



WATER RESOURCES
OF THE
MURRAY VALLEY
WITHIN NEW SOUTH WALES

SURVEY OF THIRTY TWO N.S.W. RIVER VALLEYS

REPORT No. 28 — FEBRUARY 1975



WATER RESOURCES
OF THE
MURRAY VALLEY
WITHIN NEW SOUTH WALES

SURVEY OF THIRTY TWO N.S.W. RIVER VALLEYS

REPORT N^o. 28 — FEBRUARY 1975

WATER RESOURCES OF THE MURRAY VALLEY

(WITHIN NEW SOUTH WALES)

PREFACE

BY THE HON. L.A. PUNCH M.L.A.

MINISTER FOR PUBLIC WORKS AND PORTS

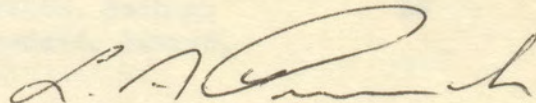
NEW SOUTH WALES.

In accordance with the policy of the New South Wales Liberal-Country Party Government announced prior to its election to office at the May 1965 State Elections, the Government directed the Water Conservation and Irrigation Commission to undertake a survey of the State's water resources on an individual valley basis to enable the formulation of a balanced and soundly based programme of water conservation.

The survey, which is the largest and most comprehensive study of its type ever undertaken, involved the preparation of twenty-eight reports covering thirty-two major river valleys of the State.

In the survey, studies were made of the physiography, climate, groundwater potential and surface water resources of each valley. In addition to reviewing current water requirements, assessments were undertaken of possible future water development.

Reports have been prepared progressively and those issued to date have covered thirty-one major valleys and a number of minor valleys. This report on the water resources of the Murray Valley within New South Wales is the twenty-eighth and final report of the series.



L.A. PUNCH, M.L.A.

WATER RESOURCES OF THE MURRAY RIVER VALLEY
(WITHIN NEW SOUTH WALES)

CONTENTS

<u>SECTION</u>	<u>ITEM</u>	<u>PAGE</u>
1	Introduction	1
2	Physiographic Features	3
3	Climatic Features	6
4	Groundwater Potential	15
5	Stream Gauging Stations	19
6	Catchment Yields	26
7	Average Annual Runoff	26
8	Variability of Streamflows	28
9	Persistence of Streamflows	31
10	Occurrence of Flooding	34
11	Drought Periods	36
12	The 1964 to 1968 Drought	39
13	Water Requirements for Current Development	43
14	Possible Irrigation Development	50
15	Investigation of Storage Proposals	50
16	The Snowy Mountains Scheme	51
17	Acknowledgements	53
<u>APPENDICES</u>		
Appendix 1	Annual Rainfalls - Tumbarumba, Corryong, Batlow, Walwa, Lankeys Creek, Glenfallock, Tallangatta	54
Appendix 2	Annual Rainfalls - Wymah, Albury, Howlong, Corowa, Berrigan, Finley, Tocumwal	56
Appendix 3	Annual Rainfalls - Deniliquin, Barratta, Barham, Cunninyenk, Balranald, Euston, Wentworth	58
Appendix 4	Statistical Rainfall Data	60
Appendix 5	Minimum Rainfall Recorded in Consecutive Months	64
Appendix 6	Streamflow Data - Murray River at Biggara	68
Appendix 7	Streamflow Data - Swampy Plain River at Khancoban	73
Appendix 8	Streamflow Data - Tooma River at Possum Point	80
Appendix 9	Streamflow Data - Murray River at Doctors Point (Albury)	87
Appendix 10	Streamflow Data - Murray River at Tocumwal	100

<u>APPENDICES</u>		<u>PAGE</u>
Appendix 11	Streamflow Data - Wakool River at Stony Crossing	111
Appendix 12	Streamflow Data - Edward River at Moulamein	119
Appendix 13	Streamflow Data - Murray River at Barham	127
Appendix 14	Streamflow Data - Murray River at Mildura	137
Appendix 15	Streamflow Data - Murray River at Euston	143
Appendix 16	Conversion Constants - Imperial to Metric Units	150
<u>FIGURES</u>		
Figure 1	River Valley Map	151
Figure 2	Land Slopes	152
Figure 3	Median Rainfalls - Annual	153
Figure 4	Median Rainfalls - January	154
Figure 5	Median Rainfalls - February	155
Figure 6	Median Rainfalls - March	156
Figure 7	Median Rainfalls - April	157
Figure 8	Median Rainfalls - May	158
Figure 9	Median Rainfalls - June	159
Figure 10	Median Rainfalls - July	160
Figure 11	Median Rainfalls - August	161
Figure 12	Median Rainfalls - September	162
Figure 13	Median Rainfalls - October	163
Figure 14	Median Rainfalls - November	164
Figure 15	Median Rainfalls - December	165
Figure 16	Geological Map	166
Figure 17	Gauging Stations	167
Figure 18	Annual Discharges - Mildura, Euston	168
Figure 19	Annual Discharges - Albury, Stony Crossing	169
Figure 20	Monthly Discharge Hydrograph - Mildura, Euston	170
Figure 21	Monthly Discharge Hydrograph - Stony Crossing	171
Figure 22	Monthly Discharge Hydrograph - Albury	172
Figure 23	Average Monthly Rainfall - Tumbarumba, Albury	173
Figure 24	Average Monthly Rainfall - Euston, Deniliquin	174
Figure 25	Average Monthly Streamflow - Euston, Stony Crossing	175
Figure 26	Average Monthly Streamflow - Albury	176

<u>FIGURES</u>		<u>PAGE</u>
Figure 27	Flow Duration Curve - Biggara, Possum Point	177
Figure 28	Flow Duration Curve - Khancoban	178
Figure 29	Flow Duration Curve - Albury/Doctors Point	179
Figure 30	Flow Duration Curve - Tocumwal, Barham, Euston	180
Figure 31	Flow Duration Curve - Stony Crossing, Moulamein	181
Figure 32	Flow per Square Mile Flow Duration Curves	182
Figure 33	Flood Peaks at Albury	183
Figure 34	Annual Rainfalls - Tumbarumba, Deniliquin	184
Figure 35	Annual Rainfalls - Barham, Euston	185
Figure 36	Irrigation Licenses	186
Figure 37	Snowy Mountains Scheme	187
Figure 38	Snowy - Tumut and Snowy Murray Development	188
Figure 39	Snowy Mountains Scheme - Inflows and Diversions in an Average Year	189
Figure 40	Snowy Mountains Scheme - Inflows and Diversions in a Typical Dry Year	190

INTRODUCTORY NOTE

Because this is the final report in a series of twenty-eight reports on the same topic, although dealing with different river valleys, the Commission considers it desirable to maintain uniformity with the previous reports in the matters of format and data presentation.

The statistics in the preceding twenty-seven reports were compiled before the official introduction of metric units in the field of water resources engineering and therefore, in the interest of uniformity, the corresponding statistics in this report are also quoted in imperial units.

The Commission trusts that recipients of the report will appreciate the reason for issuing a publication in imperial units in an age of metric units.

A list of relevant conversion factors from imperial to metric units is included at Appendix 16.

WATER RESOURCES OF THE MURRAY RIVER VALLEY
(WITHIN NEW SOUTH WALES)

1. INTRODUCTION

Water is necessary for life. Without adequate water, neither man himself nor the animals, fish and plants on which he is dependent for food could survive.

A modern civilization makes huge demands on water for domestic, agricultural and industrial purposes. The continuous minimum daily requirements of an adult have been estimated at about three quarters of a gallon, this volume being required to replenish the daily losses from the human body, which itself is composed of more than seventy percent of water.

Industrial water demands can be comparatively high in relation to domestic requirements. About 300 tons of water are required to make a ton of steel, 60 tons of water are used in producing a ton of paper and about 2½ tons of water are necessary to grow the grain and produce a loaf of bread. In addition it has been estimated that over thirty tons of water are used in producing a normal daily diet for an adult.

The annual water requirements of crops usually range between two to three feet, and during a drought period it is necessary to provide a major proportion of these requirements by irrigation. The relative magnitude of this demand can be assessed when it is realised that a depth of three feet over an area of only one acre represents over 800,000 gallons of water (more than 3,500 tons).

Although there is an abundance of water on Earth only a very small percentage of it is in a form or location suitable for use in meeting domestic, industrial and agricultural demands.

The total volume of water on Earth is about 320 million cubic miles of which about 97.2 percent is in the oceans and too saline for direct consumptive use. A further 2 percent lies frozen in the polar regions while underground water comprises over 99.5 percent of the remaining 0.8 percent.

Surface water contained in lakes and streams therefore represents about 0.004 percent of the total volume of water on Earth.

The gross water resources available are normally considered to be the amounts of rainfall and snow which fall on the land. Surface water resources represent the portions of rainfall and snow which eventually appear as streamflow and are therefore considerably less than the gross water resources.

Many countries are fortunate in having relatively abundant water resources. However, Australia is the world's driest continent having an average rainfall of only about $1\frac{1}{2}$ feet in comparison with averages of almost $4\frac{1}{2}$ feet for South America and about 2 feet for North America, Africa, Asia and Europe.

Furthermore, as none of the streams on the Australian mainland are permanently snow fed and as the average rainfall does not exceed the potential evaporation loss in any month of the year in about 70 per cent of the Australian continent, the comparison of surface water resources is even more unfavourable.

The surface water resources of the Australian mainland have been assessed at about 240 million acre feet per annum which is equivalent to a depth of less than 2 inches over the continental area. In comparison, runoffs for the other continents are about 7 inches in Africa, 9 inches in Asia and Europe, 11 inches in North America and about 19 inches in South America.

In addition to the relatively low average annual runoff over the continent, Australian streams tend to exhibit considerable variability in flow. Therefore, it is necessary to construct relatively large water conservation storages if assured water supplies are to be maintained over the full period of a drought.

In view of the steadily increasing demand for water for irrigation, industrial and domestic purposes, the continued development of Australia as a nation will require the construction of many more large water conservation storages in the future. Furthermore, it will be necessary to ensure that the flows provided by these and existing storages are used effectively.

The water resources of a nation are of major importance to national economy, the welfare of the community depending to a large extent on their proper development and use. Water conservation in Australia is therefore a service of prime national importance, increasing living standards and overall national wealth.

The Murray Valley within New South Wales encompassed within the boundaries defined in Section 2 of this report, possesses surface water resources which have been assessed as averaging about 1,420,000 acre feet annually. This is equivalent to a percentage runoff of 14 percent of the average rainfall of 20 inches that falls over that part of the valley.

2. PHYSIOGRAPHIC FEATURES

This report deals with that part of the Murray River Valley which is located within New South Wales, but excludes the catchments of its major New South Wales tributaries, the Murrumbidgee and Darling Rivers, which have been covered in earlier reports. The area encompassed by the section of the valley dealt with in this report is about 9,600 square miles. The adopted boundaries of the valley and the locations of major streams and principal towns within the valley are shown at Figure 1.

From its easternmost extremity in the high ridges of the Australian Alps, the Murray River Valley stretches westward for a distance of some 450 miles to the South Australian border. Its southern boundary is easily distinguished, being the Murray River itself. Similarly, the eastern border is distinctive. The Snowy Mountains with elevations mostly above 6,000 feet form the eastern boundary from the Victorian border to a point about 50 miles to the north in the vicinity of the Strumbo Range and Mount Jagungal (6,764 feet). The Toolong Range and the Maragle Range comprise the remainder of the eastern watershed, trending slightly west of north at lower elevations of about 5,000 feet until in the vicinity of the town of Tumbarumba. Round Mountain (5,763 feet) is the highest peak in this area. The northern boundary, which commences near Tumbarumba is not as clearly defined. For about one third of its total length, the northern boundary follows the watershed between the Murray and Murrumbidgee Rivers, but in the vicinity of Tocumwal the terrain has moderated to such an extent that it becomes impossible to distinguish clearly the catchment boundary between these two great river systems. Below Tocumwal, the adopted northern boundary lies between the Edward River and Billabong Creek (sometimes called Moulamein Creek) and passes through the junction of these two streams at Moulamein. West of Moulamein there are virtually no physical features to determine the location of the boundary line. The adopted boundary includes the Wakool River and crosses the Murrumbidgee and Darling Rivers near their points of confluence with the Murray.

The valley provides a marked contrast in topography and landscape, varying from rugged snow capped mountains in the east to vast flat plains in the west. The plains, which spread over about three quarters of the valley's total area, are only sparsely covered by natural vegetation and contrast vividly with the heavily timbered mountains and fertile river flats of the uplands.

Rising in the vicinity of The Pilot and Mount Cobberas, two peaks of some 6,000 feet in elevation, the Murray River flows in a northerly direction passing the foot of Mount Kosciusko some 30 miles from its source. This peak rises to more than 7,300 feet and is the highest point in Australia.

A short distance downstream the Murray River is joined firstly by the Swampy Plain River and then a further ten miles to the north, by the Tooma River. These two fast flowing snow fed rivers descend from the top of the Snowy Mountains, after draining the southern and northern slopes respectively of Strumbo Range. This headwater region which includes a portion of the Kosciusko National Park, is in most parts too rugged for any form of cultivation, and occupancy generally is restricted to sheep and cattle grazing on the high plains or less rugged slopes.

Near its confluence with the Tooma River, the Murray turns towards the west, and flows through generally undulating to steep country. In this section, the Murray Valley itself begins to widen and occasional patches of relatively flat fertile land are found. Although steep slopes still predominate, the terrain has generally moderated to lower elevations in this area and isolated peaks reach only between 2,500 and 3,500 feet above sea level. Steep country flanks the Murray almost to Albury, at which point the river leaves the hills and enters the plains. Before it reaches Albury, the Murray is joined by the Mitta Mitta River upstream of Hume Dam and the Kiewa River downstream from the Dam. These two rivers are major tributaries which drain mountainous catchments in Victoria. In the vicinity of Albury, few peaks exceed 1,500 feet, the most prominent being Loka Pulpit Rock (2,187 feet).

About 30 miles below Albury near the town of Corowa, the Murray is joined by the Victorian tributary, the Ovens River.

At this point, the Murray has descended to an elevation of only about 500 feet above sea level, and flows through broadening plains with some 1,300 miles of its journey to the sea still remaining. Here the country is generally known as the Riverina Plain and, apart from a barely perceptible fall to the west is otherwise unaccented. Commencing near Tocumwal complex systems of effluent creeks and ana branches intersect the plains and carry water away from the Murray towards the north.

The most significant of these effluents is the Edward River. Geological studies in this area have indicated that the Murray River, instead of turning

south at the Edward River offtake as it now does, once continued westward to join up with the Wakool River, which today is the truncated remains of the earlier Murray. An earth movement some 30,000 years ago resulted in the upthrust of a north-south ridge across the path of the Murray and turned it to its present southerly course at this location. This ridge may be seen as the higher country lying between Echuca and Deniliquin, and has had a major influence on the behaviour of the Murray and other streams in this region.

In this reach, the present Murray River exhibits the characteristics of the narrower Goulburn River from Echuca to the Wakool River junction. The constriction, or "bottleneck", caused by the narrower channel forces flood flows into the effluent systems at the northern end of the ridge, which have all joined the Edward River by the time it reaches Deniliquin.

Downstream of the ridge, floodwaters break out from the narrow Murray and from the Edward below Deniliquin, and flow through the other channel systems, back towards the Wakool River. In large floods, it is not uncommon for the Wakool to carry considerably more flow than the adjacent Murray River.

Between Echuca and Swan Hill, the Murray is joined by the Campaspe and Loddon Rivers, two major tributaries which drain Victorian catchments.

Beyond its junction with the Wakool the Murray enters a region known as the Mallee, a rolling terrain with recurring wind-formed sandhills. Uncleared for the most part, this region supports a variety of scrub species, the best known being the stunted Mallee Gum. After being joined by the Wakool and Murrumbidgee Rivers from the north, the Murray gradually carves deeper into the landscape. As it approaches Wentworth it frequently follows the foot of tall limestone cliffs at depths of 100 feet below the general land surface.

At Wentworth the Murray is joined by the Darling river which contributes water it has collected mainly from the far northern areas of New South Wales, and southern Queensland.

Mostly flat terrain covers virtually all of the valley west of Albury and comprises 82 percent of the entire valley. Rugged and mountainous country with slopes greater than 15 degrees covers almost all the headwater region, above the Tooma-Murray Rivers confluence and only small patches of undulating terrain on and downstream of the lower reaches of the Swampy Plain River breaks the rugged features of this area. Rugged and mountainous country comprises 8 percent of the entire

valley. The remainder of the valley is comprised of undulating to hilly (slopes between 3 degrees and 8 degrees) and hilly to steep (slopes between 8 degrees and 15 degrees) terrain and these classifications each occupy 5 percent of the total area of the Murray Valley, and are mostly found in the sections between the Tooma River and Albury. Generalised land slopes for the valley are given at Figure 2.

There are over fifty State Forests located either wholly or partly within the valley and a further fifteen areas dedicated as Timber Reserves. Of the State Forests, the largest is the Bago State Forest, near Tumberumba, which covers an area of almost 100,000 acres. About half the area of this forest is located within the Murray Valley. Species of the highland hardwood types are found in the Bago Forest and other forests in the upper Murray Valley and most prominent are stands of Cypress Pine and Western Ironbarks, Red Ironbark being the most significant of this latter species.

West of Albury, the State Forests occur mainly on the alluvial flats of the Murray River between Corowa and Swan Hill and are largely comprised of stands of River Red Gum. The largest of these inland forests is the Millewa State Forest which covers an area of about 50,000 acres along the Murray River between Echuca and Barham.

3. THE CLIMATE OF THE MURRAY RIVER VALLEY

Rainfall

The annual median rainfall over the Murray River Valley generally shows an east to west gradation closely related to the overall westward decrease in elevation. (The median rainfall is that rainfall total which is equalled or exceeded on 50 percent of occasions). In the east, upstream of Corowa, the median values decrease from more than 63 inches to less than 20 inches per year as the valley traverses approximately 2 degrees of longitude. Rainfall in this part of the valley is also related to local relief with rainfall in general being greater over the more elevated boundaries of the valley while areas of relatively low rainfall are found in the vicinity of the main watercourse. Downstream of Corowa local orographical effects on the annual median rainfalls are insignificant and in general the values have a gradual overall east to west decrease in rainfall from 20 inches to less than 10 inches as the valley traverses approximately 5 degrees of longitude. The distribution of annual median rainfall is shown at Figure 3.

Over 60 percent of the annual rainfall over the valley occurs in the months

May to October inclusive and in general the spatial distribution of monthly median rainfalls over the valley is similar to the distribution described for the annual median rainfalls. Monthly median rainfall distributions are shown at Figures 4 to 15. On the average, June with median rainfalls of 6 inches or more over the south-east highlands and approximately 1 inch in the west is the wettest month. Either February or March is the driest month with corresponding median values of 3 inches and less than $\frac{1}{2}$ an inch over the abovementioned areas respectively.

Records of monthly and annual rainfalls at Tumberumba, Corryong, Batlow, Walwa, Lankeys Creek, Glenfalloch, Tallangatta, Wymah, Albury, Howlong, Corowa, Berrigan, Finley, Tocumwal, Deniliquin, Barratta, Barham, Cunninyenk, Balranald, Euston and Wentworth are given in Appendices 1 to 3 inclusive.

Heavy rainfall over a period of a few days may occur over a major portion of the valley from time to time. These falls are frequently associated with deep active depressions which, after developing over the eastern end of the Great Australian Bight, move eastward over the valley. Under these conditions, rainfalls in the 24-hour period ended 9 a.m. have exceeded 3 inches at most stations in the valley. These systems affect the valley mainly in the cooler months of the year. Greatest 24-hour rainfalls on record for the stations of the valley are as a rule associated with well developed thunderstorm activity in the warmer months of the year. Storms of this type which, in general, cover an area of the order of 200 square miles, have produced 24-hour falls in excess of 4 inches over most of the valley. It has been estimated that point rainfalls in excess of 9 inches in 24 hours could occur at most stations in the valley. Greatest 24-hour totals on record for stations representative of the western, central and eastern portions of the valley are 463 points at Wentworth on the 16th February, 1928; 580 points at Berrigan on 8th December, 1930; and 950 points at Charlotte Pass on 11th June, 1931 respectively.

The tables at Appendix 4 show on a monthly and yearly basis for Corryong, Tumberumba, Batlow, Berrigan, Deniliquin, Albury, Barham, Cunninyenk, Barratta, Balranald, Euston, and Wentworth the following data:-

- (1) The highest and lowest rainfall totals on record.
- (2) The 10th, 30th, 50th, 70th and 90th percentiles.

(A rainfall observation less than the 10th percentile value can be expected once every ten years on the average. Similarly, a rainfall observation less than the

70th percentile can be expected seven years out of ten or, alternatively, a rainfall observation greater than the 70th percentile can be expected on an average of three years in ten.)

Tables showing the minimum cumulative rainfalls on record commencing in any month of the year and continuing for up to 12 months at Tumbarumba, Corryong, Berrigan, Barratta, Barham, Balranald, Euston and Wentworth are given at Appendix 5.

Dry spells occur over the valley from time to time. These spells may on occasions be prolonged and severe over the western parts of the valley. At Barham, for instance, less than 5 inches of rain have been recorded in a 12 consecutive month period and on ten percent of occasions, less than 8 inches has been recorded in the 12 consecutive months commencing in December. The corresponding median value is 14.45 inches. At the western stations a succession of two or three rainless months is not unusual, particularly in the summer and autumn. The effect of dry spells over the headwaters of the valley is less striking because rainfall is considerably greater and more reliable while evaporation losses are considerably lower than over the western section of the valley.

Temperature

The temperature regime of the valley is represented by thirteen stations in the valley. Average and extreme values are shown in Tables 1 to 13. Adelong, Billapoola and Kiandra are representative of the eastern highland region; Albury, Hume Reservoir, Corowa and Berrigan are representative of the central parts of the valley; Balranald, Deniliquin, Euston, Lake Victoria, Wentworth and Zara are representative of the drier western regions.

TABLE 1

ADELONG (Elevation 1,092 feet)

Average Temperature (°C) based on 46 years of records

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average Maximum	30.9	30.5	27.4	21.8	17.1	13.2	12.3	14.2	18.0	21.3	25.4	29.1	21.7
Average Minimum	13.1	13.2	10.7	6.4	3.7	1.2	1.2	2.0	3.8	5.8	8.5	11.2	6.8
Average Daily	22.0	21.8	19.0	14.1	10.3	7.5	6.7	8.1	10.8	13.6	16.9	20.1	14.2
Highest on record: 44.5°C						Lowest on record: -6.7°C							

TABLE 2

BILLAPOOLA (Elevation 2,650 feet)Average Temperature (°C) based on 17 years of records

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average Maximum	26.4	25.4	23.4	17.2	12.3	9.2	8.3	9.9	13.8	16.6	20.0	24.3	17.2
Average Minimum	12.1	11.7	9.8	5.7	3.1	1.2	0.1	0.4	2.4	4.7	7.0	10.0	5.7
Average Daily	19.2	18.5	16.6	11.4	7.7	5.2	4.2	5.2	8.1	10.6	13.4	17.1	11.4
Highest on record: 40.0°C					Lowest on record: -7.2°C								

TABLE 3

KIANDRA (Elevation 4,578 feet)Average Temperature (°C) based on 64 years of records

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average Maximum	20.8	20.6	17.8	12.9	8.6	5.2	3.8	5.4	8.9	12.4	16.1	19.1	12.6
Average Minimum	6.1	6.3	4.2	0.9	-1.4	-3.2	-4.7	-3.9	-1.4	0.9	3.3	5.1	1.0
Average Daily	13.5	13.5	11.0	6.9	3.6	0.9	-0.4	0.7	3.7	6.7	9.7	12.1	6.8
Highest on record: 34.7°C					Lowest on record: -20.6°C								

TABLE 4

ALBURY (Elevation 534 feet)Average Temperature (°C) based on 91 years of records

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average Maximum	32.9	32.2	29.0	23.3	18.0	14.2	13.5	15.7	19.2	22.9	27.3	30.7	23.2
Average Minimum	15.3	15.2	12.4	8.3	5.1	3.7	2.7	3.7	5.7	8.2	11.1	13.5	8.7
Average Daily	24.1	23.7	20.7	15.8	11.5	8.9	8.1	9.7	12.4	15.6	19.2	22.1	15.9
Highest on record: 46.1°C					Lowest on record: -4.4°C								

TABLE 5

HUME RESERVOIR (Elevation 600 feet)Average Temperature (°C) based on 35 years of records

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average Maximum	30.5	30.0	27.0	21.3	16.4	12.7	12.0	14.1	17.6	20.9	24.9	28.7	21.3
Average Minimum	15.7	15.6	13.5	9.6	6.4	4.3	3.6	4.6	6.5	8.9	11.3	14.0	9.5
Average Daily	23.1	22.8	20.2	15.4	11.4	8.5	7.8	9.3	12.0	14.9	18.1	21.3	15.4
Highest on record: 45.9°C						Lowest on record: -5.0°C							

TABLE 6

COROWA (Elevation 410 feet)Average Temperature (°C) based on 47 years of records

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average Maximum	32.0	31.2	28.0	22.4	17.6	13.6	13.1	15.2	19.0	22.5	27.0	30.5	22.7
Average Minimum	15.3	15.2	12.7	8.3	5.3	3.3	2.7	3.6	5.6	8.3	11.1	13.8	8.8
Average Daily	23.6	23.2	20.3	15.3	11.4	8.4	7.9	9.3	12.3	15.3	19.0	22.1	15.7
Highest on record: 47.5°C						Lowest on record: -6.1°C							

TABLE 7

BERRIGAN (Elevation 390 feet)Average Temperature (°C) based on 49 years of records

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average Maximum	32.1	31.5	28.3	22.7	18.0	13.9	13.4	15.4	19.2	22.8	27.1	30.4	22.9
Average Minimum	15.8	15.7	13.2	8.9	6.2	3.9	3.1	3.9	5.7	8.2	11.3	13.8	9.2
Average Daily	23.9	23.6	20.7	15.8	12.1	8.9	8.2	9.7	12.4	15.4	19.2	22.1	16.0
Highest on record: 47.5°C						Lowest on record: -3.9°C							

TABLE 8

BALRANALD (Elevation 200 feet)Average Temperature (°C) based on 50 years of records

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average Maximum	33.1	32.5	29.4	23.7	19.3	16.1	15.8	17.6	21.2	24.6	28.5	31.5	24.4
Average Minimum	16.5	16.2	13.7	9.5	6.7	4.4	3.6	4.9	7.4	10.1	12.8	15.1	10.1
Average Daily	24.8	24.3	21.5	16.6	13.0	10.2	9.7	11.3	14.3	17.3	20.6	23.3	17.2
Highest on record: 47.7°C						Lowest on record: -5.6°C							

TABLE 9

DENILQUIN (Elevation 311 feet)Average Temperature (°C) based on 62 years of records

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average Maximum	31.7	31.5	28.1	22.9	18.4	14.7	14.2	16.1	19.4	23.1	27.1	30.1	23.1
Average Minimum	16.0	16.0	13.6	9.8	6.9	4.9	4.1	4.9	6.7	9.2	12.2	14.6	9.9
Average Daily	23.8	23.7	20.8	16.3	12.6	9.8	9.1	10.5	13.1	16.1	19.6	22.3	16.5
Highest on record: 46.9°C						Lowest on record: -3.3°C							

TABLE 10

EUSTON (Elevation 188 feet)Average Temperature (°C) based on 48 years of records

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average Maximum	32.5	32.0	28.9	23.4	19.1	15.3	15.2	17.3	21.1	24.2	28.0	31.0	24.0
Average Minimum	15.9	15.7	13.2	8.8	6.2	4.1	3.2	4.2	6.9	9.6	12.4	14.7	9.6
Average Daily	24.2	23.8	21.0	16.1	12.6	9.7	9.2	10.7	13.9	16.9	20.2	22.8	16.8
Highest on record: 48.7°C						Lowest on record: -6.7°C							

TABLE 11

LAKE VICTORIA (Elevation 140 feet)Average Temperature (°C) based on 31 years of records

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average Maximum	31.8	31.0	28.6	22.9	19.0	15.5	15.2	17.1	20.5	23.4	27.2	30.1	23.5
Average Minimum	16.0	15.6	13.8	9.9	7.2	5.3	4.9	5.8	7.7	10.3	12.9	15.1	10.4
Average Daily	23.9	23.3	21.2	16.4	13.1	10.4	10.0	11.4	14.1	16.8	20.0	22.6	16.9
Highest on record: 46.7°C							Lowest on record: -4.4°C						

TABLE 12

WENTWORTH (Elevation 125 feet)Average Temperature (°C) based on 54 years of records

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average Maximum	32.9	32.3	29.2	23.9	19.5	16.0	15.6	17.7	21.1	24.4	28.3	31.2	24.3
Average Minimum	17.1	16.8	14.4	10.6	7.9	5.8	4.9	6.1	8.0	10.7	13.4	15.8	10.9
Average Daily	25.0	24.6	21.8	17.2	13.7	10.9	10.2	11.8	14.6	17.6	20.8	23.5	17.6
Highest on record: 48.1°C							Lowest on record: -6.1°C						

TABLE 13

ZARA (Elevation 104 feet)Average Temperature (°C) based on 13 years of records

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average Maximum	31.2	31.7	27.8	22.9	18.1	14.6	14.1	15.7	19.1	23.0	26.8	30.4	23.0
Average Minimum	15.7	16.4	12.9	9.6	6.8	5.2	3.6	4.2	6.4	9.0	11.9	14.9	9.7
Average Daily	23.5	24.1	20.3	16.2	12.4	9.8	8.8	9.9	12.7	16.0	19.3	22.6	16.3
Highest on record: 44.4°C							Lowest on record: -3.8°C						

In summer, on the average, daytime temperatures are high over the central and western sections, mean maxima being of the order of 27 to 32 degrees Celsius

during the months November to March inclusive. Eastward, temperatures on the average decrease at approximately 2.5°C per 1,000 feet increase in elevation so that at Kiandra summer maxima are 18 to 21 degrees Celsius. Night temperatures are generally mild over much of the valley in the summer, however over the highest parts of the valley in the east minimum temperatures below 4°C can occur in this season. Very hot conditions can occur over the valley in the summer months usually in association with a north to north-west airstream. Except for the highest parts of the valley, temperatures in the summer may frequently exceed 38°C , particularly over the western section where days with maxima exceeding 38°C may occur in spells lasting a week or more. Most stations have recorded screen temperatures in excess of 43°C . The highest screen temperature on record for the region is 48.7°C which was recorded at Euston.

In winter, average maxima range from 10 to 16 degrees Celsius over the central and western sections while at Kiandra mean maxima are near 4°C . Average minima over the slopes and plains in this season are of the order of 4°C . At the higher elevations, however, average minima are below -1°C . All stations have recorded screen temperatures less than -3°C . At Kiandra approximately 10 miles east of the catchment boundary a temperature of -20.6°C has been recorded.

Frost and Snow

Frost can occur over the entire valley in the months April to October inclusive. Over the higher eastern section the season extends over most of the year. Severe frosts however are generally confined to the period June to August over the western plains and to the period April to October over the highlands. Frequencies of severe frost occurrence range from an average of 8 per year in the far west to more than 160 per year over the highlands.

Snow falls over the highlands on an average of about 20 to 30 times per year. Snow has occurred in all months of the year but most substantial falls occur in the months June to September inclusive.

Sunshine

Estimates of the average number of hours of bright sunshine per day in each month for the valley are shown in Table 14. Because of variations in cloud cover and orography across the valley, estimates for three stations have been given. These estimates are based on cloud amount observations together with a limited network of sunshine recorders.

TABLE 14

Estimated Average Duration of Bright Sunshine in Hours Per Day

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Lake Victoria	10.8	10.4	9.0	8.2	6.6	5.7	6.5	7.1	8.1	8.9	10.0	10.8	8.2
Deniliquin	11.1	10.3	9.0	8.0	6.6	5.5	5.8	6.6	7.7	8.9	10.2	11.3	8.4
Headwaters	9.5	8.9	7.7	6.2	5.5	4.7	4.8	5.6	6.7	7.9	8.3	9.8	7.1

Evaporation

Estimates of the average monthly and annual evaporation from an Australian Standard Tank are shown in Table 15 below, together with estimates of the appropriate standard deviations. The estimates are based on considerations of radiation, air temperature and humidity.

TABLE 15

Estimated Average Monthly and Annual Evaporation in Inches

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
<u>HEADWATERS</u> Evaporation (Inches) Standard Deviation	5.8	3.8	3.8	3.4	2.4	0.9	0.9	1.4	1.7	2.8	3.8	4.8	35.5 2.8
<u>HOLBROOK</u> Evaporation (Inches) Standard Deviation	7.9	5.8	4.9	3.0	2.0	1.1	1.0	1.5	2.2	3.8	5.0	7.5	45.7 3.5
<u>DENILIQUN</u> Evaporation (Inches) Standard Deviation	10.0	8.1	6.1	4.0	2.3	1.6	1.5	2.2	3.5	4.7	6.8	9.1	59.9 5.3
<u>MOULAMEIN</u> Evaporation (Inches) Standard Deviation	9.9	8.1	6.4	4.1	2.4	1.7	1.6	2.3	3.6	4.9	7.0	9.0	61.0 6.2
<u>EUSTON</u> Evaporation (Inches) Standard Deviation	9.7	7.9	6.6	4.0	2.5	1.8	2.6	2.4	3.6	5.0	7.0	8.8	61.9 7.0
<u>LAKE VICTORIA</u> Evaporation (Inches) Standard Deviation	9.7	7.9	7.0	4.0	2.7	1.9	1.7	2.7	3.8	5.5	7.4	9.0	63.3 7.0

Wind

Wind speeds over the valley are generally light to moderate. Strong winds from the north-west to south sector are experienced from time to time in association with intense low pressure centres moving from west to east along, or to the south of, the southern coast of the continent. Under these conditions at exposed highland stations winds in excess of 60 m.p.h. (97 kilometres per hour) are not unusual. Storms of this type can occur in any month of the year, however they are more frequent in winter and early spring than in summer.

Violent gusts may be experienced over limited areas in association with thunderstorms. Estimates of the extreme wind gusts likely to be experienced at any given point in the valley for various return periods are shown in Table 16.

TABLE 16

Estimated Extreme Wind Gust to be Expected with
Given Return Periods

Return Period (Years)	10	20	50	100
Extreme Wind Gust equalled or exceeded (miles per hour)	82	89	96	102
(kilometres per hour)	(132)	(143)	(155)	(164)

4. GROUNDWATER POTENTIAL

The occurrence of groundwater in an area is controlled by a number of factors, one of the most important being the prevailing geological conditions. The distribution of geological units within the New South Wales part of the Murray catchment area is shown in the map at Figure 16. From this map it is apparent that about a quarter of the catchment area is underlain by consolidated rock of various types, and the remainder is underlain by unconsolidated deposits. The consolidated rock is confined entirely to the eastern third of the catchment. The relief increases to the east, where maximum elevations are more than 5,000 feet above sea level.

The western half of the catchment is an extensive, flat and generally featureless plain, which is part of the riverine plain system of New South Wales and Victoria. The plain is entirely underlain by unconsolidated and partially consolidated deposits with a maximum thickness of about 2,000 feet. These deposits extend into the eastern half of the catchment where they are confined to the main river valleys upstream from about Corowa.

Within the consolidated rocks, which in themselves are impervious, the ability to store and transmit water depends on the amount of secondary porosity and permeability imparted by jointing, faulting and weathering. The degree of weathering depends in turn upon the type of rock, and the stresses to which it has been subjected during the earth movements which have occurred since its formation. The degree of weathering is influenced by the rock type and its jointing, the climate, and the topography of the surface on which it is developed. Yields from individual bores range up to 3,000 gallons per hour but are usually in the range 100 to 1,000 gallons per hour.

Occurrence of groundwater within the unconsolidated deposits depends very largely on the initial permeability of the deposits. Hence, in these formations water is stored and transmitted mainly in gravels and coarse sands. Yields from individual bores range to about 50,000 gallons per hour.

The occurrence of groundwater in these two environments is discussed separately.

Consolidated Rocks

Rocks of Ordovician Age

Folded meta-sediments of this age group are the oldest rocks exposed in the catchment area, and occupy nearly half the area underlain by consolidated rock units. They mainly comprise slate, phyllite, schist, gneiss, sandstone and quartzite, which have been strongly deformed during a number of periods of intense earth movement.

In the belt of Ordovician rocks extending to the north-west from Albury, yields of good stock quality water, with salinity from 1,000 to 3,000 parts per million (p.p.m.) and sometimes domestic quality water (less than 1,000 p.p.m.) can generally be obtained, from depths of 200 to 300 feet. Yields are mostly 200 to 300 gallons per hour. In the area to the immediate north and east of Albury, similar yields are usually obtained at depths of less than 200 feet. Very few bores have been recorded in the remaining areas of Ordovician outcrop. The few records available suggest that yields of a few hundred gallons per hour will be obtainable in most cases from depths of 100 to 200 feet, provided suitable sites are selected for boring.

Rocks of Silurian Age

These rocks crop out in one small area in the extreme south-east part of the catchment, and consist of quartzite, conglomerate, sandstone and limestone. No bores have been recorded from this area, and because of its small size, elevated

position and proximity to the river it is considered unlikely that groundwater will be of importance there. However, carefully sited bores should produce useful stock and perhaps domestic supplies.

Rocks of Lower Devonian Age

The outcrops of porphyry and rhyolite which comprise this sequence, are also very small. They occur in two zones, one north-east of Albury and one in the extreme south-east. No bores have been recorded as penetrating these rocks, but by analogy with similar rocks just outside the catchment north of Albury, they are thought to have very poor prospects.

Rocks of Upper Devonian Age

One small area is underlain by gently dipping silicified sandstone and conglomerate of Upper Devonian age. The rocks have a fair degree of fracture porosity, and the one bore recorded has a yield of 900 gallons per hour of good quality water. It is of interest that this is a flowing bore, although the natural flow is only a few gallons per hour. Prospects for similar supplies seem good, provided bore sites are located to best advantage.

Rocks of Permian and Cretaceous Age

The Murray catchment west of Tocumwal is underlain by the geological structure known as the Murray Basin. The strata in the Murray Basin include some Permian and Cretaceous formations, but there are no outcrops of them within the Murray catchment. An oil test bore at Wentworth passed through about 400 feet of Cretaceous strata and 500 feet of Permian beds. Apart from this occurrence, the distribution of these units is practically unknown. Both units are likely to contain groundwater, but the depth at which they occur is too great for any foreseeable exploitation.

Tertiary Basalt

Only one small area in an elevated part of the catchment in the extreme north-east is underlain by basalt, and no bores have been recorded in it. Because of its location along a relatively large valley, it is likely to be a useful local source of domestic and/or stock supplies of groundwater.

Igneous Rocks

With the exception of a few areas which are too small to show on a map of the scale of Figure 16, the remainder (i.e. about half) of the area underlain by consolidated rocks is occupied by granite.

No bores have been recorded as having penetrated the granite, but there are verbal reports of some bores drilled in granite north of Albury that failed to yield a supply. In the higher areas of the catchment to the east, however, it is likely that favourable sites for stock supply bores could be selected in the granite. Zones of jointing and/or zones of weathering are likely to occur, and both these conditions are conducive to the occurrence of groundwater.

Unconsolidated Deposits

Unconsolidated deposits underlie some 70 to 80 percent of the catchment area. These comprise both Quaternary and Tertiary material, and attain a maximum thickness of about 1,400 feet in the far western part of the valley (around Wentworth).

Tertiary sediments in this part of New South Wales were deposited mainly in swampy or lacustrine environments. They are characterised by their grey or white colour, and the monominerallic nature of the quartz, sand and gravel beds which comprise the aquifers within the sequence. At Albury, the deposits are of late Tertiary age, and contain dark grey carbonaceous clay and silt together with quartz, gravel and sand lenses. They attain a maximum thickness of about 150 feet, and underlie about 100 feet of Quaternary deposits. Yields range up to about 10,000 gallons per hour at Albury, but higher yields are available further downstream. Very few high yielding bores have been constructed, but at Tocumwal there are several bores which yield irrigation supplies of around 50,000 gallons per hour. Maximum thickness of the Tertiary sequence in this vicinity is unknown, but it is greater than 400 feet.

The Tertiary deposits thicken to the west, to a maximum of about 1,200 feet. Yields available from the aquifers in this deeper part of the valley are largely unknown, but water salinity increases to the west and this renders the water unsuitable for irrigation purposes. In the far western part of the area water from the Tertiary aquifers is too saline even for stock.

Quaternary age material comprises both fluvial and aeolian deposits, and obscures all older unconsolidated deposits and rock units over most of the basin. The deposits attain a maximum thickness of about 150 feet in a narrow zone along the Murray River itself. East of Tocumwal the Quaternary material shelves rapidly away from the river onto shallow bedrock, and at short distances

from the river may be only a few tens of feet thick. The most precise data available is from Albury, where the Water Conservation and Irrigation Commission has carried out exploratory drilling for town water supply purposes. Here the Quaternary deposits consist of brown and reddish brown clay and silt, with lenses of sand and gravel containing a wide variety of rock and mineral fragments. The sand and gravel lenses are reasonably good aquifers, and commonly yield low salinity water supplies ranging up to about 20,000 gallons per hour in some cases. The shallower deposits away from the river are commonly dry, however, as they are above the water table.

West of Tocumwal the thick Quaternary deposits are more widespread, and stock and domestic supplies can usually be obtained from them. Larger yields, up to several thousand gallons per hour are obtainable at some localities, particularly from prior stream channels. The prior stream deposits mark earlier courses of the Murray/Murrumbidgee drainage system, and correspond to the coarse gravel aquifers of the eastern part of the Murray Valley.

5. STREAM GAUGING STATIONS

Streamflow originates from the precipitation of atmospheric moisture which is mainly evaporated from the oceans and is carried over the land masses by weather systems. Runoff is generally recognised to be that component of precipitation which finds its way into the stream channels, after evaporation, transpiration and deep seepage losses have been satisfied.

If it were possible to accurately assess the magnitude of these losses, then it would be a relatively simple task to obtain by subtraction estimates of streamflow over a long period, as in most areas of the State, rainfall records have been obtained for relatively long periods of time. However, despite intensive research, no suitable method has yet been formulated for estimating runoff, or streamflow, from rainfall records, to a satisfactory degree of accuracy.

Therefore the basic essential for the proper appraisal of proposals for water resources development is still a good quality record of streamflows at a particular location over a reasonably long period.

Streamflow measurement involves two basic steps, the first being the measurement of river levels, or gauge height, in relation to a constant datum and the second being the correlation of the measured height with stream discharge.

Records of stream height are obtained at gauging stations by regular visual reading of a staff gauge or from the continuous record produced by an automatic water level recorder. These instruments provide continuous traces on charts by means of float or pressure actuated systems. Each gauging station is calibrated to obtain the gauge height discharge correlation by taking a series of measurements of the discharge at different gauge heights, the calibrations being checked and amended as necessary by further periodic discharge measurement. The individual discharge measurements are obtained by using a current meter to measure velocities across the stream in feet per second and survey methods to measure the effective area of flow in square feet. The discharge is the product of the area and velocity.

The units commonly used in measurement of streamflow are cusecs and acre feet. The term "cusec" is an abbreviation of cubic feet per second and is a unit of measurement of the rate of flow. One cusec is approximately equal to 374 gallons per minute, and, if flowing continuously for 24 hours, discharges a volume of water equal to two acre feet which is equivalent to the volume of water which would cover an area of one acre to a depth of two feet.

The metric unit used for volumes is a megalitre, which is equal to one million litres or a thousand cubic metres. A megalitre of water would cover an area of one hectare to a depth of one tenth of a metre and is roughly equivalent to four fifths of an acre foot. The discharge would be expressed in megalitres per day or cubic metres per second. Conversion factors from Imperial to Metric units are shown at Appendix 16.

The measurement of stream heights in the Murray Valley commenced in 1864 with the establishment of a gauge at Mildura. A similar installation was undertaken at Echuca in the following year. These gauges were among the first regular stream height recording stations in Australia. Measurements of discharge commenced at Echuca in 1865 but, at this stage, were based on the use of hydraulic formulae or the observation of floats. These are the earliest discharge records in the Murray Valley and probably the earliest in Australia.

The use of current meters for discharge measurements commenced in New South Wales in 1902.

With the importance of river traffic on the Murray River during the late eighteen hundreds, a number of gauges were installed along the river and some of its effluents, and by 1900 a total of nine river height stations had been

installed. Although many of the readings at some of these early stations were of sporadic nature, others have been continuous over a long period as is evidenced at Albury where continuous stream height data has been collected from as early as 1877.

Additions to the gauging station network in the valley have been made progressively since 1900 and at present, there are a total of 28 stations in operation under the control of the Water Conservation and Irrigation Commission. A number of gauging stations on the Murray River are also maintained by the State of Victoria. During a period in the nineteen fifties when investigational work in the Snowy Mountains area had intensified, a large number of gauging stations were installed in the Upper Murray region by the Snowy Mountains Hydro-Electric Authority. However, once investigations and planning of the scheme had been completed, many of these stations were discontinued, leaving only sufficient to provide essential information on inflows and releases for operational purposes.

The present density of gauging stations in the Murray Valley is about 5 stations per thousand square miles of catchment area, which is about 2.25 times the density for inland New South Wales and about ten times the density for Australia. At many of these stations, the standard of recording is being progressively improved with the installation of automatic long term recorders, and it is considered that the accumulated streamflow data from these stations should be adequate for the appraisal of future water conservation or utilisation schemes in the valley.

Listed in Table 17 on pages 22, 23, 24 and 25 are all the gauging stations in the valley, both current and discontinued as well as the relevant operational details for each station. The locations of these stations are shown on Figure 17.

TABLE 17

Stream	Station	Catchment Area in Square Miles	Type of Gauge	Period of Operation	Complete Years of Computed Records	Average Yield over Period of Complete Years of Record		Operating Authority
						Acres per Annum	Gallons per Minute	
Murray River	Below Pilot Creek	11	Float Recorder	1955 to 1960	4	12,000	5,980	SMHEA
Timmine Creek	Above the Falls	5	Float Recorder	1955 to 1959	4	7,570	3,740	SMHEA
Murray River	Below Timmine Creek	180	Float Recorder	1955 to 1963	7	139,000	71,100	SECV
Leather Barrel Creek	Dinner Flat	7	Float Recorder	1954 to 1959	5	24,200	12,300	SMHEA
Leather Barrel Creek	Junction	17	Float Recorder	1955 to 1959	3	45,400	23,200	SMHEA
Snowy Creek	Groggin East	95	Float Recorder	1953 to 1969	6	10,700	5,610	SMHEA
Murray River	Tom Groggin	358	Float Recorder	1953 to 1969	12	313,000	160,000	SMHEA
Murray River	Biggara	450	Servo Manometer	1948 to date	24	460,000	236,000	WCIC
Murray River	Indi Bridge	536	Pressure Recorder	1957 to 1961	3	516,000	264,000	SMHEA
Coötapatamba Creek	Ramshead	2	Float Recorder	1953 to 1967	12	11,600	5,980	SMHEA
Wilkinsons Valley Creek	Abbot Peak	1.4	Float Recorder	1954 to 1966	11	10,600	5,610	SMHEA
Swampy Plain River	Geehi (Above Geehi River Junction)	34	Float Recorder	1948 to 1962	13	101,000	51,600	SMHEA
Geehi River	Grey Mare Hut	11	Float Recorder	1954 to 1965	10	39,600	20,200	SMHEA
Back Flat Creek	Grey Mare Hut	6	Float Recorder	1954 to 1965	10	23,100	12,000	SMHEA
Valentine River	The Ghost	10	Float Recorder	1953 to 1967	12	34,300	17,600	SMHEA
Dicky Cooper Creek	Dicky Cooper Hut	3	Float Recorder	1953 to 1966	12	13,400	6,730	SMHEA
Geehi River	Above Geehi Reservoir	48	Float Recorder	1962 to date	10	134,000	68,500	SMC
Geehi River	Above Windy Creek	50	Float Recorder	1957 to 1962	4	155,000	80,000	SMHEA
Windy Creek	Corries End	1.4	Float Recorder	1953 to 1966	12	7,510	3,740	SMHEA
Middle Creek	Below The Twins	6	Float Recorder	1957 to 1962	4	16,200	8,230	SMHEA
Three Rocks Creek	Tate West	5	Float Recorder	1957 to 1962	4	18,400	9,350	SMHEA
Geehi River	Above Watsons Gorge	81	Float Recorder	1954 to 1966	11	250,000	128,000	SMHEA
Lady Northcotes Canyon Creek	Below Lake Albina	0.6	Float Recorder	1954 to 1964	8	3,610	1,870	SMHEA
Swampy Plain River	Geehi	155	Float Recorder	1948 to 1962	13	472,000	242,000	SMHEA
Bogong Creek	Errols Spur	21	Float Recorder	1954 to 1961	6	69,100	35,500	SMHEA
Bogong Creek	Geehi	38	Float Recorder	1948 to 1967	17	88,300	45,300	SMHEA
Swampy Plain River	Khancoban	232	Float Recorder	1926 to date	39	546,000	280,000	SMHEA
	(Pre Snowy diversions)		Float Recorder	1926 to 1965	7	266,000	136,000	SMC
	(Post Snowy diversions)		Float Recorder	1966 to date				

TABLE 17 (continued)

Stream	Station	Catchment Area in Square Miles	Type of Gauge	Period of Operation	Complete Years of Computed Records	Average Yield over Period of Complete Years of Record			Operating Authority
						Acres per Annum	Cusecs	Gallons per Minute	
Waterfall Creek	Everards	2	Float Recorder	1955 to 1962	6	7,560	10	3,740	SMHEA
Khancoban Creek	Bradneys Gap	15	Float Recorder	1953 to 1967	12	28,100	38	14,200	SMHEA
Khancoban Creek	Blythe Beck	47	Float Recorder	1958 to 1966	6	57,400	79	29,500	SMHEA
Swampy Plain River	Near Road	311	Staff Gauge	1963 to 1967	2	636,000	871	326,000	SMHEA
Swampy Plain Creek	Khancoban	20	Staff Gauge	1948 to 1963	6	8,900	12	4,490	WCIC
Swampy Plain River	Bringenbrong	320	Staff Gauge	1905 to 1921	15	524,000	718	269,000	WCIC
Murray River	Bringenbrong Bridge	897	Float Recorder	1956 to date	14	1,226,000	1,679	628,000	SMC
Murray River	Bringenbrong	920	Staff Gauge	1905 to 1921	15	1,200,000	1,640	615,000	WCIC
Tooma River	Below Hellhole Creek	37	Float Recorder	1955 to 1959	3	155,000	212	79,300	SMHEA
Tooma River	Above Tooma Reservoir	44	Float Recorder	1959 to date	12	119,000	163	61,000	SMC
Tooma River	Toolong Crossing	49	Float Recorder	1950 to 1960	10	187,000	256	95,700	SMHEA
Reardons Creek	Near Tooma Dam site	1.2	Float Recorder	1956 to 1961	4	3,500	5	1,870	SMHEA
Ogilvies Creek	Round Mountain	5	Float Recorder	1950 to 1961	10	19,700	27	10,100	SMHEA
Ogilvies Creek	Above Ogilvies Pond	10	Float Recorder	1959 to 1967	6	27,400	38	14,200	SMHEA
Freedamper Creek	Cowra Saddle	3	Float Recorder	1955 to 1960	4	4,510	6	2,240	SMHEA
Tooma River	Byatts Hut	120	Float Recorder	1954 to 1961	6	363,000	497	186,000	SMHEA
Shingle Creek	Clover Flat	5	Float Recorder	1956 to 1961	4	12,300	17	6,360	SMHEA
Yellow Bog Creek	Old Hut	11	Float Recorder	1953 to 1961	7	29,700	41	15,300	SMHEA
Tooma River	Possum Point			1926 to date					
Maragle Creek	(Pre Snowy diversions)	182	Float Recorder	1926 to 1960	34	341,000	467	175,000	WCIC
	(Post Snowy diversions)		Float Recorder	1961 to date	12	93,900	129	48,100	WCIC
	Near Maragle Homestead	11	Float Recorder	1954 to 1969	4	10,500	14	5,240	SMHEA
Maragle Creek	Maragle	85	Float Recorder	1947 to date	21	34,200	47	17,500	WCIC
Tumbarumba Creek	Tumbarumba	52	Pressure Recorder	1946 to date	15	43,500	60	22,300	WCIC
Paddys River	Above Granite Falls	45	Float Recorder	1946 to date	16	41,900	57	21,500	WCIC
Mannus Creek	Tooma	195	Float Recorder	1947 to date	18	62,300	85	31,900	WCIC
Tooma River	Warbrook	713	Staff Gauge	1909 to 1921	11	633,000	867	324,000	WCIC
Tooma River	Pinegrove	730	Float Recorder	1967 to date	2	390,000	534	200,000	WCIC
Murray River	Tintaldra	2,090	Pressure Recorder	1956 to 1968	11	1,572,000	2,150	806,000	SMHEA

TABLE 17 (continued)

Stream	Station	Catchment Area in Square Miles	Type of Gauge	Period of Operation	Complete Years of Computed Records	Average Yield over Period of Complete Years of Record			Operating Authority
						Acre Feet per Annum	Cusecs	Gallons per Minute	
Murray River	Walwa	2,550	Float Recorder	1948 to 1961	9	2,477,000	3,390	1,270,000	WCIC
Murray River	Jingellic	2,520	Float Recorder	1890 to date	82	1,938,000	2,650	993,000	SRWSC
Jingellic Creek	Jingellic	146	Float Recorder	1965 to date	6	34,700	48	17,800	WCIC
Murray River	Talmalmo	2,725	Float Recorder	1932 to 1953	20	1,934,000	2,650	991,000	SECV
Murray River	Dora Dora	3,000	Staff Gauge	1922 to 1942	12	1,938,000	2,660	993,000	WCIC
Murray River	Below Hume Dam (Heywoods)	6,000	Float Recorder	1929 to date	43	3,384,000	4,640	1,734,000	WCIC
Murray River	Doctors Point	6,470	Float Recorder	1929 to date)	96	3,813,000	5,220	1,958,000	WCIC
Murray River	Albury	6,650	Staff Gauge	1877 to date)*					WCIC
Murray River	Corowa	7,260	Servo Manometer	1894 to date	55	3,995,000	5,470	2,047,000	WCIC
Murray River			Pressure Recorder						
Murray River	Mulwala	10,500	Staff Gauge	1904 to 1937	32	4,230,000	5,790	2,170,000	WCIC
Mulwala Main Canal	Offtake	Effluent	Staff Gauge	1940 to 1960	21	235,000	322	120,000	WCIC
Escape from Mulwala Canal	Edward River	Effluent	Float Recorder	1941 to date	23	55,900	77	28,600	WCIC
Murray River	Below Yarrawonga Weir	10,540	Float Recorder	1938 to date	35	4,524,000	6,200	2,318,000	WCIC
Tuppall Creek	Offtake	Effluent	Staff Gauge	1918 to 1939	16	9,000	12	4,490	WCIC
Murray River	Tocumwal	11,200	Float Recorder	1895 to date	78	4,663,000	6,390	2,390,000	SRWSC
Bullatale Creek	Offtake	Effluent	Staff Gauge	1918 to 1947	29	34,000	47	17,600	WCIC
Murray River	Gulpa	11,500 +	Float Recorder	1914 to 1963	25	2,190,000	3,000	1,122,000	WCIC
Edward River	Offtake	Effluent	Float Recorder	1918 to date	22	395,000	541	202,000	WCIC
Edward River	Gannons Farm	Effluent	Staff Gauge	1940 to 1958	16	1,966,000	2,690	1,010,000	WCIC
Edward River	Deniliquin	Effluent	Staff Gauge	1896 to date	62	1,539,000	2,110	788,000	WCIC
Wakool River	Offtake	Effluent	Pressure Recorder	1935 to date	32	71,000	97	36,400	WCIC
Main Canal	Wakool	Effluent	Float Recorder	1935 to date	36	146,000	200	74,800	WCIC
Colligen Creek	Offtake	Effluent	Pressure Recorder	1936 to date	32	130,000	178	66,600	WCIC
Yallakool Creek	Offtake	Effluent	Pressure Recorder	1935 to date	35	110,000	151	56,400	WCIC
Wakool River	Stony Crossing	Effluent	Float Recorder	1922 to date	50	1,508,000	2,070	773,000	WCIC
Edward River	Stevens Weir	Effluent	Pressure Recorder	1935 to date	36	899,000	1,230	461,000	WCIC
Edward River	Moulamein	Effluent	Staff Gauge	1905 to date	50	769,000	1,050	394,000	WCIC
Edward River	Leiwah	Effluent	Float Recorder	1957 to date	3	196,000	268	100,000	WCIC
Gulpa Creek	Offtake	Effluent	Pressure Recorder	1953 to date	14	129,000	177	66,100	WCIC
Gulpa Creek	Mathoura	Effluent	Staff Gauge	1927 to 1939	11	204,000	279	104,000	WCIC
Murray River	Barmah	12,500 +	Staff Gauge	1922 to 1951	28	3,096,000	4,240	1,590,000	WCIC

TABLE 17 (continued)

Stream	Station	Catchment Area in Square Miles	Type of Gauge	Period of Operation	Complete Years of Computed Records	Average Yield over Period of Complete Years of Record			Operating Authority
						Acre Feet per Annum	Cusecs	Gallons per Minute	
Murray River	Echuca	14,400 +	Staff Gauge	1865 to 1905	38	5,535,000	7,580	2,840,000	SRWSC
Murray River	Torrumbarry	15,500 +	Float Recorder	1843 to date	67	4,994,000	6,840	2,559,000	SRWSC
Eagle Creek	Offtake	Effluent	Staff Gauge	1918 to 1953	15	5,000	7	2,620	WCIC
Little Merran Creek	Franklins Bridge	Effluent	Pressure Recorder	1972 to date					WCIC
Merran Creek	Above Wakool Junction	Effluent	Float Recorder	1957 to date	3	15,800	22	8,080	WCIC
Murray River	Barham	16,750 +	Staff Gauge	1905 to date	67	3,872,000	5,300	1,980,000	WCIC
Murray River	Swan Hill	19,000 +	Staff Gauge	1887 to date	64	3,410,000	4,670	1,747,000	SRWSC
Murray River	Below Wakool Junction	30,000 +	Float Recorder	1929 to date	42	5,629,000	7,710	2,884,000	SRWSC
Murray River	Euston Weir	85,000 +	Staff Gauge	1929 to date	43	7,052,000	9,660	3,613,000	SRWSC
Murray River	Mildura	92,000 +	Staff Gauge	1864 to 1929	39	9,177,000	12,570	4,700,000	SRWSC
Murray River	Below Rufus River	414,000 ++	Float Recorder	1972 to date					SRWSC

Notes: * Albury figures used to 1929 when Doctors Point was established. Doctors Point figures adopted since 1929 to give a total of 96 years of complete records.

+ Nominal Catchment Area only, flow affected by effluent stream.

++ Nominal Catchment Area only, includes Darling River Catchment.

Remarks: Average flows for stations operated by all authorities taken to 1972 inclusive unless stated otherwise. Authorities shown in the table are the authorities operating each station at the present time or at the date of closure in the case of discontinued stations.

Authorities: WCIC Water Conservation and Irrigation Commission;
 SMHEA Snowy Mountains Hydro-Electric Authority;
 SMC Snowy Mountains Council;
 SECV State Electricity Commission of Victoria;
 SRWSC State Rivers and Water Supply Commission of Victoria.

6. CATCHMENT YIELDS

The regular recording of streamflow in the Murray Valley has resulted in a substantial volume of hydrologic data being available for the estimation of water yield, or runoff, from the various sections of the valley.

The water yield from a natural catchment is dependent on many different factors including annual rainfall, catchment area, topography and geology. In addition, other significant factors which affect the volume of runoff resulting from a particular storm are rainfall intensity, vegetal cover and soil moisture conditions.

In the case of the Murray River Valley, the yield is further affected by the Snowy Mountains Scheme diversions, which either increase or decrease the natural runoff from part of the Upper Murray catchment.

In comparison with many other areas of the State, the stream gauging stations in the Murray River Valley have relatively long periods of record. Streamflow stations in the valley for which more than sixty years of computed records are available include Jingellic, Albury, Tocumwal, Deniliquin, Torrumbarry, Barham and Swan Hill all of which are located on the Murray River except Deniliquin which is on the Edward River.

The water yields at most stream gauging stations in the Murray Valley operated by various authorities are shown in Table 17 in the previous Section 5. This Table shows the average flows over the periods of records together with the numbers of complete years of computed records on which the averages are based.

Details of the recorded maximum, minimum and mean streamflows for each month of record are tabulated at Appendices 6 to 15 for selected gauging stations in the valley.

7. AVERAGE ANNUAL RUNOFF

Long term records of streamflow are available at several locations in the Murray Valley prior to 1900, the longest continuous records being those for Albury, commencing in 1877. Using these flow records as a basis, long term average flows have been assessed for sub-catchments within the New South Wales section of the Murray Valley and are listed in the following Table 18.

TABLE 18

Area	Average Annual Rainfall (Inches)	Catchment Area (Square Miles)	Long Term Average Annual Flow		
			Acre Feet	Acre Feet per Square Mile	Percentage of Rainfall
Murray Valley (within N.S.W. downstream to Wentworth)	20	9,600	1,420,000	148	14%
Murray Valley (within N.S.W. to the Edward River Junction)	22	8,300	1,400,000	169	14%
Murray River at Hume Dam (N.S.W. catchment)	40	2,000	1,300,000	650	30%

The estimated average annual runoff of about 1,420,000 acre feet represents the volume of water which enters the Murray River from the New South Wales catchment above Wentworth and does not include contributions from the Murrumbidgee River System. If spread uniformly over the catchment this would reach a depth of slightly less than three inches.

On the basis of runoff from each square mile of catchment, these resources are equivalent to about 150 acre feet per annum and are almost double the overall average value for the State.

Although this amount of water is the estimated quantity reaching the stream channels from the New South Wales catchments, it does not represent the quantity from these catchments, that would reach the lower reaches of the valley. Irrigation and stock and domestic requirements, and transmission losses make heavy demands on available streamflows and the flows reaching the mouth of the valley are therefore significantly reduced.

As indicated in Table 18, most of the runoff is generated from the catchment upstream of Albury, where the terrain is steep and rugged, rainfalls are generally high and snowmelt is a significant contributor. On the plains below Albury average rainfalls range between about 30 inches near Albury to about 10 inches near the South Australian border, and runoff is only meagre in comparison.

Only about 100,000 acre feet are estimated to run off annually from the New South Wales catchment between Albury and the Edward River Junction, and below this point to Wentworth, even less runoff is generated, being only of the order of 20,000 acre feet. This does not include any contributions from the Murrumbidgee System. Furthermore, the complex system of effluents that bisect the plains

below Tocumwal diverts large quantities of water from the river which do not return to the parent stream until the Edward River joins the Murray a short distance upstream of the Murrumbidgee confluence.

The annual average of 1.42 million acre feet of water which is estimated to reach river channels from within the boundaries adopted in this report is, however, only a relatively small part of the total water resources of the Murray River. About 2 million acre feet of water per annum, on average, flows into the Murray River from the Murrumbidgee River, and there are substantial contributions to its flow from catchments in Victoria. As a result, the average annual flow in the river upstream from Wentworth is about 8 million acre feet, this being the residual flow after usage and losses along the course of the river.

It is of interest to note that flows in the upper Murray River are augmented by an average annual quantity of 470,000 acre feet of water diverted to the inland by the Snowy Scheme. This represents more than a third of the average runoff from the New South Wales catchment of the Murray Valley upstream from Hume Dam. Further details of the Snowy Mountains Scheme are given in Section 16 of this report.

8. VARIABILITY OF STREAMFLOWS

Although average annual flows are suitable for comparison of long term yields from catchments, they do not indicate the availability of surface water resources in a particular year or the probable extent to which the available resources could be utilised. An assessment of the variability of flow within a year and within a month is desirable and is, in fact, a major factor for consideration in the design and operation of water storage schemes.

In the Murray Valley, available streamflow records indicate that a significant degree of variability exists in the annual flow of most streams. Of the gauging stations along the main river having long periods of record, it is apparent that greatest annual flow variability occurs at the more downstream stations. At Euston, below the Murrumbidgee confluence, the annual flow has varied from about 483 percent to about 18 percent of the long term average annual flow. The variations in annual flow experienced at Mildura from 1891 to 1929 and at Euston from 1930 to 1972 are depicted at Figure 18.

At Albury, the lowest annual flow was recorded in the severe drought year of 1902, being about 23 percent of average. Since the construction of Hume Dam the lowest annual flow has been about 37 percent of average. The highest annual flows occurred in 1917 and 1956, reaching about three times the average.

Flow in the system of effluent streams below Tocumwal has shown greatest variability on an annual basis of all streams in the valley. On the Wakool River at Stony Crossing, annual flows have varied from about 864 percent to 1 percent of the average annual runoff. Figure 19 illustrates the variations in annual flows in the Murray River at Albury and the Wakool River at Stony Crossing.

Monthly flows tend to exhibit even greater variability. At Euston the variation has been from about 3 percent to 1,200 percent of the average monthly flow. The variation in monthly flows at Stony Crossing on the lower Wakool River, has been from zero to 2,400 percent of the average monthly flow.

As would be expected, instantaneous flows exhibit the highest degree of variability. At Euston, during the flood months of 1956, the discharge reached a peak of more than 123,000 cusecs in August, which is about 12.5 times the average daily flow. During the drought of 1939 however the discharge dropped to 110 cusecs which is the lowest flow recorded over the period of computed records since 1930.

Prior to the construction of Hume Dam, the lowest flow experienced at Albury was 90 cusecs over a 6 day period in March 1915. Since the reservoir became operative in 1936 however, the lowest recorded flow was 104 cusecs in June 1953. The peak discharge recorded at Albury was in 1917 and reached 104,000 cusecs, which was 1,000 times the minimum flow recorded in 1953.

Streams in the effluent system also tend to display a marked variability in instantaneous flows. At Stony Crossing on the Wakool River for example, numerous periods of zero flow have occurred while in the floods of July 1956, discharges reached over 60,000 cusecs.

An indication of the variability of recorded flows at selected gauging stations in the Murray Valley is given in Table 19. This table shows the maximum, minimum and mean flows which have been recorded over periods of pre-and post-Snowy Mountains Scheme where applicable, at the stations since their establishment.

At Figure 20, the variations in monthly streamflows are shown for the periods of available record for the Murray River at Mildura and at Euston. Monthly streamflow variations for the Wakool River at Stony Crossing are shown on Figure 21 and for the Murray River at Albury on Figure 22.

The variations in average monthly rainfalls for Tumbarumba, Albury, Euston and Deniliquin are shown at Figures 23 and 24 and indicate that the valley

generally receives highest rainfalls from the late autumn to spring months. Lowest falls are usually recorded in the summer months.

Average monthly streamflows in the valley tend to exhibit similar distributions to the average monthly rainfalls, although the highest average streamflows are recorded slightly later in the spring months during the thaw. The average monthly streamflows for the gauging stations on the Murray River at Euston and the Wakool River at Stony Crossing are shown at Figure 25 while similar averages for the Murray River at Albury for both pre-and post-Hume Reservoir conditions are given at Figure 26. In Figure 26, the effect of regulation on streamflows at Albury is apparent, with higher average flows occurring during the summer irrigation months since Hume reservoir has been in operation.

TABLE 19

Stream	Station	Annual Flow		
		Maximum - Acre Feet (Percent of Mean)	Minimum - Acre Feet (Percent of Mean)	Mean - Acre Feet
Murray River	Biggara	1,185,700 (258%)	148,650 (32%)	460,000
Swampy Plain River (Pre-Snowy Diversions)	Khancoban	1,076,500 (197%)	260,200 (48%)	546,000
(Post-Snowy Diversions)		361,190 (136%)	166,880 (63%)	266,000
Tooma River (Pre-Snowy Diversions)	Possum Point	726,300 (213%)	139,400 (41%)	341,000
(Post-Snowy Diversions)		162,000 (173%)	34,840 (37%)	93,900
Murray River	Doctors Point	12,270,000 (321%)	895,810 (23%)	3,813,000
Murray River	Barham	7,688,600 (199%)	883,700 (23%)	3,872,000
Murray River	Tocumwal	14,545,000 (310%)	992,000 (21%)	4,689,000
Wakool River	Stony Crossing	13,026,700 (864%)	16,300 (1%)	1,508,000
Edward River	Moulamein	3,885,900 (505%)	95,600 (12%)	769,000
Murray River	Mildura	24,452,000 (309%)	1,309,000 (17%)	7,903,000
Murray River	Euston	34,784,000 (483%)	1,291,000 (18%)	7,208,000

9. PERSISTENCE OF STREAMFLOWS

An indication of streamflow persistence can best be demonstrated by a flow duration curve. This type of curve shows the percentage of time over the period of records, that the flow either equalled or exceeded, or alternatively was equal to or less than, a particular value. The flow duration curves and data given in this report indicate the percentage of time flows of various magnitudes were equalled or exceeded.

The flow duration curves for the Murray River at Biggara and the Tooma River at Possum Point for conditions both pre- (to 1960) and post- (from 1961) Snowy diversions are shown at Figure 27 whilst the curve for Swampy Plain River at Khancoban for both pre- (to 1960) and post- (from 1961) Snowy diversions is shown at Figure 28. Due to the different periods and durations of the records for pre- and post-Snowy diversions, the curves should only be regarded as representing factual data and cannot be used for assessing the long term effect on flows in the Swampy Plain and Tooma Rivers.

The curves at Figure 29 indicate the recorded flow duration characteristics for the Murray River at Albury for both pre-Hume Reservoir (to 1928) and post-Hume Reservoir (from 1929) conditions, while Figure 30 indicates the flow duration curves for the Murray River at Tocumwal, Barham and Euston. These latter three stations are located some distance downstream of Hume Dam, after further major tributary flow has entered the Murray River. Consequently the effect of the storage on natural flows is not as marked as at Albury and therefore separate flow duration curves have not been drawn for pre- and post-Hume Reservoir periods.

Figure 31 depicts the flow duration curves for the Wakool River at Stony Crossing and the Edward River at Moulamein, both effluents of the Lower Murray.

Summarised details of the flows corresponding to various frequencies of occurrences of exceedance at the abovementioned gauging stations are given in Table 20.

TABLE 20

Stream and Station	Percentage of Time Flow Equalled or Exceeded	Corresponding Flows	
		Cusecs	Gallons per Minute
Murray River at Biggara	10	1,200	449,000
	30	700	262,000
	50	400	150,000
	70	220	82,300
	90	135	50,500
	95	110	41,100
	100	16	5,980
Swampy Plain River at Khancoban (Pre-Snowy Diversions)	10	1,800	673,000
	30	810	303,000
	50	450	168,000
	70	260	97,200
	90	150	56,100
	95	120	44,900
	100	52	19,400
Swampy Plain River at Khancoban (Post-Snowy Diversions)	10	620	232,000
	30	270	101,000
	50	145	54,200
	70	81	30,300
	90	40	15,000
	95	32	12,000
	100	26	9,720
Tooma River at Possum Point (Pre-Snowy Diversions)	10	1,160	434,000
	30	510	191,000
	50	278	104,000
	70	178	66,600
	90	98	36,600
	95	78	29,200
	100	10	3,740
Tooma River at Possum Point (Post-Snowy Diversions)	10	245	91,600
	30	135	50,500
	50	80	29,900
	70	45	16,800
	90	18	6,730
	95	10	3,740
	100	4	1,500
Murray River at Albury (Pre-Hume Reservoir)	10	12,000	4,490,000
	30	5,700	2,130,000
	50	3,100	1,160,000
	70	1,800	673,000
	90	980	366,000
	95	250	206,000
	100	144	53,900
Murray River at Doctors Point (Post-Hume Reservoir)	10	12,000	4,490,000
	30	5,300	1,980,000
	50	3,750	1,400,000
	70	2,450	916,000
	90	1,000	374,000
	95	700	262,000
	100	400	150,000

TABLE 20 (Contd.)

Stream and Station	Percentage of Time Flow Equalled or Exceeded	Corresponding Flows	
		Cusecs	Gallons per Minute
Murray River at Tocumwal	10	16,800	6,280,000
	30	6,500	2,400,000
	50	3,550	1,330,000
	70	2,300	860,000
	90	1,200	449,000
	95	800	299,000
	100	97	36,300
Murray River at Barham	10	11,500	4,300,000
	30	7,200	2,690,000
	50	3,200	1,200,000
	70	1,700	636,000
	90	900	337,000
	95	600	224,000
	100	12	4,490
Edward River at Moulamein	10	2,900	1,080,000
	30	1,150	430,000
	50	500	187,000
	70	220	82,300
	90	70	26,200
	95	30	11,200
	98	0	0
Wakool River at Stony Crossing	10	7,500	2,810,000
	30	410	153,000
	50	110	41,100
	70	50	18,500
	90	3	1,120
	94	0	0
Murray River at Euston	10	26,000	9,720,000
	30	9,700	3,630,000
	50	4,400	1,650,000
	70	2,600	972,000
	90	1,400	524,000
	95	1,000	374,000
	100	165	61,700

Composite flow duration curves have been prepared at Figure 32. The flow duration curves on this figure show the flows expressed in cusecs per square mile of catchment area. As would be expected the headwater streams, which receive highest rainfall and the direct benefits of snow melt, exhibit the best low flow persistence on this basis. The Swampy Plain River at Khancoban produces the highest persistence with the Tooma River at Possum Point showing the next best low flow persistence characteristics.

10. OCCURRENCE OF FLOODING

The degree and magnitude of flooding throughout the Murray River Valley is largely controlled by the predominating terrain of each section of the valley.

Flooding in the upper Murray Valley above Hume Reservoir is insignificant as floodwaters tumble swiftly through deep valleys and steep gorges, inflicting little damage on the sparse development and habitation that exists in the area.

Below Hume Reservoir the terrain has moderated and floodwaters tend to spill over the channel banks and inundate surrounding country. In the region between about Albury and Tocumwal, the inundation of flat land adjacent to the river channel is not uncommon and can be intensified as flow in the main river is swelled by contributions from the Kiewa and Ovens Rivers, which drain large areas of Northern Victoria.

Near Tocumwal, a complex system of effluent creeks and ana branches leaves the Murray and carries floodwaters away from the main stream to the north. Principal of these effluents are the Edward River and further downstream, the Wakool River. Floodwaters from both the Murray and Murrumbidgee Rivers flow into the effluent system and consequently it carries more water in times of major floods than the parent stream. This area becomes a vast inland sea during the passage of major floods and because of the slow velocities of the floodwaters in this region, periods of inundation are often lengthy.

An indication of the frequency and magnitude of flooding in the Murray Valley can be obtained from the streamflow records at Albury since 1865. Figure 33 shows the number of occasions when the river exceeded a gauge height of 14 feet at Albury and caused flooding in the vicinity of that town. Major flooding in the town itself does not occur until the river reaches a height of about 17 feet.

Major floods usually arise from large rain depressions originating over the Southern Ocean and moving into the Murray Valley from the south-west. Floods are most frequent in the winter and spring months which is to be expected as winter rainfall over the valley exceeds the summer totals by as much as 40 per cent. In addition, snowmelt on the elevated headwater regions of the valley, makes significant contributions to runoff during the spring months. The monthly distribution of floods recorded in the Murray River at Albury since 1865 is shown in the following Table 21.

TABLE 21

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	-	-	-	-	6	13	15	12	18	9	1

The maximum recorded flood at Albury occurred during October, 1917 when the river reached a height of over 19 feet, which was equivalent to a discharge of about 104,000 cusecs. During this flood, the river remained above critical height for a continuous period of 47 days.

Other large floods occurred in June and July, 1931 when the lower Murray and Edward Rivers were in high flood, and again in 1956 and 1970. During the 1956 flood, the Murray River at Albury was above critical height for most of the period from May to October.

Although Hume Dam was constructed and is operated primarily as a water conservation storage, it has nevertheless significantly lessened the peak discharges of floods in the river downstream. The mitigating effect has been greatest close to the Dam in areas such as Albury and Corowa, particularly on occasions when the storage was only partly full at the onset of flooding and considerable volumes of floodwaters were able to be impounded.

Details of the three highest recorded discharges and the corresponding dates of occurrence at selected locations in the Murray River Valley are listed below in Table 22.

TABLE 22

Station	Date and Discharge (Cusecs)		
Murray River at Albury	104,000 October, 1917	58,000 June, 1931	56,800 August, 1924
Murray River at Tocumwal	80,000 July, 1917	77,500 July, 1956	70,100 September, 1970
Edward River at Moulamein	14,600 July, 1956	7,490 July, 1931	7,080 September, 1955
Wakool River at Stony Crossing	65,000 July, 1956	50,400 July, 1931	37,000 September, 1939
Murray River at Wentworth	127,000 August, 1956	98,000 August, 1931	94,000 November, 1917

As indicated in Table 22, the three highest floods at Albury were recorded prior to the completion of Hume Dam in 1936.

In the lower effluent system, the maximum flood occurred in 1956 and was largely due to the contributions of flood flow from the Murrumbidgee River and its effluents which were in record flood during that year.

Further downstream at Wentworth the maximum flood also occurred in 1956. At the peak of the flood, flows in the Murray were augmented by rising flood flows from the Darling River.

11. DROUGHT PERIODS

There is no universally accepted definition of the term drought. In general, it is accepted as a period of rainfall deficiency at any location. However, such a criterion is inapplicable to locations where water supplies are drawn from streams which may originate in distant catchments or it can be misleading when different uses exist in the one area.

A drought is considered to occur when the soil moisture is insufficient for the requirements of most crops during the growing season or when water shortages for domestic, industrial or municipal purposes are experienced. Normally a prime indicator of drought conditions is a diminished or exhausted rate of streamflow.

Graphs depicting annual rainfalls recorded at Tumbarumba and Deniliquin are shown at Figure 34 while similar graphs for Barham and Euston are appended at Figure 35. These graphs indicate that in 1914 at both Deniliquin and Barham the lowest calendar year rainfalls occurred and were 5.54 inches and 6.01 inches respectively. At both Tumbarumba and Euston the lowest annual rainfalls were recorded in 1967 and were 16.55 inches and 3.82 inches, respectively.

Prolonged sequences of below average rainfalls have occurred on a number of occasions in the Valley. At Tumbarumba a period covering six consecutive years of below average rainfalls has been experienced and occurred between the years 1925 and 1930. At Deniliquin even longer periods of below average rainfall have occurred, the most extensive being 11 years over the period from 1895 to 1905. Minimum twelve monthly rainfall totals for unrestricted twelve monthly periods are usually lower than the minimum calendar year rainfalls. Table 23 shows a comparison between minimum calendar and unrestricted twelve monthly totals for the rainfall stations at Tumbarumba, Deniliquin, Barham and Euston.

TABLE 23

Station	Minimum Calendar Year Rainfall (Inches)	Minimum Twelve Monthly Rainfall (Inches)
Tumbarumba	16.55 (1967)	16.55 (Jan. 1967 to Dec. 1967)
Deniliquin	5.54 (1914)	4.09 (Nov. 1913 to Oct. 1914)
Barham	6.01 (1914)	4.57 (Dec. 1913 to Nov. 1914)
Euston	3.82 (1967)	3.58 (June 1944 to May 1945)

Available streamflow records in the valley indicate that only the effluent streams of the lower valley cease flowing for extended periods during severe droughts. At Stony Crossing on the Wakool River, flow ceased completely for 227 consecutive days from January to August, 1930 while at Moulamein on the Edward River periods of no flow of 91 days in March-June 1923 and 104 days in January-May, 1968 have been recorded.

On the Murray River, flows persist during most dry periods and only reach very low proportions during the most extreme droughts. At Barham on the Murray River, flow has only ceased on one occasion in March, 1915 and then for only two days.

Table 24 indicates the minimum recorded discharges for periods of 30 days, 6 months and 12 months at selected stream gauging stations in the valley. The overall period of computed records at each of the stations is also shown in Table 24.

TABLE 24

Stream and Station	Period of Computed Records	Minimum Recorded Discharges in Acre Feet		
		Thirty Consecutive Days	Six Consecutive Months	Twelve Consecutive Months
Murray River at Biggara	24	532 Feb. to Mar. 1968	19,660 Nov. 1967 to Apr. 1968	110,810 May 1967 to Apr. 1968
Swampy Plain River at Khancoban - Pre-Snowy	39	3,814 Jan. to Feb. 1939	51,292 Feb. to July 1965	244,328 Aug. 1944 to July 1945
- Post-Snowy	7	1,681 Feb. to Mar. 1968	22,440 Nov. 1967 to April 1968	156,820 Apr. 1967 to March 1968
Tooma River at Possum Point - Pre-Snowy	34	2,882 Jan. to Feb. 1939	32,634 Dec. 1944 to May 1945	112,518 Aug. 1944 to July 1945
- Post-Snowy	12	406 Feb. to Mar. 1968	7,868 Nov. 1967 to April 1968	27,058 May 1967 to April 1968
Murray River at Doctors Point	96	7,380 Mar. to Apr. 1915	207,918 Nov. 1914 to April 1915	257,556 Apr. 1945 to March 1946
Murray River at Tocumwal	78	6,000 * March 1915	142,000 Nov. 1914 to April 1915	730,000 June 1914 to May 1915
Murray River at Barham	67	1,694 Mar. to Apr. 1915	95,742 Nov. 1914 to April 1915	541,488 Aug. 1944 to July 1945
Edward River at Moulamein	50	0 (Numerous Periods)	5,613 Nov. 1967 to April 1968	37,576 Aug. 1944 to July 1945
Wakool River at Stony Crossing	50	0 (Numerous Periods)	0 Feb. to July 1930 and Dec. 1967 to May 1968	7,524 Sept. 1944 to Aug. 1945
Murray River at Euston	43	9,100 * February 1939	193,000 Dec. 1944 to May 1945	752,000 Aug. 1944 to July 1945

* MINIMUM CALENDAR MONTH.

12. THE 1964-1968 DROUGHT AND SUBSEQUENT CONDITIONS

The most recent drought experienced in the Murray Valley occurred during the period 1964 to 1968 when several extended periods of below average rainfall were recorded.

The recorded monthly rainfalls at Tumbarumba, Deniliquin, Barham, Euston and Wentworth over the period November 1964 to December 1968 are shown in Table 25.

TABLE 25

Month	Year	Rainfall in Points				
		Tumbarumba	Deniliquin	Barham	Euston	Wentworth
November	1964	97	203	51	115	28
December	1964	300	53	87	49	52
January	1965	0	0	14	0	1
February	1965	11	2	0	0	0
March	1965	30	9	8	6	6
April	1965	148	29	27	48	37
May	1965	242	117	109	107	86
June	1965	157	72	69	120	117
July	1965	205	127	157	170	159
August	1965	546	245	192	197	217
September	1965	284	156	153	178	179
October	1965	526	91	103	125	52
November	1965	367	142	370	105	105
December	1965	107	466	110	49	62
January	1966	137	17	56	28	52
February	1966	183	137	110	112	64
March	1966	726	342	79	106	126
April	1966	102	22	35	20	7
May	1966	428	89	81	101	117
June	1966	263	44	24	47	71
July	1966	514	93	89	103	116
August	1966	438	112	248	81	107
September	1966	458	281	265	134	3
October	1966	392	139	198	173	75
November	1966	378	171	51	143	156
December	1966	461	187	220	223	210
January	1967	225	13	12	30	41
February	1967	37	0	2	20	128
March	1967	56	70	62	1	27
April	1967	45	22	24	10	3
May	1967	135	54	123	65	41
June	1967	95	195	103	29	44
July	1967	179	39	37	73	34
August	1967	431	84	162	56	90
September	1967	163	73	110	61	56
October	1967	170	85	29	32	48
November	1967	81	11	4	2	0
December	1967	38	11	15	3	1
January	1968	256	159	240	65	118
February	1968	1	0	-	20	0
March	1968	134	36	64	37	36
April	1968	232	165	177	101	58
May	1968	1,047	247	312	205	158
June	1968	343	177	173	125	84
July	1968	273	130	116	112	76
August	1968	685	100	171	112	79
September	1968	148	20	31	20	18
October	1968	500	141	139	87	70
November	1968	329	79	112	50	33
December	1968	377	126	153	56	74

From about November, 1964, the valley generally experienced about eight consecutive months of below average rainfall. Conditions improved with good rainfalls in August, September and December, 1965, but below average rainfalls were again recorded during most of the first half of 1966. By August, 1966, pastures in the western areas had deteriorated to such an extent that part of the Moulamein Pastures Protection District was declared a drought area. Good rainfalls during the remaining four months of 1966 eased the situation and enabled the drought declaration to be removed from the Moulamein area in November, 1966.

Commencing in January, 1967 however, some of the lowest periods of rainfalls were recorded since the 1913-14 drought. At some locations, fifteen consecutive months recorded below average rainfalls from January, 1967 to March, 1968. All stations throughout the valley registered very low annual totals for the year 1967. At Deniliquin, in the centre of the Southern Riverina irrigation development, the calendar year rainfall for 1967 was the second lowest total recorded since records commenced in 1859. The twelve monthly total for the year 1967 is also the lowest unrestricted twelve monthly rainfall recorded. By December, 1967, the western areas of the valley covered by the Deniliquin, Moulamein, Jerilderie, Balranald and Wentworth Pastures Protection Districts were officially declared drought areas. By March, 1968, the entire Murray Valley was declared drought affected. Good rainfalls from April to June ameliorated the drought situation and by August, 1968, rural conditions in the valley were regarded as normal. Follow-up rains in November and December, 1968 and February and March 1969, maintained conditions at reasonable levels and provided good prospects for the coming seasons.

The below average rainfalls were reflected in the streamflow behaviour in the valley during the period 1964 to 1968. At Biggara on the Murray River, the discharge reached the lowest values since records commenced in 1948. During February and March, 1968 flow was reduced to 16 cusecs which was about one quarter of the lowest discharge of 66 cusecs, recorded prior to the 1964-1968 drought. The upstream tributaries of the Swampy Plain River and the Tooma River also recorded lowest discharges on record during this drought. However, as flow in both these streams is affected by the Snowy Mountains Scheme little significance can be placed on these minimum flows.

In the lower valley, flow in the Wakool and Edward Rivers, both effluent streams, ceased for considerable periods. At Moulamein on the Edward River, flow ceased continuously for 104 days while at Stony Crossing, on the Wakool River, 208 consecutive days of zero flow were recorded.

Flows in the Murray River below Hume Reservoir did not cease during the 1964-1968 drought, however in most cases flows were reduced to well below average values and reached less than ten per cent of the average at some locations.

Hume Reservoir was full at about 2.5 million acre feet in December, 1964 and although falling to 445,000 acre feet in April, 1966 it was replenished during the latter part of 1966 and was virtually full again in December, 1966. Low inflows during 1967 reduced the storage to about half in June, 1967, and by October further reductions occurred reaching a low of only 25,000 acre feet or one hundredth of its full capacity by April, 1968. Good rainfalls and subsequent inflows replenished the storage during the second half of 1968 and by November, the storage was again full.

Details of the minimum recorded discharges for periods of 30 days, 6 months and 12 months at selected gauging stations during the 1964-68 drought are given in Table 26.

TABLE 26

Stream and Station	Minimum Recorded Discharges in Acre Feet During 1964-1968 Drought.		
	Thirty Consecutive Days	Six Consecutive Months	Twelve Consecutive Months
Murray River at Biggara	532 Feb. to Mar. 1968	19,660 Nov. 1967 to April 1968	110,810 May 1967 to April 1968
Swampy Plain River at Khancoban	1,681 Feb. to Mar. 1968	22,440 Nov. 1967 to April 1968	156,820 Apr. 1967 to March 1968
Tooma River Possum Point	406 Feb. to Mar. 1968	7,868 Nov. 1967 to April 1968	27,058 May 1967 to April 1968
Murray River at Doctors Point	32,600 Apr. to May 1964	159,000 May to July 1966	2,358,700 Jan. to Dec. 1965
Murray River at Tocumwal	58,000 * April 1968	647,000 May to Oct. 1967	1,343,000 May 1967 to April 1968
Murray River at Barham	35,500 Oct. to Nov. 1965	390,800 Mar. to Aug. 1967	899,500 Feb. 1967 to Jan. 1968
Edward River at Moulamein	0 Feb. to Apr. 1968 (Continuously)	5,613 Nov. 1967 to April 1968	55,203 June 1967 to May 1968
Wakool River at Stony Crossing	0 Jan. to May 1968 (Continuously)	0 Dec. 1967 to May 1968	12,294 June 1967 to May 1968
Murray River at Euston	52,000 * March 1965	518,000 Nov. 1967 to April 1968	1,201,000 May 1967 to April 1968

* MINIMUM CALENDAR MONTH.

A comparison of Table 26 with Table 24 on page 38, shows that on headwater streams above Hume Reservoir, flows during the 1964-68 drought reached the lowest values on record.

After December, 1968, conditions throughout the valley improved and streamflows during 1969 and the early months of 1970 were at least average at most locations.

13. WATER REQUIREMENTS FOR CURRENT DEVELOPMENT.

The development and regulation of the water resources of the Murray River proper are controlled by the River Murray Commission, which was established in 1917 as a result of long standing agitation among the States as to the control of the River Murray.

As far back as 1863, at a conference between the three States, numerous proposals were made for locking of the river principally to improve conditions for navigational trade which was significantly increasing at that time. During the eighteen seventies irrigation commenced along the Murray and it later became apparent that developments in this field could result in significant diversions from the river.

To overcome the problems associated with the varying interests of the three States, an Interstate Royal Commission was appointed in 1902. However, it was not until 1914 that a full agreement was reached on the control of the river and the sharing of its waters.

The agreement is known as the River Murray Waters Agreement and provides for the construction of works at the joint expense of the three States and the Commonwealth, the allocation of the water between the three States concerned, and the appointment of the River Murray Commission to implement the agreement. The allocation was such as to entitle South Australia to receive not less than a certain volume from the upper river each year, while New South Wales and Victoria were empowered to share equally the flow passing Albury, subject to provision being made for South Australia's entitlement. Each State was entitled to free use of its tributary flows entering the Murray below Albury.

The largest of the major works for which the Agreement provided was Hume Dam. Situated below the junction of the Murray and its major tributary the Mitta Mitta, and about ten miles upstream of Albury, the dam stretches across a mile wide valley, and when completed in 1936, had a storage capacity of about 1.25 million acre feet. The dam consisted of two parts; on the northern side there was a fixed crest concrete spillway section 1000 feet long, with four large irrigation release valves. The remainder of the dam was an earth

embankment about 100 feet high. The upstream face of rock protected the embankment and added stability.

By the nineteen fifties, it was apparent that additional regulated flow would be required to meet the expanding irrigation needs and the River Murray Commission was authorised to raise Hume Dam by 30 feet, thereby almost doubling its capacity to about 2.5 million acre feet. The earth embankment had initially been built high enough to hold the additional 30 feet. The concrete spillway section was raised six feet and above its new crest, 29 flood gates were installed, each measuring 26 feet x 20 feet. The enlarged storage was first filled in 1963.

The second main storage constructed under the terms of the River Murray Agreement is the smaller Lake Victoria. Situated in New South Wales near the South Australian border, it is formed in a large natural depression about two miles north of the river and has had its natural capacity increased to about 550,000 acre feet by the completion in 1928 of an embankment around its lower side. It is filled by diversions from the river at Lock 9 while releases are made as required through gates and a natural water course back to the Murray about 30 miles downstream of the diversion point at Lock 9.

The storage generally is filled from winter flows in the Murray and is used during the irrigation season to provide a part of the flow in the lower Murray to which South Australia is entitled under the agreement. Being situated downstream of all the principal tributaries, Lake Victoria is also useful for storing excess water arriving during the irrigation season from any part of the system.

Thirteen of the weirs with locks, proposed in the original agreement, have been constructed, seven being located upstream of the South Australian border. Lock 7, located near the South Australian border and slightly above the outlet watercourse from Lake Victoria, is the most downstream of the weirs in New South Wales, while Torrumbarry, 1,020 miles from the mouth of the river, is the most upstream lock and weir. The weirs with locks were constructed both to aid navigation and to facilitate removal of water for irrigation. The original provision for navigational facilities was based on a continuation of cargo

transport. However, in present times, the passage of small craft constitutes the main navigational purpose of the locks.

In addition, three weirs without locks have been constructed under the River Murray Waters Agreement. The largest of these, Yarrawonga Weir, is located about 145 miles downstream of Hume Dam and acts to pool the main river for diversion to various irrigation areas. Mulwala Canal transmits the flow to meet the New South Wales requirements, while the smaller Yarrawonga Main Canal carries the flow to adjacent Victorian irrigation areas.

The weir itself was completed in 1939 and consists of a 380 feet long spillway section across the river channel with an adjoining earth bank continuing for a further 1,125 feet across the northern river flats. A subsidiary flood gate structure is located in the northern end of this embankment. The main spillway section is controlled by eight electrically operated steel gates.

The other two weirs without navigational locks were constructed for flood diversion purposes on the Murrumbidgee River at Redbank and Maude and were completed in 1940.

Releases from the Snowy Mountains Scheme to the Murray River provide an additional regulated water supply to the Murray Valley. For further details of the Scheme see Section 16.

As with the adjoining Murrumbidgee Valley, large concentrated areas of suitable topography and soil types exist in the Murray Valley away from the confines of the main river and offered such outstanding irrigation potential that it was considered desirable to bring water some distance from the river in large canals for distribution into Irrigation Areas and Districts.

This type of irrigation enterprise constitutes a large part of the development in the valley but in addition a large aggregate area is cultivated by private irrigators diverting water by license under the Water Act.

The major area of irrigation development in New South Wales is in a region known as the Southern Riverina, within a broad strip averaging some 20 miles in width and extending from Mulwala almost to the Wakool River junction. This strip includes the Berriquin, Denibootea, Denimein, Wakool and Tullakool developments.

Berriquin was commenced in 1938 and now contains nearly 1,300 farms on which nearly 230,000 acres were irrigated in 1973/74. Grazing pastures for wool and fat lambs, crops for cereal and fodder, rice on a limited scale and a little dairying comprise the main enterprises undertaken. In the Deniboota and Denimein Districts about 32,000 and 14,000 acres respectively were under irrigation in 1973/74 supporting sheep for fat lambs and wool, rice and rotation crops and some dairy products.

Water for these Districts is brought from the Murray initially by way of Mulwala Canal. This man-made canal carries about 3,000 cusecs at the peak of the irrigation season and near its offtake has a bed width of about 120 feet and a depth of water of about 9 feet.

The Wakool District is supplied from flows diverted from the Edward River below Deniliquin. Of its total area of over 500,000 acres, about 44,000 acres were irrigated in 1973/74 comprising mainly pastures, fodder crops and cereals. Tullakool is a small irrigation area of total area 18,000 acres which is mostly cultivated for rice, annual pastures and other types of crops.

Water for Tullakool and Wakool is diverted from the Edward River by Stevens Weir. By means of the elevated weir pool, water flows into Colligen Creek, an improved natural effluent channel which leaves the Edward River upstream of the weir and runs toward the irrigation areas to be served. When flows in the Edward are not sufficient to meet Wakool and Tullakool requirements the flow may be augmented from the Mulwala Canal via the Edward River Escape.

Located along the Lower Murray are the horticultural settlements of Curlwaa, Coomealla, Buronga and Mallee Cliffs. The Curlwaa Irrigation Area was the first to be established, in 1890, and at that time was named the Wentworth Irrigation Area. Under its present name it has stabilised to an area of about 10,000 acres of which about 1,800 acres were under irrigation in 1973/74. Adjacent to Curlwaa is the Coomealla Irrigation Area of about 35,000 acres, with 7,200 acres being irrigated in 1973/74. Although dried vine fruits, particularly sultanas, are the predominant crops, oranges and other citrus products form significant contributions to the produce of these areas.

The two small Irrigation Areas of Buronga and Mallee Cliffs support

horticulture, vegetable growing and some mixed farming. Buronga consists of some 8,740 acres of which 850 acres are irrigated while at Mallee Cliffs about 570 acres of the 1,900 acres total area are irrigated.

Further upstream in the Valley are located two recently developed large private Irrigation Schemes. The West Corurgan Scheme, which is one of the largest privately undertaken irrigation schemes in Australia, is located adjacent to the Murray about 6 miles downstream of Corowa. An annual entitlement of 50,000 acre feet is provided and allows some 260 large existing properties to adopt irrigation as an activity supplementary to their existing dry farming enterprises.

The other development, the Moira Scheme, is located south of Mathoura and obtains water from a cutting which connects Moira Lake with the Murray River. About 19,000 acres have been developed in this scheme to raise sheep and beef cattle, for dairying, and to grow fodder crops.

As indicated previously, private irrigation conducted under license forms a significant but smaller part of the total irrigation development in the valley.

By 1974, 1,177 licenses were issued for irrigation purposes on the Murray and its effluents including the Wakool and Edward Rivers. These licenses authorised the irrigation of a total area of about 233,000 acres. The growth of private irrigation in the valley is significant with only 29,000 acres licensed for irrigation in June 1944 compared with the 1973-74 figure of 233,000 acres. The number of licenses increased from 301 in June, 1944 to 1,177 in June, 1974.

The average area per license was about 96 acres in 1944 but gradually fell to about 79 acres in 1951. From this period the average has steadily risen, reaching a peak of 152 in June 1969. The average fell slightly to 144 acres in June 1971. Because of the implementation of the West Corurgan Scheme the average rose to 198 at the end of June 1974. Figure 36 shows the growth of the number of licenses and the corresponding area of irrigation authorised in the valley for the period June 1944 to June 1974.

In addition to water diverted for irrigation purposes, supplies of surface water are obtained for town, commercial and industrial use. A total of 94 licenses under the Water Act were current for these purposes at the end of June 1974, authorising a total diversion capacity of about 72,000 gallons per minute or 193 cusecs. Experience has shown, however, that diversion pumps for

town and industrial supplies do not operate continuously and 25-30 percent of the authorised capacity is the more likely average diversion to occur.

Most major towns in the New South Wales Section of the valley obtain supplies directly from the Murray and Edward Rivers, or their effluent streams. Albury is the largest town in the valley and its average annual consumption is approximately 1,032 million gallons which can be pumped at a maximum rate of 200,000 gallons per hour. Barham (80 million gallons), Corowa (300 million gallons), Tocumwal (145 million gallons) and Wentworth (100 million gallons) are supplied with water pumped from the Murray while the town of Deniliquin has its average annual consumption of 691 million gallons obtained from the Edward River. Smaller towns in the valley obtain water supplies by pumping directly from adjacent rivers and streams or from bores sunk into productive alluvium beds.

Details of the areas authorised for irrigation by license under the Water Act in the New South Wales section of the Murray Valley as at 30th June, 1974, are shown in the following Table 27.

TABLE 27

Section of the Valley	Area Licensed for Irrigation as at June 1974 (Acres)
<u>Above Hume Dam</u>	
Murray River	470
Swampy Plain River	80
Tooma River and Tributaries	828
Other tributaries	323
Total for section	1,701
<u>Hume Dam to Tocumwal</u>	
Murray River	7,457
Effluents	1,192
Tributaries	5
Total for section	8,654
<u>Tocumwal to Murrumbidgee River Confluence</u>	
Murray River	62,970
Eagle Creek and tributaries	6,691
Edward River	13,959
Tributaries of the Edward River	27,277
Other effluents of the Murray River	91,297
Total for section	202,194
<u>Murrumbidgee River Confluence to N.S.W./S.A. Border</u>	
Murray River	16,967
Tributaries (excluding Murrumbidgee and Darling Rivers)	250
Effluents	3,600
Total for section	20,817
TOTAL FOR VALLEY	233,366

From Table 27, it is apparent that the scale of private irrigation is most intense along the Murray and Edward Rivers, between Tocumwal and the Murrumbidgee River confluence.

The following Table 28 indicates the maximum pump diversion capacities in the valley for town and industrial water supply purposes.

TABLE 28

Section of the Valley	Maximum Diversion Capacities for Town and Industrial Water Supplies (Cusecs)
Murray River and tributaries above Hume Dam	24
Murray River together with tributaries and effluents from Hume Dam to Tocumwal	18
Murray River and effluents from Tocumwal to the Murrumbidgee River Confluence	101
Murray River tributaries and effluents from the Murrumbidgee River Confluence to the N.S.W./S.A. Border	50
TOTAL FOR VALLEY	193

The above requirements are based on the continuous operation of licensed pumps at full capacity. As previously stated the licensed pumps do not operate continuously on a daily basis and continuous operation at about $\frac{1}{4}$ pump capacity would approximate the maximum annual diversion of these pumps.

Besides the above requirement there is a substantial demand for stock and domestic supplies for landholders whose properties border streams in the valley. These landholders are entitled to divert water, subject to conditions, without requiring a license under the Water Act. Stream frontages of properties in this category total about 4,300 miles in the New South Wales section of the valley.

Because of increased salinity levels which have been experienced over recent years in the River Murray downstream of the Loddon River junction, it has become necessary to exercise controls to maintain the salinity of river water at limits tolerable for irrigation purposes. The River Murray Commission is empowered to operate Torrumbarry and Euston Weirs to control the level of salinity measured at Swan Hill and Merbein. This control can be achieved by releasing, when required, additional flows from the abovementioned weirs so that the total dissolved solids at the measuring points do not exceed 300 parts per million, provided that the releases from the weirs do not exceed certain maximum amounts.

14. POSSIBLE IRRIGATION DEVELOPMENT

Existing irrigation within the Murray Valley is associated with a wide range of enterprises including the growing of cereal and fodder crops, improved pastures, fruit (including grapes for wine-making) and vegetables. This pattern of activity is likely to continue into the foreseeable future.

Any additional development will be limited by the future availability of water resources. Irrigation in New South Wales from the Murray River has already reached such proportions that the New South Wales share of the Murray River resources is insufficient to meet existing demands along the river in dry periods. The additional regulated flow which will be available when Dartmouth Dam becomes operative will therefore be used largely to increase the security of water supplies to the established enterprises.

A further constraint upon irrigation development has been imposed by increasing salinity problems in river flows, soils and groundwater. As a result the River Murray Commission has had comprehensive investigations made by expert consultants, who presented, in 1970, a report containing a number of recommendations for further detailed investigations of new development projects. A number of detailed proposals are now under investigation for salinity abatement measures within the valley.

15. INVESTIGATION OF STORAGE PROPOSALS

By the late 1950's it became apparent that an additional major storage would be required in the Murray system, if further development was to occur without adversely affecting the security of supply to existing irrigation development. At that time studies were undertaken which showed that a major increase in regulated flow in the River Murray could be achieved by the construction of Chowilla Dam. Under this proposal a storage capable of holding about 5 million acre feet was to be created by a comparatively low dam extending across the 3½ mile wide river flats at a point on the River Murray six miles below the South Australian Border. It was proposed to utilise Chowilla Reservoir to store surplus flows, and these would later be used to meet the South Australian entitlement. To a large extent Chowilla would then replace Hume Reservoir as a source of supply of the flow to which South Australia is entitled under the River Murray Waters Agreement, thus making available an increased volume of water from Hume Reservoir for sharing by New South Wales and Victoria.

Preliminary work on the Chowilla project commenced in 1963, when its cost was estimated at \$28 million. However, by 1967 the estimated cost had risen to such an extent that a comprehensive review of the Chowilla project became desirable.

Further investigations of alternative storage proposals for the River Murray system were undertaken and in 1969 the River Murray Commission recommended that the Dartmouth Dam on the Mitta Mitta River be constructed. The four Contracting Governments associated in the River Murray Waters Agreement, New South Wales, Victoria, South Australia and the Commonwealth subsequently passed legislation ratifying amendment of the Agreement to provide for Dartmouth Dam.

The storage will impound about 3 million acre feet behind an earth and rock-fill embankment located on the Mitta Mitta River about 65 miles upstream of Hume Reservoir. Although the dam will be situated entirely within Victoria, the stored water will be controlled by the River Murray Commission for the joint benefit of the three riparian States. Contracts for its construction were let in July, 1974 and construction has begun.

In 1962 the four Contracting Governments agreed that, to enable some expansion of irrigation development to occur in advance of water becoming available from the Chowilla storage, the River Murray Commission would lease from New South Wales for a term of 7 years a major portion of the Menindee Lakes storage on the Darling River. The term of that Agreement, known as the Menindee Lakes Storage Agreement, has since been extended in perpetuity by its incorporation into the River Murray Waters Agreement as one of the amendments of that Agreement ratified by the four Governments in 1972.

16. THE SNOWY MOUNTAINS SCHEME

Under the terms of the Snowy Mountains Hydro-Electric Power Act the water resources of the Murray River are being enhanced by the diversion of waters from the Snowy River as a result of works in the Snowy Mountains Scheme.

The Scheme embraces an area of nearly 3,000 square miles, and ranks among the largest engineering undertakings ever attempted. It involves the construction of 16 large dams and many smaller ones, almost 100 miles of tunnels, 7 power stations and more than 80 miles of aqueducts high in the ranges to collect the mountain streams which would otherwise miss the reservoirs and tunnels.

Despite the complexities involved in the control and diversion of six rivers, the underlying principle on which the Scheme is based is simple; to collect the waters of the Snowy River where they leave the eastern side of the mountains and to turn them inland through long transmountain tunnels to the Murray River and its major New South Wales tributary, the Murrumbidgee River. In passing through the tunnel systems the collected waters of the Snowy and its tributary the Eucumbene, together with flows in the Upper Murrumbidgee, the Tooma, the Tumut and the Geehi Rivers, fall more than 2,500 feet generating large quantities of hydro-electric power.

The part of the Scheme which provides diversions into the Murray Valley is known as the Snowy-Murray Development. Details of this development are shown at Figures 37 and 38, which also show the layout of the overall Snowy Mountains Scheme.

The Snowy-Murray Development involves the diversion of the Snowy River by a dam at Island Bend and a transmountain tunnel system 20 miles long stretching to the Murray River Catchment on the western side of the mountains. Another dam collects the waters of the Geehi and turns them into the same tunnel system. Travelling through the tunnels, shafts and pipelines the diverted water falls 2,600 feet and passes through the two large power stations, Murray 1 and Murray 2, which have a combined capacity of 1,500,000 kilowatts.

An additional project constructed at Guthega, generating power from the rapidly falling waters of the Upper Snowy before they reach the main tunnel system, has been in operation since 1955.

Between Island Bend Reservoir on the Snowy River and Lake Eucumbene on its tributary, runs the 15.2 mile two-way flow Eucumbene-Snowy tunnel. This tunnel connects the Snowy-Murray Development to Lake Eucumbene.

The runoff from a portion of the Snowy River catchment downstream of Eucumbene and Island Bend Dams, together with any spill from Island Bend Dam, is impounded in Jindabyne Reservoir at a point where the Snowy leaves the mountains. A pumping station using off-peak energy lifts the water so stored through a pipeline to a tunnel which connects with the Snowy-Geehi tunnel beneath Island Bend reservoir. The amount of off-peak energy required for pumping against a head of 800 feet to the level of Geehi Reservoir is about two-fifths of the more valuable peak load which is generated by the subsequent fall of 2,600 feet through the turbines of Murray 1 and Murray 2 power stations.

Quantity of Water Diverted

An average annual amount of 470,000 acre feet of water is diverted from the Snowy River catchment to the Murray River, while the effect of regulation of the headwaters of the Murray River by storages of the Snowy Mountains Scheme, combined with the diversions from the Snowy River, provides an additional regulated water supply to the Murray Valley of the order of 800,000 acre feet in a normal year.

Figure 39 shows the volume of water diverted through the various tunnels and power stations in the Scheme in an average year whilst Figure 40 shows the diversions and change in storage during a typical dry year.

It will be seen that, although the inflows during a dry year may be as low as 30 percent of average, the water released from the power stations and available for irrigation is about 90 percent of average. This high degree of regulation of the Snowy Scheme is achieved by the large capacity of Lake Eucumbene from which almost 800,000 acre feet of water might be drawn during a dry year.

17. ACKNOWLEDGEMENTS

The Water Conservation and Irrigation Commission gratefully acknowledges the assistance provided by the Director, Bureau of Meteorology in supplying the section on Climatic Features, the Rainfall Statistical Data and the Median Rainfall Maps for inclusion in this report; the Victorian State Rivers and Water Supply Commission in providing information on selected gauging stations along the Murray River, by the Snowy Mountains Hydro-Electric Authority in providing information for the section on the Snowy Mountains Scheme; by the Forestry Commission in providing details of timber resources, and by the New South Wales Department of Public Works in providing details of existing town water supply schemes.

ANNUAL RAINFALL
(Points)

Year	Tumbarumba	Corryong	Batlow	Walwa	Lankeys Creek	Glenfallock	Tallangatta	Year
1880							*	1880
1881							3022	1881
1882							2873	1882
1883							3000	1883
1884				*			2479	1884
1885	*			2643			2961	1885
1886	3470		*	3279			3237	1886
1887	5186		6683	3995			5423	1887
1888	2975		3776	2493			*	1888
1889	5207		6257	4043			4627	1889
1890	4940		5842	3726			3576	1890
1891	3682	*	5448	3689			3391	1891
1892	3642	2979	5142	3006			3080	1892
1893	4647	3855	5560	3795			3521	1893
1894	4713	4104	6877	4187			4343	1894
1895	3231	2439	4253	2979			2820	1895
1896	3063	2362	4187	2501			2833	1896
1897	3161	2635	4255	2583			2607	1897
1898	3621	2658	4339	2875	*		2683	1898
1899	3391	2387	3698	2498	3107		N. R.	1899
1900	4190	3154	5424	3199	4020		3291	1900
1901	3591	2885	4800	2460	3512		2650	1901
1902	2139	1660	2673	1483	2002		1848	1902
1903	4012	2525	4933	2747	3478		3333	1903
1904	3448	3124	4510	2802	3405		3351	1904
1905	4013	3083	4758	2930	3663		3289	1905
1906	5470	3863	7261	3765	4886		4284	1906
1907	3310	2641	4114	2341	3143		2643	1907
1908	3203	2748	4203	2622	3349		2807	1908
1909	4309	3033	5571	3260	4156	2724	3815	1909
1910	3270	2914	4683	3049	3513	2285	3370	1910
1911	3802	3197	4233	3179	3529	2791	3153	1911
1912	3254	2912	4581	2575	3205	1936	3044	1912
1913	3800	2805	4409	2670	3062	2463	2969	1913
1914	2630	1798	2999	1789	2413	1565	1604	1914
1915	4303	2974	5791	3187	*	2682	3434	1915
1916	5494	3779	7612	4304	4958	3594	4211	1916
1917	6214	4796	8382	5101	5875	4157	5270	1917
1918	3916	2715	4849	*	3136	2382	3027	1918
1919	3446	2588	4137	2602	2812	1987	2628	1919
1920	4711	3181	5669	3225	3472	2708	3595	1920
1921	4095	3514	5575	3871	3804	2646	4139	1921
1922	3664	2178	4400	2367	2682	2180	2586	1922
1923	4491	2793	6667	3214	4391	2983	3262	1923
1924	4543	3870	5442	4091	4320	2924	4194	1924
1925	2833	2332	4371	2572	2710	2140	3011	1925
1926	3812	2910	5682	3255	4083	2957	3136	1926
1927	2633	2484	3852	2547	2981	1742	2514	1927
1928	3087	2686	4431	2630	3512	2340	3263	1928
1929	2697	2296	3781	2546	2883	1902	2467	1929
1930	3517	2303	5484	2730	3379	2535	2876	1930
1931	4956	3851	7735	3984	5224	3629	4378	1931
1932	3856	3015	6145	3365	4091	2853	3164	1932
1933	3201	2492	4613	3203	3506	2396	3104	1933
1934	4224	3676	6722	4011	4564	2940	3962	1934
1935	4164	2895	6097	3436	4073	3304	3413	1935
1936	4327	2996	5414	3542	3744	3191	3443	1936
1937	3106	2203	4118	2681	2867	2602	2334	1937
1938	2390	1650	2998	1672	1944	1534	1786	1938
1939	4824	3886	6548	4150	5609	3986	4864	1939

* Incomplete Records

ANNUAL RAINFALL
(Points)

Year	Tumbarumba	Corryong	Batlow	Walwa	Lankeys Creek	Glenfalloch	Tallangatta	Year
1940	2689	1907	3137	1722	2126	1556	1924	1940
1941	3257	2157	4595	2614	3143	2227	2621	1941
1942	5157	3326	5693	3589	4382	3075	3588	1942
1943	3661	2490	4672	2900	3911	2436	2819	1943
1944	2028	1625	2706	1728	2083	1260	1699	1944
1945	3338	2605	4106	2620	3563	1990	3017	1945
1946	3845	3369	5131	3479	4756	2784	3897	1946
1947	4197	3562	5958	4397	4876	2736	3998	1947
1948	3528	2949	3998	3008	4062	2435	3025	1948
1949	3693	2915	4954	3324	3523	2341	3206	1949
1950	4406	3822	6163	3868	5072	3256	3589	1950
1951	3744	3058	5557	3681	*	2714	3512	1951
1952	4860	4284	7273	4332	*	3575	4408	1952
1953	3632	3142	5804	3204	3684	2835	3401	1953
1954	3325	3084	4478	3065	3247	2872	3323	1954
1955	4562	4072	6535	4771	4614	3274	4504	1955
1956	5911	4528	8959	4927	5735	4381	5217	1956
1957	2755	2418	3806	2577	2907	2161	2381	1957
1958	4338	3411	5951	4027	4315	2714	3213	1958
1959	3076	2580	3962	2704	2996	2217	2694	1959
1960	4911	3569	6791	3876	4705	3702	3532	1960
1961	3364	2670	4689	2900	3344	2709	2707	1961
1962	3467	2619	4922	2881	3159	2242	3031	1962
1963	3234	2679	4436	N.R.	3222	2506	2988	1963
1964	4232	3649	6265	3830	4809	3545	4285	1964
1965	2623	2278	3220	2206	2752	2069	2017	1965
1966	4480	3902	5582	3820	**	3286	3983	1966
1967	1655	1356	1883	1306		1177	1429	1967
1968	4325	3064	6262	3426		2558	3167	1968
1969	4199	3728	5512	3938		3026	3563	1969
1970	4766	4350	6625	4212		3916	3946	1970
1971	4148	3576	4162	3149		2610	3431	1971
1972	2867	*	2418	2148		2188	*	1972

* Incomplete Records

** Station Closed

ANNUAL RAINFALL
(Points)

Year	Wymah	Albury	Howlong	Corowa	Berrigan	Finley	Tocumwal	Year
1860		3547						1860
1861		*						1861
1862		1950						1862
1863		3875						1863
1864		3127						1864
1865		2765						1865
1866		3023						1866
1867		N. R.						1867
1868		N. R.						1868
1869		N. R.						1869
1870		*						1870
1871		3086						1871
1872		*						1872
1873		2812						1873
1874		*						1874
1875		3430			2938			1875
1876		2051			1623			1876
1877		2085			1400			1877
1878		3283			2798			1878
1879		2877			2003			1879
1880		2595			1925			1880
1881		2380			1574			1881
1882		2242			1797			1882
1883		2350			1546			1883
1884		2088	*		1405			1884
1885		2448	1842		1780			1885
1886		2905	2234		1674			1886
1887		4292	2745		2862			1887
1888		2352	1750		1301			1888
1889		3664	3221		2874			1889
1890		3370	2352	2096	1895			1890
1891		2920	2831	2357	2446			1891
1892		2953	2260	2037	1920			1892
1893		3356	2772	2641	1589			1893
1894		4091	3407	3315	2776			1894
1895		2880	1787	1667	1716			1895
1896		2875	2087	1692	1903			1896
1897		2368	1808	1490	1575	1782	*	1897
1898		2783	1971	1627	1059	1187	1548	1898
1899		2143	1862	1883	1360	1235	1497	1899
1900		2767	2539	2035	1856	1794	2052	1900
1901		2250	1885	1549	1279	1283	998	1901
1902	*	1665	1574	1447	1302	1191	1328	1902
1903	3054	2614	2457	1883	1827	1820	1755	1903
1904	2644	2960	2306	2089	1659	1546	1486	1904
1905	2841	2728	2164	1747	1603	1512	1349	1905
1906	3264	3276	2511	2423	2702	2545	2472	1906
1907	*	2193	1739	1233	1013	1325	1198	1907
1908	2389	2335	1827	1772	1285	1308	1261	1908
1909	2995	2743	2178	2050	1624	1758	1602	1909
1910	2644	2307	1812	1819	1255	1317	1371	1910
1911	3029	2637	2503	2502	1391	1665	1846	1911
1912	2739	2332	2147	2142	1830	1893	1915	1912
1913	2438	2289	1957	1822	1974	1566	1546	1913
1914	1653	1586	1687	1505	810	795	755	1914
1915	3086	2973	2240	1779	1568	1277	1459	1915
1916	3883	3575	3114	2922	2602	2049	2483	1916
1917	4541	4296	3689	3035	2708	2438	2185	1917

* Incomplete Records

ANNUAL RAINFALL
(Points)

Year	Wymah	Albury	Howlong	Corowa	Berrigan	Finley	Tocumwal	Year
1918	2839	2890	2079	2455	2346	2176	2269	1918
1919	2102	2136	1970	1543	1341	1614	1362	1919
1920	3002	2783	2137	1834	1614	1715	1708	1920
1921	3595	3401	3172	2573	2170	2525	2077	1921
1922	2161	1977	1719	1285	989	1198	1065	1922
1923	3039	2449	2177	1789	1481	1547	1715	1923
1924	*	3530	3276	2746	2245	2364	2307	1924
1925	2550	2681	2117	1683	1613	1463	1546	1925
1926	*	2850	2670	2428	1676	1472	1762	1926
1927	*	2077	1861	1593	911	1038	948	1927
1928	2717	3020	2700	2765	1587	1678	1862	1928
1929	2154	2003	2019	1802	1183	1442	1489	1929
1930	2685	2656	2515	2151	1936	1902	1931	1930
1931	3860	3981	2884	2891	2034	2229	2458	1931
1932	2753	2490	2163	2010	1723	1852	1913	1932
1933	2662	2752	2437	2090	1730	1626	1701	1933
1934	3866	3978	3883	3472	2020	2130	2392	1934
1935	3211	2972	2453	2105	1814	1697	1963	1935
1936	*	3037	2397	2065	1688	1699	1927	1936
1937	1944	1996	1688	1757	1139	1317	1299	1937
1938	1497	1364	1221	1208	702	635	768	1938
1939	3950	4737	4195	3956	3163	2556	2802	1939
1940	1385	1526	1233	1100	803	900	990	1940
1941	2144	2101	1857	1666	1856	2047	2044	1941
1942	2908	2706	2069	1982	1627	1650	1478	1942
1943	2233	2378	1515	1395	1028	1017	1009	1943
1944	1528	1523	1164	1329	863	862	959	1944
1945	2353	2247	1758	1746	1180	1146	1404	1945
1946	3258	3057	2749	2452	1692	1715	2165	1946
1947	3571	2609	2381	2639	1975	2040	1948	1947
1948	2478	2231	1734	1986	1467	1402	1617	1948
1949	3013	2439	1883	2071	1561	1719	1805	1949
1950	3738	2958	2208	1849	1979	2121	2373	1950
1951	3654	2874	2180	2292	1763	1875	1735	1951
1952	4464	3391	2984	2742	2239	2221	2255	1952
1953	2904	*	2089	2014	1679	1583	1543	1953
1954	3050	*	2204	2366	1963	2392	2144	1954
1955	3912	3858	3393	2934	2454	2625	2679	1955
1956	4651	4087	3773	3740	3386	3377	3348	1956
1957	2425	1993	1868	1651	1464	1312	1441	1957
1958	3366	2651	2135	2112	1632	1575	1717	1958
1959	2349	2485	1584	1405	1461	1475	1775	1959
1960	3641	3179	2846	2539	2230	2234	2302	1960
1961	2426	2572	2145	1840	1395	1397	1258	1961
1962	2998	*	2302	2152	1946	1742	1928	1962
1963	3138	3060	2808	2650	2133	2013	2250	1963
1964	3583	3317	2615	2251	1700	1590	1804	1964
1965	*	1963	1754	1691	1432	1523	1441	1965
1966	3377	3490	2596	2420	1704	1712	2181	1966
1967	1397	1314	922	997	953	772	894	1967
1968	3058	2822	2309	2146	1594	1485	1797	1968
1969	3491	2823	2465	2472	2304	2108	2259	1969
1970	3660	*	2789	2524	1646	1655	2159	1970
1971	*	2770	2180	1961	1400	2018	1884	1971
1972	*	1425	1366	1156	964	1192	1163	1972

* Incomplete Records

ANNUAL RAINFALL
(Points)

Year	Deniliquin	Barratta	Barham	Cunninyenk	Balranald	Euston	Wentworth	Year
1859	1327							1859
1860	1883							1860
1861	1510							1861
1862	*							1862
1863	2538							1863
1864	1302							1864
1865	871							1865
1866	1489							1866
1867	2058							1867
1868	1269						854	1868
1869	1328						1059	1869
1870	2405						2776	1870
1871	2077						1524	1871
1872	1739						1577	1872
1873	2254						1293	1873
1874	1827						1098	1874
1875	2414						1278	1875
1876	1366						895	1876
1877	1263			1117			860	1877
1878	2810			1377		1360	940	1878
1879	1428			1300	1289	1296	1287	1879
1880	1459			973	926	1318	799	1880
1881	1362			1159	1724	1678	1387	1881
1882	1507			1449	1365	952	922	1882
1883	1482			1261	917	1026	898	1883
1884	1090			875	877	861	843	1884
1885	1670			1191	1005	1095	1030	1885
1886	1394			1455	1311	1211	1138	1886
1887	2197			2013	1905	1951	1484	1887
1888	884			638	529	600	459	1888
1889	2607			2386	1834	2108	1970	1889
1890	1805			1701	1449	1513	1481	1890
1891	2147	1868		1542	1353	1271	1141	1891
1892	1691	1416		1327	1397	1214	1291	1892
1893	1518	1331		1163	1412	1058	1248	1893
1894	2408	1972		2419	1948	2297	2341	1894
1895	1259	1074		977	989	787	844	1895
1896	1188	1013		980	887	641	784	1896
1897	1282	1150	*	1057	661	722	754	1897
1898	1391	1508	1238	1167	1100	1213	956	1898
1899	1390	1295	1411	1223	1104	1055	1040	1899
1900	1348	998	1568	1185	1213	1248	1050	1900
1901	1105	766	1206	747	991	914	936	1901
1902	1113	745	855	715	488	842	669	1902
1903	1605	1481	1739	1549	1373	1363	1404	1903
1904	1452	986	1327	1144	863	905	1295	1904
1905	1369	1221	1361	1273	1020	1262	1042	1905
1906	2732	2468	2201	2197	1920	1677	1540	1906
1907	1116	1112	*	1013	824	942	969	1907
1908	1083	957	*	1117	804	1020	1251	1908
1909	1521	1175	1661	1348	1061	1525	1150	1909
1910	1785	1239	1643	1577	1386	1730	1745	1910
1911	1507	1467	1730	1543	1386	1500	2033	1911
1912	1950	1343	1533	1218	1211	996	1128	1912
1913	1254	1034	1381	1104	1229	961	1419	1913
1914	554	611	601	580	673	728	805	1914
1915	1315	1115	1343	1183	1058	993	870	1915
1916	1933	1652	1822	1615	1549	1600	1600	1916

* Incomplete Records

ANNUAL RAINFALL
(Points)

Year	Deniliquin	Barratta	Barham	Cunninyenk	Balranald	Euston	Wentworth	Year
1917	2508	1785	2277	2115	1850	2064	1880	1917
1918	2033	1572	1461	1443	1381	1386	1140	1918
1919	1491	1422	1252	1067	926	882	803	1919
1920	1653	1490	1586	1357	1493	1495	1555	1920
1921	1745	1632	1761	1473	1037	1378	1249	1921
1922	811	1006	995	827	847	986	877	1922
1923	1641	1845	1559	1506	1321	1571	1026	1923
1924	2122	1931	1588	1545	1490	1449	987	1924
1925	1336	1186	1117	1057	854	1048	771	1925
1926	1582	1704	1395	1508	1105	1226	924	1926
1927	878	869	619	726	607	711	603	1927
1928	1447	1221	1626	1865	1096	1030	1214	1928
1929	1431	1331	1073	1144	986	794	719	1929
1930	1736	1464	1581	1602	932	1283	1116	1930
1931	1883	1933	1573	1480	1762	1501	1364	1931
1932	1673	1697	1805	1734	1236	1858	1179	1932
1933	1513	1760	1518	1477	1279	1349	1204	1933
1934	1872	1648	1556	1585	1021	1069	769	1934
1935	1433	1286	1263	1037	813	884	601	1935
1936	1756	1580	1474	1450	1295	1468	1282	1936
1937	1144	1189	896	936	924	1435	1165	1937
1938	722	711	616	574	591	599	501	1938
1939	2607	2322	1821	1977	2005	1488	1182	1939
1940	857	715	766	590	642	553	446	1940
1941	1687	1689	1512	1104	1063	1214	946	1941
1942	1392	1159	1456	*	1273	1233	982	1942
1943	753	711	683	*	533	600	495	1943
1944	818	731	821	576	606	541	446	1944
1945	1168	1120	1240	1156	791	888	731	1945
1946	1775	1514	1614	1825	1480	1527	1219	1946
1947	1622	1374	1475	1290	1415	1526	1246	1947
1948	1585	1408	1128	992	1010	903	769	1948
1949	1555	1359	1926	1631	1589	1242	1091	1949
1950	2090	1888	1964	1568	1627	1662	1645	1950
1951	1748	1408	1439	1446	1401	1047	994	1951
1952	2103	1822	1800	1708	1752	1600	1342	1952
1953	1342	1171	1173	1141	1109	1081	1055	1953
1954	1794	1704	1550	1294	1680	1238	1013	1954
1955	1945	1609	2055	1489	1843	1718	1268	1955
1956	2872	2961	2787	2549	2347	2201	1599	1956
1957	918	889	1064	883	1005	968	1257	1957
1958	1723	1584	1752	1641	1691	1440	1458	1958
1959	1678	1324	1242	727	1172	774	501	1959
1960	2133	2160	2092	1901	1606	1681	1303	1960
1961	1281	1165	1183	*	1630	1472	1211	1961
1962	1503	1508	1329	*	1095	960	1084	1962
1963	2010	1738	1668	1676	2127	1715	1171	1963
1964	1681	1452	1911	1559	1276	1451	1055	1964
1965	1456	1123	1312	1153	1255	1105	1021	1965
1966	1634	1223	1456	1240	1242	1271	1194	1966
1967	657	499	683	471	478	382	513	1967
1968	1380	1189	1702	1274	1180	990	804	1968
1969	1754	1784	1582	1841	1720	1280	1328	1969
1970	1783	1807	1455	1389	1576	1351	1070	1970
1971	1884	1758	1856	1251	1444	*	895	1971
1972	944	766	960	*	782	**	687	1972

* Incomplete Records

** Station Closed

STATISTICAL RAINFALL DATA
(Points)

Station	Rainfall Statistic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Corryong (1892-1965)	Minimum	0	0	4	5	0	50	50	23	36	13	0	0	1625
	10%	12	7	19	44	66	99	121	114	109	121	49	59	2191
	30%	84	73	99	104	154	224	191	228	181	186	118	124	2597
	50%	163	159	172	187	217	297	291	260	247	288	196	222	2911
	70%	253	220	279	241	295	389	354	354	331	379	308	290	3168
	90%	412	413	555	392	411	540	538	501	415	562	448	424	3867
	Maximum	574	513	746	594	750	964	865	614	642	835	714	793	4796
Tumbarumba (1886-1965)	Minimum	0	0	0	0	2	82	124	34	38	2	0	0	2028
	10%	23	19	31	54	70	164	175	156	145	143	67	50	2703
	30%	140	87	119	131	208	301	247	303	233	268	158	132	3314
	50%	222	175	193	258	277	373	365	377	328	376	256	233	3673
	70%	277	287	318	319	396	524	488	488	423	481	345	368	4230
	90%	510	390	697	522	647	818	776	647	557	658	502	620	4954
	Maximum	800	628	1025	766	1163	1269	994	971	887	926	828	836	6214
Batlow (1887-1965)	Minimum	0	0	3	0	0	160	143	37	71	0	0	16	2673
	10%	30	24	32	68	123	232	202	237	157	164	52	64	3776
	30%	124	81	140	172	281	413	455	451	339	325	190	142	4371
	50%	242	185	249	305	428	583	561	553	431	463	306	281	4922
	70%	298	272	352	507	575	816	728	747	589	600	451	403	5693
	90%	637	496	957	696	916	1202	1118	980	767	924	639	598	6791
	Maximum	1290	910	1429	1173	1712	2204	1569	1493	970	1324	1134	990	8959

STATISTICAL RAINFALL DATA
(Points)

Station	Rainfall Statistic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Berrigan (1875-1965)	Minimum	0	0	0	0	0	24	17	1	18	0	0	0	702
	10%	1	0	4	7	26	46	44	53	45	25	10	9	1075
	30%	25	26	32	52	76	121	90	98	104	108	45	40	1475
	50%	65	73	95	105	121	168	125	154	134	149	90	81	1679
	70%	127	129	162	185	199	242	198	210	184	209	165	162	1929
	90%	300	321	359	346	380	337	286	317	284	341	268	283	2682
	Maximum	665	488	714	627	638	700	363	489	434	596	609	976	3386
Deniliquin (1859-1965)	Minimum	0	0	0	0	0	9	6	6	22	1	0	0	554
	10%	3	2	2	7	27	61	35	37	47	38	12	5	1033
	30%	17	30	28	44	71	102	79	80	89	83	43	37	1362
	50%	59	62	79	97	133	154	124	134	129	136	78	77	1515
	70%	130	148	169	195	206	205	168	179	171	188	146	126	1773
	90%	285	280	285	273	341	304	261	257	271	349	249	258	2299
	Maximum	632	739	888	437	486	505	430	415	558	491	414	661	2872
Albury (1860-1965)	Minimum	0	0	0	0	0	61	60	12	20	3	0	0	1364
	10%	14	8	15	23	66	120	103	107	90	74	22	34	1995
	30%	43	55	83	103	138	208	199	215	162	152	104	70	2354
	50%	108	123	165	171	228	319	267	271	237	253	156	160	2747
	70%	223	227	241	271	308	400	351	358	311	343	259	221	3015
	90%	311	366	466	442	494	504	512	465	433	504	393	338	3722
	Maximum	854	895	750	864	726	833	799	757	682	873	666	797	4737

STATISTICAL RAINFALL DATA
(Points)

Station	Rainfall Statistic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Barham (1909-1965)	Minimum	0	0	0	0	0	13	18	0	3	0	0	0	601
	10%	0	0	0	2	20	38	42	41	31	28	2	0	810
	30%	12	24	12	32	74	102	103	84	84	78	47	35	1256
	50%	41	50	50	60	149	134	128	121	117	142	66	60	1512
	70%	106	148	144	110	202	177	181	166	168	180	151	120	1636
	90%	222	271	295	197	288	256	237	255	281	315	284	190	1934
	Maximum	478	547	481	553	497	534	442	354	451	504	370	419	2787
Cunninyenk (1877-1965)	Minimum	0	0	0	0	0	0	0	0	0	0	0	0	574
	10%	0	0	0	6	14	48	32	22	27	25	4	0	739
	30%	12	15	13	26	55	89	76	83	80	65	38	32	1117
	50%	33	60	64	66	110	123	111	114	107	118	57	63	1294
	70%	67	116	123	110	183	172	148	158	143	169	114	106	1542
	90%	225	291	276	259	307	258	229	222	253	310	237	215	1879
	Maximum	419	456	581	360	529	516	575	425	377	413	337	632	2549
Barratta (1891-1965)	Minimum	0	0	0	0	0	0	3	0	0	0	0	0	611
	10%	0	0	0	0	17	51	40	28	20	26	0	0	828
	30%	16	15	12	29	62	99	87	76	68	70	30	25	1164
	50%	40	36	63	76	124	142	122	119	98	109	62	70	1374
	70%	110	98	132	131	181	181	148	152	138	182	119	127	1589
	90%	235	293	241	273	330	287	219	250	242	321	231	300	1905
	Maximum	764	526	524	426	576	522	464	481	528	455	359	543	2961

STATISTICAL RAINFALL DATA
(Points)

Station	Rainfall Statistic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Wentworth (1868-1965)	Minimum	0	0	0	0	0	0	2	0	0	0	0	0	446
	10%	1	0	0	0	16	12	34	22	18	24	3	6	714
	30%	17	9	16	21	50	57	52	49	51	50	31	23	932
	50%	43	34	40	51	103	114	75	91	85	77	57	52	1094
	70%	90	92	77	84	143	139	114	135	124	125	108	97	1260
	90%	239	235	233	171	283	252	172	197	222	225	241	189	1579
	Maximum	417	876	546	342	591	354	332	362	430	477	420	778	2776
Euston (1878-1965)	Minimum	0	0	0	0	0	0	0	0	1	3	0	0	541
	10%	0	0	0	6	16	36	36	35	23	26	7	0	727
	30%	14	10	9	34	46	77	66	74	69	55	21	25	991
	50%	40	36	47	64	97	116	91	115	95	99	69	46	1229
	70%	94	98	105	112	155	176	123	142	138	140	118	121	1456
	90%	212	260	201	247	262	283	186	235	223	287	257	209	1715
	Maximum	421	555	693	413	442	477	312	306	399	483	499	662	2297
Balranald (1879-1965)	Minimum	0	0	0	0	0	2	0	2	2	2	0	0	488
	10%	0	0	0	4	16	21	23	32	24	15	3	1	671
	30%	14	14	15	33	43	73	62	73	58	46	30	24	997
	50%	34	46	53	65	94	106	85	95	89	105	66	61	1213
	70%	81	109	99	102	167	163	122	149	134	155	133	125	1399
	90%	237	236	233	225	292	259	171	209	233	271	251	206	1836
	Maximum	359	472	525	354	462	541	324	330	312	480	478	572	2347

MINIMUM RAINFALL RECORDED IN CONSECUTIVE PERIODS OF UP TO

TWELVE MONTHS COMMENCING IN THE MONTH INDICATED

(Points)

Station	Number of Months	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Tumbarumba (1886-1965)	1	0	0	0	0	2	82	124	34	38	2	0	0
	2	11	8	14	13	244	304	226	116	174	161	101	28
	3	41	14	222	417	558	338	308	226	328	352	119	78
	4	115	303	539	663	725	420	459	391	508	364	234	234
	5	323	588	782	725	919	623	624	730	520	522	319	325
	6	588	793	1058	919	936	788	922	850	826	668	325	650
	7	793	1110	1252	1084	1101	1034	1097	1014	919	674	744	888
	8	1332	1304	1417	1144	1497	1293	1196	1214	951	1008	985	1093
	9	1414	1469	1477	1511	1509	1523	1447	1288	1292	1347	1190	1358
	10	1712	1529	1844	1612	1683	1611	1574	1372	1631	1808	1456	1440
	11	1772	1896	1889	1683	1924	1738	1943	1711	2067	2114	1650	1721
	12	2028	1997	2016	2075	2051	2110	2282	2209	2268	2270	1815	1781
Corryong (1892-1965)	1	0	0	4	5	0	50	50	23	36	13	0	0
	2	29	36	75	5	206	184	105	74	98	105	98	66
	3	44	77	81	299	337	257	244	121	246	193	143	85
	4	130	207	337	447	471	342	257	269	386	268	173	198
	5	323	400	550	635	605	355	405	565	456	268	215	240
	6	408	571	826	798	618	503	701	651	551	310	250	501
	7	579	838	994	891	766	799	776	671	593	345	529	750
	8	1017	1000	1161	992	1062	885	807	693	628	624	866	921
	9	1103	1167	1188	1250	1148	905	829	746	907	1167	1083	1090
	10	1352	1194	1298	1283	1168	927	882	1082	1341	1371	1274	1126
	11	1379	1475	1368	1382	1190	980	1218	1564	1577	1633	1432	1393
	12	1625	1537	1578	1463	1243	1316	1737	1639	1829	1769	1603	1488

MINIMUM RAINFALL RECORDED IN CONSECUTIVE PERIODS OF UP TO
TWELVE MONTHS COMMENCING IN THE MONTH INDICATED
(Points)

Station	Number of Months	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Berrigan (1875-1965)	1	0	0	0	0	0	24	17	1	18	0	0	0
	2	2	1	4	10	93	79	56	19	47	12	0	0
	3	20	11	14	129	171	80	74	77	50	12	0	7
	4	49	19	149	185	236	98	120	112	50	12	50	36
	5	78	221	291	254	259	166	155	191	50	120	91	143
	6	258	315	384	347	315	201	267	191	209	209	164	200
	7	381	384	451	448	350	313	307	288	274	221	218	356
	8	437	455	593	483	462	361	332	304	311	231	392	431
	9	455	602	613	595	510	378	347	341	343	438	494	440
	10	614	613	650	643	527	393	384	374	550	623	495	458
	11	698	685	650	660	542	430	456	581	684	644	513	617
	12	702	685	791	675	579	578	663	803	720	662	672	711
Barratta (1891-1965)	1	0	0	0	0	0	0	3	0	0	0	0	0
	2	0	0	0	0	25	64	60	6	6	29	0	0
	3	13	0	2	81	104	97	72	6	35	53	4	10
	4	13	50	171	158	151	112	72	35	90	77	35	28
	5	76	187	218	213	233	143	101	181	103	77	56	65
	6	223	218	273	244	233	172	253	181	140	148	65	139
	7	275	273	304	297	262	295	289	230	155	148	139	223
	8	330	304	381	326	414	360	296	230	237	242	289	304
	9	361	409	410	478	450	367	296	259	242	313	320	351
	10	430	410	562	514	457	367	325	339	313	406	375	391
	11	459	590	598	521	457	396	457	410	412	461	406	451
	12	611	626	605	521	486	468	541	509	588	492	451	480

MINIMUM RAINFALL RECORDED IN CONSECUTIVE PERIODS OF UP TO
TWELVE MONTHS COMMENCING IN THE MONTH INDICATED
(Points)

Station	Number of Months	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Barham (1909-1965)	1	0	0	0	0	0	13	18	0	3	0	0	0
	2	5	0	0	21	25	71	48	8	8	22	0	0
	3	18	18	33	108	135	71	56	8	25	22	0	5
	4	18	97	175	196	161	79	56	65	25	32	36	41
	5	97	193	258	274	169	79	113	107	35	64	43	43
	6	193	300	294	282	169	136	282	117	184	119	43	122
	7	340	325	302	282	226	310	292	285	261	119	122	218
	8	362	333	302	339	400	368	352	310	261	198	198	218
	9	370	333	359	461	435	375	358	395	340	294	294	374
	10	370	390	461	471	465	381	443	498	436	450	450	458
	11	427	520	471	578	471	466	623	594	592	542	542	466
	12	601	530	598	584	556	696	719	750	684	573	573	466
Balranald (1879-1965)	1	0	0	0	0	0	2	0	2	2	2	0	0
	2	0	0	2	0	35	32	24	4	14	12	0	0
	3	0	2	12	62	80	34	26	16	72	46	0	10
	4	5	17	96	87	121	36	38	96	103	48	39	37
	5	61	100	107	166	123	48	118	153	103	56	44	57
	6	115	107	186	210	135	128	167	166	154	91	57	92
	7	122	186	230	231	215	188	254	236	185	167	116	146
	8	201	230	321	311	280	266	258	236	262	222	184	153
	9	245	321	350	399	353	268	258	308	274	276	191	232
	10	336	350	446	429	355	268	330	370	342	283	270	276
	11	365	446	446	451	355	340	405	453	349	362	314	367
	12	488	446	506	451	427	456	488	526	428	401	405	396

MINIMUM RAINFALL RECORDED IN CONSECUTIVE PERIODS OF UP TO
TWELVE MONTHS COMMENCING IN THE MONTH INDICATED
(Points)

Station	Number of Months	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Euston (1878-1965)	1	0	0	0	0	0	0	0	0	1	3	0	0
	2	0	0	0	0	18	19	23	1	9	23	2	0
	3	0	8	4	88	68	41	24	9	61	40	11	0
	4	20	56	106	148	78	42	32	95	86	40	53	20
	5	59	106	175	199	79	50	118	135	111	98	63	88
	6	134	177	209	275	87	136	217	160	204	112	104	104
	7	202	211	321	326	173	259	254	235	206	169	122	134
	8	236	333	383	408	296	302	293	271	246	225	219	202
	9	342	388	425	416	348	311	294	292	275	341	311	236
	10	397	442	430	416	348	312	326	321	435	375	343	346
	11	468	450	433	548	349	329	355	493	469	421	410	401
	12	541	450	557	548	400	358	535	578	515	438	465	472
Wentworth (1868-1965)	1	0	0	0	0	0	0	2	0	0	0	0	0
	2	0	0	0	2	22	7	17	0	11	11	0	0
	3	3	0	16	35	66	45	35	11	74	33	2	0
	4	10	37	39	78	83	45	46	121	98	33	51	33
	5	69	74	82	116	83	56	173	140	101	72	53	47
	6	112	147	120	182	94	207	247	146	164	97	58	102
	7	164	181	194	190	249	251	249	179	196	115	103	134
	8	198	214	194	278	273	308	296	211	215	160	146	186
	9	227	287	282	369	322	334	303	252	265	203	220	227
	10	300	337	376	413	355	336	303	347	308	318	254	236
	11	366	410	423	437	374	338	410	370	403	359	282	309
	12	446	436	442	448	410	444	457	413	437	370	355	375

MURRAY RIVER AT BIGGARA

LOCATION: Latitude 36°19' Longitude 148°02'

PERIOD OF ESTABLISHMENT: July, 1948 to date

COMPLETE YEARS OF COMPUTED RECORDS: 24 years

ZERO OF GAUGE: R.L. 87.40 Assumed Datum

CATCHMENT AREA: 450 Square Miles

CONTROL: Gravel

EQUIPMENT: Servo Manometer Pressure Recorder
Staff Gauge, range 0 to 15 feet

CURRENT METER OBSERVATIONS:

(a) Number Obtained : 171

(b) Maximum Observation
in Cusecs : 4,811

(c) Minimum Observation
in Cusecs : 18

MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS: 11,800 cusecs (June, 1952)

MEAN DAILY DISCHARGE FOR 24 YEARS: 630 cusecs

MEAN ANNUAL DISCHARGE FOR 24 YEARS: 460,000 acre feet

REMARKS: Servo Manometer Pressure Recorder installed in 1968.

MURRAY RIVER AT BIGGARA

Year 1948				Year 1949					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	..	..	..	..	Jan.	500	190	274	17,000
Feb.	..	..	..	..	Feb.	340	150	190	10,660
Mar.	..	..	..	..	Mar.	340	150	199	12,340
Apr.	..	..	..	..	Apr.	530	150	171	10,270
May	..	..	..	..	May	340	150	208	12,890
June	..	..	..	..	June	585	190	386	23,150
July	..	..	..	..	July	1010	290	570	35,320
Aug.	720	460	539	33,420	Aug.	1500	430	694	43,020
Sept.	1090	570	779	46,730	Sept.	2810	340	731	45,292
Oct.	2640	600	1238	76,750	Oct.	2310	400	1262	78,236
Nov.	5880	620	1830	109,830	Nov.	1910	1010	1438	86,280
Dec.	960	310	482	29,910	Dec.	960	340	526	32,640
Total	..	..	..	..	Total	..	..	..	407,098

Year 1950				Year 1951					
Jan.	460	190	256	15,920	Jan.	530	210	298	18,500
Feb.	1500	190	598	33,460	Feb.	880	150	276	15,460
Mar.	920	210	475	29,440	Mar.	290	131	178	11,046
Apr.	1630	260	630	37,790	Apr.	400	131	215	12,902
May	760	230	277	17,160	May	2470	210	648	40,180
June	430	260	304	18,250	June	1770	210	741	44,480
July	1190	310	528	32,750	July	2980	600	1405	84,280
Aug.	1390	600	890	55,160	Aug.	3060	1050	1697	105,226
Sept.	1190	640	859	51,540	Sept.	2150	960	1222	73,348
Oct.	3560	640	1279	79,300	Oct.	2230	840	1369	84,750
Nov.	1440	680	935	56,120	Nov.	1140	400	707	42,440
Dec.	760	310	464	28,740	Dec.	660	260	378	23,446
Total	..	..	..	455,630	Total	..	..	..	556,058

Year 1952				Year 1953					
Jan.	260	150	192	11,900	Jan.	750	370	519	32,160
Feb.	430	116	146	8,502	Feb.	800	230	371	20,780
Mar.	880	116	263	16,230	Mar.	230	190	198	12,260
Apr.	960	150	391	23,460	Apr.	310	170	190	11,420
May	2230	310	772	47,868	May	1010	170	365	22,600
June	11800	1290	2970	178,226	June	750	230	404	24,240
July	2720	1010	1549	96,040	July	2550	340	752	46,620
Aug.	1390	960	1149	71,260	Aug.	2480	660	1348	83,554
Sept.	5230	1050	2294	137,644	Sept.	4630	950	1632	97,914
Oct.	3180	1120	1737	107,680	Oct.	3900	1060	1701	105,484
Nov.	2830	1230	2045	122,680	Nov.	2900	650	1523	91,354
Dec.	4340	750	1726	106,996	Dec.	1870	342	536	33,248
Total	..	..	..	928,486	Total	..	..	..	581,634

Year 1954				Year 1955					
Jan.	1540	224	370	22,958	Jan.	500	165	240	14,880
Feb.	570	235	345	19,316	Feb.	435	165	241	13,490
Mar.	260	165	188	11,660	Mar.	910	165	263	16,300
Apr.	785	145	226	13,560	Apr.	405	145	180	10,820
May	375	185	214	13,260	May	605	210	280	17,380
June	825	185	332	19,940	June	2210	235	579	34,740
July	640	285	412	25,570	July	1360	405	689	42,740
Aug.	3400	345	710	44,004	Aug.	7600	745	2662	165,022
Sept.	1360	435	657	39,420	Sept.	3250	1290	1742	104,506
Oct.	785	315	426	26,400	Oct.	5700	1170	2363	146,530
Nov.	3820	570	1133	67,966	Nov.	2400	740	1349	80,940
Dec.	745	315	500	30,880	Dec.	1180	590	745	46,210
Total	..	..	..	334,934	Total	..	..	..	693,558

MURRAY RIVER AT BIGGARA

Year 1956				Year 1957					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	4890	425	1008	62,524	Jan.	360	220	264	16,368
Feb.	640	305	427	24,760	Feb.	690	184	246	13,760
Mar.	3220	305	691	42,860	Mar.	425	167	211	13,054
Apr.	5160	740	2178	130,638	Apr.	201	160	171	10,232
May	3350	1120	1745	108,108	May	261	167	195	12,120
June	4220	1300	2546	152,754	June	2260	167	346	20,754
July	4520	1630	2500	155,000	July	1370	330	645	40,010
Aug.	2680	1560	2043	126,690	Aug.	1010	390	624	38,710
Sept.	3430	1430	2278	136,660	Sept.	1240	500	610	36,630
Oct.	3200	1560	2178	135,060	Oct.	2980	545	841	52,120
Nov.	2120	845	1239	74,350	Nov.	690	305	434	26,040
Dec.	955	360	585	36,280	Dec.	1700	184	328	20,310
Total	..	..	..	1,185,684	Total	..	..	..	300,108

Year 1958				Year 1959					
Jan.	900	153	256	15,870	Jan.	305	201	241	14,924
Feb.	500	153	218	12,216	Feb.	460	167	192	10,758
Mar.	220	142	163	10,118	Mar.	590	153	182	11,274
Apr.	845	130	182	10,946	Apr.	330	153	177	10,602
May	2610	153	500	31,000	May	153	142	143	8,870
June	2470	360	626	37,560	June	955	142	228	13,654
July	3430	360	1223	75,814	July	590	160	243	15,068
Aug.	4300	1430	2372	147,050	Aug.	1300	283	536	33,228
Sept.	1910	955	1182	70,920	Sept.	3350	412	1199	71,916
Oct.	3280	1500	2244	139,110	Oct.	2610	620	1140	70,670
Nov.	2330	640	973	58,350	Nov.	2330	350	686	41,146
Dec.	845	330	460	28,490	Dec.	380	194	269	16,666
Total	..	..	..	637,444	Total	..	..	..	318,776

Year 1960				Year 1961					
Jan.	252	115	183	11,346	Jan.	575	177	292	18,092
Feb.	212	96	121	7,026	Feb.	194	130	169	9,446
Mar.	194	90	100	6,170	Mar.	488	145	199	12,350
Apr.	350	90	140	8,408	Apr.	1100	145	317	19,002
May	1770	177	855	53,018	May	321	177	214	13,246
June	935	448	569	34,150	June	412	177	250	15,018
July	5340	448	1529	94,790	July	900	250	466	28,886
Aug.	4800	935	1566	97,092	Aug.	1010	349	574	35,566
Sept.	2980	880	1637	98,202	Sept.	1560	470	926	55,556
Oct.	1910	880	1307	81,050	Oct.	1180	297	567	35,130
Nov.	1390	575	768	46,070	Nov.	549	228	320	19,190
Dec.	1450	380	669	41,452	Dec.	508	120	220	13,626
Total	..	..	..	578,774	Total	..	..	..	275,108

Year 1962				Year 1963					
Jan.	470	120	190	11,754	Jan.	470	170	257	15,910
Feb.	250	120	158	8,852	Feb.	250	135	167	9,332
Mar.	297	79	105	6,510	Mar.	208	90	121	7,474
Apr.	322	86	108	6,484	Apr.	230	80	100	6,004
May	549	105	221	13,720	May	900	122	285	17,640
June	1010	297	578	34,658	June	309	170	231	13,834
July	740	250	378	23,466	July	640	170	344	21,344
Aug.	1430	435	582	36,094	Aug.	1120	370	614	38,054
Sept.	1370	435	740	44,402	Sept.	1240	640	851	51,050
Oct.	1300	549	883	54,758	Oct.	1630	402	710	44,006
Nov.	740	273	431	25,960	Nov.	955	280	486	29,134
Dec.	845	228	384	23,802	Dec.	592	170	312	19,322
Total	..	..	..	290,460	Total	..	..	..	273,104

MURRAY RIVER AT BIGGARA

Year 1964				Year 1965					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	170	73	124	7,660	Jan.	280	152	196	12,100
Feb.	230	66	107	6,228	Feb.	152	94	119	6,650
Mar.	170	66	90	5,604	Mar.	137	66	86	5,140
Apr.	820	66	162	9,714	Apr.	209	66	109	6,560
May	254	108	151	9,352	May	170	94	119	7,400
June	1010	189	386	23,182	June	170	94	115	6,900
July	4000	470	1610	100,000	July	152	108	128	7,900
Aug.	2980	1010	1390	86,100	Aug.	2120	137	574	35,600
Sept.	3200	1240	1820	109,000	Sept.	845	370	626	37,600
Oct.	2980	1120	2110	131,000	Oct.	740	309	371	23,000
Nov.	1370	402	824	49,400	Nov.	2190	230	600	36,000
Dec.	790	280	429	26,600	Dec.	790	189	354	21,900
Total	..	..	..	563,840	Total	..	..	..	206,750

Year 1966				Year 1967					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	230	94	144	8,902	Jan.	435	209	349	21,600
Feb.	280	108	194	10,900	Feb.	209	137	157	8,790
Mar.	1090	66	153	9,470	Mar.	152	108	130	8,080
Apr.	108	80	94	5,640	Apr.	122	94	115	6,870
May	230	108	135	8,370	May	122	94	106	6,580
June	640	152	259	15,500	June	122	108	110	6,590
July	955	170	375	23,200	July	256	122	159	9,880
Aug.	1060	339	679	42,100	Aug.	319	123	193	12,000
Sept.	2120	508	1321	79,200	Sept.	845	256	479	28,700
Oct.	2610	740	1116	69,200	Oct.	1060	201	442	27,400
Nov.	2120	549	978	58,700	Nov.	178	87	128	7,670
Dec.	2400	453	1051	65,200	Dec.	87	45	72	4,480
Total	..	..	..	396,382	Total	..	..	..	148,640

Year 1968				Year 1969					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	45	23	33	2,060	Jan.	505	124	206	12,800
Feb.	23	16	20	1,140	Feb.	380	98	155	8,660
Mar.	74	16	25	1,560	Mar.	1060	98	190	11,800
Apr.	220	23	46	2,740	Apr.	1510	169	300	18,000
May	755	98	299	18,500	May	565	182	283	17,500
June	1640	215	454	27,200	June	2260	360	631	37,900
July	348	205	243	15,100	July	3390	372	886	55,000
Aug.	2220	306	1001	62,100	Aug.	1210	488	663	41,100
Sept.	1350	580	786	47,200	Sept.	2070	538	904	54,200
Oct.	5750	861	1592	98,700	Oct.	828	429	593	36,700
Nov.	1360	352	632	37,900	Nov.	1260	440	670	40,200
Dec.	803	205	313	19,400	Dec.	792	291	449	27,900
Total	..	..	..	333,600	Total	..	..	..	361,760

Year 1970				Year 1971					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	840	220	381	23,600	Jan.	708	199	311	19,300
Feb.	935	175	251	14,100	Feb.	2500	170	608	34,000
Mar.	340	149	184	11,400	Mar.	340	201	255	15,800
Apr.	1840	132	348	20,900	Apr.	612	155	210	12,600
May	1110	356	563	34,900	May	1550	240	353	21,900
June	1340	505	852	51,100	June	372	267	297	17,800
July	1620	692	1015	62,900	July	381	252	291	18,000
Aug.	6150	692	1684	104,000	Aug.	1210	297	438	27,200
Sept.	2910	1440	1874	112,000	Sept.	2140	586	887	53,200
Oct.	2950	703	1277	79,100	Oct.	2860	658	1396	86,600
Nov.	1380	540	765	45,900	Nov.	3830	546	1383	83,000
Dec.	1040	281	467	28,900	Dec.	962	371	547	33,900
Total	..	..	..	588,800	Total	..	..	..	423,300

MURRAY RIVER AT BIGGARA

Year 1972

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	768	297	402	24,900
Feb.	537	245	315	18,300
Mar.	599	178	248	15,400
Apr.	403	144	196	11,800
May	356	156	189	11,700
June	533	140	167	10,000
July	608	194	326	20,200
Aug.	873	258	411	25,500
Sept.	1430	378	557	33,400
Oct.	461	221	308	19,100
Nov.	520	158	229	13,700
Dec.	158	85	114	7,080
Total	..	..	..	211,080

SWAMPY PLAIN RIVER AT KHANCOBAN

LOCATION: Latitude 36°17' Longitude 148°07'

PERIOD OF ESTABLISHMENT: December 1926 to date

COMPLETE YEARS OF COMPUTED RECORDS: 46 years

ZERO OF GAUGE: R.L. 106.81 Assumed Datum

CATCHMENT AREA: 232 square miles (See Remarks)

CONTROL: Gravel

EQUIPMENT: Automatic Recorder (Float Type)
Staff Gauge, range 0 to 15 feet

CURRENT METER OBSERVATIONS:

(a) Number Obtained	:	141
(b) Maximum Observation in Cusecs	:	6,272
(c) Minimum Observation in Cusecs	:	74

MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS: 20,200 cusecs (August, 1954)

MEAN DAILY DISCHARGE FOR 39 YEARS : (Prior Diversions) 748 cusecs

MEAN DAILY DISCHARGE FOR 7 YEARS : (Post Diversions) 365 cusecs

MEAN ANNUAL DISCHARGE FOR 39 YEARS : (Prior Diversions) 546,000 acre feet

MEAN ANNUAL DISCHARGE FOR 7 YEARS : (Post Diversions) 266,000 acre feet

REMARKS:

No.1 station was established on 6th December, 1926 and discontinued on 22nd May 1928.

No.2 station was established on 20th May 1938 at a site 3/4 mile upstream of No.1 station. A pressure recorder was installed in October 1940 and was replaced by a float recorder in March 1952.

Flows have been affected by Geehi Reservoir and associated diversion tunnels since April 1966. Flows from the catchment above Geehi Reservoir together with nowy River Diversions are piped through Murray 1 and 2 Power stations to again join the Swampy Plain River below the gauging station at Khancoban. The nett effect of these works is that the catchment area of the gauging station is reduced by 62 square miles to 170 square miles.

SWAMPY PLAIN RIVER AT KHANCOBAN

Year 1927				Year 1928					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	4950	196	397	24,590	Jan.	269	130	160	9,938
Feb.	225	143	165	9,232	Feb.	1610	124	332	19,268
Mar.	485	130	158	9,792	Mar.	4950	112	528	32,744
Apr.	187	124	137	8,242	Apr.	1350	225	486	29,188
May	865	118	287	17,800	May	1470	406	620	38,420
June	694	187	268	16,110	June	1410	187	740	44,388
July	1900	225	544	33,744	July	1110	370	544	33,728
Aug.	828	388	531	32,944	Aug.	1020	406	545	33,790
Sept.	1350	335	744	44,642	Sept.	4030	637	1326	79,548
Oct.	6280	1110	2362	146,428	Oct.	4550	1110	1664	103,146
Nov.	2580	406	828	49,690	Nov.	1610	502	907	54,444
Dec.	445	187	296	18,368	Dec.	483	170	295	18,302
Total	..	..	..	411,582	Total	..	..	..	496,904

Year 1929				Year 1930					
Jan.	170	123	137	8,486	Jan.	510	170	251	15,592
Feb.	260	110	145	8,136	Feb.	211	146	161	9,032
Mar.	521	98	131	8,106	Mar.	211	122	139	8,648
Apr.	3140	123	438	26,266	Apr.	547	115	170	10,178
May	810	154	374	23,216	May	1710	159	393	24,382
June	1780	295	506	30,370	June	912	220	353	21,176
July	424	230	291	18,070	July	805	211	418	25,898
Aug.	3600	202	647	40,128	Aug.	1200	407	694	43,000
Sept.	4080	662	1082	64,934	Sept.	1500	645	925	55,476
Oct.	3420	662	1309	81,138	Oct.	11000	765	2417	149,874
Nov.	1040	474	680	40,830	Nov.	1680	492	761	45,670
Dec.	745	250	458	28,390	Dec.	10000	375	1029	63,792
Total	..	..	..	378,070	Total	..	..	..	472,718

Year 1931				Year 1932					
Jan.	1470	206	532	32,988	Jan.	251	158	197	12,238
Feb.	492	184	237	13,276	Feb.	346	144	185	11,126
Mar.	3940	184	569	35,310	Mar.	1570	151	392	24,288
Apr.	1350	307	453	27,194	Apr.	2580	251	734	44,048
May	4650	283	952	58,998	May	483	261	335	20,778
June	10400	598	1910	114,594	June	975	251	631	37,848
July	2050	675	1031	63,912	July	826	408	558	34,572
Aug.	1970	722	1016	62,998	Aug.	8070	408	1189	73,696
Sept.	2230	712	1201	72,062	Sept.	3260	1020	1589	95,344
Oct.	2350	675	1382	85,700	Oct.	2540	883	1170	72,534
Nov.	5590	637	1050	63,004	Nov.	1970	540	910	54,608
Dec.	637	225	360	22,354	Dec.	656	294	437	27,058
Total	..	..	..	652,390	Total	..	..	..	508,138

Year 1933				Year 1934					
Jan.	294	174	223	13,834	Jan.	2580	361	623	38,646
Feb.	220	126	167	8,202	Feb.	1200	240	377	21,098
Mar.	251	110	135	8,364	Mar.	559	202	268	16,656
Apr.	598	120	173	10,388	Apr.	1540	211	458	27,504
May	712	144	305	18,904	May	559	240	382	23,670
June	598	251	359	21,526	June	408	211	241	14,464
July	5930	306	999	61,948	July	3140	240	674	41,810
Aug.	1110	446	594	36,828	Aug.	2200	559	944	58,544
Sept.	4950	788	1524	91,430	Sept.	7470	807	1462	87,716
Oct.	4080	637	1253	77,684	Oct.	17300	940	2352	145,838
Nov.	751	408	532	31,950	Nov.	3050	788	1371	82,254
Dec.	1900	446	740	45,858	Dec.	2270	502	1062	65,844
Total	..	..	..	426,916	Total	..	..	..	624,044

SWAMPY PLAIN RIVER AT KHANCOBAN

Year 1935				Year 1936					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	1230	230	472	29,292	Jan.	865	174	363	22,514
Feb.	521	183	288	16,186	Feb.	408	158	214	12,424
Mar.	1290	158	282	17,466	Mar.	1230	158	306	18,968
Apr.	1540	174	668	40,072	Apr.	1060	158	393	23,562
May	1290	464	698	43,292	May	483	211	284	17,616
June	598	319	449	26,950	June	1060	251	377	22,612
July	975	346	514	31,850	July	1320	483	710	44,420
Aug.	1900	521	995	61,716	Aug.	3810	598	1565	97,030
Sept.	1680	751	1210	72,608	Sept.	1170	975	1070	64,202
Oct.	7710	1350	1965	121,824	Oct.	2420	1060	1741	107,970
Nov.	1900	788	1296	77,732	Nov.	1610	788	1032	61,890
Dec.	1230	346	544	33,746	Dec.	1680	675	974	60,410
Total	..	..	..	572,734	Total	..	..	..	553,618

Year 1937				Year 1938					
Jan.	3300	346	840	52,088	Jan.	975	144	247	15,338
Feb.	598	211	353	9,768	Feb.	1110	110	191	10,698
Mar.	902	174	279	17,278	Mar.	346	100	135	8,372
Apr.	637	151	213	12,772	Apr.	751	92	211	12,642
May	675	192	369	22,908	May	880	141	268	16,602
June	446	211	294	17,158	June	457	207	289	17,344
July	483	174	235	14,560	July	550	199	282	17,500
Aug.	865	230	369	22,876	Aug.	1980	214	524	32,480
Sept.	5150	865	1613	96,754	Sept.	1920	550	964	57,826
Oct.	1750	865	1238	76,728	Oct.	1600	324	741	45,956
Nov.	1100	272	499	29,914	Nov.	1130	159	308	18,506
Dec.	712	166	290	18,010	Dec.	178	91	112	6,942
Total	..	..	..	390,814	Total	..	..	..	260,206

Year 1939				Year 1940					
Jan.	214	60	78	4,868	Jan.	743	222	356	22,094
Feb.	880	52	136	7,610	Feb.	886	164	210	12,204
Mar.	10600	115	658	40,808	Mar.	237	125	146	9,072
Apr.	1860	320	571	34,276	Apr.	1600	167	449	26,944
May	777	268	417	25,862	May	1000	284	454	28,142
June	1500	320	643	38,608	June	1700	338	476	28,550
July	1650	366	625	38,770	July	469	302	349	21,630
Aug.	1860	493	1087	66,424	Aug.	1450	338	485	30,078
Sept.	1750	1110	1346	80,784	Sept.	7900	517	1049	62,920
Oct.	11000	1450	2897	179,620	Oct.	722	238	442	27,390
Nov.	6460	962	2028	121,690	Nov.	1330	185	292	17,538
Dec.	1150	517	793	49,142	Dec.	3040	153	398	24,710
Total	..	..	..	688,462	Total	..	..	..	311,272

Year 1941				Year 1942					
Jan.	3320	315	701	43,452	Jan.	268	129	153	9,462
Feb.	558	153	234	13,116	Feb.	414	108	164	9,182
Mar.	1110	153	325	20,098	Mar.	962	91	164	10,138
Apr.	403	141	185	11,048	Apr.	1150	108	149	8,944
May	493	130	189	11,746	May	12500	302	1446	89,662
June	649	165	339	20,368	June	2900	465	874	52,428
July	1980	297	681	42,196	July	5380	542	1292	80,094
Aug.	493	320	375	23,266	Aug.	3260	446	993	61,598
Sept.	8970	445	1217	72,998	Sept.	3250	840	1563	93,802
Oct.	5700	612	1095	67,912	Oct.	9510	924	2384	147,812
Nov.	3040	320	642	38,534	Nov.	2630	520	1102	66,106
Dec.	811	194	373	23,152	Dec.	1140	271	534	33,100
Total	..	..	..	387,886	Total	..	..	..	662,328

SWAMPY PLAIN RIVER AT KHANCOBAN

Year 1943				Year 1944					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	2040	238	367	22,734	Jan.	284	120	190	11,798
Feb.	2900	153	253	14,178	Feb.	178	82	113	6,578
Mar.	1260	110	181	11,142	Mar.	403	73	131	8,128
Apr.	4570	110	807	48,404	Apr.	1230	120	336	20,150
May	1410	382	566	35,064	May	3760	382	892	55,298
June	760	271	389	23,332	June	760	363	485	29,086
July	1000	343	532	32,970	July	741	302	422	26,172
Aug.	685	403	454	28,160	Aug.	595	284	382	23,674
Sept.	1750	446	1013	60,752	Sept.	1450	237	568	34,064
Oct.	6030	1370	2447	151,694	Oct.	2490	320	784	48,632
Nov.	2490	710	1201	72,062	Nov.	1110	207	413	24,760
Dec.	1230	268	505	31,282	Dec.	722	165	222	13,782
Total	..	..	..	531,774	Total	..	..	..	302,122

Year 1945				Year 1946					
Jan.	1290	100	183	11,336	Jan.	550	91	176	10,540
Feb.	324	82	136	7,640	Feb.	5090	153	570	33,490
Mar.	685	56	89	5,498	Mar.	2490	288	741	45,924
Apr.	3040	100	232	13,900	Apr.	722	245	368	22,076
May	468	110	167	10,336	May	2360	192	309	19,160
June	3110	100	517	31,034	June	722	363	418	25,122
July	614	192	317	19,672	July	3460	550	1398	86,704
Aug.	2490	324	820	50,824	Aug.	3460	685	1489	92,324
Sept.	3680	685	1418	85,076	Sept.	2900	760	1258	75,442
Oct.	8830	981	2043	126,684	Oct.	10600	962	2131	144,158
Nov.	1750	382	942	56,534	Nov.	3760	955	1971	118,260
Dec.	382	130	261	16,200	Dec.	2490	446	857	53,146
Total	..	..	..	434,734	Total	..	..	..	726,346

Year 1947				Year 1948					
Jan.	435	134	255	15,818	Jan.	2290	305	693	42,970
Feb.	3110	156	271	15,196	Feb.	1950	240	362	21,048
Mar.	5490	210	492	30,486	Mar.	401	153	224	13,948
Apr.	830	181	406	24,352	Apr.	920	140	340	20,406
May	1650	181	355	21,982	May	4650	520	1006	62,394
June	1190	360	670	40,216	June	1370	470	745	44,706
July	2040	548	1058	65,580	July	576	342	439	27,236
Aug.	1750	576	963	59,692	Aug.	576	380	442	27,420
Sept.	14600	702	2177	130,662	Sept.	1980	520	983	58,974
Oct.	11500	1550	2924	181,286	Oct.	6700	1150	1841	114,164
Nov.	4150	850	1815	108,912	Nov.	8550	658	1890	113,378
Dec.	2900	890	1209	74,988	Dec.	1750	288	525	32,556
Total	..	..	..	769,170	Total	..	..	..	579,200

Year 1949				Year 1950					
Jan.	920	195	312	19,368	Jan.	670	150	216	13,394
Feb.	548	134	192	10,720	Feb.	2230	156	442	24,730
Mar.	770	123	234	14,548	Mar.	3250	145	549	34,048
Apr.	1450	134	232	13,906	Apr.	1700	210	506	30,384
May	702	181	364	22,586	May	2630	156	265	16,466
June	1000	195	322	19,290	June	1350	272	420	25,210
July	1080	225	416	25,792	July	1500	288	643	39,894
Aug.	2490	423	569	35,258	Aug.	1000	423	544	33,750
Sept.	5810	360	1114	66,822	Sept.	2770	495	1239	74,320
Oct.	5700	623	1767	109,542	Oct.	3760	850	1763	109,340
Nov.	3430	740	1287	77,244	Nov.	2100	495	982	58,932
Dec.	No	Records	524	32,500*	Dec.	1750	288	490	30,816
Total	..	..	..	447,576*	Total	..	..	..	491,284

* Estimated

SWAMPY PLAIN RIVER AT KHANCOBAN

Year 1951				Year 1952					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	1000	156	290	17,996	Jan.	548	150	255	15,838
Feb.	No Records		245	13,700*	Feb.	188	104	139	8,050
Mar.	No Records		134	8,300*	Mar.	280	110	180	11,108
Apr.	2960	N.R.	482	28,900*	Apr.	1950	118	478	28,680
May	2900	576	1046	64,854	May	5810	370	828	51,346
June	5420	611	1275	76,490	June	11000	1180	2594	155,666
July	4070	423	974	60,392	July	2000	788	1033	64,076
Aug.	2190	850	1104	68,476	Aug.	1690	769	954	59,130
Sept.	6520	813	1693	101,636	Sept.	7080	759	2132	127,926
Oct.	8640	1170	1942	120,386	Oct.	13000	1200	2830	175,470
Nov.	1860	660	1178	70,662	Nov.	5680	1270	2088	125,286
Dec.	1630	366	579	35,914	Dec.	3420	687	1408	87,306
Total	..	..	..	667,706*	Total	..	..	..	909,882

Year 1953				Year 1954					
Jan.	2640	279	497	30,810	Jan.	No Records		403	25,000*
Feb.	2010	180	305	17,058	Feb.	No Records		334	18,700*
Mar.	165	131	147	9,106	Mar.	1991	120	139	8,614
Apr.	174	115	144	8,668	Apr.	2400	109	256	15,402
May	1630	109	355	22,028	May	780	194	292	18,086
June	799	156	265	15,928	June	1540	192	400	24,010
July	2700	226	670	41,558	July	960	254	420	26,062
Aug.	1930	519	836	51,848	Aug.	20200	258	1131	70,104
Sept.	6160	747	1556	93,340	Sept.	1740	578	856	51,362
Oct.	15100	1360	3099	192,142	Oct.	4130	403	949	58,828
Nov.	No Records		2733	164,000*	Nov.	3290	502	1090	65,402
Dec.	No Records		803	49,800*	Dec.	1800	207	465	28,802
Total	..	..	..	696,286*	Total	..	..	..	410,372*

Year 1955				Year 1956					
Jan.	4170	136	250	15,494	Jan.	4350	327	635	39,394
Feb.	1180	174	291	16,294	Feb.	436	198	289	16,752
Mar.	2120	151	295	18,282	Mar.	4550	186	622	38,558
Apr.	887	122	175	10,526	Apr.	8480	492	1869	112,118
May	1230	233	432	26,778	May	No Records		1447	89,700*
June	No Records		873	52,400*	June	No Records		1567	94,000*
July	No Records		473	29,400*	July	3500	976	1467	90,930
Aug.	No Records		1485	92,100*	Aug.	No Records		1078	66,800
Sept.	9130	1150	2328	139,650	Sept.	No Records		1583	95,000*
Oct.	13160	N.R.	3115	193,000*	Oct.	No Records		2851	177,000*
Nov.	4920	976	1382	82,926	Nov.	7040	1710	2798	167,866
Dec.	1430	541	771	47,812	Dec.	5260	582	1424	88,334
Total	..	..	..	724,662*	Total	..	..	..	1,076,452*

Year 1957				Year 1958					
Jan.	1100	219	413	25,622	Jan.	1380	149	318	19,728
Feb.	540	136	217	12,178	Feb.	750	127	213	11,908
Mar.	2050	128	194	12,044	Mar.	396	104	141	8,764
Apr.	674	108	149	8,924	Apr.	1042	114	192	11,532*
May	798	152	249	15,460	May	8230	133	1113	69,002
June	6840	152	716	42,960	June	10900	337	1047	62,804
July	1820	291	552	34,238	July	5640	246	849	52,668
Aug.	875	250	398	24,664	Aug.	6020	1310	2198	136,264
Sept.	3240	415	866	51,970	Sept.	3770	840	1323	79,368
Oct.	8810	700	1670	103,522	Oct.	10700	1690	3350	207,698
Nov.	1560	433	775	46,492	Nov.	12000	849	1875	112,504
Dec.	4790	200	526	32,622	Dec.	1140	268	498	30,898
Total	..	..	..	410,696	Total	..	..	..	803,138

* Estimated

SWAMPY PLAIN RIVER AT KHANCOBAN

Year 1959				Year 1960					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	558	150	219	13,598	Jan.	626	130	203	12,578
Feb.	1820	138	197	11,024	Feb.	1180	101	163	9,446
Mar.	2340	133	230	14,254	Mar.	590	84	114	7,088
Apr.	777	138	205	12,286	Apr.	1260	84	248	14,902
May	244	113	129	7,970	May	2910	405	1214	75,256
June	2060	102	295	17,696	June	1710	399	708	42,492
July	920	163	330	20,462	July	N. R.	381	1468	91,000*
Aug.	930	228	425	26,348	Aug.	N. R.	772	1244	77,100*
Sept.	10400	474	1337	80,232	Sept.	5800	687	1525	91,524
Oct.	5440	664	1579	97,912	Oct.	6800	1766	2597	161,010
Nov.	6230	384	814	48,864	Nov.	9880	1070	1990	119,398
Dec.	746	177	279	17,292	Dec.	3740	426	1065	66,034
Total	..	..	..	367,938	Total	..	..	..	767,828*

Year 1961				Year 1962					
Jan.	1150	160	348	21,578	Jan.	3800	119	277	17,166
Feb.	280	110	139	7,780	Feb.	715	107	179	10,010
Mar.	1220	119	247	15,318	Mar.	1030	84	112	6,970
Apr.	4260	144	596	35,770	Apr.	396	80	105	6,268
May	755	205	326	20,242	May	474	102	187	11,610
June	1550	200	367	22,034	June	2660	274	920	55,210
July	835	286	451	27,984	July	1390	234	469	29,098
Aug.	664	357	475	29,478	Aug.	985	396	524	32,466
Sept.	2250	522	864	51,846	Sept.	3380	679	1133	67,988
Oct.	5340	656	1636	101,418	Oct.	3570	935	1610	99,812
Nov.	3120	320	702	42,090	Nov.	5200	442	1106	66,330
Dec.	3400	199	387	23,970	Dec.	2010	303	564	34,996
Total	..	..	..	399,508	Total	..	..	..	437,924

Year 1963				Year 1964					
Jan.	1340	163	314	19,496	Jan.	238	105	151	9,346
Feb.	1180	112	187	10,478	Feb.	332	88	122	7,056
Mar.	462	94	132	8,206	Mar.	601	78	120	7,426
Apr.	2390	92	145	8,690	Apr.	1080	76	163	9,780
May	1990	141	513	31,832	May	862	117	217	13,478
June	1420	236	408	24,496	June	1320	125	404	24,214
July	601	242	347	21,496	July	2560	393	1048	64,960
Aug.	2100	347	667	41,334	Aug.	2200	672	963	59,716
Sept.	2110	597	991	59,442	Sept.	5820	1110	2326	139,576
Oct.	3770	1120	1913	118,618	Oct.	6990	2230	3250	201,530
Nov.	5640	414	1056	63,342	Nov.	5500	1160	2480	148,806
Dec.	995	208	428	26,566	Dec.	7620	550	1068	66,198
Total	..	..	..	433,996	Total	..	..	..	752,086

Year 1965				Year 1966					
Jan.	634	189	348	21,552	Jan.	955	95	151	9,370
Feb.	207	103	147	8,222	Feb.	1880	84	182	10,200
Mar.	423	81	104	6,440	Mar.	4610	69	182	11,300
Apr.	381	84	126	7,550	Apr.	236	76	93	5,550
May	442	118	172	10,670	May	1900	99	2110	13,000
June	280	107	157	9,414	June	1050	157	268	16,100
July	299	104	145	8,996	July	2360	155	340	21,000
Aug.	4070	135	707	43,842	Aug.	895	202	431	26,700
Sept.	6320	597	1608	96,464	Sept.	2200	339	751	45,000
Oct.	4840	554	956	59,292	Oct.	5210	583	1201	74,500
Nov.	3420	334	787	47,216	Nov.	2450	390	869	52,100
Dec.	1710	171	433	26,874	Dec.	3160	250	584	36,200
Total	..	..	..	346,532	Total	..	..	..	321,020

* Estimated

SWAMPY PLAIN RIVER AT KHANCOBAN

Year 1967				Year 1968					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	601	117	172	10,700	Jan.	199	35	50	3,130
Feb.	554	73	100	5,570	Feb.	698	27	34	1,980
Mar.	149	60	69	4,280	Mar.	134	26	34	2,130
Apr.	100	54	59	3,530	Apr.	1120	31	89	5,310
May	259	52	61	3,810	May	No Records		392	24,300*
June	90	51	58	3,500	June	2020	150	361	21,600
July	No Records		70	4,350*	July	253	135	160	9,920
Aug.	435	60	123	76,200	Aug.	1430	184	588	36,400
Sept.	554	110	192	11,500	Sept.	831	319	471	28,300
Oct.	2380	189	593	36,800	Oct.	7060	511	1367	84,700
Nov.	307	64	110	6,610	Nov.	5380	432	1171	70,200
Dec.	99	42	53	3,280	Dec.	1070	251	482	29,900
Total	..	..	..	170,130*	Total	..	..	..	317,870*

Year 1969				Year 1970					
Jan.	643	94	178	11,000	Jan.	1790	115	279	17,300
Feb.	467	73	119	6,660	Feb.	1070	87	121	6,790
Mar.	3480	67	207	12,800	Mar.	432	75	105	6,500
Apr.	2080	109	217	13,000	Apr.	4180	89	328	19,700
May	1140	113	255	15,800	May	1580	146	311	19,300
June	750	170	275	16,500	June	659	149	310	18,600
July	3010	178	512	31,700	July	901	314	505	31,300
Aug.	849	241	395	24,500	Aug.	3230	400	728	45,200
Sept.	6740	423	703	42,200	Sept.	1220	554	755	45,300
Oct.	2710	358	646	40,000	Oct.	7690	454	1136	70,400
Nov.	3550	233	492	29,500	Nov.	2780	400	917	55,100
Dec.	840	144	255	15,800	Dec.	1780	184	414	25,700
Total	..	..	..	259,460	Total	..	..	..	361,190

Year 1971				Year 1972					
Jan.	364	119	198	12,300	Jan.	756	140	255	15,800
Feb.	859	96	176	9,880	Feb.	769	121	167	9,710
Mar.	153	73	87	5,390	Mar.	554	80	115	7,110
Apr.	1410	66	161	9,640	Apr.	540	75	122	7,290
May	2340	148	395	24,500	May	506	104	151	9,370
June	609	165	240	14,400	June	312	80	103	6,160
July	255	140	180	11,200	July	420	114	197	12,200
Aug.	1010	129	219	13,600	Aug.	970	154	297	18,400
Sept.	1100	259	431	25,800	Sept.	1790	268	526	31,600
Oct.	3180	554	1006	62,400	Oct.	1020	245	475	29,400
Nov.	4210	423	922	55,300	Nov.	896	130	246	14,700
Dec.	1070	206	378	23,400	Dec.	136	57	83	5,140
Total	..	..	..	267,810	Total	..	..	..	166,880

* Estimated

TOOMA RIVER AT POSSUM POINT

<u>LOCATION:</u>	Latitude 36°00' Longitude 148°07'
<u>PERIOD OF ESTABLISHMENT:</u>	December 1926 to date
<u>COMPLETE YEARS OF COMPUTED RECORDS:</u>	46 years
<u>ZERO OF GAUGE:</u>	R.L. 91.70 Assumed Datum
<u>CATCHMENT AREA:</u>	182 square miles (See Remarks)
<u>CONTROL:</u>	Rock and Gravel
<u>EQUIPMENT:</u>	Automatic Recorder (Float Type) Staff Gauge, range 0 to 15 feet
<u>CURRENT METER OBSERVATIONS:</u>	(a) Number Obtained : 231 (b) Maximum Observation in Cusecs : 5,821 (c) Minimum Observation in Cusecs : 23
<u>MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS:</u>	14,180 cusecs (July, 1942)
<u>MEAN DAILY DISCHARGE FOR 34 YEARS : (PRIOR DIVERSIONS)</u>	467 cusecs
<u>MEAN DAILY DISCHARGE FOR 12 YEARS : (POST DIVERSIONS)</u>	129 cusecs
<u>MEAN ANNUAL DISCHARGE FOR 34 YEARS : (PRIOR DIVERSIONS)</u>	341,000 acre feet
<u>MEAN ANNUAL DISCHARGE FOR 12 YEARS : (POST DIVERSIONS)</u>	93,900 acre feet
<u>REMARKS:</u>	No.1 station was established on 7th December, 1926 and discontinued on 29th May, 1938. No.2 station was established on 25th May 1938 at a site 500 yards upstream of No.1 station and a Float Recorder installed. Flows have been affected by Tooma Reservoir and associated diversion works since January, 1961. The nett effect of these works is that the effective catchment area of the Tooma River at Possum Point is reduced by 59 square miles to 123 square miles.

TOOMA RIVER AT POSSUM POINT

Year 1927				Year 1928					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	668	140	211	13,084	Jan.	116	74	85	5,396
Feb.	286	106	125	7,024	Feb.	770	74	152	8,840
Mar.	235	89	127	6,382	Mar.	1980	73	193	11,952
Apr.	121	89	100	5,990	Apr.	1500	146	277	16,612
May	405	98	196	12,159	May	900	176	343	21,246
June	610	167	241	14,466	June	810	270	454	27,266
July	2110	200	547	33,914	July	1390	248	390	24,162
Aug.	668	275	390	24,184	Aug.	580	176	353	21,882
Sept.	1320	431	644	38,620	Sept.	2240	510	620	37,196
Oct.	2520	535	1183	73,340	Oct.	2590	625	911	56,458
Nov.	770	210	347	20,842	Nov.	730	210	398	23,882
Dec.	249	103	165	10,260	Dec.	210	116	187	10,324
Total	..	..	..	260,265	Total	..	..	..	265,216

Year 1929				Year 1930					
Jan.	116	74	85	5,276	Jan.	263	77	119	7,382
Feb.	485	66	83	4,642	Feb.	92	78	89	4,964
Mar.	1130	59	85	5,296	Mar.	210	56	77	4,750
Apr.	1980	66	175	10,600	Apr.	352	66	102	6,148
May	292	92	192	11,898	May	1230	82	198	12,282
June	485	176	292	17,498	June	855	116	346	20,738
July	249	168	209	12,946	July	1390	116	796	49,354
Aug.	2450	160	474	29,378	Aug.	1330	810	1081	67,000
Sept.	2910	387	899	53,912	Sept.	1280	436	727	43,606
Oct.	1620	340	586	36,318	Oct.	3680	735	1876	116,290
Nov.	292	229	273	16,374	Nov.	1440	484	730	43,788
Dec.	373	118	227	14,082	Dec.	1210	425	619	38,360
Total	..	..	..	218,220	Total	..	..	..	414,662

Year 1931				Year 1932					
Jan.	960	197	369	22,850	Jan.	159	72	101	6,268
Feb.	247	110	157	8,802	Feb.	138	62	86	4,978
Mar.	2260	72	335	20,764	Mar.	1160	62	240	14,870
Apr.	1310	152	323	19,370	Apr.	1540	197	430	25,774
May	3130	152	446	27,634	May	265	152	197	12,218
June	7400	152	2051	123,086	June	634	182	317	19,038
July	1010	665	854	52,930	July	735	247	336	20,814
Aug.	1260	544	784	48,636	Aug.	4850	213	765	47,440
Sept.	1660	634	1041	62,438	Sept.	2910	634	1256	75,344
Oct.	735	484	631	39,142	Oct.	1010	484	642	39,776
Nov.	1310	425	643	38,570	Nov.	529	265	382	22,948
Dec.	544	124	293	18,142	Dec.	265	167	215	13,306
Total	..	..	..	482,364	Total	..	..	..	302,774

Year 1933				Year 1934					
Jan.	152	110	125	7,772	Jan.	970	117	329	20,396
Feb.	110	72	84	4,706	Feb.	337	111	148	8,292
Mar.	213	62	77	4,782	Mar.	159	93	108	6,692
Apr.	375	72	100	5,980	Apr.	396	91	167	10,004
May	634	99	186	11,552	May	183	99	123	7,644
June	281	175	207	12,440	June	270	93	117	6,994
July	4950	175	609	37,784	July	4950	117	521	32,300
Aug.	386	229	288	17,872	Aug.	2190	314	622	38,586
Sept.	4200	590	1080	64,802	Sept.	2980	520	801	48,060
Oct.	970	281	522	32,368	Oct.	7400	506	1273	78,940
Nov.	412	159	212	12,734	Nov.	3130	395	924	55,444
Dec.	695	159	273	16,896	Dec.	2400	369	769	47,690
Total	..	..	..	229,688	Total	..	..	..	361,042

TOOMA RIVER AT POSSUM POINT

Month	Year 1935 Discharge in Cusecs			Discharge for Month Acre Feet	Month	Year 1936 Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	1850	190	336	20,830	Jan.	970	111	189	11,742
Feb.	342	131	184	10,304	Feb.	421	105	155	9,006
Mar.	369	131	168	10,402	Mar.	595	100	195	12,086
Apr.	1420	118	456	27,368	Apr.	342	94	174	10,426
May	1120	342	432	26,788	May	270	118	141	8,756
June	449	250	324	19,468	June	449	160	219	13,134
July	698	230	375	23,288	July	1360	304	616	38,196
Aug.	2260	421	888	55,066	Aug.	4380	506	1535	95,172
Sept.	3360	734	1276	76,544	Sept.	1360	662	882	52,946
Oct.	3060	506	1096	67,974	Oct.	920	476	635	39,362
Nov.	645	317	487	29,252	Nov.	662	270	440	26,418
Dec.	595	190	268	16,638	Dec.	2050	270	555	34,392
Total	..	..	..	383,922	Total	..	..	..	351,636

Month	Year 1937			Discharge for Month Acre Feet	Month	Year 1938			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	4020	118	566	35,092	Jan.	342	118	168	10,428
Feb.	342	175	244	13,654	Feb.	270	111	139	7,832
Mar.	342	145	171	10,592	Mar.	118	73	91	5,648
Apr.	250	105	133	8,006	Apr.	292	58	86	5,136
May	395	131	174	10,776	May	160	85	109	6,762
June	210	118	151	9,072	June	340	105	185	11,118
July	421	145	161	10,014	July	290	152	208	12,890
Aug.	595	190	284	17,588	Aug.	642	174	293	18,154
Sept.	5450	270	1165	69,886	Sept.	690	327	420	25,176
Oct.	1070	421	543	33,654	Oct.	327	197	249	15,438
Nov.	408	210	296	17,784	Nov.	340	105	188	11,300
Dec.	270	167	201	12,430	Dec.	340	67	95	5,898
Total	..	..	..	248,548	Total	..	..	..	135,780

Month	Year 1939			Discharge for Month Acre Feet	Month	Year 1940			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	72	43	57	3,520	Jan.	557	105	176	10,932
Feb.	423	43	62	3,494	Feb.	174	85	97	5,614
Mar.	2710	67	330	20,442	Mar.	105	62	74	4,598
Apr.	394	197	270	16,182	Apr.	453	62	220	13,194
May	366	152	213	13,204	May	453	128	245	15,172
June	2070	152	493	29,616	June	423	197	263	15,766
July	1410	266	440	27,266	July	394	174	209	12,940
Aug.	1720	353	914	56,664	Aug.	1120	220	387	23,664
Sept.	1410	1120	1206	72,400	Sept.	1260	266	435	26,096
Oct.	6100	970	1713	106,166	Oct.	314	152	211	13,104
Nov.	1780	408	867	52,072	Nov.	340	128	170	10,198
Dec.	408	197	299	18,574	Dec.	798	105	278	17,220
Total	..	..	..	419,600	Total	..	..	..	168,498

Month	Year 1941			Discharge for Month Acre Feet	Month	Year 1942			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	1720	220	514	31,842	Jan.	197	72	95	5,856
Feb.	266	128	168	9,428	Feb.	105	62	69	3,872
Mar.	243	116	143	8,874	Mar.	105	52	60	3,716
Apr.	116	85	92	5,536	Apr.	72	52	61	3,650
May	340	72	115	7,118	May	1660	174	593	36,882
June	423	105	255	15,296	June	1720	483	725	43,514
July	1460	220	463	28,722	July	4180	394	954	59,138
Aug.	366	243	280	17,382	Aug.	1690	366	809	50,156
Sept.	1260	314	635	38,126	Sept.	2010	820	1266	75,970
Oct.	1510	290	633	39,232	Oct.	2790	394	1055	65,432
Nov.	340	174	241	14,452	Nov.	2070	340	553	33,170
Dec.	340	140	196	12,160	Dec.	518	152	299	18,524
Total	..	..	..	228,168	Total	..	..	..	399,880

TOOMA RIVER AT POSSUM POINT

Year 1943				Year 1944					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	1070	152	255	15,816	Jan.	174	78	119	7,360
Feb.	220	128	151	8,436	Feb.	72	43	67	3,864
Mar.	197	85	108	6,692	Mar.	78	62	71	4,396
Apr.	1720	85	410	24,592	Apr.	394	62	119	7,154
May	557	197	339	21,032	May	742	128	383	23,766
June	394	197	237	14,694	June	518	243	323	19,398
July	860	366	392	24,308	July	314	174	243	15,044
Aug.	518	266	339	20,992	Aug.	314	152	200	12,416
Sept.	1360	366	751	45,060	Sept.	290	197	240	14,382
Oct.	2560	742	1299	80,550	Oct.	340	152	229	14,216
Nov.	1120	340	498	29,878	Nov.	220	85	175	10,510
Dec.	340	152	232	14,270	Dec.	140	95	111	6,880
Total	..	..	..	306,320	Total	..	..	..	139,386

Year 1945				Year 1946					
Jan.	220	62	105	6,510	Jan.	197	52	113	7,006
Feb.	197	66	105	5,882	Feb.	518	62	189	10,438
Mar.	72	52	61	3,606	Mar.	920	243	389	24,136
Apr.	266	22	89	5,310	Apr.	366	197	255	15,308
May	95	43	72	4,446	May	423	152	184	11,434
June	1410	62	226	13,612	June	598	174	270	16,204
July	980	197	238	14,748	July	2710	642	1296	80,456
Aug.	1410	220	700	43,452	Aug.	2250	438	786	48,726
Sept.	1310	453	671	40,268	Sept.	1310	483	887	53,256
Oct.	2070	278	632	39,172	Oct.	2710	890	1320	81,900
Nov.	642	255	410	24,644	Nov.	1070	394	675	40,508
Dec.	243	152	194	12,004	Dec.	518	220	300	18,570
Total	..	..	..	213,654	Total	..	..	..	407,942

Year 1947				Year 1948					
Jan.	453	105	170	10,518	Jan.	690	237	390	24,150
Feb.	197	72	131	7,310	Feb.	798	197	258	14,962
Mar.	1720	85	227	14,068	Mar.	366	100	175	10,876
Apr.	423	85	165	9,912	Apr.	266	84	157	9,414
May	340	85	136	8,448	May	2010	89	572	35,472
June	642	95	311	18,654	June	2790	249	556	33,400
July	1410	243	643	39,878	July	423	266	319	19,776
Aug.	1360	340	638	39,572	Aug.	423	266	317	19,652
Sept.	9400	518	1382	82,932	Sept.	980	327	686	41,154
Oct.	1720	690	1328	82,302	Oct.	1510	518	864	53,564
Nov.	2430	366	796	47,740	Nov.	2630	340	965	57,912
Dec.	1460	366	703	43,582	Dec.	518	163	272	16,866
Total	..	..	..	404,916	Total	..	..	..	337,198

Year 1949				Year 1950					
Jan.	262	85	178	11,028	Jan.	No Records		10,500*	
Feb.	220	35	110	6,144	Feb.	No Records		9,600*	
Mar.	340	35	118	7,330	Mar.	No Records		20,100*	
Apr.	220	10	86	5,158	Apr.	No Records		17,800*	
May	243	28	117	7,274	May	920	152	252	15,596
June	197	35	105	6,286	June	920	152	435	26,104
July	557	52	211	13,136	July	No Records		28,900*	
Aug.	920	105	345	21,392	Aug.	1120	366	585	36,296
Sept.	598	197	346	20,772	Sept.	No Records		52,700*	
Oct.	2430	340	1120	69,428	Oct.	2070	669	921	57,144
Nov.	No Records			53,800*	Nov.	2370	361	785	47,076
Dec.	394	160	270	16,740	Dec.	598	220	364	22,578
Total	..	..	..	238,488*	Total	..	..	..	344,394*

* Estimated

TOOMA RIVER AT POSSUM POINT

Year 1951				Year 1952					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	1620	182	270	16,728	Jan.	217	108	150	9,312
Feb.	361	119	173	9,674	Feb.	130	89	101	5,840
Mar.	213	45	126	7,800	Mar.	572	81	116	7,184
Apr.	2190	60	273	16,314	Apr.	670	86	220	13,170
May	2490	220	682	42,300	May	2670	247	626	38,816
June	1870	479	744	44,612	June	7450	1040	1925	115,540
July	2310	385	756	46,862	July	1730	621	882	54,702
Aug.	2410	605	859	53,264	Aug.	1390	666	868	53,830
Sept.	2310	730	1034	62,052	Sept.	4330	666	1507	90,428
Oct.	1560	605	856	53,110	Oct.	5090	695	1279	79,348
Nov.	870	323	543	32,594	Nov.	2660	491	1125	67,500
Dec.	712	213	316	19,568	Dec.	2660	471	1025	63,570
Total	..	..	..	404,878	Total	..	..	..	599,240

Year 1953				Year 1954					
Jan.	1040	214	354	21,940	Jan.	610	156	228	14,114
Feb.	1340	165	257	14,366	Feb.	513	132	188	10,556
Mar.	165	111	138	8,584	Mar.	132	81	104	6,430
Apr.	258	106	121	7,268	Apr.	930	90	160	9,588
May	1260	102	212	13,122	May	482	149	207	12,810
June	910	140	303	18,168	June	1120	165	246	14,736
July	1670	210	575	35,634	July	984	227	343	21,292
Aug.	1620	420	735	45,544	Aug.	6750	252	628	38,916
Sept.	7440	666	1254	75,246	Sept.	1260	311	485	29,092
Oct.	7660	1150	2191	135,828	Oct.	3070	214	451	27,976
Nov.	2100	469	774	46,446	Nov.	1840	416	708	42,506
Dec.	1360	235	389	24,118	Dec.	820	222	384	23,808
Total	..	..	..	446,264	Total	..	..	..	251,824

Year 1955				Year 1956					
Jan.	1670	142	208	12,910	Jan.	1660	214	386	23,934
Feb.	678	137	186	10,432	Feb.	280	156	208	12,064
Mar.	504	106	154	9,578	Mar.	1490	156	404	25,024
Apr.	270	93	115	6,874	Apr.	3850	348	1087	65,232
May	336	132	194	12,020	May	2850	513	1042	64,622
June	2730	162	529	31,734	June	2260	849	1255	75,325
July	1250	280	442	27,416	July	2480	920	1263	78,330
Aug.	3950	424	1271	78,828	Aug.	1800	736	1006	62,394
Sept.	5420	1030	1699	101,936	Sept.	3070	720	1355	81,282
Oct.	7310	979	1766	109,504	Oct.	5970	1510	2278	141,278
Nov.	1330	500	806	48,384	Nov.	3690	610	1274	76,438
Dec.	820	340	466	28,908	Dec.	1450	185	329	20,412
Total	..	..	..	478,524	Total	..	..	..	726,335

Year 1957				Year 1958					
Jan.	232	156	190	11,810	Jan.	820	124	212	13,116
Feb.	284	100	148	8,294	Feb.	336	98	136	7,598
Mar.	770	93	126	7,842	Mar.	176	74	93	5,792
Apr.	263	81	104	6,218	Apr.	770	74	105	6,294
May	742	132	176	10,930	May	3640	79	618	38,290
June	2970	106	341	20,460	June	2170	270	489	29,350
July	1270	240	406	25,156	July	3260	227	614	38,052
Aug.	794	240	370	22,938	Aug.	3380	930	1589	98,548
Sept.	1710	404	666	39,932	Sept.	2320	725	1046	62,772
Oct.	1580	469	767	47,530	Oct.	3530	979	1654	102,554
Nov.	714	240	359	21,512	Nov.	2250	416	692	41,530
Dec.	2070	156	263	16,332	Dec.	570	200	301	18,648
Total	..	..	..	238,954	Total	..	..	..	462,544

TOOMA RIVER AT POSSUM POINT

Year 1959				Year 1960					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	304	119	159	9,878	Jan.	395	112	153	9,496
Feb.	1270	101	143	8,034	Feb.	340	90	117	6,780
Mar.	382	93	139	8,622	Mar.	543	74	102	6,320
Apr.	451	94	132	7,906	Apr.	665	82	180	10,790
May	185	86	96	5,952	May	2420	333	996	61,736
June	360	91	191	11,488	June	1380	399	640	38,384
July	376	132	216	13,376	July	6440	376	1173	72,720
Aug.	1060	202	408	25,304	Aug.	2960	733	1067	66,156
Sept.	2080	407	730	43,806	Sept.	3510	684	1362	81,694
Oct.	1240	430	642	39,830	Oct.	2320	905	1452	90,052
Nov.	1220	253	385	23,112	Nov.	2750	456	768	46,064
Dec.	376	151	218	13,542	Dec.	1300	224	404	25,020
Total	..	..	..	210,850	Total	..	..	..	515,212

Year 1961				Year 1962					
Jan.	880	92	247	15,320	Jan.	242	35	55	3,438
Feb.	92	62	78	4,386	Feb.	132	30	41	2,310
Mar.	332	62	93	5,786	Mar.	55	27	30	1,884
Apr.	498	62	140	8,370	Apr.	62	25	28	1,674
May	135	53	91	5,658	May	143	35	61	3,786
June	306	56	104	6,222	June	477	79	145	8,682
July	270	112	161	9,996	July	295	70	105	6,524
Aug.	332	132	167	10,382	Aug.	295	111	153	9,516
Sept.	295	132	163	9,780	Sept.	313	111	143	8,568
Oct.	236	83	114	7,048	Oct.	1910	111	207	12,820
Nov.	133	53	74	4,414	Nov.	373	71	112	6,704
Dec.	456	42	73	4,498	Dec.	136	63	82	5,098
Total	..	..	..	91,860	Total	..	..	..	71,004

Year 1963				Year 1964					
Jan.	165	36	59	3,654	Jan.	86	22	39	2,404
Feb.	71	30	42	2,336	Feb.	62	20	26	1,508
Mar.	71	25	35	2,190	Mar.	111	22	27	1,644
Apr.	219	25	33	1,962	Apr.	84	21	28	1,698
May	242	26	59	3,638	May	326	22	35	2,154
June	174	40	57	3,392	June	348	31	81	4,882
July	259	50	122	7,580	July	1510	81	375	23,300
Aug.	594	113	192	11,920	Aug.	694	269	366	22,700
Sept.	469	165	213	12,778	Sept.	1050	280	560	33,600
Oct.	456	103	158	9,800	Oct.	1360	328	744	46,100
Nov.	566	77	128	7,706	Nov.	627	129	218	13,100
Dec.	148	50	74	4,606	Dec.	481	91	134	8,290
Total	..	..	..	71,562	Total	..	..	..	161,380

Year 1965				Year 1966					
Jan.	95	47	62	3,820	Jan.	113	29	40	2,450
Feb.	47	31	38	2,140	Feb.	279	28	40	2,230
Mar.	120	28	31	1,960	Mar.	1520	28	63	3,880
Apr.	122	28	37	2,240	Apr.	122	31	37	2,240
May	171	31	42	2,590	May	252	36	58	3,600
June	134	26	39	2,320	June	373	57	93	5,600
July	90	28	43	2,660	July	332	57	118	7,290
Aug.	300	46	128	7,950	Aug.	414	91	186	11,500
Sept.	270	80	126	7,530	Sept.	612	157	291	17,500
Oct.	667	66	95	5,900	Oct.	660	157	254	15,770
Nov.	473	66	121	7,250	Nov.	539	132	220	13,160
Dec.	147	46	71	4,400	Dec.	895	103	180	11,150
Total	..	..	..	50,760	Total	..	..	..	96,370

TOOMA RIVER AT POSSUM POINT

Year 1967				Year 1968					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	273	61	84	5,200	Jan.	127	18	28	1,740
Feb.	93	42	53	2,950	Feb.	18	8	11	638
Mar.	58	35	41	2,520	Mar.	78	4	17	1,030
Apr.	43	32	35	2,120	Apr.	65	13	27	1,600
May	137	32	39	2,410	May	460	35	109	6,760
June	50	33	36	2,160	June	684	87	158	9,470
July	147	35	48	2,970	July	213	82	106	6,550
Aug.	165	32	62	3,860	Aug.	811	111	295	18,300
Sept.	306	48	77	4,610	Sept.	344	185	244	14,600
Oct.	107	35	51	3,180	Oct.	1780	239	425	26,400
Nov.	35	21	27	1,630	Nov.	1280	176	420	25,200
Dec.	26	17	20	1,230	Dec.	534	90	150	9,290
Total	..	..	..	34,840	Total	..	..	..	121,578

Year 1969				Year 1970					
Jan.	129	55	79	4,900	Jan.	396	50	101	6,230
Feb.	116	38	50	2,790	Feb.	115	38	48	2,670
Mar.	179	37	58	3,610	Mar.	180	33	47	2,910
Apr.	206	44	59	3,510	Apr.	543	34	74	4,460
May	310	47	98	6,090	May	410	67	124	7,710
June	348	87	127	7,630	June	589	75	189	11,300
July	575	94	187	11,600	July	590	166	259	16,100
Aug.	495	137	193	12,000	Aug.	1540	210	439	27,200
Sept.	985	135	259	15,600	Sept.	1160	348	503	30,200
Oct.	392	104	155	9,630	Oct.	1410	194	318	19,700
Nov.	1820	106	185	11,100	Nov.	935	164	323	19,400
Dec.	227	67	99	6,120	Dec.	300	100	140	8,660
Total	..	..	..	94,580	Total	..	..	..	156,540

Year 1971				Year 1972					
Jan.	110	63	83	5,200	Jan.	368	82	122	7,540
Feb.	167	43	63	3,500	Feb.	256	60	80	4,630
Mar.	86	38	48	3,000	Mar.	104	43	53	3,290
Apr.	201	34	54	3,230	Apr.	279	39	63	3,800
May	646	65	123	7,610	May	227	51	64	3,990
June	340	96	140	8,400	June	172	44	52	3,120
July	365	88	117	7,250	July	268	60	128	7,910
Aug.	1320	106	184	11,400	Aug.	526	110	186	11,500
Sept.	626	162	294	18,300	Sept.	580	124	186	11,100
Oct.	552	198	257	15,400	Oct.	146	70	97	6,040
Nov.	768	145	240	14,400	Nov.	198	51	72	4,300
Dec.	303	102	141	8,720	Dec.	50	31	40	2,480
Total	..	..	..	106,410	Total	..	..	..	69,700

MURRAY RIVER AT DOCTORS POINT (ALBURY)

<u>LOCATION:</u>	Latitude 36°07' Longitude 146°56'
<u>PERIOD OF ESTABLISHMENT:</u>	Albury - January 1877 to date (See Remarks) Doctors Point - August 1929 to date
<u>COMPLETE YEARS OF COMPUTED RECORDS:</u>	96 years
<u>ZERO OF GAUGE:</u>	R.L. 487.60 Water Conservation Datum (Albury) R.L. 490.86 Water Conservation Datum (Doctors Point)
<u>CATCHMENT AREA:</u>	6.650 square miles (Albury) 6,470 square miles (Doctors Point)
<u>CONTROL:</u>	Gravel. Subject to alteration
<u>EQUIPMENT:</u>	Automatic Recorder (Float Type) Staff Gauge, range 0 to 20 feet
<u>CURRENT METER OBSERVATIONS:</u>	(a) Number Obtained : 548 (b) Maximum Observation in Cusecs : 37,293 (c) Minimum Observation in Cusecs : 375
<u>MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS:</u>	104,000 cusecs (October, 1917) (Albury)
<u>MEAN DAILY DISCHARGE FOR 96 YEARS:</u>	5,220 cusecs
<u>MEAN ANNUAL DISCHARGE FOR 96 YEARS:</u>	3,813,000 acre feet
<u>REMARKS:</u>	<p>Prior to the establishment of the gauging station on the Murray River at Doctors Point in 1929, flow data from the Murray River at Albury was collected since 1877. Albury is 5½ miles downstream of Doctors Point and was established in 1867. Records are not considered as reliable as those from Doctors Point.</p> <p>The Murray River at Doctors Point was discontinued on the 31st December, 1932 and re-established on the 19th March, 1937 when a float recorder was installed. During this period flow data from the station at Albury was used.</p> <p>Records include controlled releases from Hume Reservoir since February 1929.</p> <p>From January 1961 flows have been affected by diversions to and from the Upper Murray Valley under the operation of the Snowy Mountains Scheme.</p>

MURRAY RIVER AT ALBURY

Year 1877				Year 1878					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	2850	1380	1598	98,267	Jan.	1380	833	1175	72,264
Feb.	1380	970	1135	63,033	Feb.	2630	698	1742	96,754
Mar.	1970	970	1187	72,988	Mar.	5840	1250	2655	163,232
Apr.	2850	1110	1820	108,272	Apr.	6080	2200	3062	182,207
May	9400	1380	3277	201,467	May	5590	2200	3512	215,926
June	17900	4670	7766	462,095	June	8390	2200	4255	253,196
July	4120	2420	3111	191,306	July	16500	2780	6294	387,019
Aug.	3590	2200	2777	170,773	Aug.	16500	6080	8749	537,951
Sept.	8390	2270	4398	261,683	Sept.	19200	7050	10112	601,712
Oct.	6080	2630	4274	262,780	Oct.	29000	8630	14699	903,814
Nov.	2630	1740	2188	130,209	Nov.	48700	5100	16583	986,767
Dec.	2630	1380	1769	108,793	Dec.	4630	2420	3231	198,639
Total	..	..	..	2,131,666	Total	..	..	..	4,599,481

Year 1879				Year 1880					
Jan.	2420	1380	1915	117,753	Jan.	5100	1510	2506	154,112
Feb.	3940	1380	1849	102,690	Feb.	2420	1340	1634	94,003
Mar.	3850	1250	2147	132,024	Mar.	3070	1380	2072	127,428
Apr.	3500	1250	1771	105,366	Apr.	13800	1890	3963	235,821
May	2340	1380	1914	117,665	May	10600	3770	6210	381,828
June	7500	2200	3703	220,368	June	53600	5100	8574	510,159
July	5100	2850	3715	228,450	July	23600	4890	8528	524,334
Aug.	7370	3850	6072	373,353	Aug.	12300	4420	7724	474,946
Sept.	15800	7920	10597	630,571	Sept.	16500	7710	9797	582,946
Oct.	38000	7200	16065	987,788	Oct.	9400	5100	7153	439,791
Nov.	15500	6570	7903	470,261	Nov.	7510	3850	4787	284,846
Dec.	7230	2850	4362	268,211	Dec.	9580	2050	3071	188,811
Total	..	..	..	3,754,500	Total	..	..	..	3,999,025

Year 1881				Year 1882					
Jan.	1890	1340	1563	96,113	Jan.	2200	1150	1651	101,490
Feb.	3067	1380	1696	94,185	Feb.	1110	352	687	38,142
Mar.	3590	1200	1454	89,379	Mar.	487	333	443	27,209
Apr.	5590	1380	2375	141,338	Apr.	1660	408	1024	60,938
May	8630	1380	4050	249,001	May	3330	1290	1897	116,628
June	5180	2630	3889	231,412	June	2710	1820	2186	130,052
July	3330	2200	2859	175,815	July	6240	2120	3376	207,590
Aug.	12500	2050	3828	235,394	Aug.	14500	3590	5716	351,455
Sept.	6730	3770	4826	287,187	Sept.	21500	6240	9936	591,253
Oct.	7920	3850	5603	344,505	Oct.	12000	6080	8486	521,786
Nov.	6000	3070	4223	251,282	Nov.	21000	2710	4632	275,599
Dec.	4740	2050	2781	171,015	Dec.	7850	1380	3721	228,770
Total	..	..	..	2,366,626	Total	..	..	..	2,650,912

Year 1883				Year 1884					
Jan.	4120	970	1618	99,487	Jan.	3070	1150	1673	102,833
Feb.	1340	1020	1160	64,399	Feb.	1890	1060	1311	75,437
Mar.	1290	970	1111	66,089	Mar.	1060	698	871	53,524
Apr.	1410	1110	1256	74,743	Apr.	2200	698	1017	60,510
May	1590	1060	1250	76,856	May	2630	1200	1731	106,457
June	9490	1820	4121	245,216	June	4670	1340	2461	146,424
July	6890	2200	3600	221,373	July	4120	1340	2528	155,429
Aug.	1580	2850	6727	413,643	Aug.	3770	1740	2543	156,347
Sept.	8630	5030	7280	433,174	Sept.	6570	3330	4686	278,830
Oct.	21500	6080	9478	582,780	Oct.	6970	3420	4691	288,411
Nov.	7710	4420	6373	379,236	Nov.	6080	2780	3999	237,977
Dec.	4320	1660	2854	175,494	Dec.	3590	1380	2351	144,525
Total	..	..	..	2,832,490	Total	..	..	..	1,806,704

MURRAY RIVER AT ALBURY

Month	Year 1885			Discharge for Month Acre Feet	Month	Year 1886			Discharge for Month Acre Feet
	Discharge in Cusecs					Discharge in Cusecs			
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	3120	630	1264	77,694	Jan.	2070	720	1137	69,911
Feb.	2630	670	1257	69,831	Feb.	3440	840	1574	85,913
Mar.	1250	560	754	46,392	Mar.	1430	290	745	45,827
Apr.	1220	840	1039	61,840	Apr.	1220	475	626	37,278
May	1360	840	1064	65,400	May	2630	630	1087	66,847
June	6800	1090	2757	164,034	June	1830	840	1161	69,078
July	2550	1430	1780	109,402	July	2390	870	1315	80,857
Aug.	4820	1430	2624	161,335	Aug.	11600	2230	5341	331,150
Sept.	28200	2800	10942	656,526	Sept.	22000	5850	9952	597,120
Oct.	11500	3200	6303	390,780	Oct.	14900	5260	8169	506,480
Nov.	5730	1220	2678	159,354	Nov.	12000	3120	5978	358,660
Dec.	3440	1030	1525	93,746	Dec.	9300	2390	4426	272,127
Total	..	..	..	2,056,334	Total	..	..	..	2,521,248

Month	Year 1887			Discharge for Month Acre Feet	Month	Year 1888			Discharge for Month Acre Feet
	Discharge in Cusecs					Discharge in Cusecs			
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	3120	1290	1754	107,855	Jan.	10700	2710	4965	305,233
Feb.	2800	840	1324	73,539	Feb.	2870	1670	2238	128,746
Mar.	7670	1910	3411	209,692	Mar.	2150	1360	1678	103,175
Apr.	5610	2150	3238	192,629	Apr.	1910	1030	1356	80,688
May	2960	1910	2280	140,148	May	3360	1030	1787	109,888
June	10300	2390	5348	318,182	June	10100	1590	4404	262,043
July	22000	7800	15430	956,680	July	10500	3120	5550	341,195
Aug.	26400	6800	13597	843,020	Aug.	5850	3840	4438	272,802
Sept.	25900	11300	17585	1,055,060	Sept.	17500	4490	8925	535,500
Oct.	17200	10500	14221	881,720	Oct.	10500	3360	5846	359,359
Nov.	32600	7670	16006	960,340	Nov.	3280	1430	2273	135,222
Dec.	11800	3920	7078	438,820	Dec.	2960	1030	1605	98,674
Total	..	..	..	6,177,685	Total	..	..	..	2,732,525

Month	Year 1889			Discharge for Month Acre Feet	Month	Year 1890			Discharge for Month Acre Feet
	Discharge in Cusecs					Discharge in Cusecs			
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	8060	1160	2966	182,347	Jan.	2710	1160	1847	113,576
Feb.	6560	1090	2192	121,736	Feb.	2390	1030	1346	74,779
Mar.	1030	590	810	49,793	Mar.	2070	970	1311	80,589
Apr.	3120	590	1348	80,192	Apr.	2150	1090	1308	79,796
May	14900	1090	5627	348,900	May	4160	970	1720	105,733
June	25900	4910	17137	1,028,200	June	21000	3040	9667	580,040
July	18500	6200	10813	670,420	July	18300	5140	8767	543,560
Aug.	17500	5490	11646	722,060	Aug.	11000	7540	9422	584,180
Sept.	44000	14100	23280	1,396,800	Sept.	14300	9440	11696	701,780
Oct.	20600	10100	14305	886,900	Oct.	17500	13700	15735	975,600
Nov.	13900	5970	9359	561,560	Nov.	16900	8600	12403	744,180
Dec.	13100	2800	5255	525,780	Dec.	8870	4000	5664	348,185
Total	..	..	..	6,574,688	Total	..	..	..	4,931,998

Month	Year 1891			Discharge for Month Acre Feet	Month	Year 1892			Discharge for Month Acre Feet
	Discharge in Cusecs					Discharge in Cusecs			
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	25400	4080	12433	770,860	Jan.	2150	1030	1402	86,181
Feb.	7280	2870	4179	232,021	Feb.	1030	630	789	45,411
Mar.	2870	1590	2080	127,894	Mar.	900	630	710	43,626
Apr.	4000	1750	2418	143,876	Apr.	1670	560	920	54,770
May	2710	1750	2117	130,134	May	5850	1160	1843	113,318
June	13300	1670	3486	209,160	June	8060	2070	4165	247,756
July	24500	8060	13305	824,960	July	8730	2870	4296	264,096
Aug.	14900	5260	8359	518,240	Aug.	10100	2550	4938	303,568
Sept.	7670	4400	5827	346,668	Sept.	12000	5490	9065	543,920
Oct.	8730	4160	5321	327,086	Oct.	16700	7670	10236	634,620
Nov.	7800	4000	5212	310,052	Nov.	29000	5380	13599	815,960
Dec.	4080	1750	2932	180,235	Dec.	6200	2630	4089	251,396
Total	..	..	..	4,121,186	Total	..	..	..	3,404,622

MURRAY RIVER AT ALBURY

Year 1893				Year 1894					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	2630	1220	1876	115,351	Jan.	16200	2230	5239	324,820
Feb.	1220	670	935	51,915	Feb.	2800	1430	1896	105,268
Mar.	2750	670	936	57,576	Mar.	5850	1430	2324	142,856
Apr.	1670	780	1145	68,116	Apr.	9730	1910	3919	233,141
May	11460	1360	2037	126,318	May	5140	2390	3363	206,767
June	16100	3600	7946	476,780	June	20000	3520	11265	675,900
July	17500	4820	10643	659,880	July	24900	7160	15760	977,140
Aug.	10800	5380	7409	455,446	Aug.	21000	11200	15865	983,600
Sept.	18500	9590	15000	899,980	Sept.	31000	14900	19887	1,193,200
Oct.	22400	9440	16820	1,042,820	Oct.	26400	11800	18511	1,147,660
Nov.	13100	4910	8354	501,220	Nov.	16500	4570	9204	552,240
Dec.	7930	2390	3415	209,960	Dec.	8870	3280	4258	261,736
Total	..	..	..	4,665,362	Total	..	..	..	6,804,328

Year 1895				Year 1896					
Jan.	4490	1910	2670	164,113	Jan.	1830	970	1224	75,235
Feb.	3040	1590	1936	107,518	Feb.	2710	720	1098	63,168
Mar.	2960	1220	1616	99,358	Mar.	2630	780	1199	73,728
Apr.	2310	1290	1604	95,422	Apr.	4570	900	2433	144,769
May	4820	1830	2438	149,865	May	4730	2070	2792	171,609
June	15100	2390	5447	326,820	June	5140	1910	2768	164,678
July	8190	3200	4141	254,587	July	6090	2470	3767	231,566
Aug.	17200	3120	5988	371,240	Aug.	5140	2070	2386	146,683
Sept.	24500	7540	14447	866,800	Sept.	11500	3840	6406	384,380
Oct.	12500	4570	8377	519,400	Oct.	8870	3360	5498	337,982
Nov.	4490	2150	3055	181,732	Nov.	5850	1830	2862	170,250
Dec.	3360	1430	2198	135,102	Dec.	3120	1220	2037	125,256
Total	..	..	..	3,271,957	Total	..	..	..	2,089,304

Year 1897				Year 1898					
Jan.	10500	900	3248	199,648	Jan.	1360	490	760	46,729
Feb.	5140	1290	2253	125,088	Feb.	6090	390	1581	87,797
Mar.	2550	1160	1580	97,127	Mar.	1430	560	811	49,853
Apr.	1160	780	896	53,303	Apr.	1670	560	946	56,258
May	1290	780	929	57,110	May	5020	720	1484	91,238
June	5380	970	1701	101,212	June	12000	1590	3881	232,860
July	4730	2470	3002	184,568	July	6560	2150	3007	184,875
Aug.	8600	2800	4657	286,276	Aug.	13100	4160	6642	408,310
Sept.	19100	5850	9733	584,000	Sept.	14300	4910	7778	466,720
Oct.	12200	4650	7506	465,380	Oct.	12700	3920	6344	393,320
Nov.	4400	1910	3238	192,609	Nov.	15300	4160	8056	483,340
Dec.	2150	1030	1433	88,105	Dec.	4160	1670	2688	165,253
Total	..	..	..	2,434,426	Total	..	..	..	2,666,553

Year 1899				Year 1900					
Jan.	2630	1090	1483	91,198	Jan.	1910	630	957	58,855
Feb.	1160	560	786	43,666	Feb.	720	355	473	26,275
Mar.	2800	630	1119	68,810	Mar.	5850	355	1853	113,943
Apr.	3600	1510	2443	145,364	Apr.	7410	2070	3701	220,203
May	4240	1510	2211	135,925	May	8060	2150	3885	238,833
June	15500	2310	5503	330,220	June	18300	2870	5724	343,460
July	9300	2870	4647	285,652	July	18300	4490	8643	535,880
Aug.	9300	2870	5350	328,880	Aug.	15100	4820	8618	534,340
Sept.	7040	3360	4369	259,902	Sept.	14900	10500	13188	791,300
Oct.	9590	3040	4365	268,320	Oct.	10800	6440	9345	579,380
Nov.	4820	2070	2885	171,658	Nov.	5970	2630	4207	250,274
Dec.	1990	1030	1409	86,617	Dec.	3040	1090	1863	114,548
Total	..	..	..	2,216,212	Total	..	..	..	3,807,291

MURRAY RIVER AT ALBURY

Month	Year 1901 Discharge in Cusecs			Discharge for Month Acre Feet	Month	Year 1902 Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	1220	670	964	59,252	Jan.	2310	900	1289	79,260
Feb.	670	460	553	30,707	Feb.	1090	560	668	37,102
Mar.	1360	355	583	35,823	Mar.	2870	390	603	37,092
Apr.	1990	490	802	47,711	Apr.	2390	560	768	45,708
May	3440	900	1206	74,124	May	560	560	560	34,425
June	3520	1590	2317	137,838	June	5380	560	1685	100,242
July	2070	1430	1626	99,963	July	2800	1090	1532	94,163
Aug.	8600	1590	3380	207,779	Aug.	1090	970	986	60,600
Sept.	16700	4820	10702	642,140	Sept.	3120	970	1700	101,113
Oct.	17200	5850	8345	517,380	Oct.	4320	1750	2711	166,691
Nov.	17500	2960	7842	470,520	Nov.	1750	630	1029	61,195
Dec.	2800	1160	1776	109,204	Dec.	3600	590	1272	78,219
Total	..	..	..	2,432,441	Total	..	..	..	895,810

Month	Year 1903			Discharge for Month Acre Feet	Month	Year 1904			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	1090	425	752	46,263	Jan.	7930	1830	2825	173,651
Feb.	670	290	404	22,428	Feb.	2150	1160	1544	88,779
Mar.	1590	290	640	39,353	Mar.	1510	720	944	58,062
Apr.	2550	720	1089	64,765	Apr.	1220	630	716	42,595
May	1910	970	1413	86,895	May	3200	720	1320	81,144
June	3600	1220	2085	124,056	June	8730	1430	2781	165,422
July	12500	2230	5447	337,720	July	13700	3200	7082	439,100
Aug.	3520	2630	3064	188,345	Aug.	13100	4080	5819	360,760
Sept.	12000	2630	7119	427,120	Sept.	15700	5260	8405	504,300
Oct.	13500	6320	8782	544,480	Oct.	17700	4820	10823	671,000
Nov.	7280	2470	4070	242,144	Nov.	17700	3440	8084	485,060
Dec.	3600	1670	2182	134,160	Dec.	3360	1550	2454	150,877
Total	..	..	..	2,257,729	Total	..	..	..	3,220,750

Month	Year 1905			Discharge for Month Acre Feet	Month	Year 1906			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	1910	1090	1373	84,396	Jan.	3120	870	1628	100,082
Feb.	1160	590	855	47,503	Feb.	900	630	718	39,858
Mar.	560	460	508	31,238	Mar.	9590	720	2725	167,553
Apr.	1160	525	758	45,093	Apr.	5500	1290	2656	158,045
May	2150	575	923	56,773	May	12000	2470	4453	276,080
June	4490	2190	3371	200,531	June	23200	4250	8964	537,860
July	30300	4820	14224	881,900	July	25400	9300	13705	849,720
Aug.	13100	4570	7888	489,040	Aug.	22400	9870	14202	880,520
Sept.	11500	4410	6673	400,400	Sept.	22800	12500	16955	1,017,300
Oct.	12900	4820	9234	572,520	Oct.	36500	11600	19675	1,219,860
Nov.	13700	6680	10122	607,320	Nov.	13500	7160	9355	561,310
Dec.	6560	2470	4143	254,687	Dec.	13100	4410	7048	436,940
Total	..	..	..	3,671,401	Total	..	..	..	6,245,128

Month	Year 1907			Discharge for Month Acre Feet	Month	Year 1908			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	4280	2390	3118	191,677	Jan.	2870	780	1515	93,171
Feb.	2710	1220	1879	104,336	Feb.	3120	900	1225	70,436
Mar.	1590	1090	1316	80,926	Mar.	900	560	764	46,997
Apr.	2390	970	1472	87,589	Apr.	1030	490	608	36,170
May	4570	1510	2122	130,452	May	3280	525	1560	95,888
June	5020	1830	2627	156,310	June	2550	840	1448	86,141
July	6920	1750	2519	154,833	July	9870	1750	3926	241,352
Aug.	7540	3760	5294	325,480	Aug.	8060	4400	6486	398,692
Sept.	11500	3600	5232	313,940	Sept.	9730	4080	7185	427,436
Oct.	7040	3840	5151	316,665	Oct.	14900	5380	8247	511,290
Nov.	8730	3120	4485	266,832	Nov.	7040	3040	4380	260,606
Dec.	5850	1590	2773	170,498	Dec.	2960	1030	1798	110,522
Total	..	..	..	2,299,538	Total	..	..	..	2,378,701

MURRAY RIVER AT ALBURY

Year 1909				Year 1910					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	1160	780	914	56,178	Jan.	1670	780	1113	68,453
Feb.	1160	525	704	39,105	Feb.	1220	720	840	46,660
Mar.	2630	720	1218	74,898	Mar.	1430	630	927	57,021
Apr.	4820	900	1424	84,724	Apr.	720	560	641	38,163
May	6560	2630	3827	235,293	May	1910	575	911	56,000
June	48000	2960	12349	740,940	June	2960	1030	1794	106,735
July	23500	4410	8990	557,380	July	4820	2630	3322	204,190
Aug.	32600	11000	21148	1,311,160	Aug.	4320	2150	2833	174,147
Sept.	15700	8060	11004	660,260	Sept.	15700	4080	11249	674,920
Oct.	11400	6090	8487	521,727	Oct.	11600	4650	7497	464,780
Nov.	5850	2630	3848	228,917	Nov.	10700	3440	5475	325,757
Dec.	2630	1160	1901	116,898	Dec.	7410	3040	4165	256,055
Total	..	..	..	4,627,480	Total	..	..	..	2,472,881

Year 1911				Year 1912					
Jan.	5140	2070	3046	187,284	Jan.	1590	630	1058	65,600
Feb.	5850	2150	3012	187,046	Feb.	590	425	527	30,540
Mar.	8730	2470	4314	265,197	Mar.	630	425	539	33,430
Apr.	3360	1910	2288	136,093	Apr.	840	560	638	38,280
May	3600	1510	2279	140,109	May	630	525	581	36,010
June	11500	3120	5823	349,400	June	1990	670	1052	63,100
July	15200	3600	7229	448,220	July	3200	1830	2535	157,200
Aug.	10500	4820	8103	498,110	Aug.	2870	2150	2611	161,910
Sept.	7410	4320	5490	326,580	Sept.	35400	2230	11265	675,880
Oct.	6200	2870	4360	268,022	Oct.	13300	4490	8207	508,840
Nov.	3120	1670	2262	134,596	Nov.	3840	1430	2082	124,920
Dec.	2870	1590	2109	129,649	Dec.	5380	1590	3208	198,870
Total	..	..	..	3,070,306	Total	..	..	..	2,094,580

Year 1913				Year 1914					
Jan.	4160	3120	3616	224,180	Jan.	1510	1030	1196	74,180
Feb.	3120	840	1460	81,760	Feb.	970	670	831	46,520
Mar.	2870	900	1697	105,190	Mar.	1220	670	835	51,780
Apr.	2870	1220	2145	128,710	Apr.	1590	970	1181	70,840
May	2230	1220	1839	114,000	May	4400	1590	2958	183,420
June	3520	2230	2686	161,190	June	2470	1510	1913	114,760
July	3920	3280	3530	218,880	July	1910	1590	2026	125,620
Aug.	5020	3920	4426	274,400	Aug.	1830	1430	1652	102,420
Sept.	13700	5020	10270	616,180	Sept.	3440	1750	2532	151,900
Oct.	9870	4820	7059	437,660	Oct.	1670	840	1172	72,640
Nov.	6440	4080	5253	315,160	Nov.	1090	630	838	50,280
Dec.	3680	1360	2371	147,000	Dec.	3600	590	1232	76,410
Total	..	..	..	2,824,310	Total	..	..	..	1,120,770

Year 1915				Year 1916					
Jan.	840	390	656	40,640	Jan.	2230	900	1518	94,140
Feb.	407	140	292	16,348	Feb.	2960	780	1244	72,160
Mar.	230	90	144	8,910	Mar.	1510	670	1039	64,390
Apr.	490	115	256	15,330	Apr.	1590	670	952	59,050
May	4000	260	1048	64,980	May	2150	1030	1415	87,730
June	10800	900	3266	195,930	June	4080	1290	2569	154,120
July	12700	4000	7540	467,460	July	32700	2750	13434	832,940
Aug.	24700	4910	12663	785,130	Aug.	28300	8600	13457	834,320
Sept.	24500	5140	11854	711,230	Sept.	27400	9800	17716	1,062,960
Oct.	27200	11300	18600	1,153,190	Oct.	32700	10800	18955	1,175,220
Nov.	16000	4000	7905	474,330	Nov.	36500	10400	19849	1,190,940
Dec.	4910	2150	3185	197,350	Dec.	18400	3900	13728	951,140
Total	..	..	..	4,130,828	Total	..	..	..	6,579,110

MURRAY RIVER AT ALBURY

Year 1917				Year 1918					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	7410	2800	4185	259,500	Jan.	5850	3200	4289	265,970
Feb.	3040	1670	2476	138,660	Feb.	4320	2390	3163	177,144
Mar.	2870	1430	2168	134,450	Mar.	6200	2150	3030	187,860
Apr.	4000	1750	2848	170,890	Apr.	3600	2150	2684	161,040
May	15500	1460	4624	286,720	May	18500	2310	8609	533,804
June	46000	11600	26494	1,589,620	June	25600	4100	10645	638,680
July	54400	9200	26346	1,633,440	July	26500	10400	14585	904,260
Aug.	34500	15500	25208	1,562,880	Aug.	27900	7600	17664	1,095,180
Sept.	44700	20900	33453	2,007,190	Sept.	22600	11000	15060	903,600
Oct.	104000	25600	44307	2,747,058	Oct.	11100	5710	7568	469,224
Nov.	28800	14600	19486	1,189,170	Nov.	6960	2960	4398	263,860
Dec.	14800	4470	8943	554,440	Dec.	3360	1910	2521	156,290
Total	..	..	..	12,274,018	Total	..	..	..	5,756,912

Year 1919				Year 1920					
Jan.	1910	840	1279	79,320	Jan.	13900	2230	4412	273,544
Feb.	2550	720	1093	61,200	Feb.	3920	970	1722	99,890
Mar.	3200	900	1527	94,680	Mar.	2070	840	1193	73,980
Apr.	2390	1030	1368	82,080	Apr.	2390	840	1075	64,490
May	3600	1360	2180	135,150	May	3040	970	1510	93,620
June	9320	1830	3634	218,070	June	11100	1360	5508	330,476
July	4490	2800	3299	204,560	July	28800	5700	15485	960,060
Aug.	5020	2960	3774	233,990	Aug.	34500	10400	19290	1,195,980
Sept.	11500	4000	5806	348,370	Sept.	28300	12000	18090	1,085,420
Oct.	6800	3920	5730	355,250	Oct.	15300	7430	10720	664,660
Nov.	3920	1750	2811	168,680	Nov.	8150	3360	4914	294,860
Dec.	12100	1160	2905	180,138	Dec.	4320	2390	3154	195,520
Total	..	..	..	2,161,488	Total	..	..	..	5,332,500

Year 1921				Year 1922					
Jan.	4600	1400	2542	157,620	Jan.	2750	1280	1809	112,160
Feb.	2870	1160	1629	91,200	Feb.	2250	850	1161	65,020
Mar.	3600	1160	1706	105,800	Mar.	1600	750	970	60,120
Apr.	2630	1160	1814	108,860	Apr.	1000	500	824	47,820
May	2250	1000	1342	83,180	May	3000	900	1552	96,220
June	13400	2250	5800	348,340	June	1860	1050	1323	79,360
July	13600	2250	6146	381,060	July	13400	1660	4687	290,630
Aug.	29400	10000	17672	1,095,660	Aug.	15500	3700	6170	382,580
Sept.	55600	7100	22610	1,356,600	Sept.	12400	3600	6173	370,400
Oct.	20300	9400	15802	979,700	Oct.	11600	4470	6959	431,460
Nov.	3500	1860	2504	155,280	Nov.	4470	1800	2811	168,640
Dec.	8600	2750	5399	323,920	Dec.	1600	950	1235	76,580
Total	..	..	..	5,187,220	Total	..	..	..	2,180,990

Year 1923				Year 1924					
Jan.	1800	650	973	60,320	Jan.	6440	2920	4172	258,680
Feb.	850	280	536	30,000	Feb.	7930	2330	3470	201,280
Mar.	340	250	312	18,740	Mar.	3000	1600	2125	131,800
Apr.	340	280	307	18,420	Apr.	3000	1860	2271	136,240
May	3500	340	1490	92,420	May	3500	1600	2102	130,380
June	20000	2500	11920	715,200	June	6600	2330	3841	230,480
July	19700	7260	12651	784,380	July	7100	2170	2992	185,490
Aug.	18400	5970	11421	708,080	Aug.	56800	2750	10906	676,200
Sept.	15300	6930	10408	624,480	Sept.	32000	9600	16550	992,980
Oct.	26000	12600	18346	1,137,460	Oct.	20600	9800	15420	956,000
Nov.	18100	8100	11818	717,440	Nov.	38800	3800	16964	1,017,840
Dec.	8800	3900	5546	343,860	Dec.	13600	3900	6669	413,480
Total	..	..	..	5,250,800	Total	..	..	..	5,330,850

MURRAY RIVER AT DOCTORS POINT (Albury)

Year 1925				Year 1926					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	15500	2660	5177	342,980	Jan.	1860	800	1149	68,980
Feb.	6100	2750	3615	202,460	Feb.	850	440	577	32,320
Mar.	3600	1400	2295	142,340	Mar.	2580	440	744	46,160
Apr.	1800	1400	1581	94,880	Apr.	6440	700	1645	98,700
May	4600	1280	2076	128,720	May	14600	3500	7063	437,920
June	3100	2170	2688	161,260	June	21900	3300	8173	490,420
July	7260	2250	3364	208,620	July	21600	9000	12909	800,400
Aug.	22900	2830	8816	546,600	Aug.	20900	11600	15288	947,900
Sept.	17900	4900	9203	552,160	Sept.	17400	7760	12297	737,860
Oct.	11400	4800	9279	556,780	Oct.	20300	9600	12858	797,200
Nov.	12600	2660	4946	296,780	Nov.	9200	2500	4939	296,320
Dec.	2580	1220	1777	110,200	Dec.	2420	1800	1966	123,920
Total	..	..	..	3,343,780	Total	..	..	..	4,878,100

Year 1927				Year 1928					
Jan.	2250	1220	1687	104,620	Jan.	1050	750	895	55,500
Feb.	1000	600	794	44,500	Feb.	6440	850	1782	106,960
Mar.	850	500	731	45,320	Mar.	9200	950	2309	143,160
Apr.	750	650	683	41,000	Apr.	9000	1730	3440	199,560
May	2000	700	1215	75,340	May	6600	1860	3863	239,540
June	2250	1000	1307	78,400	June	12200	2750	6176	370,560
July	8100	1340	3051	189,160	July	16900	2500	5729	355,160
Aug.	15700	2500	6842	424,220	Aug.	5300	3100	3558	220,600
Sept.	6760	4000	5080	304,820	Sept.	7600	2750	4974	298,460
Oct.	17400	4900	12060	748,180	Oct.	24600	6100	13687	848,580
Nov.	10600	2330	4877	292,640	Nov.	10400	2000	5879	352,730
Dec.	2250	1100	1751	108,580	Dec.	3300	1680	2283	141,580
Total	..	..	..	2,456,780	Total	..	..	..	3,332,390

Year 1929				Year 1930					
Jan.	1680	580	1087	67,400	Jan.	3210	1600	2157	133,740
Feb.	1140	420	713	39,960	Feb.	2090	920	1275	71,440
Mar.	1280	520	635	39,360	Mar.	1820	480	953	59,060
Apr.	2600	940	1468	88,070	Apr.	1030	370	539	32,350
May	2350	820	1634	101,300	May	3090	680	1444	89,500
June	3400	1520	2647	158,850	June	2310	1000	1775	106,500
July	3300	940	2537	157,310	July	2980	1240	1974	122,430
Aug.	5620	940	2991	185,432	Aug.	6280	2650	4330	268,440
Sept.	8500	4000	5488	329,308	Sept.	5800	2760	4220	253,180
Oct.	18400	3600	9319	577,768	Oct.	28200	2760	11649	722,230
Nov.	4930	780	2816	169,000	Nov.	11700	4130	6368	382,090
Dec.	4370	1210	2460	152,640	Dec.	9540	2500	5338	330,950
Total	..	..	..	2,066,398	Total	..	..	..	2,571,910

Year 1931				Year 1932					
Jan.	9540	1810	3879	240,510	Jan.	2500	600	1604	99,460
Feb.	1960	1120	1549	86,760	Feb.	780	545	648	37,570
Mar.	5100	1520	4265	264,460	Mar.	4960	285	1899	117,770
Apr.	4960	3050	4122	247,350	Apr.	7230	3160	4818	289,060
May	13400	2500	6416	397,780	May	5390	1870	3145	194,970
June	58000	9200	28710	1,722,600	June	8860	1500	5450	326,980
July	44700	10800	22313	1,383,390	July	9030	4960	7590	470,600
Aug.	19400	12900	15379	953,520	Aug.	13100	4390	6712	416,140
Sept.	20000	11500	14043	842,620	Sept.	46600	10200	20480	1,228,800
Oct.	11900	8200	10195	632,110	Oct.	10200	7220	8626	534,800
Nov.	8520	6590	7327	439,630	Nov.	6200	1330	4164	249,820
Dec.	6750	2500	4811	298,280	Dec.	3250	1330	1938	120,160
Total	..	..	..	7,509,010	Total	..	..	..	4,086,130

MURRAY RIVER AT DOCTORS POINT (Albury)

Year 1933				Year 1934					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	1770	1070	1276	79,120	Jan.	6320	2350	3621	224,500
Feb.	1770	1140	1500	84,000	Feb.	4210	1520	2940	164,666
Mar.	2240	1680	1783	110,540	Mar.	3900	1280	2916	180,760
Apr.	2680	1000	1705	102,300	Apr.	4000	1430	2085	125,120
May	1520	1140	1272	78,840	May	2900	1520	1916	118,800
June	4676	820	2332	139,958	June	2430	1430	1622	97,300
July	4800	940	1433	88,560	July	13600	1680	5723	354,846
Aug.	8200	1930	5274	326,964	Aug.	13000	1770	4968	308,046
Sept.	15200	2900	12570	754,200	Sept.	13600	4100	6714	402,870
Oct.	15700	7440	11995	743,660	Oct.	26000	4800	12782	792,520
Nov.	7440	1930	3618	217,098	Nov.	28200	9840	20222	1,213,340
Dec.	6550	1930	4736	293,618	Dec.	22000	3850	12150	753,300
Total	..	..	..	3,018,858	Total	..	..	..	4,736,068

Year 1935				Year 1936					
Jan.	6500	2160	3802	235,760	Jan.	3600	3400	3351	207,760
Feb.	3250	1920	2427	135,940	Feb.	3700	3500	3527	204,600
Mar.	3650	2560	3010	186,600	Mar.	3700	3500	3619	224,400
Apr.	7360	2880	4375	262,480	Apr.	3800	3500	3622	217,300
May	5350	4690	4931	305,740	May	3700	420	3089	191,540
June	5350	4360	4928	295,700	June	3750	1520	2591	155,480
July	9100	2400	6187	383,620	July	8500	2350	3843	238,246
Aug.	11300	7760	9721	602,700	Aug.	32000	2350	14197	880,222
Sept.	11400	8830	9818	589,060	Sept.	28800	7750	14620	877,220
Oct.	11800	9100	9767	630,400	Oct.	9300	6440	7699	477,320
Nov.	13200	4000	6167	366,800	Nov.	6320	3200	4761	285,656
Dec.	4680	3100	3792	235,096	Dec.	5500	3000	4489	278,346
Total	..	..	..	4,229,896	Total	..	..	..	4,238,090

Year 1937				Year 1938					
Jan.	3600	2900	3213	199,220	Jan.	3630	1730	3355	208,060
Feb.	3400	3000	3179	178,000	Feb.	7760	1210	4190	234,660
Mar.	4200	3600	3822	236,950	Mar.	3920	1380	3653	226,500
Apr.	3880	1660	3700	222,000	Apr.	3490	3140	3286	197,170
May	4000	2630	3610	223,802	May	3300	1950	2391	148,270
June	4070	975	3819	229,120	June	2340	1700	2071	124,260
July	4050	1180	3600	223,240	July	1770	1550	1698	105,300
Aug.	3100	950	2429	150,600	Aug.	1860	1500	1628	100,960
Sept.	2850	1060	1798	107,880	Sept.	1850	1450	1561	93,670
Oct.	2830	1410	2107	130,670	Oct.	3390	1420	2141	132,760
Nov.	3750	2040	2394	143,650	Nov.	2360	1670	1993	119,560
Dec.	3750	1380	3455	214,220	Dec.	3110	1700	2739	169,800
Total	..	..	..	2,259,352	Total	..	..	..	1,860,970

Year 1939				Year 1940					
Jan.	2800	2160	2544	157,716	Jan.	3210	2300	2800	173,570
Feb.	3200	2410	2552	142,882	Feb.	6590	3630	4442	257,660
Mar.	3820	1330	2161	133,996	Mar.	4530	3050	3876	240,340
Apr.	5420	770	1806	108,342	Apr.	3690	1120	2372	142,350
May	2600	505	915	56,730	May	2610	680	1490	92,400
June	6430	900	1617	97,010	June	1060	800	884	53,044
July	16100	4670	9702	601,500	July	2800	810	1844	114,340
Aug.	37100	4670	17890	1,109,210	Aug.	3600	1840	2509	155,580
Sept.	31500	11200	19219	1,153,130	Sept.	3000	1000	2357	141,420
Oct.	17600	10600	14590	904,580	Oct.	4100	1470	3021	187,320
Nov.	18900	8200	14146	848,780	Nov.	4230	2800	3368	202,080
Dec.	7870	3160	5337	330,910	Dec.	3100	2770	2836	175,836
Total	..	..	..	5,644,786	Total	..	..	..	1,935,940

MURRAY RIVER AT DOCTORS POINT (Albury)

Year 1941				Year 1942					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	3000	2120	2453	152,136	Jan.	4460	1660	3358	208,232
Feb.	3080	2210	2630	147,254	Feb.	3820	1750	3206	179,558
Mar.	3280	1820	2618	162,336	Mar.	3430	2650	3262	202,260
Apr.	1990	1690	1857	111,440	Apr.	3280	2540	2936	179,174
May	1960	404	688	42,630	May	3000	750	1697	105,230
June	726	493	543	32,560	June	1900	660	1240	74,404
July	1880	593	1071	66,416	July	13800	2400	8721	540,728
Aug.	2080	640	1133	70,260	Aug.	13100	4790	8919	552,992
Sept.	5420	640	1733	104,006	Sept.	18100	17700	14478	868,674
Oct.	6290	1100	3539	219,434	Oct.	13800	7730	11794	731,244
Nov.	6410	1950	3600	216,030	Nov.	9580	5250	7202	432,114
Dec.	3640	2780	2954	183,154	Dec.	5250	3320	3934	243,918
Total	..	..	..	1,507,656	Total	..	..	..	4,318,528

Year 1943				Year 1944					
Jan.	3680	2940	3447	213,694	Jan.	4050	3330	3547	219,920
Feb.	3510	3300	3433	192,256	Feb.	3830	3330	3416	198,140
Mar.	3420	3420	3420	211,854	Mar.	4480	3830	4340	269,080
Apr.	4240	3030	3504	210,256	Apr.	4720	2560	3829	229,760
May	3110	800	2385	147,874	May	1950	760	976	60,534
June	780	530	665	39,930	June	760	542	590	35,416
July	3370	530	1382	85,710	July	580	380	451	27,970
Aug.	4460	1540	2176	134,892	Aug.	3690	380	2077	128,778
Sept.	10800	4570	7207	432,438	Sept.	3690	2230	3107	186,422
Oct.	14000	8860	11502	713,150	Oct.	2580	2150	2426	150,382
Nov.	8440	4370	6136	368,150	Nov.	3280	2300	2869	172,168
Dec.	4150	2770	3251	201,580	Dec.	3430	2980	3014	186,860
Total	..	..	..	2,951,784	Total	..	..	..	1,865,430

Year 1945				Year 1946					
Jan.	3800	3480	3729	231,194	Jan.	4220	2450	3224	199,892
Feb.	4260	3380	3855	215,894	Feb.	3880	2500	3297	184,606
Mar.	3580	2230	3314	205,490	Mar.	3210	1770	2151	133,382
Apr.	2300	542	1417	85,026	Apr.	2590	565	2054	123,220
May	542	440	484	30,030	May	605	225	479	29,694
June	1180	505	643	38,560	June	1460	540	630	37,782
July	635	285	400	24,790	July	43000	993	13369	828,936
Aug.	1930	345	936	58,070	Aug.	35000	10700	18924	1,173,278
Sept.	1280	550	907	54,426	Sept.	10300	6770	8320	499,218
Oct.	3140	700	2218	137,564	Oct.	11300	6590	8692	538,916
Nov.	3050	893	2139	128,324	Nov.	7780	4350	6892	413,500
Dec.	8510	1850	2950	182,886	Dec.	5220	3030	3555	220,390
Total	..	..	..	1,392,254	Total	..	..	..	4,382,814

Year 1947				Year 1948					
Jan.	3880	3190	3508	217,500	Jan.	5650	3330	4194	260,030
Feb.	4000	1910	3561	199,404	Feb.	3870	3530	3653	211,862
Mar.	3530	2920	3268	202,614	Mar.	3630	3490	3544	219,726
Apr.	3570	2210	3085	185,106	Apr.	3560	2770	3339	200,312
May	2210	450	938	58,156	May	2810	383	1054	65,352
June	1210	424	688	41,304	June	3450	455	726	43,532
July	8490	568	3743	232,058	July	5470	533	2180	135,164
Aug.	15900	6360	10310	639,814	Aug.	4200	2730	3343	207,260
Sept.	21600	8620	14109	846,564	Sept.	6260	4200	5543	332,570
Oct.	16900	12000	14478	897,644	Oct.	9800	5770	7588	470,470
Nov.	14700	6610	10791	647,450	Nov.	26600	3900	13978	838,680
Dec.	6450	4820	5590	346,608	Dec.	6620	3400	4338	268,980
Total	..	..	..	4,514,222	Total	..	..	..	3,253,938

MURRAY RIVER AT DOCTORS POINT (Albury)

Year 1949				Year 1950					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	3700	3500	3548	220,000	Jan.	4080	2400	3680	228,244
Feb.	3900	3500	3618	202,600	Feb.	4260	3450	3844	215,240
Mar.	3900	3800	3806	236,400	Mar.	4380	1980	3387	203,210
Apr.	3900	3100	3410	204,610	Apr.	3810	641	3350	201,028
May	2730	483	1104	68,456	May	1200	483	799	49,548
June	560	415	500	29,974	June	2730	375	640	38,380
July	3490	368	1085	67,278	July	4410	550	2304	142,830
Aug.	3480	1890	2691	166,826	Aug.	7030	4250	5510	341,670
Sept.	4000	1680	2977	178,634	Sept.	11500	4950	6985	419,094
Oct.	24500	3620	10697	663,202	Oct.	18200	7580	10548	653,954
Nov.	21200	8560	12682	760,926	Nov.	17700	5410	10210	612,404
Dec.	8540	3420	4602	285,294	Dec.	5410	2870	3724	230,850
Total	..	..	..	3,084,200	Total	..	..	..	3,336,452

Year 1951				Year 1952					
Jan.	3760	2940	3398	210,684	Jan.	4140	3450	3811	236,268
Feb.	3900	2360	3283	183,858	Feb.	4220	4080	4108	238,260
Mar.	5150	2410	4214	261,248	Mar.	5150	4100	4572	283,436
Apr.	4980	2750	3842	230,544	Apr.	4900	667	3579	214,730
May	2800	415	1410	87,398	May	2030	448	8444	52,360
June	5450	635	2311	138,666	June	32400	2030	23862	1,431,744
July	30400	5200	13940	864,252	July	30000	12000	19012	1,178,730
Aug.	21300	13700	16142	1,000,784	Aug.	15000	10100	11720	726,656
Sept.	16800	8420	11358	681,484	Sept.	43800	11400	22714	1,362,866
Oct.	15500	9520	11720	736,636	Oct.	22600	9860	14109	874,732
Nov.	13400	4450	7555	453,306	Nov.	27900	12900	18505	1,110,294
Dec.	4870	3250	3823	237,058	Dec.	16800	7140	11925	739,342
Total	..	..	..	5,085,918	Total	..	..	..	8,449,418

Year 1953				Year 1954					
Jan.	7130	3500	4814	298,456	Jan.	5100	3070	4242	263,032
Feb.	4590	4060	4339	242,966	Feb.	4600	1950	4273	239,314
Mar.	5100	4280	4814	298,470	Mar.	5240	4520	5369	332,898
Apr.	5160	3350	4374	262,448	Apr.	5820	2410	4843	290,574
May	4020	230	1452	89,998	May	3050	327	1043	64,672
June	1490	104	696	41,772	June	1070	198	728	43,698
July	7090	335	1339	83,002	July	1030	312	673	41,712
Aug.	18300	7090	13117	813,280	Aug.	8140	742	3187	197,568
Sept.	21100	5310	13776	826,546	Sept.	10100	1450	5082	304,902
Oct.	28800	13300	20530	1,272,852	Oct.	6510	1880	4314	267,456
Nov.	20300	3850	14152	849,122	Nov.	14300	2250	9457	567,448
Dec.	5450	3070	4147	257,084	Dec.	10500	1640	4869	301,926
Total	..	..	..	5,335,996	Total	..	..	..	2,915,200

Year 1955				Year 1956					
Jan.	4320	1680	3179	197,084	Jan.	10300	8880	9337	578,906
Feb.	4000	1880	2959	165,696	Feb.	8880	3530	5395	302,128
Mar.	5500	3930	4905	304,138	Mar.	8790	4310	6164	382,158
Apr.	5350	4930	5187	311,240	Apr.	18700	4380	10007	600,414
May	5300	937	2888	179,058	May	24600	10000	16946	1,050,678
June	4830	453	2389	143,326	June	36800	17500	26468	1,588,070
July	11500	769	6386	395,944	July	40700	21800	32056	1,987,472
Aug.	45000	10200	23265	1,442,442	Aug.	27100	17500	22007	1,364,438
Sept.	36900	4950	21758	1,305,468	Sept.	23300	14300	19349	1,160,946
Oct.	35600	17300	24262	1,504,266	Oct.	30400	17600	22341	1,385,150
Nov.	26400	10500	15580	934,806	Nov.	21300	11300	15137	908,196
Dec.	10500	9400	9940	616,266	Dec.	21300	4060	7670	475,464
Total	..	..	..	7,499,734	Total	..	..	..	11,784,020

MURRAY RIVER AT DOCTORS POINT (Albury)

Year 1957				Year 1958					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	7360	3640	5603	347,372	Jan.	5620	3880	4791	297,042
Feb.	4790	3510	3871	216,786	Feb.	5460	3080	4455	249,454
Mar.	6000	3000	4877	302,346	Mar.	6500	5170	5742	356,012
Apr.	6400	2990	4715	282,868	Apr.	6470	2950	5261	315,686
May	3920	500	1818	112,734	May	5430	467	2264	140,360
June	1940	442	730	43,820	June	2320	489	958	57,456
July	3050	610	1426	88,410	July	2910	474	1175	72,852
Aug.	4050	1680	2663	165,120	Aug.	48000	1830	15419	955,978
Sept.	4850	2360	3704	222,260	Sept.	19500	6250	9809	588,548
Oct.	4010	1740	2779	172,304	Oct.	37600	10800	23523	1,458,448
Nov.	4420	2220	3817	229,024	Nov.	17100	4480	8810	528,612
Dec.	5500	4050	4813	298,416	Dec.	7310	2330	4134	256,314
Total	..	..	..	2,481,460	Total	..	..	..	5,276,762

Year 1959				Year 1960					
Jan.	6320	3770	4858	301,168	Jan.	5190	3070	4283	265,574
Feb.	5800	3880	5156	288,724	Feb.	6180	5080	5200	301,618
Mar.	7420	4890	6172	382,636	Mar.	7040	5380	6418	397,928
Apr.	6920	2510	4476	268,560	Apr.	6800	4270	5871	352,242
May	4850	320	2048	126,984	May	4270	856	1565	97,034
June	896	358	440	26,396	June	2150	752	1249	74,956
July	3130	250	801	49,692	July	20600	890	6631	411,148
Aug.	5440	680	2564	158,956	Aug.	23000	9200	17624	1,092,702
Sept.	5440	1080	3678	220,706	Sept.	41400	9120	16367	982,004
Oct.	10800	2270	6169	382,508	Oct.	30700	9380	13919	862,963
Nov.	10800	2570	5755	345,300	Nov.	12700	4350	7166	429,986
Dec.	5090	3060	4082	253,082	Dec.	11100	3310	5306	329,000
Total	..	..	..	2,804,712	Total	..	..	..	5,597,155

Year 1961				Year 1962					
Jan.	5180	3830	4491	278,440	Jan.	5740	2240	4271	264,824
Feb.	6640	5110	5797	324,630	Feb.	5780	2850	4695	262,932
Mar.	7600	4760	6868	425,796	Mar.	6480	3580	5029	311,828
Apr.	5670	1670	4121	247,286	Apr.	4320	2470	3611	216,650
May	2020	285	729	45,226	May	3310	373	850	52,708
June	2330	340	570	34,218	June	2190	686	1530	91,774
July	4480	520	1849	114,620	July	1640	600	1004	62,260
Aug.	4830	736	1904	118,032	Aug.	1890	822	1240	76,880
Sept.	5800	736	2971	178,286	Sept.	3480	1000	1833	109,984
Oct.	6030	3730	4924	305,300	Oct.	2880	923	1512	93,736
Nov.	5180	1850	4093	245,598	Nov.	5250	1300	3305	198,292
Dec.	5670	1970	4036	250,256	Dec.	5000	3070	4025	249,564
Total	..	..	..	2,567,688	Total	..	..	..	1,991,432

Year 1963				Year 1964					
Jan.	4840	450	3300	204,630	Jan.	5170	3480	4470	277,000
Feb.	6420	2580	4719	264,264	Feb.	7660	4360	5722	334,780
Mar.	8300	4380	6998	433,860	Mar.	8470	7500	8072	500,490
Apr.	6100	3540	5303	318,210	Apr.	7850	470	3498	209,618
May	3540	522	872	54,070	May	2370	460	623	38,608
June	996	522	671	40,264	June	1472	779	997	59,844
July	1280	517	791	49,028	July	23700	919	10900	678,000
Aug.	4730	737	1390	86,214	Aug.	18300	6770	12500	773,000
Sept.	3180	969	1257	75,448	Sept.	20000	4990	11000	658,000
Oct.	4800	1480	2921	191,080	Oct.	41200	11700	21900	1,360,000
Nov.	3750	961	2377	142,640	Nov.	17900	3430	8780	527,000
Dec.	5120	2190	3495	217,000	Dec.	8270	2750	4050	251,000
Total	..	..	..	2,076,708	Total	..	..	..	5,667,340

MURRAY RIVER AT DOCTORS POINT (Albury)

Year 1965				Year 1966					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	5490	2940	4540	281,000	Jan.	6820	4470	5583	346,000
Feb.	7100	4240	5820	326,000	Feb.	9320	4390	6460	362,000
Mar.	9140	6950	8100	502,000	Mar.	10300	4030	7576	470,000
Apr.	7600	1550	4400	264,000	Apr.	7870	912	4913	295,000
May	3290	510	1630	101,000	May	1090	347	584	36,200
June	2970	450	616	37,000	June	1140	385	660	39,600
July	3850	350	1640	102,000	July	1500	302	827	51,200
Aug.	2870	565	1383	85,700	Aug.	2190	480	1155	71,600
Sept.	3490	1090	1724	103,000	Sept.	5090	975	2893	174,000
Oct.	5810	2100	3973	246,000	Oct.	9130	1250	4273	265,000
Nov.	3870	994	2391	143,000	Nov.	11600	4070	7660	460,000
Dec.	5910	475	2706	168,000	Dec.	19500	3610	9160	568,000
Total	..	..	..	2,358,700	Total	..	..	..	3,138,600

Year 1967				Year 1968					
Jan.	6460	3420	5082	315,000	Jan.	5130	2690	3896	242,000
Feb.	8410	4850	7030	394,000	Feb.	5560	3100	4188	243,000
Mar.	9390	6860	8384	520,000	Mar.	6620	1810	4077	253,000
Apr.	7100	3000	5403	324,000	Apr.	3590	1130	2293	138,000
May	3000	526	1660	103,000	May	1760	715	1103	68,400
June	798	482	608	36,500	June	4500	675	1439	86,300
July	3110	263	1169	72,400	July	1340	505	851	52,800
Aug.	6170	1400	4030	250,000	Aug.	2980	806	1532	95,000
Sept.	6610	1100	3857	231,000	Sept.	3350	988	1881	113,000
Oct.	6220	2300	3911	242,000	Oct.	14200	2160	5256	326,000
Nov.	5570	3830	4846	291,000	Nov.	12700	4080	7684	461,000
Dec.	5310	3410	4166	258,000	Dec.	4660	3060	4186	260,000
Total	..	..	..	3,036,900	Total	..	..	..	2,338,500

Year 1969				Year 1970					
Jan.	9290	3790	6975	434,000	Jan.	9370	4760	6472	401,000
Feb.	8040	4660	6477	362,000	Feb.	10000	6820	8368	469,000
Mar.	8590	3020	5614	348,000	Mar.	10600	4900	8567	531,000
Apr.	4910	1730	2930	176,000	Apr.	8400	1170	4890	293,000
May	3990	346	1410	87,400	May	2370	674	1060	65,500
June	1120	462	715	42,900	June	1410	590	998	59,900
July	18400	482	5207	323,000	July	4090	953	1667	103,000
Aug.	12100	5240	7589	470,000	Aug.	54400	2680	14302	887,000
Sept.	13900	5430	10285	617,000	Sept.	45600	13900	23074	1,380,000
Oct.	7990	3740	5351	332,000	Oct.	19800	7200	13520	839,000
Nov.	12200	3800	6238	374,000	Nov.	17900	5010	10413	625,000
Dec.	7530	4780	5756	357,000	Dec.	7110	4130	5864	364,000
Total	..	..	..	3,923,300	Total	..	..	..	6,017,400

Year 1971				Year 1972					
Jan.	8380	5860	6847	424,000	Jan.	7230	4260	5660	351,000
Feb.	9640	3660	6914	387,000	Feb.	8400	3980	6679	387,000
Mar.	9390	5300	7224	448,000	Mar.	8710	7350	8315	516,000
Apr.	7240	1860	5339	320,000	Apr.	7360	3780	5358	321,000
May	4010	1190	2166	134,000	May	5730	490	2824	175,000
June	4050	635	1840	110,000	June	2870	332	969	58,100
July	3530	750	1612	100,000	July	5980	913	2636	163,000
Aug.	18200	901	4200	261,000	Aug.	5950	730	2545	158,000
Sept.	17800	6150	10907	655,000	Sept.	8590	944	5412	325,000
Oct.	27300	5760	13350	828,000	Oct.	8550	5190	7039	436,000
Nov.	42400	4020	14336	860,000	Nov.	6970	4140	5662	340,000
Dec.	7440	3840	5502	340,000	Dec.	8220	5260	7074	439,000
Total	..	..	..	4,867,000	Total	..	..	..	3,669,100

MURRAY RIVER AT TOCUMWAL

LOCATION: Latitude 35°49' Longitude 145°34'

PERIOD OF ESTABLISHMENT: January, 1895 to date

COMPLETE YEARS OF COMPUTED RECORDS: 78 years

ZERO OF GAUGE: R.L. 340.86 Murray Valley Datum

CATCHMENT AREA: 11,200 square miles

CONTROL: Gravel and Sand

EQUIPMENT: Automatic Recorder (Float Type)
Staff Gauge, range 0 to 25 feet

CURRENT METER OBSERVATIONS:

(a) Number Obtained	:	150
(b) Maximum Observation in Cusecs	:	75,000
(c) Minimum Observation in Cusecs	:	261

MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS: 80,000 cusecs (July, 1917)

MEAN DAILY DISCHARGE FOR 78 YEARS: 6,390 cusecs

MEAN ANNUAL DISCHARGE FOR 78 YEARS: 4,663,000 acre feet

REMARKS:

This station is controlled by the State Rivers and Water Supply Commission of Victoria.

A Float Recorder was installed in May 1958.

Records include controlled releases from Hume Reservoir since February 1929.

MURRAY RIVER AT TOCUMWAL

Year 1895				Year 1896					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	6290	2530	4000	248,000	Jan.	1790	1200	1440	89,000
Feb.	3230	1740	2210	124,000	Feb.	1420	900	1100	64,000
Mar.	2750	1490	1890	117,000	Mar.	2090	1040	1400	87,000
Apr.	2420	1450	1650	99,000	Apr.	5720	1090	2230	134,000
May	4530	2090	2770	172,000	May	6240	2530	3740	232,000
June	6310	3840	4600	276,000	June	4530	2310	2970	178,000
July	14900	5320	8820	547,000	July	9820	4610	6640	412,000
Aug.	10900	5620	7400	459,000	Aug.	4440	2590	3210	199,000
Sept.	27200	11900	21700	1,304,000	Sept.	13300	3130	8030	482,000
Oct.	16400	8330	12500	772,000	Oct.	12700	5320	8050	499,000
Nov.	7910	2720	4550	273,000	Nov.	5130	2040	3300	198,000
Dec.	3470	1940	2530	157,000	Dec.	3470	1280	2470	153,000
Total	..	..	..	4,548,000	Total	..	..	..	2,727,000

Year 1897				Year 1898					
Jan.	7700	1140	3020	187,000	Jan.	1060	584	839	52,000
Feb.	3720	1140	1930	108,000	Feb.	3370	530	1270	71,000
Mar.	1600	1060	1300	81,000	Mar.	1280	744	839	52,000
Apr.	1120	850	967	58,000	Apr.	744	744	744	45,000
May	983	797	855	53,000	May	3300	744	1000	62,000
June	1790	956	1120	67,000	June	11400	1340	4320	259,000
July	5520	2310	3610	224,000	July	6660	2530	3790	235,000
Aug.	9950	3510	9340	579,000	Aug.	15300	5420	10000	620,000
Sept.	19800	6140	12400	742,000	Sept.	17100	7490	11800	706,000
Oct.	13300	6970	10300	638,000	Oct.	9700	5040	7390	458,000
Nov.	6450	2420	4180	251,000	Nov.	15400	5930	10700	639,000
Dec.	2150	1100	1480	92,000	Dec.	6450	1990	3420	212,000
Total	..	..	..	3,080,000	Total	..	..	..	3,411,000

Year 1899				Year 1900					
Jan.	2150	1170	1500	93,000	Jan.	1240	824	887	55,000
Feb.	1880	797	1070	60,000	Feb.	929	451	638	37,000
Mar.	1530	797	887	55,000	Mar.	3960	391	1260	78,000
Apr.	3370	1600	2400	144,000	Apr.	6860	2090	3920	235,000
May	4440	1380	2050	127,000	May	7490	2360	3890	241,000
June	14000	2480	5130	308,000	June	8980	3300	5020	301,000
July	21100	4690	11100	686,000	July	22900	7700	14400	893,000
Aug.	11000	4200	7340	455,000	Aug.	22400	7700	11600	720,000
Sept.	6860	4530	5430	326,000	Sept.	22400	17300	20100	1,204,000
Oct.	8440	3030	4690	291,000	Oct.	18600	11300	14000	869,000
Nov.	5520	2530	3500	210,000	Nov.	11700	4200	6650	399,000
Dec.	2780	929	1450	90,000	Dec.	4040	1380	2350	146,000
Total	..	..	..	2,845,000	Total	..	..	..	5,178,000

Year 1901				Year 1902					
Jan.	1310	1120	1150	71,000	Jan.	1690	1010	1470	91,000
Feb.	1140	744	857	48,000	Feb.	1010	1010	1010	57,000
Mar.	1010	744	823	51,000	Mar.	1010	370	581	36,000
Apr.	1010	744	800	48,000	Apr.	1600	397	800	48,000
May	1490	850	1060	66,000	May	637	370	548	34,000
June	4200	1060	2780	167,000	June	5220	370	1320	79,000
July	3880	1530	2060	128,000	July	3510	1530	1760	109,000
Aug.	7590	1740	3290	204,000	Aug.	1530	1060	1320	82,000
Sept.	17300	8110	11600	694,000	Sept.	2040	1060	1300	78,000
Oct.	21300	8540	13300	826,000	Oct.	4040	1600	2710	168,000
Nov.	20200	4530	12600	756,000	Nov.	1600	690	1150	69,000
Dec.	4360	1600	2470	153,000	Dec.	3720	291	1140	71,000
Total	..	..	..	3,212,000	Total	..	..	..	922,000

MURRAY RIVER AT TOCUMWAL

Year 1903				Year 1904					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	1880	690	1000	62,000	Jan.	4200	1280	2270	141,000
Feb.	637	265	375	21,000	Feb.	2200	1120	1430	83,000
Mar.	690	317	548	34,000	Mar.	1120	717	887	55,000
Apr.	903	584	800	48,000	Apr.	770	611	650	39,000
May	1530	1010	1290	80,000	May	3300	611	919	57,000
June	4690	1380	2380	143,000	June	8330	1380	3200	192,000
July	12200	3300	8230	510,000	July	16400	4690	9630	597,000
Aug.	6450	3030	4940	306,000	Aug.	16700	4690	10200	630,000
Sept.	13200	3300	8650	519,000	Sept.	20700	6450	13100	788,000
Oct.	12400	8330	10500	653,000	Oct.	19800	7590	12300	760,000
Nov.	13200	2530	7000	420,000	Nov.	20700	5420	14000	839,000
Dec.	3960	1380	2260	140,000	Dec.	5040	2040	3200	198,000
Total	..	..	..	2,936,000	Total	..	..	..	4,379,000

Year 1905				Year 1906					
Jan.	2040	1090	1530	95,000	Jan.	No Records	2080	129,000*	
Feb.	1060	850	964	54,000	Feb.	No Records	1070	60,000*	
Mar.	903	611	726	45,000	Mar.	7070	850	2730	169,000
Apr.	1090	611	817	49,000	Apr.	4690	1380	2330	140,000
May	1340	797	1000	62,000	May	7070	2650	4340	269,000
June	5520	1010	3320	199,000	June	13500	6240	9550	573,000
July	29600	5520	16700	1,033,000	July	28200	15500	20900	1,297,000
Aug.	22400	8330	15700	973,000	Aug.	26500	15900	20900	1,297,000
Sept.	14100	7490	9720	583,000	Sept.	26500	15900	22200	1,330,000
Oct.	14300	7700	11000	680,000	Oct.	34200	18600	24300	1,505,000
Nov.	15600	9580	13700	824,000	Nov.	19000	10200	14100	848,000
Dec.	8760	3170	5850	363,000	Dec.	14500	7700	10700	665,000
Total	..	..	..	4,960,000	Total	..	..	..	8,282,000*

Year 1907				Year 1908					
Jan.	9580	2970	4820	299,000	Jan.	3510	1090	1950	121,000
Feb.	3510	1600	2450	137,000	Feb.	1690	1000	1190	69,000
Mar.	1790	1310	1520	94,000	Mar.	1380	895	970	60,000
Apr.	2200	1060	1420	85,000	Apr.	980	835	870	52,000
May	3720	1650	2160	134,000	May	2650	865	1310	81,000
June	5620	2530	3420	205,000	June	6450	1170	2230	134,000
July	4610	2200	2810	174,000	July	10200	2255	4030	250,000
Aug.	12700	5040	9470	587,000	Aug.	9580	3300	4520	280,000
Sept.	8650	5220	6870	412,000	Sept.	11300	4780	9050	543,000
Oct.	10200	5040	7520	466,000	Oct.	13200	7490	9420	584,000
Nov.	8220	3650	5400	324,000	Nov.	11900	2970	5820	349,000
Dec.	4950	1940	2900	180,000	Dec.	3580	1240	2030	126,000
Total	..	..	..	3,097,000	Total	..	..	..	2,649,000

Year 1909				Year 1910					
Jan.	1420	910	1020	63,000	Jan.	1600	1140	1320	82,000
Feb.	970	700	857	48,000	Feb.	1280	880	1020	57,000
Mar.	1450	700	1050	65,000	Mar.	1150	850	952	59,000
Apr.	1240	874	1000	60,000	Apr.	910	760	817	49,000
May	11500	1600	5550	344,000	May	1380	790	903	56,000
June	46500	4040	9130	548,000	June	3300	1170	1730	104,000
July	55000	8440	17200	1,069,000	July	8650	2530	5390	334,000
Aug.	41400	11200	24000	1,488,000	Aug.	6030	3100	4160	258,000
Sept.	25400	13900	18600	1,117,000	Sept.	19600	4690	15500	933,000
Oct.	13900	10400	12400	769,000	Oct.	17900	8330	13000	806,000
Nov.	9700	3510	5630	338,000	Nov.	11600	5520	7980	479,000
Dec.	3960	1560	2340	145,000	Dec.	8980	3720	5480	340,000
Total	..	..	..	6,054,000	Total	..	..	..	3,557,000

* Estimated

MURRAY RIVER AT TOCUMWAL

Year 1911				Year 1912					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	4950	2040	3310	205,000	Jan.	1560	880	1180	73,000
Feb.	9820	2360	5210	292,000	Feb.	880	760	829	48,000
Mar.	8220	3720	5710	354,000	Mar.	820	640	694	43,000
Apr.	6140	1880	3120	187,000	Apr.	850	610	700	42,000
May	4440	1740	2400	149,000	May	840	700	758	47,000
June	15600	444	8270	496,000	June	1170	700	933	56,000
July	16000	6760	10100	626,000	July	5420	1310	3370	209,000
Aug.	16400	8980	13400	829,000	Aug.	4690	2310	3060	190,000
Sept.	9460	6140	7850	471,000	Sept.	35600	3650	13000	783,000
Oct.	7490	3440	5550	344,000	Oct.	21400	5720	11700	728,000
Nov.	4200	1560	2530	152,000	Nov.	11900	4440	6600	396,000
Dec.	2530	1450	1840	114,000	Dec.	12700	4690	7850	487,000
Total	..	..	..	4,219,000	Total	..	..	..	3,102,000

Year 1913				Year 1914					
Jan.	4950	1490	3020	187,000	Jan.	1600	850	1150	71,000
Feb.	1450	1100	1250	70,000	Feb.	1170	584	821	46,000
Mar.	3650	965	2130	132,000	Mar.	690	451	500	31,000
Apr.	5520	1380	2620	157,000	Apr.	2040	478	867	52,000
May	4530	1450	2390	148,000	May	3370	1063	1940	120,000
June	4870	2040	3020	181,000	June	2150	1275	1600	96,000
July	4870	2530	3630	225,000	July	2720	1010	2030	126,000
Aug.	7910	2900	5870	364,000	Aug.	2530	1694	2020	125,000
Sept.	12300	4690	6920	415,000	Sept.	2840	1563	1900	114,000
Oct.	12700	6450	9080	563,000	Oct.	1740	850	1210	75,000
Nov.	9340	3880	6100	366,000	Nov.	850	530	700	42,000
Dec.	4200	1310	2270	141,000	Dec.	1090	424	645	40,000
Total	..	..	..	2,949,000	Total	..	..	..	938,000

Year 1915				Year 1916					
Jan.	820	304	532	33,000	Jan.	2590	1140	1770	110,000
Feb.	320	147	250	14,000	Feb.	2090	1010	1260	73,000
Mar.	140	73	97	6,000	Mar.	1380	850	1100	68,000
Apr.	320	73	117	7,000	Apr.	1120	820	970	58,000
May	2840	238	839	52,000	May	1740	1010	1270	79,000
June	7180	1040	1970	118,000	June	4040	1380	2350	141,000
July	15200	7700	11300	698,000	July	30300	3510	15700	974,000
Aug.	33100	8650	19200	1,191,000	Aug.	21600	13900	17000	1,057,000
Sept.	23900	8440	11700	699,000	Sept.	35600	13600	23200	1,390,000
Oct.	29800	18200	25000	1,550,000	Oct.	34700	13300	24500	1,517,000
Nov.	21900	6660	13700	822,000	Nov.	28200	16400	20500	1,229,000
Dec.	6240	2650	4190	260,000	Dec.	29800	8980	18600	1,156,000
Total	..	..	..	5,450,000	Total	..	..	..	7,852,000

Year 1917				Year 1918					
Jan.	11500	4230	6440	399,000	Jan.	7710	4380	6210	385,000
Feb.	5120	2470	3320	186,000	Feb.	5940	3570	4290	240,000
Mar.	5390	2310	3210	199,000	Mar.	5940	2990	3850	239,000
Apr.	4850	2310	3550	213,000	Apr.	4000	2810	3150	189,000
May	13100	2360	5440	337,000	May	27700	2990	11900	740,000
June	67200	10700	36200	2,174,000	June	30400	7610	14200	851,000
July	80000	14800	31400	1,947,000	July	32900	15300	22900	1,418,000
Aug.	40000	25100	32600	2,019,000	Aug.	32400	13300	21100	1,309,000
Sept.	43300	31900	36800	2,205,000	Sept.	29800	14300	23200	1,393,000
Oct.	55400	31400	38600	2,393,000	Oct.	14100	8250	10500	648,000
Nov.	34000	18600	25900	1,556,000	Nov.	8400	3850	6380	383,000
Dec.	26200	8030	14800	917,000	Dec.	3500	2000	2550	158,000
Total	..	..	..	14,545,000	Total	..	..	..	7,953,000

MURRAY RIVER AT TOCUMWAL

Year 1919				Year 1920					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	2650	1170	1690	105,000	Jan.	8360	2090	4480	278,000
Feb.	2000	1050	1270	71,000	Feb.	3090	1200	1840	107,000
Mar.	3030	1250	1790	111,000	Mar.	1560	1020	1210	75,000
Apr.	2090	1170	1530	92,000	Apr.	1370	950	1150	69,000
May	3210	1290	2080	129,000	May	2500	1090	1480	92,000
June	8680	2240	3980	239,000	June	7510	1600	3920	235,000
July	6420	3850	4940	306,000	July	26200	8360	16300	1,013,000
Aug.	6230	3850	4810	298,000	Aug.	38200	9700	20100	1,245,000
Sept.	9580	5390	7030	422,000	Sept.	34700	18300	26700	1,599,000
Oct.	10100	6130	7790	483,000	Oct.	22000	10700	14400	891,000
Nov.	5760	2140	3420	205,000	Nov.	13500	5390	8900	534,000
Dec.	3380	1450	2060	128,000	Dec.	5120	3330	4150	257,000
Total	..	..	..	2,589,000	Total	..	..	..	6,395,000

Year 1921				Year 1922					
Jan.	3920	2260	3230	200,000	Jan.	3750	1770	2530	157,000
Feb.	2150	1400	1680	94,000	Feb.	1920	1290	1450	81,000
Mar.	2370	1570	1790	111,000	Mar.	2650	1130	1500	93,000
Apr.	2150	1310	1700	102,000	Apr.	1320	1130	1170	70,000
May	2640	1360	1630	101,000	May	2800	1190	1840	114,000
June	13700	2750	8000	480,000	June	1920	1380	1520	91,000
July	13600	3500	7420	460,000	July	11500	1700	5350	332,000
Aug.	33300	9470	22700	1,405,000	Aug.	11800	6510	8730	541,000
Sept.	54000	13300	28100	1,683,000	Sept.	10000	6510	7650	459,000
Oct.	28200	16800	22200	1,375,000	Oct.	13500	6510	9840	610,000
Nov.	16400	5660	9270	556,000	Nov.	6860	2360	4430	266,000
Dec.	5940	2800	4050	251,000	Dec.	2360	772	1290	80,000
Total	..	..	..	6,818,000	Total	..	..	..	2,894,000

Year 1923				Year 1924					
Jan.	1410	910	1150	71,000	Jan.	7100	4380	5840	362,000
Feb.	1000	473	768	43,000	Feb.	6500	3180	4210	244,000
Mar.	620	400	484	30,000	Mar.	5920	2000	3160	196,000
Apr.	440	280	400	24,000	Apr.	4200	2240	3450	207,000
May	3670	400	1110	69,000	May	4950	2240	2770	172,000
June	21400	3010	12200	731,000	June	8870	3820	5900	354,000
July	20000	11300	15600	969,000	July	7210	3730	4890	303,000
Aug.	25100	10900	17100	1,060,000	Aug.	15100	4290	6970	432,000
Sept.	14600	10400	12000	720,000	Sept.	52500	13100	22300	1,337,000
Oct.	31400	13100	20300	1,256,000	Oct.	27600	16600	19600	1,218,000
Nov.	23300	10700	14200	852,000	Nov.	34300	11300	19600	1,175,000
Dec.	10400	5390	7480	464,000	Dec.	16800	6900	11000	680,000
Total	..	..	..	6,289,000	Total	..	..	..	6,680,000

Year 1925				Year 1926					
Jan.	13300	4760	7420	460,000	Jan.	1560	800	1240	77,000
Feb.	6600	4760	5610	314,000	Feb.	920	560	732	41,000
Mar.	5720	2550	3400	211,000	Mar.	2090	510	710	44,000
Apr.	2690	1720	2130	128,000	Apr.	2730	920	1280	77,000
May	3820	1670	2440	151,000	May	10900	4200	7060	438,000
June	4100	3180	3550	213,000	June	13900	6310	8370	502,000
July	7000	2990	4840	300,000	July	26600	12200	17200	1,069,000
Aug.	16600	5240	8100	502,000	Aug.	27900	16100	21100	1,306,000
Sept.	18800	7000	12300	740,000	Sept.	23300	12200	17800	1,066,000
Oct.	16400	9000	11500	714,000	Oct.	23100	12000	16100	1,000,000
Nov.	9560	4570	6620	397,000	Nov.	14800	5720	8380	503,000
Dec.	4100	1490	2420	150,000	Dec.	5400	3180	3940	244,000
Total	..	..	..	4,280,000	Total	..	..	..	6,367,000

MURRAY RIVER AT TOCUMWAL

Year 1927				Year 1928					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	3360	1820	2420	150,000	Jan.	1690	1060	1260	78,000
Feb.	1710	1080	1360	76,000	Feb.	8710	1150	2760	160,000
Mar.	1150	900	970	60,000	Mar.	4010	1430	2240	139,000
Apr.	980	750	833	50,000	Apr.	10200	2510	5670	340,000
May	2000	840	1160	72,000	May	10300	2520	5150	319,000
June	3210	1470	1970	118,000	June	17300	4830	11900	713,000
July	7840	2000	4440	275,000	July	17000	4720	8180	507,000
Aug.	16000	4480	9270	575,000	Aug.	16400	5730	7760	481,000
Sept.	9420	6600	7670	460,000	Sept.	8790	5390	6750	405,000
Oct.	13800	7200	10900	674,000	Oct.	24700	8660	16000	993,000
Nov.	13800	3910	8230	494,000	Nov.	16100	4950	9900	594,000
Dec.	4010	1750	2610	162,000	Dec.	4650	1870	2890	179,000
Total	..	..	..	3,166,000	Total	..	..	..	4,908,000

Year 1929				Year 1930					
Jan.	2000	830	1260	78,000	Jan.	2740	1520	1890	117,000
Feb.	1060	750	821	46,000	Feb.	1690	826	1230	69,000
Mar.	1070	610	742	46,000	Mar.	1200	650	855	53,000
Apr.	2290	720	1430	86,000	Apr.	650	440	500	30,000
May	2470	1060	1520	94,000	May	2740	510	1310	81,000
June	5190	2200	3630	218,000	June	1940	1200	1530	92,000
July	5560	2920	4270	265,000	July	3570	1290	1920	119,000
Aug.	8920	1910	4550	282,000	Aug.	8520	3380	6000	372,000
Sept.	7780	6430	7000	420,000	Sept.	7900	5050	6070	364,000
Oct.	14500	5960	10300	637,000	Oct.	23800	4610	13000	803,000
Nov.	5850	1710	3430	206,000	Nov.	14700	6080	9970	598,000
Dec.	4610	1810	2630	163,000	Dec.	8410	5280	6740	418,000
Total	..	..	..	2,541,000	Total	..	..	..	3,116,000

Year 1931				Year 1932					
Jan.	10300	3010	5890	365,000	Jan.	2970	1430	2050	127,000
Feb.	2830	1380	1770	99,000	Feb.	1380	1000	1100	64,000
Mar.	6190	1380	3820	237,000	Mar.	2830	1020	1600	99,000
Apr.	6080	4140	4930	296,000	Apr.	11500	3100	6380	383,000
May	14600	3380	7420	460,000	May	9450	3010	5060	314,000
June	64600	14900	28500	1,712,000	June	14200	2560	7150	429,000
July	62500	17000	36600	2,268,000	July	16400	9510	13500	837,000
Aug.	28600	17000	23900	1,482,000	Aug.	12400	7530	9820	609,000
Sept.	28000	16700	23100	1,385,000	Sept.	35700	12200	23100	1,387,000
Oct.	23300	12800	15300	950,000	Oct.	14200	10800	12200	754,000
Nov.	13000	9050	10100	607,000	Nov.	12000	4750	7250	435,000
Dec.	9380	3060	6560	407,000	Dec.	5730	2200	3060	190,000
Total	..	..	..	10,268,000	Total	..	..	..	5,628,000

Year 1933				Year 1934					
Jan.	2200	1290	1610	100,000	Jan.	9580	3380	6050	375,000
Feb.	1570	1190	1390	78,000	Feb.	4140	2130	2960	166,000
Mar.	1570	1520	1550	96,000	Mar.	4040	1970	3450	214,000
Apr.	2250	1330	1720	103,000	Apr.	3570	1570	1880	113,000
May	1550	1080	1240	77,000	May	4240	1690	2440	151,000
June	4800	1330	2780	167,000	June	1720	1430	1550	93,000
July	6680	1720	2810	174,000	July	13500	1750	6710	416,000
Aug.	9450	2200	7130	442,000	Aug.	15200	3580	7950	493,000
Sept.	17500	4140	14300	855,000	Sept.	11400	6740	8400	504,000
Oct.	18800	11200	15100	936,000	Oct.	29700	8900	14400	894,000
Nov.	10600	3900	5930	356,000	Nov.	32000	20400	27100	1,629,000
Dec.	8280	3010	6480	402,000	Dec.	24300	8410	17400	1,080,000
Total	..	..	..	3,786,000	Total	..	..	..	6,128,000

MURRAY RIVER AT TOCUMWAL

Year 1935				Year 1936					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	8040	4150	6290	390,000	Jan.	4500	3470	4060	252,000
Feb.	3970	2650	3210	180,000	Feb.	3580	3250	3450	200,000
Mar.	4150	3370	3530	219,000	Mar.	3580	3250	3450	214,000
Apr.	7680	3260	4820	289,000	Apr.	3920	3360	3530	212,000
May	8110	6620	7060	438,000	May	3920	1520	3550	220,000
June	9020	6740	7320	439,000	June	4620	1490	2480	149,000
July	15900	5680	9940	616,000	July	9660	5200	7020	435,000
Aug.	24000	13700	16900	1,045,000	Aug.	31400	10300	16200	1,005,000
Sept.	22800	13500	16000	958,000	Sept.	34000	12400	22200	1,335,000
Oct.	16000	13000	13600	844,000	Oct.	12200	9020	10300	638,000
Nov.	14700	6030	10100	604,000	Nov.	9090	5440	7450	447,000
Dec.	6270	4260	5060	314,000	Dec.	7740	4610	6310	391,000
Total	..	..	..	6,336,000	Total	..	..	..	5,498,000

Year 1937				Year 1938					
Jan.	6390	3860	4520	280,000	Jan.	3260	2650	2940	182,000
Feb.	4370	3470	3660	205,000	Feb.	5320	2850	3390	190,000
Mar.	3690	3360	3470	215,000	Mar.	6500	3150	4150	257,000
Apr.	3580	3050	3330	200,000	Apr.	3050	2850	2900	174,000
May	3810	2380	3320	206,000	May	3430	2260	2660	165,000
June	4260	3910	4100	246,000	June	2670	2210	2370	142,000
July	4790	3920	4190	260,000	July	3700	2180	2650	164,000
Aug.	4370	2470	3470	215,000	Aug.	2600	2210	2370	147,000
Sept.	7330	3050	4170	250,000	Sept.	3010	2020	2550	153,000
Oct.	4620	2290	3100	192,000	Oct.	3250	1800	2290	142,000
Nov.	2850	2000	2330	140,000	Nov.	2100	1800	1950	117,000
Dec.	3480	2030	3210	199,000	Dec.	2850	2110	2500	155,000
Total	..	..	..	2,608,000	Total	..	..	..	1,988,000

Year 1939				Year 1940					
Jan.	2600	2160	2390	148,000	Jan.	5510	2900	3480	216,000
Feb.	2730	2340	2430	136,000	Feb.	5110	3320	4360	253,000
Mar.	8340	2720	5690	353,000	Mar.	5110	3260	3950	245,000
Apr.	16700	2120	6570	394,000	Apr.	3960	2020	2530	152,000
May	6480	2340	3760	233,000	May	2730	1980	2350	146,000
June	10200	2020	4970	298,000	June	2430	1170	1600	96,000
July	29700	5930	17100	1,059,000	July	2230	980	1440	89,000
Aug.	43900	5930	22700	1,409,000	Aug.	3270	2020	2770	172,000
Sept.	38300	18400	29800	1,785,000	Sept.	3370	2230	3030	182,000
Oct.	29700	15400	21000	1,304,000	Oct.	3470	2090	2690	167,000
Nov.	27200	12900	22400	1,346,000	Nov.	3760	2900	3400	204,000
Dec.	11900	5870	8050	499,000	Dec.	3170	2640	2790	173,000
Total	..	..	..	8,964,000	Total	..	..	..	2,095,000

Year 1941				Year 1942					
Jan.	3470	2230	2660	165,000	Jan.	3580	2470	2940	182,000
Feb.	2470	2230	2340	131,000	Feb.	3490	2400	2980	167,000
Mar.	3430	2430	2680	166,000	Mar.	2960	2170	2450	152,000
Apr.	2650	1390	2030	122,000	Apr.	2960	2400	2630	158,000
May	3700	1250	2110	131,000	May	5130	1890	3230	200,000
June	2940	1020	1350	81,000	June	8570	1760	5000	300,000
July	2000	1210	1520	94,000	July	27500	5030	16000	994,000
Aug.	2840	1330	1690	105,000	Aug.	20400	8140	13300	826,000
Sept.	1860	995	1280	77,000	Sept.	29200	18000	22500	1,349,000
Oct.	8150	2140	5100	316,000	Oct.	18800	14100	15900	986,000
Nov.	6910	2000	4100	246,000	Nov.	14100	6870	9600	576,000
Dec.	3480	1920	2470	153,000	Dec.	6870	3940	4920	305,000
Total	..	..	..	1,787,000	Total	..	..	..	6,195,000

MURRAY RIVER AT TOCUMWAL

Year 1943				Year 1944					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	4120	3120	3580	222,000	Jan.	3680	2770	3130	194,000
Feb.	3200	2980	3050	171,000	Feb.	3020	2980	2980	173,000
Mar.	3050	2450	2740	170,000	Mar.	3430	3120	3210	199,000
Apr.	3600	2480	3130	188,000	Apr.	3270	2450	3050	183,000
May	3470	2670	3080	191,000	May	2450	1440	1690	105,000
June	3530	1240	2080	125,000	June	2910	1170	1500	90,000
July	4210	1670	2150	133,000	July	2810	1280	1630	101,000
Aug.	5610	2940	3900	242,000	Aug.	2060	1250	1530	95,000
Sept.	13500	5940	8850	531,000	Sept.	2910	2160	2530	152,000
Oct.	14700	11900	13500	838,000	Oct.	2160	1910	1920	119,000
Nov.	11400	5610	7900	474,000	Nov.	3050	2060	2530	152,000
Dec.	6900	2330	3370	209,000	Dec.	2580	2220	2230	138,000
Total	..	..	..	3,494,000	Total	..	..	..	1,701,000

Year 1945				Year 1946					
Jan.	3050	2580	2870	178,000	Jan.	3940	2420	3030	188,000
Feb.	3600	2800	3120	175,000	Feb.	4790	3230	3710	208,000
Mar.	2770	2510	2580	160,000	Mar.	4590	2450	3130	194,000
Apr.	2450	350	1480	89,000	Apr.	3770	2510	2800	168,000
May	860	310	452	28,000	May	3430	1990	2730	169,000
June	1530	855	883	53,000	June	1880	1240	1620	97,000
July	2080	630	1050	65,000	July	36700	1520	8560	531,000
Aug.	5240	680	2710	168,000	Aug.	38900	19200	27600	1,711,000
Sept.	5610	1880	3520	211,000	Sept.	19600	9410	11800	708,000
Oct.	3510	1360	2190	136,000	Oct.	12000	6990	9310	577,000
Nov.	5510	2510	3900	234,000	Nov.	11200	7360	8550	513,000
Dec.	6520	2340	3080	191,000	Dec.	8100	3120	4100	254,000
Total	..	..	..	1,688,000	Total	..	..	..	5,318,000

Year 1947				Year 1948					
Jan.	4030	2640	3270	203,000	Jan.	7360	3510	4940	306,000
Feb.	3510	3080	3210	180,000	Feb.	4400	3160	3830	222,000
Mar.	3120	2510	2890	179,000	Mar.	3510	2770	2970	184,000
Apr.	3430	2480	2780	167,000	Apr.	3430	2770	2950	177,000
May	2340	330	1340	83,000	May	2840	1300	1820	113,000
June	2770	445	1480	89,000	June	2840	1300	2030	122,000
July	12500	2840	6950	431,000	July	6060	1470	3160	196,000
Aug.	19400	9810	13800	854,000	Aug.	5830	3430	4630	287,000
Sept.	24000	14900	18000	1,083,000	Sept.	8170	5190	6750	405,000
Oct.	24300	16400	21200	1,213,000	Oct.	10600	5880	7980	495,000
Nov.	19600	10500	15800	949,000	Nov.	24300	8750	15000	901,000
Dec.	10200	6340	7470	463,000	Dec.	9820	3270	5190	322,000
Total	..	..	..	5,894,000	Total	..	..	..	3,730,000

Year 1949				Year 1950					
Jan.	4310	2580	3260	202,000	Jan.	3680	3050	3250	200,000
Feb.	3680	2640	2840	165,000	Feb.	4540	3050	3680	204,000
Mar.	4400	2910	3560	221,000	Mar.	4310	2390	2990	184,000
Apr.	3450	2450	2930	176,000	Apr.	4500	2700	3830	228,000
May	3720	2450	3130	194,000	May	2840	830	1570	97,000
June	2840	1080	1530	92,000	June	2110	780	1300	77,000
July	3510	930	1510	93,000	July	4870	705	2700	166,000
Aug.	3940	1640	2200	135,000	Aug.	8110	4560	6170	380,000
Sept.	6990	2110	3630	216,000	Sept.	11100	5550	7400	440,000
Oct.	15500	3760	9610	591,000	Oct.	13300	9880	11400	703,000
Nov.	25300	14100	19000	1,132,000	Nov.	17500	8040	13700	816,000
Dec.	14700	3120	7170	441,000	Dec.	7360	2610	4210	259,000
Total	..	..	..	3,658,000	Total	..	..	..	3,754,000

MURRAY RIVER AT TOCUMWAL

Year 1951				Year 1952					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	3230	2680	2880	178,000	Jan.	3430	2770	3140	195,000
Feb.	3340	2230	2750	154,000	Feb.	3350	3190	3230	187,000
Mar.	2750	1880	2570	159,000	Mar.	3850	2840	3120	193,000
Apr.	3900	2330	3070	184,000	Apr.	4400	2390	3150	189,000
May	3620	1300	2080	129,000	May	3760	1080	2400	149,000
June	9280	2000	4940	296,000	June	39200	2700	20500	1,230,000
July	30800	7100	14600	906,000	July	35000	18200	26600	1,648,000
Aug.	29800	19800	23400	1,451,000	Aug.	24200	13600	16200	1,002,000
Sept.	20100	10900	15100	908,000	Sept.	46500	16100	24000	1,442,000
Oct.	17300	12100	14200	879,000	Oct.	34500	13200	20000	1,244,000
Nov.	17100	4890	10900	656,000	Nov.	30000	15200	22000	1,319,000
Dec.	5290	3020	4120	256,000	Dec.	19400	11000	16000	993,000
Total	..	..	..	6,156,000	Total	..	..	..	9,791,000

Year 1953				Year 1954					
Jan.	10200	3290	5720	355,000	Jan.	4850	2860	3280	203,000
Feb.	5350	3530	4060	227,000	Feb.	6900	2680	4070	228,000
Mar.	3530	2930	3160	196,000	Mar.	3110	2530	2720	169,000
Apr.	3530	2450	3070	184,000	Apr.	4040	2400	3170	190,000
May	4220	1760	3170	196,000	May	3110	890	2030	126,000
June	3290	940	1700	102,000	June	2680	890	1850	111,000
July	5550	840	2700	167,000	July	2230	1040	1490	93,000
Aug.	26200	6840	17400	1,080,000	Aug.	7800	1100	2970	184,000
Sept.	24700	12000	16400	983,000	Sept.	12000	1100	7520	451,000
Oct.	30700	17700	25300	1,570,000	Oct.	4430	840	2710	168,000
Nov.	25200	11800	18300	1,100,000	Nov.	13300	3980	9480	569,000
Dec.	10800	3210	4950	307,000	Dec.	14600	2370	9080	563,000
Total	..	..	..	6,467,000	Total	..	..	..	3,055,000

Year 1955				Year 1956					
Jan.	3350	780	2130	132,000	Jan.	11900	8570	9760	605,000
Feb.	5250	1840	3420	192,000	Feb.	9650	2910	5370	311,000
Mar.	5950	2510	4500	279,000	Mar.	9410	2840	6070	376,000
Apr.	5400	3150	3830	230,000	Apr.	36700	5940	14600	878,000
May	4610	2510	3390	211,000	May	34700	15400	21500	1,336,000
June	11600	1540	4160	250,000	June	42600	27800	34300	2,057,000
July	22700	1040	11100	686,000	July	77500	32100	47700	2,955,000
Aug.	64500	12400	29300	1,819,000	Aug.	40800	25900	33100	2,052,000
Sept.	60500	19700	33500	2,011,000	Sept.	32100	20000	26900	1,614,000
Oct.	38800	24700	30300	1,879,000	Oct.	37900	22800	28400	1,758,000
Nov.	35700	13200	23000	1,379,000	Nov.	29600	15600	20100	1,208,000
Dec.	13000	9170	10700	664,000	Dec.	14400	5000	9610	596,000
Total	..	..	..	9,732,000	Total	..	..	..	15,746,000

Year 1957				Year 1958					
Jan.	6500	3520	5250	326,000	Jan.	4500	2260	3370	209,000
Feb.	4150	2790	3360	188,000	Feb.	3520	2100	2960	166,000
Mar.	4420	1630	3050	189,000	Mar.	3830	2180	2950	183,000
Apr.	3880	2130	3090	185,000	Apr.	3610	850	2730	164,000
May	2960	325	1610	100,000	May	4980	805	2040	126,000
June	3000	1560	2300	138,000	June	5990	1400	3980	239,000
July	6500	850	3370	209,000	July	8680	925	2740	170,000
Aug.	4880	650	2160	134,000	Aug.	56000	6400	23000	1,425,000
Sept.	3360	1290	2540	153,000	Sept.	26300	10000	14700	880,000
Oct.	4230	1650	2930	182,000	Oct.	38500	10100	25600	1,587,000
Nov.	3610	2200	2990	180,000	Nov.	30400	5990	14600	874,000
Dec.	4050	2940	3300	204,000	Dec.	7450	1930	4610	286,000
Total	..	..	..	2,188,000	Total	..	..	..	6,309,000

MURRAY RIVER AT TOCUMWAL

Year 1959				Year 1960					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	4590	2120	3140	195,000	Jan.	4130	1960	2550	158,000
Feb.	4150	3130	3830	215,000	Feb.	2830	2500	2710	157,000
Mar.	4180	2220	3290	204,000	Mar.	2870	2180	2630	163,000
Apr.	5130	2530	3300	198,000	Apr.	3360	2530	2980	179,000
May	3200	1210	2120	131,000	May	7000	3100	4840	300,000
June	2530	1020	1480	89,000	June	6370	3190	4750	285,000
July	1480	572	1040	65,000	July	17200	1240	6780	420,000
Aug.	3560	1100	2170	135,000	Aug.	25900	17200	23500	1,455,000
Sept.	4160	2200	2870	172,000	Sept.	29600	11600	15500	929,000
Oct.	9460	2050	4620	286,000	Oct.	37900	9910	21300	1,319,000
Nov.	10200	1880	5320	319,000	Nov.	10900	4870	8360	501,000
Dec.	3400	2040	2500	155,000	Dec.	9820	3190	5350	332,000
Total	..	..	..	2,164,000	Total	..	..	..	6,198,000

Year 1961				Year 1962					
Jan.	3540	2740	2960	184,000	Jan.	2980	1800	2430	151,000
Feb.	4000	2780	3480	195,000	Feb.	2540	2110	2310	129,000
Mar.	4390	2840	3610	224,000	Mar.	2600	1000	1700	106,000
Apr.	4020	2520	3320	199,000	Apr.	2430	680	1090	65,000
May	3880	1360	2920	181,000	May	4130	815	1230	76,000
June	2200	895	1350	81,000	June	7470	4150	5630	338,000
July	3070	480	1700	106,000	July	5630	946	2740	170,000
Aug.	7650	600	3060	190,000	Aug.	7330	2900	4900	304,000
Sept.	3880	1520	2820	169,000	Sept.	4070	2420	2910	175,000
Oct.	3730	2150	2870	178,000	Oct.	3370	1680	2420	150,000
Nov.	3880	1580	3400	204,000	Nov.	4210	2020	2950	177,000
Dec.	3380	1450	2430	150,000	Dec.	3100	2080	2440	151,000
Total	..	..	..	2,061,000	Total	..	..	..	1,992,000

Year 1963				Year 1964					
Jan.	3840	1790	2410	150,000	Jan.	2720	2350	2440	151,000
Feb.	2720	1760	2290	128,000	Feb.	3100	2440	2830	164,000
Mar.	4440	2080	2990	185,000	Mar.	3940	3040	3560	221,000
Apr.	3030	1210	1980	119,000	Apr.	4350	1190	2850	171,000
May	3770	660	1810	112,000	May	3970	875	1340	83,000
June	5660	1500	2860	172,000	June	4190	895	1920	115,000
July	4540	1690	2970	184,000	July	30400	3780	13500	837,000
Aug.	11500	960	4650	288,000	Aug.	28300	12300	19800	1,228,000
Sept.	11600	3490	5560	333,000	Sept.	20000	8820	14900	896,000
Oct.	8420	2500	4100	254,000	Oct.	40600	17800	27400	1,698,000
Nov.	5930	1680	2830	170,000	Nov.	17900	4460	11000	661,000
Dec.	3220	1740	2070	128,000	Dec.	6330	2160	3450	214,000
Total	..	..	..	2,223,000	Total	..	..	..	6,439,000

Year 1965				Year 1966					
Jan.	2830	2050	2400	149,000	Jan.	3800	1540	2630	163,000
Feb.	3050	2010	2490	139,000	Feb.	4600	2190	3410	191,000
Mar.	4000	3110	3570	222,000	Mar.	7060	2440	4900	304,000
Apr.	3560	1040	2520	151,000	Apr.	3720	1530	2580	155,000
May	3850	594	1370	85,000	May	1600	700	980	61,000
June	3920	684	2020	121,000	June	1600	765	1390	83,000
July	1340	785	941	58,000	July	2830	785	1830	113,000
Aug.	8300	794	2720	169,000	Aug.	8150	1520	4700	291,000
Sept.	11200	2740	5400	324,000	Sept.	14500	2650	6630	398,000
Oct.	3950	1260	2320	144,000	Oct.	11500	1760	6900	428,000
Nov.	1620	740	1160	69,000	Nov.	12000	3020	8470	508,000
Dec.	3130	685	1550	96,000	Dec.	16200	3420	11300	703,000
Total	..	..	..	1,727,000	Total	..	..	..	3,398,000

MURRAY RIVER AT TOCUMWAL

Year 1967				Year 1968					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	6520	2890	3620	225,000	Jan.	2430	1490	2020	125,000
Feb.	3870	2910	3420	192,000	Feb.	1550	960	1240	72,000
Mar.	4230	3510	4050	251,000	Mar.	2240	1390	1940	120,000
Apr.	3940	1090	2700	162,000	Apr.	1560	790	969	58,000
May	1340	800	990	61,000	May	7270	785	2230	139,000
June	1300	700	1040	62,000	June	17400	2660	8630	518,000
July	1780	710	948	60,000	July	4260	1150	2490	154,000
Aug.	3500	1520	2610	162,000	Aug.	15400	1150	6960	431,000
Sept.	3020	1820	2430	146,000	Sept.	10400	1240	3910	235,000
Oct.	3340	1980	2510	156,000	Oct.	12600	2060	6410	398,000
Nov.	3320	1990	2790	167,000	Nov.	11600	6130	8520	511,000
Dec.	3280	1680	2490	154,000	Dec.	4300	3020	3300	205,000
Total	..	..	..	1,798,000	Total	..	..	..	2,966,000

Year 1969				Year 1970					
Jan.	4800	3380	4140	257,000	Jan.	6540	3680	4545	282,000
Feb.	7220	4090	5200	291,000	Feb.	4920	4300	4699	263,000
Mar.	7540	3480	4880	303,000	Mar.	7410	4600	5229	324,000
Apr.	5380	2060	3090	186,000	Apr.	6750	3430	4262	256,000
May	4630	1530	2380	148,000	May	5300	2830	3440	213,000
June	5880	1470	3150	189,000	June	4750	2520	3220	193,000
July	18100	1600	4900	304,000	July	8405	3370	5890	365,000
Aug.	18400	5040	11000	684,000	Aug.	23600	2410	9352	580,000
Sept.	16800	5950	13100	784,000	Sept.	70100	24100	32052	1,923,000
Oct.	10700	3820	5210	323,000	Oct.	36300	9300	19621	1,216,000
Nov.	7890	3240	5170	310,000	Nov.	15400	5800	10431	626,000
Dec.	4960	3580	4060	252,000	Dec.	6240	3580	4198	260,000
Total	..	..	..	4,031,000	Total	..	..	..	6,501,000

Year 1971				Year 1972					
Jan.	5930	3620	4166	258,000	Jan.	4990	2880	3861	239,000
Feb.	6870	3700	4625	259,000	Feb.	8410	3450	4661	270,000
Mar.	5400	3100	4105	255,000	Mar.	4150	3610	3872	240,000
Apr.	4400	3300	3577	215,000	Apr.	5290	2630	3374	202,000
May	4600	2550	3570	221,000	May	3390	1520	2314	143,000
June	7740	2200	4346	261,000	June	2450	855	1706	102,000
July	5200	1210	2641	164,000	July	3290	2260	2723	169,000
Aug.	10700	1480	3729	231,000	Aug.	4720	2740	3327	206,000
Sept.	18700	6000	12133	728,000	Sept.	4970	2550	3098	186,000
Oct.	26000	7950	16098	998,000	Oct.	5130	3250	4289	266,000
Nov.	31600	4480	15862	952,000	Nov.	5330	3440	4277	257,000
Dec.	9640	2400	5145	319,000	Dec.	4450	3430	3912	243,000
Total	..	..	..	4,861,000	Total	..	..	..	2,523,000

WAKOOL RIVER AT STONY CROSSING

LOCATION: Latitude 35°03' Longitude 143°34'

PERIOD OF ESTABLISHMENT: June, 1922 to date

COMPLETE YEARS OF COMPUTED RECORDS: 50 years

ZERO OF GAUGE: R.L. 182.54 Water Conservation Datum

CATCHMENT AREA: Effluent - Ana Branch

CONTROL: Gravel

EQUIPMENT: Automatic Recorder (Float Type)
Staff Gauge, range 0 to 35 feet

CURRENT METER OBSERVATIONS:

(a) Number Obtained	:	266
(b) Maximum Observation in Cusecs	:	26,578
(c) Minimum Observation in Cusecs	:	No Flow

MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS: 65,000 cusecs (July, 1956)

MEAN DAILY DISCHARGE FOR 50 YEARS: 2,070 cusecs

MEAN ANNUAL DISCHARGE FOR 50 YEARS: 1,508,000 acre feet

REMARKS:

Station No. 1 was established in June 1922 and discontinued in September 1956.

Station No.2 was established in September 1956 at a site 1.2 miles upstream of No.1 Station and discontinued in April 1957.

Station No.3 was established in April 1957 at a site ½ mile upstream of No.2 Station when a Float Recorder was installed. This station is influenced by backwater from the Murray River when the Murray River at Wakool Junction is above 17 feet.

The records include controlled releases from Hume Reservoir which commenced in February 1929 and controlled discharged from Stevens Weir and Mulwala Canal escape since 1935 and 1941 respectively.

WAKOOL RIVER AT STONY CROSSING

Year 1922				Year 1923					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	No Records			..	Jan.	11	0	6	384
Feb.	No Records			..	Feb.	0	0	0	0
Mar.	No Records			..	Mar.	0	0	0	0
Apr.	No Records			..	Apr.	0	0	0	0
May	No Records			..	May	3	0	0.3	18
June	No Records			..	June	386	4	78	4,672
July	11	11	11	682	July	8420	580	4750	294,480
Aug.	604	11	276	17,146	Aug.	16300	8730	12940	802,280
Sept.	1150	604	811	48,700	Sept.	16100	6630	11019	661,180
Oct.	1330	715	1056	65,470	Oct.	6630	4960	5627	348,880
Nov.	1180	186	525	31,528	Nov.	12900	6720	9314	558,860
Dec.	177	11	53	3,270	Dec.	7580	760	3419	212,000
Total	..	..	..	..	Total	..	..	..	2,882,754

Year 1924				Year 1925					
Jan.	700	143	333	20,640	Jan.	5200	242	1278	79,228
Feb.	143	81	119	6,930	Feb.	652	170	408	22,880
Mar.	81	81	81	5,022	Mar.	386	51	155	9,598
Apr.	126	81	89	5,394	Apr.	51	8	18	1,086
May	126	96	103	6,388	May	8	4	5	302
June	340	53	131	7,854	June	51	6	16	966
July	745	224	496	30,772	July	652	44	310	19,270
Aug.	580	81	175	10,862	Aug.	1470	760	1230	76,240
Sept.	14500	580	6380	382,854	Sept.	2830	820	1776	106,590
Oct.	14100	7770	9415	583,726	Oct.	4280	2620	3401	210,910
Nov.	9740	8950	9304	558,270	Nov.	2350	432	978	58,712
Dec.	11900	5630	9976	618,550	Dec.	386	19	138	8,584
Total	..	..	..	2,237,262	Total	..	..	..	594,366

Year 1926				Year 1927					
Jan.	14	1	4	242	Jan.	106	25	47	2,930
Feb.	1	0	0.2	14	Feb.	25	11	13	708
Mar.	4	0	1	80	Mar.	11	8	8	520
Apr.	25	3	7	422	Apr.	8	3	4	242
May	315	3	29	1,784	May	4	2	2	162
June	880	315	594	35,642	June	8	2	4	240
July	5760	820	2647	164,150	July	4	4	4	248
Aug.	10400	5630	6938	430,160	Aug.	580	4	79	4,902
Sept.	11900	10600	11337	680,250	Sept.	940	555	753	45,194
Oct.	10600	4000	6960	431,520	Oct.	1000	364	619	38,354
Nov.	6060	1430	4649	278,940	Nov.	1060	555	900	54,046
Dec.	1150	106	362	22,478	Dec.	505	8	153	9,476
Total	..	..	..	2,045,682	Total	..	..	..	157,022

Year 1928				Year 1929					
Jan.	64	0	14	888	Jan.	64	4	23	1,436
Feb.	121	1	47	2,742	Feb.	4	2	4	216
Mar.	14	4	11	708	Mar.	2	0	0.4	26
Apr.	242	4	40	2,444	Apr.	4	0	3	206
May	266	4	83	5,132	May	4	4	4	248
June	2780	25	745	44,682	June	4	1	2	120
July	5760	1150	3706	229,760	July	218	1	102	6,324
Aug.	3420	860	2272	140,880	Aug.	91	4	37	2,282
Sept.	700	242	338	20,310	Sept.	290	4	178	10,700
Oct.	3600	242	1086	67,342	Oct.	555	170	307	18,662
Nov.	5900	1830	4427	265,640	Nov.	505	64	243	14,608
Dec.	1690	64	392	24,306	Dec.	64	4	18	1,100
Total	..	..	..	804,834	Total	..	..	..	55,928

WAKOOL RIVER AT STONY CROSSING

Year 1930				Year 1931					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	4	0	0.7	46	Jan.	2730	315	1410	87,412
Feb.	0	0	0	0	Feb.	266	8	91	5,110
Mar.	0	0	0	0	Mar.	14	2	4	264
Apr.	0	0	0	0	Apr.	152	1	44	2,664
May	0	0	0	0	May	676	137	261	16,186
June	0	0	0	0	June	9740	760	3668	220,080
July	0	0	0	0	July	50400	10300	37143	2,302,840
Aug.	51	0	3	188	Aug.	43900	13800	24054	1,491,370
Sept.	137	64	105	6,282	Sept.	20000	14500	18012	1,080,720
Oct.	700	77	228	14,120	Oct.	15600	9180	13882	860,660
Nov.	2730	790	2030	121,780	Nov.	8520	1240	3922	235,350
Dec.	2620	432	1157	71,706	Dec.	1210	315	694	43,024
Total	..	..	..	214,122	Total	..	..	..	6,345,680

Year 1932				Year 1933					
Jan.	315	28	125	7,766	Jan.	81	28	40	2,452
Feb.	110	11	31	1,826	Feb.	28	11	17	940
Mar.	18	11	16	1,004	Mar.	11	7	9	538
Apr.	244	18	39	2,326	Apr.	7	7	7	420
May	628	195	446	27,676	May	11	7	8	478
June	505	143	217	13,038	June	11	7	9	548
July	9400	580	4212	261,152	July	195	11	34	2,114
Aug.	9960	3720	7052	437,220	Aug.	340	143	223	13,828
Sept.	15200	3720	7372	442,300	Sept.	6390	432	2191	131,464
Oct.	17600	4680	11782	730,480	Oct.	7860	6140	7069	438,320
Nov.	4420	628	2301	138,086	Nov.	6060	480	3058	183,486
Dec.	604	81	245	15,212	Dec.	652	364	472	29,270
Total	..	..	..	2,078,086	Total	..	..	..	803,858

Year 1934				Year 1935					
Jan.	409	266	324	20,136	Jan.	10700	360	5196	322,180
Feb.	409	64	175	9,806	Feb.	310	77	158	8,842
Mar.	51	4	12	772	Mar.	77	14	37	2,326
Apr.	4	1	2	158	Apr.	51	8	18	1,080
May	1	0	0.7	42	May	685	51	401	24,894
June	1	0	0	6	June	610	195	391	23,470
July	175	0	12	728	July	1990	635	1047	64,900
Aug.	485	122	332	20,572	Aug.	9620	2120	5857	363,110
Sept.	1390	410	1076	64,550	Sept.	11200	8130	9804	588,220
Oct.	1390	385	743	46,054	Oct.	9620	6060	8241	510,980
Nov.	12100	1390	6209	372,520	Nov.	5900	2070	4258	255,500
Dec.	14100	9180	11472	711,280	Dec.	1620	310	540	33,460
Total	..	..	..	1,246,624	Total	..	..	..	2,198,962

Year 1936				Year 1937					
Jan.	360	260	306	18,970	Jan.	335	122	249	15,428
Feb.	237	175	204	11,858	Feb.	122	4	48	2,732
Mar.	175	91	143	8,836	Mar.	18	4	15	962
Apr.	91	38	58	3,456	Apr.	42	12	29	1,726
May	77	51	62	3,826	May	106	42	65	4,028
June	106	64	81	4,874	June	156	106	137	8,244
July	735	77	345	21,438	July	145	97	117	7,262
Aug.	5830	710	2870	177,920	Aug.	97	46	63	3,890
Sept.	17200	5830	11203	672,200	Sept.	68	46	51	3,052
Oct.	15600	1090	6769	419,680	Oct.	56	26	42	2,626
Nov.	910	435	625	37,520	Nov.	97	18	61	3,630
Dec.	410	122	266	16,482	Dec.	26	12	20	1,212
Total	..	..	..	1,397,060	Total	..	..	..	54,792

WAKOOL RIVER AT STONY CROSSING

Year 1938				Year 1939					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	12	8	11	664	Jan.	0	0	0	0
Feb.	12	4	7	368	Feb.	0	0	0	0
Mar.	37	12	19	1,158	Mar.	112	0	23	1,422
Apr.	26	56	45	3,718	Apr.	1360	112	495	29,708
May	56	37	48	2,994	May	3040	560	1753	108,656
June	56	26	44	2,638	June	2600	245	885	53,106
July	56	37	45	2,768	July	11300	1930	4858	301,234
Aug.	56	12	28	1,714	Aug.	11700	5970	8322	515,984*
Sept.	12	0	5	290	Sept.	37000	9180	21611	1,296,662*
Oct.	0	0	0	0	Oct.	36000	9960	21471	1,331,220*
Nov.	0	0	0	0	Nov.	10100	9070	9754	585,250
Dec.	0	0	0	0	Dec.	9070	1075	5907	366,268
Total	..	..	..	16,312	Total	..	..	..	4,589,510*

Year 1940				Year 1941					
Jan.	835	91	322	19,954	Jan.	254	98	155	9,600
Feb.	91	26	51	2,946	Feb.	97	8	83	4,656
Mar.	91	15	53	3,288	Mar.	12	2	5	308
Apr.	126	32	48	2,896	Apr.	18	12	16	936
May	32	32	32	1,984	May	18	8	16	988
June	70	32	48	2,892	June	37	8	23	1,368
July	44	9	27	1,666	July	18	8	15	932
Aug.	9	0	4	256	Aug.	26	4	16	968
Sept.	112	0	34	2,028	Sept.	12	4	9	572
Oct.	98	24	65	4,040	Oct.	310	4	117	7,252
Nov.	195	16	97	5,818	Nov.	224	143	174	10,472
Dec.	234	176	217	13,450	Dec.	204	18	82	5,112
Total	..	..	..	61,218	Total	..	..	..	43,164

Year 1942				Year 1943					
Jan.	96	18	63	3,878	Jan.	310	106	154	9,550
Feb.	18	4	11	632	Feb.	106	91	93	5,216
Mar.	11	2	6	346	Mar.	91	64	81	5,000
Apr.	96	11	46	2,742	Apr.	77	64	69	4,166
May	96	67	80	4,982	May	77	64	73	4,516
June	244	96	175	10,480	June	91	81	86	5,170
July	2540	0	502	31,134*	July	96	40	56	3,442
Aug.	7800	3107	6016	373,020*	Aug.	160	28	62	3,832
Sept.	10000	4652	6404	384,218*	Sept.	604	126	225	13,518
Oct.	12400	7950	10498	650,870*	Oct.	1830	628	1360	84,306
Nov.	7480	1430	4248	254,880	Nov.	1580	510	1156	69,340
Dec.	1330	310	643	39,840	Dec.	485	122	293	18,176
Total	..	..	..	1,757,022*	Total	..	..	..	226,232

Year 1944				Year 1945					
Jan.	122	4	33	2,068	Jan.	0	0	0	0
Feb.	64	4	48	2,782	Feb.	0	0	0	0
Mar.	77	38	51	3,188	Mar.	84	0	37	2,302
Apr.	139	25	78	4,660	Apr.	2	1	2	92
May	175	106	141	8,734	May	25	2	16	1,014
June	106	25	55	3,282	June	8	2	4	216
July	38	8	23	1,388	July	4	2	2	144
Aug.	14	8	11	664	Aug.	64	2	4	268
Sept.	8	0	1	88	Sept.	195	51	117	6,992
Oct.	56	1	30	1,866	Oct.	195	32	99	6,160
Nov.	32	16	21	1,232	Nov.	70	32	55	3,328
Dec.	16	0	5	302	Dec.	126	56	95	5,866
Total	..	..	..	30,254	Total	..	..	..	26,382

* Estimated

WAKOOL RIVER AT STONY CROSSING

Year 1946				Year 1947					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	70	44	58	3,578	Jan.	195	64	111	6,862
Feb.	140	56	84	4,704	Feb.	64	25	52	2,936
Mar.	176	91	153	9,516	Mar.	25	8	15	938
Apr.	91	38	52	3,126	Apr.	25	8	15	874
May	38	25	28	1,758	May	25	14	15	934
June	25	14	21	1,280	June	14	4	8	504
July	91	14	40	2,490	July	64	2	11	710
Aug.	11900	91	3915	242,720	Aug.	2350	77	1176	72,936
Sept.	11900	2040	8544	512,660	Sept.	7080	2430	5249	314,930
Oct.	2730	435	1006	62,542	Oct.	7950	6470	6923	429,250
Nov.	940	435	702	42,130	Nov.	8420	6630	7770	466,230
Dec.	635	216	417	24,854	Dec.	6550	652	3878	240,454
Total	..	..	..	911,358	Total	..	..	..	1,537,558

Year 1948				Year 1949					
Jan.	660	195	381	23,652	Jan.	285	64	144	8,934
Feb.	175	91	111	6,412	Feb.	64	14	27	1,500
Mar.	91	64	84	5,230	Mar.	195	14	116	7,220
Apr.	64	38	44	2,618	Apr.	122	38	64	3,844
May	64	25	45	2,798	May	51	25	31	1,914
June	51	14	40	2,396	June	106	38	71	4,230
July	64	38	46	2,876	July	38	4	15	936
Aug.	106	51	65	4,000	Aug.	14	2	5	330
Sept.	310	38	137	8,236	Sept.	38	1	7	402
Oct.	385	285	345	21,370	Oct.	660	38	223	13,816
Nov.	1470	335	865	51,880	Nov.	6310	735	3126	187,530
Dec.	2430	285	1432	88,806	Dec.	7080	1470	5943	368,490
Total	..	..	..	220,274	Total	..	..	..	599,146

Year 1950				Year 1951					
Jan.	1720	91	289	17,938	Jan.	143	30	66	4,072
Feb.	91	77	78	4,396	Feb.	26	12	17	980
Mar.	1240	77	187	11,568	Mar.	83	12	33	2,066
Apr.	2880	1150	2011	120,650	Apr.	26	12	21	1,238
May	1180	106	744	46,134	May	45	12	25	1,536
June	139	106	119	7,136	June	633	45	179	10,740
July	90	57	70	4,354	July	3210	720	1739	107,810
Aug.	1440	90	839	51,988	Aug.	19900	3450	12915	800,700
Sept.	1370	810	999	59,964	Sept.	18800	11100	16629	997,740
Oct.	2400	1370	2019	125,160	Oct.	10700	3330	5296	328,350
Nov.	3450	2010	2412	144,730	Nov.	3270	2310	2878	172,692
Dec.	3510	143	1552	96,218	Dec.	2130	96	603	37,412
Total	..	..	..	690,236	Total	..	..	..	2,465,336

Year 1952				Year 1953					
Jan.	96	19	36	2,246	Jan.	10000	660	5765	357,434
Feb.	23	12	15	864	Feb.	530	135	293	16,434
Mar.	35	23	31	1,890	Mar.	135	64	89	5,536
Apr.	40	26	30	1,788	Apr.	96	64	84	5,034
May	96	35	64	4,000	May	77	64	72	4,436
June	2820	125	785	47,120	June	265	55	122	7,296
July	27000	3330	14892	923,324	July	55	32	42	2,610
Aug.	31000	14000	24024	1,489,500	Aug.	3390	47	995	61,676
Sept.	12800	8890	9795	587,720	Sept.	10000	3810	7959	477,540
Oct.	22200	9000	15617	968,280	Oct.	14200	6330	8978	556,608
Nov.	17900	8890	11617	697,040	Nov.	14900	12300	13897	833,810
Dec.	13300	10100	12318	763,734	Dec.	12000	470	6479	401,710
Total	..	..	..	5,487,506	Total	..	..	..	2,730,124

WAKOOL RIVER AT STONY CROSSING

Year 1954				Year 1955					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	450	68	171	10,624	Jan.	3390	72	1402	86,936
Feb.	305	68	216	12,088	Feb.	208	49	76	4,266
Mar.	160	62	83	5,140	Mar.	246	97	151	9,384
Apr.	62	46	52	3,144	Apr.	97	84	89	5,326
May	82	56	74	4,596	May	185	72	97	5,990
June	82	24	46	2,782	June	196	97	151	9,070
July	28	20	25	1,556	July	1050	97	563	34,884
Aug.	46	20	22	1,386	Aug.	9220	97	4426	274,444
Sept.	650	56	317	19,046	Sept.	29700	1170	23466	1,407,940
Oct.	585	46	206	12,764	Oct.	26100	10600	21433	1,328,850
Nov.	432	46	147	8,836	Nov.	18700	19000	17921	1,075,300
Dec.	2990	510	1753	108,700	Dec.	14800	15400	7205	446,740
Total	..	..	..	190,662	Total	..	..	..	4,689,130

Year 1956				Year 1957					
Jan.	1000	645	701	43,470	Jan.	3720	179	674	41,776
Feb.	940	330	658	38,160	Feb.	179	128	163	9,102
Mar.	440	220	321	19,880	Mar.	128	91	108	6,702
Apr.	1580	465	1031	61,866	Apr.	89	78	83	4,978
May	13700	1700	8456	524,270	May	98	83	88	5,454
June	25600	14000	22954	1,217,220	June	197	95	151	9,036
July	65000	25300	38728	2,401,140	July	640	180	310	19,208
Aug.	64700	37300	49089	3,043,500	Aug.	339	69	148	9,162
Sept.	37100	33700	34653	2,079,200	Sept.	78	47	64	3,874
Oct.	33300	20900	25759	1,597,076	Oct.	55	35	43	2,656
Nov.	22800	19300	20851	1,251,084	Nov.	60	20	44	2,666
Dec.	19300	4410	12094	749,814	Dec.	45	14	22	1,360
Total	..	..	..	13,026,680	Total	..	..	..	115,974

Year 1958				Year 1959					
Jan.	66	14	42	2,612	Jan.	712	66	244	15,146
Feb.	45	20	36	2,008	Feb.	115	53	78	4,340
Mar.	27	0.5	11	669	Mar.	179	101	137	8,496
Apr.	0.5	0	0.1	7	Apr.	223	79	133	7,986
May	105	0.5	22	1,398	May	88	47	56	3,502
June	146	66	103	6,162	June	192	54	106	6,338
July	192	59	129	8,004	July	59	17	30	1,868
Aug.	5610	59	1063	65,910	Aug.	17	2	8	526
Sept.	26600	5610	19224	1,153,466	Sept.	14	2	4	207
Oct.	12100	5620	7616	472,194	Oct.	253	14	144	8,940
Nov.	17000	10800	15257	915,422	Nov.	393	235	311	18,686
Dec.	12200	712	4281	265,446	Dec.	337	65	134	8,290
Total	..	..	..	2,893,298	Total	..	..	..	84,325

Year 1960				Year 1961					
Jan.	348	59	97	5,988	Jan.	360	75	177	10,956
Feb.	66	20	31	1,810	Feb.	68	30	43	2,408
Mar.	66	7	40	2,450	Mar.	75	30	53	3,306
Apr.	114	10	67	4,018	Apr.	191	68	143	8,568
May	515	108	335	20,774	May	234	137	175	10,854
June	697	408	542	32,494	June	206	151	131	7,872
July	700	300	515	31,960	July	80	28	40	2,498
Aug.	11900	540	4468	277,020	Aug.	111	52	73	4,496
Sept.	17200	8200	13760	825,600	Sept.	182	66	127	7,616
Oct.	22100	11900	16800	1,041,200	Oct.	62	8	25	1,523
Nov.	19800	1300	8400	501,400	Nov.	71	9	32	1,928
Dec.	2800	395	1000	62,420	Dec.	83	26	57	3,510
Total	..	..	..	2,807,134	Total	..	..	..	65,535

WAKOOL RIVER AT STONY CROSSING

Year 1962				Year 1963					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	34	6	19	1,189	Jan.	107	17	53	3,290
Feb.	59	8	39	2,174	Feb.	51	0.5	12	665
Mar.	7	0	2	97	Mar.	0.5	0.1	0.1	5
Apr.	0	0	0	0	Apr.	41	15	15	897
May	60	0	9	537	May	235	112	112	6,916
June	265	60	105	6,276	June	872	557	557	33,434
July	323	207	287	17,822	July	337	213	213	13,212
Aug.	575	125	286	17,716	Aug.	517	391	391	24,230
Sept.	571	73	260	15,576	Sept.	611	490	490	29,428
Oct.	123	11	65	4,054	Oct.	432	270	270	16,712
Nov.	17	4	12	726	Nov.	221	156	156	9,366
Dec.	11	4	6	380	Dec.	78	41	41	2,540
Total	..	..	..	66,547	Total	..	..	..	140,695

Year 1964				Year 1965					
Jan.	24	2	14	854	Jan.	274	52	124	7,706
Feb.	2	0.7	1	66	Feb.	52	21	37	2,102
Mar.	1	0	0.3	19	Mar.	21	4	9	570
Apr.	108	0	16	981	Apr.	77	2	33	2,002
May	121	50	92	5,694	May	63	39	49	3,062
June	50	31	41	2,448	June	145	55	117	7,020
July	585	29	164	10,170	July	104	32	62	3,840
Aug.	13600	585	7225	447,952	Aug.	53	8	33	2,040
Sept.	13200	8860	11035	662,110	Sept.	1010	50	519	31,100
Oct.	21100	9090	13298	824,458	Oct.	1290	80	459	28,400
Nov.	26000	9720	20375	1,222,504	Nov.	81	46	59	3,570
Dec.	9720	274	2318	143,690	Dec.	93	44	70	4,330
Total	..	..	..	3,320,946	Total	..	..	..	95,742

Year 1966				Year 1967					
Jan.	42	4	13	820	Jan.	1300	211	788	48,800
Feb.	34	6	21	1,170	Feb.	208	45	102	5,730
Mar.	15	0	4	258	Mar.	41	1	9	568
Apr.	68	0	28	1,680	Apr.	1	0	0.3	16
May	62	6	23	1,460	May	38	0	19	1,160
June	80	43	58	3,480	June	136	35	87	5,200
July	55	21	38	2,360	July	47	7	22	1,390
Aug.	156	20	44	2,730	Aug.	26	0	4	228
Sept.	337	103	230	13,800	Sept.	145	20	85	5,090
Oct.	801	164	553	34,300	Oct.	19	0	6	386
Nov.	530	286	409	24,500	Nov.	0	0	0	0
Dec.	890	300	516	32,000	Dec.	0	0	0	0
Total	..	..	..	118,558	Total	..	..	..	68,568

Year 1968				Year 1969					
Jan.	0	0	0	0	Jan.	171	27	73	4,560
Feb.	0	0	0	0	Feb.	109	22	64	3,600
Mar.	0	0	0	0	Mar.	235	94	139	8,600
Apr.	0	0	0	0	Apr.	294	139	231	13,900
May	0	0	0	0	May	170	123	136	8,460
June	2840	0	616	37,000	June	382	170	273	16,400
July	2600	344	997	61,800	July	243	124	150	9,290
Aug.	2510	289	662	41,000	Aug.	2120	144	1168	72,400
Sept.	3760	558	2462	148,000	Sept.	1860	692	1091	65,500
Oct.	553	137	230	14,200	Oct.	2380	399	1538	95,300
Nov.	518	209	372	22,300	Nov.	399	162	277	16,600
Dec.	447	171	311	19,300	Dec.	186	69	140	8,680
Total	..	..	..	343,600	Total	..	..	..	323,290

WAKOOL RIVER AT STONY CROSSING

Year 1970				Year 1971					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	149	69	120	7,460	Jan.	170	62	92	5,690
Feb.	130	51	73	4,100	Feb.	231	127	178	9,960
Mar.	106	36	60	3,700	Mar.	190	96	139	8,640
Apr.	316	120	227	13,600	Apr.	241	136	163	9,780
May	703	241	436	27,000	May	270	215	239	14,800
June	239	108	154	9,250	June	442	231	301	18,100
July	609	96	280	17,400	July	400	120	179	11,100
Aug.	626	223	355	22,000	Aug.	234	117	178	11,000
Sept.	17100	377	5919	355,000	Sept.	1360	144	535	32,100
Oct.	18200	10900	15979	991,000	Oct.	3940	273	1209	74,900
Nov.	10100	896	4187	251,000	Nov.	5060	2450	3640	218,000
Dec.	1500	183	882	54,700	Dec.	8670	600	5114	317,000
Total	..	..	..	1,756,210	Total	..	..	..	731,070

Year 1972				
Month	Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	601	125	275	17,000
Feb.	152	45	79	4,600
Mar.	189	14	97	6,030
Apr.	187	14	64	3,850
May	255	168	201	12,500
June	255	74	176	10,600
July	83	27	61	3,770
Aug.	142	27	74	4,600
Sept.	126	34	77	4,600
Oct.	33	14	19	1,170
Nov.	88	21	50	3,020
Dec.	83	17	57	3,510
Total	..	..	..	75,250

EDWARD RIVER AT MOULAMEIN

LOCATION: Latitude 35°05' Longitude 144°02'

PERIOD OF ESTABLISHMENT: June 1905 to date

COMPLETE YEARS OF COMPUTED RECORDS: 50 years

ZERO OF GAUGE: R.L. 213.17 Water Conservation Datum

CATCHMENT AREA: Effluent - Ana Branch

CONTROL: Hard Clay

EQUIPMENT: Staff Gauge, range 0 to 25 feet

CURRENT METER OBSERVATIONS:

(a) Number Obtained : 306

(b) Maximum Observation
in Cusecs : 13,530

(c) Minimum Observation
in Cusecs : No Flow

MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS: 14,600 cusecs (July, 1956)

MEAN DAILY DISCHARGE FOR 50 YEARS: 1,050 cusecs

MEAN ANNUAL DISCHARGE FOR 50 YEARS: 769,000 acre feet

REMARKS:

No.1 Station was established in 1922 and discontinued in June 1942.

No.2 Station was established in July 1942 at a site $\frac{1}{4}$ mile downstream of No.1 Station and a Pressure Recorder installed. It was discontinued in June 1967.

No.1 Station was re-established in July 1967 as a Staff Gauge Station.

These records include controlled releases from Hume Reservoir, which commenced in February 1929 and controlled discharges from Stevens Weir and Mulwala Canal escape since 1935 and 1941 respectively.

EDWARD RIVER AT MOULAMEIN

Year 1922				Year 1923					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	..	..	..	..	Jan.	170	25	110	6,824
Feb.	..	..	..	..	Feb.	25	3	11	638
Mar.	..	..	..	..	Mar.	3	0	1	51
Apr.	..	..	..	..	Apr.	0	0	0	0
May	..	..	..	..	May	0	0	0	0
June	..	..	..	..	June	1510	0	467	28,020
July	..	..	..	..	July	3800	1570	2801	173,720
Aug.	2360	1000	1463	90,750	Aug.	5480	4220	4870	301,960
Sept.	3020	1480	2245	134,720	Sept.	4880	2310	3278	196,660
Oct.	1930	1390	1763	109,350	Oct.	3140	2510	2843	176,270
Nov.	1740	875	1271	76,300	Nov.	4040	2540	3446	206,750
Dec.	875	130	422	26,180	Dec.	2390	1240	1736	107,670
Total	..	..	..	..	Total	..	..	..	1,198,563

Year 1924				Year 1925					
Jan.	1180	900	1030	63,840	Jan.	1700	725	1183	73,350
Feb.	875	575	73	42,120	Feb.	1420	840	1176	65,730
Mar.	850	440	581	36,050	Mar.	900	395	716	44,420
Apr.	625	190	393	23,600	Apr.	360	100	219	13,140
May	530	235	382	23,720	May	205	51	75	4,660
June	1000	235	642	38,560	June	1420	290	600	36,000
July	1280	937	1156	71,660	July	2560	1740	1996	123,794
Aug.	1200	737	897	55,624	Aug.	2620	1420	2200	136,404
Sept.	4580	1260	2953	177,194	Sept.	2960	1420	2583	135,010
Oct.	3380	2510	2923	181,222	Oct.	2260	1740	1980	122,660
Nov.	2780	2130	2493	149,600	Nov.	1930	1240	1488	89,270
Dec.	3860	1740	3045	188,840	Dec.	1210	190	668	41,428
Total	..	..	..	1,052,030	Total	..	..	..	885,866

Year 1926				Year 1927					
Jan.	258	27	123	7,620	Jan.	530	242	353	21,854
Feb.	27	0	14	788	Feb.	226	35	111	6,640
Mar.	86	0	17	1,084	Mar.	44	20	27	1,660
Apr.	128	7	43	2,560	Apr.	20	0	12	748
May	1300	15	600	37,034	May	0	0	0	0
June	1850	1090	1514	130,844	June	110	0	54	3,276
July	4040	1670	2864	177,568	July	930	110	327	20,310
Aug.	4810	3280	3942	244,450	Aug.	1670	795	1064	66,010
Sept.	4740	3680	4109	246,580	Sept.	1670	1270	1454	87,244
Oct.	3680	2280	2622	162,580	Oct.	1640	1270	1088	87,438
Nov.	2970	1430	2316	138,994	Nov.	1810	1360	1696	101,770
Dec.	1360	555	931	57,760	Dec.	1300	345	713	44,240
Total	..	..	..	1,207,862	Total	..	..	..	441,190

Year 1928				Year 1929					
Jan.	308	35	164	10,206	Jan.	385	35	174	10,786
Feb.	53	20	33	1,916	Feb.	35	0	12	734
Mar.	700	64	348	21,588	Mar.	0	0	0	0
Apr.	1210	122	744	44,628	Apr.	0	0	0	0
May	960	580	721	44,770	May	70	0	35	2,192
June	1805	960	1368	82,060	June	612	17	199	11,724
July	1960	1090	1517	94,080	July	670	598	656	40,696
Aug.	2110	1040	1642	102,730	Aug.	598	274	413	25,598
Sept.	1180	1065	1124	67,440	Sept.	945	532	891	53,486
Oct.	2240	1150	1466	90,920	Oct.	1410	945	1152	71,430
Nov.	2330	1565	1981	118,860	Nov.	1290	311	815	48,934
Dec.	1500	385	857	53,170	Dec.	645	291	403	25,022
Total	..	..	..	732,368	Total	..	..	..	290,602

EDWARD RIVER AT MOULAMEIN

Year 1930				Year 1931					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	330	114	237	14,692	Jan.	1660	945	1302	80,770
Feb.	128	80	116	6,508	Feb.	890	102	413	23,140
Mar.	80	0	24	1,462	Mar.	621	60	230	14,226
Apr.	0	0	0	0	Apr.	1230	670	1057	63,440
May	0	0	0	0	May	1690	1020	1149	71,230
June	141	0	75	4,502	June	5360	1760	3103	186,180
July	114	60	93	5,796	July	7490	5200	6872	426,080
Aug.	890	60	493	30,592	Aug.	7070	5310	6033	374,050
Sept.	1200	865	1028	61,708	Sept.	5310	4420	5026	301,570
Oct.	1690	865	1049	65,034	Oct.	4640	2470	3867	239,720
Nov.	2250	1410	1845	110,700	Nov.	2420	1660	1964	117,860
Dec.	3880	1100	1950	120,890	Dec.	1660	1210	1506	93,400
Total	..	..	..	421,884	Total	..	..	..	1,991,666

Year 1932				Year 1933					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	1180	135	537	33,288	Jan.	530	149	308	19,088
Feb.	135	50	84	4,886	Feb.	149	62	90	5,006
Mar.	69	38	47	3,010	Mar.	93	56	82	5,096
Apr.	1075	56	498	29,880	Apr.	179	85	122	7,342
May	1750	1050	1423	88,210	May	164	77	100	6,194
June	1270	675	888	53,270	June	510	69	172	10,338
July	2760	1420	2330	144,440	July	670	262	433	26,848
Aug.	2720	1660	2065	128,000	Aug.	1180	515	868	53,804
Sept.	5080	2170	3364	201,830	Sept.	2840	990	1565	93,916
Oct.	5020	1870	3111	192,890	Oct.	2810	2070	2327	144,240
Nov.	1870	1360	1687	101,250	Nov.	2030	890	1493	89,560
Dec.	1300	445	833	51,622	Dec.	1150	815	1015	62,960
Total	..	..	..	1,032,576	Total	..	..	..	524,392

Year 1934				Year 1935					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	1410	920	1214	69,724	Jan.	3500	945	1817	112,660
Feb.	1320	427	738	41,336	Feb.	1045	448	766	42,932
Mar.	865	407	598	37,106	Mar.	670	468	562	34,898
Apr.	780	187	404	24,274	Apr.	1020	576	680	40,806
May	576	156	353	21,932	May	1830	1070	1499	92,940
June	240	141	184	11,030	June	1380	1200	1310	78,600
July	1230	156	474	29,398	July	1690	1260	1433	88,820
Aug.	1800	1260	1507	93,460	Aug.	3760	1800	2622	162,550
Sept.	2760	1910	2551	153,080	Sept.	4130	2520	3220	193,200
Oct.	2120	1800	1920	119,060	Oct.	3250	2120	2740	169,880
Nov.	5570	2030	4121	247,280	Nov.	3200	1730	2661	159,640
Dec.	5640	3140	4263	264,320	Dec.	1640	407	815	50,546
Total	..	..	..	1,112,000	Total	..	..	..	1,227,472

Year 1936				Year 1937					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	488	350	417	25,882	Jan.	1070	725	957	57,430
Feb.	350	188	251	14,536	Feb.	915	439	620	34,696
Mar.	598	188	342	21,182	Mar.	439	232	360	22,344
Apr.	554	388	488	29,256	Apr.	307	224	271	16,274
May	920	350	729	45,220	May	522	324	412	25,590
June	890	369	571	34,244	June	725	567	669	40,170
July	1980	480	1292	80,080	July	815	522	724	44,800
Aug.	3540	1800	4449	275,890	Aug.	790	412	603	37,426
Sept.	4770	3540	4223	253,400	Sept.	790	272	495	29,724
Oct.	3490	1380	2031	125,960	Oct.	532	272	383	23,756
Nov.	1380	990	1233	74,000	Nov.	412	144	259	15,548
Dec.	1020	700	855	53,030	Dec.	272	85	160	9,948
Total	..	..	..	1,032,680	Total	..	..	..	357,706

EDWARD RIVER AT MOULAMEIN

Year 1938				Year 1939					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	254	168	205	12,714	Jan.	94	0	42	2,634
Feb.	181	76	110	6,156	Feb.	11	1	2	102
Mar.	254	94	190	11,748	Mar.	1350	1	416	25,772
Apr.	85	44	60	3,538	Apr.	2320	1290	1688	101,270
May	156	59	129	8,006	May	2760	1050	1955	121,240
June	510	44	157	9,440	June	1560	865	1153	69,178
July	532	288	396	24,578	July	4630	1160	2774	172,000
Aug.	340	304	321	19,876	Aug.	4770	2800	3645	225,990
Sept.	322	112	223	13,374	Sept.	6660	4770	6052	363,130
Oct.	144	30	66	4,064	Oct.	6240	3170	4141	273,650
Nov.	30	12	21	1,232	Nov.	3600	3320	3447	206,840
Dec.	9	0	1	70	Dec.	3380	1320	2322	143,950
Total	..	..	..	114,796	Total	..	..	..	1,705,756

Year 1940				Year 1941					
Jan.	1500	349	734	45,432	Jan.	599	156	372	23,050
Feb.	551	333	393	22,780	Feb.	444	144	261	14,604
Mar.	790	499	694	43,006	Mar.	349	156	259	16,084
Apr.	488	168	361	21,656	Apr.	465	156	283	16,962
May	623	168	283	17,532	May	156	49	77	4,794
June	623	112	380	22,798	June	710	58	307	18,404
July	238	91	137	8,518	July	333	101	192	11,914
Aug.	180	58	82	5,084	Aug.	266	66	168	10,450
Sept.	407	180	266	15,950	Sept.	74	19	52	3,118
Oct.	407	112	238	14,774	Oct.	730	19	293	18,192
Nov.	407	252	342	20,514	Nov.	930	648	800	47,996
Dec.	407	144	285	17,684	Dec.	623	47	130	8,100
Total	..	..	..	255,728	Total	..	..	..	193,668

Year 1942				Year 1943					
Jan.	123	47	68	4,200	Jan.	714	354	516	32,004
Feb.	222	74	144	8,078	Feb.	419	260	340	19,026
Mar.	151	6	45	2,790	Mar.	260	36	159	9,870
Apr.	96	11	40	2,410	Apr.	248	23	63	3,768
May	600	20	235	14,094	May	419	248	336	20,842
June	1240	282	867	52,020	June	780	130	544	32,666
July	3620	1560	2465	152,800	July	185	40	97	6,044
Aug.	3620	1980	2571	159,390	Aug.	609	23	385	23,842
Sept.	3840	2860	3499	209,940	Sept.	1370	453	838	50,290
Oct.	3790	2650	3122	193,550	Oct.	2260	1410	1917	118,848
Nov.	2630	2010	2294	137,670	Nov.	2340	1320	1962	117,710
Dec.	2120	750	1387	85,988	Dec.	1240	240	894	55,400
Total	..	..	..	1,022,930	Total	..	..	..	490,310

Year 1944				Year 1945					
Jan.	219	122	164	10,164	Jan.	130	8	52	3,238
Feb.	145	115	128	7,408	Feb.	123	72	98	5,520
Mar.	122	100	109	6,742	Mar.	123	8	63	3,914
Apr.	263	107	183	10,956	Apr.	8	0	1	78
May	675	130	277	17,194	May	36	0	11	700
June	333	78	171	10,258	June	8	2	5	320
July	359	50	158	9,766	July	109	2	60	3,710
Aug.	61	42	53	3,304	Aug.	451	61	120	7,598
Sept.	272	40	164	9,852	Sept.	900	350	705	42,302
Oct.	138	18	51	3,158	Oct.	397	22	96	5,944
Nov.	83	11	33	1,982	Nov.	373	100	198	11,910
Dec.	72	8	29	1,800	Dec.	472	130	331	20,492
Total	..	..	..	92,584	Total	..	..	..	105,726

EDWARD RIVER AT MOULAMEIN

Year 1946				Year 1947					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	250	45	93	5,890	Jan.	423	358	392	24,276
Feb.	725	230	422	23,626	Feb.	540	307	440	24,614
Mar.	671	293	525	32,570	Mar.	514	283	410	25,440
Apr.	671	161	339	20,326	Apr.	514	217	382	22,902
May	843	219	631	39,126	May	410	82	219	13,578
June	860	240	492	29,500	June	436	89	193	11,550
July	840	142	444	27,540	July	1120	89	677	41,976
Aug.	4200	900	2789	172,936	Aug.	1230	1970	1778	110,226
Sept.	3570	1380	2590	155,376	Sept.	2870	1960	2597	155,436
Oct.	1370	962	1184	73,394	Oct.	2810	2560	2668	165,424
Nov.	1420	994	1305	78,316	Nov.	2640	2240	2402	144,120
Dec.	1360	436	968	59,988	Dec.	2360	1260	1852	114,808
Total	..	..	..	718,588	Total	..	..	..	854,350

Year 1948				Year 1949					
Jan.	1350	1060	1198	74,300	Jan.	700	183	488	30,278
Feb.	1030	540	706	40,956	Feb.	169	111	132	7,396
Mar.	728	23	387	24,010	Mar.	566	197	407	25,212
Apr.	178	17	60	3,616	Apr.	462	233	339	20,324
May	514	111	248	15,358	May	644	107	235	14,590
June	598	354	450	27,014	June	923	134	555	33,310
July	1080	283	645	39,992	July	122	38	58	3,600
Aug.	657	238	473	29,298	Aug.	501	57	178	11,030
Sept.	1060	197	726	43,552	Sept.	462	57	117	7,012
Oct.	1250	1060	1127	69,892	Oct.	1330	332	783	48,526
Nov.	2200	1230	1610	96,596	Nov.	3100	1400	2426	145,564
Dec.	2270	763	1741	107,954	Dec.	2930	1030	2103	130,372
Total	..	..	..	572,538	Total	..	..	..	477,214

Year 1950				Year 1951					
Jan.	962	142	385	23,838	Jan.	503	88	224	13,898
Feb.	1970	178	768	43,022	Feb.	188	88	101	5,676
Mar.	2520	88	845	52,308	Mar.	240	100	142	8,818
Apr.	3560	1430	2640	158,366	Apr.	553	138	295	17,706
May	3700	307	2220	137,638	May	640	262	451	27,972
June	462	197	318	19,078	June	1140	496	865	51,916
July	1210	339	717	44,470	July	1840	1210	1574	97,606
Aug.	2730	1260	2070	128,324	Aug.	4370	1940	3687	228,582
Sept.	2720	1620	2158	129,458	Sept.	4150	2550	3606	216,388
Oct.	2320	1590	2035	126,182	Oct.	2870	2240	2560	158,704
Nov.	3600	2210	2835	170,104	Nov.	2730	1580	2152	129,116
Dec.	3670	574	2203	136,560	Dec.	1490	430	847	52,490
Total	..	..	..	1,169,348	Total	..	..	..	1,008,872

Year 1952				Year 1953					
Jan.	420	158	242	14,986	Jan.	2170	775	1594	95,644
Feb.	179	158	168	9,748	Feb.	762	360	509	28,520
Mar.	172	105	134	8,306	Mar.	430	151	254	15,756
Apr.	520	120	221	13,272	Apr.	480	126	291	17,474
May	605	226	430	26,644	May	460	172	243	15,068
June	3620	540	1649	98,956	June	1075	250	894	35,654
July	5990	3790	5384	333,830	July	739	265	581	36,048
Aug.	5640	3640	4888	303,070	Aug.	2660	776	1448	89,764
Sept.	3500	3000	3256	195,342	Sept.	3500	2480	3011	180,648
Oct.	4540	3000	3938	244,186	Oct.	3740	2330	3111	192,858
Nov.	3815	2640	3228	193,660	Nov.	3690	2870	3172	190,334
Dec.	3870	2190	2955	183,240	Dec.	2870	597	1717	106,454
Total	..	..	..	1,625,240	Total	..	..	..	1,004,222

EDWARD RIVER AT MOULAMEIN

Year 1954				Year 1955					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	577	123	249	15,408	Jan.	1110	102	370	22,928
Feb.	1730	180	997	55,808	Feb.	754	138	354	19,806
Mar.	475	86	191	11,852	Mar.	650	344	518	32,108
Apr.	455	137	253	15,194	Apr.	616	290	514	30,848
May	708	454	565	35,054	May	800	300	548	33,996
June	592	204	357	21,440	June	875	500	783	46,978
July	438	242	373	23,096	July	1510	500	1138	70,576
Aug.	338	212	261	16,162	Aug.	3510	1510	2334	144,688
Sept.	1190	320	794	47,668	Sept.	7080	3700	5908	354,500
Oct.	705	91	231	14,338	Oct.	5110	3650	3991	247,478
Nov.	990	312	506	30,340	Nov.	4630	3950	4347	260,818
Dec.	1640	885	1204	74,656	Dec.	3870	1140	2095	129,890
Total	..	..	..	361,016	Total	..	..	..	1,394,614

Year 1956				Year 1957					
Jan.	1100	922	997	61,842	Jan.	1230	605	744	46,158
Feb.	1380	307	1013	58,774	Feb.	667	311	456	25,526
Mar.	1490	181	676	41,898	Mar.	376	190	253	15,660
Apr.	2010	1560	1811	108,676	Apr.	376	125	240	14,412
May	5060	1780	4185	259,468	May	480	111	249	15,420
June	9000	4810	7124	427,420	June	875	180	629	37,744
July	14600	8700	11417	707,828	July	1100	649	887	54,970
Aug.	13300	10200	11703	725,608	Aug.	1040	269	562	34,856
Sept.	10100	7040	8645	518,704	Sept.	687	143	305	18,294
Oct.	6900	5740	6127	379,898	Oct.	312	122	189	11,726
Nov.	7240	6390	6904	414,220	Nov.	534	143	322	19,312
Dec.	6220	1350	2928	181,526	Dec.	185	90	126	7,826
Total	..	..	..	3,885,862	Total	..	..	..	301,904

Year 1958				Year 1959					
Jan.	400	77	222	13,776	Jan.	530	103	213	13,180
Feb.	206	65	147	8,238	Feb.	530	167	300	16,780
Mar.	103	65	90	5,584	Mar.	497	119	224	13,898
Apr.	138	65	90	5,414	Apr.	825	159	461	27,652
May	478	89	184	11,404	May	442	167	256	15,850
June	662	174	504	30,230	June	552	220	343	20,592
July	707	167	346	21,430	July	220	184	199	12,308
Aug.	3050	184	1490	92,400	Aug.	316	135	175	10,834
Sept.	5700	2470	4374	262,430	Sept.	464	83	151	9,078
Oct.	4240	2080	2702	167,540	Oct.	530	366	438	27,170
Nov.	4720	2190	3830	229,830	Nov.	1200	508	912	54,712
Dec.	2080	552	1144	70,934	Dec.	943	130	371	23,024
Total	..	..	..	919,210	Total	..	..	..	245,078

Year 1960				Year 1961					
Jan.	411	138	303	18,772	Jan.	652	94	236	14,636
Feb.	186	82	152	8,802	Feb.	207	70	122	6,822
Mar.	162	63	108	6,692	Mar.	207	136	167	10,348
Apr.	267	137	202	12,124	Apr.	502	138	319	19,126
May	1110	280	842	52,182	May	795	409	545	33,820
June	1140	900	1046	62,744	June	798	233	450	27,022
July	1070	750	885	54,898	July	373	233	297	18,390
Aug.	4850	1040	2920	181,024	Aug.	779	207	391	24,234
Sept.	5240	2720	4221	253,280	Sept.	1170	381	776	46,572
Oct.	5750	2820	4676	289,900	Oct.	372	147	236	14,662
Nov.	5500	1130	2726	163,540	Nov.	390	175	241	14,432
Dec.	1170	652	1004	62,278	Dec.	342	130	206	12,790
Total	..	..	..	1,166,236	Total	..	..	..	242,854

EDWARD RIVER AT MOULAMEIN

Year 1962				Year 1963					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	324	69	178	11,040	Jan.	290	45	178	11,018
Feb.	188	64	133	7,444	Feb.	158	45	85	4,750
Mar.	67	26	49	3,040	Mar.	79	10	48	3,006
Apr.	126	71	98	5,900	Apr.	177	96	125	7,522
May	191	90	120	7,466	May	619	96	369	22,862
June	935	135	537	32,216	June	1870	803	1470	88,030
July	935	465	772	47,888	July	1090	470	776	48,142
Aug.	990	245	600	37,220	Aug.	1240	679	993	61,586
Sept.	1110	250	577	34,598	Sept.	1360	811	1060	63,740
Oct.	568	108	304	18,824	Oct.	1050	504	754	46,774
Nov.	270	54	163	9,784	Nov.	746	205	498	29,874
Dec.	108	45	76	4,742	Dec.	205	130	178	11,038
Total	..	..	..	220,162	Total	..	..	..	398,342

Year 1964				Year 1965					
Jan.	153	77	122	7,540	Jan.	150	60	88	5,450
Feb.	140	64	96	5,544	Feb.	89	63	70	3,900
Mar.	62	12	34	2,138	Mar.	89	66	76	4,680
Apr.	444	73	238	14,264	Apr.	222	88	152	9,100
May	590	236	473	29,348	May	285	112	157	9,700
June	404	130	223	13,384	June	538	155	399	24,000
July	1360	185	805	49,900	July	328	137	192	11,900
Aug.	4640	1520	3770	234,000	Aug.	173	121	139	8,600
Sept.	4090	2550	3080	185,000	Sept.	780	230	614	36,800
Oct.	5340	3170	4100	254,000	Oct.	720	107	256	15,900
Nov.	5650	2430	4560	274,000	Nov.	198	103	157	9,400
Dec.	2300	169	897	55,600	Dec.	285	86	146	9,100
Total	..	..	..	1,124,718	Total	..	..	..	148,530

Year 1966				Year 1967					
Jan.	85	57	68	4,300	Jan.	1710	200	847	52,500
Feb.	84	60	71	4,000	Feb.	173	16	72	4,020
Mar.	590	57	202	12,500	Mar.	102	26	61	3,780
Apr.	495	70	146	8,750	Apr.	154	46	84	5,030
May	295	68	182	11,300	May	395	45	113	7,010
June	223	127	146	8,750	June	386	178	280	16,800
July	191	105	144	8,940	July	166	78	100	6,190
Aug.	703	110	233	14,400	Aug.	323	69	126	7,840
Sept.	929	404	711	42,700	Sept.	216	45	123	7,410
Oct.	1310	681	1080	66,900	Oct.	129	44	70	4,340
Nov.	1150	639	1010	60,800	Nov.	94	34	44	2,780
Dec.	1680	747	1120	69,500	Dec.	52	23	40	2,530
Total	..	..	..	312,840	Total	..	..	..	120,230

Year 1968				Year 1969					
Jan.	26	0	5	303	Jan.	143	28	62	3,900
Feb.	0	0	0	0	Feb.	237	42	147	8,220
Mar.	0	0	0	0	Mar.	815	196	398	24,700
Apr.	0	0	0	0	Apr.	827	323	624	37,400
May	314	0	119	7,380	May	632	292	448	27,800
June	1710	108	830	49,800	June	1110	262	782	47,000
July	1640	621	902	55,900	July	670	386	474	29,400
Aug.	1370	307	626	38,800	Aug.	2730	404	1977	123,000
Sept.	1480	298	952	57,100	Sept.	2120	1200	1512	90,700
Oct.	820	74	307	19,100	Oct.	2210	452	1341	83,100
Nov.	995	505	809	48,500	Nov.	827	342	600	36,000
Dec.	864	147	452	28,000	Dec.	743	94	416	25,800
Total	..	..	..	304,883	Total	..	..	..	537,020

EDWARD RIVER AT MOULAMEIN

Year 1970				Year 1971					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	386	79	219	13,600	Jan.	573	180	418	25,900
Feb.	176	84	125	7,030	Feb.	1060	172	626	35,100
Mar.	436	86	216	13,400	Mar.	850	341	586	36,300
Apr.	600	231	398	23,900	Apr.	646	343	397	23,800
May	1210	616	898	55,700	May	858	565	714	43,600
June	653	383	554	33,200	June	1110	775	959	57,600
July	1110	481	787	48,800	July	920	204	611	37,900
Aug.	1080	350	620	38,400	Aug.	585	221	429	26,600
Sept.	4480	785	2996	180,000	Sept.	1850	361	1173	70,400
Oct.	4890	4340	4609	286,000	Oct.	2110	973	1503	93,200
Nov.	4390	1540	2618	157,000	Nov.	2620	1530	1821	109,000
Dec.	2020	594	1445	89,600	Dec.	2860	652	1747	108,000
Total	..	..	..	946,630	Total	..	..	..	667,400

Year 1972				
Month	Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	638	403	483	30,000
Feb.	506	253	350	20,300
Mar.	514	175	369	22,900
Apr.	424	201	313	18,800
May	403	258	327	20,200
June	670	200	428	25,700
July	258	68	153	9,480
Aug.	575	132	338	21,000
Sept.	398	206	296	17,700
Oct.	244	82	164	10,200
Nov.	420	237	328	19,700
Dec.	244	74	144	8,660
Total	..	..	..	224,640

MURRAY RIVER AT BARHAM

<u>LOCATION:</u>	Latitude 35°37' Longitude 144°07'
<u>PERIOD OF ESTABLISHMENT:</u>	January, 1905 to date
<u>COMPLETE YEARS OF COMPUTED RECORDS:</u>	67 years
<u>ZERO OF GAUGE:</u>	R.L. 237.25 Water Conservation Datum
<u>CATCHMENT AREA:</u>	16,750 square miles *
<u>CONTROL:</u>	Clay
<u>EQUIPMENT:</u>	Staff Gauge, range 0 to 25 feet
<u>CURRENT METER OBSERVATIONS:</u>	(a) Number Obtained : 265 (b) Maximum Observation in Cusecs : 13,513 (c) Minimum Observation in Cusecs : 311
<u>MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS:</u>	14,200 cusecs (July, 1956)
<u>MEAN DAILY DISCHARGE FOR 67 YEARS:</u>	5,300 cusecs
<u>MEAN ANNUAL DISCHARGE FOR 67 YEARS:</u>	3,872,000 acre feet
<u>REMARKS:</u>	Records include controlled releases from Hume Weir which commenced in February 1929. * Nominal Catchment Area only, flow affected by effluent streams.

MURRAY RIVER AT BARHAM

Year 1905				Year 1906					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	3700	1450	2358	146,220	Jan.	4680	1940	3152	195,400
Feb.	1550	930	1163	65,140	Feb.	1790	890	1233	69,060
Mar.	1360	1020	1184	73,380	Mar.	4060	890	2345	145,380
Apr.	1600	980	1301	78,040	Apr.	3530	2120	2803	168,200
May	1990	1070	1388	86,080	May	5750	2360	4063	251,880
June	5750	1650	3833	229,980	June	10600	5820	8335	500,100
July	11100	5440	9250	573,540	July	13000	10600	11873	736,120
Aug.	12600	11100	12322	764,020	Aug.	13000	12800	12890	799,180
Sept.	12100	11100	12293	677,560	Sept.	13200	12900	13070	784,200
Oct.	11300	10600	10866	673,680	Oct.	13200	13000	13136	814,840
Nov.	11200	10600	11028	661,700	Nov.	13000	12000	12728	763,700
Dec.	10400	4800	8262	512,220	Dec.	11900	9950	11083	687,140
Total	..	..	..	4,541,560	Total	..	..	..	5,915,200

Year 1907				Year 1908					
Jan.	9700	3530	6360	394,300	Jan.	4440	1500	3191	197,840
Feb.	3530	2170	2954	165,460	Feb.	1450	1120	1264	73,300
Mar.	2120	1550	1728	107,140	Mar.	1500	850	1098	68,080
Apr.	2120	1450	1690	101,400	Apr.	850	770	791	47,880
May	3310	2030	2786	162,720	May	3360	850	1577	97,760
June	5180	2710	4325	259,500	June	8140	1740	2732	163,900
July	5180	3360	4135	256,400	July	10600	4920	6537	405,280
Aug.	10400	5240	8980	556,800	Aug.	9350	5380	7080	439,020
Sept.	10600	6730	9041	542,500	Sept.	10300	9440	9899	593,920
Oct.	7450	6160	6863	425,520	Oct.	9620	7690	8690	538,780
Nov.	6020	5110	5433	326,000	Nov.	9620	5560	7611	456,680
Dec.	5240	2660	3737	231,700	Dec.	5440	1890	3450	213,960
Total	..	..	..	3,529,440	Total	..	..	..	3,296,400

Year 1909				Year 1910					
Jan.	1790	980	1288	79,880	Jan.	2120	1360	1650	102,320
Feb.	980	980	980	54,880	Feb.	1690	980	1274	71,230
Mar.	1790	980	1259	78,060	Mar.	1320	980	1102	68,300
Apr.	1450	980	1179	70,720	Apr.	1120	980	989	59,340
May	10600	1240	5865	363,600	May	1450	980	1035	64,160
June	11200	8590	9994	599,660	June	6230	1650	2683	160,960
July	12500	11200	12154	753,580	July	10600	6380	9254	573,780
Aug.	13400	12400	12784	792,640	Aug.	11000	7830	9462	586,680
Sept.	13400	12400	13000	780,020	Sept.	12300	7830	10971	658,280
Oct.	12300	10600	11813	732,400	Oct.	12400	12100	12314	763,580
Nov.	10500	5380	7641	458,480	Nov.	12100	8140	10744	644,620
Dec.	4620	2120	3418	211,940	Dec.	8350	4680	6182	383,280
Total	..	..	..	4,975,860	Total	..	..	..	4,136,530

Year 1911				Year 1912					
Jan.	4680	3250	3786	234,760	Jan.	2310	1020	1574	97,600
Feb.	10100	3760	6264	350,780	Feb.	980	980	980	56,840
Mar.	8750	5950	7411	459,460	Mar.	980	980	980	60,760
Apr.	7760	4000	5680	340,800	Apr.	980	810	861	51,680
May	6020	3430	3979	246,700	May	810	690	733	45,460
June	11700	7020	10241	614,480	June	2410	690	1137	68,200
July	12800	12000	12494	774,640	July	6380	2360	4327	268,280
Aug.	12300	12200	12242	759,000	Aug.	5180	3360	4428	274,540
Sept.	12300	8430	10577	634,600	Sept.	11000	3310	7205	432,300
Oct.	8350	5890	7241	448,960	Oct.	11500	9440	10839	672,000
Nov.	5890	2910	4163	249,760	Nov.	9780	5240	6714	402,840
Dec.	2810	2260	2560	158,720	Dec.	9190	7690	8320	515,840
Total	..	..	..	5,272,660	Total	..	..	..	2,946,340

MURRAY RIVER AT BARHAM

Month	Year 1913			Discharge for Month Acre Feet	Month	Year 1914			Discharge for Month Acre Feet
	Discharge in Cusecs					Discharge in Cusecs			
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	7450	2710	4862	301,440	Jan.	2220	980	1521	94,294
Feb.	2610	1200	1674	93,740	Feb.	1240	520	865	48,450
Mar.	3470	1030	1753	108,480	Mar.	520	170	350	21,710
Apr.	5380	2360	3795	237,720	Apr.	1200	180	750	44,970
May	4380	2410	3675	227,860	May	3760	980	2189	135,730
June	7020	3820	5581	334,840	June	3700	1970	2728	163,700
July	9530	5750	7114	441,080	July	4620	1840	2841	176,140
Aug.	10000	6300	8117	503,260	Aug.	4000	2360	3240	200,900
Sept.	10100	6090	8111	486,660	Sept.	2440	1770	2059	123,570
Oct.	9270	7380	8281	513,420	Oct.	2220	850	1482	91,900
Nov.	8750	6880	8104	486,240	Nov.	850	250	598	35,860
Dec.	6660	2260	4495	278,680	Dec.	770	180	323	20,020
Total	..	..	..	4,013,420	Total	..	..	..	1,157,244

Month	Year 1915			Discharge for Month Acre Feet	Month	Year 1916			Discharge for Month Acre Feet
	Discharge in Cusecs					Discharge in Cusecs			
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	810	130	422	26,140	Jan.	3310	1160	1946	120,650
Feb.	250	2	139	7,402	Feb.	1660	890	1177	68,250
Mar.	160	0	41	2,586	Mar.	1070	650	871	54,070
Apr.	90	24	62	3,734	Apr.	890	565	707	42,450
May	2960	75	590	36,564	May	2370	890	1406	87,174
June	4060	1450	2382	142,978	June	3080	2120	2672	160,340
July	11200	5950	10134	628,330	July	11200	3020	8067	500,200
Aug.	12000	11120	11511	713,710	Aug.	12000	11200	11591	718,680
Sept.	12100	11900	11945	716,715	Sept.	12500	11900	12084	725,040
Oct.	12000	11900	11911	738,718	Oct.	13600	12600	13261	822,200
Nov.	12000	10000	11477	688,630	Nov.	13300	12500	12964	777,840
Dec.	9700	3470	5523	342,420	Dec.	12500	12300	12421	770,120
Total	..	..	..	4,047,927	Total	..	..	..	4,847,014

Month	Year 1917			Discharge for Month Acre Feet	Month	Year 1918			Discharge for Month Acre Feet
	Discharge in Cusecs					Discharge in Cusecs			
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	12300	4250	8384	519,820	Jan.	9950	4800	6242	387,000
Feb.	4060	2580	3121	174,780	Feb.	4800	3020	3970	222,440
Mar.	3310	2460	2554	178,340	Mar.	4590	2910	3832	237,620
Apr.	4560	2360	3601	216,100	Apr.	3940	3080	3248	201,400
May	9270	3440	5125	317,760	May	11400	2960	6432	398,800
June	13600	9620	11598	695,860	June	12300	11400	11875	712,500
July	13700	12700	13160	815,960	July	13000	11900	12460	772,520
Aug.	13800	12900	13577	841,800	Aug.	13100	12500	12784	792,620
Sept.	13800	13500	13648	818,920	Sept.	12700	12300	12587	755,204
Oct.	13700	13400	13551	840,160	Oct.	12300	7240	9968	618,040
Nov.	13600	12500	13298	797,860	Nov.	7160	4770	6134	368,030
Dec.	12500	10500	11418	707,900	Dec.	4740	2510	3091	191,640
Total	..	..	..	6,925,260	Total	..	..	..	5,657,814

Month	Year 1919			Discharge for Month Acre Feet	Month	Year 1920			Discharge for Month Acre Feet
	Discharge in Cusecs					Discharge in Cusecs			
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	2490	1070	1819	112,770	Jan.	3590	1160	2759	171,100
Feb.	1050	815	926	51,890	Feb.	2510	960	1731	100,390
Mar.	3020	960	1772	109,880	Mar.	1070	685	806	50,000
Apr.	1650	995	1255	75,284	Apr.	995	575	693	41,590
May	2360	1180	1728	107,160	May	2120	815	1097	68,050
June	6380	2150	3003	180,180	June	4060	1690	2630	157,810
July	7760	6415	7097	440,060	July	10800	4253	8839	548,046
Aug.	6590	5110	5771	357,820	Aug.	11700	10600	11177	692,970
Sept.	8750	6160	6999	419,970	Sept.	13300	11700	12650	759,020
Oct.	8470	5240	6637	411,520	Oct.	13100	11900	12360	766,310
Nov.	5180	2560	3874	232,420	Nov.	12100	10700	11799	707,950
Dec.	2410	1600	2075	128,680	Dec.	10100	3190	5111	316,820
Total	..	..	..	2,627,634	Total	..	..	..	4,380,056

MURRAY RIVER AT BARHAM

Year 1921				Year 1922					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	3640	2310	3108	192,710	Jan.	3250	2120	2570	159,760
Feb.	2120	1320	1519	85,090	Feb.	1990	925	1094	61,250
Mar.	2170	1360	1686	104,540	Mar.	1650	780	1080	66,960
Apr.	2185	1240	1713	102,810	Apr.	780	600	691	41,470
May	2170	1500	1738	107,740	May	2660	780	1760	109,140
June	10600	2410	7574	454,420	June	2410	1840	2018	121,100
July	10100	5500	7631	473,120	July	6810	1840	3665	227,240
Aug.	11900	9270	11039	684,440	Aug.	7090	5380	6568	407,240
Sept.	12800	11400	12158	729,500	Sept.	9270	6520	7290	437,400
Oct.	12900	11900	12584	780,220	Oct.	10600	6880	9276	575,100
Nov.	11900	7690	10782	646,920	Nov.	7830	3530	6077	364,640
Dec.	6810	3250	4350	269,700	Dec.	3360	1120	1924	119,280
Total	..	..	..	4,631,210	Total	..	..	..	2,690,580

Year 1923				Year 1924					
Jan.	1070	550	737	45,730	Jan.	4440	2910	3576	221,700
Feb.	270	29	77	4,314	Feb.	3190	2460	2727	157,960
Mar.	29	10	17	1,042	Mar.	3310	2360	2945	182,600
Apr.	15	11	12	716	Apr.	5680	5040	5398	323,900
May	2050	12	327	20,316	May	5620	1740	3914	244,680
June	11000	2560	7758	465,500	June	9620	4680	7586	455,160
July	11900	11000	11330	702,460	July	9530	5640	7895	489,528
Aug.	12300	12000	12130	752,060	Aug.	11400	2390	7173	444,696
Sept.	12100	11200	11543	692,560	Sept.	11900	11400	11652	699,122
Oct.	11600	11100	11292	700,120	Oct.	11900	11700	11775	730,090
Nov.	11700	11200	11508	690,500	Nov.	12100	11800	11999	719,960
Dec.	11100	4620	7657	474,720	Dec.	12100	8250	10966	679,880
Total	..	..	..	4,550,038	Total	..	..	..	5,349,276

Year 1925				Year 1926					
Jan.	9200	3280	4681	290,232	Jan.	Incomplete Records			
Feb.	6300	3610	4470	250,330	Feb.	No Records			
Mar.	3340	2390	2798	173,478	Mar.	No Records			
Apr.	2500	1090	1486	89,154	Apr.	No Records			
May	3450	1060	2053	127,262	May	No Records			
June	5710	3000	4153	249,226	June	9280	5920	8079	484,764
July	8250	3960	5297	328,410	July	11300	10400	11160	691,912
Aug.	9700	7760	8833	544,058	Aug.	12000	11300	11656	722,678
Sept.	11100	9770	10716	642,968	Sept.	12100	11800	11948	716,892
Oct.	11300	7200	10471	649,214	Oct.	11800	10700	11357	704,122
Nov.	6880	3340	5007	300,426	Nov.	11300	5000	9073	544,396
Dec.	3280	1060	1839	114,024	Dec.	4800	1510	2699	167,342
Total	..	..	..	3,758,782	Total	..	..	..	..

Year 1927				Year 1928					
Jan.	1500	900	1092	67,700	Jan.	5200	340	1298	80,472
Feb.	790	475	609	34,100	Feb.	8960	460	2642	153,264
Mar.	475	360	392	24,280	Mar.	7200	640	2731	169,368
Apr.	360	360	360	21,600	Apr.	7040	4200	5624	337,492
May	1500	360	863	53,540	May	6800	2830	4010	248,640
June	2050	610	1497	89,840	June	11700	3000	10244	614,646
July	4020	1500	3059	189,664	July	11900	8500	10785	668,668
Aug.	9450	3670	6525	404,580	Aug.	11400	4390	9395	582,532
Sept.	11100	5200	8721	523,312	Sept.	6880	3450	4399	263,998
Oct.	10200	5000	7753	480,722	Oct.	11700	4390	10087	625,416
Nov.	8980	2670	7556	453,412	Nov.	11700	5000	10220	613,222
Dec.	3000	870	1584	98,236	Dec.	3840	800	1906	118,196
Total	..	..	..	2,440,986	Total	..	..	..	4,475,914

MURRAY RIVER AT BARHAM

Year 1929				Year 1930					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	730	200	397	24,620	Jan.	1850	330	845	52,400
Feb.	280	140	217	12,140	Feb.	360	140	288	16,180
Mar.	500	109	173	10,770	Mar.	280	6	137	8,526
Apr.	4800	109	1839	110,346	Apr.	109	50	72	4,336
May	3730	500	1233	76,444	May	5350	109	2153	133,490
June	7840	2140	4217	253,070	June	2290	1280	1716	102,972
July	8980	3780	6800	421,682	July	2240	360	823	51,080
Aug.	9980	2190	4497	278,872	Aug.	9140	2500	5989	371,332
Sept.	9980	4330	6906	414,384	Sept.	6220	4730	5398	323,890
Oct.	7440	4390	6044	374,780	Oct.	11400	4870	8929	553,618
Nov.	5850	1000	2570	154,242	Nov.	11300	6000	10029	601,798
Dec.	2500	1000	1542	95,640	Dec.	11400	4580	9379	581,490
Total	..	..	..	2,226,990	Total	..	..	..	2,801,112

Year 1931				Year 1932					
Jan.	11100	2560	6790	421,034	Jan.	2670	330	883	54,740
Feb.	2450	460	1222	68,446	Feb.	530	300	421	24,440
Mar.	6450	460	2180	135,172	Mar.	500	200	342	21,240
Apr.	7440	3500	5219	313,178	Apr.	10700	500	5739	344,378
May	11300	5130	8187	507,604	May	9900	4200	6695	415,098
June	12500	11200	11731	703,892	June	11200	4140	8054	483,228
July	13100	12600	12934	801,920	July	12600	11100	11961	741,560
Aug.	12800	12300	12498	774,880	Aug.	12400	11400	11828	733,360
Sept.	12300	12200	12298	737,920	Sept.	13200	11700	12350	740,980
Oct.	12200	11400	12032	745,974	Oct.	13000	11000	11927	739,460
Nov.	11400	7840	9209	552,554	Nov.	10700	3390	8003	480,168
Dec.	8670	3000	5039	312,418	Dec.	3230	800	1835	110,100
Total	..	..	..	6,074,992	Total	..	..	..	4,888,752

Year 1933				Year 1934					
Jan.	1280	490	723	44,840	Jan.	9670	3750	5960	369,540
Feb.	560	250	361	20,248	Feb.	4170	1200	2531	141,740
Mar.	385	282	328	20,356	Mar.	2590	2020	2299	142,540
Apr.	1150	316	667	40,002	Apr.	2780	1660	2120	127,220
May	1670	760	1001	62,060	May	3390	1700	2697	167,220
June	3170	1450	2136	128,160	June	2020	1470	1861	111,680
July	10900	2140	5790	358,980	July	6160	1430	3565	221,000
Aug.	8820	4390	7469	463,060	Aug.	8520	4540	6245	387,200
Sept.	12200	9200	11533	691,980	Sept.	9810	4720	7709	462,560
Oct.	12200	11500	11900	743,400	Oct.	10800	4600	7625	472,760
Nov.	11300	3270	7655	459,280	Nov.	11400	10800	11190	671,400
Dec.	6810	3930	5518	342,140	Dec.	11500	11200	11311	701,260
Total	..	..	..	3,374,506	Total	..	..	..	3,976,120

Year 1935				Year 1936					
Jan.	11300	3210	7241	448,940	Jan.	5040	1930	3288	203,880
Feb.	3210	2020	2599	145,560	Feb.	1930	1660	1757	101,940
Mar.	2110	1470	1720	106,660	Mar.	1840	1610	1693	105,020
Apr.	6870	1800	3185	191,088	Apr.	2680	1520	2091	125,460
May	9880	7060	8301	514,680	May	4600	2440	3044	188,700
June	9600	6870	7972	478,320	June	4170	2250	2864	171,840
July	10900	9880	10486	650,120	July	10200	2990	6890	427,220
Aug.	11400	11000	11291	700,060	Aug.	11100	10400	10859	673,240
Sept.	11500	11200	11353	681,160	Sept.	11500	11100	11320	679,200
Oct.	11400	11000	11234	696,500	Oct.	11200	5980	8921	553,120
Nov.	11100	6230	9479	568,740	Nov.	7330	5220	6319	379,180
Dec.	6230	2440	3506	217,400	Dec.	5160	2890	4076	252,740
Total	..	..	..	5,399,228	Total	..	..	..	3,861,540

MURRAY RIVER AT BARHAM

Year 1937				Year 1938					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	5100	2350	3443	213,440	Jan.	2070	1470	1720	106,600
Feb.	2780	1800	2079	116,420	Feb.	2020	1470	1701	95,240
Mar.	1840	1660	1763	109,300	Mar.	2210	1570	1881	116,640
Apr.	2590	1700	1869	112,160	Apr.	1660	1430	1515	90,900
May	4110	2490	3198	198,300	May	2070	1250	1772	109,880
June	4050	3390	3588	215,280	June	3450	2110	2559	153,520
July	3510	2300	3115	193,100	July	3330	1470	2572	159,480
Aug.	3870	1800	2619	162,380	Aug.	2070	970	1560	96,700
Sept.	5220	1890	3176	190,560	Sept.	1980	718	1279	76,736
Oct.	6740	1660	3145	195,000	Oct.	1390	273	709	43,952
Nov.	5420	1110	2038	122,260	Nov.	970	240	446	26,732
Dec.	2300	1110	1677	104,000	Dec.	1110	380	648	40,208
Total	..	..	..	1,932,200	Total	..	..	..	1,116,588

Year 1939				Year 1940					
Jan.	1010	454	649	40,254	Jan.	3630	1110	1840	114,060
Feb.	1660	416	662	37,044	Feb.	1930	970	1444	83,780
Mar.	8190	2390	4263	264,240	Mar.	1980	1290	1773	109,880
Apr.	10700	2350	8375	503,500	Apr.	2250	925	1341	80,430
May	10300	5420	8424	522,280	May	3330	1250	2049	127,040
June	10900	5420	9658	579,460	June	4170	1470	2652	159,140
July	11400	10700	11162	692,020	July	1660	677	919	57,038
Aug.	11500	11200	11340	703,100	Aug.	1470	760	1141	70,720
Sept.	12500	11600	12258	735,460	Sept.	2990	1260	1909	114,540
Oct.	12000	11200	11473	711,320	Oct.	2940	677	1190	73,772
Nov.	11400	10900	11166	692,300	Nov.	1660	1200	1460	87,580
Dec.	10900	3930	8493	526,540	Dec.	1200	885	1034	64,120
Total	..	..	..	6,007,518	Total	..	..	..	1,142,100

Year 1941				Year 1942					
Jan.	3330	970	1727	107,060	Jan.	1800	840	1023	63,450
Feb.	1200	970	1102	61,720	Feb.	1890	1200	1420	79,520
Mar.	1890	925	1178	73,010	Mar.	1570	630	872	54,060
Apr.	1750	677	1042	62,502	Apr.	1200	540	808	48,496
May	2110	885	1343	83,290	May	7390	1430	3870	239,940
June	2540	1200	1758	105,480	June	9810	3510	6786	407,180
July	3150	970	1858	115,200	July	11300	9670	10615	658,100
Aug.	2390	677	1418	87,898	Aug.	11300	11000	11200	694,380
Sept.	2490	677	1492	89,534	Sept.	11500	11200	11354	681,220
Oct.	8450	2300	5720	354,640	Oct.	11400	10500	11137	690,520
Nov.	3870	1200	2688	161,380	Nov.	10500	5340	8221	493,260
Dec.	2160	970	1317	81,660	Dec.	4850	1890	3485	216,040
Total	..	..	..	1,383,374	Total	..	..	..	4,326,166

Year 1943				Year 1944					
Jan.	1840	1570	1666	103,320	Jan.	1150	416	765	47,426
Feb.	1750	1110	1303	72,960	Feb.	1060	584	937	54,324
Mar.	1200	925	1071	66,380	Mar.	1150	925	1061	65,790
Apr.	1840	885	1287	77,190	Apr.	2630	1110	1599	95,940
May	2680	1800	2251	139,540	May	4110	1470	2299	142,540
June	3810	308	2319	139,144	June	3750	1390	2077	124,600
July	2830	630	1727	107,056	July	4230	460	1878	116,442
Aug.	6740	1750	5018	311,100	Aug.	2240	400	1104	68,420
Sept.	10000	4790	6745	404,720	Sept.	1150	430	873	52,360
Oct.	10200	7850	9294	576,200	Oct.	900	230	535	33,200
Nov.	7850	3930	6072	364,340	Nov.	1450	230	813	48,760
Dec.	3810	1200	2450	151,880	Dec.	930	200	547	33,890
Total	..	..	..	2,513,830	Total	..	..	..	883,692

MURRAY RIVER AT BARHAM

Year 1945				Year 1946					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	900	730	799	49,560	Jan.	2610	560	1224	75,898
Feb.	1040	730	868	48,620	Feb.	4260	1000	1966	110,104
Mar.	960	400	632	39,180	Mar.	5350	930	2268	140,620
Apr.	400	260	320	19,200	Apr.	1540	830	1074	64,460
May	400	260	342	21,180	May	3280	1000	1946	120,646
June	1630	330	764	45,820	June	2390	1590	1967	118,032
July	2940	760	1311	81,298	July	10700	2140	5190	321,782
Aug.	5640	760	3107	192,646	Aug.	12000	10800	11519	714,174
Sept.	7920	2190	5251	315,064	Sept.	12000	9530	11248	674,882
Oct.	2190	600	1107	68,612	Oct.	9280	4330	5745	356,208
Nov.	5133	1540	3227	193,628	Nov.	7520	5070	6947	416,840
Dec.	3613	760	1539	95,396	Dec.	5200	1500	3091	191,636
Total	..	..	..	1,170,204	Total	..	..	..	3,305,282

Year 1947				Year 1948					
Jan.	1550	834	1291	80,028	Jan.	6190	1905	3664	227,170
Feb.	1550	796	1175	65,824	Feb.	2140	1310	1566	90,850
Mar.	1070	872	971	60,208	Mar.	2240	834	1255	77,806
Apr.	1770	834	1174	70,446	Apr.	2240	834	1374	82,468
May	1550	612	1086	67,352	May	2610	872	1644	101,908
June	2140	577	1178	70,678	June	5020	990	2663	159,780
July	9130	1770	4498	278,880	July	6390	2450	4612	285,960
Aug.	11000	9330	10462	648,650	Aug.	7380	1860	4551	282,190
Sept.	11700	11100	11546	692,760	Sept.	7800	3220	6677	400,610
Oct.	11900	11300	11628	720,940	Oct.	6830	4470	5487	340,190
Nov.	12000	10900	11685	701,080	Nov.	10400	7020	9368	562,050
Dec.	10800	6255	8416	521,820	Dec.	9760	2560	6156	381,700
Total	..	..	..	3,978,666	Total	..	..	..	2,992,682

Year 1949				Year 1950					
Jan.	2880	1070	1809	112,170	Jan.	3290	1070	1577	97,800
Feb.	1910	872	1115	62,464	Feb.	2880	1070	1906	106,756
Mar.	7800	1070	4298	266,496	Mar.	11400	1190	4908	304,310
Apr.	2560	1190	1700	102,016	Apr.	11600	2800	7126	427,580
May	4040	1190	2487	154,212	May	4000	1730	2455	152,250
June	3050	1230	1942	116,510	June	4600	1600	3102	186,162
July	4180	990	1622	100,556	July	6190	1310	4066	252,070
Aug.	3910	1070	1396	86,576	Aug.	9840	5095	7994	495,620
Sept.	5240	834	2655	159,296	Sept.	10600	4040	7920	475,238
Oct.	10900	3105	6997	433,842	Oct.	10500	9130	9868	611,830
Nov.	12000	10900	11513	690,780	Nov.	9760	8660	9409	564,518
Dec.	12000	3580	9630	597,088	Dec.	8320	1690	4389	272,102
Total	..	..	..	2,882,006	Total	..	..	..	3,946,236

Year 1951				Year 1952					
Jan.	1730	834	1154	71,542	Jan.	1310	1070	1177	73,000
Feb.	8380	684	2361	132,218	Feb.	1070	1070	1070	62,060
Mar.	5790	612	1249	77,466	Mar.	1070	1070	1070	66,340
Apr.	1860	834	1341	80,486	Apr.	2660	1070	1642	98,540
May	4010	1130	1913	118,616	May	2880	1070	1886	116,930
June	10600	3350	7629	457,730	June	11100	2510	8487	509,244
July	11500	9650	10699	663,322	July	12300	11400	12143	752,920
Aug.	12000	11500	11854	734,950	Aug.	12400	12000	12237	758,680
Sept.	12000	11200	11774	706,424	Sept.	12100	11900	11996	719,760
Oct.	11000	9350	9846	610,448	Oct.	12300	11900	12106	750,600
Nov.	10700	7180	9679	580,722	Nov.	12300	12100	12159	729,520
Dec.	6880	1310	2861	177,360	Dec.	12300	12100	12190	755,800
Total	..	..	..	4,411,284	Total	..	..	..	5,393,394

MURRAY RIVER AT BARHAM

Year 1953				Year 1954					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	12300	3380	8706	539,770	Jan.	1820	942	1169	72,448
Feb.	3380	1110	2244	125,660	Feb.	4390	1360	3006	168,320
Mar.	1290	1110	1157	71,740	Mar.	1240	575	872	54,044
Apr.	1690	990	1332	79,910	Apr.	1870	792	1294	77,618
May	3510	1490	1927	119,494	May	4850	1440	2618	162,334
June	3570	741	1944	116,648	June	2500	1080	1744	104,624
July	9230	1910	3909	242,370	July	1970	575	1584	98,208
Aug.	11500	8400	10425	646,320	Aug.	3660	376	1205	74,686
Sept.	11900	11500	11685	701,080	Sept.	9020	4390	7679	460,740
Oct.	12200	11700	11948	740,800	Oct.	5430	312	1567	97,134
Nov.	12300	12000	12160	729,600	Nov.	10500	2050	5006	300,390
Dec.	12000	2020	7620	472,410	Dec.	11300	10500	11035	684,176
Total	..	..	..	4,585,802	Total	..	..	..	2,354,722

Year 1955				Year 1956					
Jan.	11100	645	4368	270,790	Jan.	10000	5980	7320	453,826
Feb.	10100	885	3955	221,490	Feb.	8600	1250	4784	277,460
Mar.	2800	1880	2245	139,200	Mar.	4940	675	3129	193,976
Apr.	2240	1290	1779	106,720	Apr.	11200	5430	9034	542,060
May	4390	1360	2989	185,340	May	11900	11200	11485	712,074
June	6500	2330	3290	197,380	June	12100	11900	11980	718,724
July	11500	7025	9198	570,250	July	14200	12900	13652	846,424
Aug.	12000	10900	11433	708,850	Aug.	13900	13400	13601	843,240
Sept.	12300	12000	12155	729,300	Sept.	13900	13300	13594	815,660
Oct.	12100	11900	11982	742,900	Oct.	13300	12800	13097	812,040
Nov.	12200	11100	11554	716,350	Nov.	13100	12500	12762	791,224
Dec.	11000	6950	9027	559,678	Dec.	12500	7910	10998	681,866
Total	..	..	..	5,148,248	Total	..	..	..	7,688,574

Year 1957				Year 1958					
Jan.	7440	2510	3532	218,990	Jan.	3260	1930	2610	161,840
Feb.	2470	1170	1967	110,172	Feb.	3200	1930	2453	137,360
Mar.	2960	660	1443	89,480	Mar.	2390	350	1112	68,920
Apr.	1870	540	973	58,376	Apr.	1170	430	919	55,154
May	4520	1770	2647	164,140	May	2780	780	1598	99,050
June	5150	2540	3771	226,288	June	3260	2780	3020	181,200
July	9020	3820	5726	355,020	July	4380	1220	2311	143,270
Aug.	3610	820	2176	134,890	Aug.	12100	4380	9874	612,176
Sept.	2840	900	1405	84,298	Sept.	12400	11400	12160	729,596
Oct.	3750	620	2003	124,160	Oct.	12200	11000	11817	732,630
Nov.	3290	990	1705	102,326	Nov.	12300	11600	12090	725,416
Dec.	3020	1590	2026	125,640	Dec.	11600	2070	5884	364,820
Total	..	..	..	1,793,780	Total	..	..	..	4,011,432

Year 1959				Year 1960					
Jan.	1600	465	780	48,386	Jan.	1790	600	1206	74,754
Feb.	2300	1470	1838	102,920	Feb.	1520	600	964	55,938
Mar.	3680	660	1926	119,390	Mar.	1320	320	663	41,120
Apr.	3680	620	2084	125,064	Apr.	2120	600	1083	64,976
May	2540	990	1644	101,970	May	8740	2420	6109	378,774
June	3140	1270	2147	128,832	June	9420	6330	8367	501,994
July	1520	500	1054	65,320	July	10900	5770	8521	528,280
Aug.	2390	580	1240	76,888	Aug.	12100	11000	11527	714,690
Sept.	6730	620	1906	114,388	Sept.	12600	12100	12364	741,836
Oct.	6250	2070	3011	186,688	Oct.	12600	12100	12430	770,652
Nov.	4940	1470	3903	234,152	Nov.	12100	8110	10387	623,216
Dec.	1570	990	1316	81,566	Dec.	9470	1880	5538	343,328
Total	..	..	..	1,385,564	Total	..	..	..	4,839,558

MURRAY RIVER AT BARHAM

Year 1961				Year 1962					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	2000	530	1005	62,314	Jan.	2900	440	1144	70,900
Feb.	1420	530	932	52,194	Feb.	1520	440	759	42,490
Mar.	1560	1000	1254	77,744	Mar.	1270	440	598	37,106
Apr.	2770	1610	2066	123,932	Apr.	1940	310	923	55,352
May	3820	1500	2612	161,932	May	1670	310	1184	73,408
June	3200	1180	1675	100,496	June	5010	1620	3993	239,554
July	4100	1570	2116	131,174	July	5530	2510	3817	236,670
Aug.	8290	1350	3809	236,192	Aug.	8830	3750	6884	426,790
Sept.	6010	950	3317	199,006	Sept.	6650	950	3226	193,562
Oct.	1670	560	1075	66,666	Oct.	1700	815	1332	82,614
Nov.	3140	1880	2290	137,400	Nov.	1810	950	1418	85,070
Dec.	2780	530	1238	76,750	Dec.	1600	470	956	59,246
Total	..	..	..	1,425,800	Total	..	..	..	1,602,762

Year 1963				Year 1964					
Jan.	2700	490	1267	78,576	Jan.	870	540	615	38,150
Feb.	1400	350	708	39,646	Feb.	1350	600	886	51,410
Mar.	2300	310	902	55,900	Mar.	1120	730	996	61,780
Apr.	2490	270	1014	60,826	Apr.	2560	1010	1841	110,454
May	4870	815	2299	142,510	May	2170	835	1338	82,956
June	9120	3260	5290	317,420	June	4310	1310	1959	117,560
July	10000	3190	5350	331,720	July	11100	4660	7910	491,000
Aug.	9420	5530	7160	443,970	Aug.	12400	11200	11800	734,000
Sept.	9520	5690	7760	465,630	Sept.	12700	12400	12500	749,000
Oct.	9630	1805	4775	296,090	Oct.	13100	12600	12900	798,000
Nov.	5690	835	2657	159,420	Nov.	12900	10100	12200	731,000
Dec.	1450	510	816	50,576	Dec.	9520	1190	3960	246,000
Total	..	..	..	2,442,284	Total	..	..	..	4,211,310

Year 1965				Year 1966					
Jan.	1810	706	1050	64,800	Jan.	2460	1090	1597	99,000
Feb.	695	600	636	35,600	Feb.	2990	1290	2083	117,000
Mar.	1230	660	929	57,600	Mar.	2610	1290	1928	119,600
Apr.	1500	695	1160	69,800	Apr.	1990	470	1025	61,500
May	2490	480	1040	64,500	May	1390	570	942	58,400
June	3330	1150	2270	136,000	June	1490	1140	1401	84,100
July	1190	570	896	55,600	July	2260	855	1426	88,400
Aug.	10100	800	3624	225,000	Aug.	8680	440	4028	250,000
Sept.	11200	5530	9627	578,000	Sept.	9420	1990	5882	349,000
Oct.	4240	655	1683	104,000	Oct.	10500	4030	7562	469,000
Nov.	1340	410	624	37,400	Nov.	6460	4730	5844	351,000
Dec.	3330	380	1541	95,500	Dec.	10300	5370	7658	457,000
Total	..	..	..	1,523,800	Total	..	..	..	2,504,000

Year 1967				Year 1968					
Jan.	9700	1910	4557	283,000	Jan.	2110	1580	1843	114,000
Feb.	2010	700	1268	71,000	Feb.	1930	1190	1445	83,800
Mar.	1420	990	1216	75,400	Mar.	1270	1080	1161	72,000
Apr.	1370	640	955	57,300	Apr.	1270	510	942	56,500
May	1090	640	921	57,100	May	4590	1010	2486	154,000
June	1600	990	1288	77,300	June	10500	4520	9490	569,000
July	1010	630	867	53,800	July	9220	4940	6997	434,000
Aug.	2110	887	1127	69,900	Aug.	11200	5290	9388	582,000
Sept.	3510	730	1350	81,000	Sept.	11100	1620	7127	428,000
Oct.	1700	712	1160	72,000	Oct.	7540	1680	4232	262,000
Nov.	1780	765	1265	75,900	Nov.	7050	4030	5612	337,000
Dec.	1780	1350	1530	94,800	Dec.	5430	1600	2712	168,000
Total	..	..	..	1,068,500	Total	..	..	..	3,260,300

MURRAY RIVER AT BARHAM

Year 1969				Year 1970					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	1880	1190	1447	89,700	Jan.	3820	1590	2441	151,000
Feb.	3260	1550	2270	127,000	Feb.	2060	1220	1603	89,800
Mar.	4660	1190	2812	174,000	Mar.	4660	1220	2194	136,000
Apr.	4170	990	2659	160,000	Apr.	5690	2300	3193	192,000
May	4310	990	2272	141,000	May	8470	4030	6015	373,000
June	7580	2550	4762	286,000	June	7610	2600	4029	242,000
July	9850	2430	4180	259,000	July	9270	7210	8500	527,000
Aug.	10300	7370	9402	583,000	Aug.	10300	5940	7997	496,000
Sept.	11000	5290	8547	513,000	Sept.	12900	10600	11881	713,000
Oct.	11100	3140	6737	418,000	Oct.	12900	10600	11999	744,000
Nov.	3540	2540	3089	185,000	Nov.	10200	4660	8253	495,000
Dec.	2900	1520	2088	129,000	Dec.	6840	1620	4352	270,000
Total	..	..	..	3,064,700	Total	..	..	..	4,428,800

Year 1971				Year 1972					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	1980	1160	1550	96,100	Jan.	2910	992	1867	116,000
Feb.	4310	940	2572	144,000	Feb.	7750	730	2737	159,000
Mar.	3320	760	1857	115,000	Mar.	3650	835	1346	83,500
Apr.	3140	765	1734	104,000	Apr.	2790	870	1666	100,000
May	4170	2700	3538	219,000	May	3170	1160	2069	128,000
June	7890	3140	5300	318,000	June	3290	940	1939	116,000
July	6700	2670	4879	302,000	July	2730	980	1528	94,700
Aug.	5610	1160	2698	167,000	Aug.	3110	1180	2061	128,000
Sept.	8280	1740	6352	381,000	Sept.	1580	980	1262	75,700
Oct.	11800	6770	10374	643,000	Oct.	2030	980	1519	94,200
Nov.	12100	10500	11544	693,000	Nov.	2790	1700	2115	127,000
Dec.	12400	2910	7806	484,000	Dec.	2090	1060	1561	96,800
Total	..	..	..	3,666,100	Total	..	..	..	1,318,900

MURRAY RIVER AT MILDURA

<u>LOCATION:</u>	Latitude 34°10' Longitude 142°10'
<u>PERIOD OF ESTABLISHMENT:</u>	1891 to 1929
<u>COMPLETE YEARS OF COMPUTED RECORDS:</u>	39 years.
<u>ZERO OF GAUGE:</u>	R.L. 100.44 Assumed Datum
<u>CATCHMENT AREA:</u>	92,000 square miles (see Remarks)
<u>CONTROL:</u>	Gravel
<u>EQUIPMENT:</u>	Staff Gauge, range 0 to 30 feet
<u>CURRENT METER OBSERVATIONS:</u>	(a) Number Obtained : 28
	(b) Maximum Observation in Cusecs : 51,000
	(c) Minimum Observation in Cusecs : 443
<u>MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS:</u>	70,700 cusecs (November, 1917)
<u>MEAN DAILY DISCHARGE FOR 39 YEARS:</u>	12,570 cusecs
<u>MEAN ANNUAL DISCHARGE FOR 39 YEARS:</u>	9,177,000 acre feet
<u>REMARKS:</u>	This station was controlled by the State Rivers and Water Supply Commission of Victoria during period of operation. Records include diversions to Red Cliffs and Mildura Urban and Irrigation Districts. Catchment area included Murrumbidgee and Lachlan River Catchments.

MURRAY RIVER AT MILDURA

Year 1891				Year 1892					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	22800	12600	18355	1,138,000	Jan.	10600	4900	7952	493,000
Feb.	14500	13700	14167	850,000	Feb.	4990	4010	4600	276,000
Mar.	14400	7480	10339	641,000	Mar.	4010	1640	2694	167,000
Apr.	8440	6340	7283	437,000	Apr.	1640	1280	1333	80,000
May	8630	6670	7677	476,000	May	4670	1280	3081	191,000
June	8070	6750	7333	440,000	June	8920	4900	7183	431,000
July	16700	8160	11565	717,000	July	14000	8440	10887	675,000
Aug.	44900	16900	30613	1,898,000	Aug.	17200	14000	15048	933,000
Sept.	44600	30200	38100	2,286,000	Sept.	19000	14000	15917	955,000
Oct.	29800	19600	23065	1,430,000	Oct.	23100	19100	20532	1,273,000
Nov.	19600	16300	18417	1,105,000	Nov.	23400	22400	23067	1,384,000
Dec.	16300	10700	12500	775,000	Dec.	22400	21200	21306	1,321,000
Total	..	..	..	12,193,000	Total	..	..	..	8,179,000

Year 1893				Year 1894					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	22100	7070	13597	843,000	Jan.	20000	9200	11371	705,000
Feb.	7070	3700	5375	301,000	Feb.	10700	6910	9268	519,000
Mar.	4450	3090	3848	216,000	Mar.	6830	5170	5548	344,000
Apr.	4450	2860	3417	205,000	Apr.	8070	5250	6917	415,000
May	5630	3320	4016	249,000	May	12100	8160	9774	606,000
June	12300	5400	8033	482,000	June	15500	12500	13817	829,000
July	20900	13100	16226	1,006,000	July	23400	15500	18903	1,172,000
Aug.	27500	21100	23387	1,450,000	Aug.	39200	23700	28565	1,771,000
Sept.	31600	27500	29967	1,798,000	Sept.	49200	40400	46233	2,774,000
Oct.	27800	25500	26617	1,597,000	Oct.	54200	41400	46581	2,888,000
Nov.	32600	28000	30683	1,841,000	Nov.	53100	42700	45417	2,725,000
Dec.	32300	20900	26613	1,650,000	Dec.	44000	32000	37677	2,336,000
Total	..	..	..	11,638,000	Total	..	..	..	17,084,000

Year 1895				Year 1896					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	32000	11400	18839	1,168,000	Jan.	4070	2280	3323	206,000
Feb.	11400	6180	8446	473,000	Feb.	2220	1570	2017	117,000
Mar.	6260	4470	5629	349,000	Mar.	2600	1400	1919	119,000
Apr.	4870	3970	4617	277,000	Apr.	2400	1630	2050	123,000
May	5870	3670	4645	288,000	May	6420	2400	5226	324,000
June	7980	5380	6316	379,000	June	7400	5950	6750	405,000
July	13200	7980	10016	621,000	July	11700	6420	8629	535,000
Aug.	13900	12500	12758	791,000	Aug.	12600	9420	11306	701,000
Sept.	16300	13200	14450	867,000	Sept.	11600	7400	9217	553,000
Oct.	25200	16700	19597	1,215,000	Oct.	12600	11700	11887	737,000
Nov.	23400	11800	18783	1,127,000	Nov.	12100	5950	9050	543,000
Dec.	10900	4070	5758	357,000	Dec.	5950	4570	5194	322,000
Total	..	..	..	7,912,000	Total	..	..	..	4,685,000

Year 1897				Year 1898					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	6100	1900	3081	191,000	Jan.	2920	1250	1710	106,000
Feb.	7150	3250	6000	336,000	Feb.	1250	600	946	53,000
Mar.	3870	2080	2871	178,000	Mar.	4170	600	1952	121,000
Apr.	2600	1450	2050	123,000	Apr.	1300	820	983	59,000
May	1400	1280	1290	80,000	May	1110	930	935	58,000
June	1700	1250	1417	85,000	June	5250	1020	2400	144,000
July	6180	1770	4161	258,000	July	9630	5790	8389	517,000
Aug.	8730	6260	7581	470,000	Aug.	12300	6830	8952	555,000
Sept.	13600	8820	11667	700,000	Sept.	14300	12300	13783	827,000
Oct.	16900	14100	15532	963,000	Oct.	15900	13200	14661	909,000
Nov.	15300	9520	13683	821,000	Nov.	13200	10700	11600	696,000
Dec.	9520	2920	5306	329,000	Dec.	12200	7230	9839	610,000
Total	..	..	..	4,534,000	Total	..	..	..	4,655,000

MURRAY RIVER AT MILDURA

Year 1899				Year 1900					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	6910	1950	3742	232,000	Jan.	2470	820	1161	72,000
Feb.	2280	1450	2071	116,000	Feb.	980	820	948	55,000
Mar.	1350	860	1016	63,000	Mar.	820	470	629	39,000
Apr.	2670	860	1667	100,000	Apr.	4070	750	2367	142,000
May	3670	2600	3226	200,000	May	7820	4070	6468	401,000
June	7730	2600	4767	286,000	June	9850	6100	8600	516,000
July	14400	8070	11210	695,000	July	16000	9520	12097	750,000
Aug.	17000	13200	15435	957,000	Aug.	24000	16300	20565	1,275,000
Sept.	15200	11200	14017	841,000	Sept.	22900	20300	21167	1,270,000
Oct.	10900	6670	8242	511,000	Oct.	27000	23100	24742	1,534,000
Nov.	8820	6670	7733	464,000	Nov.	27000	17000	23433	1,406,000
Dec.	7820	2670	5097	316,000	Dec.	17200	5870	9774	606,000
Total	..	..	..	4,781,000	Total	..	..	..	8,066,000

Year 1901				Year 1902					
Jan.	5720	1900	2839	176,000	Jan.	6350	2280	3532	219,000
Feb.	1900	960	1536	86,000	Feb.	2530	980	1679	94,000
Mar.	960	490	694	43,000	Mar.	930	340	667	40,000
Apr.	790	490	667	40,000	Apr.	1110	530	900	54,000
May	3670	790	2274	141,000	May	930	640	710	44,000
June	5780	1950	2933	176,000	June	980	640	683	41,000
July	8630	5000	7081	439,000	July	4570	980	3194	198,000
Aug.	7820	5120	6629	411,000	Aug.	3420	2080	2710	168,000
Sept.	11500	6270	9250	555,000	Sept.	2150	1200	1583	95,000
Oct.	17000	11600	13823	857,000	Oct.	3170	1570	2565	159,000
Nov.	17000	16000	16700	1,002,000	Nov.	3170	1570	2383	143,000
Dec.	17500	6830	14113	875,000	Dec.	1500	490	871	54,000
Total	..	..	..	4,801,000	Total	..	..	..	1,309,000

Year 1903				Year 1904					
Jan.	2470	530	1848	92,000	Jan.	7900	4270	5710	354,000
Feb.	930	320	607	34,000	Feb.	7480	4570	6431	373,000
Mar.	320	250	300	22,000	Mar.	4470	1630	2452	152,000
Apr.	900	240	383	23,000	Apr.	1630	820	1183	71,000
May	5120	820	2629	163,000	May	1300	750	952	59,000
June	6580	2600	3867	232,000	June	3170	1250	2183	131,000
July	10900	6900	8645	536,000	July	9630	2750	6419	398,000
Aug.	14600	11200	12887	799,000	Aug.	16400	9850	12758	791,000
Sept.	14100	10400	11517	691,000	Sept.	16700	14800	15833	950,000
Oct.	15900	11800	13887	861,000	Oct.	17600	16200	16581	1,028,000
Nov.	15900	13700	15150	909,000	Nov.	16400	15600	16050	963,000
Dec.	13600	5720	8742	542,000	Dec.	17000	7400	14226	882,000
Total	..	..	..	4,904,000	Total	..	..	..	6,152,000

Year 1905				Year 1906					
Jan.	6980	1770	4145	257,000	Jan.	12600	3300	6758	419,000
Feb.	1770	900	1411	79,000	Feb.	3180	1320	2268	127,000
Mar.	900	620	742	46,000	Mar.	4000	1230	1548	96,000
Apr.	750	530	600	36,000	Apr.	5480	3670	4617	277,000
May	1250	790	1048	65,000	May	7500	2840	5339	331,000
June	5500	1020	2183	131,000	June	13100	7800	11017	661,000
July	11300	5870	8339	517,000	July	18800	13200	14887	923,000
Aug.	22900	11400	16484	1,022,000	Aug.	31100	19300	25081	1,555,000
Sept.	25900	21200	24283	1,457,000	Sept.	37900	31000	34617	2,077,000
Oct.	20600	16700	17032	1,056,000	Oct.	45800	37900	40177	2,491,000
Nov.	16400	15900	16167	970,000	Nov.	49600	44500	47533	2,852,000
Dec.	16900	11800	14629	907,000	Dec.	43900	23200	31790	1,971,000
Total	..	..	..	6,543,000	Total	..	..	..	13,780,000

MURRAY RIVER AT MILDURA

Year 1907				Year 1908					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	23300	10100	16065	996,000	Jan.	6380	3380	5000	310,000
Feb.	9660	5220	7304	409,000	Feb.	3180	1670	2190	127,000
Mar.	5080	2750	3629	225,000	Mar.	1900	1380	1516	94,000
Apr.	2750	2420	2633	158,000	Apr.	1340	1100	1200	72,000
May	4620	2420	3483	216,000	May	1840	1130	1274	79,000
June	7080	3900	5217	313,000	June	3780	1840	2783	167,000
July	7380	5820	6290	390,000	July	9380	2500	7129	442,000
Aug.	12500	7080	9258	574,000	Aug.	11200	6380	9274	575,000
Sept.	14100	12600	13633	818,000	Sept.	13700	9580	11217	673,000
Oct.	13700	11300	11452	710,000	Oct.	14600	13500	13710	850,000
Nov.	11000	8460	9650	579,000	Nov.	13900	10900	12917	775,000
Dec.	9420	4620	7210	447,000	Dec.	11000	3880	6871	426,000
Total	..	..	..	5,835,000	Total	..	..	..	4,590,000

Year 1909				Year 1910					
Jan.	3780	1520	2306	143,000	Jan.	4860	2200	3161	196,000
Feb.	1460	1100	1321	74,000	Feb.	2970	1980	2482	139,000
Mar.	2370	1130	1694	105,000	Mar.	2060	1530	1694	105,000
Apr.	2370	1270	1733	104,000	Apr.	1640	1230	1533	92,000
May	7980	1520	3355	208,000	May	1320	1230	1242	77,000
June	12400	8460	10400	624,000	June	3120	1350	2217	133,000
July	20800	12400	15387	954,000	July	11200	3020	7565	469,000
Aug.	26600	21500	24323	1,508,000	Aug.	14100	11300	12355	766,000
Sept.	51500	26000	37167	2,230,000	Sept.	15100	11500	12147	745,000
Oct.	51500	32700	42226	2,618,000	Oct.	25100	15300	19612	1,216,000
Nov.	32200	14800	23183	1,391,000	Nov.	24700	20800	22383	1,343,000
Dec.	14500	4980	8435	523,000	Dec.	20600	9600	13419	832,000
Total	..	..	..	10,482,000	Total	..	..	..	6,113,000

Year 1911				Year 1912					
Jan.	9240	5100	6871	426,000	Jan.	3780	1840	2774	172,000
Feb.	11300	5340	8821	494,000	Feb.	1810	880	1310	76,000
Mar.	12000	10800	10935	678,000	Mar.	880	620	742	46,000
Apr.	11900	7620	10317	619,000	Apr.	880	420	633	38,000
May	7500	5340	5726	355,000	May	1000	720	887	55,000
June	11600	5820	9267	556,000	June	1260	1000	1100	66,000
July	21700	11900	16210	1,005,000	July	8460	1330	4210	261,000
Aug.	23700	22100	22532	1,397,000	Aug.	9240	7500	8581	532,000
Sept.	24200	21900	23533	1,412,000	Sept.	12000	6780	8900	534,000
Oct.	21500	12300	15565	965,000	Oct.	19500	12200	15161	940,000
Nov.	12300	5820	8617	517,000	Nov.	19700	11100	15433	926,000
Dec.	5700	2970	4210	261,000	Dec.	12000	10100	11290	700,000
Total	..	..	..	8,685,000	Total	..	..	..	4,346,000

Year 1913				Year 1914					
Jan.	11400	5820	8935	554,000	Jan.	4140	1330	2403	149,000
Feb.	5580	1700	3000	168,000	Feb.	1330	880	1071	60,000
Mar.	1740	1060	1500	93,000	Mar.	940	360	597	37,000
Apr.	6420	1190	5050	303,000	Apr.	3540	160	1233	74,000
May	6900	2970	4145	257,000	May	2720	1230	1935	120,000
June	9780	6600	7967	478,000	June	4620	2280	3817	229,000
July	11800	9060	10452	648,000	July	4260	2130	2774	172,000
Aug.	12300	9900	10839	672,000	Aug.	5700	4140	4887	303,000
Sept.	12800	10800	12150	729,000	Sept.	4020	1910	2600	156,000
Oct.	13400	10900	12500	775,000	Oct.	2020	910	1726	107,000
Nov.	12400	11400	11983	719,000	Nov.	910	250	600	36,000
Dec.	11300	4380	8194	508,000	Dec.	230	0	142	15,000
Total	..	..	..	5,904,000	Total	..	..	..	1,458,000

MURRAY RIVER AT MILDURA

Year 1915				Year 1916					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	920	208	468	29,000	Jan.	7020	2190	4710	292,000
Feb.	570	160	393	22,000	Feb.	2190	1540	1742	100,000
Mar.	220	64	129	8,000	Mar.	1780	1120	1468	91,000
Apr.	320	32	250	15,000	Apr.	1640	1010	1250	75,000
May	220	32	129	8,000	May	2190	1120	1694	105,000
June	3420	224	2083	125,000	June	4000	2050	2933	176,000
July	12500	2830	8677	538,000	July	12700	4380	7871	488,000
Aug.	16800	12700	14774	916,000	Aug.	22700	12800	17306	1,073,000
Sept.	26100	17000	21317	1,279,000	Sept.	31200	23100	26550	1,593,000
Oct.	26200	22500	23742	1,472,000	Oct.	41100	31200	36597	2,269,000
Nov.	27400	23700	26100	1,566,000	Nov.	52000	41600	48167	2,890,000
Dec.	26400	7260	17694	1,097,000	Dec.	46500	36700	40677	2,522,000
Total	..	..	..	7,075,000	Total	..	..	..	11,674,000

Year 1917				Year 1918					
Jan.	36700	28400	34419	2,134,000	Jan.	40900	15300	29629	1,837,000
Feb.	27700	7740	12375	693,000	Feb.	15300	9600	11911	667,000
Mar.	7620	5580	6468	401,000	Mar.	9660	8460	8887	551,000
Apr.	6780	4860	5450	327,000	Apr.	9180	7260	7967	478,000
May	7380	6060	6435	399,000	May	12100	6780	7887	489,000
June	15900	7860	12000	720,000	June	25700	12500	19017	1,141,000
July	48500	16700	30855	1,913,000	July	30100	26200	27323	1,694,000
Aug.	61300	42000	47839	2,966,000	Aug.	41800	30600	36435	2,259,000
Sept.	62500	57000	58900	3,534,000	Sept.	41800	37600	39083	2,345,000
Oct.	68800	63100	66355	4,114,000	Oct.	42000	36100	40032	2,482,000
Nov.	70700	63100	65783	3,947,000	Nov.	37000	12600	23417	1,405,000
Dec.	67000	41600	53290	3,304,000	Dec.	12200	5580	8500	527,000
Total	..	..	..	24,452,000	Total	..	..	..	15,875,000

Year 1919				Year 1920					
Jan.	4760	2120	3226	200,000	Jan.	4560	1830	2790	173,000
Feb.	2120	1600	1768	99,000	Feb.	4420	2010	2862	166,000
Mar.	2810	1600	2145	133,000	Mar.	2850	1280	1855	115,000
Apr.	2770	1850	2117	127,000	Apr.	2900	1930	2433	146,000
May	2900	1960	2145	133,000	May	1900	1430	1548	96,000
June	4230	3000	3700	222,000	June	3060	1410	2217	133,000
July	10100	4090	8306	515,000	July	13800	3310	8935	554,000
Aug.	10100	7680	8629	535,000	Aug.	19700	14000	17177	1,065,000
Sept.	10700	8410	9617	577,000	Sept.	34400	19900	25933	1,556,000
Oct.	11900	10200	11323	702,000	Oct.	45500	34900	41500	2,573,000
Nov.	9940	5420	8083	485,000	Nov.	43800	26400	34283	2,057,000
Dec.	5220	1880	2758	171,000	Dec.	21200	9010	18532	1,149,000
Total	..	..	..	3,899,000	Total	..	..	..	9,783,000

Year 1921				Year 1922					
Jan.	8880	5420	6677	414,000	Jan.	7550	3190	5419	336,000
Feb.	5350	2310	3500	196,000	Feb.	5550	1960	3321	186,000
Mar.	3130	1980	2339	145,000	Mar.	2180	1600	1871	116,000
Apr.	3370	1960	2550	153,000	Apr.	1700	1350	1467	88,000
May	3760	2680	3065	190,000	May	5500	1410	2113	131,000
June	12500	2600	6300	378,000	June	6880	2770	4700	282,000
July	16000	12800	14403	893,000	July	7010	2600	3516	218,000
Aug.	19700	13200	16177	1,003,000	Aug.	12600	7280	11016	683,000
Sept.	33700	20100	26200	1,572,000	Sept.	17700	12600	15317	919,000
Oct.	45500	34100	38613	2,394,000	Oct.	16500	15000	15484	960,000
Nov.	45700	34500	41300	2,478,000	Nov.	15600	8750	11933	716,000
Dec.	33700	7880	19129	1,186,000	Dec.	8350	2070	4306	267,000
Total	..	..	..	11,002,000	Total	..	..	..	4,902,000

MURRAY RIVER AT MILDURA

Year 1923				Year 1924					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	2070	1280	1710	106,000	Jan.	16000	6330	10210	633,000
Feb.	1280	1100	1179	66,000	Feb.	6330	4470	5190	301,000
Mar.	1580	824	1129	70,000	Mar.	6540	4360	5452	338,000
Apr.	1040	780	850	51,000	Apr.	7500	3440	5750	345,000
May	840	752	758	47,000	May	7500	4130	6226	386,000
June	12200	860	5533	332,000	June	10800	4240	7233	434,000
July	21500	12500	16468	1,021,000	July	13200	10800	12242	759,000
Aug.	35800	21800	28339	1,757,000	Aug.	10400	4960	7645	474,000
Sept.	40400	35300	38383	2,303,000	Sept.	21100	10400	14967	898,000
Oct.	34500	25700	27710	1,718,000	Oct.	28300	21600	26177	1,623,000
Nov.	30100	26100	27117	1,627,000	Nov.	28200	27000	27600	1,656,000
Dec.	31000	18100	27000	1,674,000	Dec.	29300	27000	27871	1,728,000
Total	..	..	..	10,772,000	Total	..	..	..	9,575,000

Year 1925				Year 1926					
Jan.	29300	7930	18210	1,129,000	Jan.	2970	1110	1839	114,000
Feb.	11200	7080	9464	530,000	Feb.	1210	530	839	47,000
Mar.	6810	3850	5419	336,000	Mar.	760	260	500	31,000
Apr.	3720	2130	2950	177,000	Apr.	2090	412	1167	70,000
May	3510	1960	2548	158,000	May	9430	1560	4210	261,000
June	10100	3610	6517	391,000	June	13800	9710	11683	701,000
July	17500	10300	13613	844,000	July	18000	13800	14968	928,000
Aug.	21700	17600	20323	1,260,000	Aug.	24400	18300	21339	1,323,000
Sept.	20600	17200	18217	1,093,000	Sept.	32000	24700	28800	1,728,000
Oct.	22200	20200	21516	1,334,000	Oct.	31900	25300	29194	1,810,000
Nov.	21100	10400	15600	936,000	Nov.	24300	20400	21867	1,312,000
Dec.	9930	3140	6694	415,000	Dec.	19800	3670	9145	567,000
Total	..	..	..	8,603,000	Total	..	..	..	8,892,000

Year 1927				Year 1928					
Jan.	3650	1750	2708	171,000	Jan.	1660	368	1081	67,000
Feb.	2060	1020	1482	83,000	Feb.	3380	1190	2086	121,000
Mar.	1000	311	645	40,000	Mar.	8930	1090	4548	282,000
Apr.	550	294	417	25,000	Apr.	10100	1880	6667	400,000
May	1490	297	597	37,000	May	9860	5160	6468	401,000
June	2690	1630	2283	137,000	June	12900	6770	10217	613,000
July	4380	1630	2742	170,000	July	18400	13200	16484	1,022,000
Aug.	9930	4350	5952	369,000	Aug.	17100	14600	16016	993,000
Sept.	12100	10200	11567	694,000	Sept.	16400	6570	9383	563,000
Oct.	12900	7580	10371	643,000	Oct.	13200	6050	9323	578,000
Nov.	13500	11300	13000	780,000	Nov.	18100	13500	16733	1,004,000
Dec.	11100	1690	5129	318,000	Dec.	15800	2000	6984	433,000
Total	..	..	..	3,467,000	Total	..	..	..	6,477,000

Year 1929				
Jan.	1840	498	1177	73,000
Feb.	540	166	268	15,000
Mar.	620	300	435	27,000
Apr.	4760	327	2050	123,000
May	2440	989	1452	90,000
June	6350	2260	4050	243,000
July	8950	6470	8016	497,000
Aug.	7050	3730	4758	295,000
Sept.	11200	7340	9833	590,000
Oct.	10000	6350	8435	523,000
Nov.	10000	2440	6733	404,000
Dec.	3670	1730	2581	160,000
Total	..	..	..	3,040,000

MURRAY RIVER AT EUSTON - LOCK 15

LOCATION: Latitude 34°35' Longitude 142°46'

PERIOD OF ESTABLISHMENT: January 1930 to date

COMPLETE YEARS OF COMPUTED RECORDS: 43 years

ZERO OF GAUGE: R.L. 140.00 Assumed Datum

CATCHMENT AREA: 105,000 Square miles (see Remarks)

CONTROL: Lock 15

EQUIPMENT: Staff Gauge, range 0 to 40 feet

CURRENT METER OBSERVATIONS:

(a) Number Obtained : 160

(b) Maximum Observation
in Cusecs : 122,228

(c) Minimum Observation
in Cusecs : 628

MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS: 123,350 cusecs (August, 1956)

MEAN DAILY DISCHARGE FOR 43 YEARS: 9,660 cusecs

MEAN ANNUAL DISCHARGE FOR 43 YEARS: 7,052,000 acre feet

REMARKS:

This station is controlled by the State Rivers and Water Supply Commission of Victoria during period of operation.

Catchment area includes Murrumbidgee and Lachlan River Catchments.

Records include diversions to Robinvale Irrigation District.

MURRAY RIVER AT EUSTON - LOCK 15

Year 1930				Year 1931					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	3090	680	1940	120,000	Jan.	15200	6980	12700	782,000
Feb.	630	367	482	27,000	Feb.	6650	1390	3430	190,000
Mar.	520	350	452	28,000	Mar.	6370	730	1910	117,000
Apr.	420	200	283	17,000	Apr.	10200	6810	8610	512,000
May	5880	160	1790	111,000	May	13300	9280	10300	634,000
June	5510	2520	3420	205,000	June	20300	13600	16900	1,003,000
July	3180	912	1790	110,000	July	101000	21100	55700	3,454,000
Aug.	11500	1900	6800	418,000	Aug.	99700	50700	72300	4,480,000
Sept.	11500	8180	9400	559,000	Sept.	50400	47800	49100	2,943,000
Oct.	13500	7520	9740	599,000	Oct.	47500	36900	42600	2,641,000
Nov.	16200	13600	15200	902,000	Nov.	35800	15100	23200	1,394,000
Dec.	14700	9280	12000	737,000	Dec.	15000	7850	11300	701,000
Total	..	..	..	3,833,000	Total	..	..	..	18,851,000

Year 1932				Year 1933					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	7750	1150	3750	231,000	Jan.	3520	1640	2470	152,000
Feb.	1740	912	1300	75,000	Feb.	2160	1090	1720	96,000
Mar.	2070	1220	1410	87,000	Mar.	1220	1000	1110	68,000
Apr.	12000	2300	6590	392,000	Apr.	2430	1000	1440	85,000
May	13600	10200	12800	787,000	May	2900	1980	2290	141,000
June	12000	8400	9850	586,000	June	5200	2610	3720	221,000
July	21200	12300	16900	1,041,000	July	11900	4990	6900	424,000
Aug.	24700	21500	23500	1,442,000	Aug.	12400	10500	11500	708,000
Sept.	25800	20700	22000	1,312,000	Sept.	18600	11100	13700	815,000
Oct.	38000	26200	32300	2,005,000	Oct.	22300	18900	21400	1,315,000
Nov.	25600	11700	18400	1,092,000	Nov.	21200	9290	16900	1,004,000
Dec.	11200	3130	6470	398,000	Dec.	11800	8240	10700	656,000
Total	..	..	..	9,448,000	Total	..	..	..	5,685,000

Year 1934				Year 1935					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	12100	6240	9190	565,000	Jan.	30300	9920	23100	1,421,000
Feb.	11100	3320	6610	367,000	Feb.	9660	4630	6140	341,000
Mar.	6300	3590	5340	328,000	Mar.	4780	2780	3260	200,000
Apr.	5120	3320	4240	252,000	Apr.	5850	2910	3440	205,000
May	5020	3320	4470	275,000	May	14000	6760	12200	749,000
June	4830	2780	3240	193,000	June	13500	10600	11800	705,000
July	8530	2880	5530	340,000	July	14900	12000	13100	807,000
Aug.	12900	8770	10700	659,000	Aug.	22500	15100	18800	1,155,000
Sept.	17700	13000	16000	949,000	Sept.	27100	22800	25700	1,531,000
Oct.	17000	14700	15600	957,000	Oct.	25900	25000	25400	1,561,000
Nov.	24000	16300	19300	1,150,000	Nov.	24900	19400	22000	1,311,000
Dec.	34500	24500	30300	1,881,000	Dec.	18800	4680	9310	573,000
Total	..	..	..	7,916,000	Total	..	..	..	10,559,000

Year 1936				Year 1937					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	6700	4580	5440	334,000	Jan.	8750	4450	6790	417,000
Feb.	4590	2710	3130	180,000	Feb.	6600	3320	4740	263,000
Mar.	3200	2710	2910	179,000	Mar.	3640	2930	3170	195,000
Apr.	3630	2710	3000	178,000	Apr.	2700	2420	2520	150,000
May	5020	3430	4150	255,000	May	5320	2780	4120	254,000
June	5900	3960	4720	283,000	June	5630	5210	5390	321,000
July	13600	4530	9570	588,000	July	5740	4500	5140	316,000
Aug.	20500	14400	16700	1,027,000	Aug.	4750	3050	3980	245,000
Sept.	36900	20800	27000	1,617,000	Sept.	7320	4000	5650	336,000
Oct.	39400	16300	29800	1,850,000	Oct.	7590	5310	6180	380,000
Nov.	15400	8630	11600	691,000	Nov.	9330	2000	5190	309,000
Dec.	8500	5420	7210	443,000	Dec.	2560	1660	2050	126,000
Total	..	..	..	7,625,000	Total	..	..	..	3,312,000

MURRAY RIVER AT EUSTON - LOCK 15

Year 1938				Year 1939					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	2210	1750	1980	122,000	Jan.	550	290	349	21,000
Feb.	1690	1280	1550	86,000	Feb.	440	110	165	9,000
Mar.	1840	1230	1610	99,000	Mar.	6600	520	4150	255,000
Apr.	1720	1310	1500	89,000	Apr.	14200	6160	10300	614,000
May	2880	1750	2370	146,000	May	17300	11600	15100	927,000
June	3510	1810	2970	177,000	June	16300	10400	12700	754,000
July	4830	3370	4060	250,000	July	22400	16500	18300	1,128,000
Aug.	3590	2630	3010	185,000	Aug.	27000	22800	25300	1,558,000
Sept.	3860	2290	3300	197,000	Sept.	61800	25200	37100	2,224,000
Oct.	2180	255	1000	62,000	Oct.	65000	40000	55500	3,438,000
Nov.	1040	225	679	40,000	Nov.	38500	29400	29500	1,769,000
Dec.	480	160	328	20,000	Dec.	27300	15500	24000	1,477,000
Total	..	..	..	1,473,000	Total	..	..	..	14,174,000

Year 1940				Year 1941					
Jan.	14000	2520	5970	367,000	Jan.	3310	860	2080	128,000
Feb.	3080	1940	2300	132,000	Feb.	3190	1690	2360	131,000
Mar.	2870	2110	2600	160,000	Mar.	1890	1080	1580	97,000
Apr.	2480	1660	2050	122,000	Apr.	1990	970	1590	94,000
May	4460	2630	3860	237,000	May	2730	945	1560	96,000
June	5730	3280	4540	270,000	June	3140	2510	2810	167,000
July	3400	1720	2450	151,000	July	4880	2200	3210	198,000
Aug.	2230	1430	1820	112,000	Aug.	4460	2160	2050	188,000
Sept.	3400	1720	2220	132,000	Sept.	3030	1820	2300	137,000
Oct.	3740	1300	2660	164,000	Oct.	9810	2230	6670	410,000
Nov.	1690	1200	1420	85,000	Nov.	4930	3360	4240	252,000
Dec.	1600	940	1250	77,000	Dec.	3310	1590	2080	128,000
Total	..	..	..	2,009,000	Total	..	..	..	2,026,000

Year 1942				Year 1943					
Jan.	1560	780	1080	66,000	Jan.	4600	2500	2990	184,000
Feb.	1590	700	1020	57,000	Feb.	2640	1620	1970	110,000
Mar.	1850	580	1150	71,000	Mar.	1600	1240	1450	89,000
Apr.	1210	750	1060	63,000	Apr.	2170	1160	1500	89,000
May	5620	940	3130	192,000	May	3950	2400	3300	203,000
June	11400	6270	8370	498,000	June	4700	2930	3850	229,000
July	18500	11600	14600	897,000	July	4150	2170	2850	175,000
Aug.	24300	19000	22600	1,391,000	Aug.	9000	2360	5930	365,000
Sept.	26400	22000	23700	1,411,000	Sept.	12000	7560	9190	547,000
Oct.	31100	26600	29400	1,824,000	Oct.	16000	12300	14500	894,000
Nov.	28800	17000	23200	1,389,000	Nov.	15800	9810	13800	823,000
Dec.	16500	4800	9950	617,000	Dec.	9500	3250	6690	411,000
Total	..	..	..	8,476,000	Total	..	..	..	4,119,000

Year 1944				Year 1945					
Jan.	2930	1240	1960	120,000	Jan.	930	605	716	44,000
Feb.	1200	1040	1110	64,000	Feb.	1300	245	528	29,000
Mar.	1110	940	1010	62,000	Mar.	880	455	630	39,000
Apr.	2370	1110	1400	83,000	Apr.	630	154	338	20,000
May	4400	2560	3100	192,000	May	580	245	417	26,000
June	4000	2810	3200	192,000	June	1270	338	746	44,000
July	4220	1930	2880	177,000	July	3710	1410	2420	149,000
Aug.	3060	1520	2420	149,000	Aug.	6790	1960	3990	245,000
Sept.	1840	1270	1530	91,000	Sept.	8890	5250	7540	449,000
Oct.	1660	480	1150	71,000	Oct.	5520	1550	2520	155,000
Nov.	1380	380	922	55,000	Nov.	5200	1840	3580	213,000
Dec.	1360	290	569	35,000	Dec.	5100	1580	2810	173,000
Total	..	..	..	1,291,000	Total	..	..	..	1,586,000

MURRAY RIVER AT EUSTON - LOCK 15

Year 1946				Year 1947					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	2300	705	1270	78,000	Jan.	3660	1900	2540	156,000
Feb.	3570	1790	2160	120,000	Feb.	2170	1410	1830	102,000
Mar.	6150	2440	4070	250,000	Mar.	2340	1640	1870	115,000
Apr.	2370	1700	2070	123,000	Apr.	2990	1760	2310	137,000
May	4100	1930	2660	164,000	May	2680	1800	2370	146,000
June	4100	3140	3480	207,000	June	2640	1640	2100	125,000
July	8290	3350	5480	337,000	July	9420	2300	5200	320,000
Aug.	21300	9080	14600	898,000	Aug.	14600	9990	12400	763,000
Sept.	25600	21800	24300	1,443,000	Sept.	21500	15000	18600	1,105,000
Oct.	21400	8070	13000	806,000	Oct.	22800	21600	22500	1,383,000
Nov.	10800	9080	10200	607,000	Nov.	23700	22700	23300	1,386,000
Dec.	10200	3840	7390	454,000	Dec.	23900	12900	19900	1,224,000
Total	..	..	..	5,487,000	Total	..	..	..	6,962,000

Year 1948				Year 1949					
Jan.	12700	7490	10200	634,000	Jan.	5130	2240	3560	221,000
Feb.	7430	3860	5100	296,000	Feb.	2140	1350	1620	91,000
Mar.	6500	1820	3840	238,000	Mar.	7950	1530	5150	319,000
Apr.	2870	1660	2050	122,000	Apr.	5170	2080	3080	185,000
May	5310	3140	4040	249,000	May	4810	1850	2920	181,000
June	8300	4850	6360	379,000	June	4620	2720	3850	231,000
July	10000	7150	8380	515,000	July	2690	1720	2190	135,000
Aug.	9010	4070	6770	416,000	Aug.	5450	2760	3980	247,000
Sept.	10400	4030	7330	437,000	Sept.	6710	2110	4130	248,000
Oct.	10300	7830	8690	539,000	Oct.	13300	6600	8790	545,000
Nov.	14500	9970	12500	752,000	Nov.	20300	13300	16300	980,000
Dec.	14900	5170	11700	728,000	Dec.	23200	20400	22000	1,367,000
Total	..	..	..	5,305,000	Total	..	..	..	4,750,000

Year 1950				Year 1951					
Jan.	18100	1980	5630	349,000	Jan.	12300	2680	5840	362,000
Feb.	6070	1880	3640	204,000	Feb.	4450	1820	2270	127,000
Mar.	11200	2140	4390	272,000	Mar.	7150	1350	3730	231,000
Apr.	17100	11300	15200	911,000	Apr.	2910	1170	1820	109,000
May	20100	12100	17100	1,060,000	May	4200	2830	3520	218,000
June	11600	8000	9750	585,000	June	12900	4800	9030	542,000
July	11300	7270	9180	569,000	July	16200	12200	14400	893,000
Aug.	19500	11000	15800	977,000	Aug.	35400	16500	23400	1,449,000
Sept.	19400	18500	18800	1,126,000	Sept.	45000	36300	42300	2,539,000
Oct.	19000	18300	18500	1,150,000	Oct.	41700	20900	29300	1,816,000
Nov.	20300	18700	19000	1,143,000	Nov.	21200	20200	20700	1,244,000
Dec.	22400	12600	19400	1,202,000	Dec.	20100	4210	10200	633,000
Total	..	..	..	9,548,000	Total	..	..	..	10,163,000

Year 1952				Year 1953					
Jan.	4210	1630	2560	159,000	Jan.	33400	17300	27100	1,679,000
Feb.	1500	1200	1290	75,000	Feb.	15700	4080	6890	386,000
Mar.	1420	1070	1250	78,000	Mar.	3970	1960	2630	163,000
Apr.	2930	1200	1770	106,000	Apr.	3070	1840	2220	133,000
May	6120	3240	4710	292,000	May	6080	2450	3280	203,000
June	15400	6160	10400	626,000	June	6360	3110	5030	302,000
July	60300	15700	31800	1,970,000	July	7440	3790	5610	348,000
Aug.	61000	55000	59500	3,688,000	Aug.	15100	8360	12000	742,000
Sept.	54000	34500	42000	2,521,000	Sept.	26800	15400	21800	1,309,000
Oct.	46600	32400	35900	2,228,000	Oct.	28000	24800	26000	1,612,000
Nov.	48500	31700	41400	2,485,000	Nov.	32400	28200	31200	1,873,000
Dec.	36300	31400	34100	2,116,000	Dec.	31300	10400	26300	1,633,000
Total	..	..	..	16,344,000	Total	..	..	..	10,383,000

MURRAY RIVER AT EUSTON - LOCK 15

Year 1954				Year 1955					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	9200	1770	3760	233,000	Jan.	14600	1790	9160	568,000
Feb.	7240	1720	4590	257,000	Feb.	8920	1440	3200	179,000
Mar.	3800	1080	1920	119,000	Mar.	9040	3140	5060	314,000
Apr.	2400	1100	1570	94,000	Apr.	3220	2520	2980	179,000
May	4760	2430	3650	226,000	May	5460	2120	3810	236,000
June	3280	2190	2680	161,000	June	6390	4150	5100	306,000
July	3790	2710	3270	203,000	July	13300	5210	10600	660,000
Aug.	2640	1470	1970	122,000	Aug.	21600	13400	17500	1,082,000
Sept.	10100	2600	7620	457,000	Sept.	66000	22000	39400	2,365,000
Oct.	10000	1320	3890	241,000	Oct.	67000	48500	58300	3,612,000
Nov.	10000	2150	5500	330,000	Nov.	48100	43200	45000	2,698,000
Dec.	14100	10000	12600	783,000	Dec.	42900	18000	32900	2,041,000
Total	..	..	..	3,226,000	Total	..	..	..	14,240,000

Year 1956				Year 1957					
Jan.	16500	9640	11400	704,000	Jan.	27800	4270	11000	679,000
Feb.	12100	4790	9760	566,000	Feb.	4410	3410	3820	214,000
Mar.	9940	2980	5880	365,000	Mar.	3350	1830	2310	143,000
Apr.	16100	9940	13400	805,000	Apr.	3730	1210	1830	110,000
May	34900	17000	24300	1,507,000	May	3730	1830	2950	183,000
June	68500	35800	51000	3,060,000	June	5320	3070	4110	247,000
July	111000	69500	83600	5,182,000	July	10600	5200	7640	474,000
Aug.	123350	97900	112000	6,916,000	Aug.	8720	2700	4660	289,000
Sept.	97000	78600	81200	4,871,000	Sept.	4100	1860	2780	167,000
Oct.	78000	60300	69500	4,310,000	Oct.	3730	1710	2810	174,000
Nov.	62200	56700	59000	3,540,000	Nov.	2960	1650	2470	148,000
Dec.	62200	28900	47700	2,958,000	Dec.	2330	1680	1920	119,000
Total	..	..	..	34,784,000	Total	..	..	..	2,947,000

Year 1958				Year 1959					
Jan.	3230	2130	2890	179,000	Jan.	5400	1280	2730	169,000
Feb.	3050	2570	2750	154,000	Feb.	2900	1610	2250	126,000
Mar.	3230	1240	1970	122,000	Mar.	4260	2820	3580	222,000
Apr.	1850	900	1200	72,000	Apr.	5780	2270	4100	246,000
May	3950	1530	2420	150,000	May	3900	2860	3300	205,000
June	5630	3680	4980	299,000	June	4950	3020	3980	239,000
July	5350	2860	3980	247,000	July	3140	2300	2780	172,000
Aug.	15700	5220	11100	686,000	Aug.	4910	2130	3450	214,000
Sept.	43800	16200	29500	1,770,000	Sept.	4410	1730	2430	146,000
Oct.	42300	24600	30300	1,882,000	Oct.	8200	4870	6850	425,000
Nov.	36100	25000	31100	1,867,000	Nov.	9660	5560	8500	510,000
Dec.	35600	5870	21700	1,345,000	Dec.	7590	3220	5390	334,000
Total	..	..	..	8,773,000	Total	..	..	..	3,008,000

Year 1960				Year 1961					
Jan.	3690	2500	3130	194,000	Jan.	8710	1840	4810	298,000
Feb.	2460	1520	1980	115,000	Feb.	1970	1560	1770	99,000
Mar.	2050	900	1290	80,000	Mar.	3180	2000	2240	139,000
Apr.	2460	960	1530	92,000	Apr.	5310	3380	4570	274,000
May	12300	2780	7410	459,000	May	7800	5610	6650	412,000
June	12900	11700	12300	739,000	June	6490	3760	4900	294,000
July	13300	8580	11500	713,000	July	6540	3670	5400	335,000
Aug.	22500	13500	17300	1,071,000	Aug.	10500	4680	6270	389,000
Sept.	37400	22900	31500	1,889,000	Sept.	11200	5960	9720	583,000
Oct.	39800	31900	34400	2,133,000	Oct.	5850	2750	5080	315,000
Nov.	43200	23200	36500	2,194,000	Nov.	5180	2530	3620	217,000
Dec.	22400	8770	15000	929,000	Dec.	5940	4180	4930	306,000
Total	..	..	..	10,608,000	Total	..	..	..	3,661,000

MURRAY RIVER AT EUSTON - LOCK 15

Year 1962				Year 1963					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	4800	3140	4210	261,000	Jan.	4080	2020	2980	185,000
Feb.	4330	2080	3360	188,000	Feb.	1930	1160	1540	86,000
Mar.	1910	825	1190	74,000	Mar.	1460	492	918	57,000
Apr.	2580	990	1840	110,000	Apr.	3220	1440	2370	142,000
May	2980	1360	2050	127,000	May	7140	1620	3720	231,000
June	7640	3060	5720	343,000	June	11700	7190	9440	566,000
July	7970	4330	6820	423,000	July	11500	8140	9370	581,000
Aug.	10600	4330	7920	491,000	Aug.	12700	10200	11500	713,000
Sept.	10700	5070	7670	460,000	Sept.	13900	11600	13100	785,000
Oct.	6390	4740	5320	330,000	Oct.	12400	6180	10200	633,000
Nov.	4980	2670	3880	233,000	Nov.	8200	3770	6300	378,000
Dec.	2710	1840	2240	139,000	Dec.	3550	2580	3020	187,000
Total	..	..	..	3,179,000	Total	..	..	..	4,544,000

Year 1964				Year 1965					
Jan.	2810	1400	1760	109,000	Jan.	4290	1260	2700	171,000
Feb.	1430	950	1240	72,000	Feb.	1230	920	1150	67,000
Mar.	1630	855	1140	71,000	Mar.	1200	632	837	52,000
Apr.	5180	1240	2670	160,000	Apr.	3260	990	1690	103,000
May	5590	3510	4650	288,000	May	3350	2190	2730	170,000
June	5120	3380	4430	266,000	June	6020	2740	4750	285,000
July	12200	4650	8740	543,000	July	3890	1970	2950	183,000
Aug.	24100	12600	17600	1,092,000	Aug.	8080	1780	3100	192,000
Sept.	30300	24500	28600	1,719,000	Sept.	12100	8420	11000	662,000
Oct.	35200	27800	30500	1,895,000	Oct.	12300	1420	4890	303,000
Nov.	51300	35800	45300	2,722,000	Nov.	3100	600	1480	89,000
Dec.	40200	4470	20800	1,293,000	Dec.	3960	1160	2730	169,000
Total	..	..	..	10,230,000	Total	..	..	..	2,446,000

Year 1966				Year 1967					
Jan.	1690	1220	1400	90,000	Jan.	14800	3050	9350	580,000
Feb.	2700	1520	2080	119,000	Feb.	2810	1280	1980	111,000
Mar.	3810	855	1650	103,000	Mar.	1650	990	1190	74,000
Apr.	5230	1020	2680	163,000	Apr.	1790	960	1420	85,000
May	3020	1020	1900	118,000	May	1760	1310	1480	92,000
June	4110	2420	3330	200,000	June	3550	1720	2670	160,000
July	3020	2000	2460	153,000	July	3300	1310	2030	126,000
Aug.	9840	1470	3820	237,000	Aug.	1620	1250	1470	91,000
Sept.	10700	4970	8230	494,000	Sept.	3520	1110	2170	130,000
Oct.	13700	7790	11800	731,000	Oct.	2190	625	1350	84,000
Nov.	10000	7680	8430	506,000	Nov.	2040	935	1420	85,000
Dec.	13500	9900	10900	676,000	Dec.	1840	1170	1580	98,000
Total	..	..	..	3,590,000	Total	..	..	..	1,716,000

Year 1968				Year 1969					
Jan.	1940	1450	1810	112,000	Jan.	2320	1640	1870	116,000
Feb.	1905	960	1590	92,000	Feb.	4660	1460	2710	152,000
Mar.	1450	825	1050	65,000	Mar.	7310	2730	4240	263,000
Apr.	1480	752	1100	66,000	Apr.	7580	3770	5570	334,000
May	4800	930	2650	164,000	May	6440	3900	5010	311,000
June	13200	3640	9350	561,000	June	10000	5040	7520	451,000
July	14000	7090	10900	678,000	July	8200	5850	7030	436,000
Aug.	14000	6760	9390	582,000	Aug.	14600	7970	12600	780,000
Sept.	16500	4740	13900	833,000	Sept.	15000	10600	12900	773,000
Oct.	7360	2490	4680	290,000	Oct.	16400	6240	12900	802,000
Nov.	8260	5470	6750	405,000	Nov.	7200	5560	6480	389,000
Dec.	7310	2140	4370	271,000	Dec.	7310	2580	5260	326,000
Total	..	..	..	4,119,000	Total	..	..	..	5,133,000

MURRAY RIVER AT EUSTON - LOCK 15

Year 1970				Year 1971					
Month	Discharge in Cusecs			Discharge for Month Acre Feet	Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean			Max.	Min.	Mean	
Jan.	5420	2500	3569	221,000	Jan.	7030	1790	4205	261,000
Feb.	3140	1370	1773	99,000	Feb.	6650	1930	4923	276,000
Mar.	4710	1250	1797	111,000	Mar.	6090	3990	4881	303,000
Apr.	6340	3900	5033	302,000	Apr.	4440	2580	3209	193,000
May	10300	5520	8466	525,000	May	6980	4480	6017	73,000
June	6290	3640	5011	301,000	June	8920	5850	7328	440,000
July	9900	6870	8618	534,000	July	7430	3730	6042	375,000
Aug.	10800	7590	9310	577,000	Aug.	6340	2620	4767	296,000
Sept.	22000	9320	14971	898,000	Sept.	11300	2660	6817	409,000
Oct.	35400	22700	31547	1,956,000	Oct.	12900	9720	10806	670,000
Nov.	35000	18800	28014	1,681,000	Nov.	16400	13000	15601	936,000
Dec.	17900	7090	12658	785,000	Dec.	19600	6930	16500	1,023,000
Total	..	..	..	7,990,000	Total	..	..	..	5,555,000

Year 1972				
Month	Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	6590	4170	5055	313,000
Feb.	8420	1520	3581	208,000
Mar.	8590	2000	4244	263,000
Apr.	4170	2000	2917	181,000
May	4350	2500	3101	192,000
June	4950	2460	3629	218,000
July	2660	1620	2019	125,000
Aug.	3980	1370	2702	168,000
Sept.	3280	1490	2323	139,000
Oct.	1940	1320	1607	100,000
Nov.	2370	1870	2130	128,000
Dec.	2120	1390	1671	104,000
Total	..	..	..	2,139,000

CONVERSION CONSTANTSIMPERIAL TO METRIC UNITSLENGTH

1 point (rainfall)	=	0.254 millimetres (mm)
1 inch	=	25.4 millimetres (mm)
1 foot	=	0.3048 metres (m)
1 mile	=	1.6093 kilometres (km)

AREA

1 acre	=	0.40469 hectares (ha)
1 square mile	=	2.59 square kilometres (km ²)

VOLUME

1 gallon	=	4.5425 litres (ℓ)
1 acre foot	=	1.23349 megalitres (Mℓ)
1 cubic mile	=	4.1678 cubic kilometres (km ³)
1 acre foot per square mile	=	0.47625 megalitres per square kilometre (Mℓ/km ²)
	=	0.47625 millimetres depth (mm depth)

VELOCITY

1 mile per hour	=	1.6093 kilometres per hour (km/h)
-----------------	---	-----------------------------------

FLOW RATE

1 gallon per hour	=	4.5425 litres per hour (ℓ/h)
1 gallon per minute	=	4.5425 litres per minute (ℓ/minute)
1 cusec (cubic foot per second)	=	2.4466 megalitres per day (Mℓ/d)
	=	0.0283 cubic metres/second (m ³ /s)

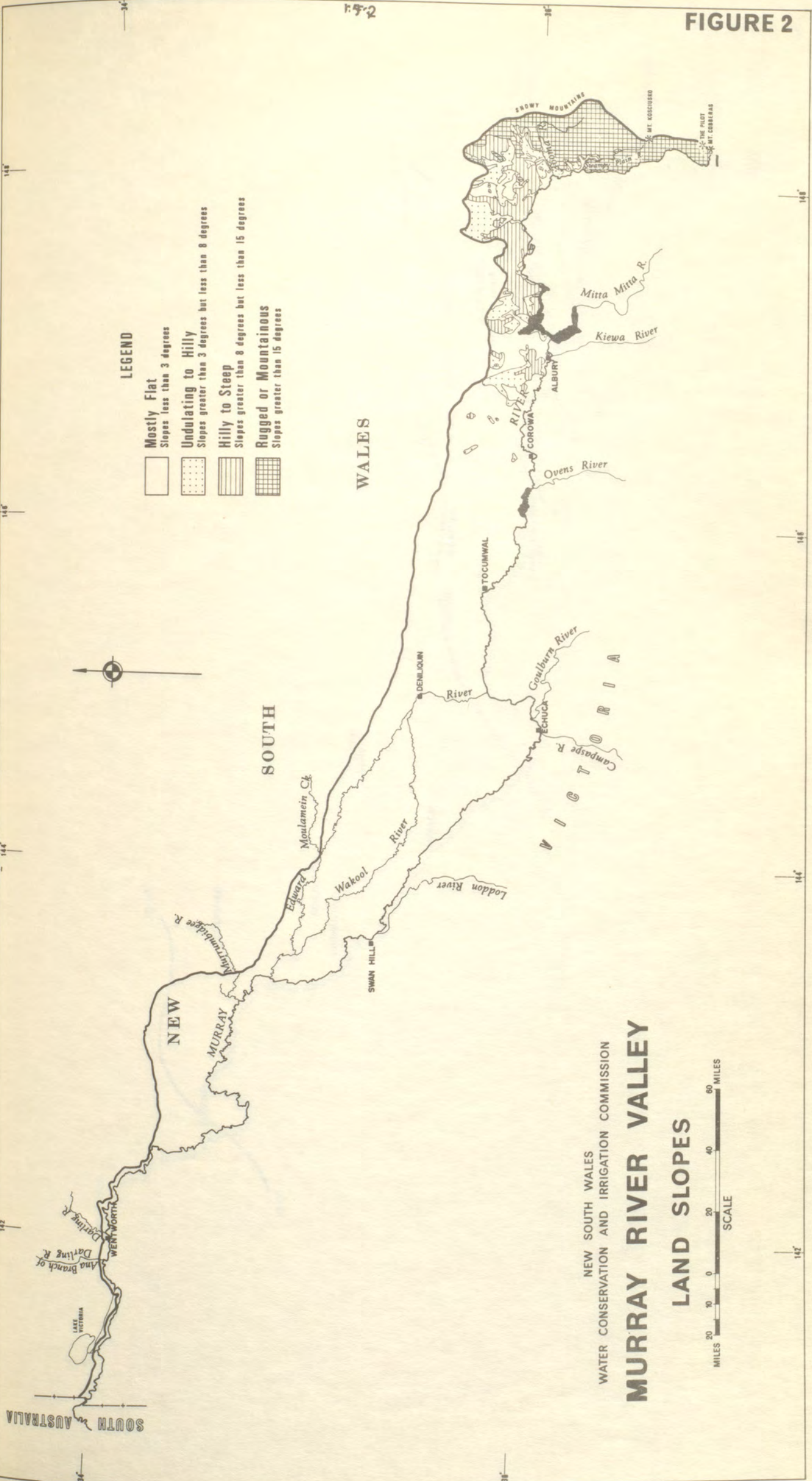
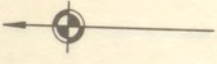
MASS

1 ton	=	1016 kilograms (kg)
	=	1.016 tonnes

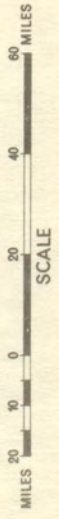
1:50,000

LEGEND

- Mostly Flat
Slopes less than 3 degrees
- Undulating to Hilly
Slopes greater than 3 degrees but less than 8 degrees
- Hilly to Steep
Slopes greater than 8 degrees but less than 15 degrees
- Rugged or Mountainous
Slopes greater than 15 degrees



NEW SOUTH WALES
 WATER CONSERVATION AND IRRIGATION COMMISSION
MURRAY RIVER VALLEY
LAND SLOPES



SOUTH AUSTRALIA

NEW MURRAY

SOUTH

WALES

SNOWY MOUNTAINS

MT. KOSCIUSKO

THE FLAT
MT. COBBERAS

WENTWORTH

SWAN HILLS

DENILJOUN

TOCUMWAL

VICTORIA

ECHUCA

CAMPASPE R.

GOOBURN RIVER

OVENS RIVER

RIPLE

COROWA

ALBURY

MITTA MITTA R.

KIEWA RIVER

142°

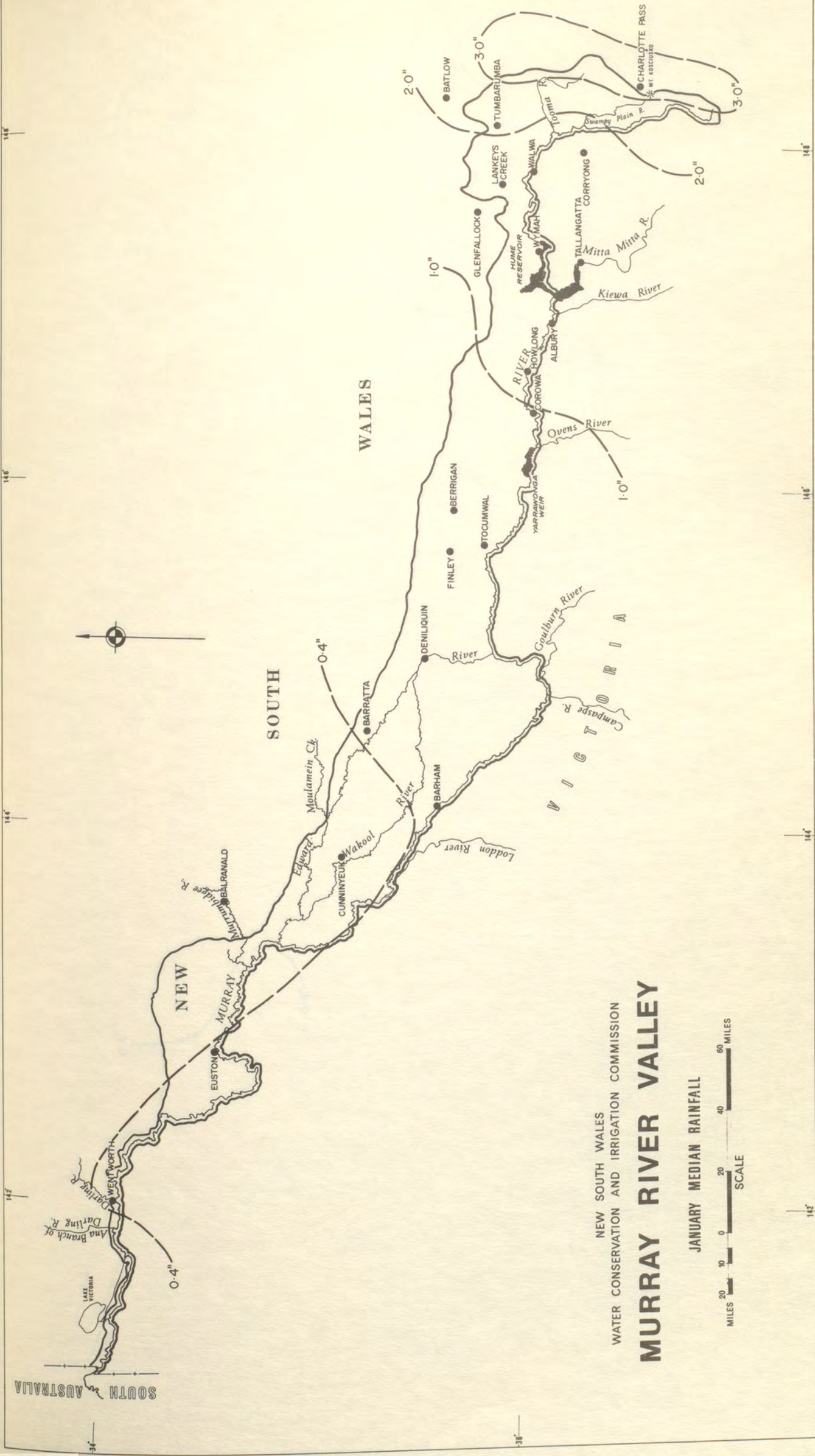
144°

146°

148°

146°

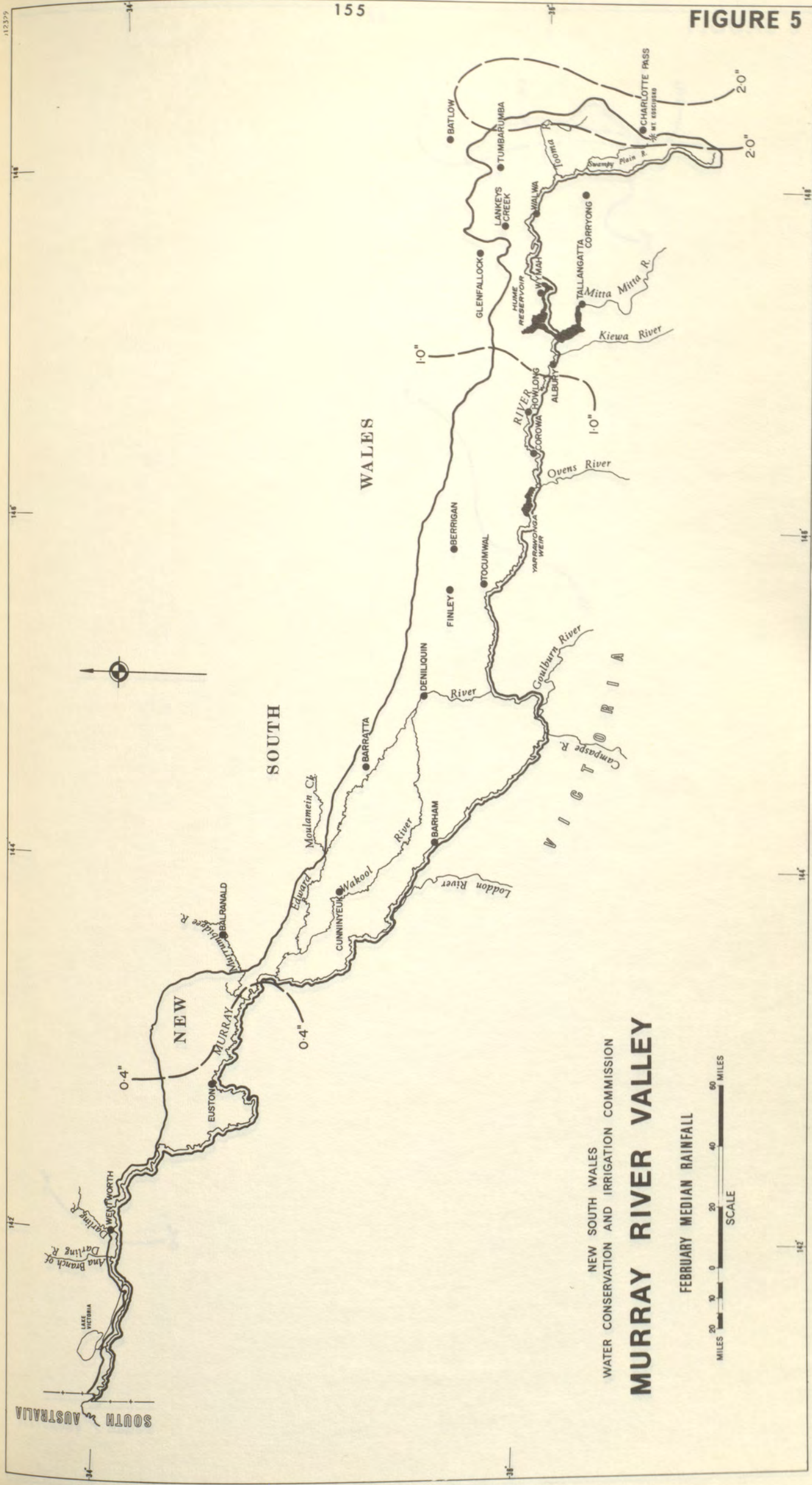
148°



NEW SOUTH WALES
 WATER CONSERVATION AND IRRIGATION COMMISSION
MURRAY RIVER VALLEY

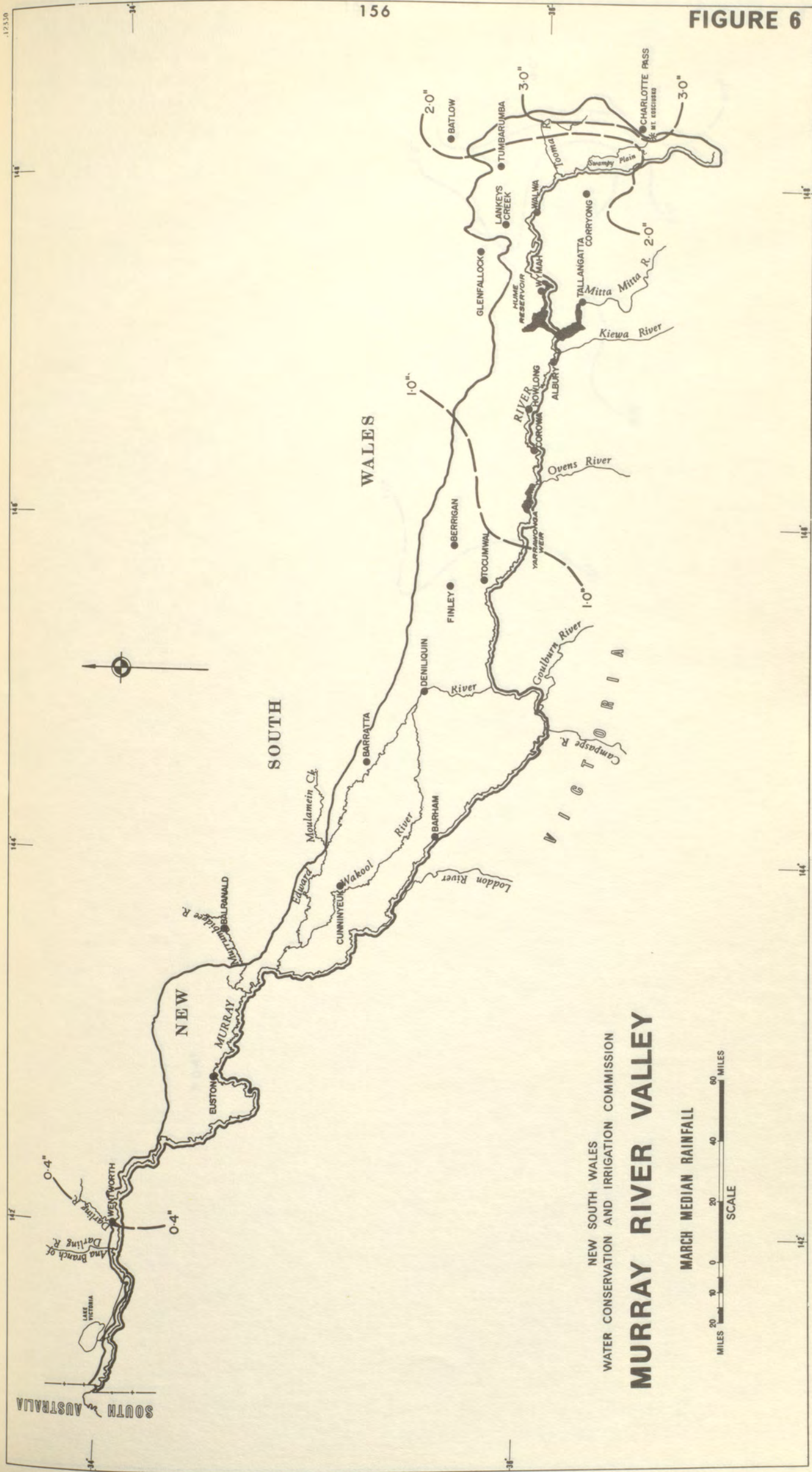
JANUARY MEDIAN RAINFALL

MILES 20 0 20 40 60
 SCALE



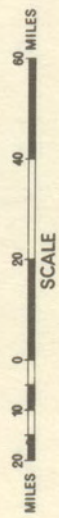
NEW SOUTH WALES
 WATER CONSERVATION AND IRRIGATION COMMISSION
MURRAY RIVER VALLEY

FEBRUARY MEDIAN RAINFALL
 SCALE
 MILES 20 0 20 40 60 MILES



NEW SOUTH WALES
 WATER CONSERVATION AND IRRIGATION COMMISSION
MURRAY RIVER VALLEY

MARCH MEDIAN RAINFALL



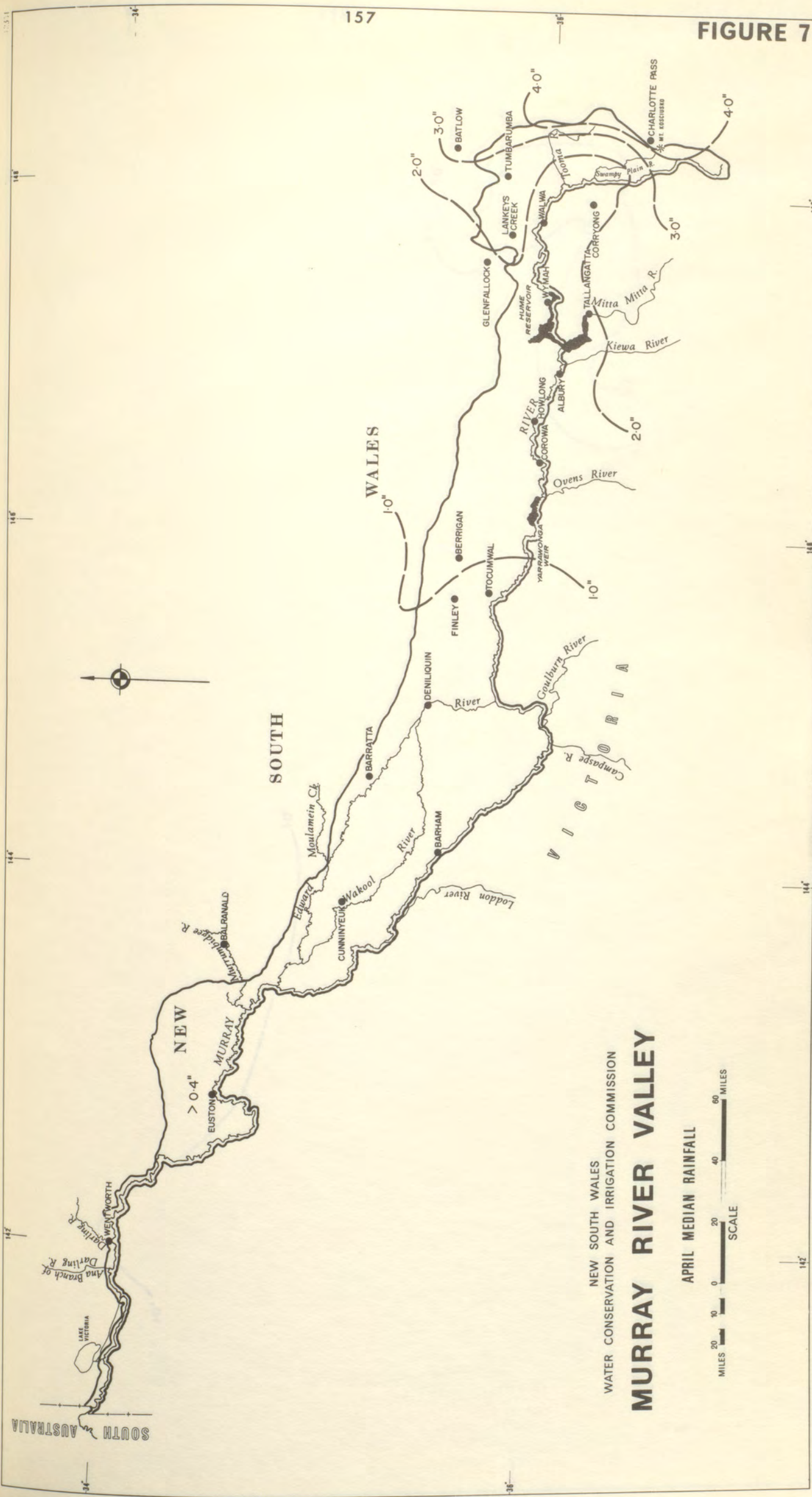
SOUTH AUSTRALIA

NEW MURRAY

SOUTH

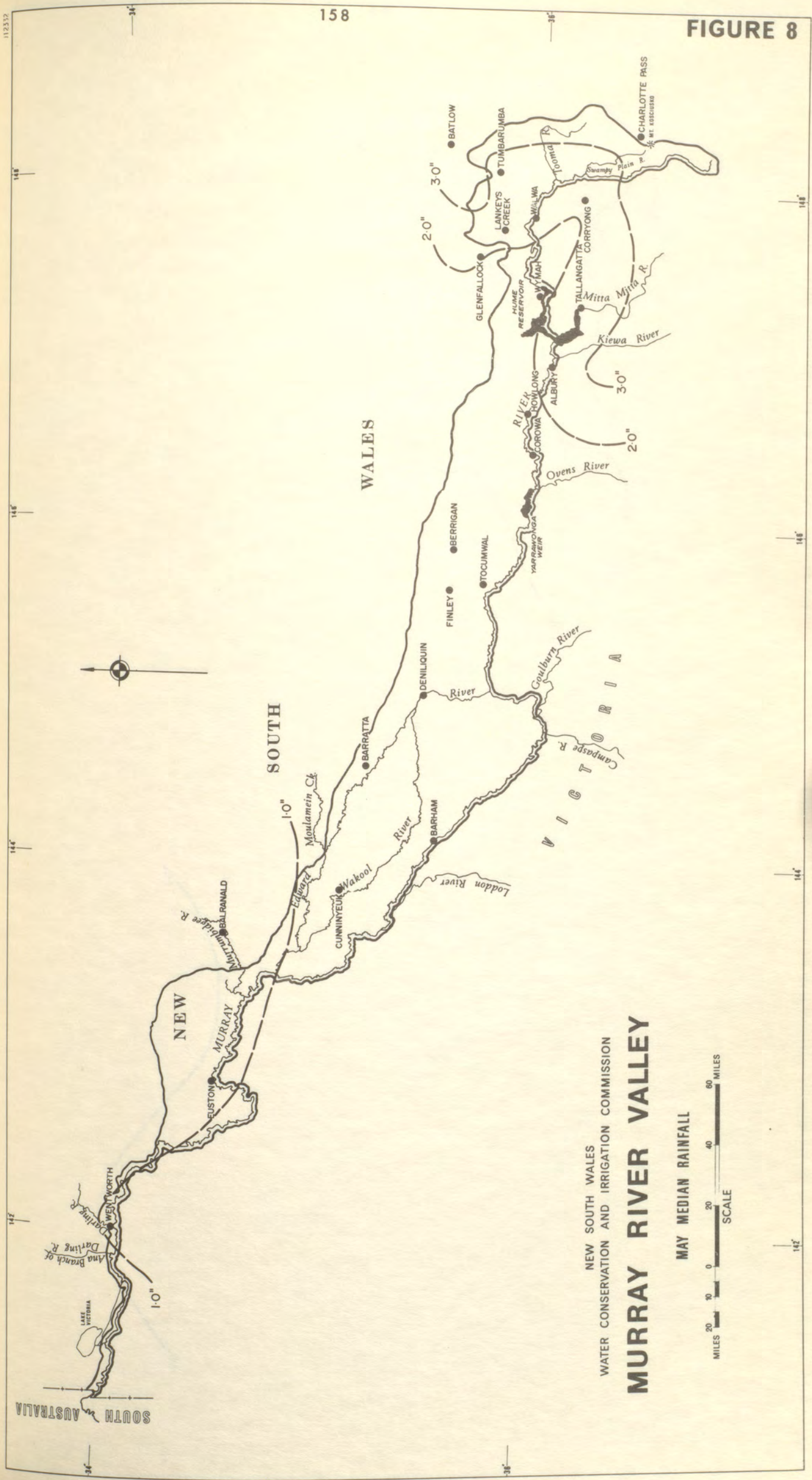
WALES

VICTORIA



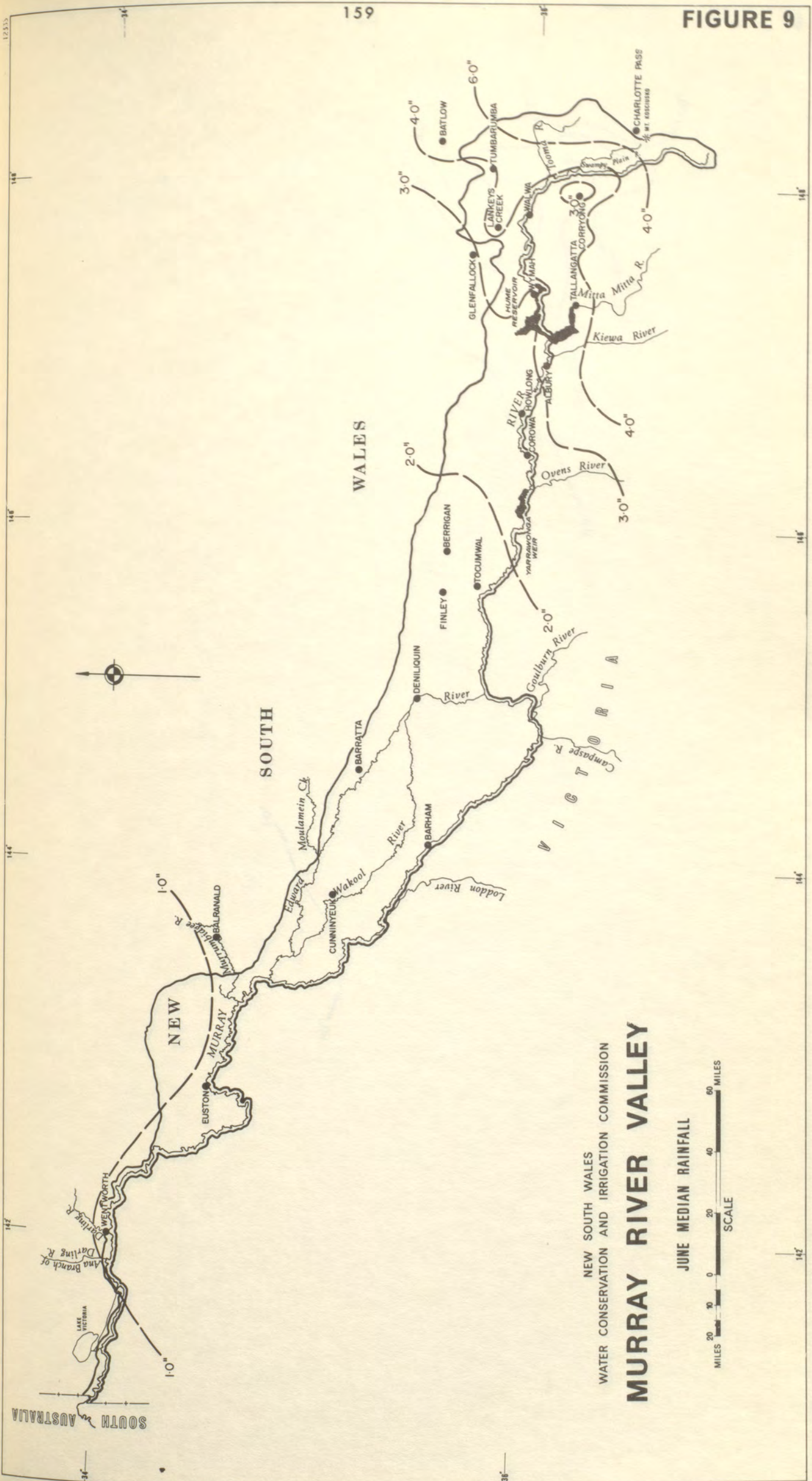
NEW SOUTH WALES
 WATER CONSERVATION AND IRRIGATION COMMISSION
MURRAY RIVER VALLEY

APRIL MEDIAN RAINFALL
 MILES 20 10 0 20 40 60
 SCALE



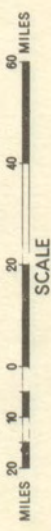
NEW SOUTH WALES
 WATER CONSERVATION AND IRRIGATION COMMISSION
MURRAY RIVER VALLEY

MAY MEDIAN RAINFALL
 SCALE
 MILES 20 0 20 40 60 MILES



NEW SOUTH WALES
 WATER CONSERVATION AND IRRIGATION COMMISSION
MURRAY RIVER VALLEY

JUNE MEDIAN RAINFALL



12335

148

146

144

142

140

148

146

144

142

140

SOUTH AUSTRALIA

SOUTH

WALES

VICTORIA

NEW MURRAY

LAKE VICTORIA

Wentworth

Darling R.

Anga Branch of

Euston

Wentworth

Barham

Deniliquin

Berrigan

Albury

Tumbalong

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

Albury

Albury

Albury

Wakool

Barham

Deniliquin

Berrigan

Albury

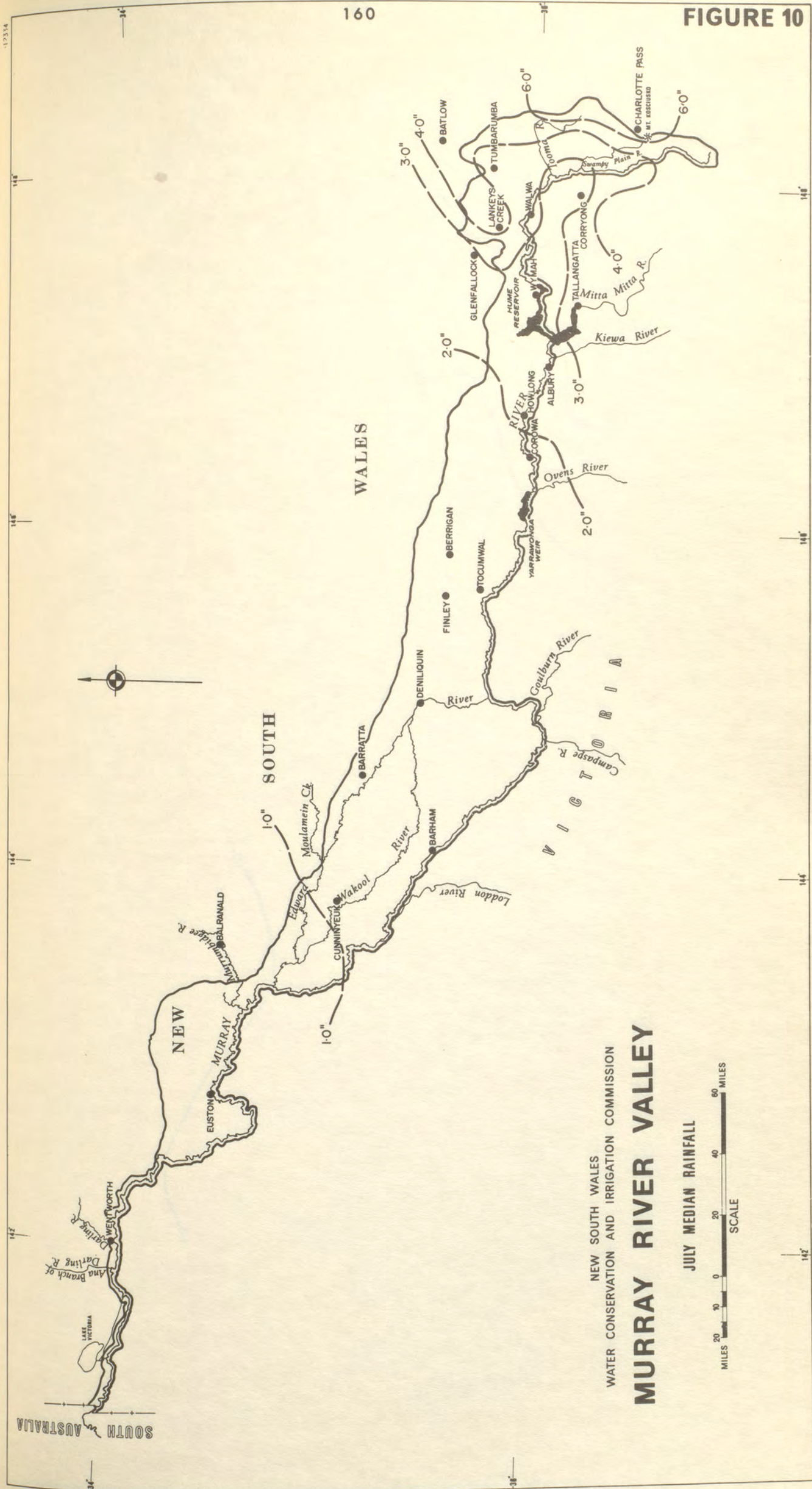
Albury

Albury

Albury

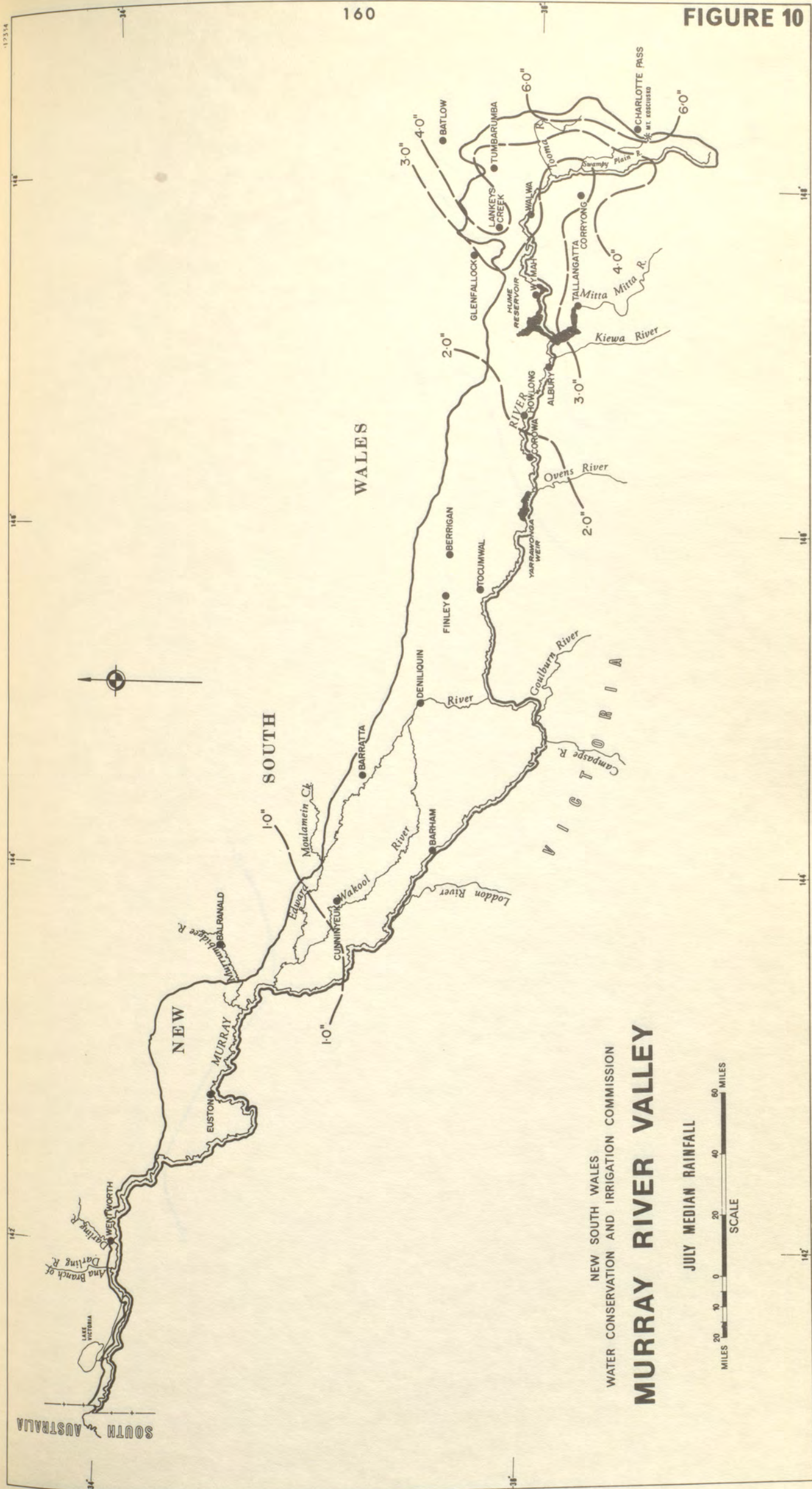
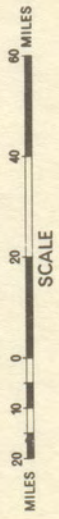
Wakool

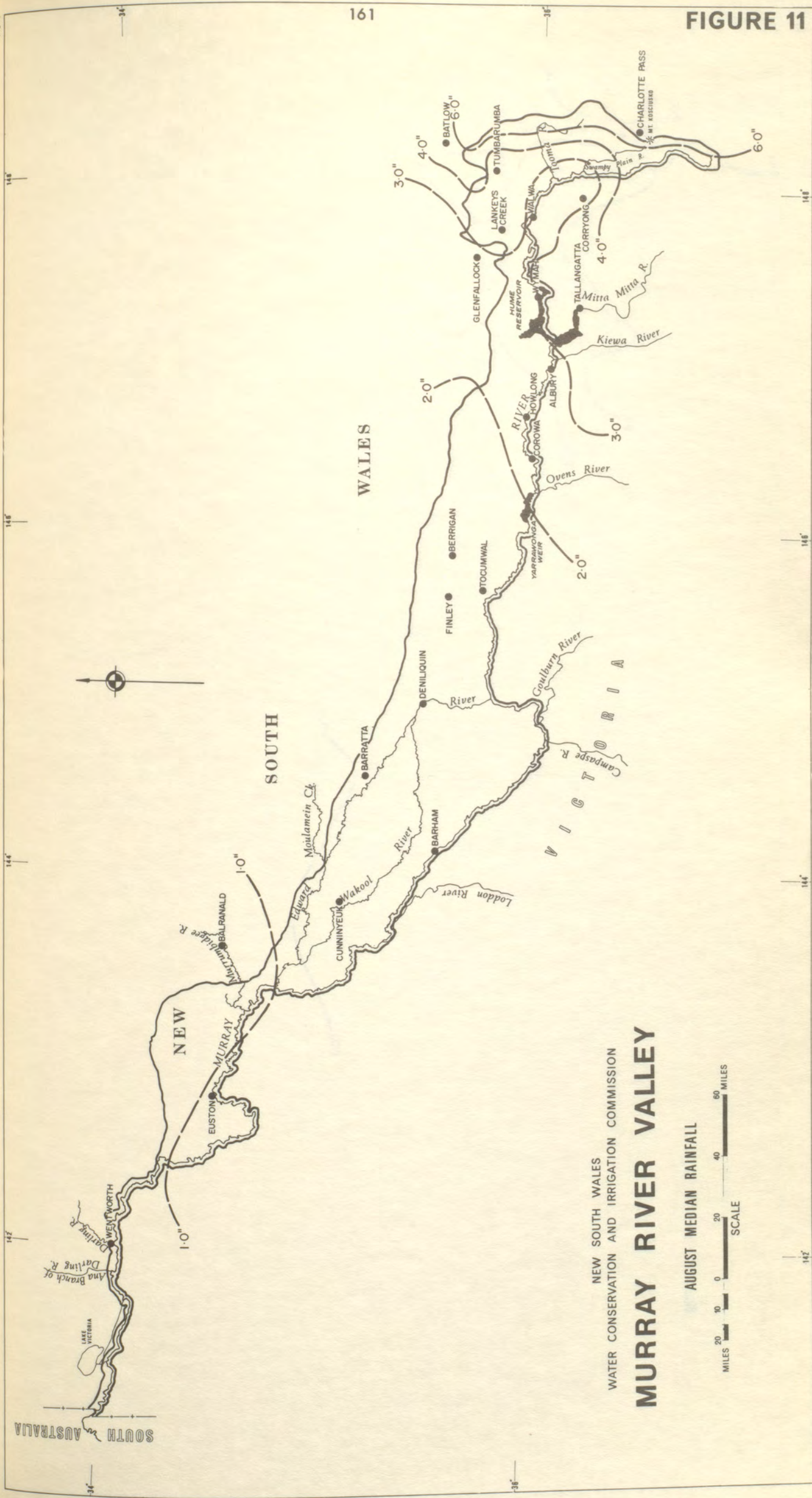
Barham



NEW SOUTH WALES
 WATER CONSERVATION AND IRRIGATION COMMISSION
MURRAY RIVER VALLEY

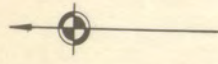
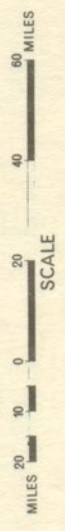
JULY MEDIAN RAINFALL





NEW SOUTH WALES
 WATER CONSERVATION AND IRRIGATION COMMISSION
MURRAY RIVER VALLEY

AUGUST MEDIAN RAINFALL

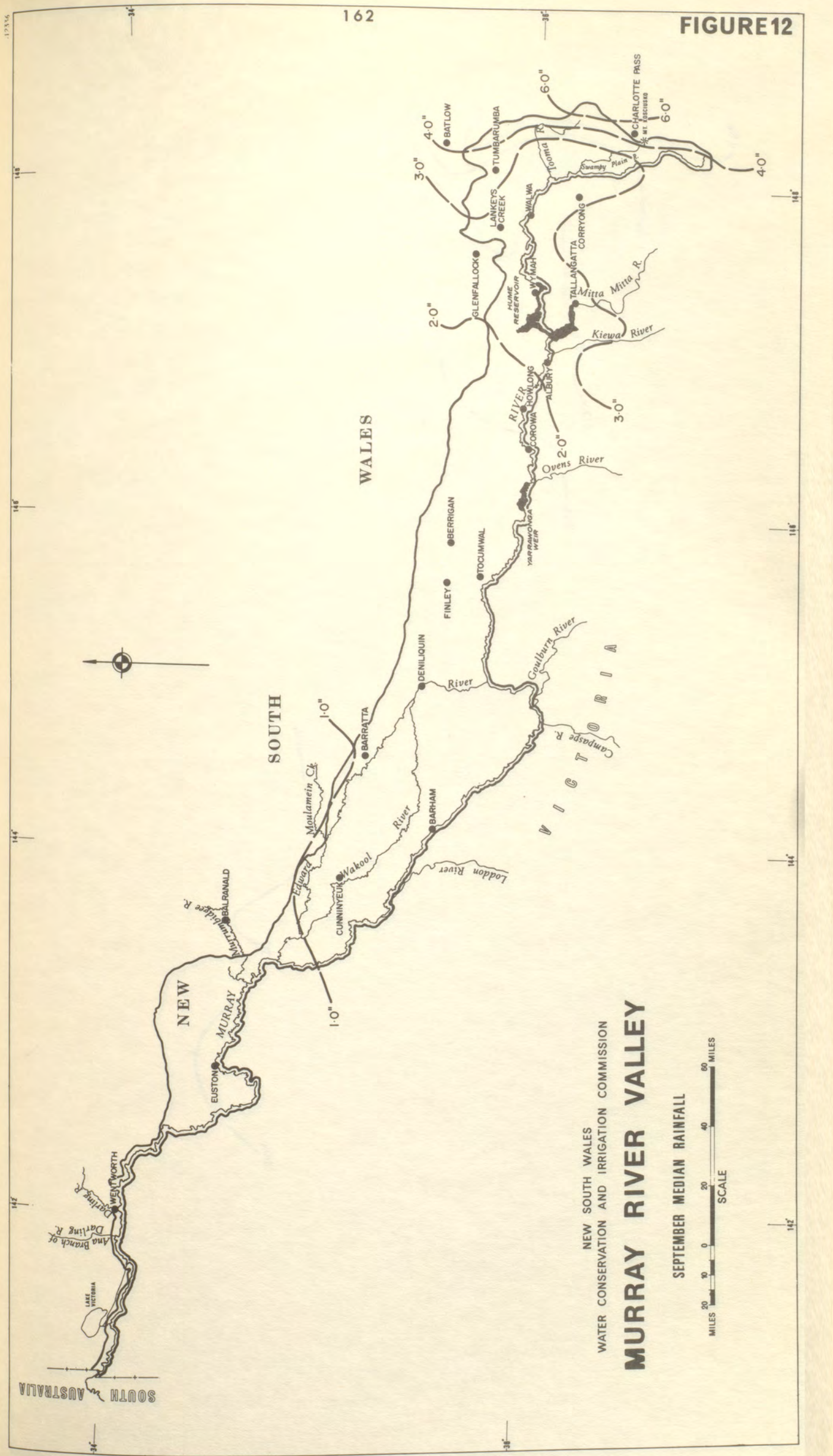


SOUTH

WALES

VICTORIA

SOUTH AUSTRALIA



SOUTH

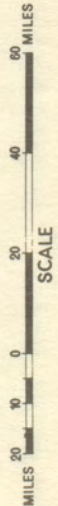
WALES

VICTORIA

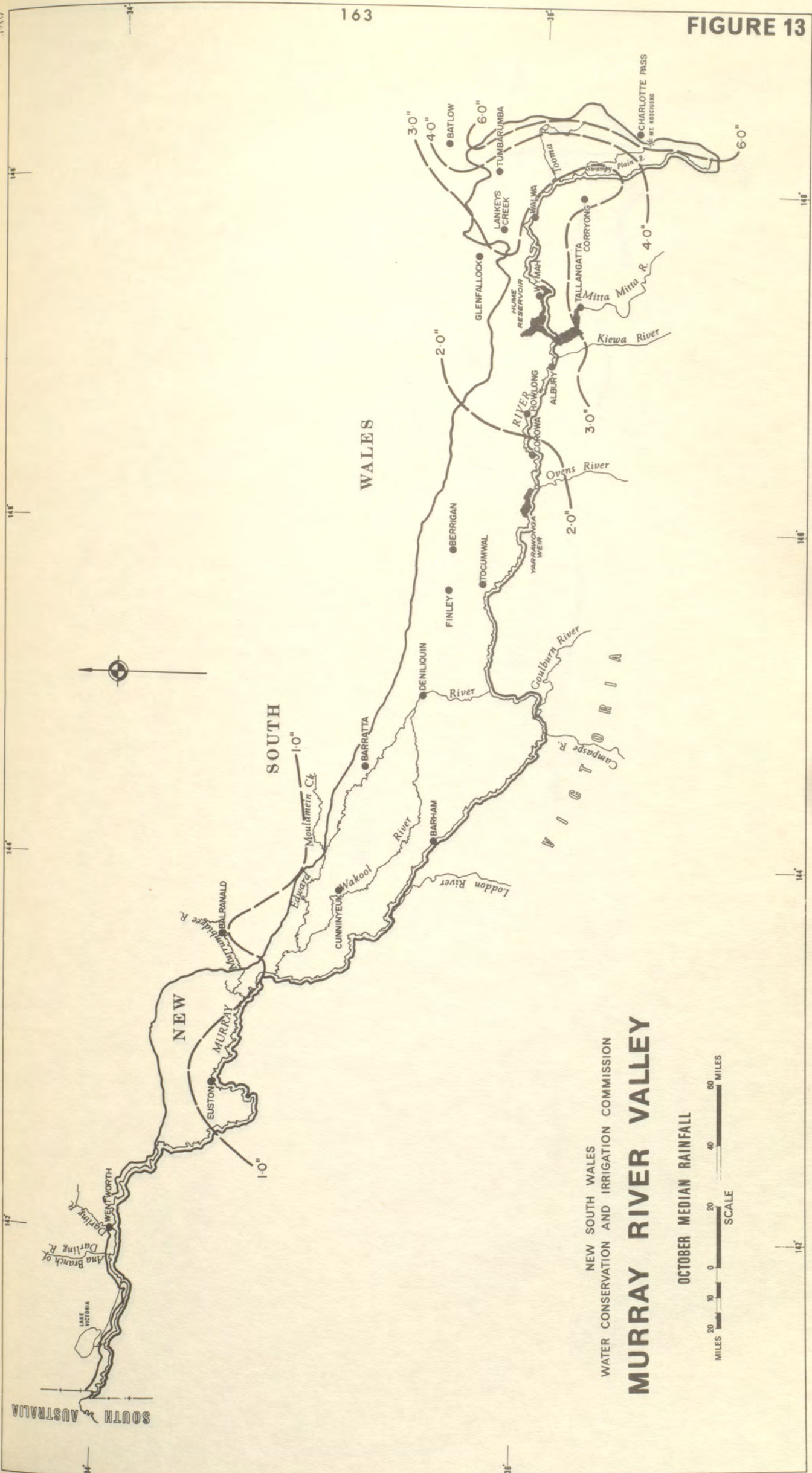
NEW MURRAY

NEW SOUTH WALES
 WATER CONSERVATION AND IRRIGATION COMMISSION
MURRAY RIVER VALLEY

SEPTEMBER MEDIAN RAINFALL



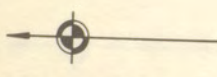
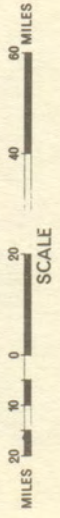
SOUTH AUSTRALIA

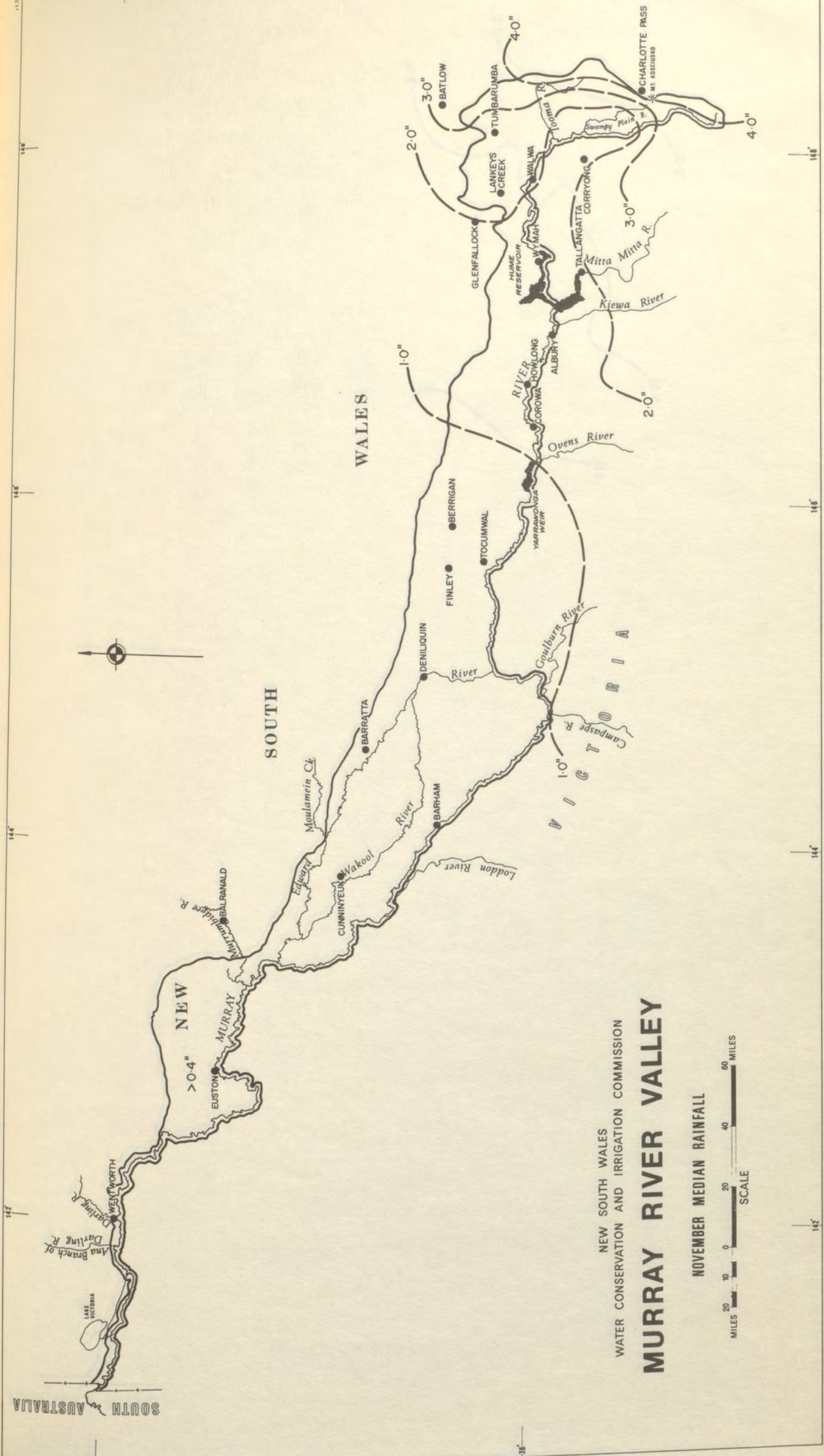


MURRAY RIVER VALLEY

NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION

OCTOBER MEDIAN RAINFALL

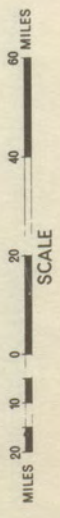


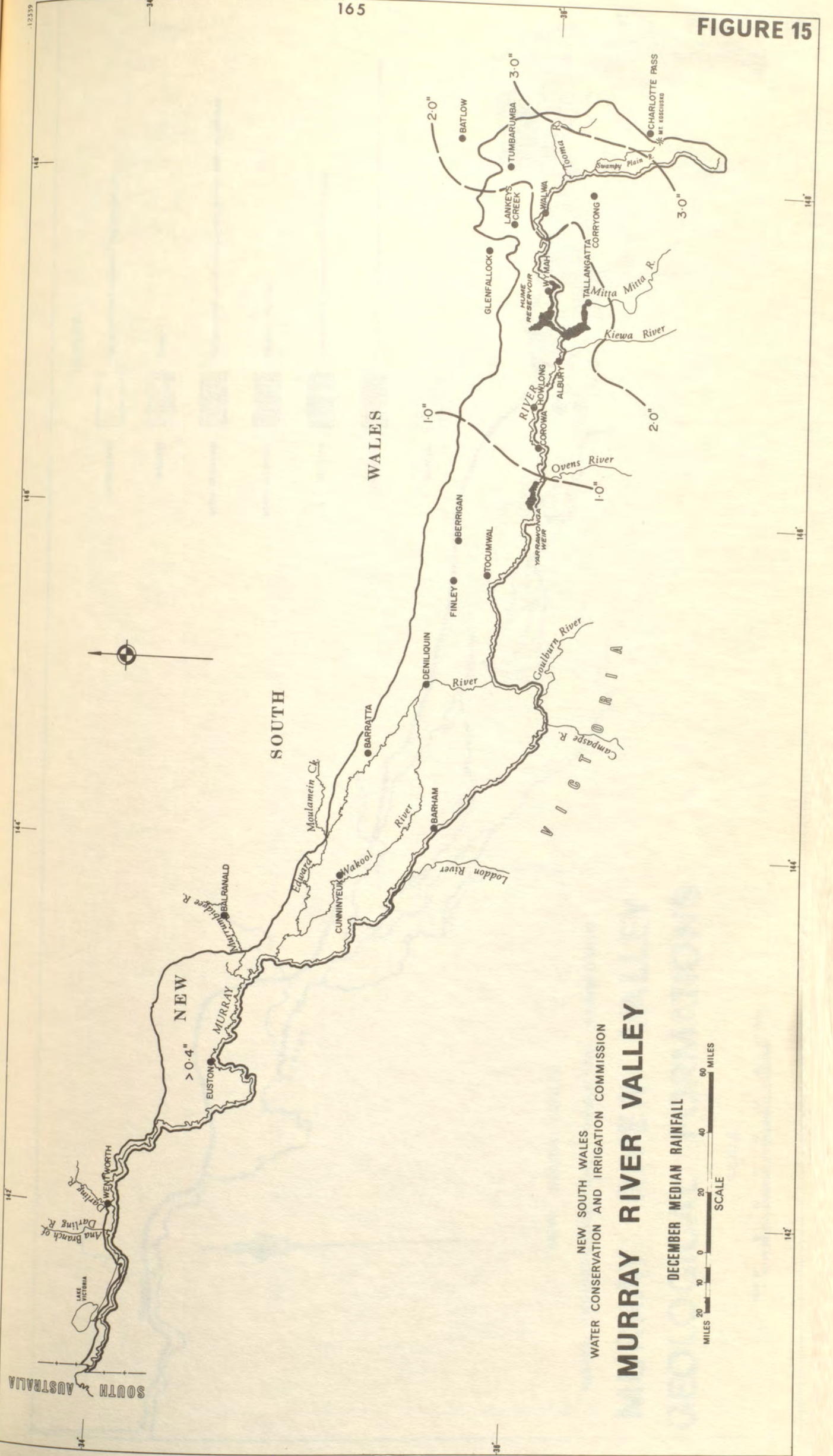


NEW SOUTH WALES
 WATER CONSERVATION AND IRRIGATION COMMISSION

MURRAY RIVER VALLEY

NOVEMBER MEDIAN RAINFALL





NEW SOUTH WALES
 WATER CONSERVATION AND IRRIGATION COMMISSION
MURRAY RIVER VALLEY

DECEMBER MEDIAN RAINFALL

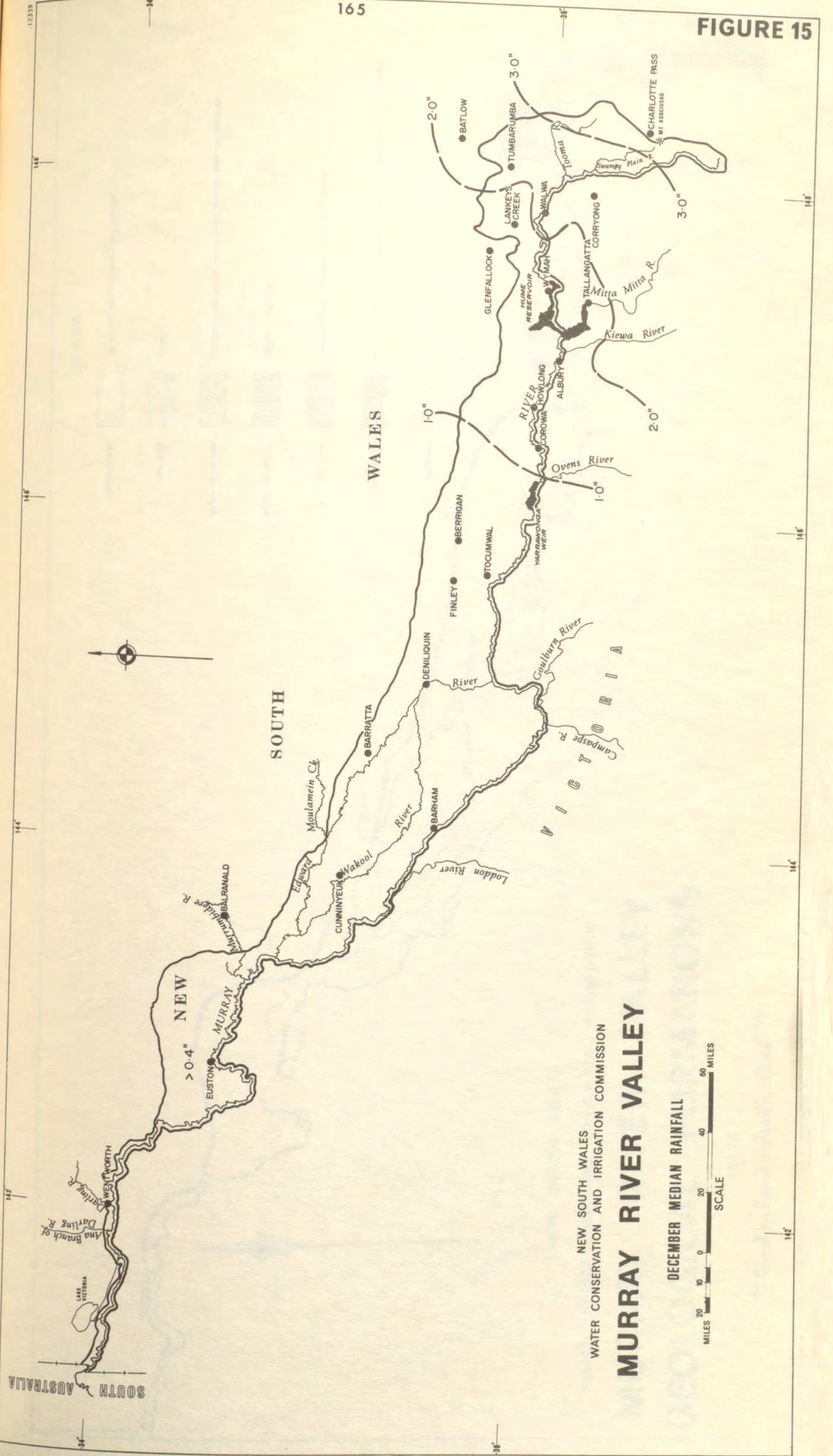
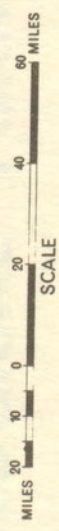
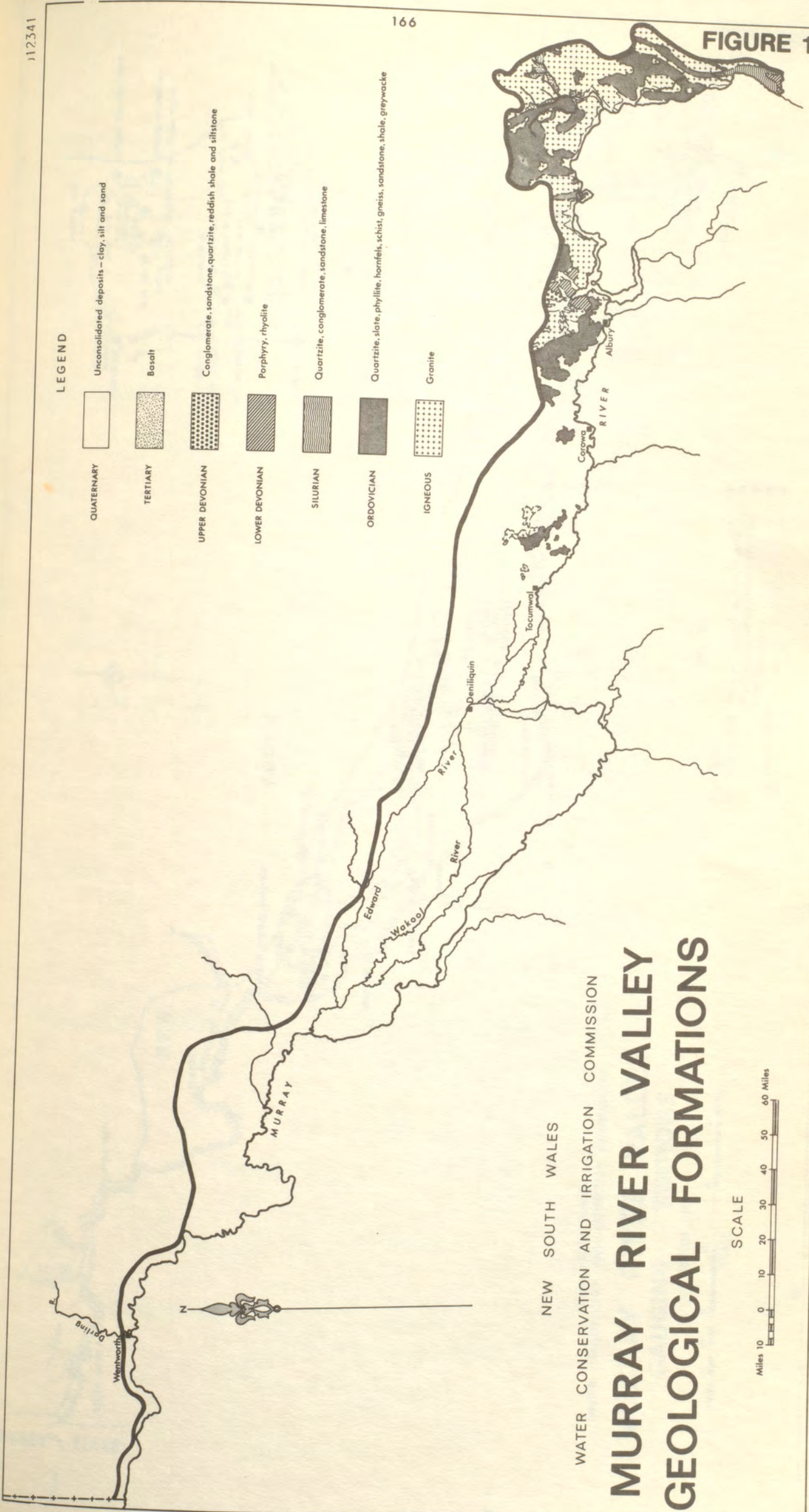


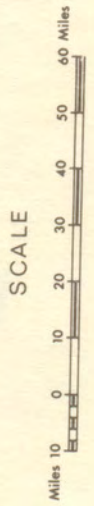
FIGURE 16

LEGEND

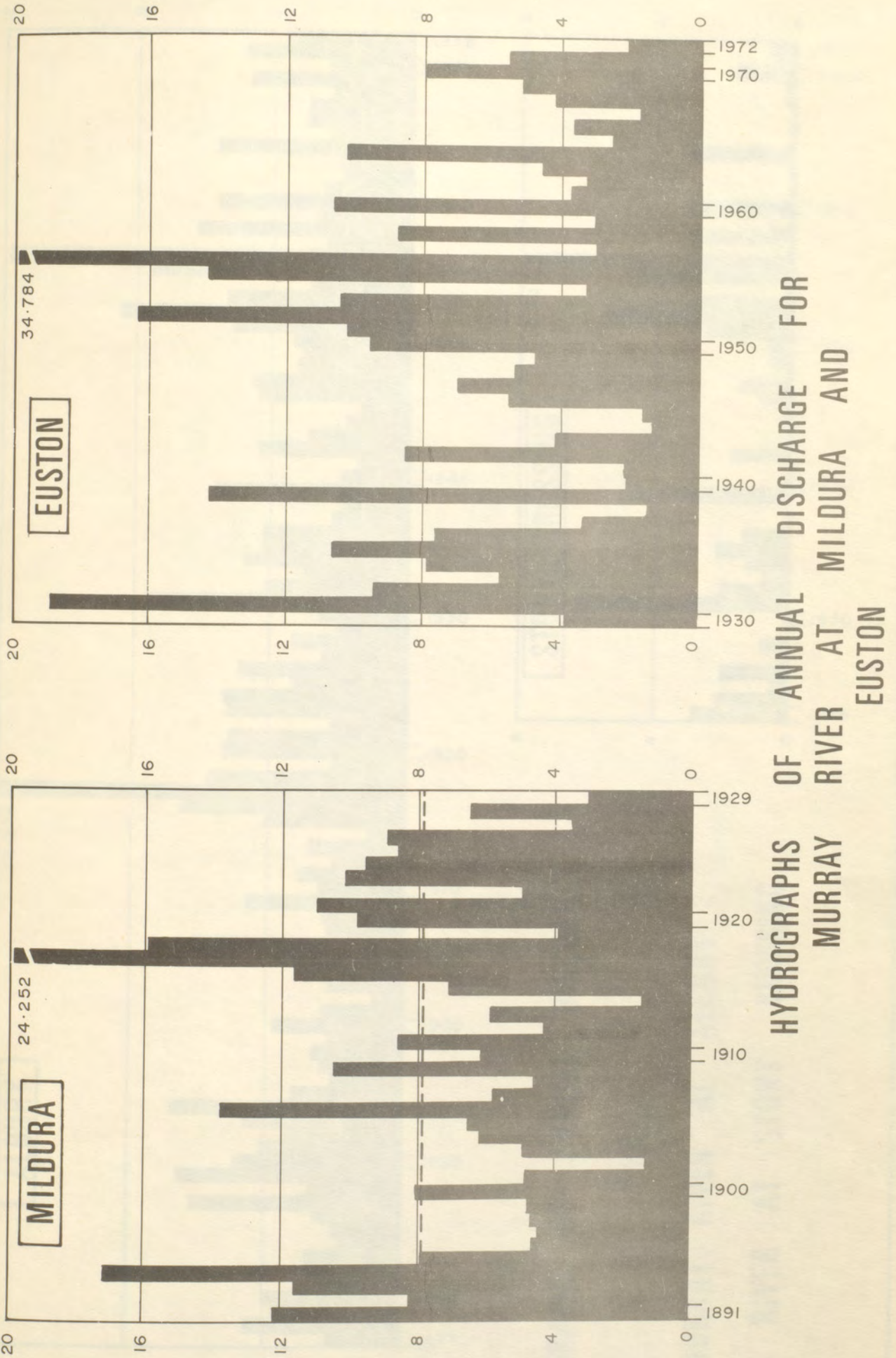
- QUATERNARY
Unconsolidated deposits - clay, silt and sand
- TERTIARY
Basalt
- UPPER DEVONIAN
Conglomerate, sandstone, quartzite, reddish shale and siltstone
- LOWER DEVONIAN
Porphyry, rhyolite
- SILURIAN
Quartzite, conglomerate, sandstone, limestone
- ORDOVICIAN
Quartzite, slate, phyllite, hornfels, schist, gneiss, sandstone, shale, greywacke
- IGNEOUS
Granite



NEW SOUTH WALES
 WATER CONSERVATION AND IRRIGATION COMMISSION
**MURRAY RIVER VALLEY
 GEOLOGICAL FORMATIONS**

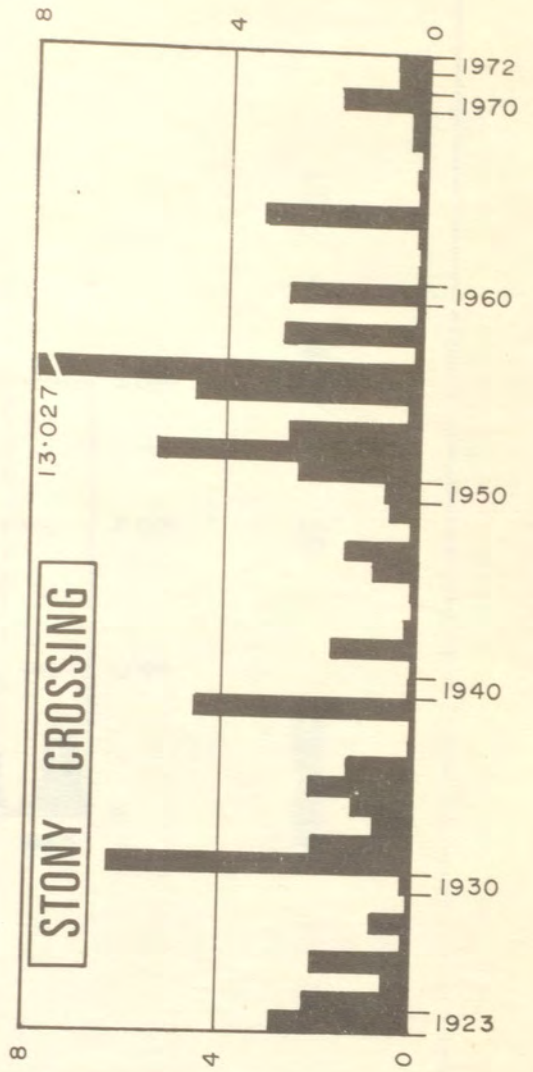
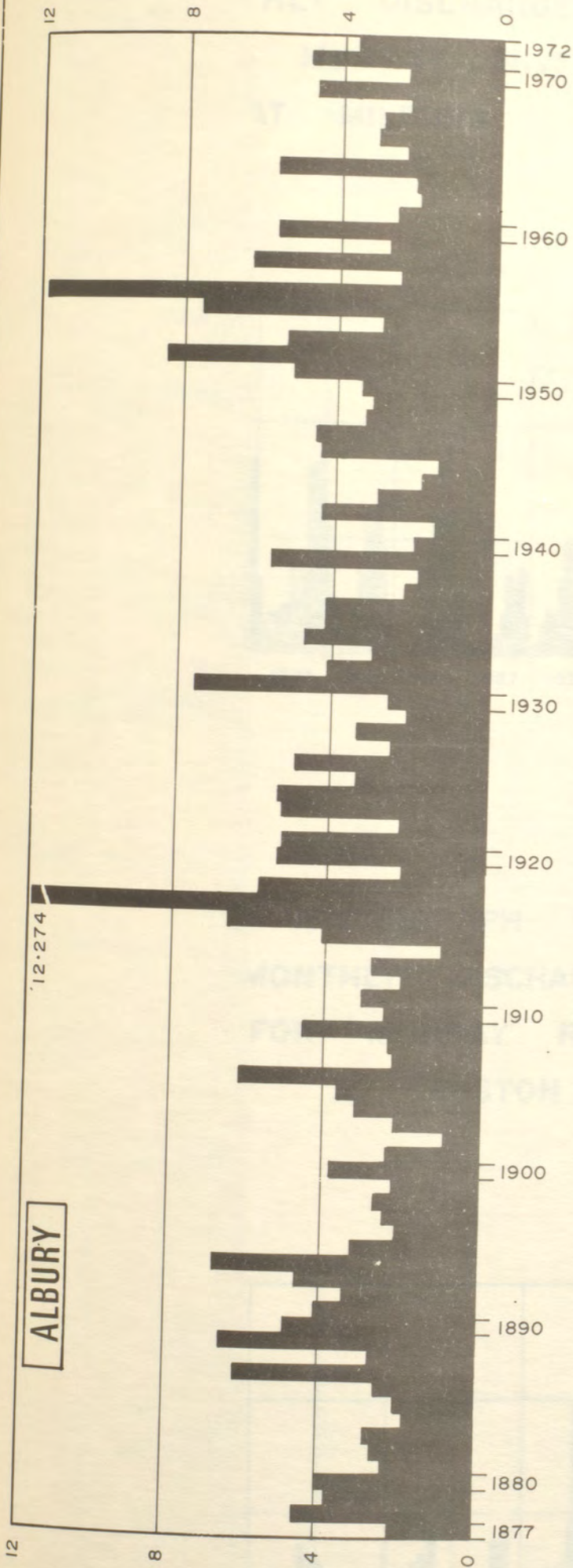


ANNUAL DISCHARGE IN MILLIONS OF ACRE - FEET



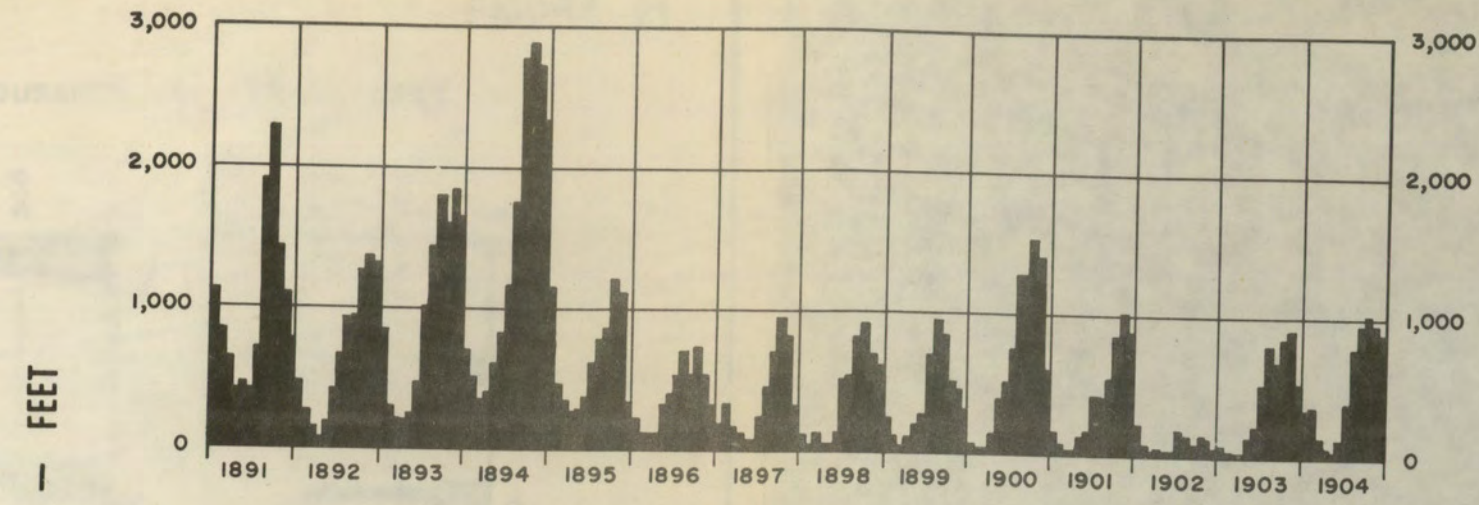
1234

ANNUAL DISCHARGE IN MILLIONS OF ACRE - FEET

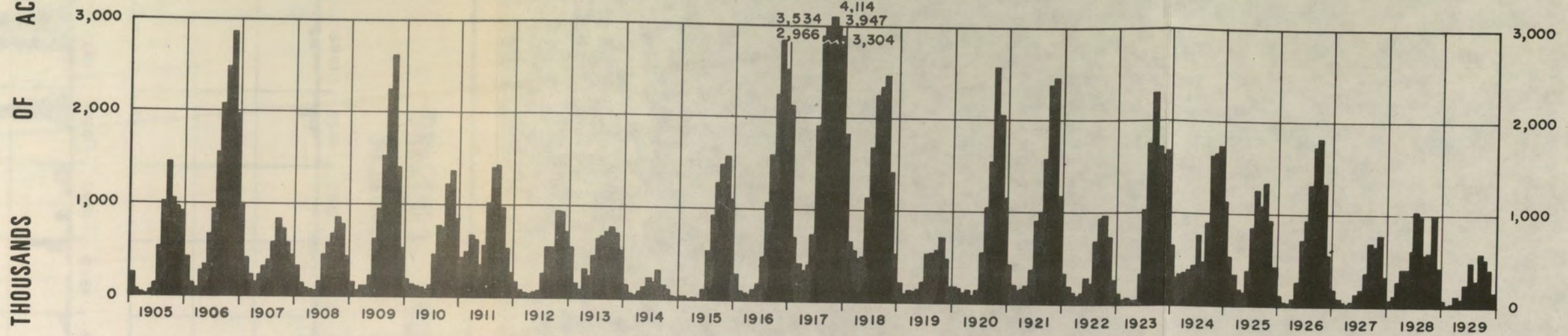


HYDROGRAPHS OF ANNUAL DISCHARGE
FOR
MURRAY RIVER AT ALBURY
WAKOOL RIVER AT STONY CROSSING

12345

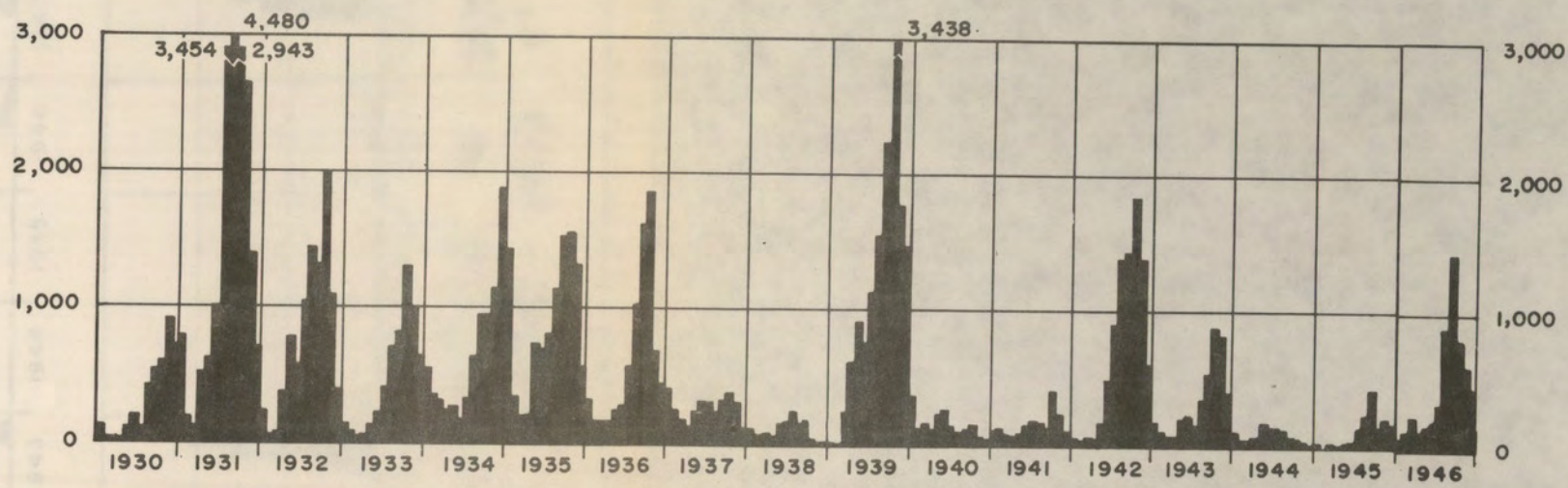


HYDROGRAPH OF
MONTHLY DISCHARGES
FOR MURRAY RIVER
AT MILDURA

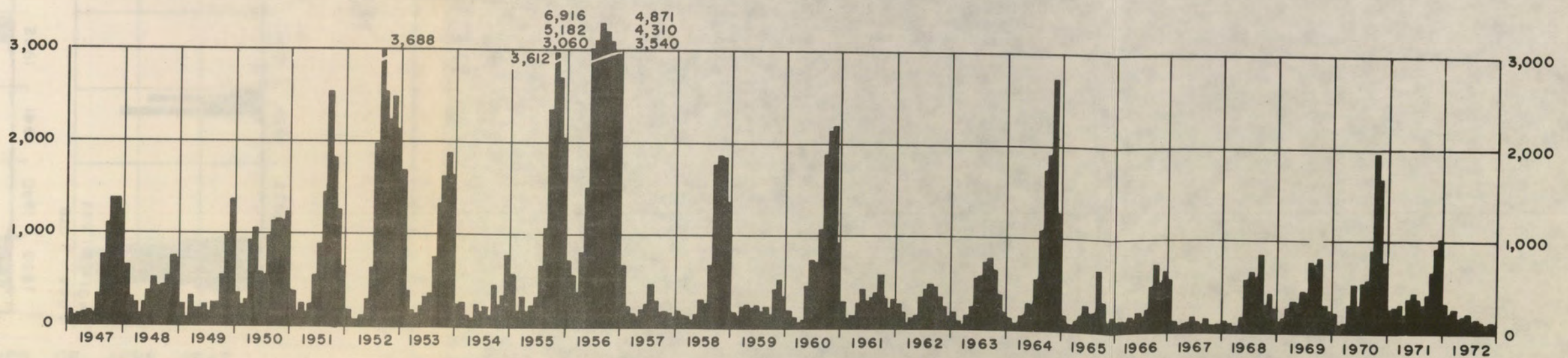


ACRE - FEET
OF
THOUSANDS
IN
MONTHLY DISCHARGE

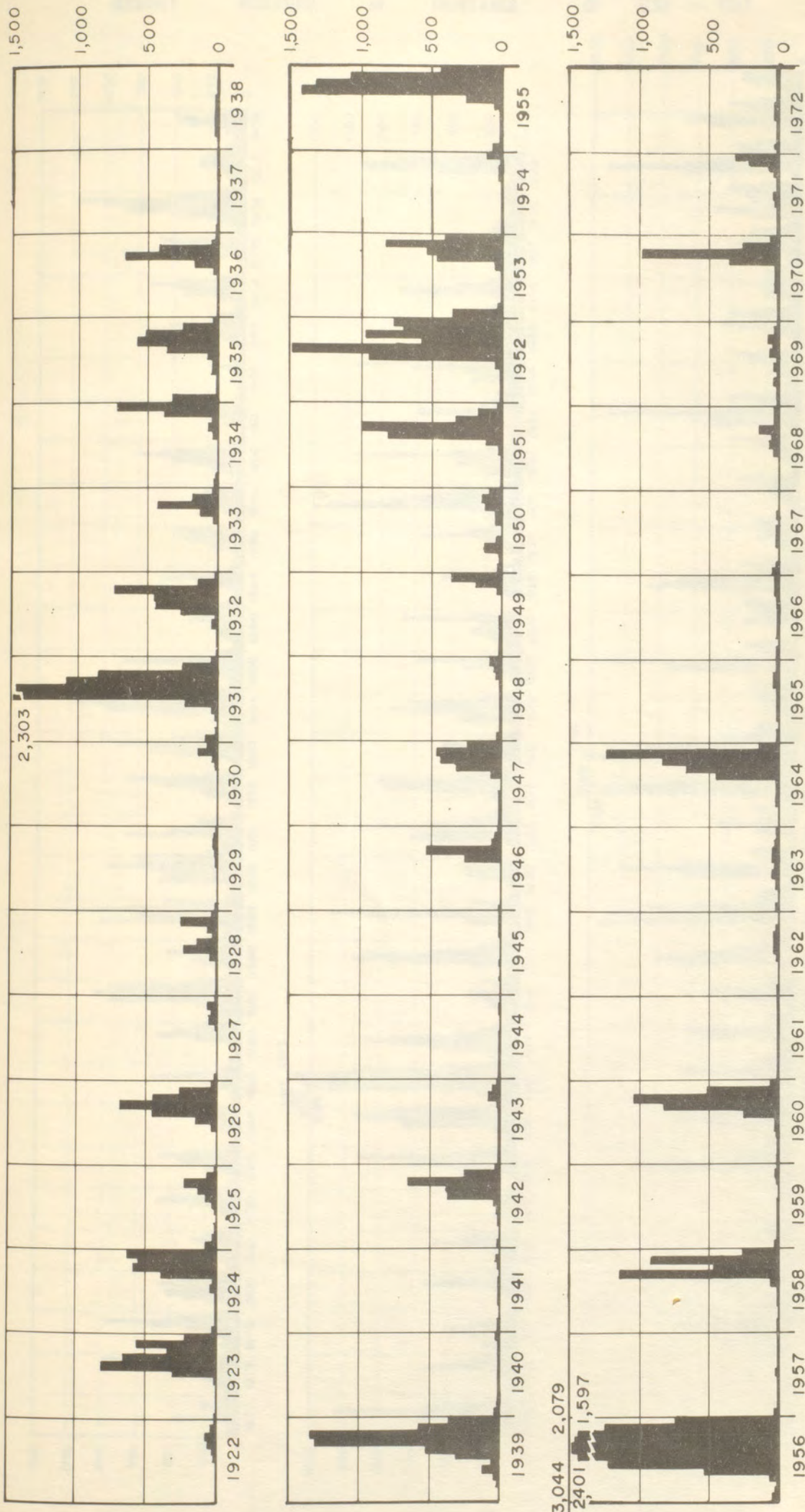
ACRE - FEET
OF
THOUSANDS
IN
MONTHLY DISCHARGE



HYDROGRAPH OF
MONTHLY DISCHARGES
FOR MURRAY RIVER
AT EUSTON



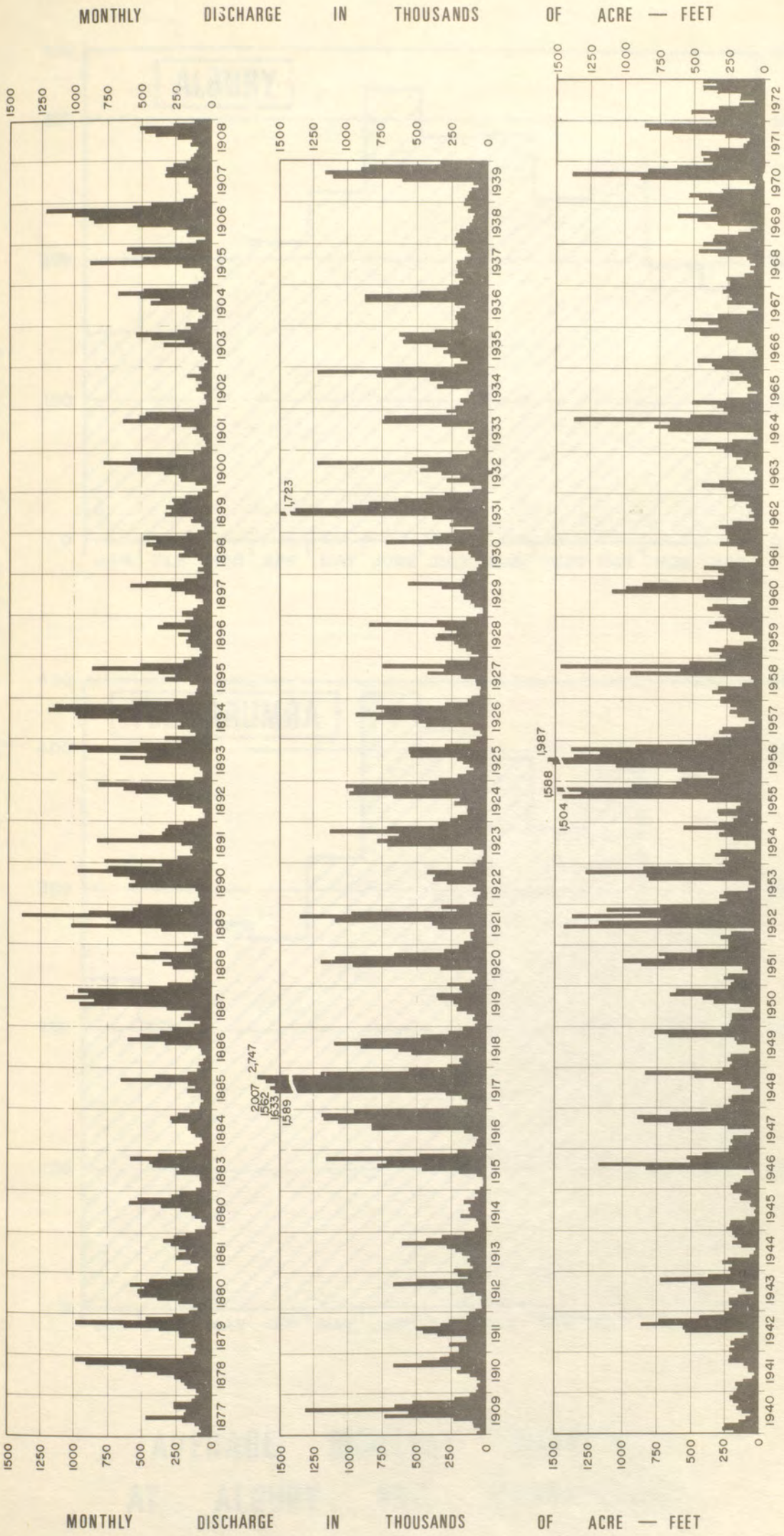
MONTHLY DISCHARGE IN THOUSANDS OF ACRE FEET



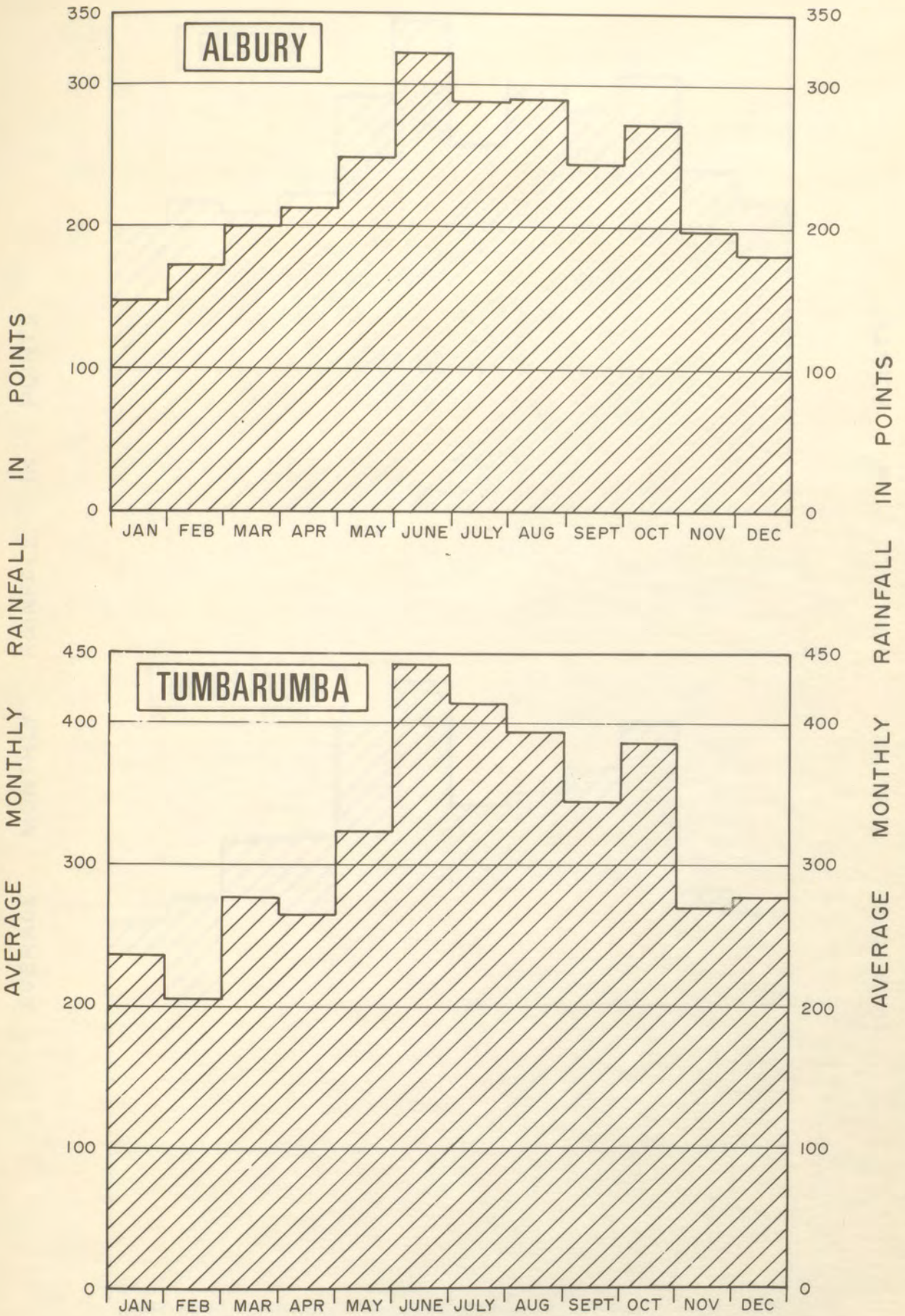
HYDROGRAPH OF MONTHLY DISCHARGES FOR WAKOAL RIVER AT STON CROSSING

MONTHLY DISCHARGE IN THOUSANDS OF ACRE FEET

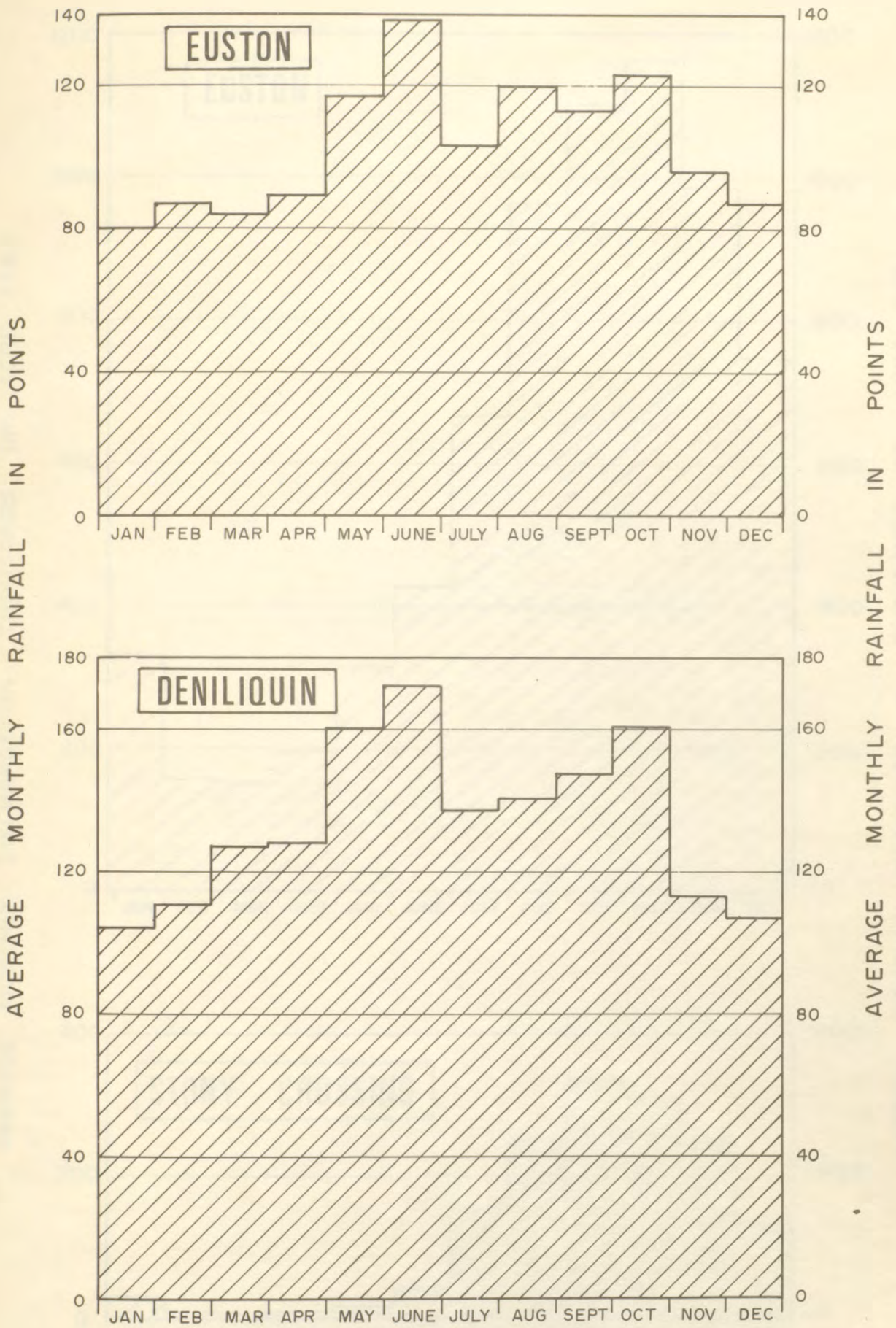
1234



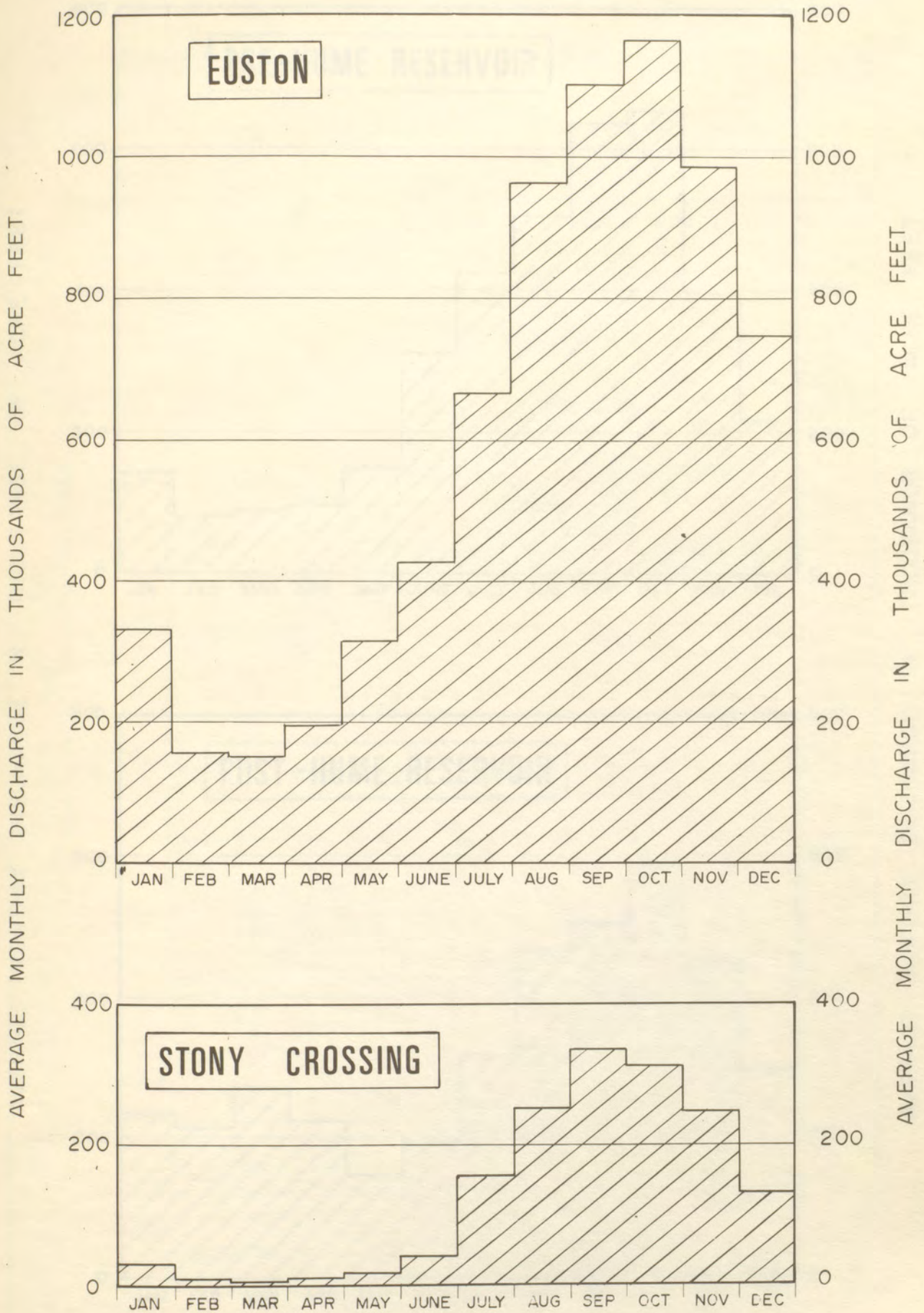
HYDROGRAPH OF MONTHLY DISCHARGES FOR MURRAY RIVER AT ALBURY



AVERAGE MONTHLY RAINFALLS
AT ALBURY AND TUMBARUMBA



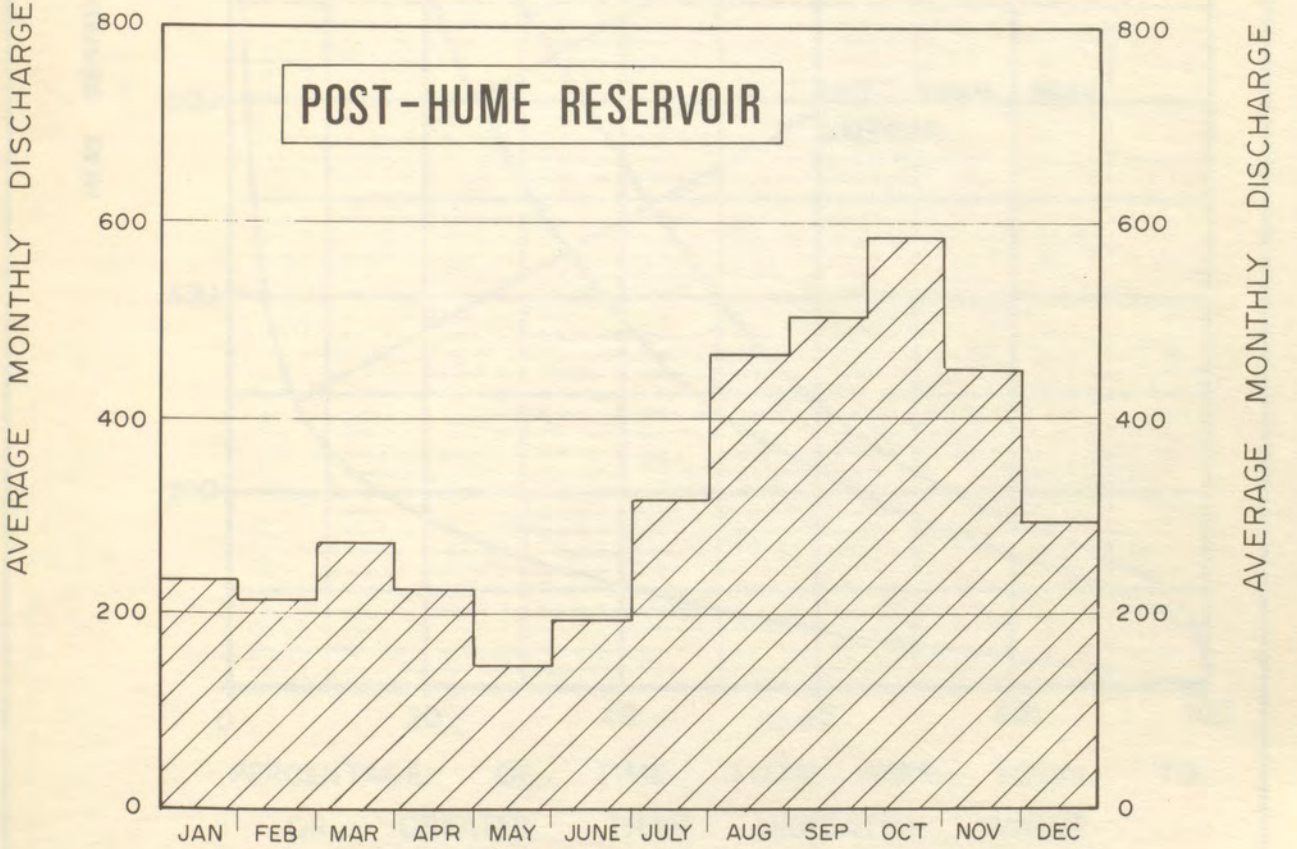
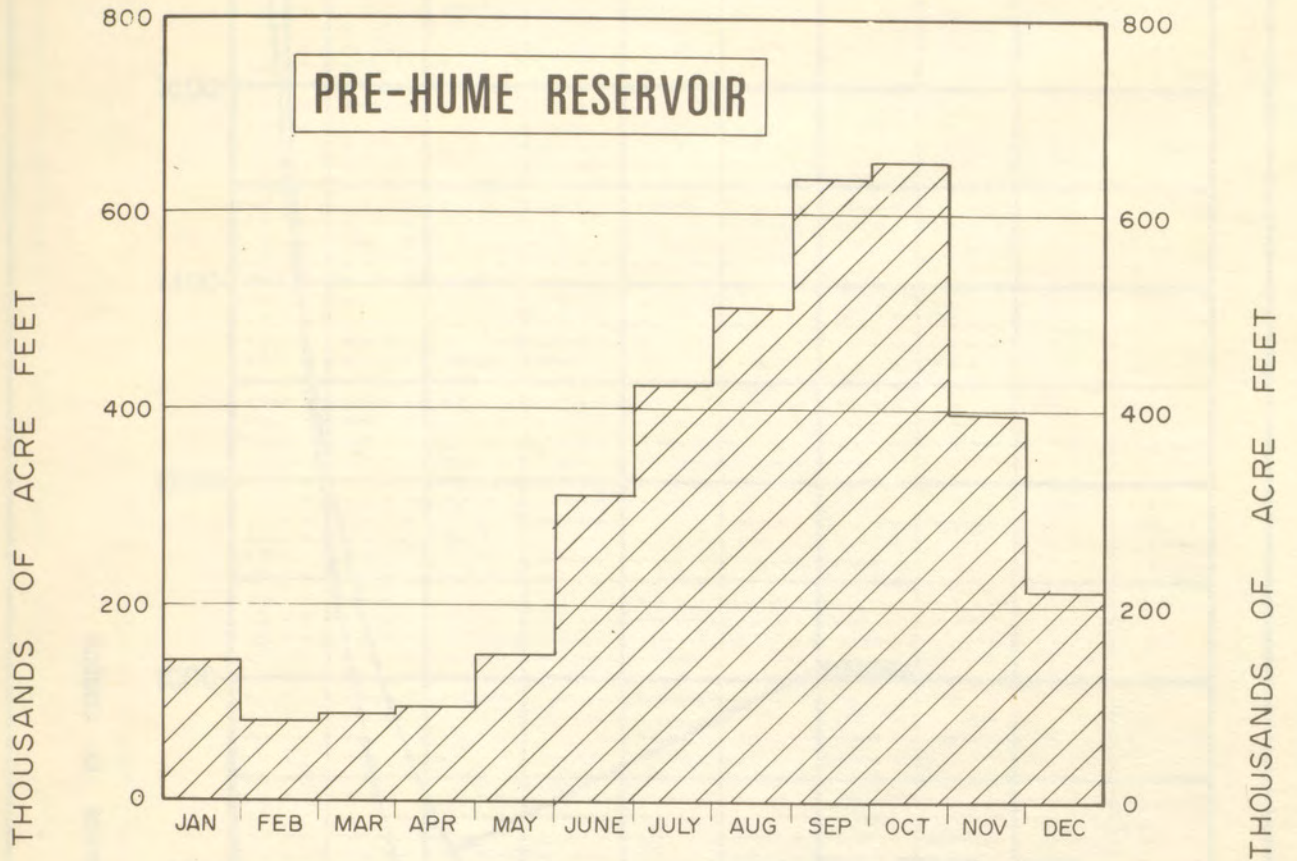
AVERAGE MONTHLY RAINFALLS
AT EUSTON AND DENILIQUN



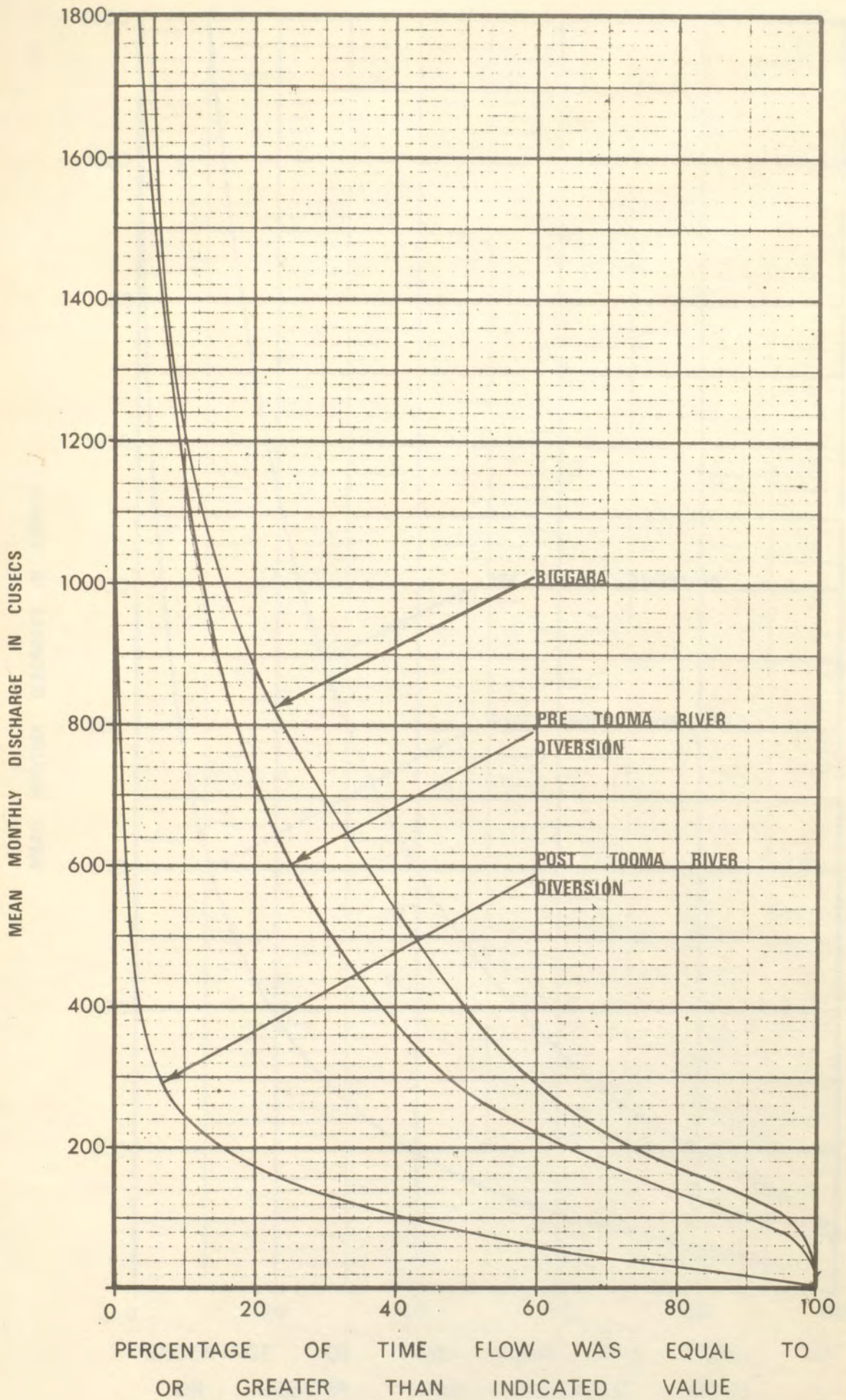
**AVERAGE MONTHLY STREAM FLOWS
MURRAY RIVER AT EUSTON
WAKOOL RIVER AT STONY CROSSING**

12349

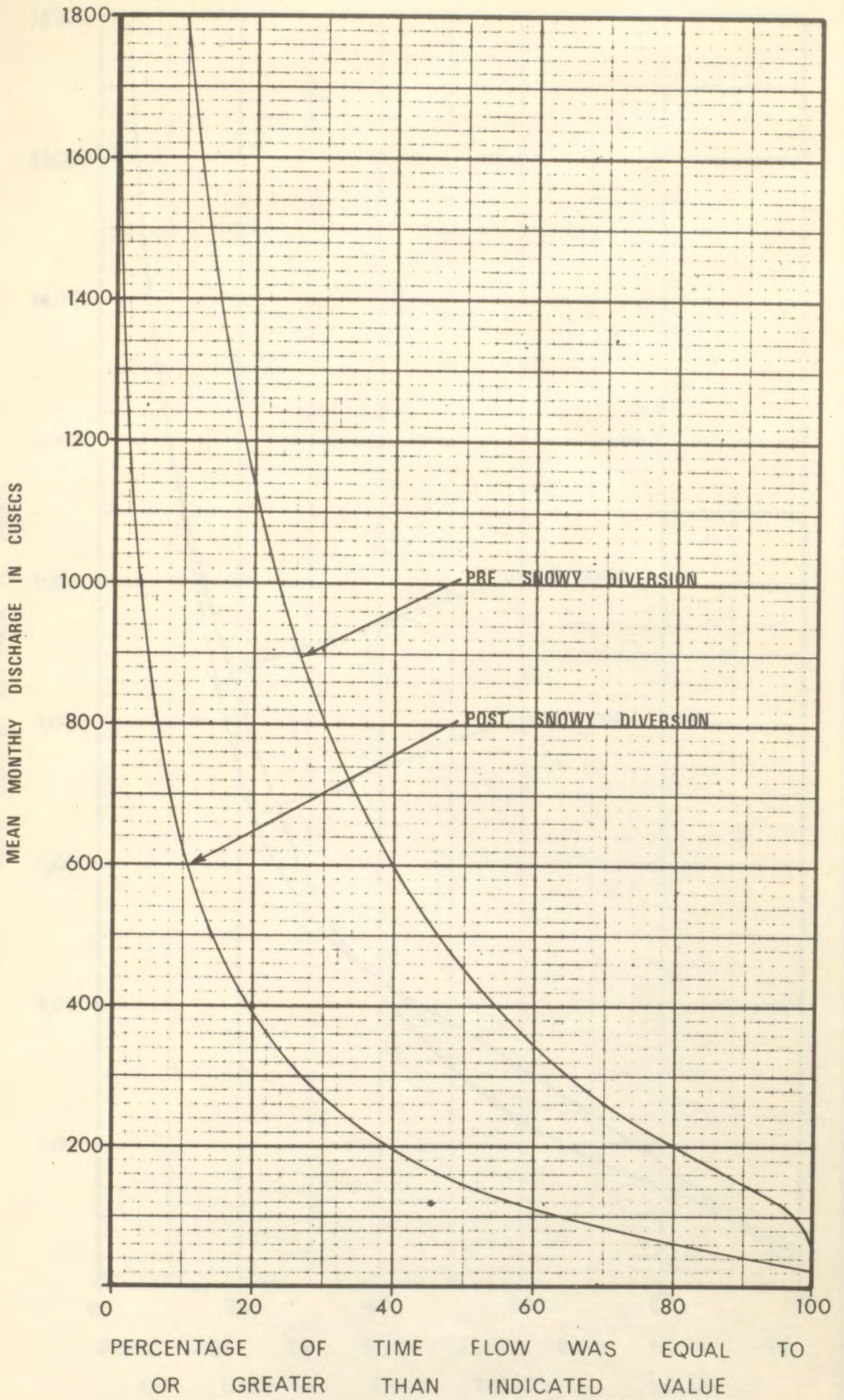
12350



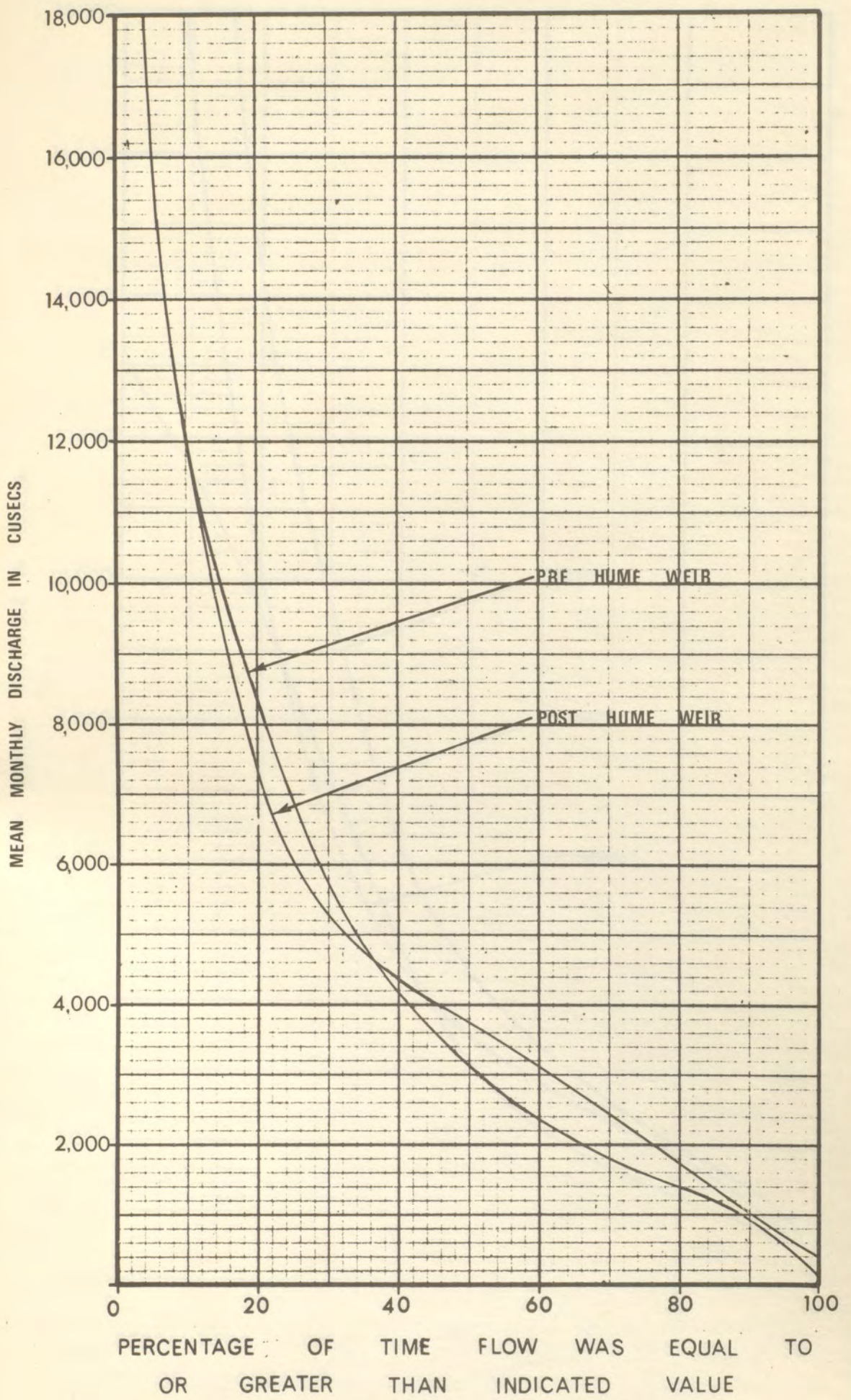
**AVERAGE MONTHLY STREAM FLOWS
MURRAY RIVER AT ALBURY**



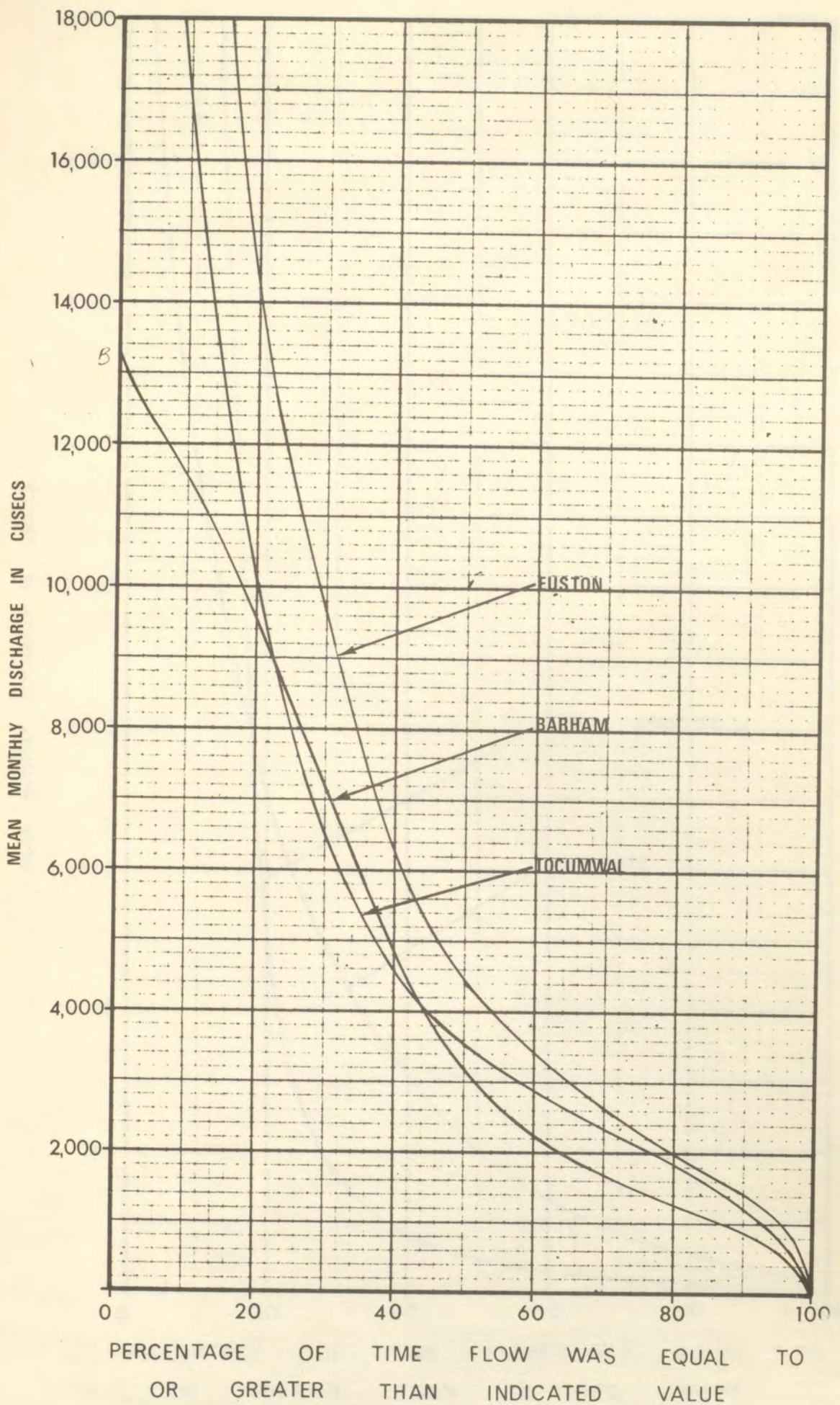
**FLOW DURATION CURVE FOR
MURRAY RIVER AT BIGGARA
TOOMA RIVER AT POSSUM POINT**



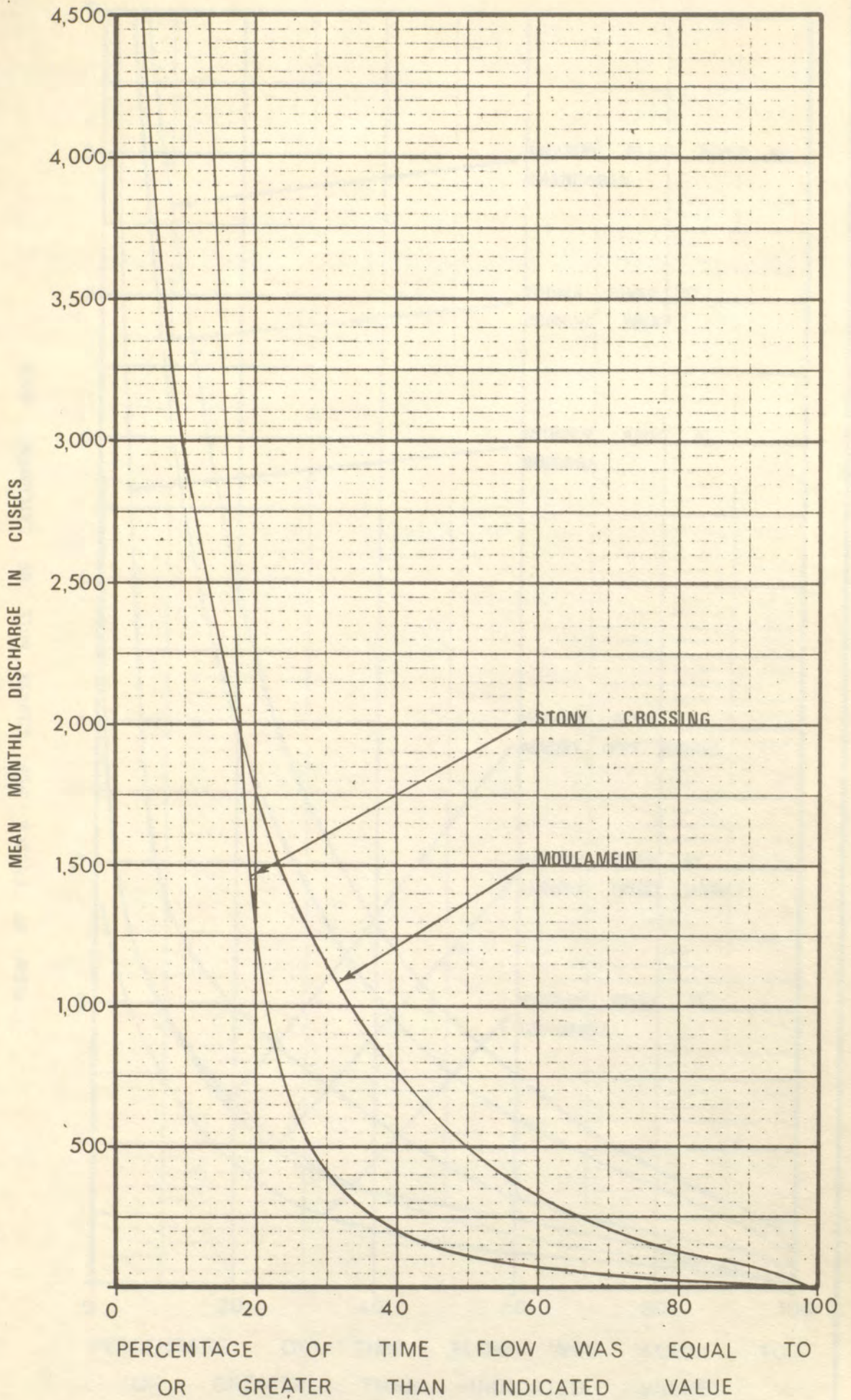
FLOW DURATION CURVE FOR SWAMPY PLAIN RIVER AT KHANCOBAN



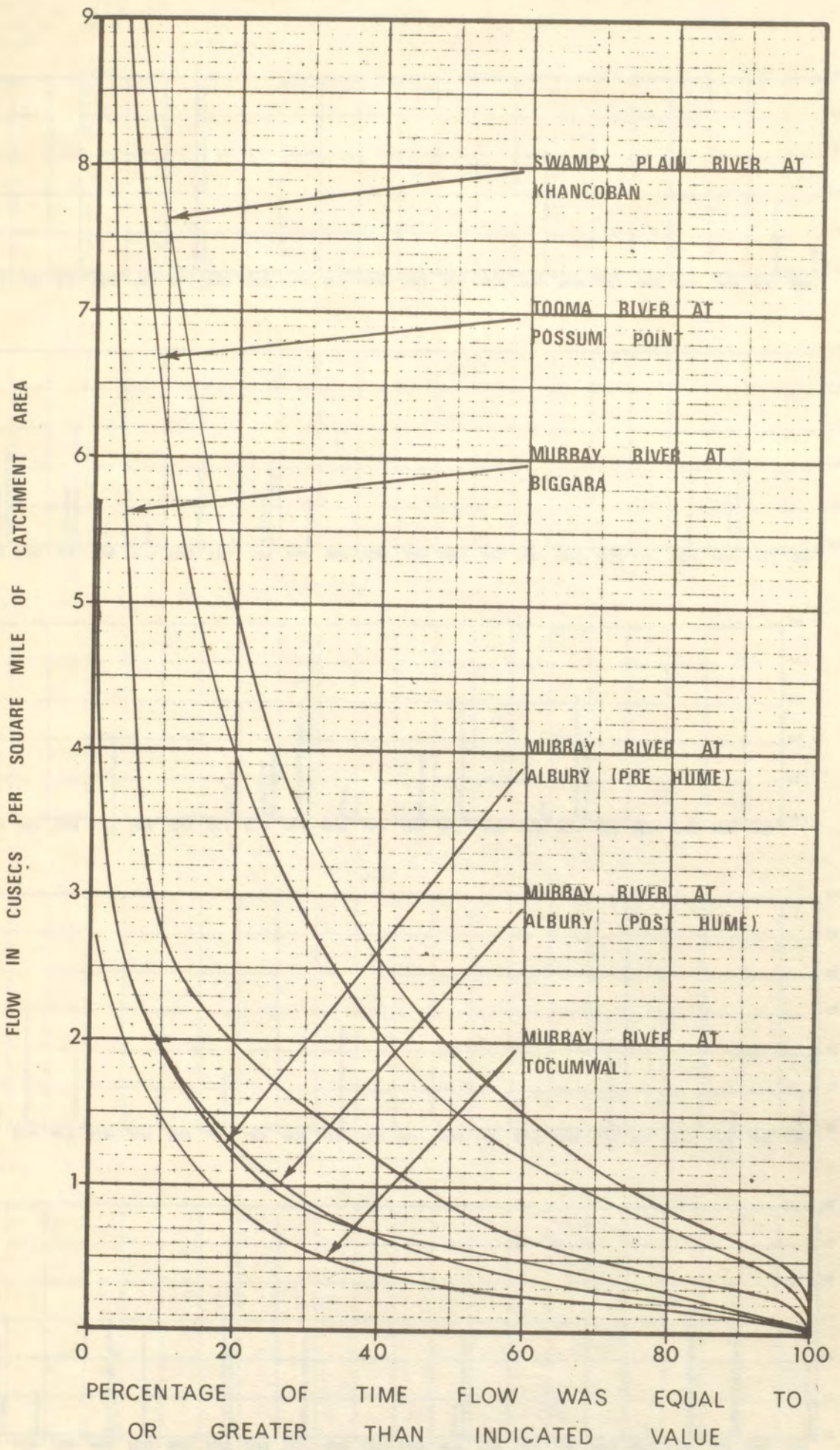
**FLOW DURATION CURVE FOR
MURRAY RIVER AT ALBURY /
DOCTORS POINT**



FLOW DURATION CURVE FOR MURRAY RIVER AT TOCUMWAL, BARHAM AND EUSTON

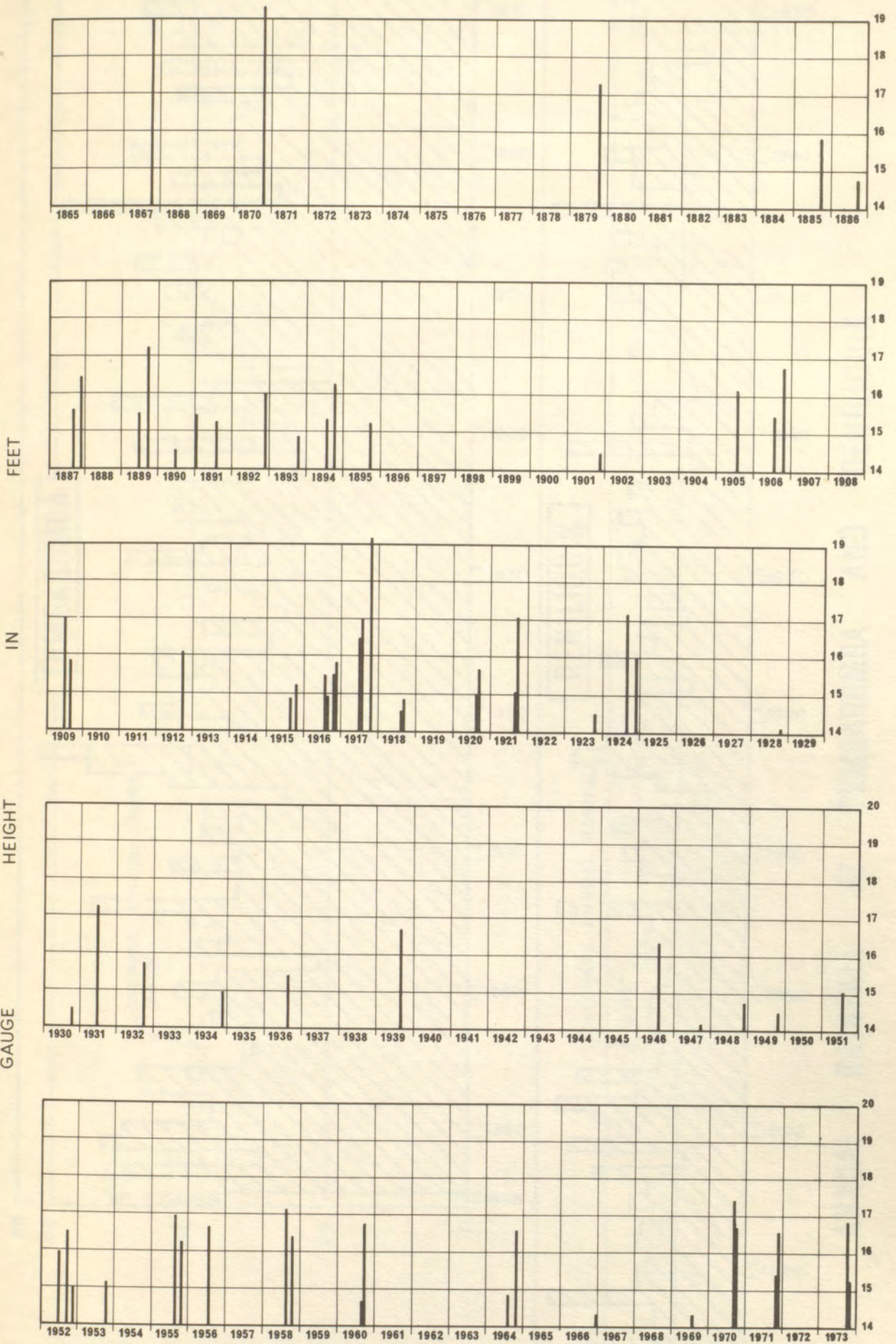


**FLOW DURATION CURVE FOR
WAKOOL RIVER AT STONY CROSSING
EDWARD RIVER AT MOULAMEIN**



FLOW DURATION CURVES FOR SELECTED MURRAY VALLEY STREAMS

12356

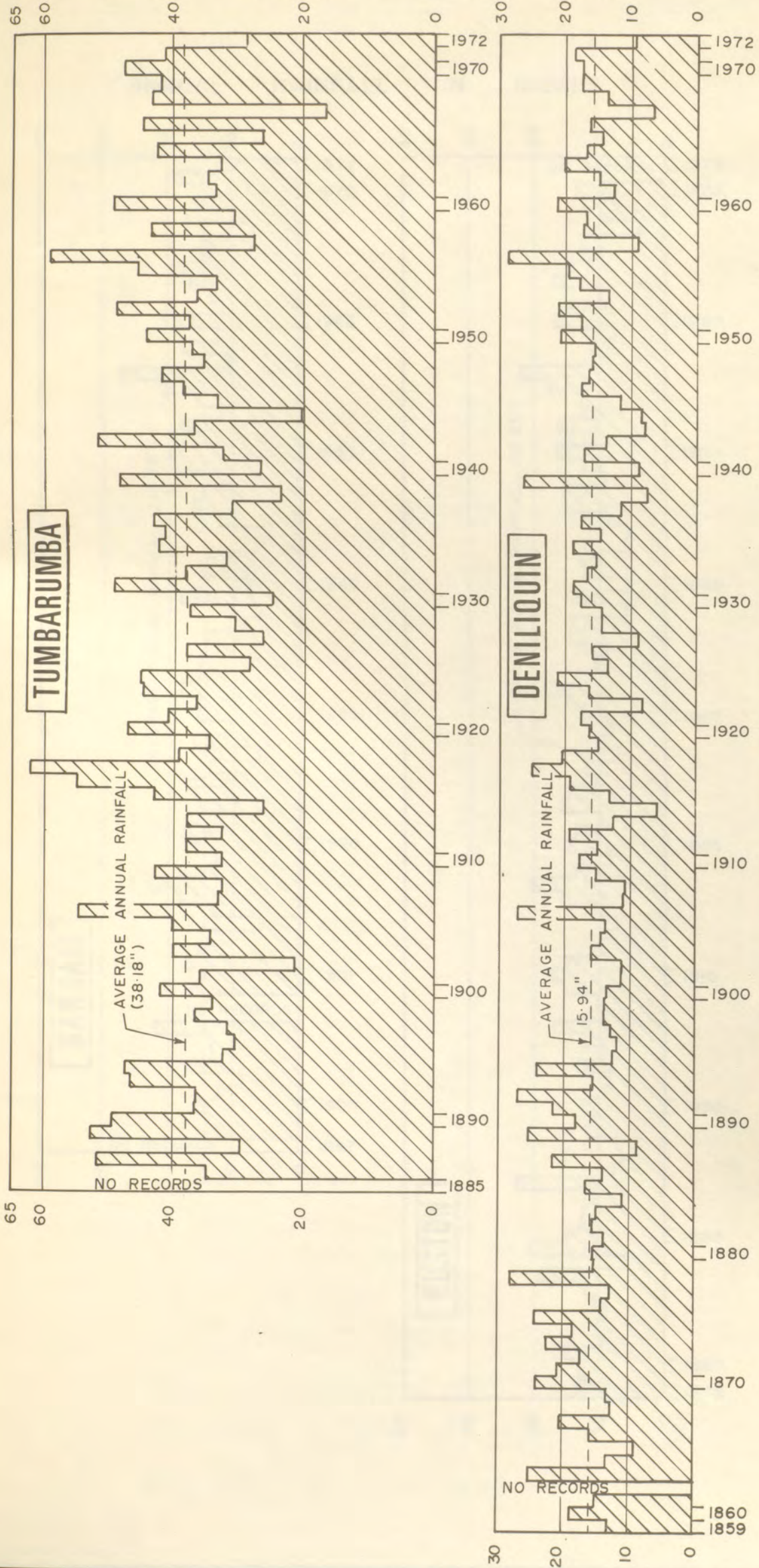


FLOOD PEAKS EXCEEDING 14 Feet AT ALBURY
1865 - 1973

12357

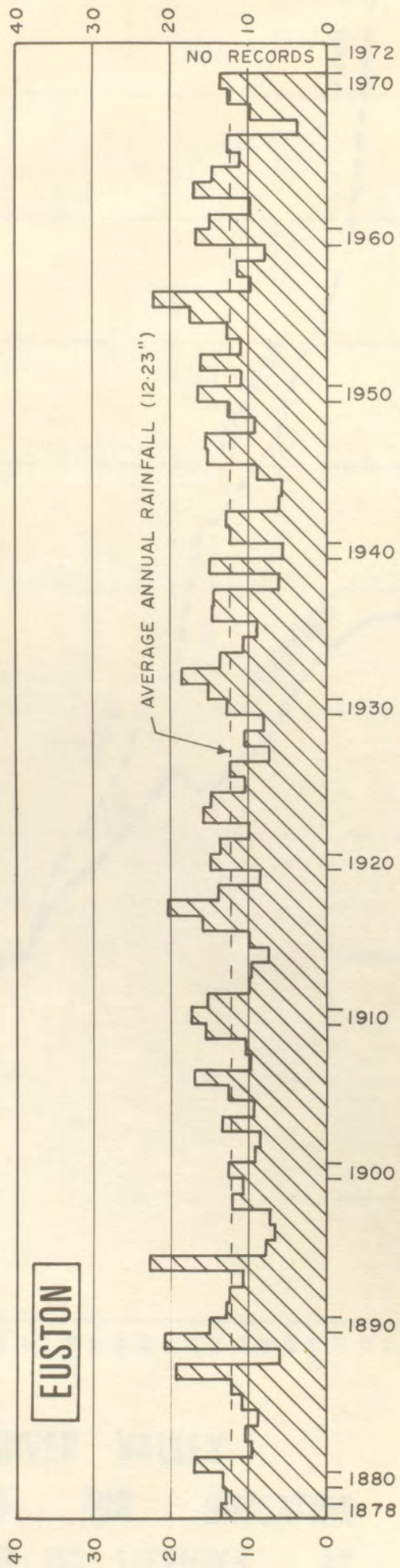
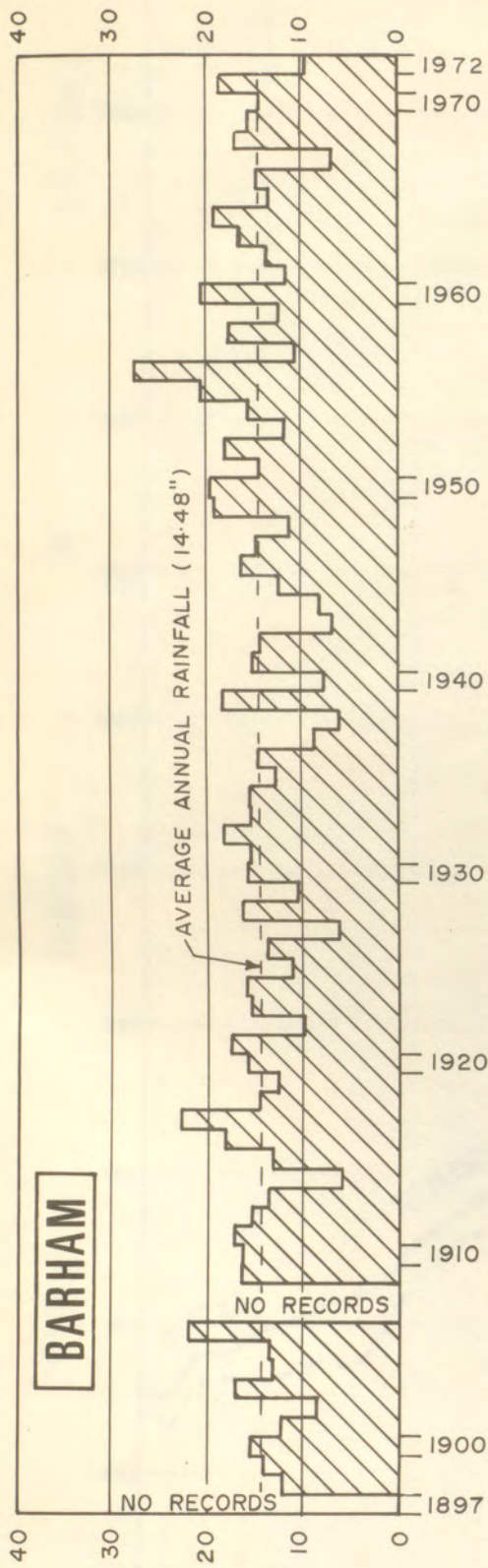
ANNUAL RAINFALL IN INCHES

FIGURE 34



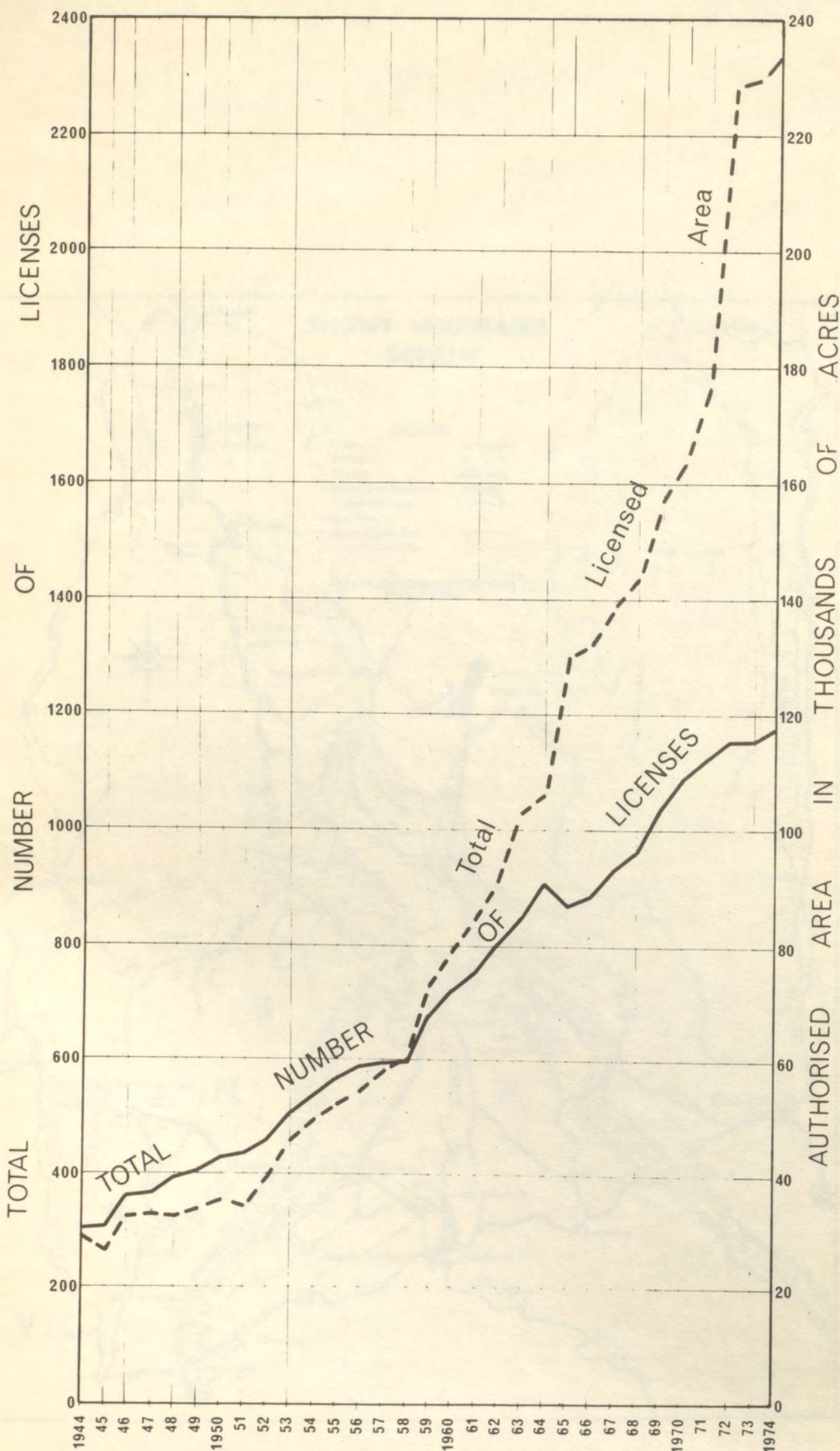
ANNUAL RAINFALL AT TUMBARUMBA AND DENILIQUN

ANNUAL RAINFALL IN INCHES

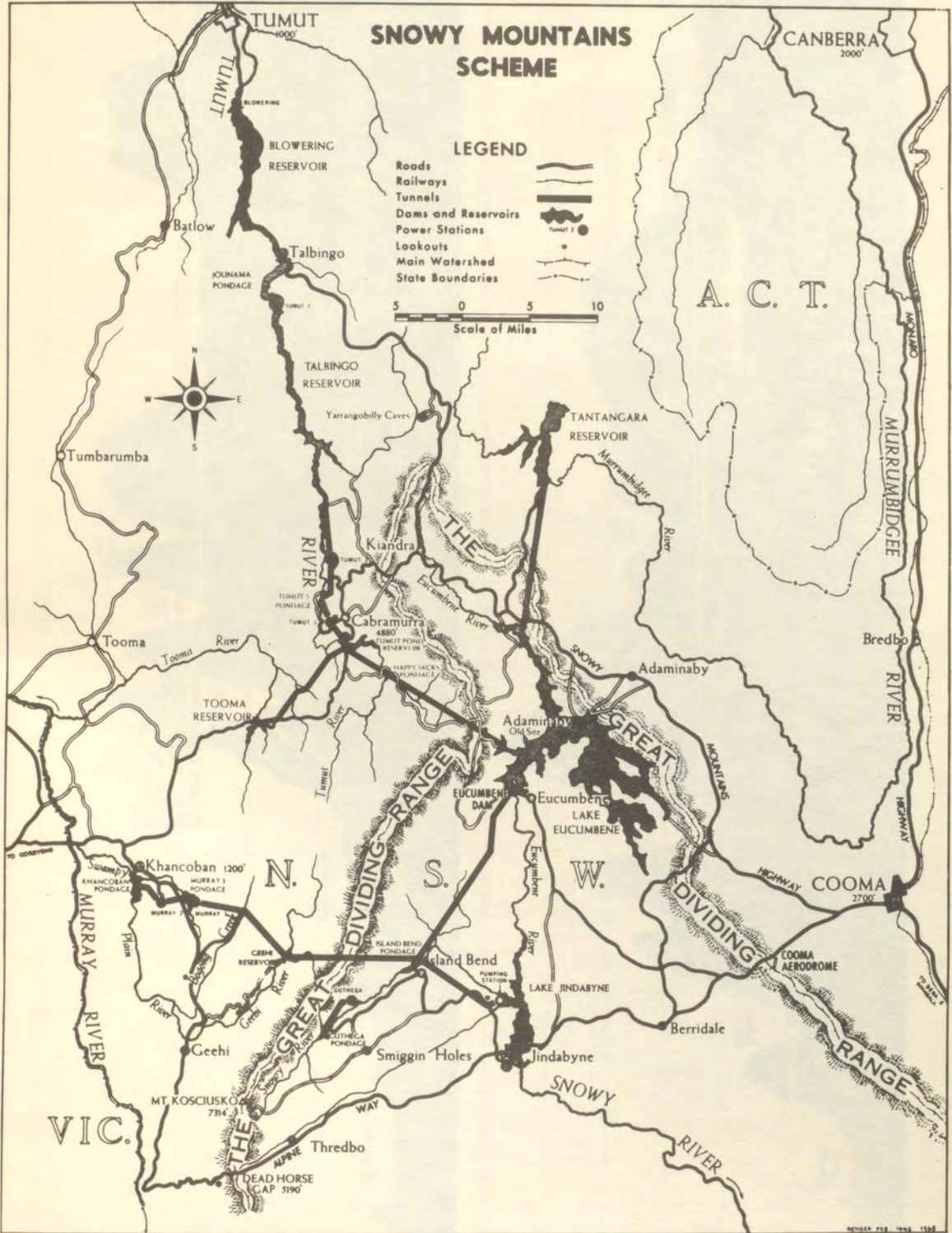


ANNUAL RAINFALL AT BARHAM AND EUSTON

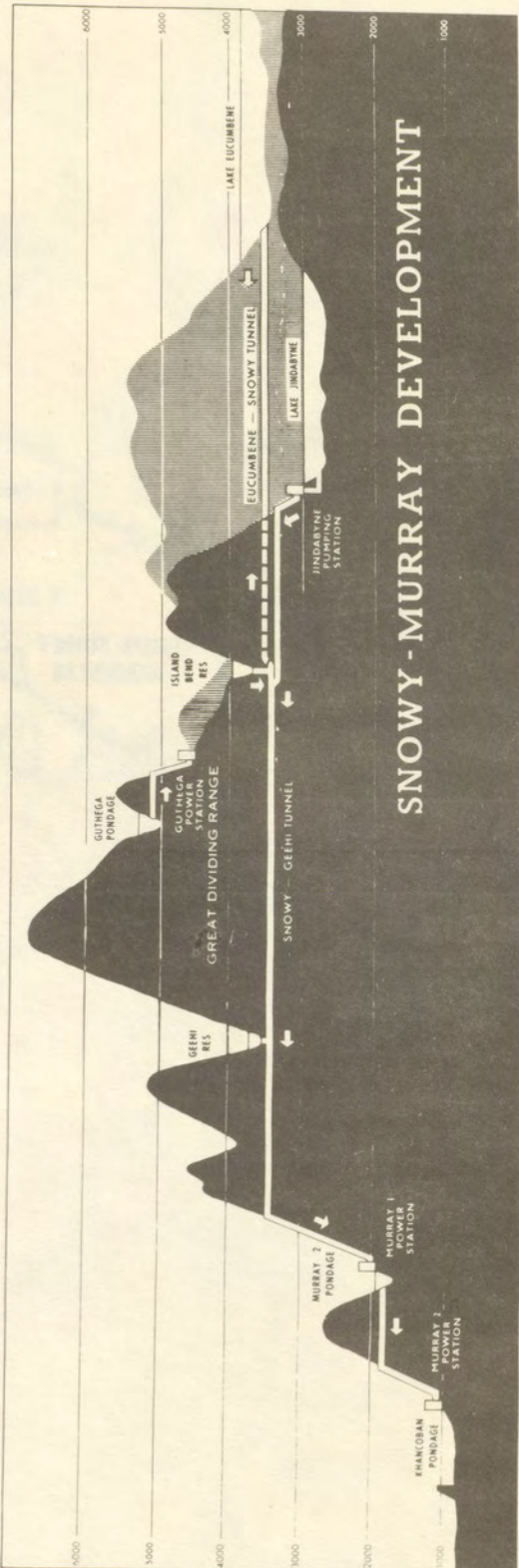
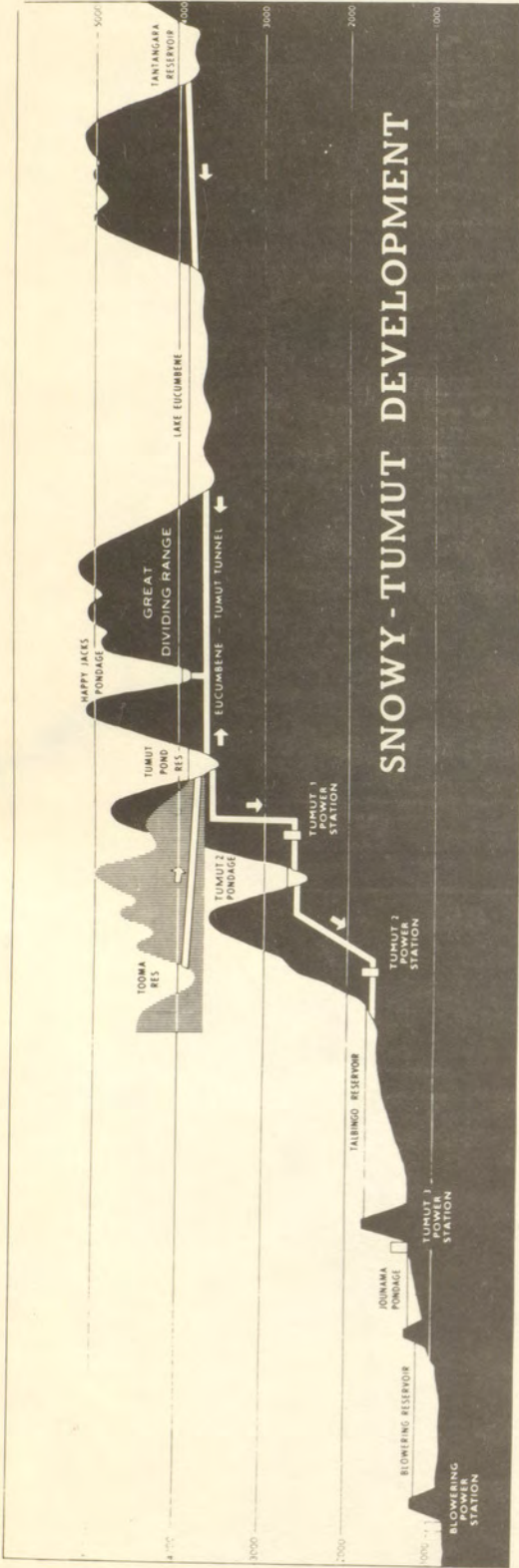
12358



MURRAY RIVER VALLEY
 AREA AUTHORISED FOR IRRIGATION
 AND TOTAL NUMBER OF LICENSES AT
 30th JUNE FOR EACH YEAR INDICATED



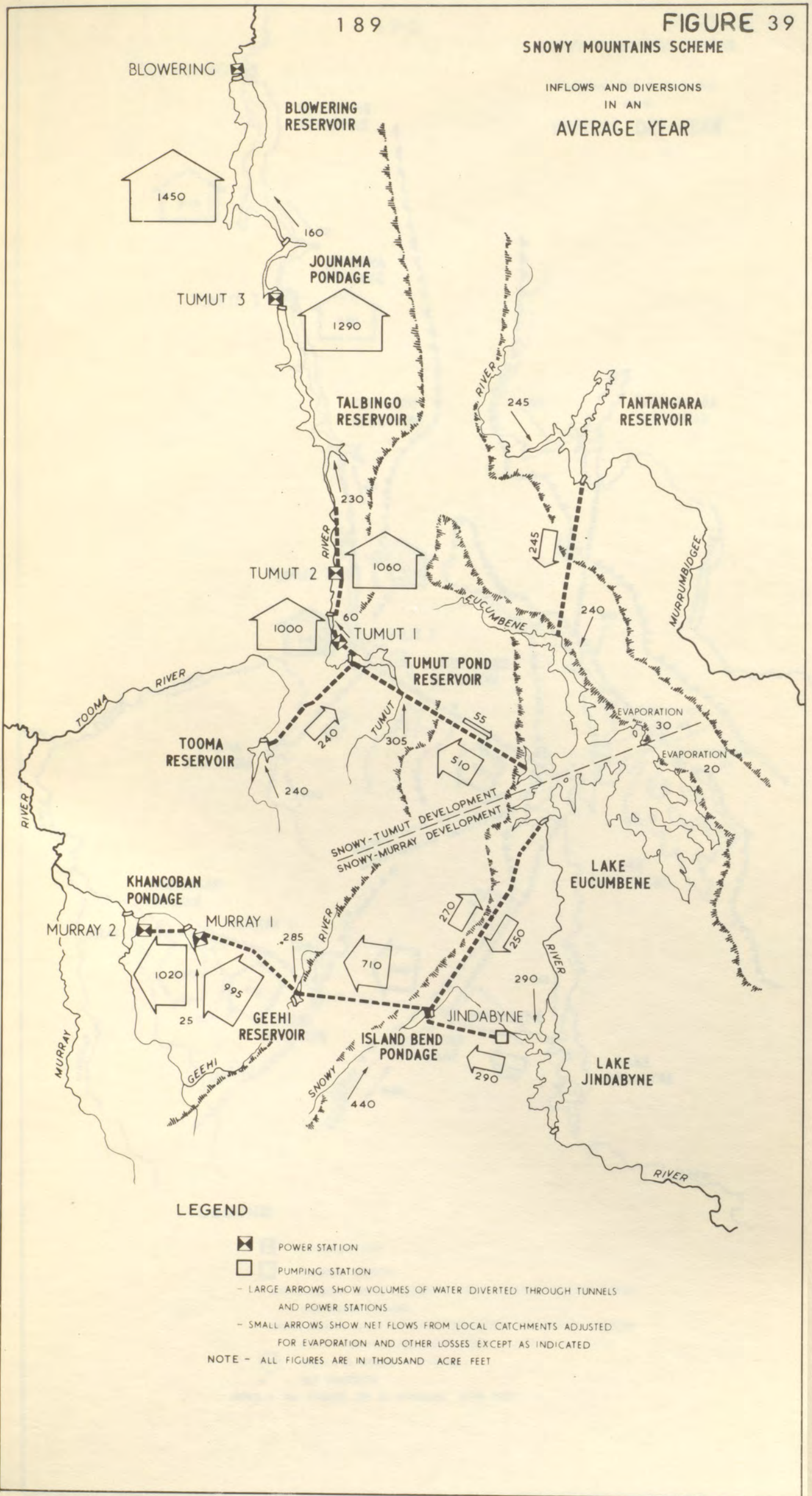
REVISED FEB. 1953 1582



12303

SNOWY MOUNTAINS SCHEME

INFLOWS AND DIVERSIONS
IN AN
AVERAGE YEAR

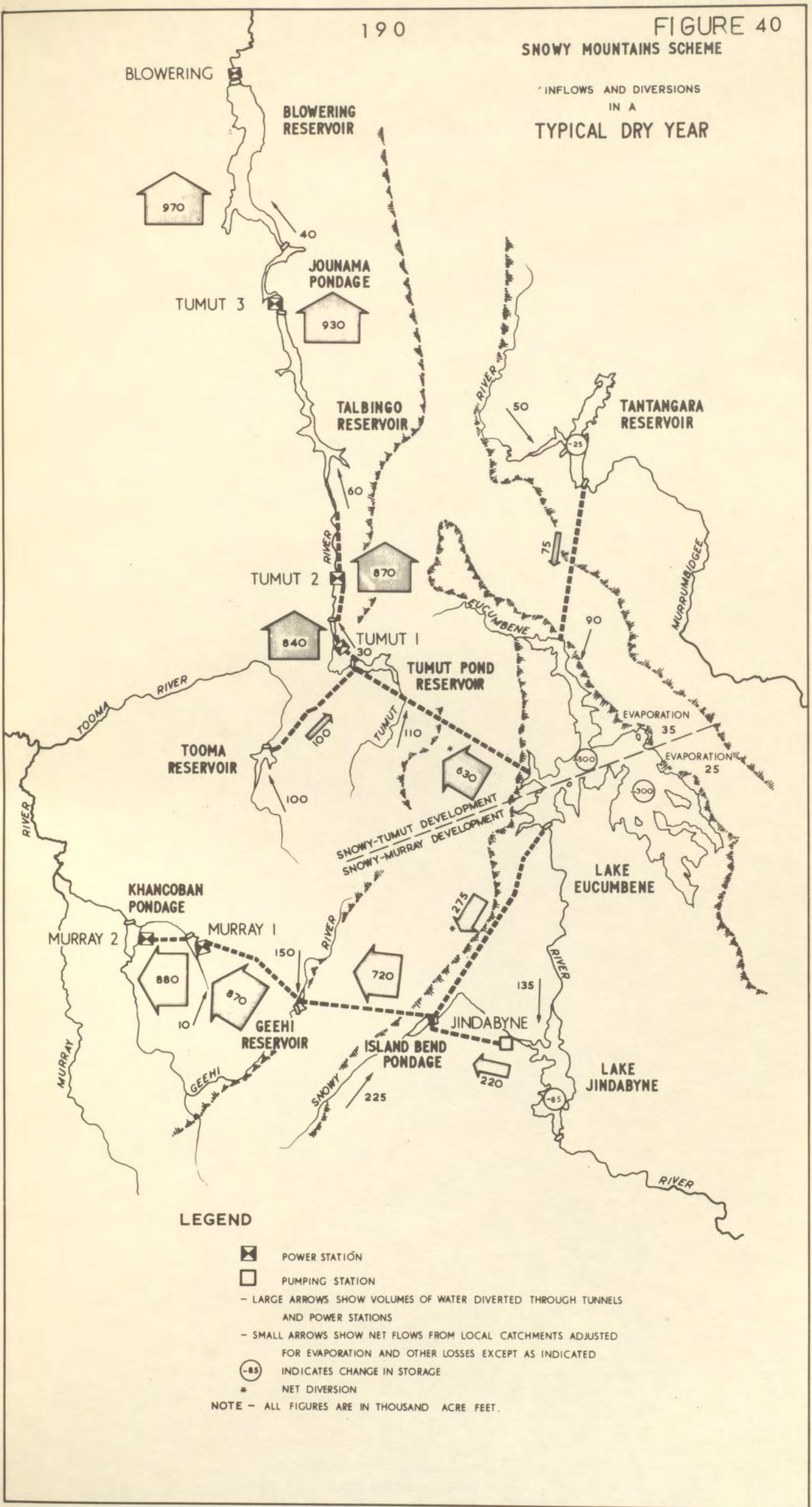


12362

190

FIGURE 40
SNOWY MOUNTAINS SCHEME

INFLOWS AND DIVERSIONS
IN A
TYPICAL DRY YEAR



LEGEND

- ☒ POWER STATION
- PUMPING STATION
- LARGE ARROWS SHOW VOLUMES OF WATER DIVERTED THROUGH TUNNELS AND POWER STATIONS
- SMALL ARROWS SHOW NET FLOWS FROM LOCAL CATCHMENTS ADJUSTED FOR EVAPORATION AND OTHER LOSSES EXCEPT AS INDICATED
- 85 INDICATES CHANGE IN STORAGE
- * NET DIVERSION

NOTE - ALL FIGURES ARE IN THOUSAND ACRE FEET.

W/ copy

W91
627.1209944
NEW

