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PORT OF BRISBANE SILTATION STUDY

First report: Dry-season simultaneous exercise 1977

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ABSTRACT Simultaneous observations of tidal propagation, salinity and suspended sediment transport were made in August 1977 during a period of low fluvial discharges in the Brisbane River as part of a comprehensive field and numerical model study to determine the hydraulic effects of port development at the mouth of the river at Fisherman Islands. The observations are described and analysed.

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INTRODUCTION

1 In January 1977, the newly formed Port of Brisbane Authority (PBA) commissioned the Hydraulics Research Station (HRS) to undertake a combined mathematical model and field investigation of sediment transport processes in the tidal reaches of the Brisbane River. The main objectives of the investigation were to predict the effect of engineering works associated with the new port developments at Fisherman Islands and of changes in dredging practices on siltation in the tidal river.

2 The field studies were to be undertaken by PBA with the help of specialised equipment and experts from HRS.

3 In February 1977, Mr R Carr of PBA visited HRS to discuss and plan the field data collection programme.

4 This report describes an intensive hydraulic survey made in the port area during a period of low fluvial flows in August 1977. The aim of this simultaneous exercise was to quantify the main features of tidal propagation, saline intrusion and the regime of sediment transport in the river during the dry-season. The results will also be used to prove and validate the multi-layer mathematical model.

THE BRISBANE RIVER

5 The Brisbane River rises to the north of Brisbane in the Brisbane range
Fig 1 and drains an area of about 13 560 km^2. As it flows to the coast to reach Moreton Bay at Brisbane, it is joined by Emu Creek, Stanley River, Lockyer Creek, the Bremer River and many smaller creeks. In the dry-season, which usually occurs from May to October, the average monthly rainfall at Brisbane is about 50-75 mm and the fluvial flows are low and can sometimes be only about one cumec (m^3/s). In the wet-season from January to March the average rainfall at Brisbane is about 165 mm per month and river flows increase, sometimes reaching several thousand cumecs. The area is subject to tropical cyclones and severe depressions which cause intense rainstorms in the catchment to the north of Brisbane.

THE OBSERVATIONS

6 The survey described here was the first of two surveys, one in the dry-season and one in the wet-season, which were to provide simultaneously observed data at several stations to prove and validate the mathematical models. The first set of observations were made during spring tides on 15 and 16 August 1977 when the fluvial flow in the river was very low – of the order of one cumec. A second simultaneous exercise is planned for the wet-season in 1978 with typical, high, summer fluvial flows.

7 Vertical profiles of velocity, salinity and suspended solids concentration
Fig 2 were recorded every 0.5 h for about 13 hours at 7 stations in the lower estuary. In order to reduce expenditure only 4 boats were used for this work. On 15 August, observations were made at Stations 1–4 and on 16 August observations were made at Stations 4–7. Station 4 was occupied on both days to act as a control. Station 7 was to the south of the centreline of the channel; all the others were to the north but within the channel boundary. The positions of the stations were as follows:–

15 August 1977

Station No	*Distance upstream from Entrance Beacons (km)*	
1	4.6	Entrance Channel
2	7.3	Upstream West Inner Bar Beacon
3	10.1	Swing Basin
4	13.0	Quarantine Flats

16 August 1977

4	13.0	Quarantine Flats
5	17.5	Eagle Farm Flats Cutting
6	22.3	Hamilton Reach
7	25.9	Bulimba Reach

8 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 3 levels were measured using a bed frame unit and the upper levels measured using a roving unit.

9 Plate I The bed frame consisted of a frame about 1.5 m high with a hinged arm on which a current meter, a sampling nozzle and a mud sensing switch were mounted. The height of the meter and nozzle was controlled from the attendant boat using a push-pull control cable which moved the arm vertically with respect to the frame.

10 Previous trials had shown that the bed of the river was sometimes composed of fluid mud, so a mud sensing device was used to accurately locate the sensing heads with respect to the bed of the river. Water velocities were measured with a Braystoke current-meter and 500 ml water samples were taken for subsequent analysis of suspended solids concentration and salinity.

11 A wire-suspended roving unit was used to sample the flow from 1.0 m to 10.0 m above the bed. This consisted of a streamline weight with a Seafarer echo-sounder, a current-meter, a sampling nozzle and a salinometer. The echo-sounder was used to measure the height of the sensors above the bed, the whole being wound up and down with a hand-winch mounted on a davit. 500 ml samples were again taken for subsequent analysis.

12 Fig 3 For the period of the exercise, tidal levels were recorded on automatic gauges at 9 stations in the river at the following sites:–

Station	*Distance from Entrance Beacons (km)*
1 West Inner Bar Beacon	6½
2 Pinkenba Wharf	16¾
3 Cairncross Dock	22
4 Port Office	31¾
5 Tennyson Power House	46¼
6 Pullen Creek	65¼
7 Moggill Ferry	80¾
8 Kholo Creek	88
9 Church Street, Tivoli, Ipswich (Bremer River)	91

Each gauge was visited at least once each day of the exercise and readings taken of the water level on the gauge board and also of the

water level on the automatic gauge in order that corrections could be made at a later date if necessary. Time checks were also made.

13 Ref 1 Plate II Concurrent with the observations at the fixed stations, observations were made in the estuary with a Rapid Drop Profiler (RDP). This instrument, which was developed at HRS, measures salinity, suspended solids, temperature and water depth and displays these parameters on two x-y graph plotters on board the vessel which carries the instrumentation. In normal use the RDP is lowered through the water at a controlled rate of approximately 0.3 m/s, which is well within the response times of the sensors. The lowering rate means that for a 25 m depth range a profile is obtained in about 1½ minutes and this very short time enables the profile to be obtained without anchoring the vessel, since its drift in this time is generally small. The use of this instrument with a high speed launch gives a rapid means of observing the longitudinal and lateral variations in salinity and suspended solids concentrations.

14 Fig 3 For the exercise, the estuary was divided into two parts above and below the University of Queensland at St Lucia. On the first day of the exercise observations were confined to the lower part of the estuary.

15 Fig 3 The first run with the RDP was carried out on the flood tide when the boat left Middle Cutting Beacon at about LW + 3h (low water at Brisbane Bar). Drops were made at 1½ km intervals as far as the University. The boat then returned to Middle Cutting Beacon to wait for the maximum ebb currents when it returned upstream into the ebb tide as far as the University. A further run on the evening flood tide was made, since the first flood tide run had started a little late for the expected maximum currents. The time taken for each run was about 2½ hours and an average of about 23 profiles taken.

16 Fig 3 On the second day of the exercise runs were made in the upstream section of the river between the University and Bremer Junction. Commencing at the University, 28 profiles were obtained on the flood tide in the 42 km up to the Bremer Junction in about 1½ hours. The boat then returned to the University before returning upstream on the ebb tide as far as the Bremer Junction. Fewer profiles were taken at greater intervals because of failing light and danger from flotsam that was more prevalent in the upper part of the river.

RESULTS

17 A computer listing of the data from the 7 fixed stations is shown in the Appendix. In some cases, the raw data had to be corrected for errors. For example, some of the salinity readings recorded were obviously too high and they were corrected using data from the RDP.

18 A further computer listing in the Appendix gives the tidal levels recorded at the 9 tidal level stations every ½ hour throughout the period 0000 h 15 August 1977 to 2330 h 16 August 1977. These levels are in metres relative to Australian Height Datum (AHD).

19 This chapter has been divided into 4 sections dealing with:–

i) The tides.
ii) Velocities.
iii) Salinities.
iv) Suspended solids concentrations.

The tides

20 The tidal regime in the estuary is a "mixed" one with significant diurnal and semi-diurnal constituents. A detailed analysis of the tidal regime is the subject of the third report in this series. The observations were made during mean spring tides which were almost identical on the successive days of the exercise.

21 The phase difference (lag) in the time of HW increases along the tidal river. At Kholo Creek HW was exactly 3 hours later than at West Inner Bar on 15 August for both morning and afternoon tides whilst on 16 August the lag was 3 h 6 min. This phase lag is equivalent to a speed of propagation of about 8 m/s. The lag in the time of LW was increased up the river, with Kholo Creek LW lagging that at West Inner Bar by about 3½ hours on both days of the exercise, equivalent to a speed of propagation of about 7 m/s.

Tables 1,2

22 Whilst the difference in the speed of propagation of HW and LW indicates some shallow water effect, there was no significant distortion of the tide in the landward reaches.

23 Tidal ranges along the estuary varied by about 0.4 m. The greatest range (2.2 m) was near Cairncross Dock (about km 25) and the smallest at Pullen Creek (km 65). The tidal range at Pullen Creek was about 0.8 of that in the port area for both days of observations. There was an increase in tidal range in the higher reaches of the estuary from Pullen Creek to Kholo Creek which may have been due to a resonance effect or a reflection from the landward end of the estuary.

Figs 4,5

24 The highest water levels in the river occurred at Kholo Creek reaching +1.5 m AHD on 15 August – some 0.5 m higher than at West Inner Bar Beacon. This agrees with observations carried out in 1974 by the University of Queensland.

Fig 6
Ref 3

25 A discrepancy occurred in the water levels at Moggill Ferry and has not yet been resolved.

Velocities

26 The tidal velocities measured at the 7 fixed stations on 15 and 16 August have been plotted against time with the computed area-average velocity for these days from the bulk-flow mathematical model shown dotted for comparison. The recorded tide at West Inner Bar is also shown. For clarity, velocities are also shown for only 4 heights above the bed but all the velocities recorded during the exercise are listed in the Appendix.

Figs 7-14

27 Peak velocities did not exceed 1.0 m/s and they showed little variation with distance in the port area except at Stations 6 and 7 where the maximum was only 0.6 m/s. There was little difference between maximum ebb or flood velocities. Evidence of longitudinal density gradients and inertia effects in the port area of the estuary can be seen in the velocity-time diagrams in the changeover times from ebb tide to flood tide where the surface velocity continues in an ebb direction for some time after the bed velocity has changed into the flood direction. Similarly on the change from flood to ebb tide the bed velocities lag the surface velocities by up to 50 minutes.

Salinities

28 Very low river flows had obtained for several months prior to the exercise period and conditions were such that saline intrusion was at or near its maximum.

29 The salinity in the river varied from 34 ppt at the mouth to 1.5 ppt at Bremer Junction some 82 km above the Entrance Beacons.

Fig 15

30 The intertidal variation at the fixed stations varied between 2 to 4 ppt and the maximum instantaneous difference in bed and surface salinities never exceeded 2.5 ppt at any station indicating that the estuary was in a well-mixed condition.

Figs 16-23

Salinity variations

Station	*km from EBs*	*Maximum bed-surface difference* ppt	*Intertidal difference in mean salinity* ppt	*Tide-averaged salinity* ppt
1	4.6	0.8	2.0	34.0
2	7.3	1.1	2.0	33.5
3*	10.1	2.5	4.0	32.75
4	13.0	1.9	3.0	32.0
4	13.0	1.2	3.0	32.0
5	17.5	2.5	4.0	31.0
6	22.3	1.5	3.0	29.75
7	25.9	1.9	4.0	28.25

*Some readings suspect at this station.

31 Fig 15 Ref 3 The longitudinal salinity profile shows the limit of saline intrusion to be about 70 km above the Entrance Beacons which is slightly further upstream than that observed in August and September 1974 when the limit of saline intrusion was at about 61 km above the Entrance Beacons. The increased intrusion was probably due to the unusually low fluvial flows in 1977.

Suspended solids transport

32 Figs 24-32 In the estuary the suspended solids concentrations recorded at the fixed stations and with the RDP were all less than 200 ppm. Between Stations 1–4 they were less than 50 ppm.

33 Fig 33 At the fixed stations there was a gradient in the landward direction shown by the tide-averaged concentration both near the bed and at the surface indicating very small quantities of sediment in motion at the mouth of the river and larger quantities upstream. These amounts are quantified later in this section.

34 Fig 24 The solids concentrations indicated from the RDP observations do not necessarily indicate the highest concentrations at each location as they were only recorded at certain instants during the tidal cycle and the peak values were almost certainly missed. However, the recorded values are considered to be a good indication of the longitudinal distribution of suspended solids concentration in the estuary during spring tides and low fluvial flows.

35 Figs 34,35 The flux of suspended solids has been calculated for each of the fixed stations in the lower estuary. These calculations show that in the port area most of the transport on the ebb tide takes place near the surface whereas on the flood tide much greater quantities are transported in the first 4 metres above the bed. This is caused by the gravitational circulation which is driven by the longitudinal density gradient. It causes a net landward transport of saline water near the bed, with a compensating net flow of brackish water leaving the estuary in the surface layers.

36 Fig 35 The rate of transport of suspended solids increased from about 200 tonnes/half tide at the mouth of the river to about 500 tonnes/half tide in the Pinkenba-Hamilton Reach area and then reduced slightly in the Bulimba Reach. In Fig 35 the flood transport has been normalised to the ebb tidal range for a better comparison of the successive half tides. Comparison of the ebb and flood transport rates indicates that in the main port area the quantity of sediment transported on the flood tide is about 20% greater than that transported on the ebb tide.

37 It is expected that the flood transport of sediment will exceed the ebb transport in the estuary where saline intrusion exists and therefore in the low fluvial flow condition deposition is expected in the middle estuary

near the toe of the saline intrusion. As fluvial flows increase and the limit of saline intrusion recedes, the depositional area will correspondingly move seawards.

DISCUSSION AND CONCLUSIONS

38 The exercise showed that in the dry-season, in the absence of intensive wave action, very little mud enters the estuary from Moreton Bay and that any siltation is due to a redistribution of sediment already in the river system. It is almost certain that most of the sediment causing siltation in the estuary enters the system during fluvial floods and is then redistributed during the ensuing drier periods.

39 The main factors of tidal propagation that affect sediment transport in the Brisbane River are that it propagates very rapidly through the relatively deep port area so that the currents near the bed in the whole of the port area (seaward of Bulimba Reach) change direction within a half hour period. The maximum, depth-mean, tidal velocity during spring tides was about 0.6 m/s on both the flood and ebb tides throughout the length of the estuary when there was negligible fluvial flow.

40 During low fluvial flows the estuary is in a well-mixed condition with very small variations of salinity throughout the depth. The longitudinal salinity gradient generates a small but significant gravitational flow in the landward direction at the bed and a seaward direction at the surface in the port area. This type of gravitational circulation usually has a null point near the toe of the saline intrusion which was near Pullen Creek in this case.

41 The suspended solids concentrations during spring tides in the port area were low. The maximum value recorded was about 200 ppm. The tide-averaged concentrations at all depths increased in the upstream direction. Mud appeared to be only scoured from the bed during the early stages of the flood and ebb tides indicating there was a weak muddy deposit of limited thickness on the bed of the river overlying consolidated mud. The flux of suspended mud passing each section during the flood and ebb phases of the tide was calculated at three levels. This showed a tendency for a net upstream movement of suspended sediment near the bed and a seaward movement near the surface in the port area. This circulation of suspended mud is a result of the afore-mentioned gravitational circulation. The circulation tends to hold suspended mud in the middle and upper reaches of the estuary in the dry-season leaving clearer water downstream. It could also cause a net transport of mud from the lower to upper reaches of the estuary. The currents were strong enough to transport some of the finest sand fractions if they were exposed at the surface.

42 The exercise provided a good set of field data for proving the mathematical model for the conditions in the dry-season.

ACKNOWLEDGEMENTS

These field observations, of which this is the official Hydraulics Research Station account, were made as part of a study being carried out in Mr D R P Farleigh's Estuaries Division by Mr N V M Odd's section. The results were analysed and the report was written by Mr K Mann. The observations were planned and supervised by Messrs C J Teal and A Winters of Mr M J Crickmore's Field Studies Section in association with Mr K Mann. HRS would like to express appreciation to the Port of Brisbane Authority for their co-operation in the field exercise.

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2 Rankin R O. Salinity and dissolved oxygen investigations and simulation in the Brisbane River. MSc Thesis, Dept of Physics, University of Queensland.

3 Communication from Port of Brisbane Authority, 1977.

APPENDIX – FIELD RESULTS

Part 1 – Data from fixed stations 15/16 August 1977

Part 2 – Recorded tidal levels

Appendix — Field Results

Part 1 Data from fixed stations 15/16 August 1977

Date	Station	Time	Height above bed (m)	S.S. Conc^{n} (ppm)	Salinity (ppt)	Velocity (m/s)
15 08 77	1	0805	.25	8,75	.	0,06
15 08 77	1	0810	.50	11,00	.	0,10
15 08 77	1	0815	.75	10,75	.	,11
15 08 77	1	0815	1,00	2,75	34,9	0,20
15 08 77	1	0820	2,00	.	34,2	0,23
15 08 77	1	0835	.25	7,50	.	0,13
15 08 77	1	0840	.50	9,50	.	0,10
15 08 77	1	0844	.75	5,75	.	0,13
15 08 77	1	0841	1,00	2,50	34,5	,18
15 08 77	1	0847	2,00	2,25	34,1	,10
15 08 77	1	0850	4,00	3,50	34,00	,17
15 08 77	1	0852	6,00	3,25	35,1	,16
15 08 77	1	0855	8,00	1,75	35,6	,16
15 08 77	1	0858	10,00	3,00	34,00	,23
15 08 77	1	0903	.25	7,25	.	,04
15 08 77	1	0812	.50	1,00	.	,02
15 08 77	1	0917	.75	6,00	.	,06
15 08 77	1	0935	.25	7,25	.	,01
15 08 77	1	0937	.50	5,25	.	,02
15 08 77	1	0940	.75	6,75	.	,02
15 08 77	1	0935	1,00	2,50	35,00	,03
15 08 77	1	0940	2,00	2,50	35,00	,01
15 08 77	1	0942	4,00	1,00	34,4	,02
15 08 77	1	0944	6,00	0,50	34,8	,01
15 08 77	1	0947	8,00	4,50	34,5	,02
15 08 77	1	0949	9,50	2,75	34,9	,06
15 08 77	1	1004	.25	16,25	.	,01
15 08 77	1	1015	.50	.	.	,00
15 08 77	1	1020	.75	.	.	,00
15 08 77	1	1003	1,00	5,25	35,00	,03
15 08 77	1	1006	2,00	3,25	35,0 -	,02
15 08 77	1	1009	4,00	3,00	34,4	0,00
15 08 77	1	1012	6,00	1,50	34,4 -	,02
15 08 77	1	1014	8,00	2,25	34,1 -	,00
15 08 77	1	1024	9,00	1,00	34,6 -	,02
15 08 77	1	1041	.25	7,25	.	0,00
15 08 77	1	1044	.50	3,50	.	0,00
15 08 77	1	1045	.75	7,25	.	0,00
15 08 77	1	1033	1,00	3,25	34,6 -	,01
15 08 77	1	1036	2,00	2,25	34,5 -	,03
15 08 77	1	1038	4,00	3,50	34,9 -	,06
15 08 77	1	1041	6,00	1,50	34,1 -	,11
15 08 77	1	1044	8,00	3,00	34,2 -	,07
15 08 77	1	1047	9,20	1,25	35,0 -	,07

Date	Station	Time	Height above bed (m)	S.S. Conc^{n} (ppm)	Salinity (ppt)		Velocity (m/s)
15 08 77	1	1106	.25	6.75	.	-	.01
15 08 77	1	1107	.50	6.75	.	-	.06
15 08 77	1	1110	.75	7.25	.	-	.07
15 08 77	1	1101	1.00	2.25	34.4	-	.14
15 08 77	1	1103	2.00	1.75	34.5	-	.17
15 08 77	1	1106	4.00	3.50	34.6	-	.12
15 08 77	1	1110	6.00	1.75	34.5	-	.14
15 08 77	1	1111	8.00	5.25	34.5	-	.17
15 08 77	1	1115	9.00	1.75	35.1	-	.20
15 08 77	1	1135	.25	6.75	.	-	.09
15 08 77	1	1140	.50	3.00	.	-	.12
15 08 77	1	1145	.75	.	.	-	.15
15 08 77	1	1154	1.00	1.50	34.6	-	.30
15 08 77	1	1154	2.00	6.00	35.1	-	.36
15 08 77	1	1155	4.00	2.75	34.0	-	.35
15 08 77	1	1159	6.00	1.00	35.9	-	.39
15 08 77	1	1200	8.00	2.25	35.1	-	.40
15 08 77	1	1204	8.75	2.50	34.2	-	.33
15 08 77	1	1200	.25	6.25	.	-	.17
15 08 77	1	1202	.50	6.50	.	-	.25
15 08 77	1	1204	.75	7.25	.	-	.23
15 08 77	1	1230	.25	5.75	.	-	.22
15 08 77	1	1233	.50	5.25	.	-	.23
15 08 77	1	1235	.75	4.00	.	-	.27
15 08 77	1	1230	1.00	4.00	34.5	-	.26
15 08 77	1	1234	2.00	6.25	34.0	-	.31
15 08 77	1	1236	4.00	4.50	34.4	-	.40
15 08 77	1	1238	6.00	12.25	34.4	-	.47
15 08 77	1	1241	8.00	3.00	35.9	-	.41
15 08 77	1	1242	8.50	1.00	34.2	-	.47
15 08 77	1	1302	.25	4.00	.	-	.22
15 08 77	1	1304	.50	4.75	.	-	.30
15 08 77	1	1306	.75	4.00	.	-	.28
15 08 77	1	1300	1.00	4.75	34.0	-	.37
15 08 77	1	1303	2.00	4.75	35.9	-	.43
15 08 77	1	1306	4.00	7.75	35.9	-	.53
15 08 77	1	1308	6.00	3.75	35.9	-	.62
15 08 77	1	1310	8.00	3.25	35.8	-	.66
15 08 77	1	1311	8.25	8.75	35.6	-	.68
15 08 77	1	1331	.25	0.50	.	-	.24
15 08 77	1	1333	.50	1.75	.	-	.28
15 08 77	1	1336	.75	9.00	.	-	.29
15 08 77	1	1330	1.00	15.00	35.1	-	.44
15 08 77	1	1333	2.00	14.00	35.6	-	.52
15 08 77	1	1336	4.00	12.75	35.5	-	.59
15 08 77	1	1339	6.00	10.50	35.5	-	.62
15 08 77	1	1341	8.00	9.00	35.5	-	.65
15 08 77	1	1400	.25	3.50	.	-	.32
15 08 77	1	1402	.50	9.00	.	-	.36
15 08 77	1	1405	.75	6.50	.	-	.32
15 08 77	1	1411	1.00	18.50	35.9	-	.53
15 08 77	1	1413	2.00	15.75	35.8	-	.59
15 08 77	1	1416	4.00	16.50	35.5	-	.64
15 08 77	1	1420	6.00	.	35.2	-	.72
15 08 77	1	1425	7.75	.	35.2	-	.76
15 08 77	1	1430	.25	3.75	.	-	.23
15 08 77	1	1432	.50	6.50	.	-	.30
15 08 77	1	1434	.75	6.25	.	-	.35
15 08 77	1	1431	1.00	.	35.5	-	.49
15 08 77	1	1433	2.00	.	35.4	-	.52

Date	Station	Time	Height above bed (m)	S.S. Conc^{n} (ppm)	Salinity (ppt)	Velocity (m/s)
15 08 77	1	1455	4.00	.	35.5	- .62
15 08 77	1	1459	6.00	.	35.5	- .71
15 08 77	1	1441	7.75	.	35.0	- .77
15 08 77	1	1503	.25	3.50	.	- .22
15 08 77	1	1505	.50	8.50	.	- .32
15 08 77	1	1507	.75	0.50	.	- .34
15 08 77	1	1501	1.00	12.50	35.1	- .46
15 08 77	1	1505	2.00	16.75	35.5	- .53
15 08 77	1	1508	4.00	12.75	34.1	- .58
15 08 77	1	1510	6.00	12.00	35.1	- .62
15 08 77	1	1512	7.60	9.25	35.0	- .67
15 08 77	1	1551	.25	3.25	.	- .20
15 08 77	1	1553	.50	4.00	.	- .25
15 08 77	1	1535	.75	7.25	.	- .25
15 08 77	1	1545	1.00	.	35.2	- .33
15 08 77	1	1548	2.00	.	35.4	- .34
15 08 77	1	1550	4.00	.	35.5	- .40
15 08 77	1	1552	6.00	.	35.5	- .40
15 08 77	1	1555	7.75	.	32.6	- .44
15 08 77	1	1600	.25	3.25	.	- .12
15 08 77	1	1602	.50	4.00	.	- .12
15 08 77	1	1604	.75	10.50	.	- .13
15 08 77	1	1602	1.00	9.75	35.2	- .17
15 08 77	1	1607	2.00	19.25	35.1	- .20
15 08 77	1	1609	4.00	12.75	35.4	- .24
15 08 77	1	1611	6.00	15.50	35.8	- .24
15 08 77	1	1613	7.50	12.75	35.5	- .23
15 08 77	1	1651	.25	3.00	.	00.00
15 08 77	1	1653	.50	.	.	0.00
15 08 77	1	1655	.75	3.75	.	- 0.00
15 08 77	1	1635	1.00	5.75	35.5	0.00
15 08 77	1	1636	2.00	1.75	35.9	0.00
15 08 77	1	1638	4.00	4.50	35.5	- .01
15 08 77	1	1640	6.00	4.00	35.0	- .01
15 08 77	1	1644	7.80	2.50	35.0	- .02
15 08 77	1	1700	.25	6.25	.	.09
15 08 77	1	1702	.50	.	.	.13
15 08 77	1	1704	.75	4.00	.	.13
15 08 77	1	1701	1.00	6.75	35.4	.20
15 08 77	1	1703	2.00	6.00	34.2	.22
15 08 77	1	1705	4.00	4.75	35.9	.21
15 08 77	1	1707	6.00	2.25	32.9	.17
15 08 77	1	1710	7.75	2.75	35.2	.17
15 08 77	1	1752	.25	.	.	.21
15 08 77	1	1754	.50	.	.	.25
15 08 77	1	1756	.75	.	.	.29
15 08 77	1	1730	1.00	1.75	35.5	.39
15 08 77	1	1733	2.00	4.00	34.1	.43
15 08 77	1	1455	4.00	1.50	34.4	.42
15 08 77	1	1737	6.00	1.00	34.1	.28
15 08 77	1	1739	8.00	1.00	34.0	.27
15 08 77	1	1740	8.50	1.25	35.1	.35
15 08 77	1	1802	.25	.	.	.14
15 08 77	1	1805	.50	.	.	.17
15 08 77	1	1807	.75	.	.	.21
15 08 77	1	1803	1.00	0.50	34.1	.37
15 08 77	1	1805	2.00	1.25	34.2	.41
15 08 77	1	1807	4.00	4.60	35.1	.45
15 08 77	1	1809	6.00	3.75	35.0	.48
15 08 77	1	1812	8.00	2.50	35.3	.47
15 08 77	1	1850	.25	2.75	.	.14
15 08 77	1	1852	.50	1.00	.	.19

Date	Station	Time	Height above bed (m)	S.S. Conc^{n} (ppm)	Salinity (ppt)	Velocity (m/s)
15 08 77	1	1854	.75	2.25	.	.23
15 08 77	1	1850	1.00	1.25	34.50	.34
15 08 77	1	1852	2.00	1.50	55.7	.35
15 08 77	1	1854	4.00	6.50	33.5	.41
15 08 77	1	1857	6.00	4.75	34.5	.47
15 08 77	1	1859	8.00	0.50	55.5	.50
15 08 77	1	1841	8.50	3.75	34.2	.51
15 08 77	1	1903	.25	.	.	.17
15 08 77	1	1913	.50	.	.	.19
15 08 77	1	1925	.75	.	.	.21
15 08 77	1	1903	1.00	1.25	35.4	.34
15 08 77	1	1909	2.00	1.50	34.1	.41
15 08 77	1	1911	4.00	3.75	34.2	.42
15 08 77	1	1915	6.00	4.00	34.1	.48
15 08 77	1	1917	8.00	4.60	35.5	.51
15 08 77	1	1923	9.00	00.50	35.3	.50
15 08 77	1	1931	.25	3.75	.	.18
15 08 77	1	1933	.50	1.50	.	.23
15 08 77	1	1935	.75	1.00	.	.26
15 08 77	1	1931	1.00	0.50	34.0	.27
15 08 77	1	1934	2.00	3.25	34.2	.30
15 08 77	1	1936	4.00	3.00	34.0	.38
15 08 77	1	1938	6.00	6.75	35.9	.36
15 08 77	1	1940	8.00	4.60	34.3	.38
15 08 77	1	1943	9.25	1.00	34.0	.43
15 08 77	1	2005	.25	9.75	.	.17
15 08 77	1	2008	.50	14.50	.	.21
15 08 77	1	2011	.75	12.75	.	.23
15 08 77	1	2002	1.00	2.50	35.9	.31
15 08 77	1	2004	2.00	4.00	34.1	.34
15 08 77	1	2007	4.00	3.75	35.9	.50
15 08 77	1	2009	6.00	3.50	35.9	.29
15 08 77	1	2011	8.00	0.50	35.9	.29
15 08 77	1	2014	9.50	0.50	35.9	.29
15 08 77	1	2030	.25	.	.	.19
15 08 77	1	2033	.50	.	.	.24
15 08 77	1	2036	.75	.	.	.22
15 08 77	1	2051	1.00	1.75	34.4	.29
15 08 77	1	2034	2.00	2.50	34.2	.35
15 08 77	1	2036	4.00	3.75	34.0	.36
15 08 77	1	2059	6.00	0.50	34.0	.30
15 08 77	1	2040	8.00	3.75	35.7	.27
15 08 77	1	2043	10.00	4.00	35.7	.21
15 08 77	1	2102	.25	7.75	.	.14
15 08 77	1	2103	.50	6.50	.	.17
15 08 77	1	2105	.75	7.25	.	.21
15 08 77	1	2101	1.00	5.25	34.1	.22
15 08 77	1	2103	2.00	1.00	34.6	.28
15 08 77	1	2105	4.00	1.00	35.9	.30
15 08 77	1	2107	6.00	3.25	35.9	.25
15 08 77	1	2109	8.00	3.50	34.0	.19
15 08 77	1	2111	10.00	0.50	35.6	.19
15 08 77	1	2115	11.50	1.00	34.1	.17
15 08 77	1	2131	.25	1.50	.	.09
15 08 77	1	2133	.50	11.00	.	.09
15 08 77	1	2135	.75	10.00	.	.12
15 08 77	1	2130	1.00	13.75	34.1	.19
15 08 77	1	2132	2.00	3.50	35.9	.22
15 08 77	1	2134	4.00	4.60	34.2	.20
15 08 77	1	2136	6.00	9.00	34.7	.25
15 08 77	1	2138	8.00	8.50	35.8	.00
15 08 77	1	2141	10.00	5.75	34.1	.13
15 08 77	1	2144	11.25	7.25	35.6	.10

Date	Station	Time	Height above bed (m)	S.S. Conc^{n} (ppm)	Salinity (ppt)	Velocity (m/s)
15 08 77	2	0825	.25	4.00	.	.24
15 08 77	2	0857	.50	4.50	.	.26
15 08 77	2	0900	.75	1.75	.	.19
15 08 77	2	0825	1.00	17.75	34.0	.39
15 08 77	2	0835	2.00	28.75	34.0	.41
15 08 77	2	0840	4.00	4.00	34.0	.43
15 08 77	2	0845	6.00	3.00	34.0	.52
15 08 77	2	0850	8.00	1.50	34.0	.59
15 08 77	2	0855	10.00	12.25	34.0	.50
15 08 77	2	0910	.25	3.50	.	.23
15 08 77	2	0915	.50	9.75	.	.21
15 08 77	2	0920	.75	12.50	.	.16
15 08 77	2	0902	1.00	5.75	34.2	.31
15 08 77	2	0910	2.00	3.50	34.0	.34
15 08 77	2	0915	4.00	5.50	34.0	.32
15 08 77	2	0920	6.00	9.75	34.0	.37
15 08 77	2	0925	8.00	9.80	34.0	.37
15 08 77	2	0930	9.50	2.25	34.0	.37
15 08 77	2	0935	.25	1.75	.	.12
15 08 77	2	0940	.50	8.25	.	.12
15 08 77	2	0943	.75	1.75	.	.11
15 08 77	2	0955	1.00	5.25	34.2	.25
15 08 77	2	0940	2.00	3.00	34.1	.25
15 08 77	2	0945	4.00	2.50	34.1	.27
15 08 77	2	0948	6.00	10.75	34.0	.30
15 08 77	2	0951	8.00	5.25	34.0	.30
15 08 77	2	0955	9.50	3.25	34.0	.26
15 08 77	2	1000	.25	2.25	.	.05
15 08 77	2	1002	.50	15.25	.	.05
15 08 77	2	1005	.75	3.75	.	.
15 08 77	2	1000	1.00	3.75	34.4	.17
15 08 77	2	1006	2.00	6.50	34.2	.08
15 08 77	2	1010	4.00	6.50	34.1	.11
15 08 77	2	1015	6.00	6.75	34.1	.18
15 08 77	2	1018	8.00	5.50	34.1	.16
15 08 77	2	1020	9.50	5.50	34.0	.12
15 08 77	2	1030	.25	1.50	.	00.00
15 08 77	2	1035	.50	5.25	.	.01
15 08 77	2	1040	.75	5.20	.	.00
15 08 77	2	1030	1.00	5.75	34.1	.01
15 08 77	2	1035	2.00	5.20	34.1	- .01
15 08 77	2	1040	4.00	5.25	34.1	- .04
15 08 77	2	1043	6.00	5.50	34.1	- .06
15 08 77	2	1045	8.00	4.50	34.1	- .03
15 08 77	2	1048	10.00	5.20	34.1	- .08
15 08 77	2	1100	.25	7.00	.	0.00
15 08 77	2	1106	.50	2.50	.	- .02
15 08 77	2	1112	.75	2.25	.	- .12
15 08 77	2	1100	1.00	4.50	34.2	- .16
15 08 77	2	1104	2.00	4.00	34.1	- .20
15 08 77	2	1107	4.00	4.50	34.1	- .22
15 08 77	2	1110	6.00	6.00	34.1	- .23
15 08 77	2	1115	8.00	7.00	34.1	- .27
15 08 77	2	1120	10.00	4.00	34.1	- .28
15 08 77	2	1130	.25	8.25	.	- .30
15 08 77	2	1155	.50	5.20	.	- .16
15 08 77	2	1210	.75	3.75	.	- .20
15 08 77	2	1150	1.00	4.00	34.3	- .37
15 08 77	2	1148	2.00	4.00	34.2	- .42
15 08 77	2	1152	4.00	7.75	34.1	- .49
15 08 77	2	1154	6.00	5.25	34.1	- .54
15 08 77	2	1156	8.00	0.75	35.9	- .57

Date	Station	Time	Height above bed (m)	S.S. Conc^{n} (ppm)	Salinity (ppt)		Velocity (m/s)
15 08 77	2	1200	9.00	1.50	35.6	-	.66
15 08 77	2	1217	.25	1.20	.	-	.14
15 08 77	2	1220	.50	.	.	-	.26
15 08 77	2	1225	.75	1.20	.	-	.11
15 08 77	2	1210	1.00	1.25	34.1	-	.41
15 08 77	2	1215	2.00	1.20	34.1	-	.41
15 08 77	2	1220	4.00	4.50	34.0	-	.52
15 08 77	2	1223	6.00	6.50	35.9	-	.63
15 08 77	2	1225	8.00	14.20	35.8	-	.72
15 08 77	2	1228	10.00	1.75	35.4	-	.85
15 08 77	2	1230	.25	9.80	.	-	.25
15 08 77	2	1235	.50	8.00	.	-	.26
15 08 77	2	1240	.75	5.25	.	-	.28
15 08 77	2	1230	1.00	6.00	34.0	-	.40
15 08 77	2	1234	2.00	5.25	34.0	-	.46
15 08 77	2	1240	4.00	5.20	34.0	-	.55
15 08 77	2	1243	6.00	2.50	35.8	-	.73
15 08 77	2	1245	8.00	14.25	35.7	-	.82
15 08 77	2	1247	9.00	1.75	35.3	-	.88
15 08 77	2	1300	.25	6.50	.	-	.28
15 08 77	2	1304	.50	11.20	.	-	.38
15 08 77	2	1308	.75	5.20	.	-	.32
15 08 77	2	1302	1.00	1.50	35.9	-	.49
15 08 77	2	1305	2.00	14.00	35.8	-	.54
15 08 77	2	1308	4.00	12.50	35.8	-	.67
15 08 77	2	1310	6.00	1.50	35.7	-	.78
15 08 77	2	1312	8.00	5.20	35.4	-	.89
15 08 77	2	1315	9.00	3.00	35.0	-	.94
15 08 77	2	1330	.25	16.50	.	-	.27
15 08 77	2	1333	.50	4.00	.	-	.35
15 08 77	2	1345	.75	15.20	.	-	.39
15 08 77	2	1340	1.00	7.00	35.9	-	.51
15 08 77	2	1343	2.00	12.75	35.8	-	.55
15 08 77	2	1345	4.00	1.20	35.7	-	.66
15 08 77	2	1347	6.00	9.75	35.6	-	.79
15 08 77	2	1350	8.00	9.75	35.4	-	.88
15 08 77	2	1352	9.00	6.75	35.0	-	0.91
15 08 77	2	1408	.25	4.50	.	-	.15
15 08 77	2	1415	.50	19.60	.	-	.16
15 08 77	2	1425	.75	7.00	.	-	.22
15 08 77	2	1408	1.00	9.75	35.8	-	.47
15 08 77	2	1412	2.00	1.25	35.7	-	.50
15 08 77	2	1415	4.00	4.25	35.7	-	.56
15 08 77	2	1418	6.00	15.25	35.4	-	.70
15 08 77	2	1420	8.00	12.70	35.2	-	.83
15 08 77	2	1425	9.00	3.00	32.7	-	.85
15 08 77	2	1458	.25	25.20	.	-	.14
15 08 77	2	1441	.50	19.00	.	-	.23
15 08 77	2	1443	.75	21.00	.	-	.15
15 08 77	2	1430	1.00	1.50	35.6	-	.50
15 08 77	2	1435	2.00	25.25	35.6	-	.59
15 08 77	2	1436	4.00	22.50	35.6	-	.72
15 08 77	2	1439	6.00	20.75	35.4	-	.81
15 08 77	2	1442	8.00	10.75	35.1	-	.86
15 08 77	2	1445	8.75	1.75	32.7	-	.89
15 08 77	2	1500	.25	19.50	.	-	.10
15 08 77	2	1506	.50	.	.	-	.11
15 08 77	2	1512	.75	7.00	.	-	.12
15 08 77	2	1500	1.00	16.30	35.6	-	.47
15 08 77	2	1505	2.00	10.75	35.5	-	.55
15 08 77	2	1507	4.00	9.80	35.4	-	.64
15 08 77	2	1510	6.00	16.50	35.2	-	.77

Date	Station	Time	Height above bed (m)	S.S. Conc^{n} (ppm)	Salinity (ppt)		Velocity (m/s)
15 08 77	2	1515	8,00	7,75	32,9	-	,79
15 08 77	2	1520	8,70	2,50	32,5	-	,79
15 08 77	2	1530	,25	14,00	.	-	,02
15 08 77	2	1540	,50	9,75	.	-	,06
15 08 77	2	1543	,75	10,00	.	-	,05
15 08 77	2	1530	1,00	10,70	35,5	-	,41
15 08 77	2	1535	2,00	5,20	35,2	-	,48
15 08 77	2	1540	4,00	11,20	35,1	-	,56
15 08 77	2	1545	6,00	6,75	35,0	-	,55
15 08 77	2	1555	8,00	7,75	32,8	-	,52
15 08 77	2	1558	8,75	7,75	32,5	-	,51
15 08 77	2	1620	,25	1,50	.		,02
15 08 77	2	1625	,50	1,50	.		,03
15 08 77	2	1628	,75	5,75	.		,03
15 08 77	2	1620	1,00	8,75	35,5	-	,02
15 08 77	2	1624	2,00	13,50	35,2	-	,03
15 08 77	2	1627	4,00	15,20	35,1		0,00
15 08 77	2	1629	6,00	2,50	35,0		0,00
15 08 77	2	1632	7,75	6,75	35,2		0,00
15 08 77	2	1635	,25	4,00	.		,06
15 08 77	2	1638	,50	3,25	.		,06
15 08 77	2	1642	,75	2,50	.		,09
15 08 77	2	1655	1,00	6,50	35,5		,08
15 08 77	2	1640	2,00	7,00	35,2		,04
15 08 77	2	1642	4,00	.	35,2		,02
15 08 77	2	1645	6,00	9,75	35,1		0,00
15 08 77	2	1650	8,00	8,25	35,0		0,00
15 08 77	2	1705	,25	12,70	.		,17
15 08 77	2	1707	,50	.	.		,17
15 08 77	2	1710	,75	17,25	.		,16
15 08 77	2	1705	1,00	21,75	35,6		,30
15 08 77	2	1710	2,00	16,50	35,5		,41
15 08 77	2	1713	4,00	8,00	35,5		,38
15 08 77	2	1715	6,00	9,75	35,0		,39
15 08 77	2	1725	8,00	12,25	35,1		,38
15 08 77	2	1728	9,00	5,75	32,9		,38
15 08 77	2	1730	1,00	7,00	35,4		,41
15 08 77	2	1735	2,00	7,25	35,4		,50
15 08 77	2	1737	4,00	2,75	35,2		,53
15 08 77	2	1850	,25	27,50	.		,11
15 08 77	2	1833	,50	26,00	.		,29
15 08 77	2	1854	,75	20,80	.		,44
15 08 77	2	1850	1,00	16,50	35,8		,61
15 08 77	2	1855	2,00	20,80	35,9		,67
15 08 77	2	1840	4,00	5,25	35,8		,77
15 08 77	2	1845	6,00	16,50	35,7		,70
15 08 77	2	1855	8,00	7,00	35,8		,75
15 08 77	2	1900	10,00	16,20	35,7		,77

Date	Station	Time	Height above bed (m)	S.S. Conc^{n} (ppm)	Salinity (ppt)	Velocity (m/s)
15 08 77	2	1900	.25	5.20	.	.
15 08 77	2	1922	1.00	10.75	34.2	.58
15 08 77	2	1940	2.00	9.80	34.2	.62
15 08 77	2	1937	4.00	11.50	34.1	.59
15 08 77	2	1935	6.00	8.75	34.0	.55
15 08 77	2	1933	8.00	4.25	33.9	.76
15 08 77	2	1930	10.00	5.25	33.9	.76
15 08 77	2	2010	.25	7.75	.	.18
15 08 77	2	2015	.50	4.00	.	.29
15 08 77	2	2016	.75	5.20	.	.31
15 08 77	2	2010	1.00	0.75	34.2	.
15 08 77	2	2014	2.00	1.20	34.2	.
15 08 77	2	2016	4.00	1.75	34.0	.
15 08 77	2	2018	6.00	1.20	34.1	.
15 08 77	2	2020	8.00	3.75	34.0	.
15 08 77	2	2023	10.00	8.25	34.0	.
15 08 77	2	2105	.25	1.50	.	.16
15 08 77	2	2110	.50	1.50	.	.13
15 08 77	2	2115	.75	1.25	.	.12
15 08 77	2	2125	1.00	.	34.2	.31
15 08 77	2	2120	2.00	.	34.2	.35
15 08 77	2	2115	4.00	.	34.2	.38
15 08 77	2	2111	6.00	.	34.0	.46
15 08 77	2	2108	8.00	.	34.0	.47
15 08 77	2	2105	10.00	.	34.1	.38
15 08 77	2	2130	1.00	0.75	34.2	.26
15 08 77	2	2135	2.00	0.50	34.2	.29
15 08 77	2	2145	4.00	7.20	34.0	.32
15 08 77	2	2148	6.00	2.50	34.0	.34
15 08 77	2	2150	8.00	1.20	34.0	.38
15 08 77	2	2153	10.00	3.00	33.9	.39

Date	Station	Time	Height above bed (m)	S.S. Conc^{n} (ppm)	Salinity (ppt)		Velocity (m/s)
15 08 77	3	0844	.50	12.25	.		.
15 08 77	3	0840	1.00	9.75	35.5		.36
15 08 77	3	0844	2.00	10.75	35.5		.45
15 08 77	3	0850	4.00	7.00	35.2		.42
15 08 77	3	0854	6.00	4.00	35.1		.43
15 08 77	3	0855	8.00	6.50	35.1		.25
15 08 77	3	0915	.25	12.50	.		.
15 08 77	3	0918	.50	8.25	.		.
15 08 77	3	0921	.75	7.75	.		.
15 08 77	3	0900	1.00	8.00	35.6		.35
15 08 77	3	0906	2.00	4.00	35.6		.30
15 08 77	3	0910	4.00	8.00	35.5		.35
15 08 77	3	0912	6.00	5.20	35.5		.30
15 08 77	3	0915	7.00	5.20	35.2		.23
15 08 77	3	0940	.25	3.25	.		.14
15 08 77	3	0945	.50	5.50	.		.17
15 08 77	3	0948	.75	1.75	.		.11
15 08 77	3	0950	1.00	2.75	35.7		.25
15 08 77	3	0954	2.00	4.50	35.7		.26
15 08 77	3	0938	4.00	2.50	35.6		.26
15 08 77	3	0940	6.00	5.20	35.4		.20
15 08 77	3	0944	7.50	0.50	35.5		.15
15 08 77	3	1010	.25	4.50	.		.06
15 08 77	3	1012	.50	6.50	.		.06
15 08 77	3	1015	.75	6.50	.		.07
15 08 77	3	1010	1.00	4.50	35.8		.10
15 08 77	3	1012	2.00	4.50	35.8		.13
15 08 77	3	1022	4.00	1.75	35.8		.08
15 08 77	3	1024	6.00	3.50	35.8		.08
15 08 77	3	1026	8.00	1.75	35.6		.05
15 08 77	3	1028	10.00	0.75	35.5		.02
15 08 77	3	1030	.25	5.20	.		.02
15 08 77	3	1033	.50	2.25	.		.01
15 08 77	3	1036	.75	4.50	.		.01
15 08 77	3	1033	1.00	9.80	35.8		.01
15 08 77	3	1035	2.00	3.75	35.8		.01
15 08 77	3	1038	4.00	1.50	35.8		.01
15 08 77	3	1042	6.00	4.50	35.8	-	.01
15 08 77	3	1050	8.00	5.20	35.6	-	.01
15 08 77	3	1049	10.00	3.75	35.5	-	.03
15 08 77	3	1105	.25	6.75	.	-	.04
15 08 77	3	1109	.50	4.00	.	-	.06
15 08 77	3	1112	.75	3.25	.	-	.10
15 08 77	3	1104	1.00	0.50	35.6	-	.05
15 08 77	3	1108	2.00	0.25	35.8	-	.10
15 08 77	3	1111	4.00	1.20	35.7	-	.12
15 08 77	3	1113	6.00	0.50	35.7	-	.16
15 08 77	3	1115	8.00	6.75	35.6	-	.18
15 08 77	3	1117	10.00	4.00	35.5	-	.02
15 08 77	3	1133	.25	4.25	.	-	.09
15 08 77	3	1136	.50	4.25	.	-	.12
15 08 77	3	1139	.75	4.25	.	-	.16
15 08 77	3	1138	1.00	3.25	35.7	-	.28
15 08 77	3	1142	2.00	15.00	35.7	-	.25
15 08 77	3	1144	4.00	4.50	35.6	-	.36
15 08 77	3	1146	6.00	2.75	35.6	-	.40
15 08 77	3	1148	8.00	2.50	35.4	-	.45
15 08 77	3	1149	10.00	7.00	35.1	-	.45
15 08 77	3	1205	.25	2.50	.	-	.15
15 08 77	3	1208	.50	5.75	.	-	.18
15 08 77	3	1210	.75	8.00	.	-	.20

Date	Station	Time	Height above bed (m)	S.S. Conc^{n} (ppm)	Salinity (ppt)		Velocity (m/s)
15 08 77	3	1208	1.00	3.00	33.7	-	.22
15 08 77	3	1210	2.00	7.75	33.6	-	.35
15 08 77	3	1212	4.00	22.75	33.6	-	.46
15 08 77	3	1214	6.00	8.25	33.4	-	.42
15 08 77	3	1218	8.00	2.50	32.9	-	.65
15 08 77	3	1220	10.00	3.75	32.9	-	.25
15 08 77	3	1249	.25	28.50	.	-	.16
15 08 77	3	1251	.50	27.25	.	-	.20
15 08 77	3	1253	.75	26.50	.	-	.23
15 08 77	3	1230	1.00	49.75	33.8	-	.36
15 08 77	3	1234	2.00	16.30	33.8	-	.35
15 08 77	3	1237	4.00	16.30	33.6	-	.43
15 08 77	3	1239	6.00	17.25	33.5	-	.50
15 08 77	3	1241	8.00	16.00	33.1	-	.65
15 08 77	3	1310	.25	25.20	.	-	.16
15 08 77	3	1312	.50	27.50	.	-	.15
15 08 77	3	1314	.75	19.00	.	-	.24
15 08 77	3	1300	1.00	42.00	33.7	-	.20
15 08 77	3	1302	2.00	38.50	33.7	-	.32
15 08 77	3	1303	4.00	18.50	33.5	-	.45
15 08 77	3	1304	6.00	9.00	33.1	-	.60
15 08 77	3	1305	8.00	11.00	33.0	-	.55
15 08 77	3	1306	10.00	16.00	33.0		.
15 08 77	3	1332	.25	30.25	.	-	.21
15 08 77	3	1335	.50	30.50	.	-	.26
15 08 77	3	1337	.75	32.00	.	-	.27
15 08 77	3	1355	1.00	52.25	33.6	-	.21
15 08 77	3	1357	2.00	33.50	33.5	-	.30
15 08 77	3	1358	4.00	17.75	33.0	-	.41
15 08 77	3	1340	6.00	13.75	33.9	-	.55
15 08 77	3	1342	8.00	17.50	32.9	-	.60
15 08 77	3	1344	10.00	18.00	32.8		.
15 08 77	3	1402	.25	29.50	.	-	.18
15 08 77	3	1404	.50	25.00	.	-	.20
15 08 77	3	1407	.75	16.30	.	-	.23
15 08 77	3	1403	1.00	36.50	34.2	-	.20
15 08 77	3	1404	2.00	30.75	33.1	-	.30
15 08 77	3	1405	4.00	17.75	32.8	-	.37
15 08 77	3	1407	6.00	17.50	32.8	-	.42
15 08 77	3	1409	8.00	6.25	32.7	-	.50
15 08 77	3	1411	9.00	12.00	32.7		.
15 08 77	3	1432	.25	12.70	.	-	.27
15 08 77	3	1434	.50	10.75	.	-	.28
15 08 77	3	1436	.75	14.75	.	-	.31
15 08 77	3	1432	1.00	9.00	.		.
15 08 77	3	1443	2.00	16.00	.	-	.40
15 08 77	3	1445	4.00	15.25	.	-	.55
15 08 77	3	1455	6.00	19.50	.	-	.60
15 08 77	3	1501	.25	11.20	.	-	.26
15 08 77	3	1503	.50	9.80	.	-	.31
15 08 77	3	1505	.75	12.25	.	-	.33
15 08 77	3	1530	.25	11.20	.	-	.12
15 08 77	3	1532	.50	15.00	.	-	.15
15 08 77	3	1536	.75	8.00	.	-	.16
15 08 77	3	1530	1.00	26.00	.	-	.22
15 08 77	3	1531	2.00	17.75	.	-	.25
15 08 77	3	1534	4.00	22.25	.	-	.37
15 08 77	3	1538	6.00	12.00	.	-	.44
15 08 77	3	1542	8.00	28.75	.	-	.47

Date	Station	Time	Height above bed (m)	S.S. Conc^n (ppm)	Salinity (ppt)	Velocity (m/s)
15 08 77	3	1600	.25	11.25	.	- .04
15 08 77	3	1603	.50	12.70	.	- .05
15 08 77	3	1606	.75	13.50	.	- .06
15 08 77	3	1600	1.00	3.00	.	- .17
15 08 77	3	1604	2.00	9.50	.	- .28
15 08 77	3	1605	4.00	9.80	.	- .19
15 08 77	3	1607	6.00	.	.	- .22
15 08 77	3	1610	8.00	8.00	.	- .05
15 08 77	3	1630	.25	19.60	.	.01
15 08 77	3	1633	.50	10.75	.	.01
15 08 77	3	1636	.75	12.25	.	.01
15 08 77	3	1632	1.00	11.20	32.5	0.00
15 08 77	3	1633	2.00	12.50	32.7	.00
15 08 77	3	1636	4.00	10.00	32.9	0.00
15 08 77	3	1638	6.00	6.75	32.1	0.00
15 08 77	3	1639	7.00	8.00	32.0	0.00
15 08 77	3	1703	.25	14.00	.	.13
15 08 77	3	1705	.50	11.20	.	.18
15 08 77	3	1708	.75	11.25	.	.21
15 08 77	3	1707	1.00	14.20	33.1	.25
15 08 77	3	1709	2.00	13.75	33.0	.27
15 08 77	3	1710	4.00	13.75	33.0	.27
15 08 77	3	1712	6.00	4.50	32.2	.14
15 08 77	3	1715	7.50	4.25	32.1	.12
15 08 77	3	1730	.25	15.00	.	.13
15 08 77	3	1732	.50	14.25	.	.15
15 08 77	3	1735	.75	12.75	.	.18
15 08 77	3	1755	1.00	14.00	33.0	.25
15 08 77	3	1737	2.00	11.25	33.0	.30
15 08 77	3	1739	4.00	9.50	33.0	.37
15 08 77	3	1741	6.00	12.00	32.9	.45
15 08 77	3	1743	8.00	4.25	32.0	.45
15 08 77	3	1800	.25	20.00	.	.19
15 08 77	3	1813	.50	16.30	.	.34
15 08 77	3	1816	.75	.	.	.36
15 08 77	3	1802	1.00	10.70	33.0	.45
15 08 77	3	1804	2.00	12.00	33.0	.50
15 08 77	3	1806	4.00	10.70	33.0	.55
15 08 77	3	1808	6.00	12.00	32.9	.58
15 08 77	3	1810	8.00	0.75	31.1	.65
15 08 77	3	1840	.25	24.00	.	.24
15 08 77	3	1842	.50	14.25	.	.37
15 08 77	3	1845	.75	19.25	.	.42
15 08 77	3	1835	1.00	16.30	32.5	.52
15 08 77	3	1837	2.00	14.00	33.1	.62
15 08 77	3	1839	4.00	6.50	31.9	.67
15 08 77	3	1841	6.00	3.25	32.8	.68
15 08 77	3	1843	8.00	4.50	32.0	.67
15 08 77	3	1902	.25	22.75	.	.38
15 08 77	3	1904	.50	22.00	.	.40
15 08 77	3	1907	.75	48.50	.	.46
15 08 77	3	1903	1.00	12.50	32.5	.67
15 08 77	3	1905	2.00	8.50	31.5	.70
15 08 77	3	1907	4.00	5.75	29.0	.75
15 08 77	3	1909	6.00	.	29.0	.76
15 08 77	3	1911	8.00	2.25	29.5	.70
15 08 77	3	1931	.25	23.50	.	.36
15 08 77	3	1933	.50	28.50	.	.39
15 08 77	3	1936	.75	20.00	.	.43

Date	Station	Time	Height above bed (m)	S.S. Conc^{n} (ppm)	Salinity (ppt)	Velocity (m/s)
15 08 77	3	1951	1.00	.	30.0	.70
15 08 77	3	1933	2.00	15.00	30.0	.65
15 08 77	3	1935	4.00	5.50	28.5	.75
15 08 77	3	1937	6.00	7.00	30.0	.70
15 08 77	3	1939	8.00	5.75	31.0	.62
15 08 77	3	2004	.25	11.50	.	.31
15 08 77	3	2006	.50	9.00	.	.37
15 08 77	3	2017	.75	12.25	.	.55
15 08 77	3	2004	1.00	.	32.0	.50
15 08 77	3	2008	2.00	.	29.0	.60
15 08 77	3	2012	4.00	20.80	31.0	.65
15 08 77	3	2014	6.00	0.50	31.0	.60
15 08 77	3	2016	8.00	4.50	32.0	.55
15 08 77	3	2042	.25	12.50	.	.28
15 08 77	3	2044	.50	21.25	.	.23
15 08 77	3	2047	.75	2.25	.	.29
15 08 77	3	2032	1.00	9.80	32.0	.47
15 08 77	3	2034	2.00	6.75	31.5	.68
15 08 77	3	2036	4.00	8.00	31.0	.60
15 08 77	3	2038	6.00	.	31.0	.60
15 08 77	3	2040	8.00	5.25	32.0	.55
15 08 77	3	2103	.25	12.25	.	.17
15 08 77	3	2105	.50	12.75	.	.21
15 08 77	3	2108	.75	0.50	.	.18
15 08 77	3	2105	1.00	5.20	31.5	.43
15 08 77	3	2107	2.00	4.25	31.0	.29
15 08 77	3	2109	4.00	4.50	31.5	.32
15 08 77	3	2111	6.00	5.75	32.5	.32
15 08 77	3	2113	8.00	.	33.0	.28
15 08 77	3	2133	.25	6.00	.	.07
15 08 77	3	2135	.50	3.00	.	.09
15 08 77	3	2138	.75	9.75	.	.08
15 08 77	3	2131	1.00	.	33.0	.20
15 08 77	3	2133	2.00	.	32.0	.21
15 08 77	3	2135	4.00	2.50	32.0	.25
15 08 77	3	2137	6.00	5.50	32.0	.27
15 08 77	3	2139	8.00	3.00	32.0	.25

Date	Station	Time	Height above bed (m)	S.S. Conc^{n} (ppm)	Salinity (ppt)	Velocity (m/s)
15 08 77	4	0850	.25	34.25	.	.
15 08 77	4	0836	.50	32.25	.	.
15 08 77	4	0842	.75	24.75	.	.
15 08 77	4	0850	1.00	13.00	33.0	.
15 08 77	4	0836	2.00	29.75	33.0	.
15 08 77	4	0842	4.00	20.75	32.3	.
15 08 77	4	0848	5.00	18.50	32.2	.
15 08 77	4	0900	.25	28.25	.	.36
15 08 77	4	0906	.50	26.00	.	.32
15 08 77	4	0912	.75	24.20	.	.32
15 08 77	4	0900	1.00	24.75	33.4	.46
15 08 77	4	0906	2.00	19.25	32.7	.48
15 08 77	4	0909	4.00	4.60	32.9	.50
15 08 77	4	0912	6.00	19.25	32.8	.49
15 08 77	4	0915	8.00	24.25	32.8	.44
15 08 77	4	0918	10.00	9.25	32.4	.47
15 08 77	4	0930	.25	29.75	.	.23
15 08 77	4	0936	.50	21.00	.	.25
15 08 77	4	0945	.75	11.00	.	.20
15 08 77	4	0950	1.00	5.25	32.1	.27
15 08 77	4	0956	2.00	15.50	32.8	.30
15 08 77	4	0945	4.00	9.00	32.8	.32
15 08 77	4	0948	6.00	15.25	33.1	.34
15 08 77	4	0950	8.00	8.50	33.0	.36
15 08 77	4	0953	10.00	7.25	32.6	.34
15 08 77	4	1006	.25	9.25	.	.12
15 08 77	4	1008	.50	9.75	.	.13
15 08 77	4	1011	.75	10.00	.	.13
15 08 77	4	1011	1.00	19.50	32.9	.17
15 08 77	4	1014	2.00	2.50	32.9	.18
15 08 77	4	1017	4.00	6.25	33.0	.19
15 08 77	4	1020	6.00	8.50	32.9	.23
15 08 77	4	1024	8.00	12.00	33.2	.23
15 08 77	4	1027	10.00	12.75	32.7	.25
15 08 77	4	1030	.25	13.75	.	.09
15 08 77	4	1034	.50	10.50	.	.11
15 08 77	4	1036	.75	9.75	.	.11
15 08 77	4	1039	1.00	13.75	32.8	.14
15 08 77	4	1042	2.00	12.00	32.9	.14
15 08 77	4	1045	4.00	14.00	32.8	.16
15 08 77	4	1048	6.00	18.00	33.1	.07
15 08 77	4	1050	8.00	15.75	32.8	.06
15 08 77	4	1053	10.00	9.00	32.7	.03
15 08 77	4	1100	.25	15.25	.	0.00
15 08 77	4	1102	.50	12.75	.	0.01
15 08 77	4	1104	.75	15.50	.	.00
15 08 77	4	1106	1.00	21.00	33.2	.04
15 08 77	4	1108	2.00	20.00	32.8	.02
15 08 77	4	1111	4.00	9.75	33.3	0.00
15 08 77	4	1115	6.00	9.25	33.1	0.00
15 08 77	4	1118	8.00	21.25	32.3	- .06
15 08 77	4	1120	10.00	8.50	32.4	- .11
15 08 77	4	1130	.25	10.50	.	- .03
15 08 77	4	1132	.50	12.25	.	- .04
15 08 77	4	1134	.75	12.25	.	- .05
15 08 77	4	1137	1.00	15.00	33.2	- .11
15 08 77	4	1141	2.00	15.20	32.8	- .13
15 08 77	4	1145	4.00	7.50	33.2	- .13

Date	Station	Time	Height above bed (m)	S.S. Conc^{n} (ppm)	Salinity (ppt)		Velocity (m/s)
15 08 77	4	1148	6.00	5.25	32.8	-	.12
15 08 77	4	1151	8.00	15.75	32.5	-	.23
15 08 77	4	1154	10.00	15.75	32.5	-	.36
15 08 77	4	1200	.25	13.00	.	-	.11
15 08 77	4	1202	.50	12.00	.	-	.12
15 08 77	4	1204	.75	12.75	.	-	.14
15 08 77	4	1206	1.00	5.25	33.4	-	.22
15 08 77	4	1209	2.00	4.60	33.0	-	.22
15 08 77	4	1214	4.00	13.00	33.4	-	.22
15 08 77	4	1217	6.00	7.25	32.8	-	.27
15 08 77	4	1221	8.00	9.25	32.6	-	.41
15 08 77	4	1226	10.00	12.25	32.1	-	.52
15 08 77	4	1230	.25	10.00	.	-	.16
15 08 77	4	1232	.50	9.75	.	-	.16
15 08 77	4	1234	.75	9.75	.	-	.16
15 08 77	4	1240	1.00	8.50	32.5	-	.28
15 08 77	4	1243	2.00	6.25	32.6	-	.44
15 08 77	4	1247	4.00	5.25	32.5	-	.50
15 08 77	4	1250	6.00	19.50	32.2	-	.55
15 08 77	4	1253	8.00	6.50	32.1	-	.61
15 08 77	4	1257	10.00	13.00	31.7	-	.70
15 08 77	4	1300	.25	10.00	.	-	.19
15 08 77	4	1302	.50 0	15.50	.	-	.21
15 08 77	4	1305	.75	15.25	.	-	.24
15 08 77	4	1309	1.00	16.25	32.5	-	.34
15 08 77	4	1312	2.00	18.75	32.5	-	.40
15 08 77	4	1316	4.00	12.50	32.1	-	.46
15 08 77	4	1319	6.00	6.75	32.2	-	.56
15 08 77	4	1323	8.00	12.00	31.6	-	.65
15 08 77	4	1326	10.00	9.25	31.5	-	.71
15 08 77	4	1330	.25	12.75	.	-	.23
15 08 77	4	1332	.50	22.00	.	-	.26
15 08 77	4	1334	.75	19.25	.	-	.26
15 08 77	4	1336	1.00	21.25	32.0	-	.41
15 08 77	4	1339	2.00	25.00	32.1	-	.45
15 08 77	4	1344	4.00	22.00	32.4	-	.52
15 08 77	4	1348	6.00	15.50	32.0	-	.62
15 08 77	4	1353	8.00	12.75	32.0	-	.69
15 08 77	4	1357	10.00	5.75	30.8	-	.76
15 08 77	4	1400	.25	18.00	.	-	.28
15 08 77	4	1403	.50	16.75	.	-	.32
15 08 77	4	1405	.75	17.50	.	-	.34
15 08 77	4	1408	1.00	13.00	32.5	-	.48
15 08 77	4	1413	2.00	12.50	32.0	-	.57
15 08 77	4	1418	4.00	7.75	31.8	-	.71
15 08 77	4	1421	6.00	9.25	31.4	-	.71
15 08 77	4	1426	8.00	9.75	31.2	-	.39
15 08 77	4	1429	10.00	5.25	30.8	-	.76
15 08 77	4	1430	.25	24.75	.	-	.23
15 08 77	4	1432	.50	23.50	.	-	.26
15 08 77	4	1434	.75	3.00	.	-	.28
15 08 77	4	1437	1.00	21.25	31.9	-	.37
15 08 77	4	1440	2.00	19.25	31.9	-	.46
15 08 77	4	1444	4.00	17.75	31.5	-	.59
15 08 77	4	1448	6.00	11.00	31.5	-	.65
15 08 77	4	1451	8.00	10.00	31.2	-	.68
15 08 77	4	1454	10.00	7.25	31.0	-	.70
15 08 77	4	1500	.25	26.00	.	-	.22

Date	Station	Time	Height above bed (m)	S.S. Conc^{n} (ppm)	Salinity (ppt)		Velocity (m/s)
15 08 77	4	1503	.50	26.50	.	-	.26
15 08 77	4	1505	.75	24.25	.	-	.26
15 08 77	4	1508	1.00	20.00	32.4	-	.41
15 08 77	4	1511	2.00	19.25	31.5	-	.49
15 08 77	4	1515	4.00	18.75	31.5	-	.57
15 08 77	4	1518	6.00	15.50	31.2	-	.58
15 08 77	4	1521	8.00	11.75	31.2	-	.65
15 08 77	4	1524	10.00	8.50	30.5	-	.74
15 08 77	4	1530	.25	24.75	.	-	.10
15 08 77	4	1532	.50	21.25	.	-	.10
15 08 77	4	1534	.75	24.00	.	-	.11
15 08 77	4	1538	1.00	24.25	31.6	-	.20
15 08 77	4	1542	2.00	19.50	31.2	-	.22
15 08 77	4	1545	4.00	15.50	.	-	.40
15 08 77	4	1549	6.00	19.00	30.9	-	.47
15 08 77	4	1552	8.00	17.25	30.6	-	.55
15 08 77	4	1555	10.00	6.75	30.5	-	.60
15 08 77	4	1600	.25	18.00	.	-	.11
15 08 77	4	1602	.50	22.70	.	-	.12
15 08 77	4	1604	.75	26.50	.	-	.12
15 08 77	4	1607	1.00	25.75	31.6	-	.14
15 08 77	4	1610	2.00	18.50	31.1	-	.18
15 08 77	4	1614	4.00	22.80	30.7	-	.29
15 08 77	4	1619	6.00	9.50	30.5	-	.39
15 08 77	4	1622	8.00	7.25	30.0	-	.42
15 08 77	4	1625	10.00	4.60	29.8	-	.42
15 08 77	4	1630	.25	16.00	.	-	.08
15 08 77	4	1632	.50	19.25	.	-	.10
15 08 77	4	1634	.75	15.25	.	-	.11
15 08 77	4	1638	1.00	22.00	31.0	-	.09
15 08 77	4	1641	2.00	12.00	30.7	-	.08
15 08 77	4	1646	4.00	6.75	30.2	-	.15
15 08 77	4	1649	6.00	17.25	30.2	-	.22
15 08 77	4	1653	8.00	2.75	31.0	-	.22
15 08 77	4	1656	10.00	4.00	29.8	-	.20
15 08 77	4	1700	.25	20.00	.		.06
15 08 77	4	1715	.50	21.70	.		.05
15 08 77	4	1718	.75	30.00	.		.04
15 08 77	4	1700	1.00	11.75	31.1		.10
15 08 77	4	1710	2.00	4.75	30.9		.10
15 08 77	4	1715	4.00	9.75	30.8		.07
15 08 77	4	1718	6.00	12.75	30.5	-	.03
15 08 77	4	1721	8.00	8.75	30.5	-	.02
15 08 77	4	1724	10.00	6.25	30.1	-	.01
15 08 77	4	1730	.25	22.00	.		.12
15 08 77	4	1732	.50	22.00	.		.13
15 08 77	4	1734	.75	24.25	.		.08
15 08 77	4	1738	1.00	10.75	31.0		.43
15 08 77	4	1741	2.00	8.00	31.0		.36
15 08 77	4	1745	4.00	6.25	31.0		.27
15 08 77	4	1748	6.00	7.25	31.0		.23
15 08 77	4	1751	8.00	9.75	30.7		.21
15 08 77	4	1755	10.00	7.25	30.1		.22
15 08 77	4	1800	.25	18.50	.		.26
15 08 77	4	1802	.50	15.75	.		.27
15 08 77	4	1804	.75	20.25	.		.29
15 08 77	4	1807	1.00	13.25	31.5		.41
15 08 77	4	1809	2.00	14.50	31.5		.45
15 08 77	4	1812	4.00	9.00	31.6		.52
15 08 77	4	1815	6.00	16.50	30.9		.47
15 08 77	4	1818	8.00	9.50	30.7		.42
15 08 77	4	1821	10.00	15.00	31.0		.43
15 08 77	4	1830	.25	36.00	.		.55

Date	Station	Time	Height above bed (m)	S.S. Conc^{n} (ppm)	Salinity (ppt)	Velocity (m/s)
15 08 77	4	1832	.50	46.50	.	.39
15 08 77	4	1834	.75	42.80	.	.37
15 08 77	4	1837	1.00	39.00	31.8	.54
15 08 77	4	1841	2.00	21.00	32.1	.62
15 08 77	4	1845	4.00	13.00	31.4	.68
15 08 77	4	1849	6.00	12.50	31.2	.62
15 08 77	4	1853	8.00	16.00	31.5	.66
15 08 77	4	1857	10.00	5.25	32.6	.71
15 08 77	4	1900	.25	28.00	.	.37
15 08 77	4	1904	.50	40.50	.	.40
15 08 77	4	1906	.75	31.25	.	.46
15 08 77	4	1908	1.00	20.00	32.5	.59
15 08 77	4	1911	2.00	26.75	32.2	.62
15 08 77	4	1915	4.00	20.25	32.5	.67
15 08 77	4	1918	6.00	16.50	32.4	.68
15 08 77	4	1921	8.00	2.25	33.6	.65
15 08 77	4	1924	10.00	8.75	31.9	.65
15 08 77	4	1935	.25	39.50	.	.45
15 08 77	4	1937	.50	26.50	.	.39
15 08 77	4	1939	.75	32.00	.	.39
15 08 77	4	1942	1.00	28.00	32.7	.82
15 08 77	4	1952	2.00	33.00	32.7	.65
15 08 77	4	1954	4.00	11.00	34.7	.74
15 08 77	4	1959	6.00	20.25	32.5	.73
15 08 77	4	2002	8.00	24.85	32.0	.73
15 08 77	4	2005	10.00	9.25	32.5	.74
15 08 77	4	2008	.25	34.00	.	.45
15 08 77	4	2010	.50	32.00	.	.44
15 08 77	4	2012	.75	31.00	.	.53
15 08 77	4	2014	1.00	.	32.1	.58
15 08 77	4	2017	2.00	24.85	32.7	.73
15 08 77	4	2020	4.00	15.25	32.4	.73
15 08 77	4	2023	6.00	13.75	32.0	.78
15 08 77	4	2026	8.00	15.00	32.5	.75
15 08 77	4	2028	10.00	13.00	31.7	.73
15 08 77	4	2034	.25	42.25	.	.37
15 08 77	4	2056	.50	31.25	.	.45
15 08 77	4	2058	.75	30.00	.	.46
15 08 77	4	2040	1.00	33.50	32.8	.61
15 08 77	4	2043	2.00	.	32.9	.66
15 08 77	4	2046	4.00	34.50	33.1	.66
15 08 77	4	2049	6.00	22.00	32.7	.66
15 08 77	4	2054	8.00	18.50	32.4	.64
15 08 77	4	2057	10.00	16.00	32.7	.58
15 08 77	4	2100	.25	27.50	.	.38
15 08 77	4	2102	.50	31.50	.	.39
15 08 77	4	2104	.75	23.50	.	.43
15 08 77	4	2106	1.00	19.75	32.7	.55
15 08 77	4	2108	2.00	17.25	32.9	.61
15 08 77	4	2111	4.00	7.25	32.8	.64
15 08 77	4	2114	6.00	12.00	33.0	.70
15 08 77	4	2117	8.00	21.00	33.0	.68
15 08 77	4	2119	10.00	9.25	32.8	.66
15 08 77	4	2130	.25	32.00	.	.30
15 08 77	4	2132	.50	21.00	.	.31
15 08 77	4	2134	.75	31.50	.	.51
15 08 77	4	2136	1.00	28.25	32.9	.40
15 08 77	4	2138	2.00	16.50	33.2	.59
15 08 77	4	2141	4.00	17.25	32.9	.44
15 08 77	4	2143	6.00	14.00	33.0	.48
15 08 77	4	2145	8.00	11.00	32.7	.54
15 08 77	4	2148	10.00	8.00	32.7	.51

Date	Station	Time	Height above bed (m)	S.S. Conc^{n} (ppm)	Salinity (ppt)	Velocity (m/s)
16 08 77	4	0730	.25	48.75	.	.27
16 08 77	4	0732	.50	40.00	.	.29
16 08 77	4	0734	.75	36.00	.	.30
16 08 77	4	0736	1.00	23.50	31.1	.41
16 08 77	4	0739	2.00	19.00	31.6	.58
16 08 77	4	0742	4.00	4.60	31.4	.59
16 08 77	4	0745	6.00	6.50	31.6	.56
16 08 77	4	0749	8.00	4.75	31.5	.56
16 08 77	4	0751	10.00	10.50	31.0	.55
16 08 77	4	0800	.25	37.25	.	.26
16 08 77	4	0802	.50	32.75	.	.34
16 08 77	4	0704	.75	31.50	.	.34
16 08 77	4	0806	1.00	20.25	31.5	.51
16 08 77	4	0808	2.00	12.75	32.5	.55
16 08 77	4	0811	4.00	5.25	32.6	.62
16 08 77	4	0814	6.00	8.50	31.9	.60
16 08 77	4	0820	8.00	10.00	31.5	.54
16 08 77	4	0823	10.00	1.25	31.7	.53
16 08 77	4	0830	.25	32.25	.	.37
16 08 77	4	0832	.50	34.75	.	.43
16 08 77	4	0834	.75	28.50	.	.45
16 08 77	4	0836	1.00	20.25	32.5	.55
16 08 77	4	0840	2.00	9.75	32.6	.58
16 08 77	4	0843	4.00	8.25	32.7	.62
16 08 77	4	0846	6.00	14.00	32.4	.58
16 08 77	4	0849	8.00	6.75	31.9	.55
16 08 77	4	0851	10.00	5.50	32.5	.53
16 08 77	4	0900	.25	25.00	.	.26
16 08 77	4	0902	.50	28.50	.	.32
16 08 77	4	0905	.75	24.75	.	.37
16 08 77	4	0907	1.00	15.25	32.5	.44
16 08 77	4	0910	2.00	18.00	32.5	.52
16 08 77	4	0912	4.00	9.50	32.5	.57
16 08 77	4	0915	6.00	8.50	32.6	.54
16 08 77	4	0919	8.00	9.75	32.5	.60
16 08 77	4	0923	10.00	6.20	32.5	.56
16 08 77	4	0930	.25	9.00	.	.42
16 08 77	4	0932	.50	16.30	.	.59
16 08 77	4	0934	.75	10.00	.	.42
16 08 77	4	0937	1.00	.	32.7	.49
16 08 77	4	0940	2.00	10.75	32.6	.43
16 08 77	4	0944	4.00	7.00	32.8	.43
16 08 77	4	0846	6.00	8.50	32.6	.47
16 08 77	4	0949	8.00	9.50	32.6	.52
16 08 77	4	0952	10.00	15.75	32.2	.50
16 08 77	4	1000	.25	15.25	.	.29
16 08 77	4	1003	.50	16.50	.	.28
16 08 77	4	1008	.75	1.20	.	.29
16 08 77	4	1007	1.00	8.25	32.5	.38
16 08 77	4	1010	2.00	12.75	32.6	.30
16 08 77	4	1012	4.00	7.00	32.7	.41
16 08 77	4	1015	6.00	6.75	32.5	.42
16 08 77	4	1018	8.00	16.75	32.5	.43
16 08 77	4	1021	10.00	4.00	32.1	.37
16 08 77	4	1030	.25	16.50	.	.18
16 08 77	4	1032	.50	23.00	.	.24
16 08 77	4	1034	.75	8.00	.	.22
16 08 77	4	1036	1.00	10.75	35.0	.24
16 08 77	4	1049	2.00	12.25	32.8	.24
16 08 77	4	1046	4.00	9.50	32.8	.25
16 08 77	4	1044	5.00	10.00	32.7	.29
16 08 77	4	1041	8.00	9.80	32.7	.31

Date	Station	Time	Height above bed (m)	S.S. Conc^{n} (ppm)	Salinity (ppt)	Velocity (m/s)
16 08 77	4	1058	10.00	.	32.8	.30
16 08 77	4	1100	.25	6.00	.	.14
16 08 77	4	1102	.50	5.75	.	.15
16 08 77	4	1106	.75	3.25	.	.15
16 08 77	4	1108	1.00	3.25	32.9	.15
16 08 77	4	1111	2.00	2.50	32.9	.17
16 08 77	4	1114	4.00	5.75	32.7	.19
16 08 77	4	1117	6.00	2.75	32.8	.16
16 08 77	4	1121	8.00	1.00	32.4	.04
16 08 77	4	1124	10.00	4.75	.	.
16 08 77	4	1130	.25	16.25	.	.05
16 08 77	4	1132	.50	8.75	.	.05
16 08 77	4	1134	.75	16.75	.	.06
16 08 77	4	1136	1.00	10.60	32.9	.05
16 08 77	4	1139	2.00	1.00	31.7	0.00
16 08 77	4	1142	4.00	6.75	32.5	0.00
16 08 77	4	1144	6.00	9.00	33.1	0.00
16 08 77	4	1148	8.00	14.50	32.7	- 0.01
16 08 77	4	1151	10.00	4.60	32.8	- .03
16 08 77	4	1200	.25	12.75	.	- .03
16 08 77	4	1202	.50	12.25	.	0.00
16 08 77	4	1204	.75	7.75	.	0000.00
16 08 77	4	1206	1.00	2.25	33.0	- .05
16 08 77	4	1209	2.00	4.00	32.7	- .10
16 08 77	4	1212	4.00	1.25	32.6	- .12
16 08 77	4	1215	6.00	2.75	32.6	- .18
16 08 77	4	1219	8.00	8.75	32.4	- .28
16 08 77	4	1221	10.00	12.00	32.5	- .31
16 08 77	4	1250	.25	5.75	.	- .13
16 08 77	4	1254	.50	4.50	.	- .15
16 08 77	4	1256	.75	1.50	.	- .16
16 08 77	4	1259	1.00	15.50	32.8	- .21
16 08 77	4	1243	2.00	14.50	5.27	- .27
16 08 77	4	1247	4.00	3.25	32.7	- .31
16 08 77	4	1251	6.00	3.25	32.6	- .40
16 08 77	4	1254	8.00	2.50	32.5	- .50
16 08 77	4	1258	10.00	0.50	32.0	- .61
16 08 77	4	1300	.25	5.25	.	- .13
16 08 77	4	1303	.50	15.25	.	- .14
16 08 77	4	1306	.75	7.25	.	- .14
16 08 77	4	1308	1.00	6.00	32.7	- .21
16 08 77	4	1312	2.00	3.75	32.7	- .28
16 08 77	4	1315	4.00	11.75	32.5	- .40
16 08 77	4	1318	6.00	1.00	32.4	- .45
16 08 77	4	1321	8.00	4.60	32.2	- .29
16 08 77	4	1324	10.00	2.50	31.8	- .66
16 08 77	4	1350	.25	12.00	.	- .15
16 08 77	4	1352	.50	4.00	.	- .16
16 08 77	4	1354	.75	.	.	- .16
16 08 77	4	1356	1.00	8.50	32.8	- .29
16 08 77	4	1359	2.00	12.75	32.6	- .34
16 08 77	4	1342	4.00	11.00	32.5	- .42
16 08 77	4	1345	6.00	0.50	32.5	- .53
16 08 77	4	1347	8.00	8.00	32.0	- .61
16 08 77	4	1349	10.00	3.00	31.8	- .61
16 08 77	4	1400	.25	6.75	.	- .27
16 08 77	4	1402	.50	23.50	.	- .28
16 08 77	4	1404	.75	.	.	- .30
16 08 77	4	1406	1.00	.	32.2	- .42
16 08 77	4	1409	2.00	6.50	32.1	- .43
16 08 77	4	1413	4.00	8.50	32.4	- .48
16 08 77	4	1417	6.00	8.00	32.1	- .52

Date	Station	Time	Height above bed (m)	S.S. Conc^{n} (ppm)	Salinity (ppt)		Velocity (m/s)
16 08 77	4	1421	8.00	16,00	31,8	-	,56
16 08 77	4	1425	10,00	9,50	31,7	-	,66
16 08 77	4	1438	,25	22,00	.	-	,33
16 08 77	4	1440	,50	22,80	.	-	,38
16 08 77	4	1442	,75	14,50	.	-	,36
16 08 77	4	1445	1,00	11,75	32,2	-	,54
16 08 77	4	1448	2,00	12,25	32,2	-	,43
16 08 77	4	1451	4,00	16,75	32,0	-	,52
16 08 77	4	1453	6,00	8,50	31,9	-	,67
16 08 77	4	1455	8,00	10,75	31,5	-	,68
16 08 77	4	1458	10,00	0,50	31,5	-	,74
16 08 77	4	1500	,25	13,00	.	-	,26
16 08 77	4	1502	,50	22,00	.	-	,27
16 08 77	4	1504	,75	18,50	.	-	,30
16 08 77	4	1506	1,00	10,50	32,2	-	,40
16 08 77	4	1509	2,00	17,25	32,2	-	,39
16 08 77	4	1512	4,00	8,75	32,4	-	,53
16 08 77	4	1515	6,00	5,25	31,5	-	,61
16 08 77	4	1517	8,00	8,50	31,6	-	,71
16 08 77	4	1520	10,00	9,75	31,0	-	,76
16 08 77	4	1530	,25	18,00	.	-	,18
16 08 77	4	1532	,50	21,00	.	-	,20
16 08 77	4	1535	,75	26,50	.	-	,20
16 08 77	4	1537	1,00	4,60	32,5	-	,26
16 08 77	4	1540	2,00	15,50	31,7	-	,34
16 08 77	4	1544	4,00	9,75	32,0	-	,45
16 08 77	4	1547	6,00	6,00	31,1	-	,57
16 08 77	4	1549	8,00	11,00	31,2	-	,64
16 08 77	4	1630	,25	17,50	.	-	,05
16 08 77	4	1637	,50	26,00	.	-	,05
16 08 77	4	1639	,75	19,25	.	-	,06
16 08 77	4	1642	1,00	12,25	31,7	-	,12
16 08 77	4	1645	2,00	16,00	31,5	-	,14
16 08 77	4	1648	4,00	.	31,3	-	,26
16 08 77	4	1652	6,00	8,50	31,1	-	,39
16 08 77	4	1656	8,00	12,25	31,2	-	,44
16 08 77	4	1658	10,00	0,50	30,6		.
16 08 77	4	1700	,25	12,75	.		0,00
16 08 77	4	1702	,50	13,00	.		0,00
16 08 77	4	1704	,75	21,25	.		0,00
16 08 77	4	1706	1,00	11,75	31,3	-	,01
16 08 77	4	1710	2,00	14,50	30,9	-	,04
16 08 77	4	1712	4,00	3,25	31,0	-	,20
16 08 77	4	1715	6,00	19,00	30,6	-	,33
16 08 77	4	1718	8,00	15,50	30,4	-	,22
16 08 77	4	1720	10,00	15,25	30,2	-	,25
16 08 77	4	1730	,25	8,50	.		0,00
16 08 77	4	1732	,50	57,50	.		0,00
16 08 77	4	1734	,75	25,00	.		0,00
16 08 77	4	1736	1,00	17,25	31,1		,06
16 08 77	4	1738	2,00	9,00	31,0		,05
16 08 77	4	1740	4,00	7,25	30,6	-	,14
16 08 77	4	1743	6,00	14,50	30,4	-	,15
16 08 77	4	1745	8,00	0,50	30,2	-	,06

Date	Station	Time	Height above bed (m)	S.S. Conc^{n} (ppm)	Salinity (ppt)	Velocity (m/s)
16 08 77	4	1747	10.00	13.00	30.5	.07
16 08 77	4	1800	.25	12.25	.	.18
16 08 77	4	1802	.50	24.25	.	.21
16 08 77	4	1804	.75	15.25	.	.20
16 08 77	4	1806	1.00	8.75	31.0	.19
16 08 77	4	1809	2.00	17.25	31.0	.16
16 08 77	4	1812	4.00	6.00	30.9	.14
16 08 77	4	1815	6.00	5.25	30.7	.12
16 08 77	4	1817	8.00	12.00	30.8	.10
16 08 77	4	1820	8.70	4.50	30.5	.05
16 08 77	4	1835	.25	9.00	.	.19
16 08 77	4	1837	.50	18.75	.	.22
16 08 77	4	1839	.75	7.50	.	.22
16 08 77	4	1841	1.00	7.75	31.5	.41
16 08 77	4	1844	2.00	8.50	31.4	.42
16 08 77	4	1848	4.00	6.75	31.0	.45
16 08 77	4	1851	6.00	16.25	31.2	.40
16 08 77	4	1855	8.00	13.25	31.5	.41
16 08 77	4	1858	10.00	12.25	30.9	.45
16 08 77	4	1900	.25	15.50	.	.19
16 08 77	4	1902	0.50	18.00	.	.22
16 08 77	4	1904	.75	.	.	.23
16 08 77	4	1906	1.00	3.75	31.7	.45
16 08 77	4	1908	2.00	12.75	31.9	.49
16 08 77	4	1911	4.00	11.00	31.2	.49
16 08 77	4	1914	6.00	1.25	31.1	.53
16 08 77	4	1918	8.00	2.50	31.7	.55
16 08 77	4	1921	10.00	12.00	31.2	.52
16 08 77	4	1930	.25	55.25	.	.36
16 08 77	4	1932	.50	44.00	.	.41
16 08 77	4	1934	.75	40.00	.	.43
16 08 77	4	1936	1.00	33.20	32.1	.51
16 08 77	4	1938	2.00	28.00	32.5	.52
16 08 77	4	1941	4.00	33.00	32.5	.60
16 08 77	4	1944	6.00	26.00	32.5	.61
16 08 77	4	1948	8.00	9.75	32.1	.49
16 08 77	4	1951	10.00	4.00	32.2	.49
16 08 77	4	2000	.25	43.00	.	.36
16 08 77	4	2002	.50	44.50	.	.36
16 08 77	4	2004	.75	48.00	.	.37
16 08 77	4	2006	1.00	44.25	32.5	.46
16 08 77	4	2010	2.00	45.25	32.7	.47
16 08 77	4	2013	4.00	35.00	32.6	.55
16 08 77	4	2015	6.00	32.25	32.5	.59
16 08 77	4	2019	8.00	22.00	32.5	.62
16 08 77	4	2025	10.00	20.25	32.4	.64
16 08 77	4	2030	.25	49.75	.	.41
16 08 77	4	2032	.50	25.00	.	.45
16 08 77	4	2034	.75	33.50	.	.43
16 08 77	4	2036	1.00	37.25	32.5	.59
16 08 77	4	2039	2.00	31.25	32.8	.59
16 08 77	4	2042	4.00	26.50	32.4	.62
16 08 77	4	2045	6.00	22.25	32.7	.66
16 08 77	4	2048	8.00	24.20	32.4	.60
16 08 77	4	2050	10.00	17.50	32.5	.55

Date	Station	Time	Height above bed (m)	S.S. Conc^{n} (ppm)	Salinity (ppt)	Velocity (m/s)
16 08 77	5	0731	.25	39.50	.	.27
16 08 77	5	0733	.50	47.50	.	.33
16 08 77	5	0735	.75	42.75	.	.35
16 08 77	5	0730	1.00	28.25	30.7	.39
16 08 77	5	0735	2.00	32.00	30.6	.42
16 08 77	5	0737	4.00	20.75	30.4	.48
16 08 77	5	0739	6.00	10.00	30.6	.55
16 08 77	5	0741	8.00	4.75	30.5	.48
16 08 77	5	0744	10.00	8.75	29.7	.39
16 08 77	5	0800	1.00	42.80	31.2	.41
16 08 77	5	0803	2.00	9.00	31.1	.46
16 08 77	5	0806	4.00	18.50	30.8	.59
16 08 77	5	0810	6.00	13.75	30.6	.62
16 08 77	5	0813	8.00	8.00	30.2	.64
16 08 77	5	0815	10.00	3.00	30.5	.54
16 08 77	5	0817	10.75	6.75	30.1	.47
16 08 77	5	0833	1.00	47.75	30.6	.48
16 08 77	5	0835	2.00	36.75	30.9	.54
16 08 77	5	0837	4.00	24.75	31.5	.59
16 08 77	5	0839	6.00	6.00	30.9	.65
16 08 77	5	0842	8.00	11.00	30.9	.58
16 08 77	5	0844	10.00	9.50	30.2	.57
16 08 77	5	0846	11.00	1.50	30.2	.51
16 08 77	5	0900	1.00	33.50	31.1	.52
16 08 77	5	0903	2.00	26.75	31.1	.55
16 08 77	5	0905	4.00	19.25	31.5	.62
16 08 77	5	0908	6.00	10.75	31.0	.62
16 08 77	5	0910	8.00	2.75	30.6	.69
16 08 77	5	0913	10.00	9.25	30.7	.66
16 08 77	5	0915	11.00	12.00	30.7	.59
16 08 77	5	1017	.25	45.50	.	.28
16 08 77	5	1020	.50	54.00	.	.27
16 08 77	5	1022	.75	59.00	.	.35
16 08 77	5	1015	1.00	56.00	32.1	.42
16 08 77	5	1018	2.00	60.25	31.8	.43
16 08 77	5	1020	4.00	39.50	31.8	.44
16 08 77	5	1024	6.00	16.75	31.6	.47
16 08 77	5	1026	8.00	28.25	32.0	.44
16 08 77	5	1028	10.00	2.75	31.5	.33
16 08 77	5	1050	11.50	10.00	31.2	.25
16 08 77	5	1033	.25	47.00	.	.27
16 08 77	5	1035	.50	37.25	.	.26
16 08 77	5	1038	.75	1.00	.	.25
16 08 77	5	1055	1.00	29.75	32.1	.31
16 08 77	5	1037	2.00	33.20	32.2	.34
16 08 77	5	1039	4.00	33.00	31.9	.37
16 08 77	5	1041	6.00	19.25	31.9	.34
16 08 77	5	1043	8.00	16.75	31.5	.32
16 08 77	5	1047	10.00	8.75	31.5	.17
16 08 77	5	1049	11.00	6.00	31.1	.08
16 08 77	5	1101	.25	36.75	.	.17
16 08 77	5	1103	.50	20.75	.	.15
16 08 77	5	1106	.75	22.00	.	.20
16 08 77	5	1104	1.00	10.00	32.4	.20
16 08 77	5	1106	2.00	24.00	32.5	.25

Date	Station	Time	Height above bed (m)	S.S. Conc^{n} (ppm)	Salinity (ppt)	Velocity (m/s)
16 08 77	5	1108	4.00	12.75	32.5	.27
16 08 77	5	1110	6.00	11.00	32.2	.23
16 08 77	5	1112	8.00	9.25	32.2	.21
16 08 77	5	1115	10.00	12.50	31.4	.20
16 08 77	5	1117	11.50	8.50	31.6	.05
16 08 77	5	1130	.25	20.75	.	.10
16 08 77	5	1132	.50	16.50	.	.10
16 08 77	5	1135	.75	22.25	.	.12
16 08 77	5	1132	1.00	11.00	32.3	.16
16 08 77	5	1135	2.00	10.75	32.4	.17
16 08 77	5	1137	4.00	9.75	32.1	.14
16 08 77	5	1139	6.00	7.25	32.3	.06
16 08 77	5	1141	8.00	7.50	31.8	.02
16 08 77	5	1143	10.00	8.00	31.6	- .15
16 08 77	5	1145	11.00	11.00	32.0	- .28
16 08 77	5	1200	.25	41.00	.	0.00
16 08 77	5	1202	.50	56.75	.	.00
16 08 77	5	1204	.75	28.00	.	0.00
16 08 77	5	1200	1.00	15.75	32.7	0.00
16 08 77	5	1203	2.00	18.50	32.6	.00
16 08 77	5	1205	4.00	11.00	32.4	0.00
16 08 77	5	1207	6.00	11.75	31.9	- .02
16 08 77	5	1209	8.00	10.50	32.0	- .06
16 08 77	5	1210	10.00	11.75	31.2	- .28
16 08 77	5	1215	11.25	10.00	31.0	- .38
16 08 77	5	1230	.25	29.00	.	- .07
16 08 77	5	1232	.50	31.00	.	- .09
16 08 77	5	1234	.75	18.50	.	- .09
16 08 77	5	1250	1.00	18.50	35.0	- .02
16 08 77	5	1232	2.00	13.25	35.3	0.00
16 08 77	5	1234	4.00	11.75	35.2	- .05
16 08 77	5	1236	6.00	15.00	31.8	- .10
16 08 77	5	1238	8.00	7.50	32.3	- .22
16 08 77	5	1240	10.00	13.75	32.0	- .40
16 08 77	5	1242	11.25	18.50	.	- .53
16 08 77	5	1300	.25	31.50	.	- .08
16 08 77	5	1302	.50	30.75	.	- .10
16 08 77	5	1305	.75	29.00	.	- .12
16 08 77	5	1301	1.00	19.75	32.3	- .14
16 08 77	5	1303	2.00	16.00	32.2	- .15
16 08 77	5	1305	4.00	16.00	32.4	- .20
16 08 77	5	1307	6.00	9.75	32.1	- .24
16 08 77	5	1309	8.00	9.25	31.9	- .36
16 08 77	5	1311	10.00	8.50	31.3	- .54
16 08 77	5	1315	11.00	19.25	30.4	- .59
16 08 77	5	1351	.25	29.00	.	- .09
16 08 77	5	1352	.50	21.00	.	- .12
16 08 77	5	1355	.75	24.20	.	- .13
16 08 77	5	1356	1.00	16.00	32.3	- .17
16 08 77	5	1358	2.00	12.25	32.3	- .18
16 08 77	5	1359	4.00	10.50	32.3	- .23
16 08 77	5	1341	6.00	14.00	31.9	- .38
16 08 77	5	1343	8.00	8.75	31.9	- .35
16 08 77	5	1345	10.00	7.25	31.2	- .62
16 08 77	5	1347	11.00	29.00	30.4	- .45

Date	Station	Time	Height above bed (m)	S.S. Conc^{n} (ppm)	Salinity (ppt)		Velocity (m/s)
16 08 77	5	1401	.25	31,50	.	-	.07
16 08 77	5	1403	.50	22,00	.	-	.10
16 08 77	5	1405	.75	24,25	.	-	.11
16 08 77	5	1401	1,00	19,25	32,6	-	.18
16 08 77	5	1403	2,00	21,70	32,1	-	.25
16 08 77	5	1405	4,00	15,50	31,5	-	.35
16 08 77	5	1407	6,00	16,75	31,7	-	.31
16 08 77	5	1409	8,00	15,75	31,5	-	.57
16 08 77	5	1411	10,00	6,75	30,5	-	.70
16 08 77	5	1413	10,50	6,25	30,1	-	,80
16 08 77	5	1432	.25	44,75	.	-	.03
16 08 77	5	1434	.50	40,00	.	-	.08
16 08 77	5	1436	.75	29,50	.	-	.13
16 08 77	5	1432	1,00	31,75	31,7	-	.17
16 08 77	5	1434	2,00	37,25	31,5	-	.23
16 08 77	5	1436	4,00	38,75	31,2	-	.37
16 08 77	5	1439	6,00	28,50	31,1	-	.46
16 08 77	5	1441	8,00	27,00	31,5	-	.58
16 08 77	5	1443	10,00	17,25	31,0	-	.73
16 08 77	5	1500	.25	52,75	.	-	.16
16 08 77	5	1502	.50	52,25	.	-	.17
16 08 77	5	1504	.75	33,20	.	-	.22
16 08 77	5	1500	1,00	45,75	31,5	-	.23
16 08 77	5	1502	2,00	26,50	30,9	-	.35
16 08 77	5	1504	4,00	31,50	31,1	-	.41
16 08 77	5	1506	6,00	44,75	31,5	-	.46
16 08 77	5	1508	8,00	32,00	30,4	-	.55
16 08 77	5	1510	10,00	16,50	30,4	-	.73
16 08 77	5	1532	.25	48,75	.	-	.23
16 08 77	5	1534	.50	40,00	.	-	.24
16 08 77	5	1536	.75	32,25	.	-	.26
16 08 77	5	1551	1,00	42,25	30,5	-	.27
16 08 77	5	1553	2,00	41,75	30,8	-	.35
16 08 77	5	1555	4,00	29,50	30,5	-	.43
16 08 77	5	1557	6,00	34,25	30,8	-	.48
16 08 77	5	1559	8,00	33,20	30,6	-	.49
16 08 77	5	1541	10,00	27,50	29,9	-	.64
16 08 77	5	1608	.25	58,25	.	-	.09
16 08 77	5	1610	.50	51,00	.	-	.10
16 08 77	5	1613	.75	44,00	.	-	.11
16 08 77	5	1600	1,00	49,50	30,7	-	.16
16 08 77	5	1602	2,00	46,25	30,4	-	.23
16 08 77	5	1605	4,00	40,25	30,7	-	.55
16 08 77	5	1607	6,00	45,75	30,2	-	.35
16 08 77	5	1609	8,00	22,00	29,7	-	.47
16 08 77	5	1611	10,00	10,00	29,7	-	.61
16 08 77	5	1630	.25	52,75	.	-	.05
16 08 77	5	1632	.50	49,25	.	-	.13
16 08 77	5	1634	.75	37,00	.	-	.16
16 08 77	5	1645	1,00	34,25	30,1	-	.21
16 08 77	5	1646	2,00	30,00	30,5	-	.22
16 08 77	5	1648	4,00	23,50	30,1	-	.23
16 08 77	5	1651	6,00	28,00	30,1	-	.23
16 08 77	5	1653	8,00	29,00	29,8	-	.31
16 08 77	5	1700	.25	40,75	.		.01
16 08 77	5	1702	.50	32,25	.		.01
16 08 77	5	1704	.75	33,00	.		0,00
16 08 77	5	1701	1,00	29,50	30,1	-	.08
16 08 77	5	1703	2,00	33,20	30,4	-	.11
16 08 77	5	1705	4,00	22,00	30,1	-	.18
16 08 77	5	1707	6,00	19,25	30,1	-	,20

Date	Station	Time	Height above bed (m)	S.S. Conc^{n} (ppm)	Salinity (ppt)	Velocity (m/s)
16 08 77	5	1709	8.00	27.50	29.7	- .26
16 08 77	5	1737	.25	30.00	.	.09
16 08 77	5	1739	.50	26.75	.	.11
16 08 77	5	1741	.75	29.00	.	.10
16 08 77	5	1732	1.00	25.00	30.0	.06
16 08 77	5	1734	2.00	28.00	29.7	.06
16 08 77	5	1736	4.00	26.75	30.6	.02
16 08 77	5	1737	6.00	20.75	29.9	- .01
16 08 77	5	1740	8.00	17.50	29.5	- .12
16 08 77	5	1802	.25	19.25	.	.11
16 08 77	5	1804	.50	31.50	.	.13
16 08 77	5	1806	.75	33.75	.	.15
16 08 77	5	1800	1.00	27.75	30.2	.21
16 08 77	5	1806	2.00	30.75	30.0	.26
16 08 77	5	1811	4.00	29.00	29.9	.25
16 08 77	5	1813	6.00	10.00	29.5	.21
16 08 77	5	1815	8.00	16.75	29.5	.13
16 08 77	5	1816	10.00	10.75	28.9	.02
16 08 77	5	1830	.25	31.25	.	.18
16 08 77	5	1832	.50	33.50	.	.25
16 08 77	5	1834	.75	37.25	.	.28
16 08 77	5	1830	1.00	34.50	31.1	.26
16 08 77	5	1852	2.00	29.00	30.5	.41
16 08 77	5	1854	4.00	15.25	30.5	.55
16 08 77	5	1856	6.00	11.00	30.1	.30
16 08 77	5	1858	8.00	10.50	29.9	.20
16 08 77	5	1840	10.00	9.00	29.5	.11
16 08 77	5	1902	.25	40.25	.	.19
16 08 77	5	1904	.50	32.00	.	.22
16 08 77	5	1906	.75	32.25	.	.27
16 08 77	5	1900	1.00	30.00	30.7	.35
16 08 77	5	1904	2.00	26.50	30.9	.39
16 08 77	5	1906	4.00	24.25	30.7	.43
16 08 77	5	1908	6.00	11.75	30.7	.52
16 08 77	5	1910	8.00	15.00	29.9	.48
16 08 77	5	1912	10.00	15.25	30.1	.52
16 08 77	5	1945	.25	55.50	.	.26
16 08 77	5	1947	.50	61.00	.	.10
16 08 77	5	1949	.75	47.50	.	.33
16 08 77	5	1955	1.00	37.75	30.9	.56
16 08 77	5	1936	2.00	10.60	30.8	.41
16 08 77	5	1938	4.00	24.00	30.9	.52
16 08 77	5	1940	6.00	21.25	30.5	.63
16 08 77	5	1942	8.00	14.00	30.1	.63
16 08 77	5	1944	10.00	16.00	29.9	.60
16 08 77	5	2001	.25	119.25	.	.20
16 08 77	5	2003	.50	98.00	.	.32
16 08 77	5	2005	.75	89.00	.	.40
16 08 77	5	2000	1.00	76.00	31.2	.45
16 08 77	5	2002	2.00	42.50	30.8	.56
16 08 77	5	2004	4.00	40.00	31.0	.66
16 08 77	5	2008	6.00	46.25	30.7	.68
16 08 77	5	2011	8.00	6.00	30.5	.73
16 08 77	5	2015	10.00	9.50	30.5	.66
16 08 77	5	2030	.25	214.50	.	.52
16 08 77	5	2052	.50	212.75	.	.43
16 08 77	5	2054	.75	130.25	.	.54
16 08 77	5	2031	1.00	67.50	30.5	.53
16 08 77	5	2033	2.00	53.50	30.4	.57
16 08 77	5	2035	4.00	39.75	30.9	.68
16 08 77	5	2057	6.00	56.50	31.4	.68
16 08 77	5	2059	8.00	15.00	30.9	.76
16 08 77	5	2041	10.00	14.50	30.2	.71

Date	Station	Time	Height above bed (m)	S.S. Conc^n (ppm)	Salinity (ppt)	Velocity (m/s)
16 08 77	6	0737	.25	34.00	.	.16
16 08 77	6	0740	.50	52.50	.	.20
16 08 77	6	0750	.75	14.40	.	.22
16 08 77	6	0737	1.00	31.50	29.7	.39
16 08 77	6	0742	2.00	27.50	29.7	.43
16 08 77	6	0745	4.00	.	29.4	.45
16 08 77	6	0747	6.00	14.75	29.1	.34
16 08 77	6	0752	8.00	10.75	28.9	.25
16 08 77	6	0755	10.00	.	28.7	.08
16 08 77	6	0805	.25	58.00	.	.18
16 08 77	6	0818	.50	60.75	.	.20
16 08 77	6	0820	.75	48.00	.	.27
16 08 77	6	0805	1.00	41.50	30.0	.37
16 08 77	6	0810	2.00	25.20	29.9	.42
16 08 77	6	0814	4.00	16.30	29.5	.43
16 08 77	6	0817	6.00	16.00	29.3	.39
16 08 77	6	0820	8.00	17.25	29.0	.28
16 08 77	6	0822	10.00	21.25	28.7	.09
16 08 77	6	0850	.25	63.00	.	.17
16 08 77	6	0852	.50	55.50	.	.19
16 08 77	6	0854	.75	55.25	.	.18
16 08 77	6	0851	1.00	44.50	30.1	.43
16 08 77	6	0853	2.00	40.00	30.1	.44
16 08 77	6	0855	4.00	41.50	30.0	.43
16 08 77	6	0840	6.00	22.25	29.6	.47
16 08 77	6	0845	8.00	15.25	29.6	.41
16 08 77	6	0847	10.00	17.50	29.2	.27
16 08 77	6	1000	.25	62.75	.	.13
16 08 77	6	1005	.50	37.00	.	.16
16 08 77	6	1011	.75	45.00	.	.15
16 08 77	6	1000	1.00	34.50	30.9	.28
16 08 77	6	1007	2.00	34.00	30.8	.31
16 08 77	6	1011	4.00	61.50	30.6	.36
16 08 77	6	1015	6.00	50.25	30.4	.35
16 08 77	6	1018	8.00	65.75	30.3	.26
16 08 77	6	1020	10.00	105.00	30.3	.15
16 08 77	6	1052	.25	176.25	.	.14
16 08 77	6	1054	.50	149.25	.	.14
16 08 77	6	1056	.75	.	.	.17
16 08 77	6	1054	1.00	110.70	30.8	.29
16 08 77	6	1040	2.00	66.00	30.5	.29
16 08 77	6	1042	4.00	120.50	30.5	.21
16 08 77	6	1045	6.00	57.00	30.6	.25
16 08 77	6	1047	8.00	143.00	30.5	.16
16 08 77	6	1050	10.00	103.00	30.5	.18
16 08 77	6	1100	.25	33.20	.	.09
16 08 77	6	1102	.50	29.50	.	.10
16 08 77	6	1104	.75	31.25	.	.09
16 08 77	6	1106	1.00	33.20	31.0	.13
16 08 77	6	1111	2.00	38.50	31.0	.16
16 08 77	6	1114	4.00	54.50	31.0	.10
16 08 77	6	1116	6.00	26.75	30.8	.02
16 08 77	6	1120	8.00	19.25	30.6	.01
16 08 77	6	1125	10.00	.	30.6	.04
16 08 77	6	1135	.25	29.75	.	.12
16 08 77	6	1141	.50	19.50	.	0.00
16 08 77	6	1148	.75	27.50	.	.01
16 08 77	6	1155	1.00	24.20	31.0	-.05
16 08 77	6	1138	2.00	17.75	31.0	-.03
16 08 77	6	1141	4.00	19.00	31.0	-.01
16 08 77	6	1143	6.00	27.75	30.9	.00

Date	Station	Time	Height above bed (m)	S.S. Conc^{n} (ppm)	Salinity (ppt)		Velocity (m/s)
16 08 77	6	1147	8.00	64.50	30.7	-	.05
16 08 77	6	1150	10.00	19.00	30.4	-	.14
16 08 77	6	1230	.25	23.50	.	-	.05
16 08 77	6	1255	.50	24.25	.	-	.05
16 08 77	6	1258	.75	28.00	.	-	.05
16 08 77	6	1250	1.00	123.50	31.0	-	.05
16 08 77	6	1235	2.00	26.00	31.1	-	.05
16 08 77	6	1258	4.00	25.00	31.0	-	.11
16 08 77	6	1240	6.00	26.50	31.0	-	.15
16 08 77	6	1243	8.00	35.50	30.8	-	.25
16 08 77	6	1245	10.00	31.25	30.5	-	.30
16 08 77	6	1300	.25	18.75	.	-	.05
16 08 77	6	1306	.50	28.25	.	-	.05
16 08 77	6	1312	.75	24.00	.	-	.06
16 08 77	6	1300	1.00	44.25	31.0	-	.11
16 08 77	6	1305	2.00	30.00	31.0	-	.15
16 08 77	6	1308	4.00	25.00	30.9	-	.22
16 08 77	6	1310	6.00	26.00	30.5	-	.30
16 08 77	6	1312	8.00	17.50	30.4	-	.37
16 08 77	6	1315	10.00	0.50	30.0	-	.46
16 08 77	6	1330	.25	4.60	.	-	.06
16 08 77	6	1342	.50	18.00	.	-	.07
16 08 77	6	1345	.75	24.85	.	-	.07
16 08 77	6	1330	1.00	18.00	31.0	-	.14
16 08 77	6	1342	2.00	.	30.8	-	.22
16 08 77	6	1345	4.00	11.75	30.4	-	.37
16 08 77	6	1347	6.00	8.50	30.1	-	.46
16 08 77	6	1350	8.00	11.00	29.8	-	.58
16 08 77	6	1352	10.00	13.00	29.8	-	.61
16 08 77	6	1400	.25	21.70	.	-	.09
16 08 77	6	1403	.50	31.75	.	-	.12
16 08 77	6	1405	.75	25.00	.	-	.15
16 08 77	6	1407	1.00	31.50	30.5	-	.28
16 08 77	6	1410	2.00	22.25	30.5	-	.30
16 08 77	6	1413	4.00	16.75	30.4	-	.41
16 08 77	6	1415	6.00	11.00	30.1	-	.54
16 08 77	6	1417	8.00	8.00	29.9	-	.59
16 08 77	6	1420	10.00	4.75	29.7	-	.62
16 08 77	6	1430	.25	41.50	.	-	.12
16 08 77	6	1435	.50	44.50	.	-	.15
16 08 77	6	1438	.75	39.00	.	-	.16
16 08 77	6	1430	1.00	24.00	30.5	-	.25
16 08 77	6	1457	2.00	24.85	30.4	-	.37
16 08 77	6	1440	4.00	25.75	30.5	-	.44
16 08 77	6	1444	6.00	30.00	30.0	-	.50
16 08 77	6	1446	8.00	26.75	29.9	-	.54
16 08 77	6	1448	10.00	17.50	29.5	-	.58
16 08 77	6	1502	.25	38.00	.	-	.12
16 08 77	6	1509	.50	38.75	.	-	.12
16 08 77	6	1515	.75	40.75	.	-	.13
16 08 77	6	1503	1.00	33.75	30.5	-	.23
16 08 77	6	1506	2.00	35.75	30.1	-	.25
16 08 77	6	1509	4.00	32.75	30.0	-	.33
16 08 77	6	1511	6.00	31.50	29.9	-	.39
16 08 77	6	1514	8.00	31.75	29.8	-	.43
16 08 77	6	1516	10.00	34.25	29.5	-	.51
16 08 77	6	1530	.25	44.50	.	-	.05
16 08 77	6	1534	.50	43.00	.	-	.05
16 08 77	6	1540	.75	37.25	.	-	.08
16 08 77	6	1530	1.00	34.00	30.0	-	.15
16 08 77	6	1534	2.00	42.75	29.9	-	.17

Date	Station	Time	Height above bed (m)	S.S. Conc^{n} (ppm)	Salinity (ppt)		Velocity (m/s)
16 08 77	6	1537	4.00	46.25	29.1	-	.25
16 08 77	6	1540	6.00	36.50	29.5	-	.35
16 08 77	6	1543	8.00	40.25	29.4	-	.43
16 08 77	6	1546	10.00	28.00	29.5	-	.55
16 08 77	6	1600	.25	59.50	.	-	.03
16 08 77	6	1606	.50	60.25	.	-	.04
16 08 77	6	1612	.75	59.75	.	-	.02
16 08 77	6	1600	1.00	31.75	29.8	-	.05
16 08 77	5	1605	2.00	45.25	29.5	-	.17
16 08 77	6	1607	4.00	37.25	29.4	-	.25
16 08 77	6	1610	6.00	33.20	29.5	-	.34
16 08 77	6	1612	8.00	32.25	29.3	-	.42
16 08 77	6	1615	10.00	32.25	29.1	-	.51
16 08 77	6	1648	.25	40.00	.		.01
16 08 77	6	1632	.50	45.25	.	-	.03
16 08 77	6	1655	.75	44.50	.		.03
16 08 77	6	1630	1.00	45.00	29.4	-	.04
16 08 77	6	1655	2.00	42.80	29.5	-	.12
16 08 77	6	1638	4.00	41.50	29.1	-	.18
16 08 77	6	1640	6.00	34.50	29.0	-	.26
16 08 77	6	1645	8.00	28.30	29.0	-	.31
16 08 77	6	1648	10.00	31.00	28.9	-	.36
16 08 77	6	1700	.25	42.00	.		.05
16 08 77	6	1706	.50	42.80	.		.03
16 08 77	6	1715	.75	33.50	.		.04
16 08 77	6	1705	1.00	36.50	29.4		.02
16 08 77	6	1707	2.00	34.25	29.0	-	.05
16 08 77	6	1710	4.00	35.50	28.9	-	.09
16 08 77	6	1714	6.00	32.75	28.8	-	.17
16 08 77	6	1716	8.00	31.25	28.6	-	.20
16 08 77	6	1720	10.00	24.00	28.5	-	.18
16 08 77	6	1730	.25	44.75	.		.12
16 08 77	6	1735	.50	44.75	.		.10
16 08 77	6	1738	.75	45.00	.		.12
16 08 77	6	1730	1.00	35.75	29.4		.13
16 08 77	6	1735	2.00	37.25	29.3		.07
16 08 77	6	1738	4.00	31.25	29.0		.08
16 08 77	6	1740	6.00	30.75	28.8	-	.08
16 08 77	6	1743	8.00	27.75	28.6	-	.09
16 08 77	6	1745	10.00	27.50	28.5	-	.19
16 08 77	6	1807	.25	37.00	.		.18
16 08 77	6	1811	.50	39.00	.		.17
16 08 77	6	1815	.75	37.00	.		.18
16 08 77	6	1800	1.00	29.00	29.5		.30

Date	Station	Time	Height above bed (m)	S.S. Conc^{n} (ppm)	Salinity (ppt)	Velocity (m/s)
16 08 77	6	1807	2.00	26.52	29.5	.24
16 08 77	6	1810	4.00	26.50	29.0	.19
16 08 77	6	1815	6.00	24.85	28.4	.05
16 08 77	6	1817	8.00	26.25	28.7	.08
16 08 77	6	1819	10.00	24.20	28.1	- .07
16 08 77	6	1830	.25	.	.	.15
16 08 77	6	1836	.50	.	.	.17
16 08 77	6	1842	.75	24.25	.	.16
16 08 77	6	1850	1.00	28.25	29.6	.33
16 08 77	6	1836	2.00	17.75	29.5	.34
16 08 77	6	1840	4.00	.	29.1	.33
16 08 77	6	1846	6.00	15.00	29.1	.23
16 08 77	6	1850	8.00	16.75	29.0	.14
16 08 77	6	1855	10.00	19.25	28.5	.04
16 08 77	6	1900	.25	52.25	.	.21
16 08 77	6	1902	.50	63.50	.	.27
16 08 77	6	1905	.75	48.25	.	.25
16 08 77	6	1906	1.00	24.75	29.1	.42
16 08 77	6	1910	2.00	17.75	29.6	.47
16 08 77	6	1912	4.00	20.25	30.6	.44
16 08 77	6	1914	6.00	12.25	30.6	.33
16 08 77	6	1916	8.00	16.25	30.5	.20
16 08 77	6	1918	10.00	10.75	30.1	.11
16 08 77	6	1930	.25	46.50	.	.25
16 08 77	6	1940	.50	55.25	.	.33
16 08 77	6	1947	.75	61.75	.	.37
16 08 77	6	1950	1.00	32.75	30.0	.40
16 08 77	6	1940	2.00	43.00	30.0	.45
16 08 77	6	1943	4.00	31.00	29.5	.52
16 08 77	6	1947	6.00	16.50	29.0	.41
16 08 77	6	1950	8.00	17.75	28.6	.27
16 08 77	6	1952	10.00	19.00	28.5	.19
16 08 77	6	2000	.25	62.25	.	.32
16 08 77	6	2006	.50	74.25	.	.37
16 08 77	6	2012	.75	54.50	.	.39
16 08 77	6	2000	1.00	41.75	30.1	.49
16 08 77	6	2004	2.00	30.00	30.1	.52
16 08 77	6	2008	4.00	28.00	29.5	.44
16 08 77	6	2012	6.00	20.75	29.4	.50
16 08 77	6	2014	8.00	20.00	28.9	.37
16 08 77	6	2015	10.00	20.25	29.1	.22
16 08 77	6	2030	.25	43.75	.	.27
16 08 77	6	2035	.50	46.00	.	.27
16 08 77	6	2040	.75	59.25	.	.29
16 08 77	6	2030	1.00	37.25	30.2	.39
16 08 77	6	2032	2.00	43.50	30.2	.46
16 08 77	6	2035	4.00	31.50	30.2	.53
16 08 77	6	2040	6.00	18.50	29.9	.59
16 08 77	6	2042	8.00	20.25	29.8	.55
16 08 77	6	2045	10.00	19.25	29.4	.32

Date	Station	Time	Height above bed (m)	S.S. Conc^{n} (ppm)	Salinity (ppt)	Velocity (m/s)
16 08 77	7	0744	.25	54.50	28.5	.29
16 08 77	7	0746	.50	53.00	29.5	.33
16 08 77	7	0748	.75	62.00	29.4	.26
16 08 77	7	0740	1.00	16.00	28.6	.42
16 08 77	7	0742	2.00	48.25	28.7	.48
16 08 77	7	0744	4.00	19.25	28.0	.42
16 08 77	7	0746	6.00	6.75	28.5	.47
16 08 77	7	0748	8.00	39.00	27.7	.48
16 08 77	7	0805	.25	65.00	29.6	.37
16 08 77	7	0807	.50	34.00	29.5	.33
16 08 77	7	0810	.75	54.50	28.5	.31
16 08 77	7	0805	1.00	107.75	29.2	.40
16 08 77	7	0805	2.00	63.25	28.6	.52
16 08 77	7	0807	4.00	55.00	28.6	.62
16 08 77	7	0809	6.00	33.20	28.4	.62
16 08 77	7	0811	8.00	28.00	27.7	.49
16 08 77	7	0830	.25	28.00	29.6	.30
16 08 77	7	0832	.50	86.00	29.7	.32
16 08 77	7	0835	.75	129.50	29.0	.30
16 08 77	7	0831	1.00	85.00	29.2	.45
16 08 77	7	0833	2.00	62.75	28.7	.55
16 08 77	7	0835	4.00	42.00	28.6	.58
16 08 77	7	0837	6.00	30.75	29.2	.56
16 08 77	7	0839	8.00	13.00	28.6	.63
16 08 77	7	0900	.25	105.00	30.0	.24
16 08 77	7	0902	.50	62.50	30.0	.24
16 08 77	7	0905	.75	32.25	.	.26
16 08 77	7	0902	1.00	44.25	29.5	.44
16 08 77	7	0904	2.00	48.75	29.4	.58
16 08 77	7	0906	4.00	16.75	29.6	.60
16 08 77	7	0908	6.00	7.25	29.5	.61
16 08 77	7	0910	8.00	9.75	29.4	.57
16 08 77	7	0912	10.00	27.00	28.6	.43
16 08 77	7	0933	.25	45.50	30.5	.55
16 08 77	7	0935	.50	88.50	30.0	.40
16 08 77	7	0938	.75	33.00	30.4	.37
16 08 77	7	0935	1.00	17.75	29.4	.50
16 08 77	7	0938	2.00	21.25	29.4	.54
16 08 77	7	0940	4.00	5.75	29.0	.62
16 08 77	7	0942	6.00	8.00	29.5	.57
16 08 77	7	0945	8.00	3.25	29.0	.56
16 08 77	7	0947	10.00	5.25	29.6	.67
16 08 77	7	1001	.25	52.50	30.2	.32
16 08 77	7	1003	.50	32.50	29.4	.32
16 08 77	7	1006	.75	42.25	30.0	.32
16 08 77	7	1002	1.00	22.70	29.6	.46
16 08 77	7	1004	2.00	16.00	29.5	.56
16 08 77	7	1006	4.00	7.75	29.6	.53
16 08 77	7	1008	6.00	10.50	29.5	.58
16 08 77	7	1012	8.00	2.25	29.6	.57
16 08 77	7	1015	10.00	3.00	29.6	.58
16 08 77	7	1033	.25	43.00	30.5	.19
16 08 77	7	1038	.50	42.25	30.0	.21
16 08 77	7	1040	.75	38.75	30.0	.22
16 08 77	7	1036	1.00	12.25	.	.26
16 08 77	7	1038	2.00	9.75	29.7	.52
16 08 77	7	1040	4.00	16.00	29.7	.44
16 08 77	7	1042	6.00	1.00	29.7	.44
16 08 77	7	1044	8.00	2.50	29.6	.32

Date	Station	Time	Height above bed (m)	S.S. Conc^{n} (ppm)	Salinity (ppt)		Velocity (m/s)
16 08 77	7	1046	10.00	4.00	29.5		.25
16 08 77	7	1102	.25	35.50	30.0		.20
16 08 77	7	1105	.50	35.75	30.2		.16
16 08 77	7	1107	.75	33.50	30.2		.14
16 08 77	7	1107	1.00	12.75	30.0		.21
16 08 77	7	1109	2.00	3.00	30.0		.20
16 08 77	7	1111	4.00	10.60	30.0		.32
16 08 77	7	1113	6.00	6.50	29.5		.36
16 08 77	7	1115	8.00	1.00	29.7		.25
16 08 77	7	1117	10.00	2.50	29.7		.18
16 08 77	7	1132	.25	1.75	29.5		.11
16 08 77	7	1135	.50	21.70	.		.12
16 08 77	7	1137	.75	20.25	30.0		.09
16 08 77	7	1135	1.00	1.75	30.4		.18
16 08 77	7	1137	2.00	5.25	30.5		.16
16 08 77	7	1139	4.00	5.25	30.5		.19
16 08 77	7	1141	6.00	6.75	29.7		.14
16 08 77	7	1143	8.00	3.25	29.6		.08
16 08 77	7	1145	10.00	6.25	30.2		.04
16 08 77	7	1201	.25	16.50	29.5		0.00
16 08 77	7	1210	.50	22.70	30.2		0.00
16 08 77	7	1213	.75	22.25	30.2		0.00
16 08 77	7	1203	1.00	9.75	29.5		.03
16 08 77	7	1205	2.00	7.75	30.5		0.00
16 08 77	7	1207	4.00	.	.		0.00
16 08 77	7	1230	.25	12.75	30.0	-	.08
16 08 77	7	1233	.50	23.00	30.5	-	.11
16 08 77	7	1235	.75	17.25	30.0	-	.09
16 08 77	7	1312	.25	7.50	30.0	-	.15
16 08 77	7	1314	.50	3.75	29.5	-	.14
16 08 77	7	1317	.75	1.00	29.5	-	.16
16 08 77	7	1301	1.00	7.25	27.8	-	.17
16 08 77	7	1304	2.00	0.50	29.7	-	.27
16 08 77	7	1306	4.00	10.50	29.5	-	.31
16 08 77	7	1310	6.00	2.25	29.4	-	.38
16 08 77	7	1312	8.00	0.50	29.1	-	.47
16 08 77	7	1331	.25	7.75	.	-	.18
16 08 77	7	1334	.50	15.00	.	-	.17
16 08 77	7	1337	.75	9.75	.	-	.17
16 08 77	7	1335	1.00	6.00	29.9	-	.30
16 08 77	7	1337	2.00	15.00	29.8	-	.38
16 08 77	7	1339	4.00	7.25	29.7	-	.44
16 08 77	7	1341	6.00	2.25	29.7	-	.47
16 08 77	7	1343	8.00	6.75	29.6	-	.47
16 08 77	7	1401	.25	24.25	.	-	.19
16 08 77	7	1404	.50	16.50	.	-	.20
16 08 77	7	1407	.75	37.25	.	-	.20
16 08 77	7	1404	1.00	33.20	29.7	-	.36
16 08 77	7	1406	2.00	4.65	29.6	-	.35
16 08 77	7	1408	4.00	6.75	29.5	-	.42
16 08 77	7	1410	6.00	9.75	29.4	-	.50
16 08 77	7	1412	8.00	0.50	29.5	-	.55
16 08 77	7	1431	.25	30.00	.	-	.18
16 08 77	7	1433	.50	60.50	.	-	.21
16 08 77	7	1436	.75	44.25	.	-	.23
16 08 77	7	1433	1.00	24.75	29.4	-	.35
16 08 77	7	1435	2.00	22.25	29.5	-	.45
16 08 77	7	1438	4.00	8.50	29.2	-	.52
16 08 77	7	1440	6.00	12.75	29.2	-	.55

Date	Station	Time	Height above bed (m)	S.S. Conc^{n} (ppm)	Salinity (ppt)		Velocity (m/s)
16 08 77	7	1442	8.00	20.75	29.1	-	.57
16 08 77	7	1504	.25	76.00	.	-	.20
16 08 77	7	1506	.50	47.50	.	-	.22
16 08 77	7	1509	.75	64.75	.	-	.22
16 08 77	7	1504	1.00	6.75	29.6	-	.33
16 08 77	7	1506	2.00	33.50	28.9	-	.36
16 08 77	7	1508	4.00	9.75	28.9	-	.44
16 08 77	7	1510	6.00	20.25	28.6	-	.48
16 08 77	7	1513	8.00	12.75	28.5	-	.54
16 08 77	7	1551	.25	85.25	.	-	.20
16 08 77	7	1553	.50	0 55.25	.	-	.22
16 08 77	7	1535	.75	61.75	.	-	.22
16 08 77	7	1554	1.00	65.00	28.6	-	.30
16 08 77	7	1536	2.00	4.00	28.5	-	.40
16 08 77	7	1538	4.00	30.75	28.4	-	.47
16 08 77	7	1540	6.00	9.00	28.5	-	.57
16 08 77	7	1542	8.00	30.75	28.0	-	.52
16 08 77	7	1602	.25	45.75	.	-	.18
16 08 77	7	1604	.50	54.00	.	-	.20
16 08 77	7	1607	.75	65.75	.	-	.20
16 08 77	7	1604	1.00	31.25	28.1	-	.36
16 08 77	7	1606	2.00	2.75	28.0	-	.40
16 08 77	7	1608	4.00	15.25	27.8	-	.43
16 08 77	7	1610	6.00	21.00	27.7	-	.52
16 08 77	7	1612	8.00	15.25	27.5	-	.47
16 08 77	7	1635	.25	39.00	.	-	.20
16 08 77	7	1637	.50	45.50	.	-	.18
16 08 77	7	1639	.75	64.75	.	-	.19
16 08 77	7	1635	1.00	7.75	27.7	-	.32
16 08 77	7	1637	2.00	35.00	27.6	-	.33
16 08 77	7	1639	4.00	54.50	27.5	-	.44
16 08 77	7	1641	6.00	44.75	27.5	-	.47
16 08 77	7	1643	8.00	19.00	27.1	-	.42
16 08 77	7	1700	.25	66.00	.	-	.22
16 08 77	7	1702	.50	54.00	.	-	.22
16 08 77	7	1705	.75	64.50	.	-	.21
16 08 77	7	1704	1.00	54.00	27.2	-	.25
16 08 77	7	1706	2.00	37.25	27.0	-	.28
16 08 77	7	1708	4.00	40.00	26.7	-	.36
16 08 77	7	1710	6.00	53.50	26.6	-	.42
16 08 77	7	1712	8.00	3.75	26.5	-	.38
16 08 77	7	1734	.25	45.75	.	-	.07
16 08 77	7	1736	.50	44.25	.	-	.08
16 08 77	7	1739	.75	55.50	.	-	.11
16 08 77	7	1735	1.00	24.85	26.6	-	.14
16 08 77	7	1738	2.00	52.75	26.5	-	.20
16 08 77	7	1740	4.00	9.00	26.5	-	.22
16 08 77	7	1742	6.00	12.00	26.2	-	.25
16 08 77	7	1745	8.00	9.25	26.0	-	.21

Date	Station	Time	Height above bed (m)	S.S. Conc^{n} (ppm)	Salinity (ppt)	Velocity (m/s)
16 08 77	7	1800	.25	42.25	.	.04
16 08 77	7	1802	.50	63.50	.	.05
16 08 77	7	1805	.75	59.50	.	.02
16 08 77	7	1800	1.00	20.75	26.4	.17
16 08 77	7	1802	2.00	12.25	26.4	.05
16 08 77	7	1804	4.00	35.00	26.0	.06
16 08 77	7	1806	6.00	37.00	26.1	.03
16 08 77	7	1808	8.00	0.50	25.9	0.00
16 08 77	7	1832	.25	23.50	.	.24
16 08 77	7	1835	.50	62.00	.	.23
16 08 77	7	1839	.75	43.50	.	.22
16 08 77	7	1855	1.00	1.00	27.7	.35
16 08 77	7	1857	2.00	7.75	27.5	.40
16 08 77	7	1840	4.00	9.00	26.7	.28
16 08 77	7	1842	6.00	9.25	26.5	.17
16 08 77	7	1844	8.00	2.25	25.9	.12
16 08 77	7	1902	.25	88.00	.	.29
16 08 77	7	1904	.50	52.00	.	.27
16 08 77	7	1907	.75	67.25	.	.26
16 08 77	7	1902	1.00	6.75	27.7	.40
16 08 77	7	1904	2.00	0.50	27.5	.50
16 08 77	7	1906	4.00	36.50	26.8	.47
16 08 77	7	1908	6.00	32.25	26.7	.40
16 08 77	7	1910	8.00	9.25	25.8	.32
16 08 77	7	1935	.25	160.75	.	.31
16 08 77	7	1937	.50	62.75	.	.30
16 08 77	7	1940	.75	53.75	.	.27
16 08 77	7	1938	1.00	42.00	27.9	.42
16 08 77	7	1940	2.00	63.50	27.9	.50
16 08 77	7	1942	4.00	57.50	27.8	.52
16 08 77	7	1944	6.00	25.00	27.6	.50
16 08 77	7	1946	8.00	34.75	26.9	.48
16 08 77	7	2000	.25	98.75	.	.36
16 08 77	7	2003	.50	10.75	.	.34
16 08 77	7	2006	.75	50.00	.	.38
16 08 77	7	2004	1.00	61.00	28.5	.46
16 08 77	7	2006	2.00	19.25	28.5	.55
16 08 77	7	2008	4.00	24.25	28.4	.58
16 08 77	7	2010	6.00	9.75	28.5	.66
16 08 77	7	2012	8.00	9.75	27.9	.65
16 08 77	7	2030	.25	66.00	.	.42
16 08 77	7	2032	.50	75.00	.	.45
16 08 77	7	2035	.75	95.25	.	.44
16 08 77	7	2030	1.00	44.25	29.5	.45
16 08 77	7	2032	2.00	45.60	29.4	.57
16 08 77	7	2034	4.00	37.25	29.5	.62
16 08 77	7	2036	6.00	14.00	28.6	.70
16 08 77	7	2038	8.00	9.75	28.1	.62

PART 2

PORT OF BRISBANE SILTATION STUDY

DRY SEASON SIMULTANEOUS EXERCISE

15/16 AUGUST 1977

==========

RECORDED TIDAL LEVELS

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WIB : WEST INNER BAR

PIN : PINKENBA

CXD : CAIRNCROSS DOCK

POF : PORT OFFICE

TPS : TENNYSON POWER STATION

PCK : PULLEN CREEK

MFY : MOGGILL FERRY

KCK : KHOLO CREEK

IPS : CHURCH STREET TIVOLI IPSWICH

TIDAL LEVEL M. AHD

DATE	TIME	WIB	PIN	CXD	POF	TPS	PCK	MFY	KCK	IPS
15 08 77	0000	0.23	0.39	0.38	0.45	0.85	1.00	1.62	1.39	1.55
15 08 77	0030	0.02	0.19	0.16	0.25	0.66	0.92	1.65	1.45	1.69
15 08 77	0100	-0.18	0.01	-0.04	0.05	0.49	0.77	1.57	1.36	1.71
15 08 77	0130	-0.38	-0.18	-0.21	-0.15	0.31	0.61	1.40	1.17	1.60
15 08 77	0200	-0.57	-0.55	-0.39	-0.55	0.15	0.45	1.21	1.00	1.40
15 08 77	0230	-0.72	-0.52	-0.57	-0.51	-0.04	0.28	1.04	0.83	1.20
15 08 77	0300	-0.85	-0.67	-0.73	-0.69	-0.22	0.12	0.87	0.67	1.01
15 08 77	0330	-0.96	-0.80	-0.87	-0.85	-0.39	-0.05	0.71	0.51	0.84
15 08 77	0400	-1.01	-0.89	-0.98	-0.95	-0.54	-0.18	0.54	0.35	0.69
15 08 77	0430	-1.01	-0.91	-1.01	-1.05	-0.68	-0.33	0.40	0.19	0.53
15 08 77	0500	-0.92	-0.84	-0.98	-1.04	-0.80	-0.45	0.26	0.04	0.38
15 08 77	0530	-0.77	-0.67	-0.84	-0.96	-0.86	-0.57	0.12	-0.10	0.24
15 08 77	0600	-0.59	-0.48	-0.62	-0.76	-0.82	-0.66	-0.02	-0.24	0.11
15 08 77	0630	-0.41	-0.30	-0.40	-0.55	-0.65	-0.72	-0.14	-0.37	-0.01
15 08 77	0700	-0.20	-0.08	-0.20	-0.35	-0.45	-0.69	-0.24	-0.49	-0.15
15 08 77	0730	-0.00	0.11	-0.00	-0.14	-0.26	-0.57	-0.26	-0.58	-0.26
15 08 77	0800	0.14	0.29	0.18	0.06	-0.07	-0.42	-0.15	-0.52	-0.30
15 08 77	0830	0.30	0.45	0.35	0.25	0.11	-0.27	0.02	-0.32	-0.16
15 08 77	0900	0.42	0.59	0.49	0.39	0.28	-0.09	0.19	-0.14	0.01
15 08 77	0930	0.48	0.68	0.59	0.52	0.43	0.07	0.37	0.05	0.19
15 08 77	1000	0.50	0.67	0.61	0.56	0.56	0.22	0.54	0.24	0.39
15 08 77	1030	0.42	0.62	0.58	0.55	0.64	0.37	0.71	0.44	0.58
15 08 77	1100	0.28	0.48	0.47	0.48	0.66	0.50	0.88	0.62	0.76
15 08 77	1130	0.11	0.31	0.30	0.35	0.64	0.58	1.04	0.79	0.95

TIDAL LEVEL M. AHD

DATE	TIME	WIB	PIN	CXD	POF	TPS	PCK	MFY	KCK	IPS
15 08 ??	1200	-0,07	0.15	0.13	0,15	0.52	0.58	1,18	0,93	1,13
15 08 ??	1230	-0,27	-0.05	-0.06	-0,05	0.37	0.57	1,21	1,01	1,26
15 08 ??	1300	-0,47	-0,21	-0,25	-0,20	0.19	0.46	1.17	1,01	1,28
15 08 ??	1330	-0,64	-0,40	-0,43	-0,39	0.01	0.32	1.06	0,88	1,24
15 08 ??	1400	-0,78	-0,57	-0,61	-0,55	-0,16	0.18	0,92	0,72	1,09
15 08 ??	1430	-0,92	-0,72	-0,76	-0,73	-0,32	0.05	0,76	0,57	0,91
15 08 ??	1500	-1,02	-0,85	-0,92	-0,87	-0,48	-0.10	0,60	0,41	0,75
15 08 ??	1530	-1,08	-0,95	-1,03	-1,00	-0,62	-0.24	0,46	0,26	0,59
15 08 ??	1600	-1,09	-0,99	-1,08	-1,09	-0,75	-0.37	0,31	0,11	0,44
15 08 ??	1630	-1,01	-0,95	-1,08	-1,13	-0,87	-0.48	0,16	-0,04	0,30
15 08 ??	1700	-0,85	-0,83	-0,99	-1,10	-0,91	-0.57	0,03	-0,18	0,16
15 08 ??	1730	-0,65	-0,60	-0,80	-0,95	-0,89	-0.67	-0,10	-0,31	0,04
15 08 ??	1800	-0,44	-0,37	-0,57	-0,72	-0,80	-0.74	-0,21	-0,43	-0,08
15 08 ??	1830	-0,20	-0,14	-0,31	-0,45	-0,57	-0,77	-0,31	-0,55	-0,19
15 08 ??	1900	0,04	0,10	-0,09	-0,21	-0,35	-0.67	-0,37	-0,64	-0,29
15 08 ??	1930	0,28	0,35	0,16	0,05	-0,13	-0.51	-0,30	-0,67	-0,37
15 08 ??	2000	0,49	0,61	0,45	0,35	0,09	-0.35	-0,14	-0,46	-0,29
15 08 ??	2030	0,70	0,81	0,68	0,57	0,32	-0.17	0,04	-0,26	-0,10
15 08 ??	2100	0,87	0,99	0,85	0,75	0,54	0.05	0,25	-0,06	0,10
15 08 ??	2130	0,97	1,10	1,02	0,91	0,75	0.27	0,48	0,15	0,30
15 08 ??	2200	1,01	1,13	1,10	1,01	0,91	0.48	0,69	0,39	0,52
15 08 ??	2230	0,99	1,19	1,13	1,06	1,05	0.66	0,89	0,63	0,73
15 08 ??	2300	0,87	1,09	1,08	1,05	1,15	0.82	1,10	0,86	0,96
15 08 ??	2330	0,68	0,85	0,91	0,95	1,15	0.96	1,29	1,08	1,19

TIDAL LEVEL M. AHD

DATE	TIME	WIB	PIN	CXD	POF	TPS	PCK	MFY	KCK	IPS
15 08 77	0000	0.48	0.65	0.65	0.75	1.10	1.04	1.47	1.26	1.40
15 08 77	0030	0.28	0.46	0.45	0.54	0.92	1.05	1.60	1.42	1.61
15 08 77	0100	0.06	0.27	0.24	0.35	0.75	0.98	1.65	1.50	1.76
15 08 77	0130	-0.16	0.07	0.07	0.13	0.54	0.82	1.59	1.45	1.77
15 08 77	0200	-0.36	-0.12	-0.13	-0.06	0.35	0.67	1.45	1.26	1.64
15 08 77	0230	-0.55	-0.31	-0.32	-0.26	0.14	0.51	1.30	1.08	1.45
15 08 77	0300	-0.71	-0.49	-0.52	-0.45	-0.05	0.34	1.13	0.91	1.26
15 08 77	0330	-0.85	-0.65	-0.69	-0.65	-0.24	0.18	0.96	0.74	1.08
15 08 77	0400	-0.96	-0.77	-0.84	-0.81	-0.40	0.05	0.78	0.57	0.91
15 08 77	0430	-1.01	-0.89	-0.96	-0.95	-0.56	-0.14	0.61	0.46	0.74
15 08 77	0500	-1.01	-0.92	-1.02	-1.05	-0.70	-0.28	0.42	0.26	0.57
15 08 77	0530	-0.91	-0.87	-1.01	-1.06	-0.81	-0.41	0.27	0.10	0.42
15 08 77	0600	-0.77	-0.72	-0.89	-1.01	-0.85	-0.52	0.13	-0.05	0.28
15 08 77	0630	-0.59	-0.54	-0.69	-0.82	-0.85	-0.65	0.00	-0.20	0.15
15 08 77	0700	-0.40	-0.32	-0.48	-0.61	-0.69	-0.68	-0.12	-0.34	0.02
15 08 77	0730	-0.19	-0.10	-0.23	-0.38	-0.49	-0.70	-0.22	-0.48	-0.11
15 08 77	0800	0.00	0.12	-0.03	-0.15	-0.29	-0.61	-0.30	-0.56	-0.23
15 08 77	0830	0.21	0.32	0.17	0.05	-0.10	-0.45	-0.24	-0.58	-0.30
15 08 77	0900	0.35	0.49	0.34	0.25	0.09	-0.27	-0.10	-0.38	-0.17
15 08 77	0930	0.49	0.63	0.49	0.45	0.27	-0.15	0.07	-0.17	0.01
15 08 77	1000	0.55	0.73	0.62	0.55	0.46	0.05	0.25	0.01	0.18
15 08 77	1030	0.56	0.75	0.68	0.62	0.65	0.25	0.44	0.21	0.38
15 08 77	1100	0.51	0.70	0.66	0.63	0.75	0.40	0.62	0.39	0.57
15 08 77	1130	0.38	0.58	0.59	0.58	0.74	0.56	0.80	0.59	0.75

TIDAL LEVEL M. AHD

DATE	TIME	WIB	PIN	CXD	POF	TPS	PCK	MFY	KCK	IPS
15 08 77	1200	0.22	0.40	0.45	0.45	0.69	0.64	0.97	0.78	0.94
15 08 77	1230	0.02	0.21	0.25	0.26	0.59	0.67	1.14	0.93	1.13
15 08 77	1300	-0.17	0.04	0.06	0.07	0.43	0.65	1.23	1.07	1.30
15 08 77	1330	-0.37	-0.15	-0.12	-0.11	0.28	0.54	1.24	1.09	1.36
15 08 77	1400	-0.55	-0.33	-0.33	-0.28	0.12	0.39	1.15	1.00	1.31
15 08 77	1430	-0.72	-0.51	-0.50	-0.46	-0.04	0.25	1.00	0.82	1.16
15 08 77	1500	-0.86	-0.65	-0.67	-0.64	-0.21	0.11	0.86	0.65	0.99
15 08 77	1530	-0.99	-0.79	-0.83	-0.80	-0.41	0.07	0.71	0.70	0.83
15 08 77	1600	-1.07	-0.93	-0.95	-0.94	-0.58	-0.18	0.56	0.35	0.66
15 08 77	1630	-1.09	-0.99	-1.06	-1.05	-0.72	-0.31	0.40	0.19	0.51
15 08 77	1700	-1.05	-0.97	-1.10	-1.12	-0.82	-0.42	0.26	0.05	0.37
15 08 77	1730	-0.95	-0.84	-1.06	-1.13	-0.90	-0.52	0.10	-0.10	0.23
15 08 77	1800	-0.74	-0.63	-0.86	-0.97	-0.95	-0.61	-0.03	-0.24	0.10
15 08 77	1830	-0.51	-0.40	-0.64	-0.75	-0.85	-0.69	-0.16	-0.37	-0.03
15 08 77	1900	-0.28	-0.18	-0.42	-0.54	-0.67	-0.74	-0.28	-0.49	-0.14
15 08 77	1930	-0.04	0.05	-0.18	-0.27	-0.44	-0.70	-0.38	-0.61	-0.25
15 08 77	2000	0.19	0.30	0.08	-0.04	-0.18	-0.57	-0.40	-0.66	-0.35
15 08 77	2030	0.42	0.53	0.35	0.25	0.09	-0.39	-0.26	-0.56	-0.28
15 08 77	2100	0.62	0.77	0.60	0.49	0.32	-0.22		-0.36	-0.10
15 08 77	2130	0.78	0.94	0.82	0.69	0.53	-0.05		-0.13	0.10
15 08 77	2200	0.91	1.05	0.97	0.85	0.70	0.19		0.07	0.29
15 08 77	2230	0.98	1.15	1.07	0.95	0.85	0.40		0.30	0.50
15 08 77	2300	0.96	1.15	1.10	1.01	0.98	0.60		0.53	0.72
15 08 77	2330	0.87	1.07	1.06	1.01	1.08	0.77		0.77	0.94

TABLES

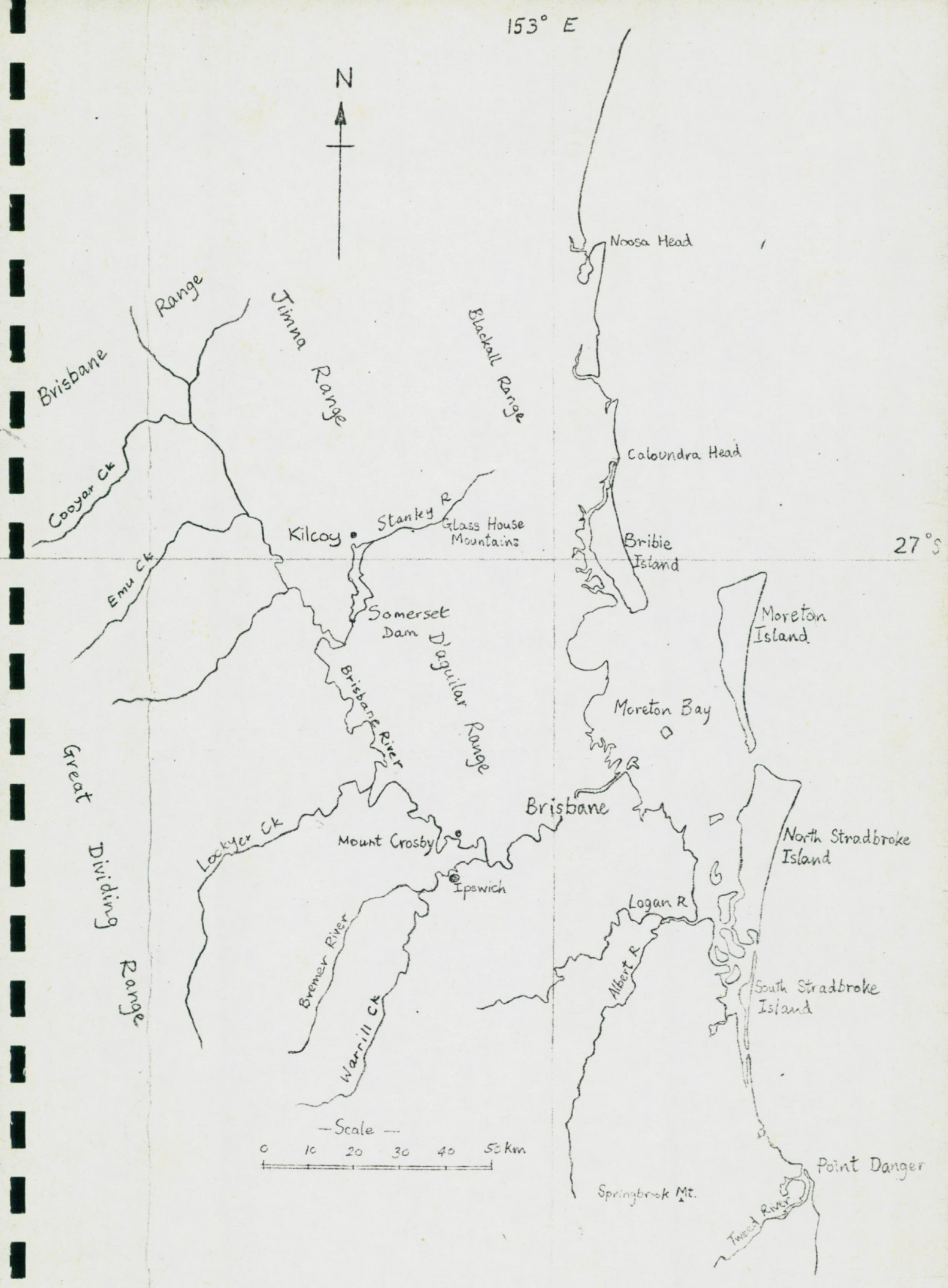
TABLE 1 HW and LW times and levels – 15 August 1977

	Time	*Tidal level m AHD*	*Time*	*Tidal level m AHD*
	1st LW	*1st LW*	*1st HW*	*1st HW*
West Inner Bar	0420	–1.03	0945	0.50
Pinkenba	0430	–1.01	0942	0.58
Cairncross Dock	0430	–1.11	1000	0.51
Port Office	0454	–1.05	1012	0.56
Tennyson P S	0536	–0.86	1100	0.66
Pullen Creek	0633	–0.73	1156	0.59
Moggill Ferry	0724	–0.27	1224	1.21
Kholo Creek	0740	–0.60	1245	1.03
Ipswich (Bremer R)	0756	–0.30	1300	1.28
	2nd LW	*2nd LW*	*2nd HW*	*2nd HW*
West Inner Bar	1554	–1.11	2206	1.01
Pinkenba	1600	–1.09	2224	1.10
Cairncross Dock	1618	–1.19	2227	1.03
Port Office	1630	–1.13	2245	1.06
Tennyson P S	1700	–0.91	2321	1.16
Pullen Creek	1833	–0.77	0018 (16.8.77)	1.06
Moggill Ferry	1900	–0.37	0100 (16.8.77)	1.65
Kholo Creek	1924	–0.78	0106 (16.8.77)	1.50
Ipswich (Bremer R)	1940	–0.47	0118 (16.8.77)	1.77

TABLE 2 HW and LW times and levels – 16 August 1977

	Time	*Tidal level m AHD*	*Time*	*Tidal level m AHD*
	1st LW	*1st LW*	*1st HW*	*1st HW*
West Inner Bar	0450	–1.03	1018	0.55
Pinkenba	0500	–1.02	1024	0.65
Cairncross Dock	0509	–1.13	1036	0.58
Port Office	0530	–1.06	1054	0.63
Tennyson P S	0609	–0.86	1112	0.75
Pullen Creek	0735	–0.71	1230	0.67
Moggill Ferry	0806	–0.30	1315	1.24
Kholo Creek	0822	–0.51	1324	1.10
Ipswich (Bremer R)	0830	–0.30	1336	1.36
	2nd LW	*2nd LW*	*2nd HW*	*2nd HW*
West Inner Bar	1630	–1.10	2236	0.97
Pinkenba	1636	–1.09	2254	1.05
Cairncross Dock	1703	–1.20	2300	1.00
Port Office	1718	–1.14	2315	1.02
Tennyson P S	1754	–0.93	2354	1.12
Pullen Creek	1900	–0.75	0100	1.03
Moggill Ferry	1951	–0.41	No data	No data
Kholo Creek	2006	–0.67	0142 (17.8.77)	1.45
Ipswich (Bremer R)	2009	–0.36	0151 (17.8.77)	1.74

FIGURES



Location map

Fig 1

Pine River

Bramble Bay

Moreton Bay

N

Old Bar Cutting

* Entrance Beacons

** Middle Cutting Beacon

5 ⊙1

** West Inner Bar Beacon

⊙2 Bishop Island

Mud Island

⊙ Fixed stations
Nos 1-4 15/8/77
Nos 4-7 16/8/77

5—·— Distance from Entrance Beacons (km)

Scale
0 1 2 3 4 5 km

10 ⊙3 Swing Basin

Fisherman Islands

St. Helena Island

Boat Passage

Bulwer Island

Whyte Island

⊙4 Lytton

Green Island

Eagle Farm

Pinkenba

15

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 2

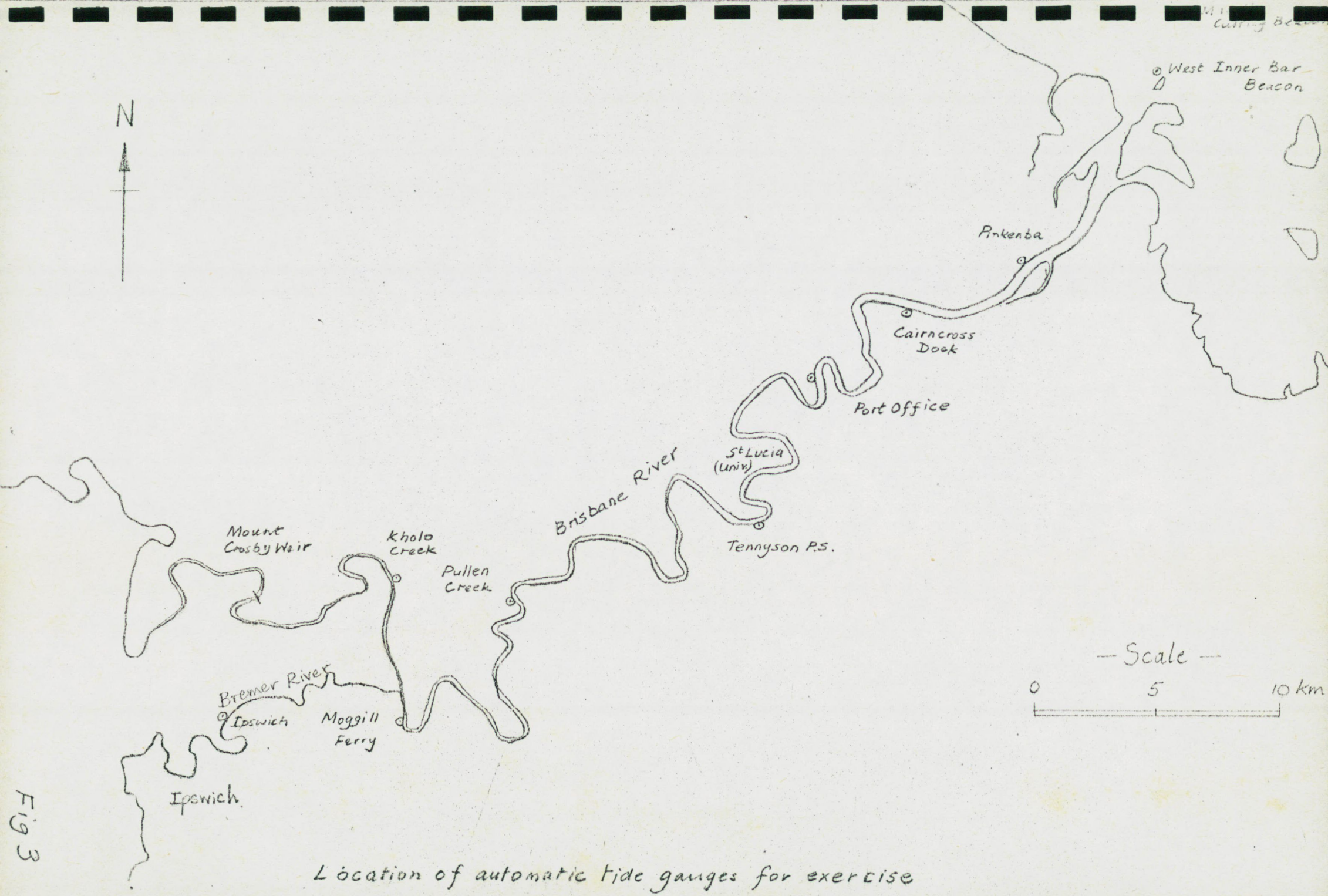
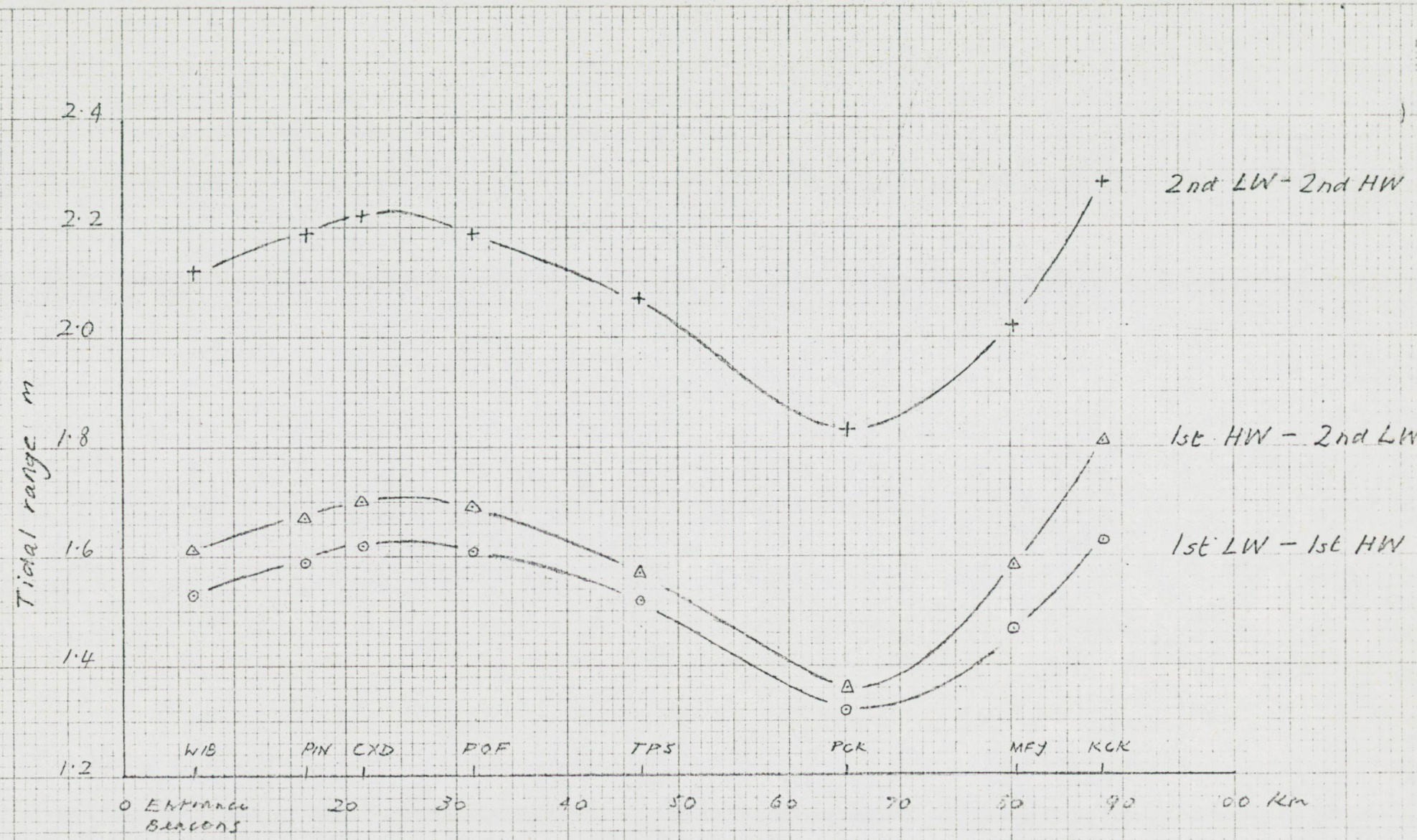


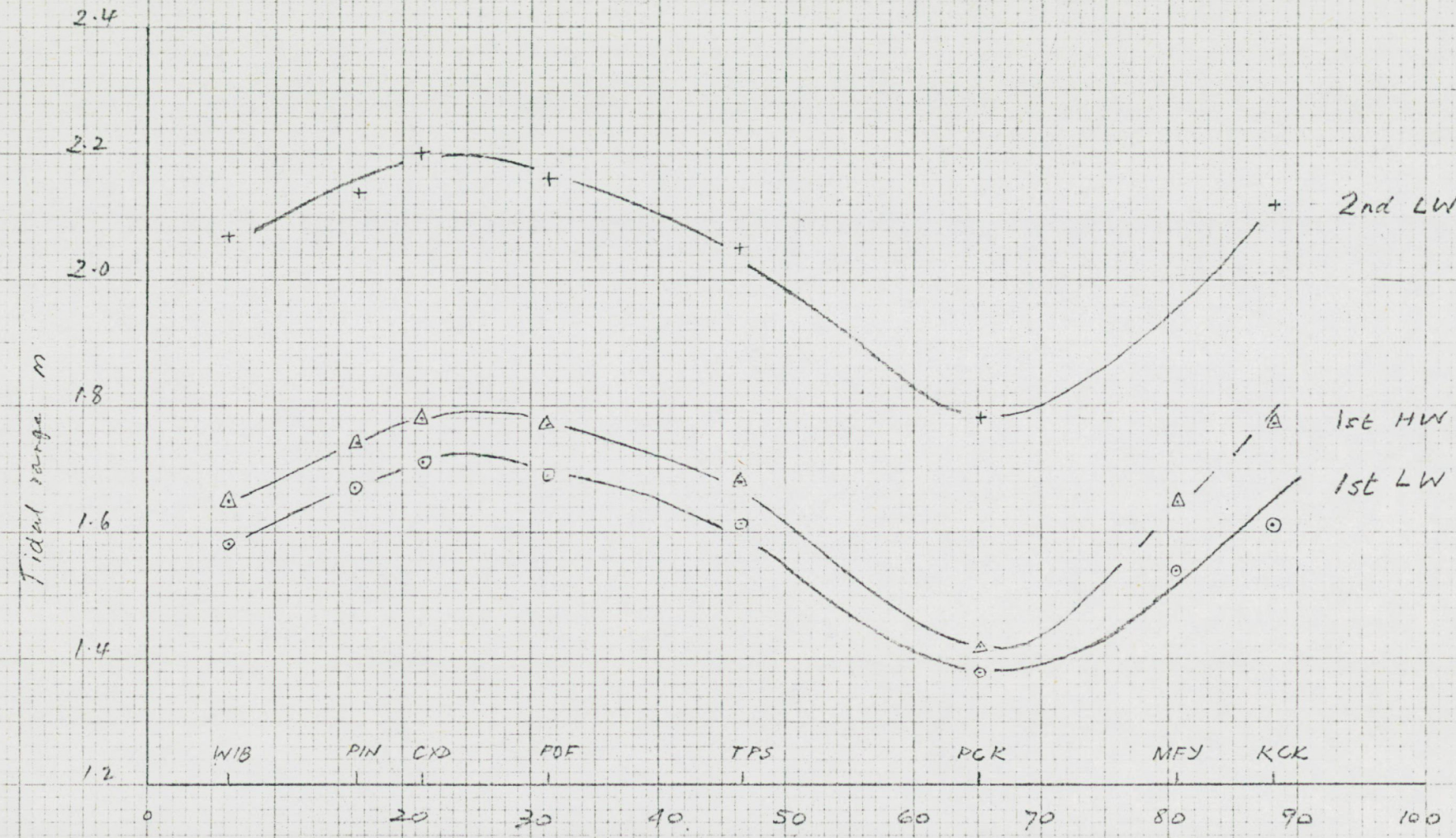
Fig 3

Location of automatic tide gauges for exercise



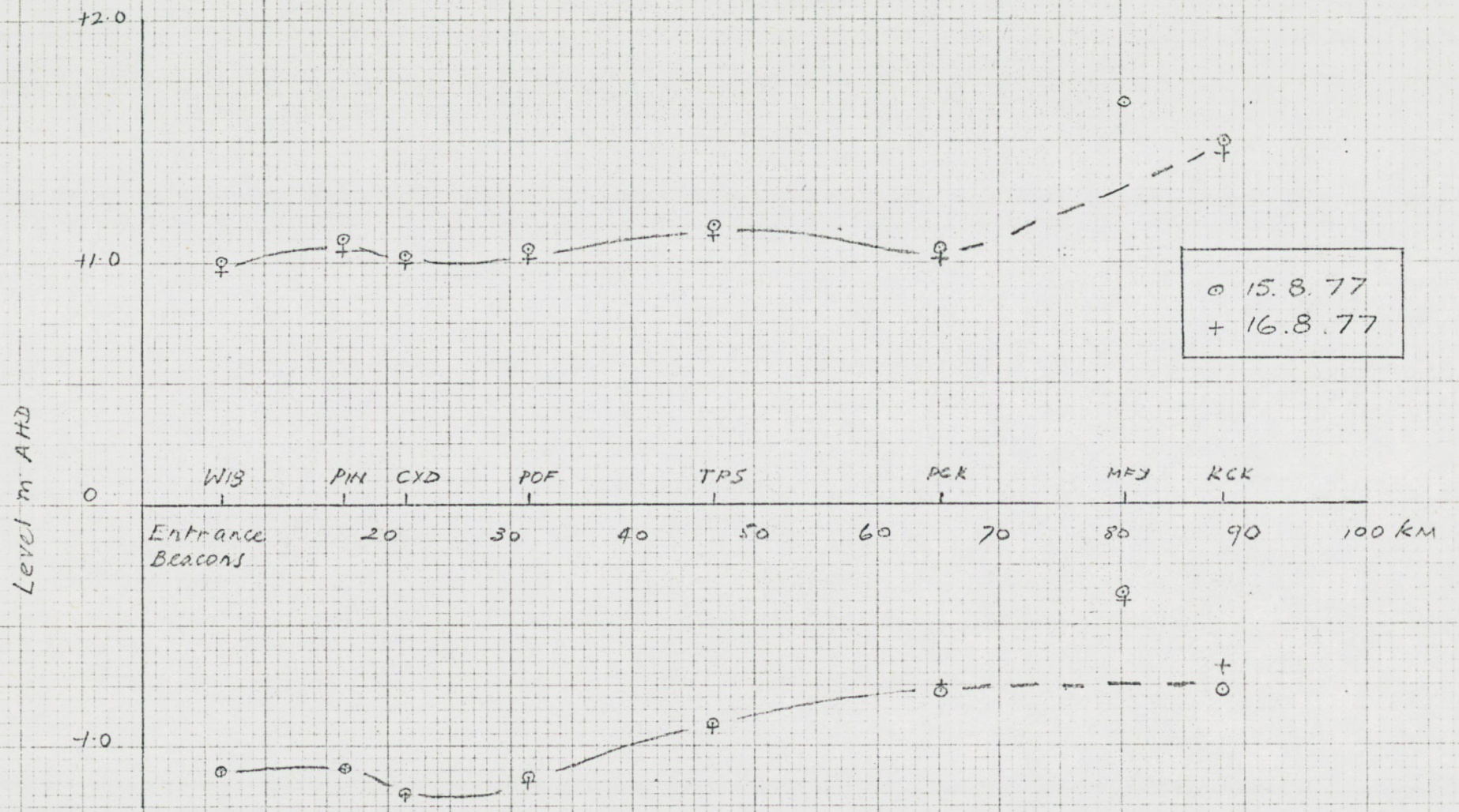
Tidal ranges - 15.8.77

Fig 4



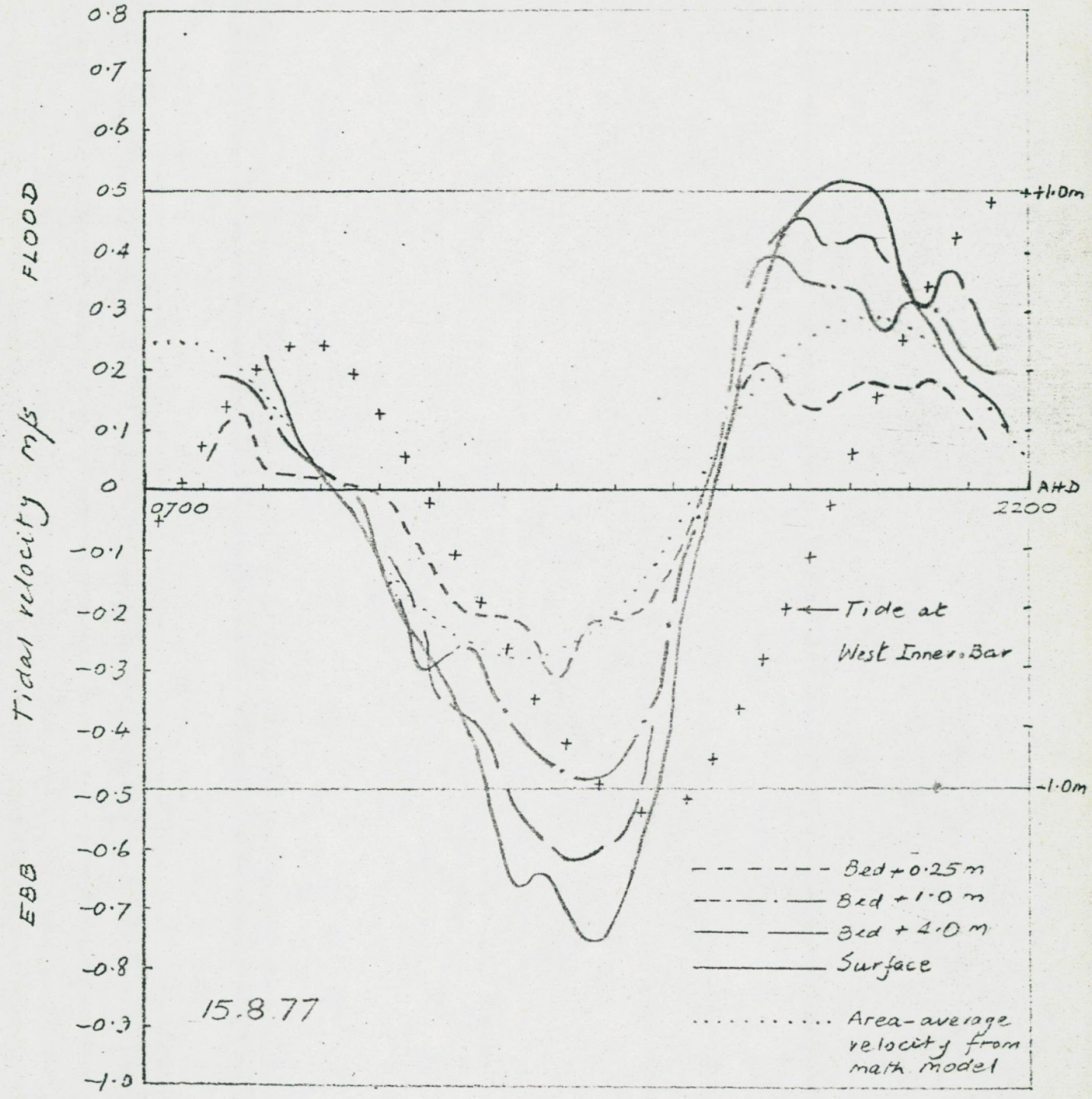
Tidal ranges – 16.8.77

Fig 5



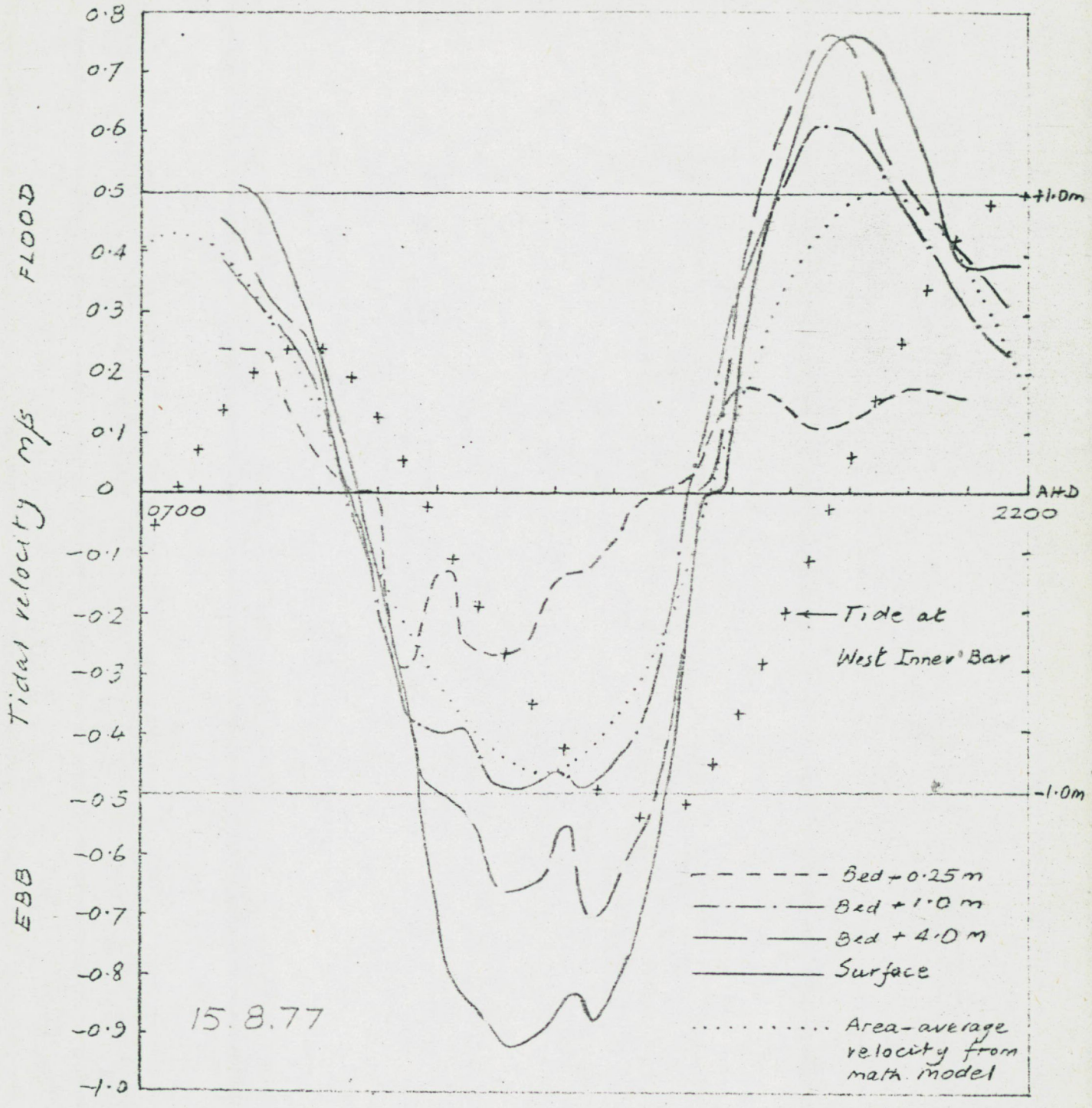
LOCI OF HW and LW LEVELS

Fig 6



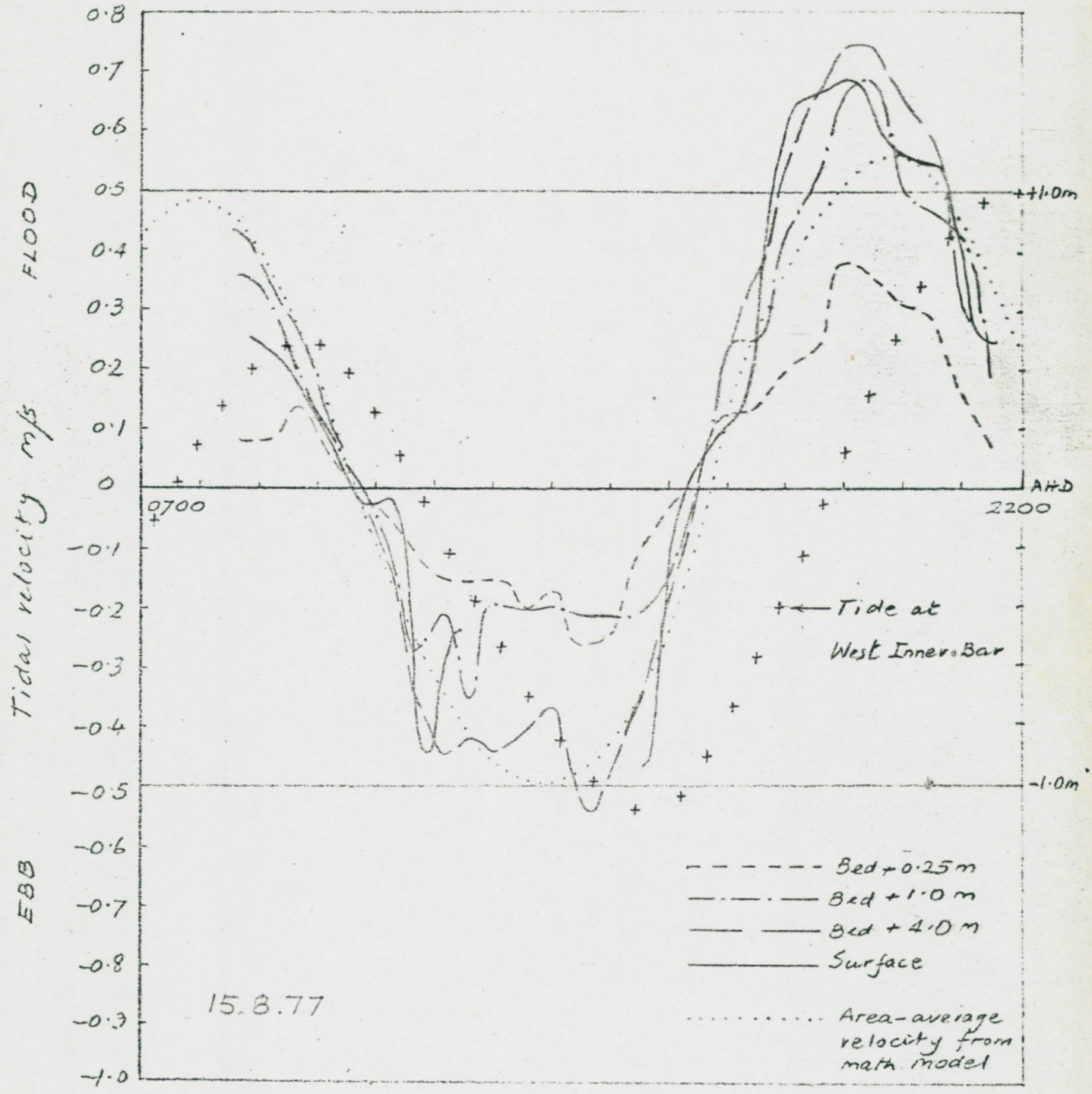
TIDAL VELOCITIES AT STATION 1

Fig 7



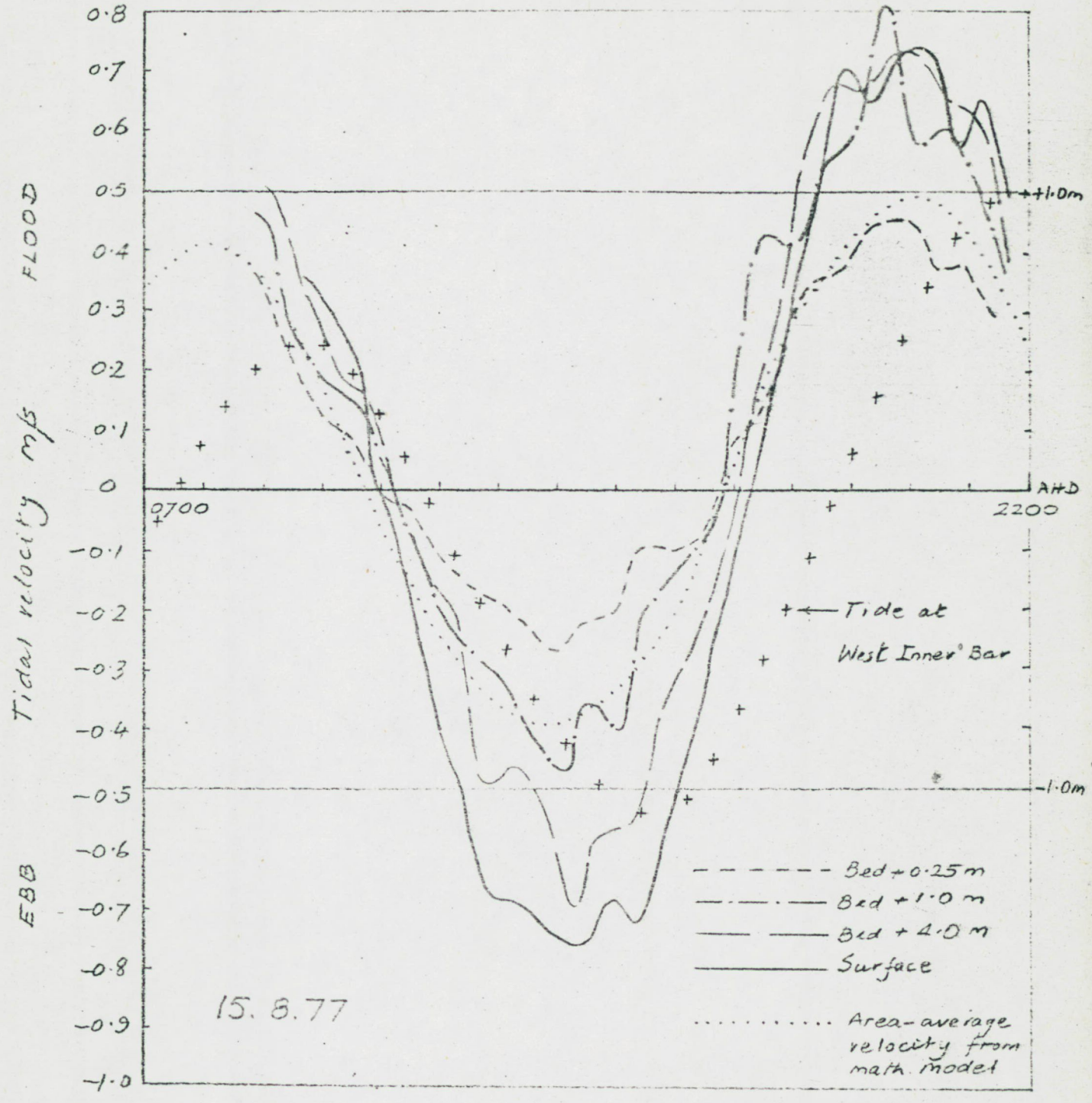
TIDAL VELOCITIES AT STATION 2

Fig 8



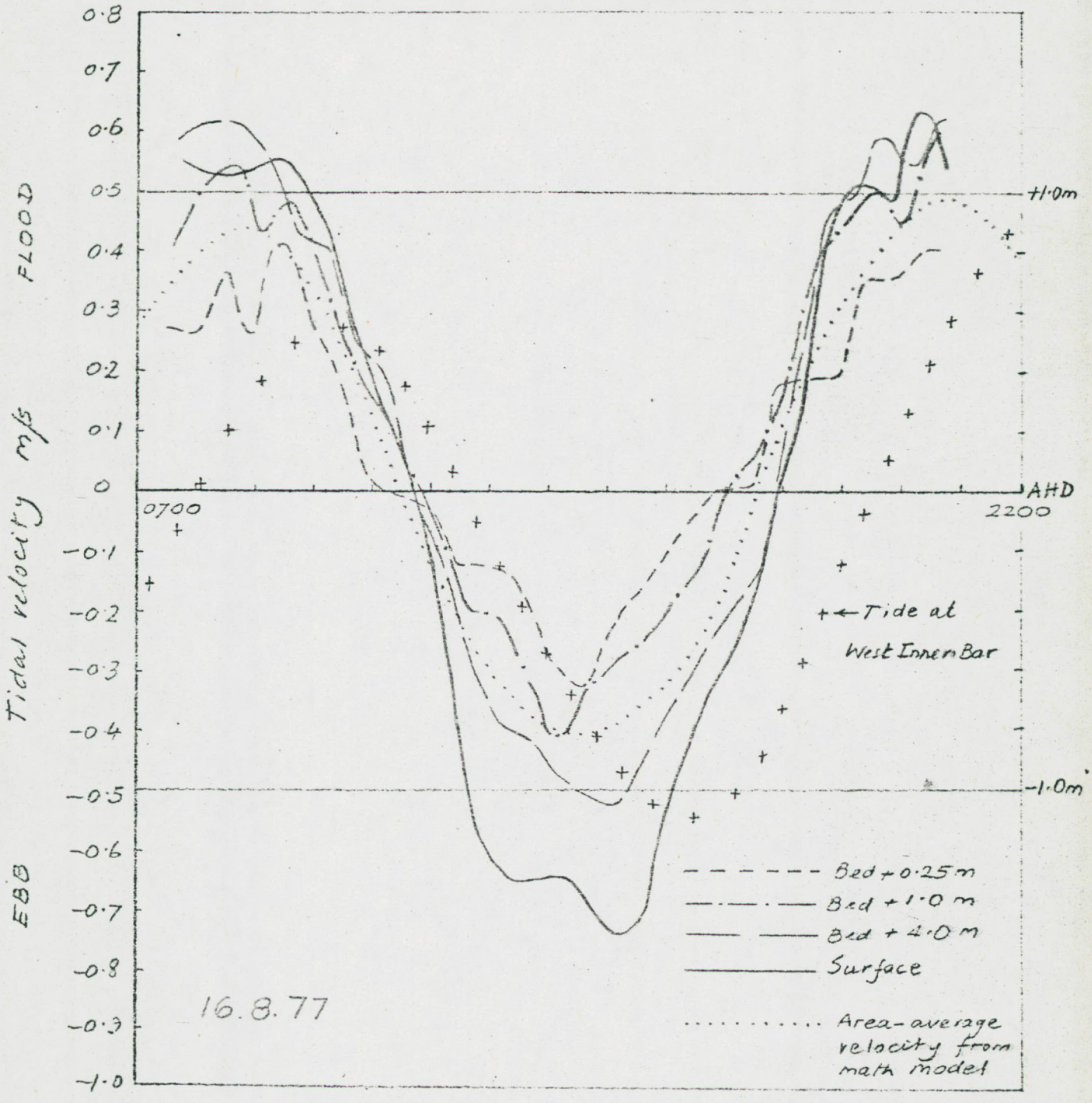
TIDAL VELOCITIES AT STATION 3

Fig 9



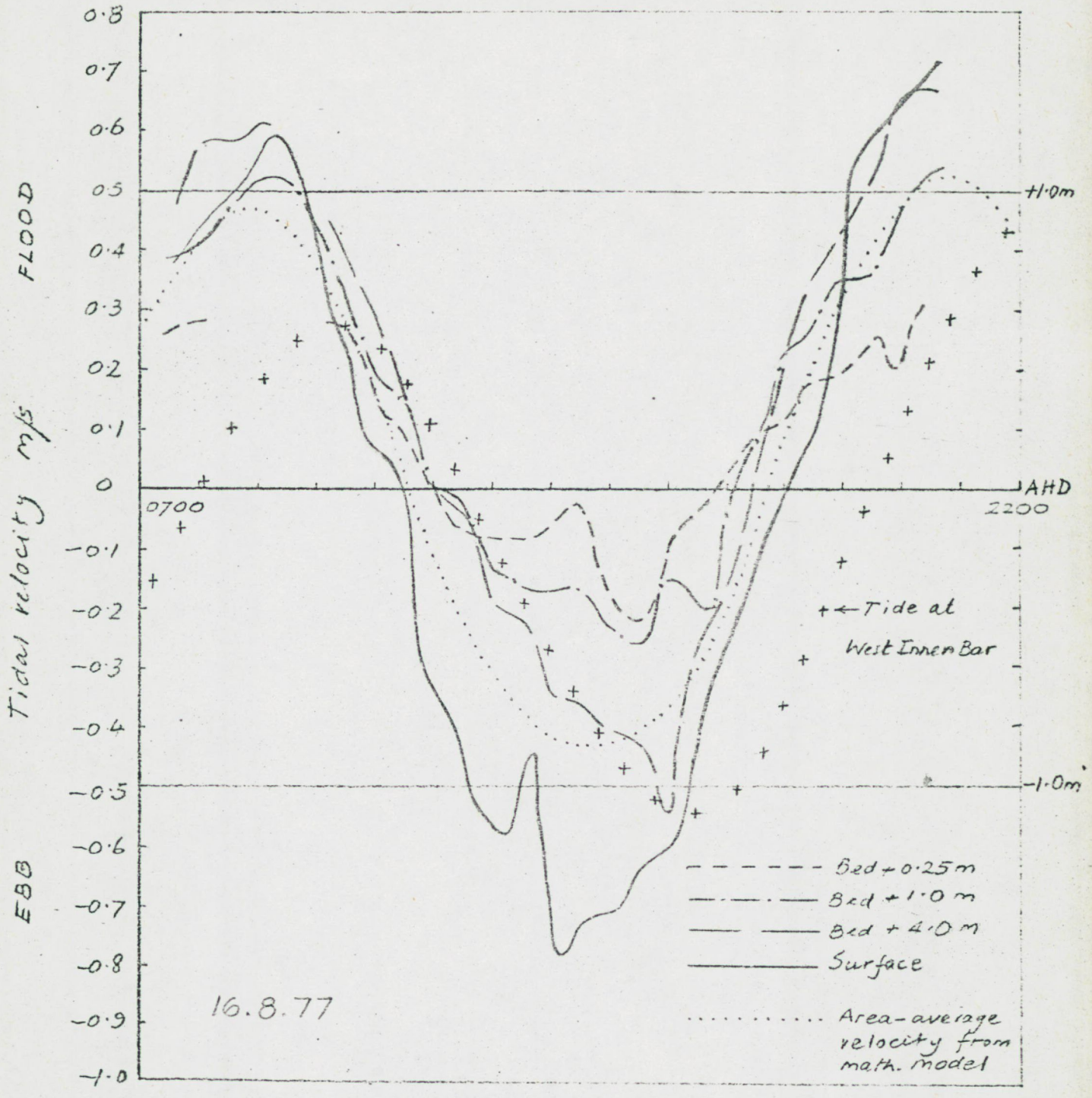
TIDAL VELOCITIES AT STATION 4

Fig 10



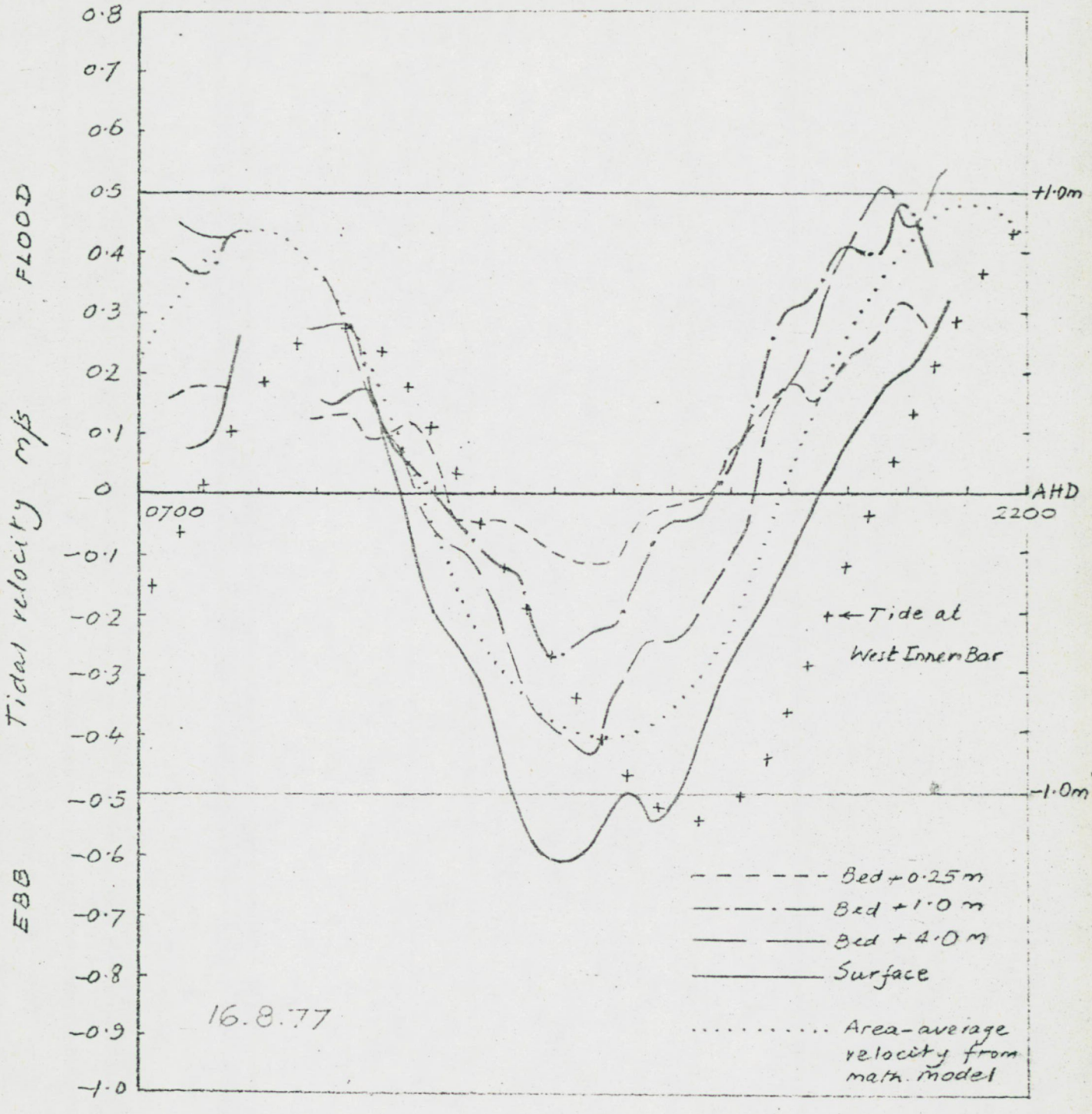
TIDAL VELOCITIES AT STATION 4

Fig 11



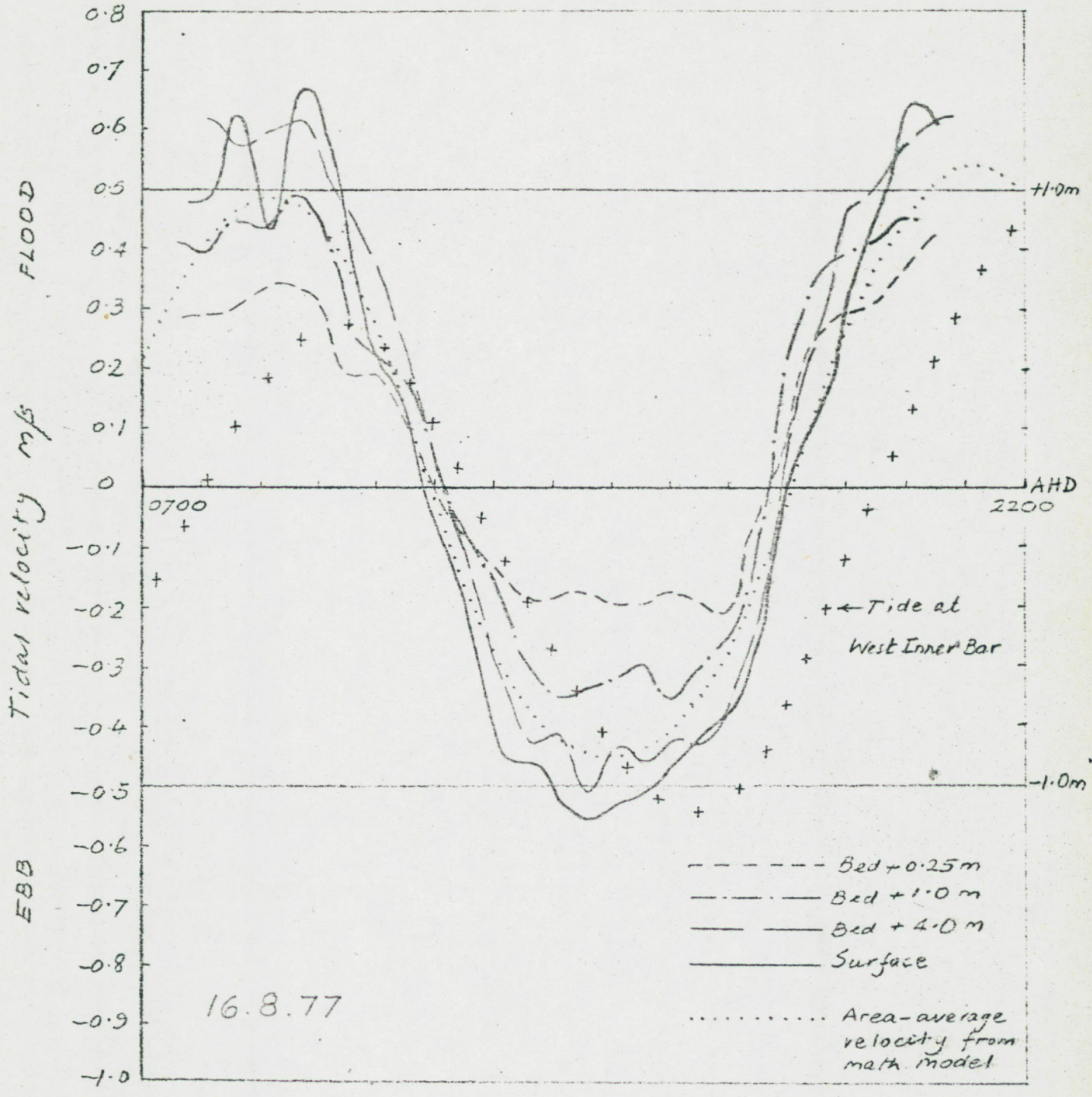
TIDAL VELOCITIES AT STATION 5

Fig 12



TIDAL VELOCITIES AT STATION 6

Fig 13



TIDAL VELOCITIES AT STATION 7

Fig 14

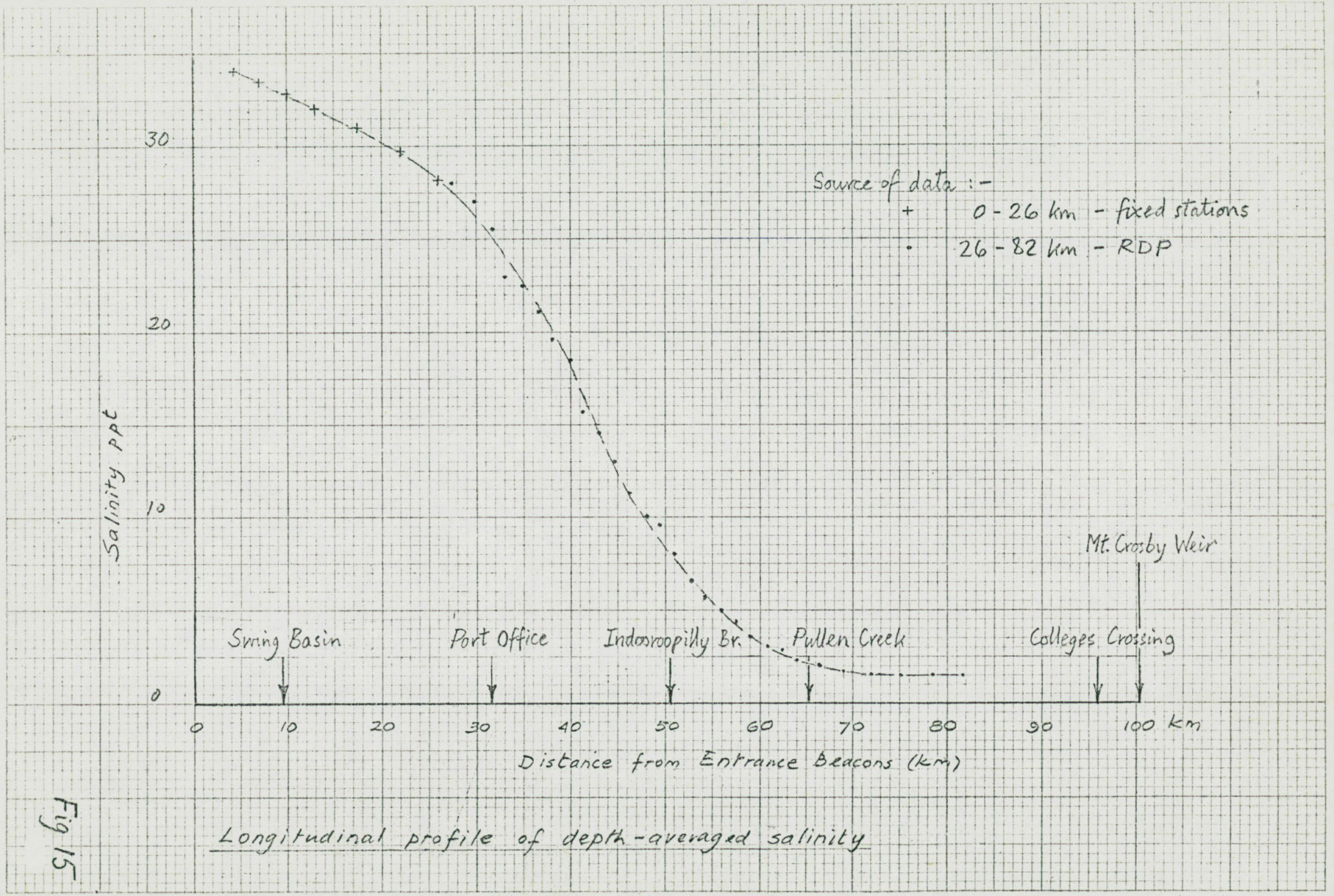
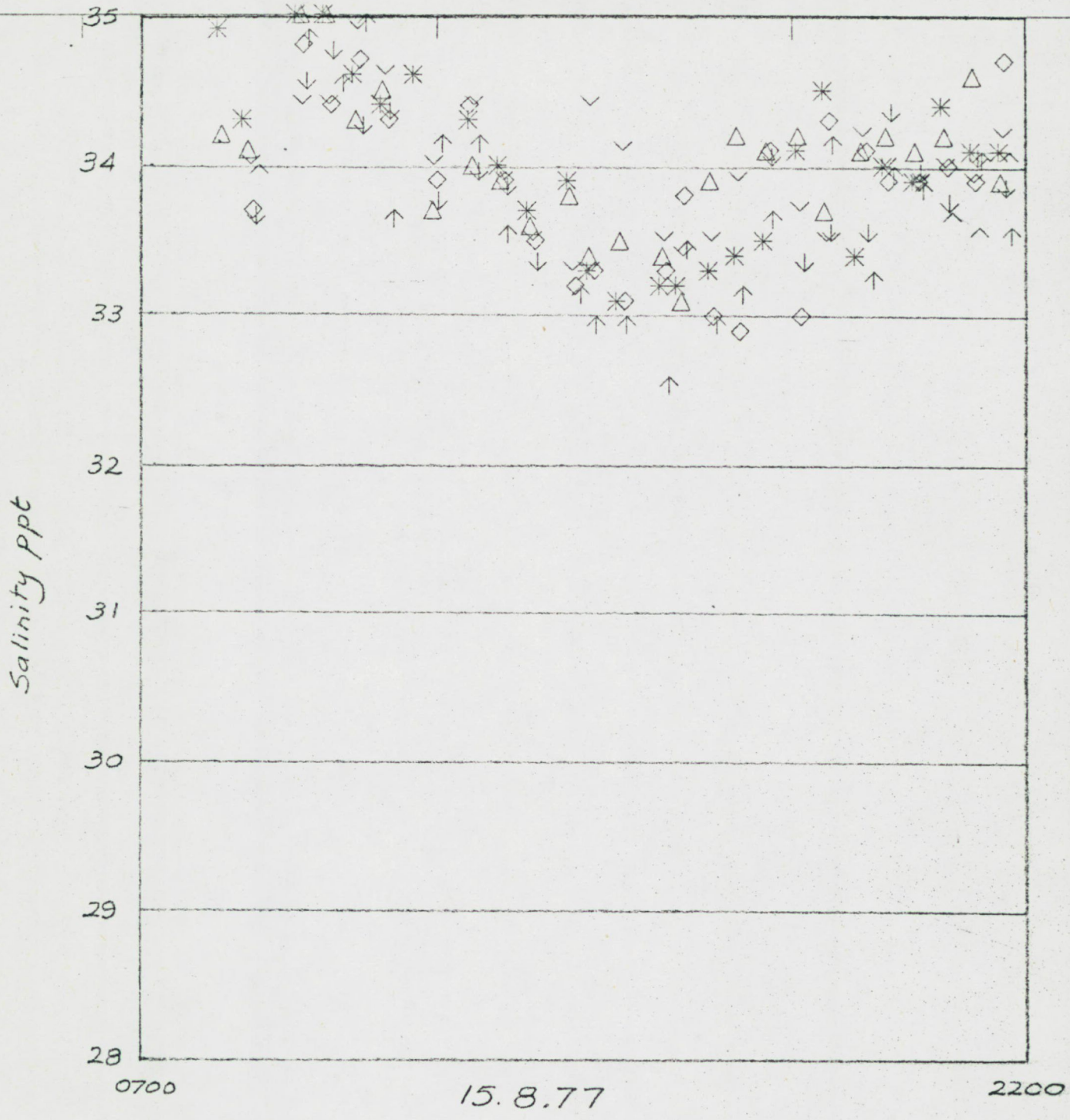


Fig 15

Longitudinal profile of depth-averaged salinity

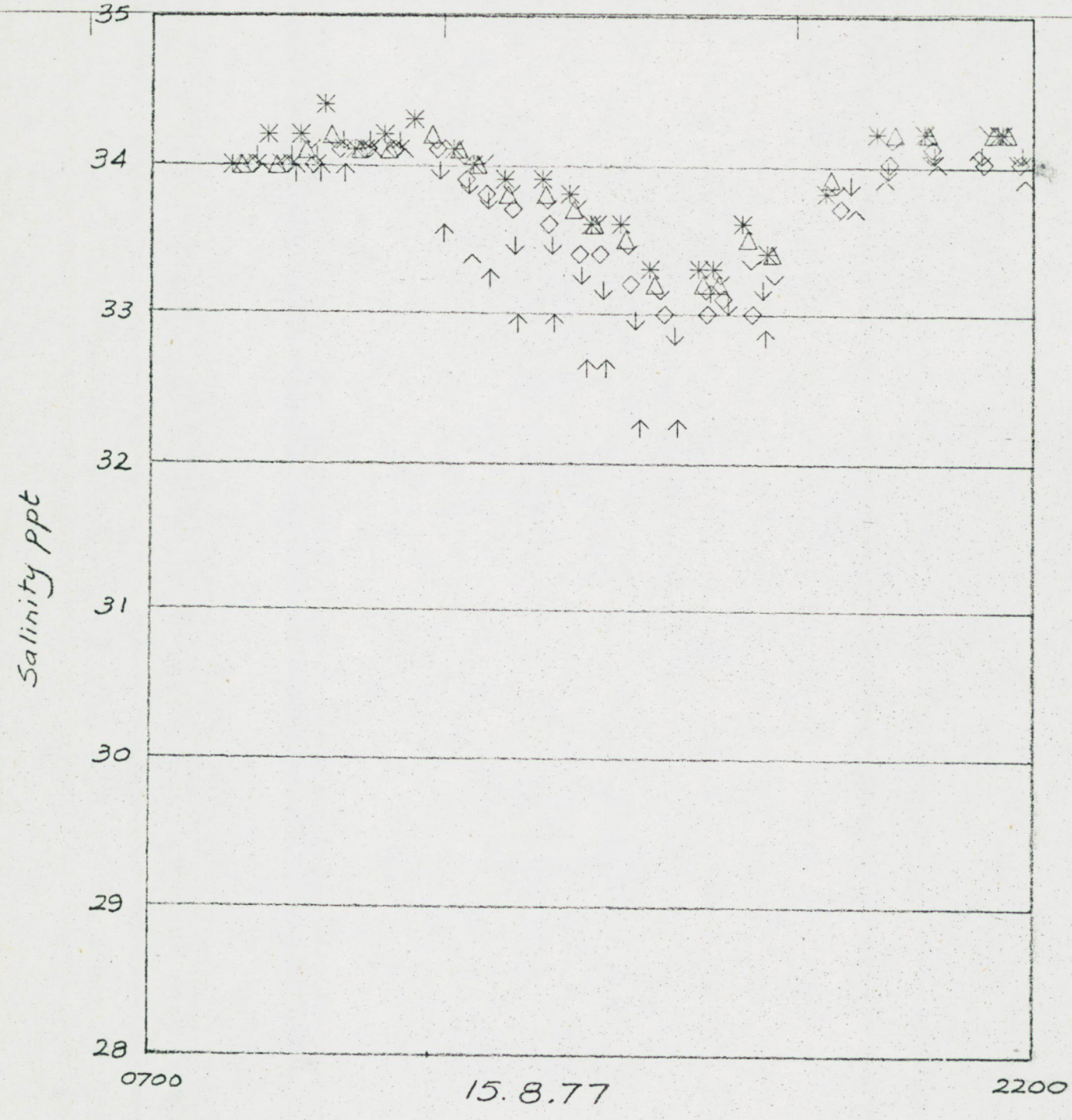
Key for Figs 16-23 and 25-32

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	↑



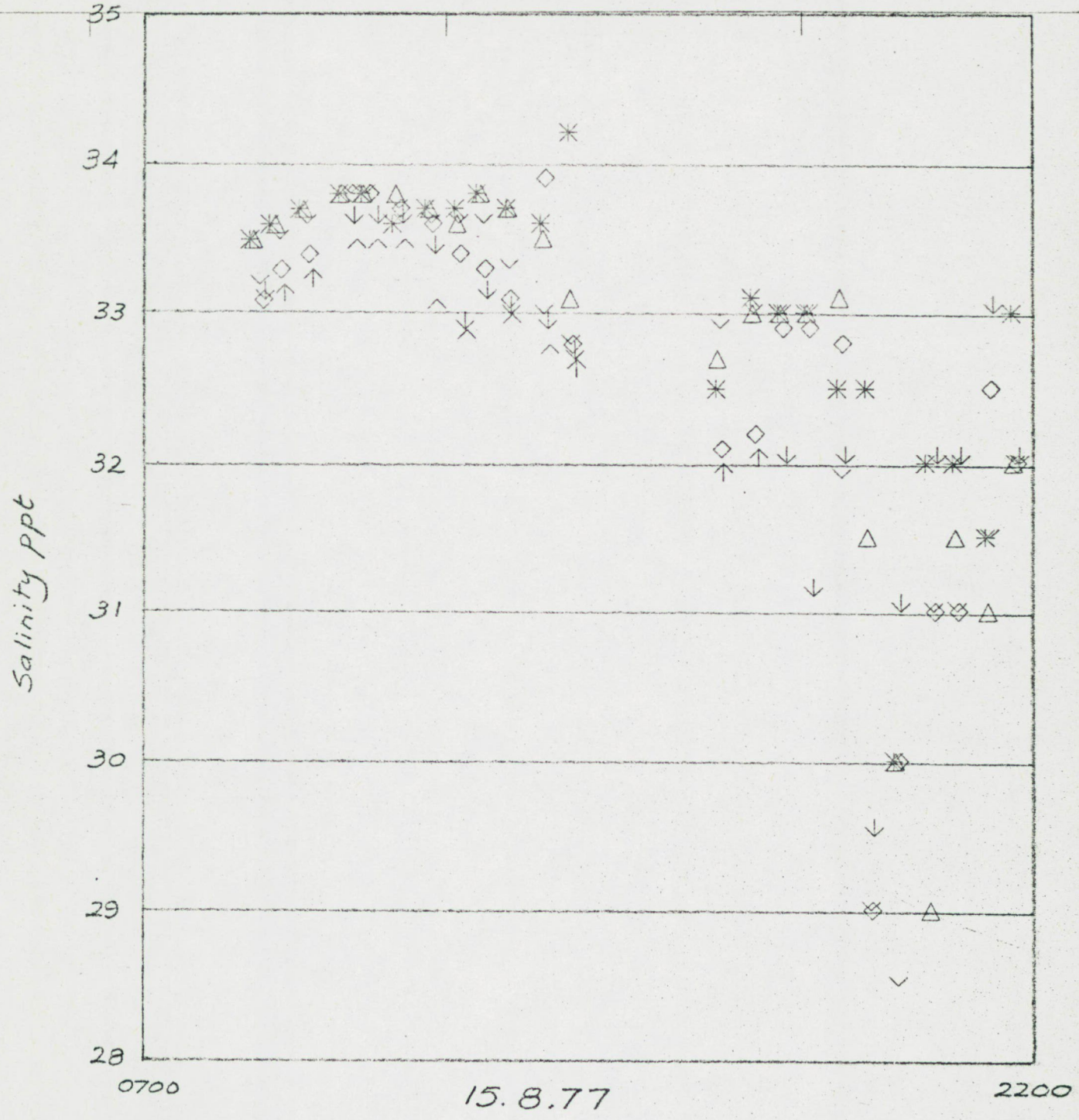
SALINITY AT STATION 1

Fig 16



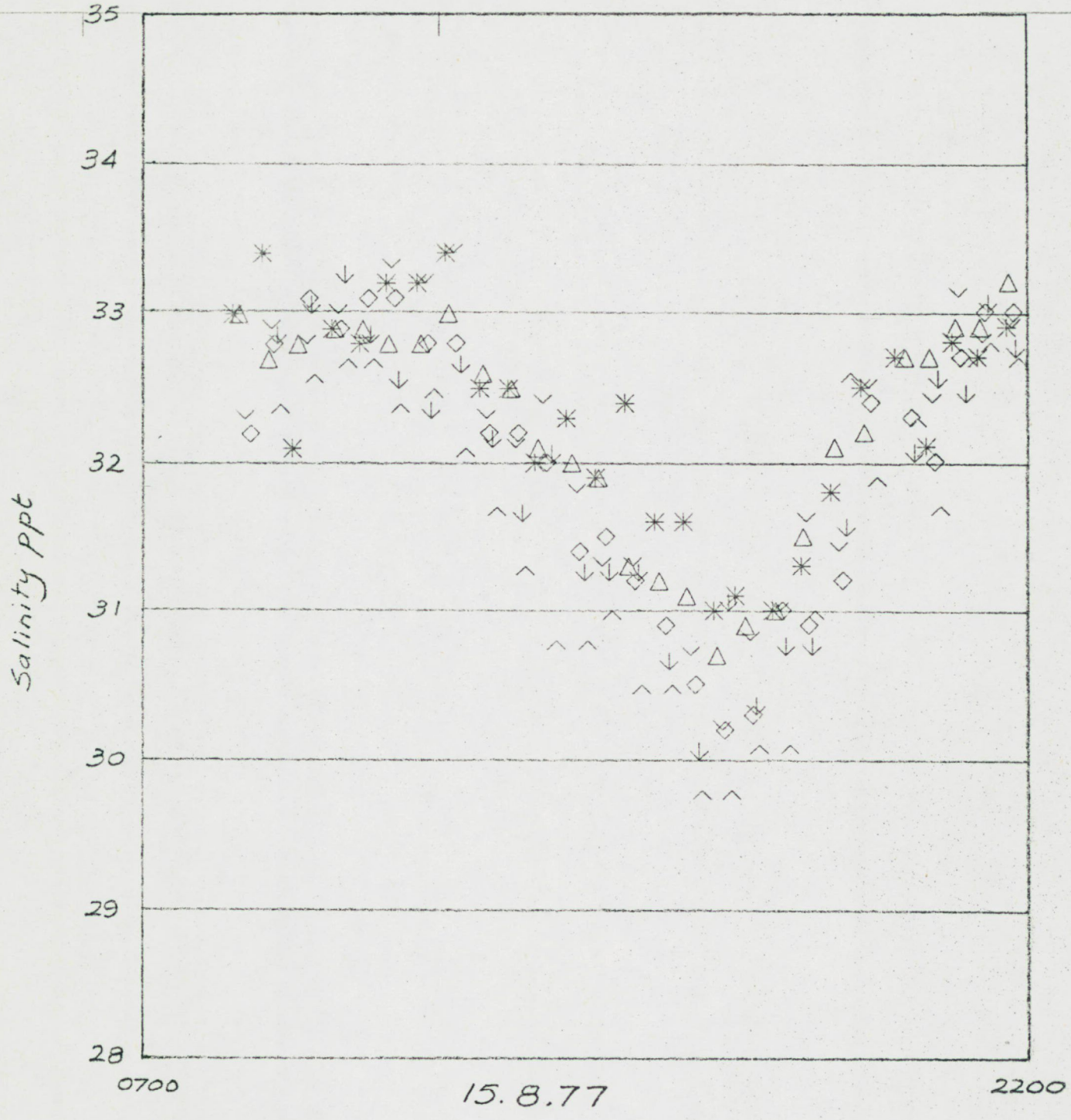
SALINITY AT STATION 2

Fig 17



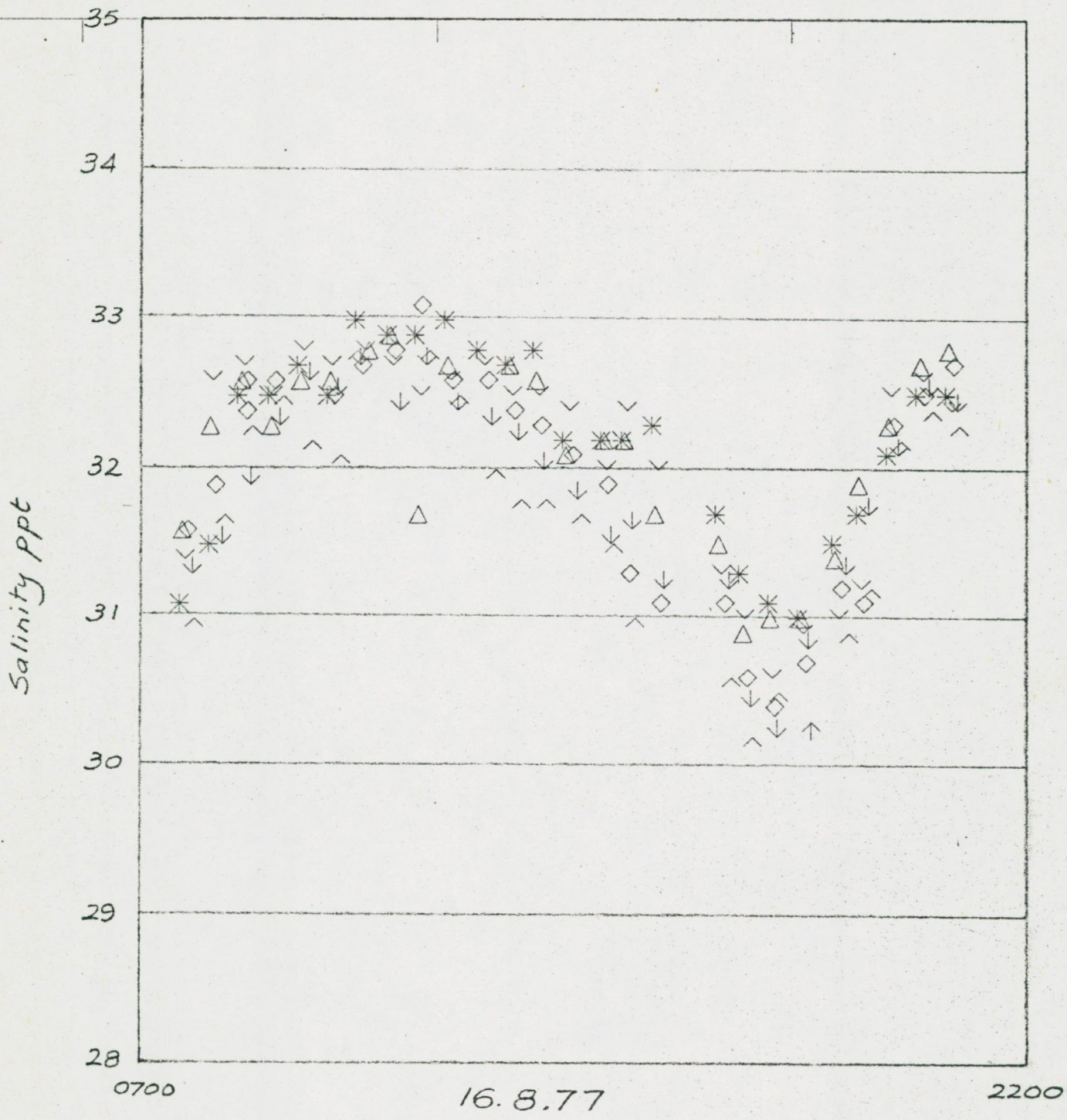
SALINITY AT STATION 3

Fig 18



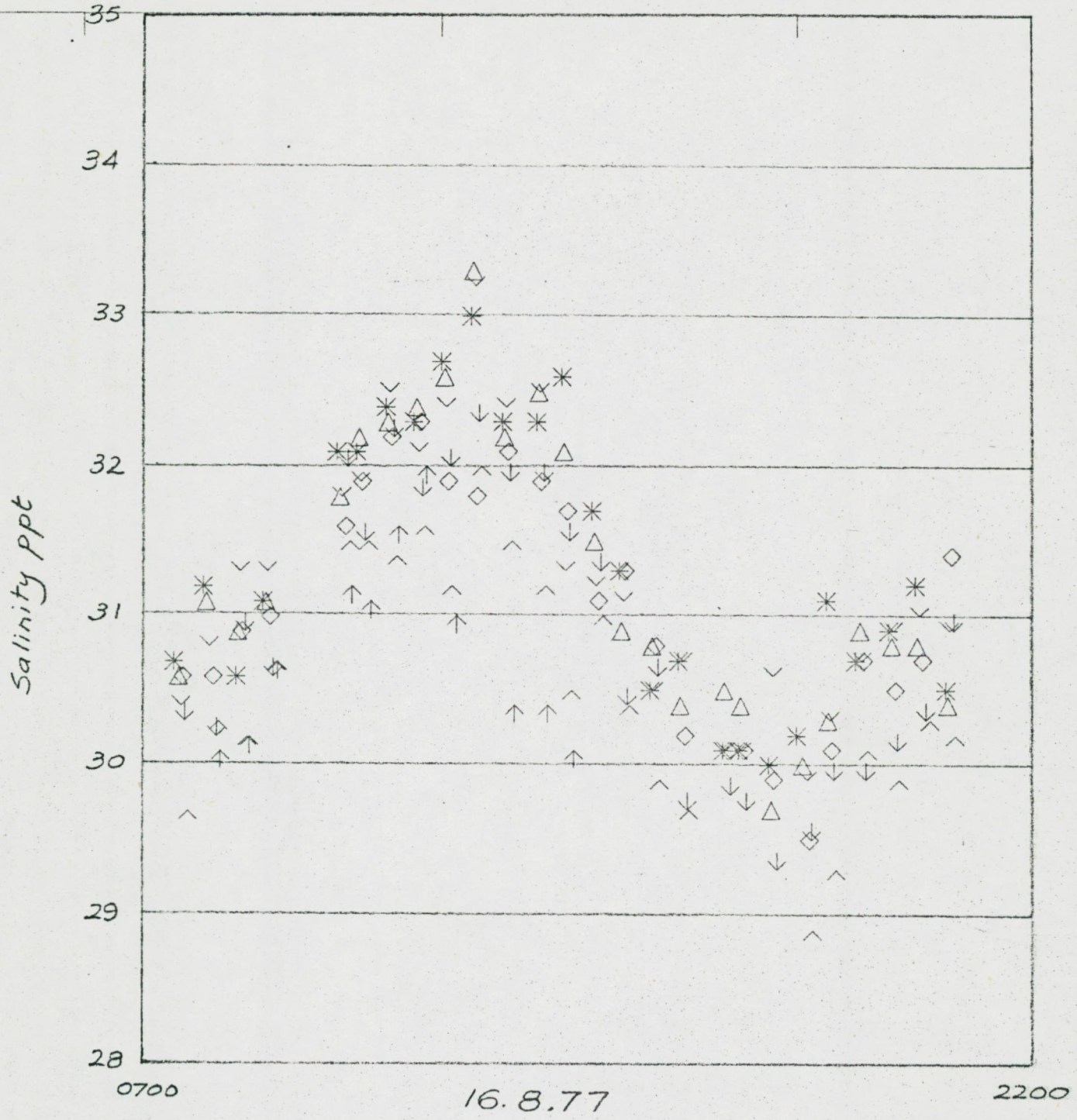
SALINITY AT STATION 4

Fig 19



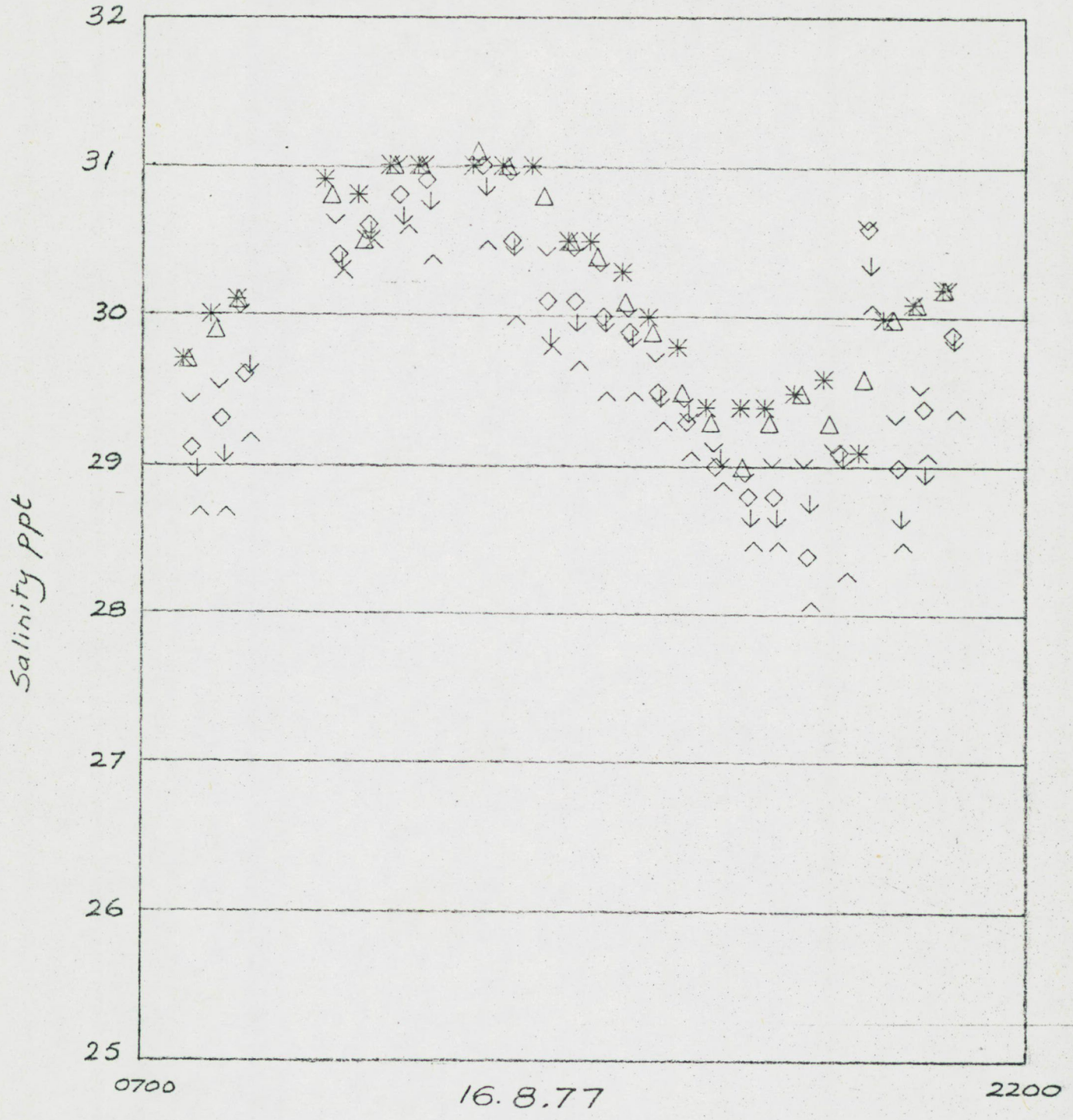
SALINITY AT STATION 4

Fig 20



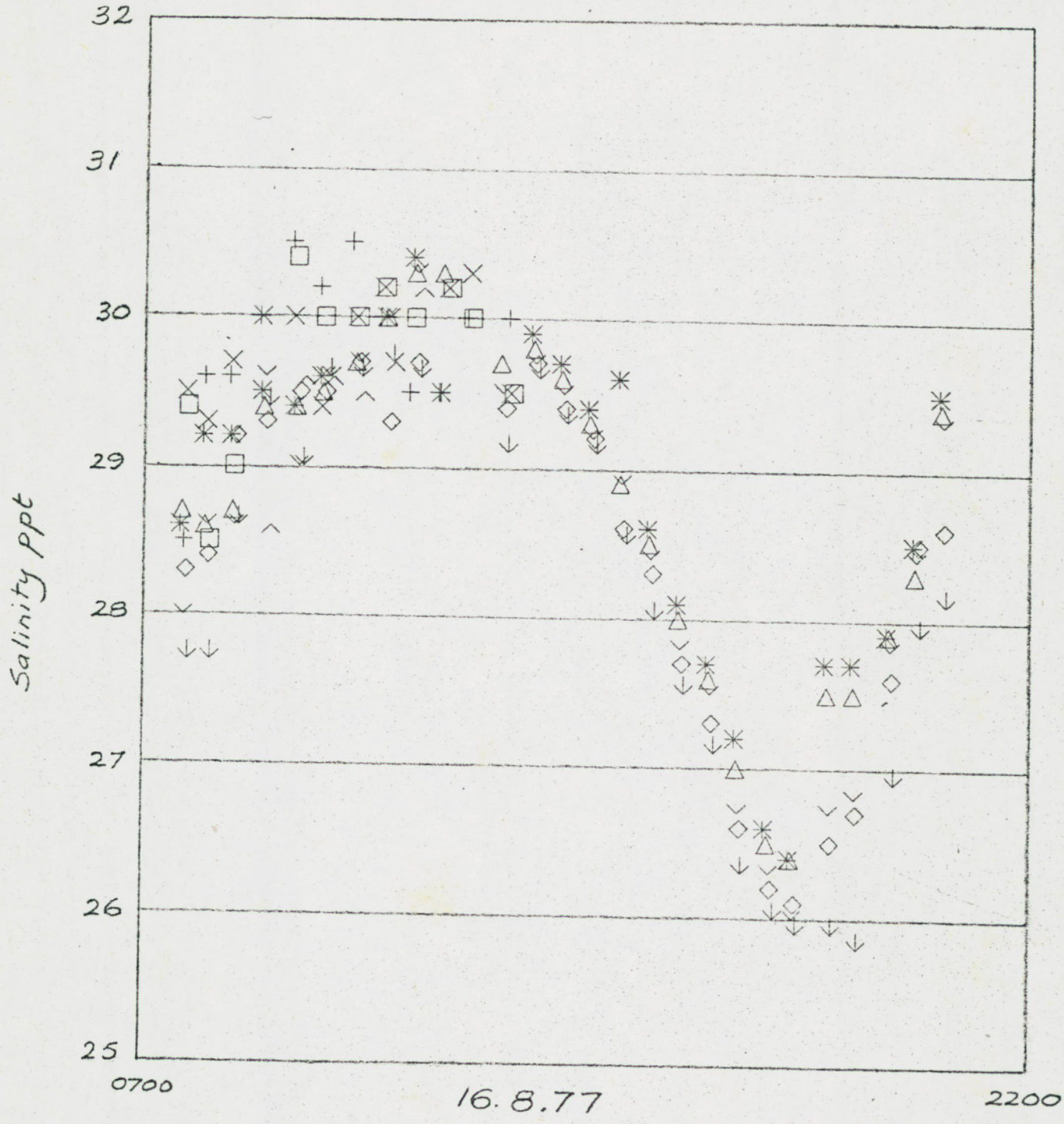
SALINITY AT STATION 5

Fig 21



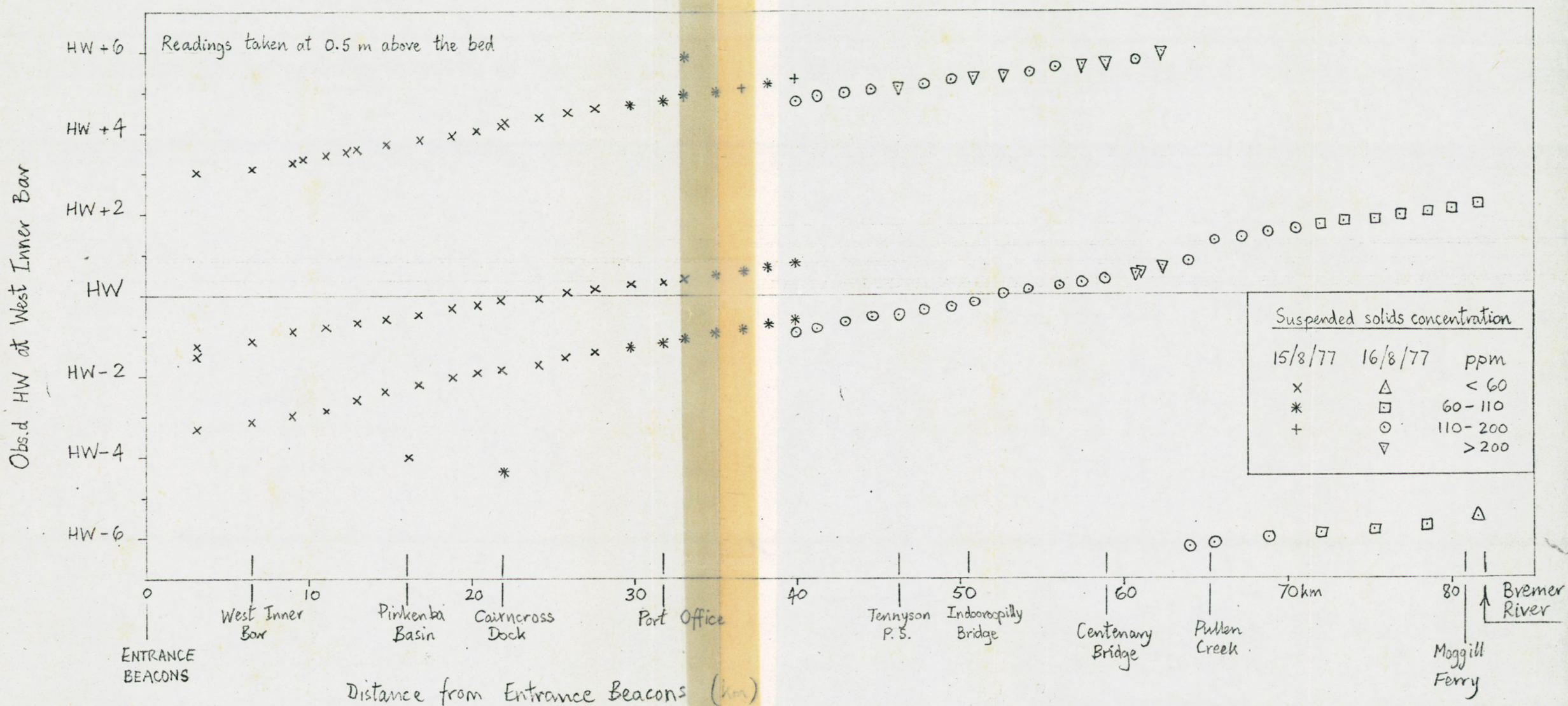
SALINITY AT STATION 6

Fig 22



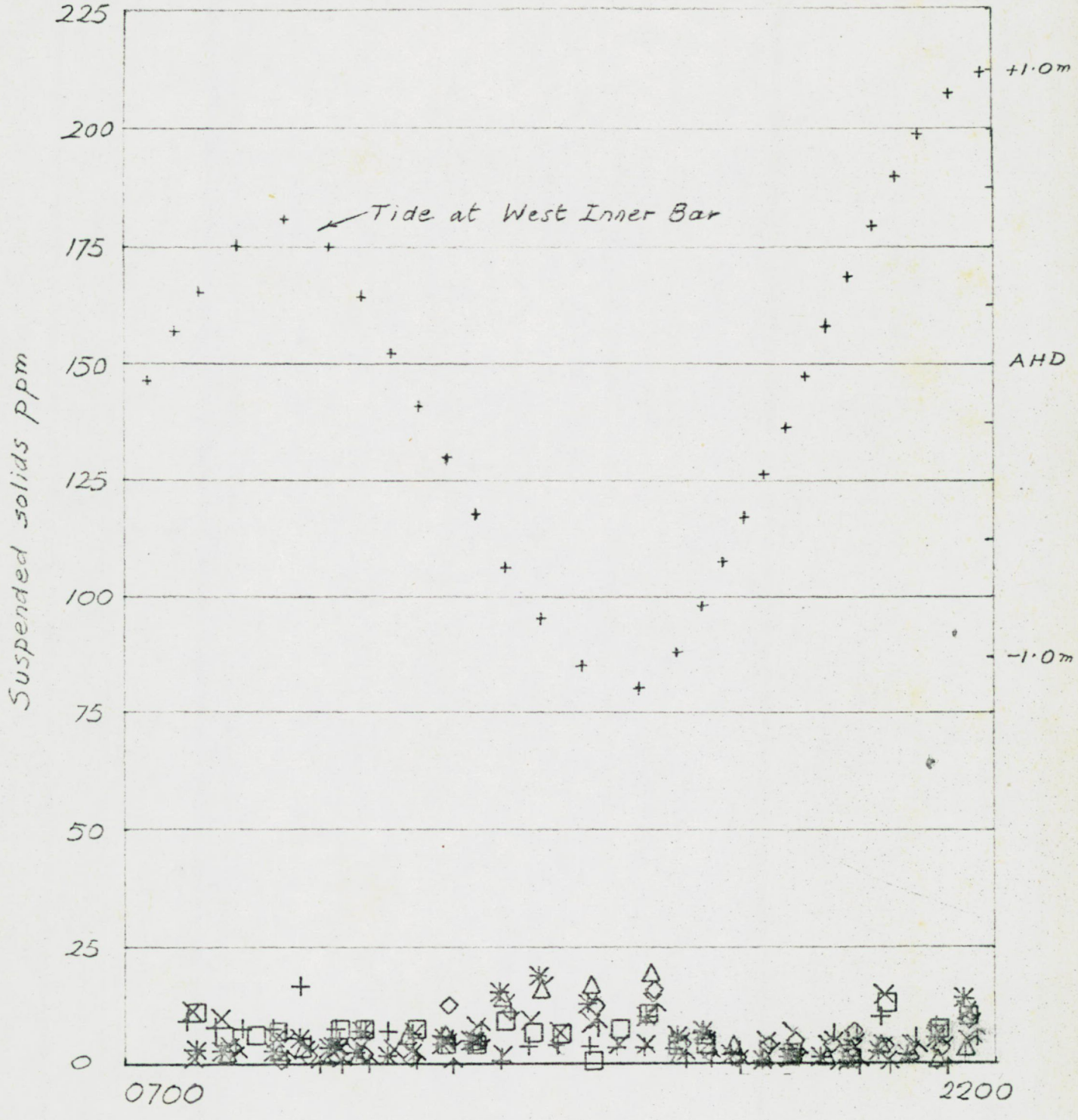
SALINITY AT STATION 7

Fig 23



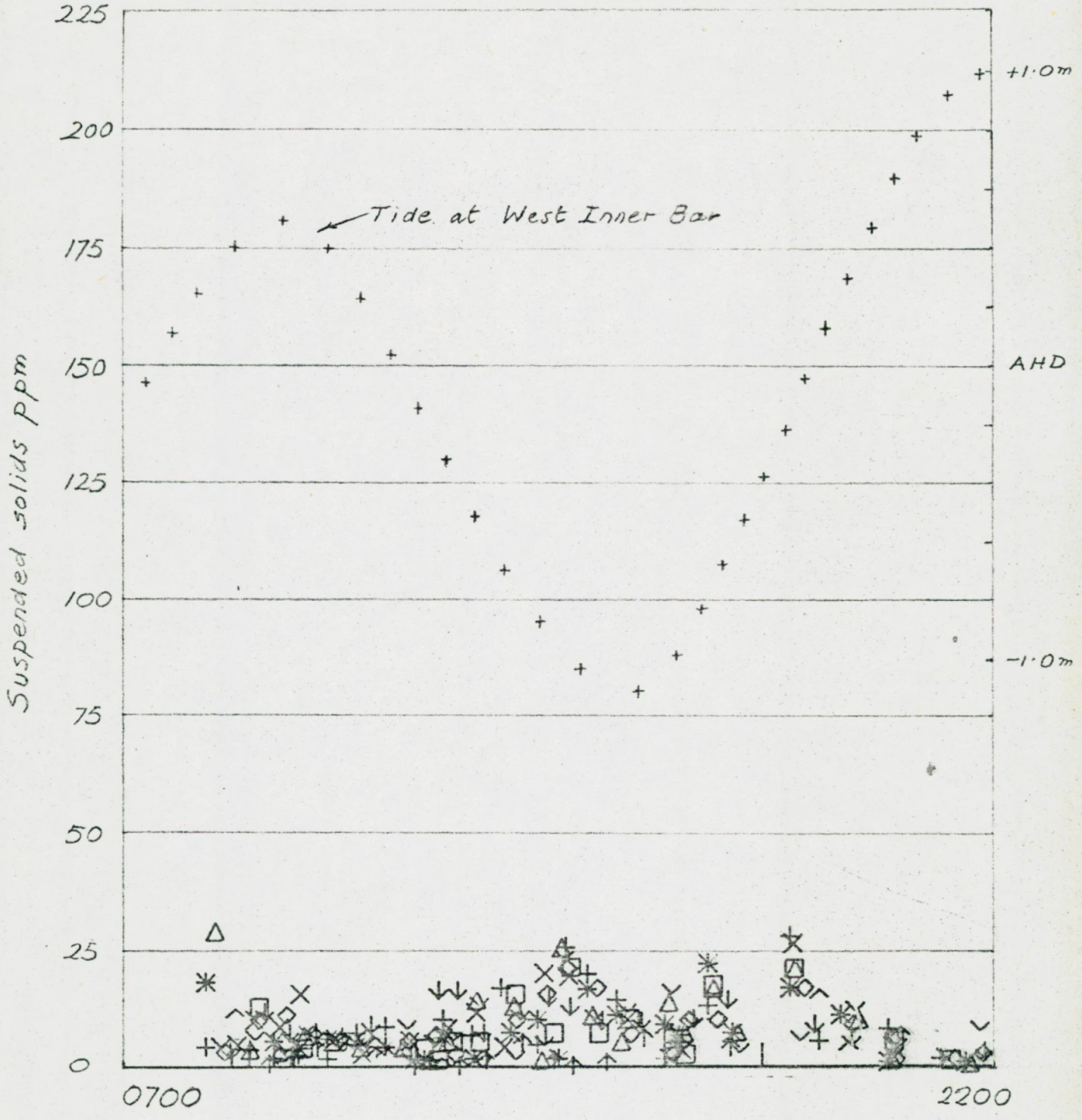
Suspended solids concentrations with RDP

Fig 24



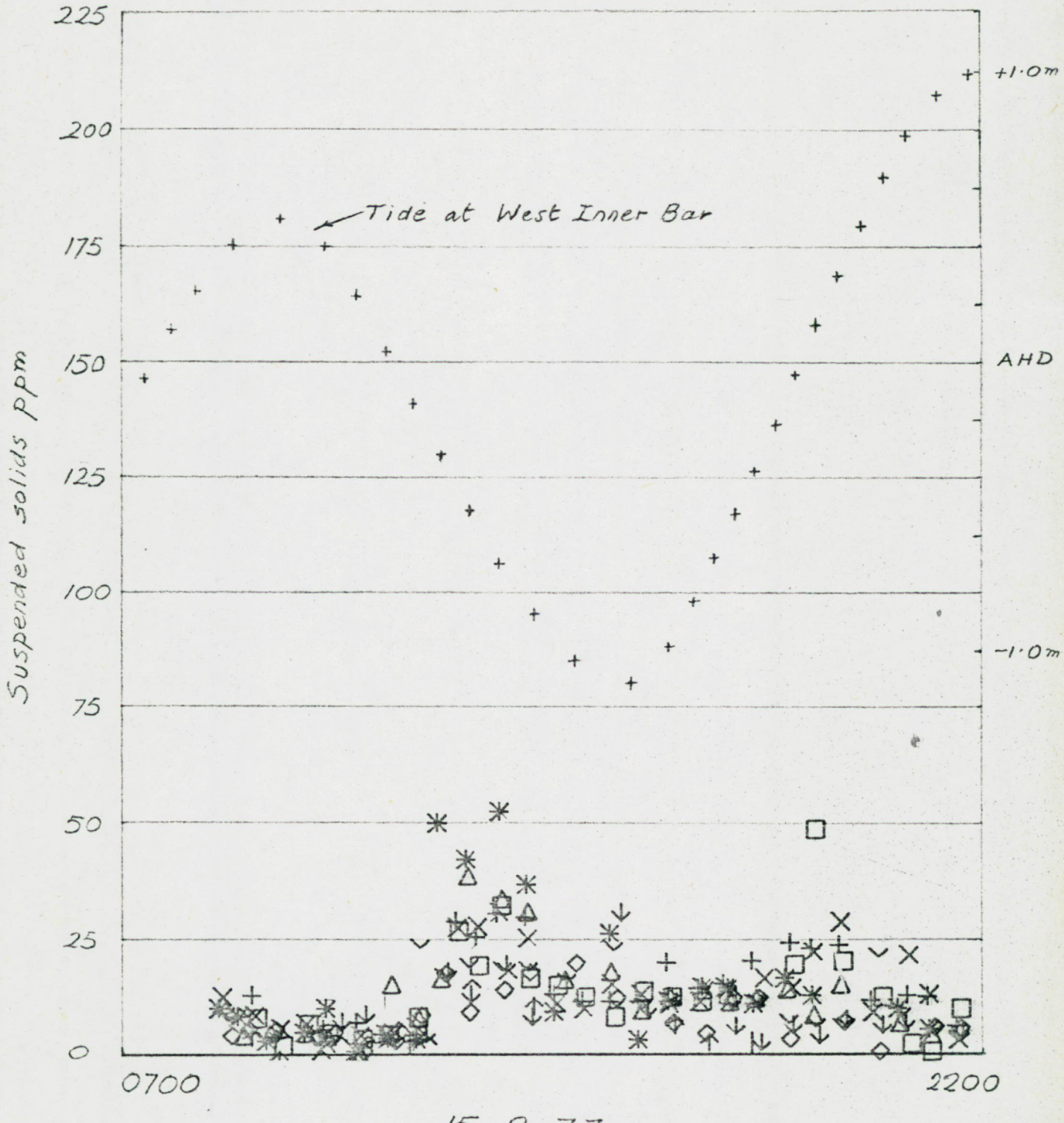
SUSPENDED SOLIDS CONCENTRATION AT STATION 1

Fig 25



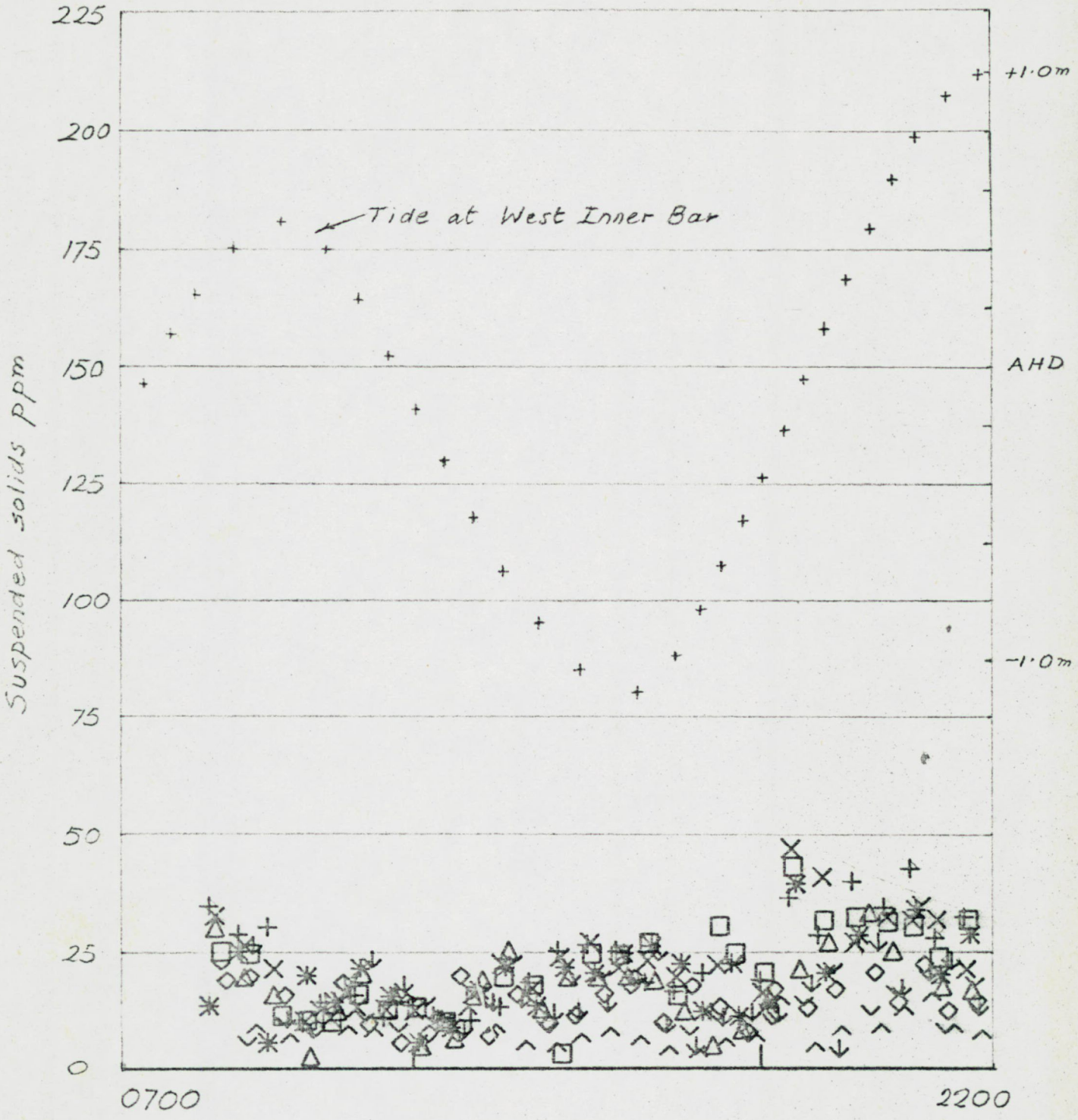
SUSPENDED SOLIDS CONCENTRATION AT STATION 2

Fig 26



SUSPENDED SOLIDS CONCENTRATION AT STATION 3

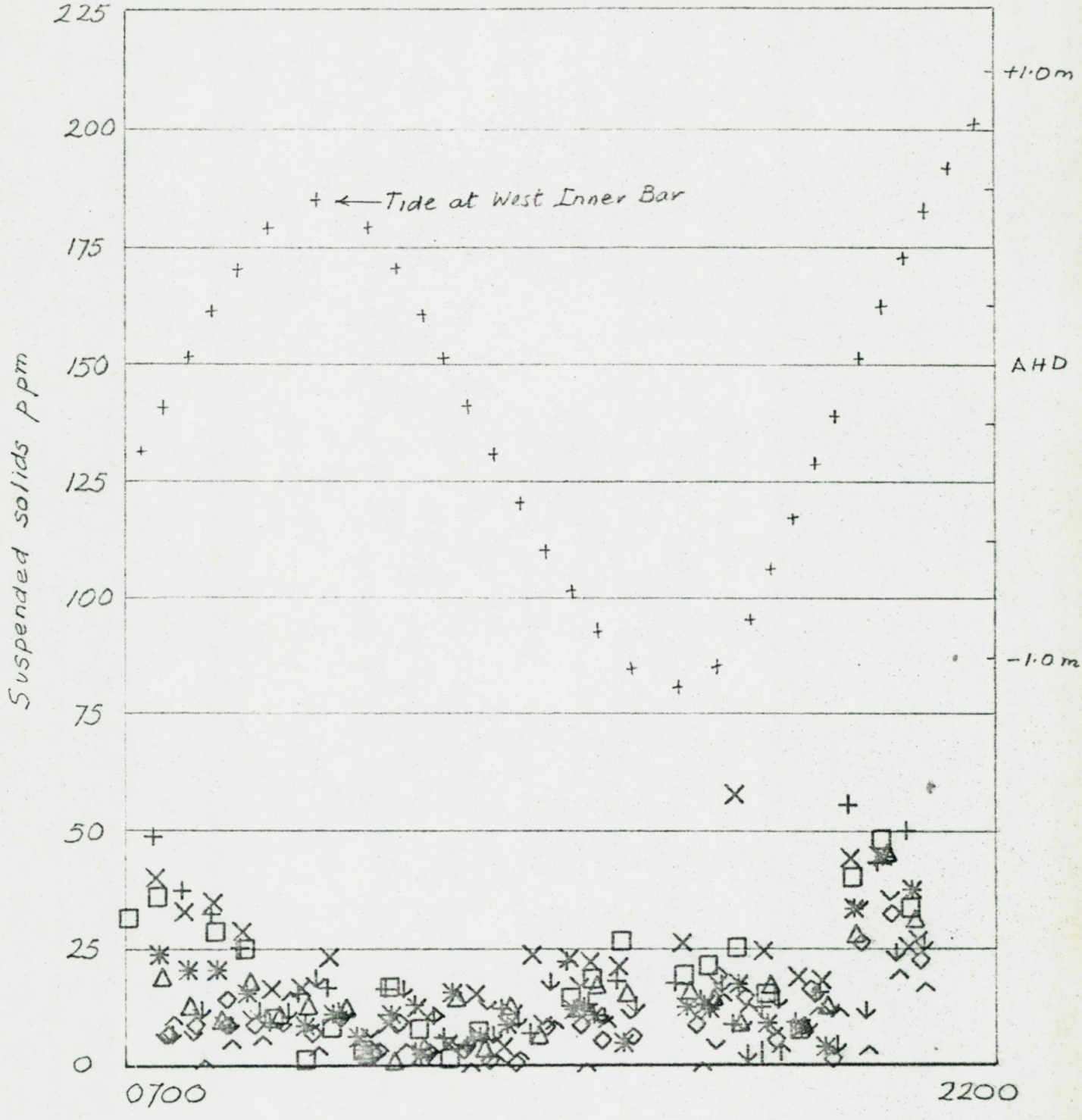
Fig 27



15.8.77

SUSPENDED SOLIDS CONCENTRATION AT STATION 4

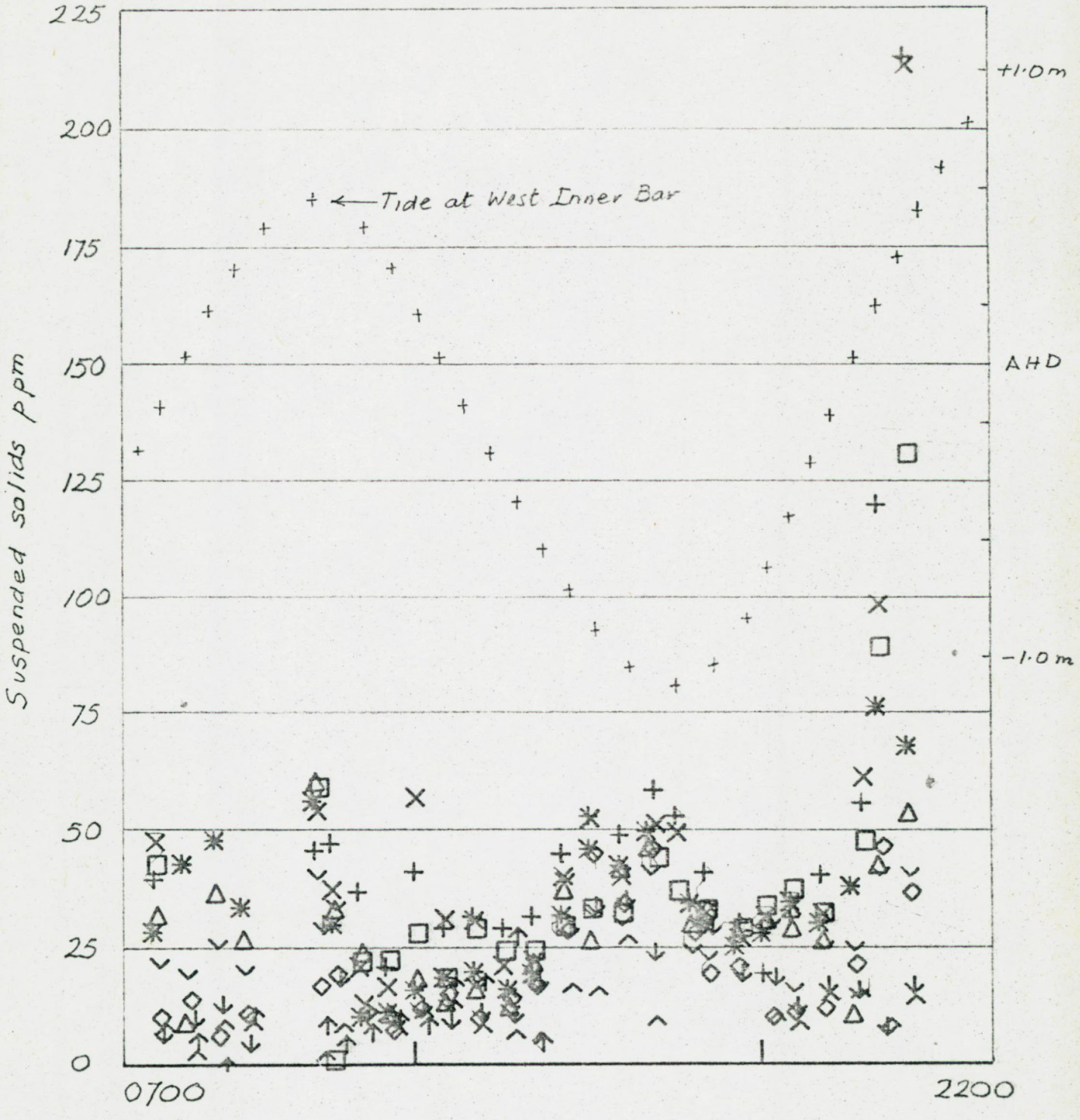
Fig 28



16.8.77

SUSPENDED SOLIDS CONCENTRATION AT STATION 4

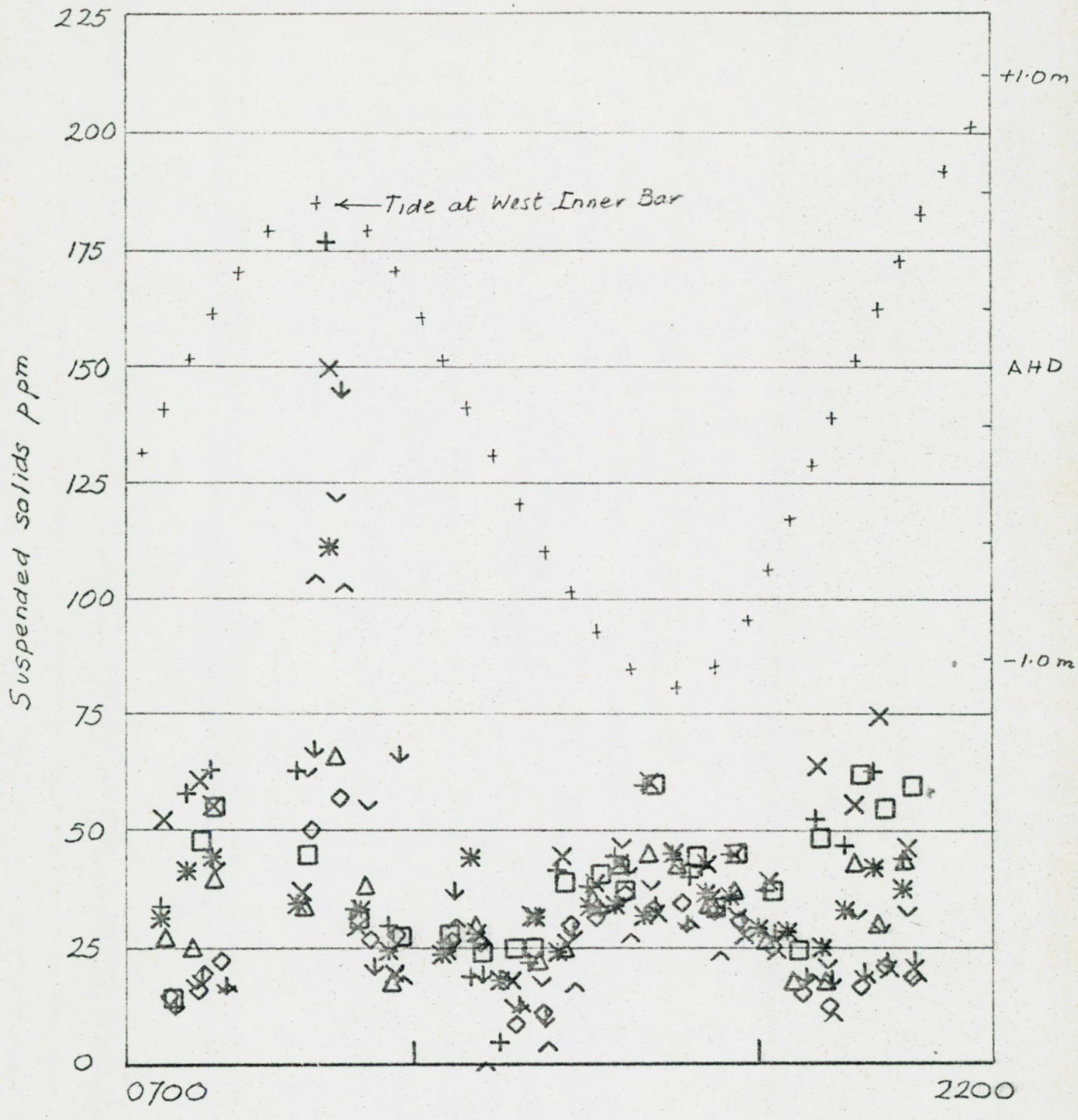
Fig 29



16.8.77

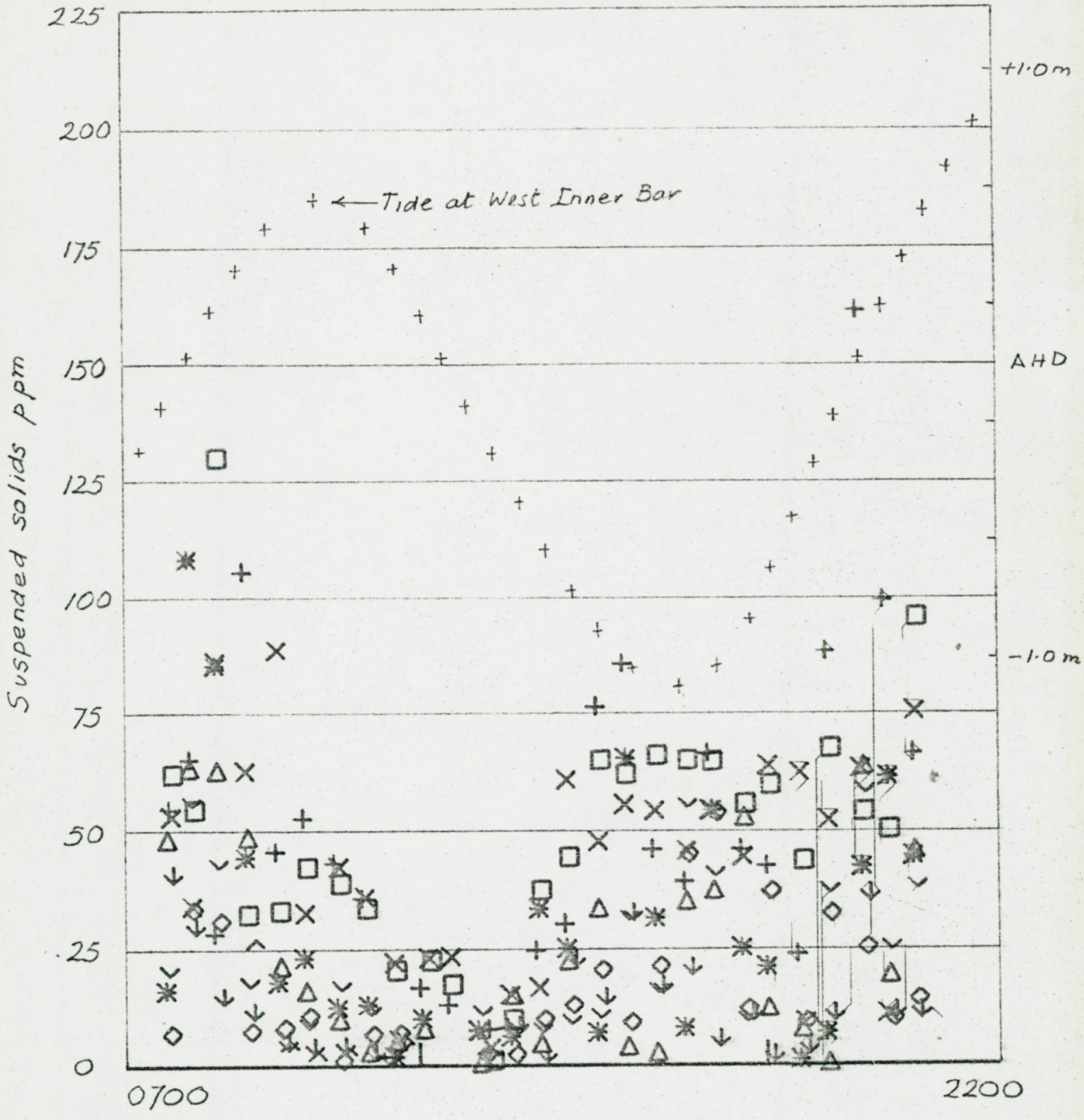
SUSPENDED SOLIDS CONCENTRATION AT STATION 5

Fig 30



SUSPENDED SOLIDS CONCENTRATION AT STATION 6

Fig 31



16.8.77

SUSPENDED SOLIDS CONCENTRATION AT STATION 7

Fig 32

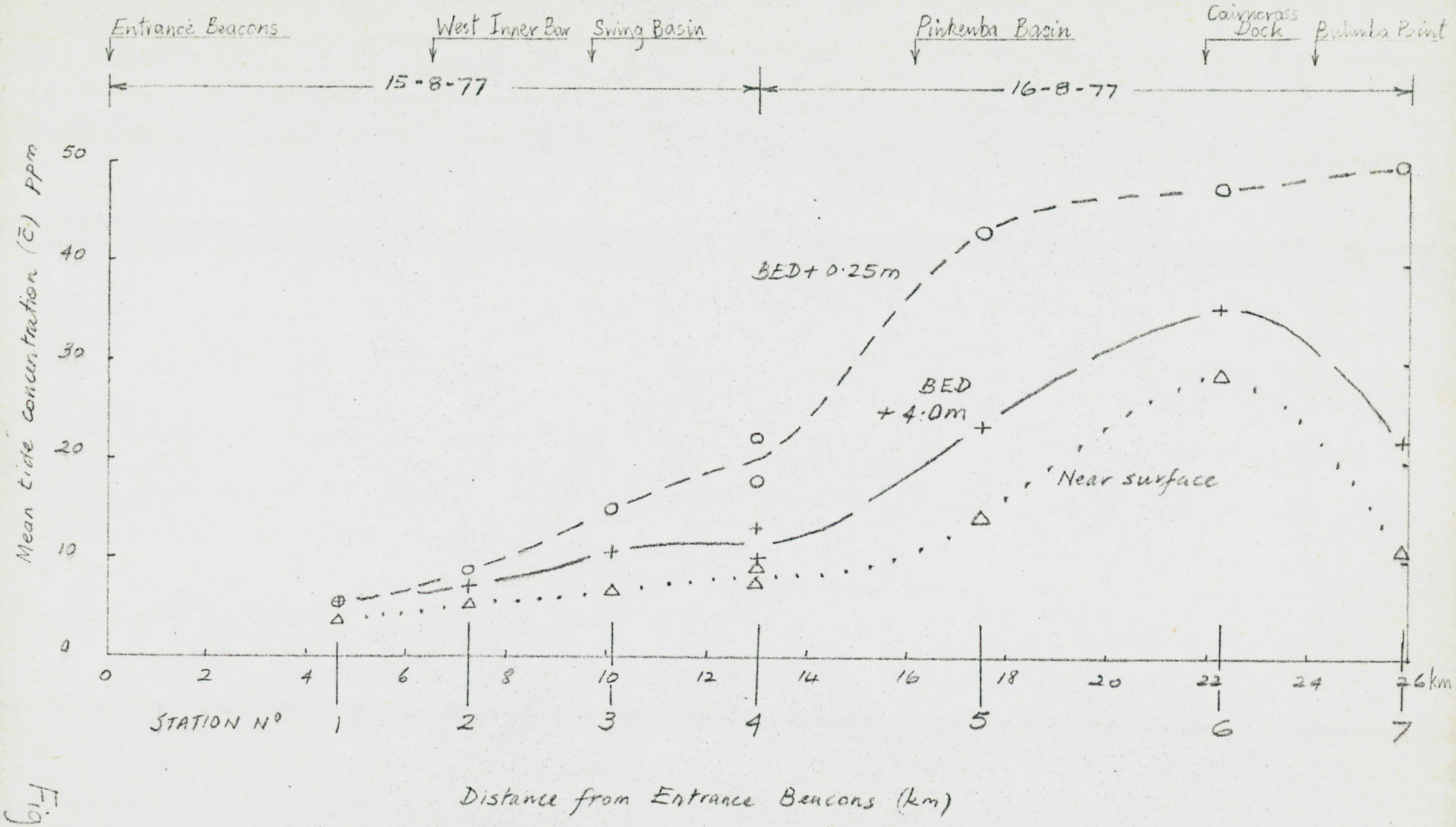
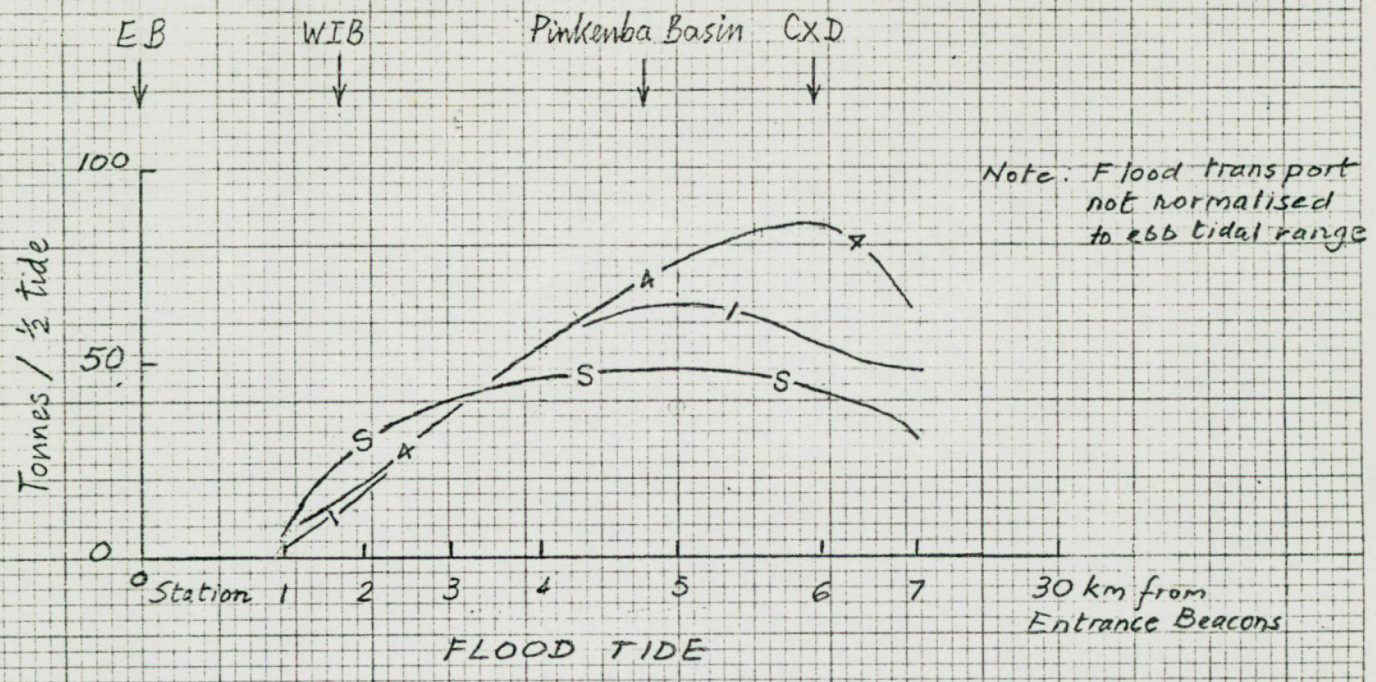
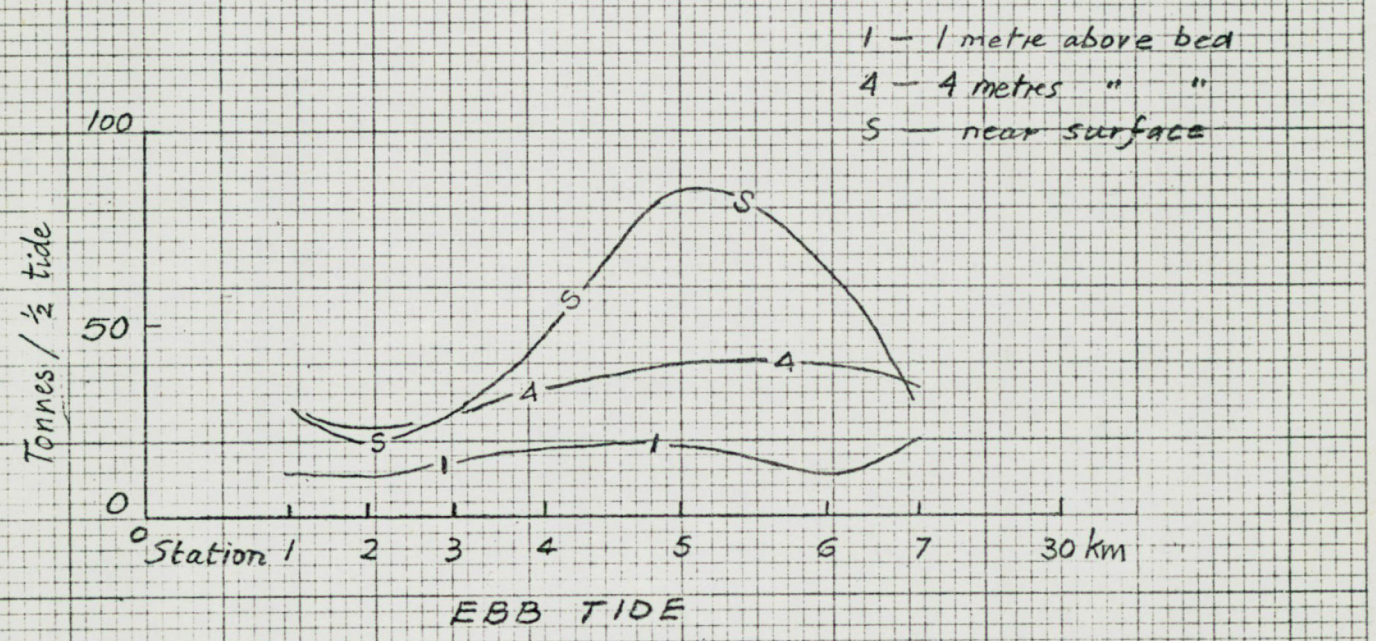


Fig 33

Tide-averaged concentrations at fixed stations

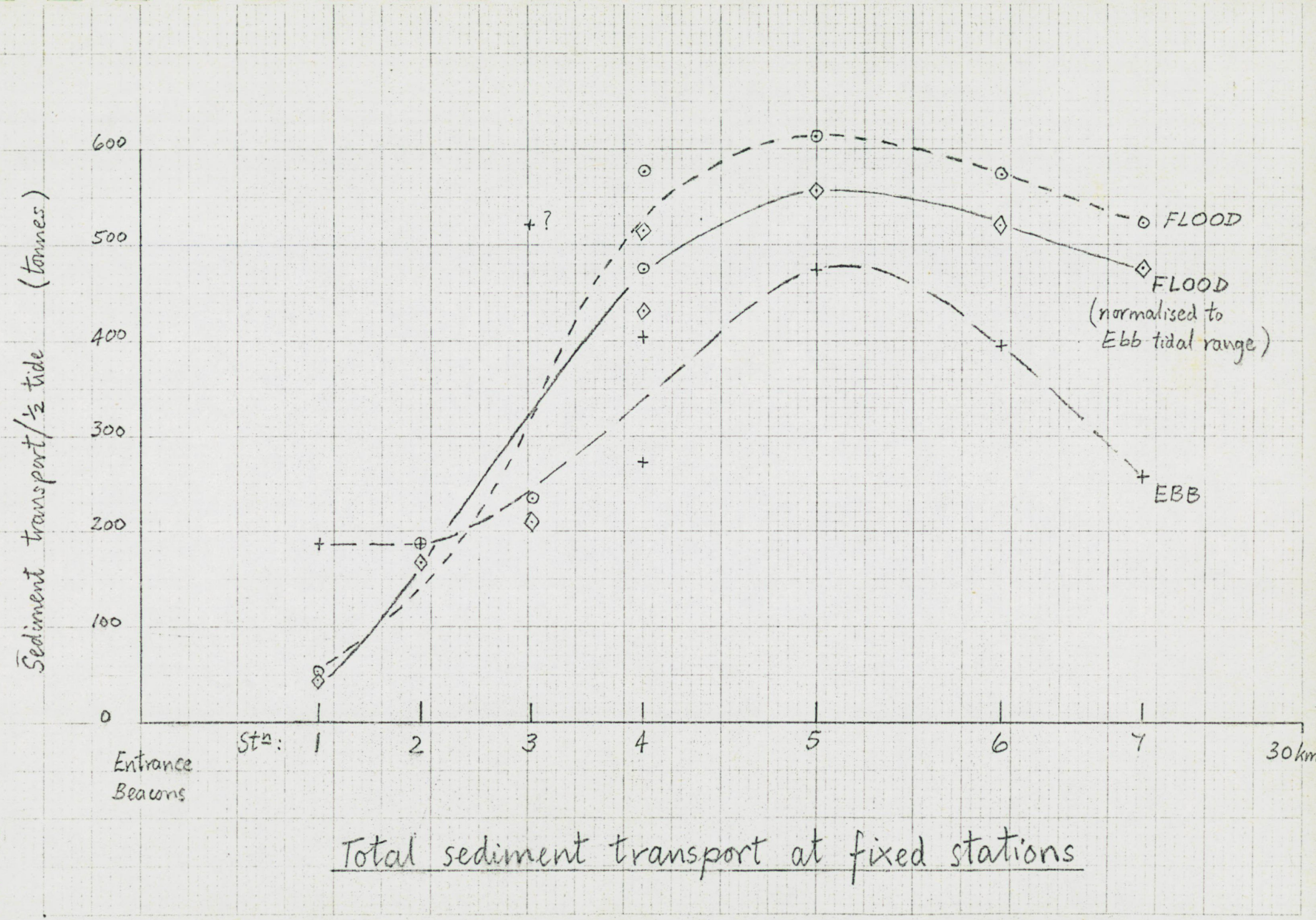
E.R.





VERTICAL DISTRIBUTION OF SEDIMENT TRANSPORT AT FIXED STATIONS

Fig 34



Total sediment transport at fixed stations

Fig 35

PLATES

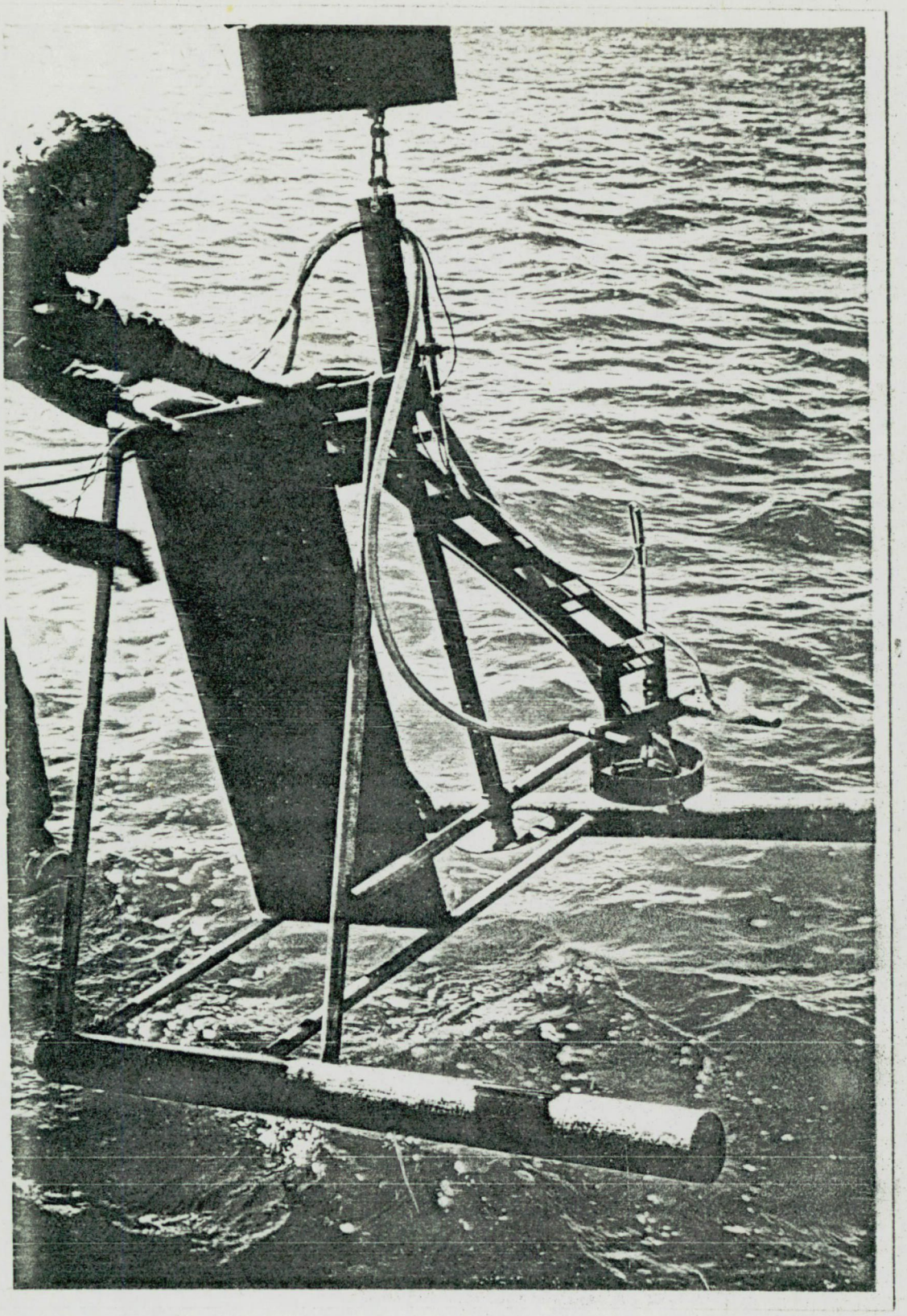


Plate I Bed frame unit being lowered over side of survey vessel

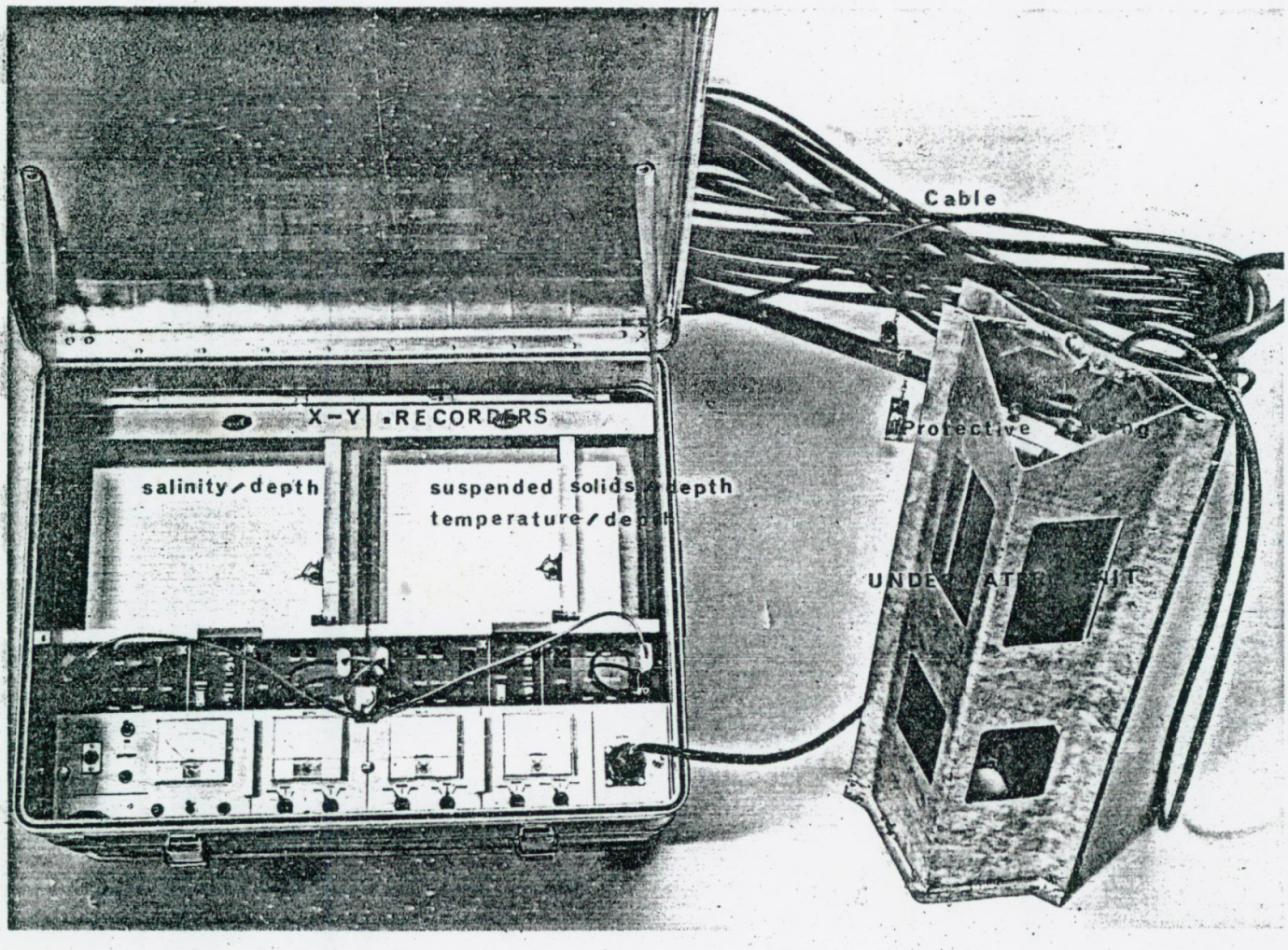


Plate II Rapid drop profiler and X-Y recorders

551.353099432
HYDR
1978