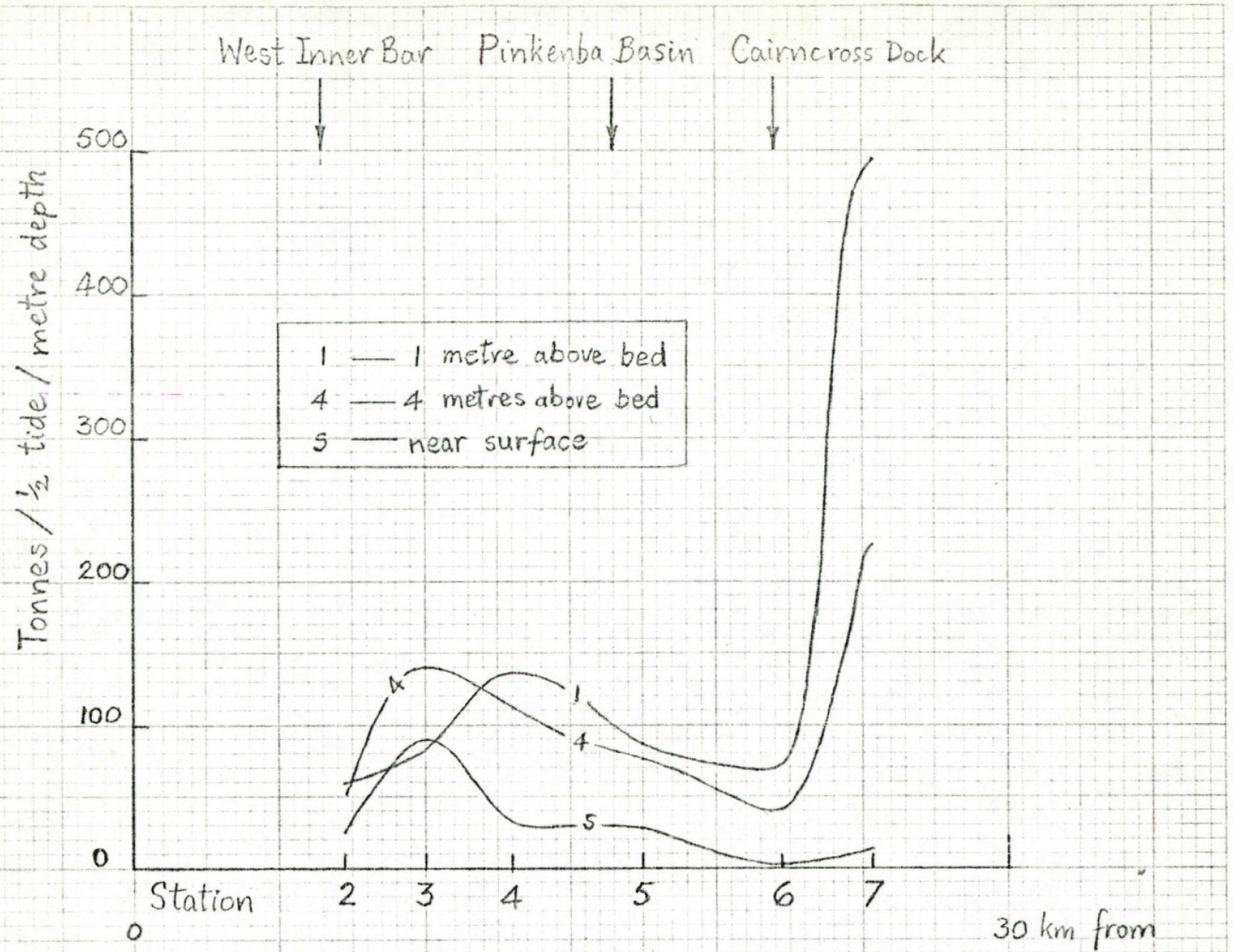
Fig 37



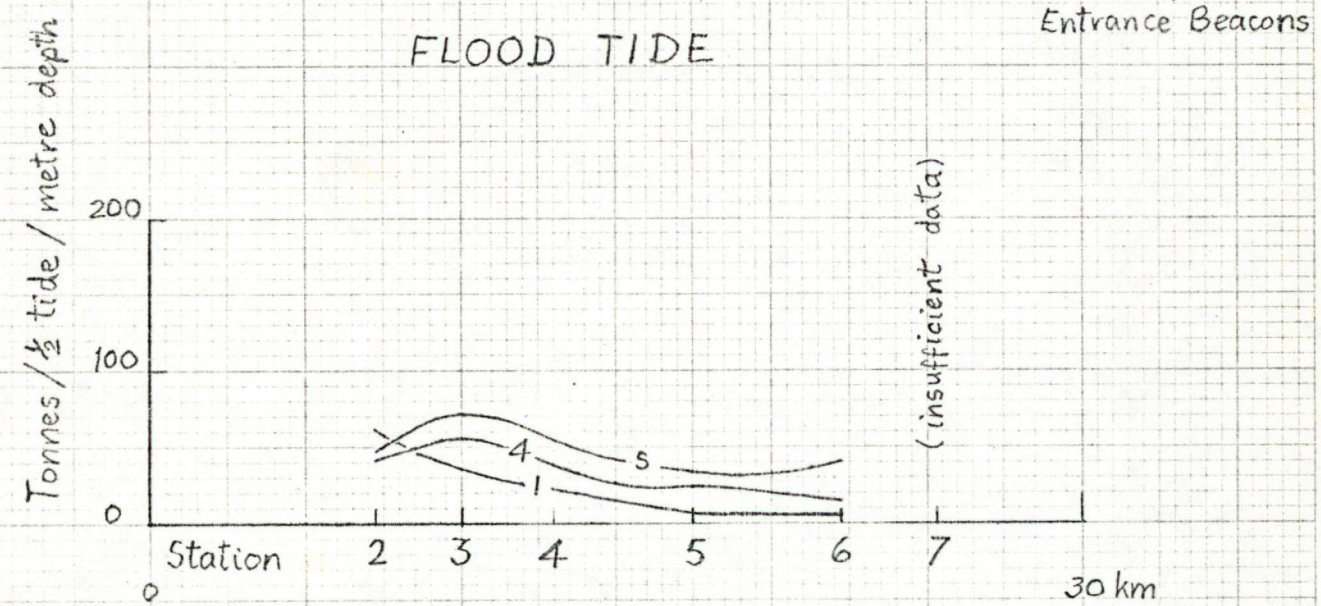
Tide-averaged concentrations at fixed stations

Fig 38

E.R.



FLOOD TIDE

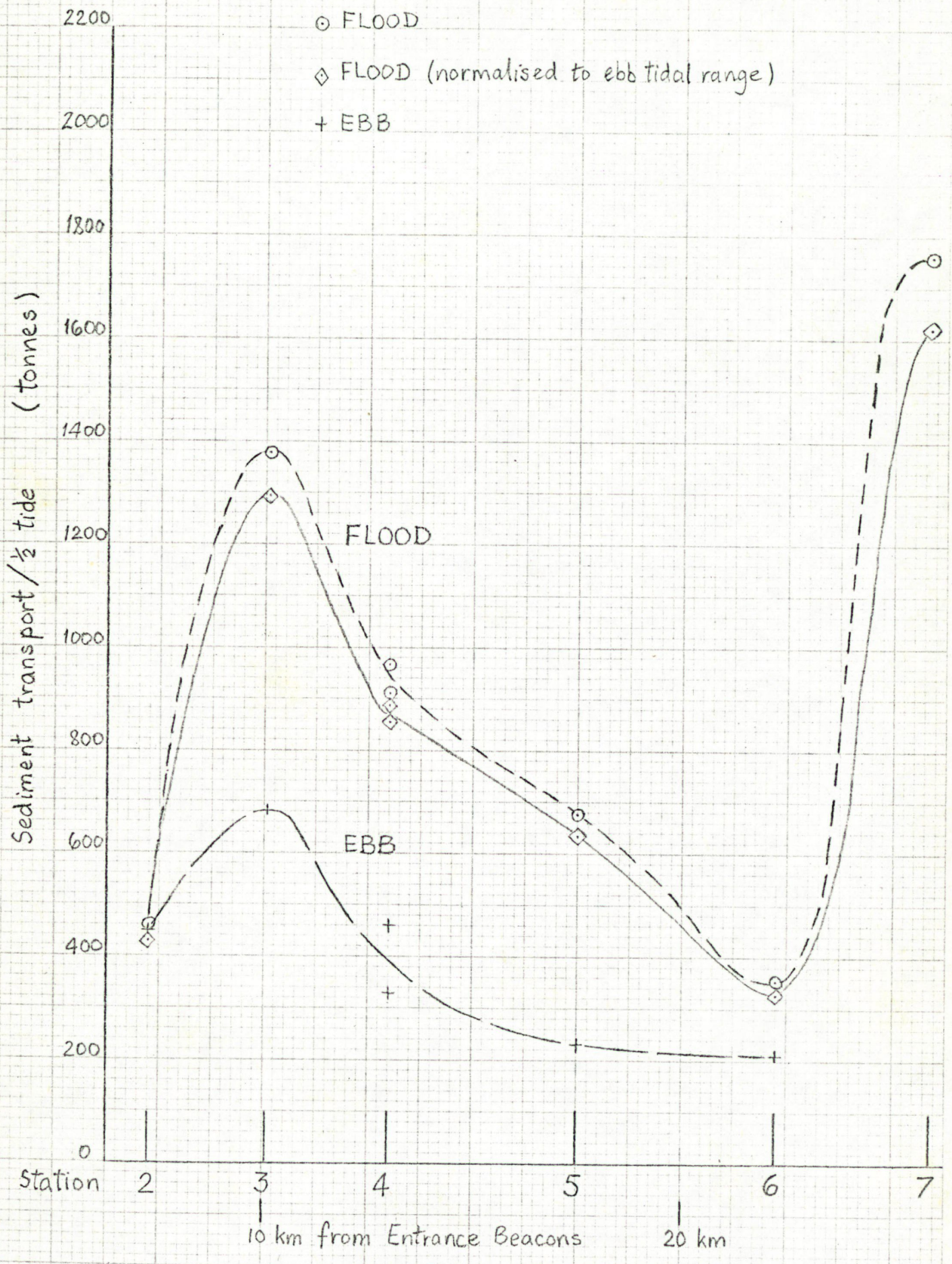


EBB TIDE

VERTICAL DISTRIBUTION OF SEDIMENT TRANSPORT AT FIXED STATIONS

Fig 39

E.R.



TOTAL SEDIMENT TRANSPORT AT FIXED STATIONS

Fig 40