WATER RESOURCES

OF THE

HAWKESBURY VALLEY

INCLUDING TUGGERAH LAKES AND

LAKE MACQUARIE SYSTEMS

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

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WATER RESOURCES OF THE HAWKESBURY VALLEY

(INCLUDING TUGGERAH LAKES AND LAKE MACQUARIE SYSTEMS)

PREFACE

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MINISTER FOR CONSERVATION

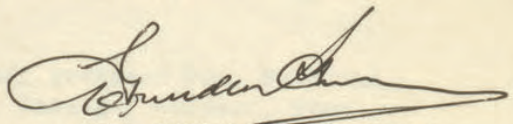
NEW SOUTH WALES

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 twenty-nine major valleys and a number of minor valleys. This report on the water resources of the Hawkesbury Valley, including the Tuggerah Lakes and Lake Macquarie systems, is the twenty-fifth to be issued.



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WATER RESOURCES OF THE HAWKESBURY VALLEY

1. INTRODUCTION

With the exception of the air he breathes, water is the most important natural resource required for the existence of man. The water resources of a nation are of prime importance to national prosperity and the welfare of a community is dependent to a large extent on the proper development and use of available water resources.

It has been estimated that the total volume of water on Earth, in all its forms, is of the order of 320 million cubic miles. As one cubic mile is equivalent to about a million million gallons, the magnitude of this resource is difficult to visualise.

Of the total amount of water on the earth's surface 99.2 percent is unusable for man's ready needs as 97.2 percent is contained in the oceans and a further 2 percent is held in polar ice caps. Of the balance of 0.8 percent only .004 percent exists as fresh water contained in lakes and streams, the rest consisting of groundwater.

Modern communities, particularly in large cities, make huge demands on water supplies for domestic, industrial and agricultural purposes. In the production of a ton of steel, about 300 tons of water are used; about 2½ tons of water are required to grow the grain for and produce a loaf of bread and a ton of paper requires about 60 tons of water. Furthermore, it has been estimated that over thirty tons of water are required to produce the normal daily food requirement of an adult.

Water demands for irrigation purposes are much greater than for domestic or industrial uses. Annual requirements of crops are usually of the order of two to three feet depth, and during droughts, it is necessary to supply the majority of this requirement by irrigation. The relative magnitude of this demand can be assessed when it is realised that a depth of three feet over only one acre is equivalent to over 800,000 gallons (more than 3,500 tons).

The gross water resources of any country are usually considered to be the combined total amounts of precipitation, consisting of rain, hail or snow, which fall on the land. The surface water resources are normally regarded as the amounts of water in rivers and lakes.

In comparison with all the other continents Australia has the least average annual precipitation, the average rainfall being only 1½ feet whereas Africa, Asia, Europe and North America all receive about 2 feet and South America receives an average of almost 4½ feet.

However, the natural processes of evaporation, transpiration and seepage deplete the gross water resources of all countries. When these losses are subtracted from continental precipitations, the residuals (or surface water resources), show that Australia has a comparative runoff much less than indicated by the average rainfalls.

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

In contrast to many other countries, none of the streams on the Australian mainland are permanently snow fed as the overall topography of the continent is relatively flat and undulating. Streamflows of the Australian continent are mainly dependent on the occurrence of runoff producing storms and therefore tend to exhibit greater variability in flow than those of other continents.

Flow records obtained for streams in New South Wales show that there are few perennial streams in the State; the majority of streams have either ceased to flow or have been reduced to an insignificant discharge during the periods of records. In addition, historical data indicates that more severe droughts occurred prior to the implementation of the present extensive system of measurement of the flows of streams in this State.

The prolonged duration of severe droughts in Australia makes it imperative that water conservation dams be constructed if assured water supplies are to be maintained over the full period of each drought.

The average annual rainfall over the total catchment of the Hawkesbury River and the Tuggerah Lakes and Lake Macquarie Systems is approximately 35 inches and the average annual surface water resources from the combined catchment of 9,020 square miles have been assessed at 2,260,000 acre feet. Of these resources 2,000,000 acre feet are estimated to originate from the Hawkesbury River catchment of 8,390 square miles.

On the basis of the combined catchment area of 9,020 square miles, these resources represent a runoff of about 13 percent of the average annual rainfall.

2. PHYSIOGRAPHIC FEATURES

The boundaries of the Hawkesbury River Valley, including the Tuggerah Lakes and Lake Macquarie Systems, are shown on Figure 1. As adopted in this report, the catchment of the Hawkesbury River encompasses about 8,390 square miles and the independent systems of Tuggerah Lakes and Lake Macquarie cover 630 square miles.

The Hawkesbury Valley extends from near Goulburn northwards to the southern boundary of the Hunter Valley near Cessnock. A section of the Great Dividing Range forms the western boundary, while the Illawarra Range and a line of low hills rising from the Cumberland Plain combine to form the eastern boundary. The Broken Bay plateau forms the northern boundary and separates the valley from the adjoining Hunter River Valley. In the north-east of the Valley the catchments of the Tuggerah Lakes and Lake Macquarie drain the strip of dissected country between the town of Gosford and the outskirts of Newcastle.

While the drainage system and the catchment are referred to by the name "Hawkesbury", the Hawkesbury River itself extends from the South Pacific Ocean only as far as the tidal limit below Penrith. Upstream of this point, the stream is known as the Nepean River which, together with its headwater tributaries the Avon, Cordeaux and Cataract Rivers, rises in the Illawarra Range west of Wollongong, at elevations of about 1,500 feet. Mount Keira (1,533 feet) and Mount Kembla (1,752 feet) are prominent peaks along this range. After draining heavily timbered country in its headwaters, the Nepean River is joined on its left bank by the Bargo River and 10 miles further downstream, by the Cataract River on its right bank. Thereafter, the Nepean flows in a general north-westerly direction until it is joined on its left bank by the Warragamba River.

The Warragamba River has a catchment area of about 3,500 square miles and drains most of the western section of the Nepean-Hawkesbury Valley. Its tributaries, the Coxs, Wollondilly, Kowmung and Nattai Rivers now flow directly into the storage of Warragamba Dam and drain about 42 percent of the entire Hawkesbury River catchment.

The Coxs River drains the mountainous western regions of the valley and rises near Portland at elevations of about 3,500 feet. It flows generally through rugged terrain in a southerly direction for about 50 miles before veering to the east near Mount Guouogang (4,232 feet) and entering the Warragamba Dam Storage.

The Wollondilly River drains the undulating country in the south-west of the valley and after being joined by the Mulwaree Creek near Goulburn, flows generally in a north-easterly direction before entering the Warragamba Dam Storage. Rising in the Illawarra Range near Bowral the Wingecarribee River joins the Wollondilly near Mount Tallygang (2,339 feet) after flowing westward from its source for about 35 miles.

About two miles downstream of the Warragamba River confluence, the Nepean River is joined on its left bank by Erskine Creek and then by the Grose River, before entering the tidal zone near the North Richmond Bridge. In its upper reaches, the Grose River drains a section of the rugged Blue Mountains area, which covers an area in excess of 300 square miles. Further downstream between Windsor and Wisemans Ferry the Hawkesbury River is joined in turn by South Creek and Cattai Creek on its right bank and by the Colo River and the Macdonald River on its left bank.

Below Wisemans Ferry the Hawkesbury River flows in a general south-easterly course before entering Broken Bay about 25 miles north of Sydney.

Runoff is conveyed into Tuggerah Lakes by Ourimbah and Jilliby Creeks and Wyong River. All three streams rise at elevations of about 1,500 feet some 25 miles west of the coastline and flow through heavily timbered country before emerging onto flat coastal plains near Wyong and flowing into the Lake.

Lake Macquarie collects drainage from a number of minor streams, the most significant of which are Dora and Wyee Creeks. Both have a relatively short drainage path and flow through flat and undulating timbered country before discharging into Lake Macquarie.

Most of the northern and western areas of the Hawkesbury Valley are heavily timbered and comprise rugged and mountainous terrain with land slopes greater than 15 degrees. The undulating to hilly areas are mostly found in the south-west of the valley near Goulburn and Moss Vale while the mostly flat terrain borders the Nepean and Hawkesbury Rivers north from the vicinity of Camden to a short distance downstream of Windsor.

The generalised land slopes for the Hawkesbury River catchment and the Lake Macquarie and Tuggerah Lakes Systems are shown on Figure 2 while details of the percentage area falling within each land slope classification are summarised in Table 1.

TABLE 1

Land Slope Classification	Percentage of the Area Within The Systems	
	Hawkesbury River Catchment	Lake Macquarie and Tuggerah Lakes Systems
Mostly Flat - slopes less than 3 degrees	13%	40%
Undulating to Hilly - slopes from 3 degrees to 8 degrees	27%	16%
Hilly to Steep - slopes from 8 to 15 degrees	12%	12%
Rugged or Mountainous - slopes greater than 15 degrees	48%	32%

The timber resources of the Valley are extensive, covering much of the northern, western and southern mountainous areas and providing good quantities of hardwoods and some brushwoods for commercial use. The area dedicated as State Forests covers about 200,000 acres with the largest forest being the Newnes State Forest with an area of approximately 33,000 acres located north of Lithgow.

A wide range of hardwood species has developed, the most predominant being Spotted Gum. In addition Blackbutt, Grey Ironbark and Sydney Blue Gum occur in a number of areas while valuable stands of Tallow Wood north of the Hawkesbury River and Turpentine, in the Wyong area, also exist.

The occurrence of mixed brushwood types is restricted and only occurs in narrow strips along watercourses.

3. CLIMATIC FEATURES

Rainfall

Rainfall over the Nepean-Hawkesbury River system is controlled to a large extent by orographic uplift. Relatively high rainfall areas are located over the headwaters of the Coxs and Grose Rivers, over the headwaters of the Nepean, Wingecarribee and Nattai Rivers and over the coastal section of the system in the vicinity of the mouth of the Hawkesbury River. Annual median rainfalls in these areas are between 40 and 50 inches and in places are as high as 60 inches. (The median is that rainfall value equalled or exceeded on fifty percent of occasions).

Marked rainshadows occur over the headwaters of the Wollondilly River, over the middle reaches of the Nepean River and over the Colo River. Generally annual median rainfalls in these areas are less than 30 inches and in places are as low as 25 inches. The distribution of annual median rainfalls over the valley is shown at Figure 3. Areal distributions of monthly median rainfalls are shown in Figures 4 to 15 respectively.

Over the southwestern part of the valley rainfall tends to be uniformly distributed throughout the year. The remainder of the valley experiences a relatively wet season of about six months during which 60 percent of the annual rainfall is received on the average. This relatively wet season extends from January through June over the northern coastal part of the system and from November through April over the remainder. August, which receives about 5 percent of the annual rainfall on the average, is usually the driest month over all parts of the system except the south-west. In this month median rainfalls vary from 1 inch to about 2½ inches.

The wettest month of the year varies with location and may be any of the months in the period December through June. In the wettest month, median rainfalls range from 2 inches over the lower to more than 5 inches over the higher rainfall areas.

Annual rainfalls recorded at Bilpin, Camden, Cataract Dam, Crookwell, Dapto, Gosford, Goulburn, Jenolan Caves, Katoomba, Kindarun, Lithgow, Moss Vale, Penrith, Picton, Portland, Prospect Dam, Rylstone, Tarago, Taralga, Windsor and Wyee are given in Appendices 1 to 3 respectively.

Very intense rain may occur over the river system when an active depression is located over the central New South Wales coast. Under these conditions falls of up to about 15 inches in 24 hours have occurred over the valley generally. A notably high fall for a 24 hour period ending 9 a.m. was 22.58 inches at Cordeaux River on the 14th February 1898.

Very high monthly totals are occasionally recorded in the Valley. Over the higher rainfall areas, greatest monthly totals are between 25 and 30 inches generally. Over the rainshadow area of the middle reaches of the Nepean River, greatest monthly totals are between 15 and 20 inches whilst for the remaining rainshadow areas the figure is about 12 inches.

The tables at Appendix 4 show on a monthly and annual basis for Bilpin, Camden, Caratact Dam, Crookwell, Dapto, Gosford, Goulburn, Jenolan Caves, Katoomba, Kindarun, Lithgow, Moss Vale, Penrith, Picton, Portland, Prospect Dam, Rylstone, Tarago, Taralga, Windsor and Wyee, the following data:-

(i) the greatest and least rainfall totals on record;

(ii) the 10th, 30th, 50th, 70th, and 90th percentiles.

(A rainfall observation less than the 10th percentile can be expected on an average of once in ten years. Similarly, a rainfall observation less than the 70th percentile can be expected seven times in ten years on the average, or alternatively, a rainfall observation greater than the 70th percentile can be expected on an average of three years in ten).

Tables for Bilpin, Cataract Dam, Gosford, Goulburn, Katoomba, Lithgow, Moss Vale, Picton, Rylstone, Taralga and Windsor, indicating the minimum cumulative rainfalls on record commencing in any month of the year and continuing for up to 12 months are shown at Appendix 5.

Prolonged severe dry spells are rare over the valley although very dry conditions may occasionally be experienced for up to 3 months over the northern coastal section and for up to 6 months over the rainshadow areas. On 90 percent of occasions at least 6 inches of rain are received over the rainshadow areas in any consecutive six-month period. In a similar period over the higher rainfall areas at least 7 inches and in many places at least 10 inches of rain are received on 90 percent of occasions.

Temperature

Several temperature recording stations are located in the valley. Averages for a selection of these stations are presented in Tables 2 to 7 as follows-

(i) Table 2, Goulburn, representative of the area around the headwaters of the Wollondilly River;

(ii) Table 3, Moss Vale, representative of the area forming the headwaters of the Nepean, Nattai and Wingecarribee Rivers;

(iii) Tables 4 and 5, Picton and Richmond, representative of the low country around the middle reaches of the Nepean River;

(iv) Tables 6 and 7, Katoomba and Newnes, representative of the headwaters area of the Grose and Coxs Rivers.

TABLE 2

GOULBURN (Elevation 2,096 ft.)

Average Temperature (^{o}c) based on 30 years of record.

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average Maximum	27.5	27.3	24.5	19.5	15.5	11.8	11.3	13.2	16.8	20.8	23.9	26.4	19.9
Average Minimum	13.4	13.6	11.7	7.8	4.8	2.8	2.1	2.6	4.7	7.3	10.1	12.4	7.8
Average Daily	20.4	20.4	18.1	13.8	10.2	7.3	6.7	7.9	10.8	14.1	16.9	19.4	13.8
Highest on record: 41.9^{o}c						Lowest on record: -7.8^{o}c							

TABLE 3

MOSS VALE (Elevation 2,208 ft.)

Average temperature (^{o}c) based on 29 years of record.

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average Maximum	25.9	26.0	23.4	19.2	15.6	12.7	12.3	13.8	17.1	20.5	23.5	25.2	19.6
Average Minimum	12.4	12.7	10.6	7.5	4.2	2.0	1.5	2.2	4.3	6.9	9.1	11.4	7.1
Average Daily	19.2	19.4	17.1	13.4	9.9	7.4	6.9	8.0	10.7	13.7	16.3	18.3	13.3
Highest on record: 41.9^{o}c						Lowest on record: -7.2^{o}c							

TABLE 4

PICTON (Elevation 552 ft.)

Average temperature (^{o}c) based on 30 years of record.

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average Maximum	29.4	29.2	27.3	23.6	20.3	17.3	16.8	18.5	21.6	24.5	26.6	28.5	23.7
Average Minimum	15.4	15.5	13.3	9.7	5.9	3.1	2.3	3.1	5.4	8.9	11.8	14.4	9.1
Average Daily	22.4	22.3	20.3	16.7	13.1	10.2	9.6	10.8	13.6	16.7	19.2	21.4	16.4
Highest on record: 46.7^{o}c						Lowest on record: -8.2^{o}c							

TABLE 5

RICHMOND (Elevation 73 ft.)

Average temperature (^{o}c) based on 30 years of record.

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average Maximum	29.4	29.5	27.2	23.6	20.2	17.5	17.1	19.0	22.3	25.2	27.3	29.0	23.9
Average Minimum	16.6	16.6	14.7	11.3	7.3	4.2	3.4	4.3	7.0	10.4	13.1	15.4	10.3
Average Daily	23.1	23.1	20.9	17.4	13.8	10.8	10.3	11.6	14.7	17.8	20.2	22.2	17.2
Highest on record: 48.4^{o}c						Lowest on record: -6.1^{o}c							

TABLE 6

KATOOMBA (Elevation 3,349 ft.)

Average temperature (^{o}c) based on 30 years of record.

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average Maximum	23.3	22.9	20.6	16.1	12.5	9.6	9.1	10.9	14.5	18.0	20.7	22.6	16.7
Average Minimum	12.6	13.1	11.6	8.4	5.9	3.5	2.6	3.2	5.3	7.8	10.1	11.8	8.0
Average Daily	17.9	18.0	16.1	12.3	9.2	6.6	5.8	7.1	9.9	12.9	15.4	17.2	12.3
Highest on record: 38.8^{o}c						Lowest on record: -3.1^{o}c							

TABLE 7

NEWNES (Elevation 3,520 ft.)

Average temperature (^{o}c) based on 12 years of record.

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average Maximum	24.2	23.1	20.3	15.9	13.1	9.8	9.5	10.7	14.3	17.4	20.1	23.2	16.8
Average Minimum	9.6	9.9	8.0	4.4	1.8	0.2	-1.1	-0.5	1.3	3.6	6.4	8.2	4.3
Average Daily	16.9	16.5	14.2	10.2	7.4	5.1	4.2	5.1	7.8	10.5	13.2	15.7	10.6
Highest on record: 38.3^{o}c						Lowest on record: -12.2^{o}c							

A wide variety of temperature regimes exist in the valley. On the coast near the lower reaches of the Hawkesbury River the climate is equable with average maxima ranging from about 28°C in summer to about 18°C in winter. Average minima range from about 18°C to about 9°C. Over the lower inland areas of the valley where the ameliorating effect of the sea is reduced, average maxima tend to be about three degrees warmer in summer and average minima tend to be from four to five degrees cooler in winter. Averages over the higher parts of the system are approximately 2°C cooler than the averages quoted for Richmond for each 1,000 foot increase in elevation between the area considered and Richmond.

Over the coastal areas of the valley marked extremes of temperature are rare. Over the lower valleys of the inland portions of the system however temperatures of 38°C or more occur on an average of about nine days per season. Even the highest parts of the system have experienced temperatures of 38°C or more on rare occasions. Very low overnight temperatures can occur over these inland areas in winter on calm clear nights. All stations over this inland region of the system have experienced minima lower than about -3°C whilst in the sheltered valleys of the higher parts of the catchment extreme minima as low as -12°C have occurred.

Frost and Snow

Frost incidences vary markedly over the valley from nil on the coastal plain around the mouth of the Hawkesbury River to more than 70 occurrences per year on the average over the headwaters of the Grose and Coxs Rivers. Over the lower parts of the middle reaches of the Nepean River frosts occur about 20 to 30 times per year on the average.

Over the higher parts of the valley the average season of severe frost occurrence extends from about mid-May to mid-September, while over the lower inland areas the average season extends from early June to the end of August. Severe frost, however, can occur in the season April through October over the higher parts, and May through September over the lower parts of the valley.

Snowfalls can occur over the headwaters of the Coxs and Grose Rivers, the average frequency of occurrence being about 3 to 4 occasions per year. Generally these falls are only light but on rare occasions falls of more than 12 inches may occur above 3,000 feet.

Sunshine

Estimates of the average number of hours of bright sunshine per day in each month are shown in Table 8. These estimates are based on cloud amount observations and are averages for the river system as a whole. Conditions on the average would tend to be more cloudy on the coast and less cloudy inland.

TABLE 8

Estimated Average Daily Hours of Bright Sunshine

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Hours	8.7	8.0	7.1	6.5	6.1	5.5	6.1	6.8	7.7	8.4	8.7	8.8	7.4

Evaporation

Estimates of the average monthly and annual evaporation from an Australian Standard Tank are shown in Table 9 together with estimates of the standard deviations. These estimates are based on radiation, air temperature and humidity considerations and are average figures for the valley as a whole. In general, these figures would be smaller on the coast and over the higher inland parts of the valley.

TABLE 9

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Evaporation (inches)	6.0	4.5	4.4	2.8	2.0	1.4	1.3	1.9	2.7	3.7	5.7	5.7	42.1
Standard Deviation (inches)	0.9	1.0	0.8	0.5	0.3	0.2	0.3	0.3	0.4	0.5	0.8	0.9	3.7

Wind

Except for the coastal areas of the Valley, where gale force east to south-east winds occur in association with active depressions off the central New South Wales coast, winds over the system are mainly light to moderate.

Very strong wind gusts may occur at locations in the valley from time to time in association with severe local storms such as thunderstorms. Table 10 gives the extreme wind gust likely to be experienced for various return periods.

TABLE 10

Estimated Extreme Wind Gusts to be Expected with given return periods

Return Period (years)	10	20	50	100
Extreme Wind Gust equalled or exceeded (m.p.h.)	90	95	105	110

4. GROUNDWATER POTENTIAL

The map at Figure 16 shows the Hawkesbury River area to be geologically complex in the western and south-western portions of the catchment, whilst the remainder is underlain by the relatively simple structure of the Sydney Basin. In the south-west there are metamorphic rocks 500 million years old whilst in the estuary of the river, in the lakes in the north-east and along the coast itself, deposition of sediments including clays, silts and sands is still taking place.

The drainage basin is comprised of a dissected upland forming the Blue Mountains and the Southern Highlands and a coastal belt. Most of the Valley has an annual rainfall well in excess of the minimum of about 25 inches, and because of the relatively high rainfall, the main factors controlling the occurrence of groundwater are geological.

Discussion of the groundwater potential of the area is therefore facilitated if three main subdivisions, based on the mode of occurrence of the water and the nature of the strata in which it is stored, are used. These are firstly, Jointed or Fractured Rocks, which, although themselves impermeable, contain water in the cracks, joints and partings; secondly, Porous Rocks, such as sandstones, which contain water in the pore spaces between the cemented grains; and finally, Unconsolidated Sediments, in which water may be held in sands and gravels occurring beneath riverine flats, or in areas of dune sand.

Jointed Rocks

The older "basement" rocks are confined to the western part of the valley. The oldest two rock systems (Ordovician and Silurian) outcrop in meridionally disposed zones in the vicinity of Goulburn. They include slates, quartzites, phyllites, greywackes, sandstones, tuffs and lenticular limestones, most of which exhibit no inherent porosity.

However, the harder (more competent) strata have been strongly jointed as a result of tension and compression during folding. Some rock types, particularly the greywackes and quartzites, when intersected by bores yield several thousand gallons per hour of water with a salinity less than 60 parts per hundred thousand (p.p.h.t.). In general yields are of the order of several hundred gallons per hour and salinities may range up to 300 p.p.h.t., depending on factors such as the degree of development of jointing and the rock type comprising the aquifer.

Upper Devonian rocks extend northwards from Goulburn into the valley of the Kowmung River; they also outcrop in the north-western part of the valley in the headwater catchment of the Capertee River. Quartzites, sandstones, tuffs, shales and limestones comprise the bulk of these strata but there is a large proportion of volcanic rocks in the central part of the Wollondilly River Valley.

Because of its resistance to erosion, the country underlain by Devonian rocks is rugged and little used for pastoral or agricultural pursuits; as a result few bores have been constructed in these areas. However as many of the strata are competent and have been subjected to folding, it is reasonable to expect that they would have well developed fractures and joints, and that useful stock supplies could be obtained from them by boring on selected sites to depths of the order of 150 - 200 feet.

Although the Permian formations are part of the relatively undisturbed Sydney Basin, the strata are rarely porous because the sediments are well consolidated and often partly indurated. For this reason they are discussed as Jointed Rocks. The map shows the outcrop of Permian strata to be restricted to the western half of the catchment and to a small area north of Lake Macquarie, but the sub-crop extends beneath the Sydney Basin and eastwards under the sea.

Rock types include sandstones, shales, conglomerates, cherts and coal seams, the latter being of great economic importance.

Bores in these strata meet with varying success both in regard to quantity and quality of the groundwater obtained. In general they are unreliable for groundwater supplies and the salinity is normally too high for domestic and garden use. The coal seams are probably the most reliable aquifers although the water in them is often acid and high in sulphates because of the presence of iron pyrites in the coal. Yields rarely exceed 200 - 300 gallons per hour but some in excess of 1,000 gallons per hour have been reported.

Granites have intruded all the Palaeozoic rocks except the Permian; the outcrops are confined to the western third of the valley. Where they are deeply weathered, it is usually possible to obtain supplies suitable for stock from bores up to 250 feet deep. In some areas springs are common and in normal seasons may provide small but useful stock supplies; however, storage in these perched aquifers is small and most springs fail in dry periods.

Basalts occupy only fairly small areas of high country in the vicinity of Moss Vale and Bowral. Other small areas of basalt occur in the Blue Mountains such as Mts. Tomah, Hay and King George. Practically all the basalts are well jointed and commonly give rise to springs, which in the Moss Vale and Exeter district can provide useful and reliable stock supplies. Such springs are more reliable than those in the granites but can dry up during droughts.

Because they usually cap the higher country, and are of limited extent, only the larger outcrops favour the construction of bores. In the Moss Vale district there are a number of successful bores in basalt; yields range from a few hundred to 1,000 or more gallons per hour, the quality is usually good (less than 100 p.p.h.t.) and depths may vary, depending mainly on the relative elevation of the site, from 50 to 250 feet.

Porous Rocks

The Triassic Rocks occupy most of the eastern two thirds of the valley. They have been subdivided into Wianamatta, Hawkesbury and Narrabeen formations, the Hawkesbury Sandstones containing the highest proportion of sandstones, and the most porous zones.

The Narrabeen Group is thin and shaley in the southern part of the catchment, but thickens and becomes coarser in the Blue Mountains and in the northern part of the catchment. In the lower strata of this group shales predominate and it is not unusual for water from bores to be brackish. In the sandstones of the upper part of the sequence there is significant porosity only in limited areas and groundwater is mainly confined to joints and partings in the strata.

Much of the country underlain by the Narrabeen Group is undeveloped and, except for the Gosford area, few bores have been constructed in these strata. There are a number of successful bores in the area east of Gosford between Tuggerah Lake and Broken Bay and yields ranging from a hundred to a thousand

gallons per hour have been obtained from depths between 50 to 300 feet. The salinity is usually below 100 p.p.h.t. but the presence of iron, and a low pH, are typical of most groundwater from this formation.

The Hawkesbury Sandstone, as its name implies, is essentially a sandstone unit, although it contains thin beds of shale and shaley lenses. The sandstones themselves are usually heavily cross bedded and horizontal continuity of a particular bed of sandstone is uncommon. Much of the sandstone is cemented with clayey material, and porous layers capable of storing and transmitting groundwater are relatively few and appear to be confined mainly to the southern part of the Sydney Basin to the south and west of Camden. In this area bores in the sandstones rarely fail to obtain water from beds of coarse sandstones which appear to be very extensive, though only a few feet thick.

In an area which approximates the catchment of the Wingecarribee and Nattai Rivers, bores ranging in depth from about 100 to 300 feet commonly yield supplies of low salinity water, suitable for irrigation, in excess of two thousand gallons per hour, the highest reported yield being 10,000 gallons per hour from a bore near Sutton Forest. Yields up to 5,000 gallons per hour have been obtained from the sandstones west of Camden, but the permeability and porosity then become less consistent and in the northern part of the catchment yields are usually less than 1,000 gallons per hour.

The Wianamatta Group is a shaley sequence with interbedded sandstones. At least part of this group was deposited under marine conditions, resulting in the presence of connate salt in some strata. Porosity appears to be mainly secondary (joints and partings) rather than original porosity.

Groundwater from the group is invariably brackish or saline, except in the areas where the strata are elevated and relatively rapid percolation of the groundwater has flushed away the salt content of the rocks. The saline water in the shales may also percolate down into the aquifers in the underlying sandstones rendering the water in them brackish. In some such cases deeper boring encounters better quality water, and casing the bore and cementing off the saline aquifers permits good quality water to be obtained.

Because of the salinity of the groundwater in the shales there are many salty springs and creeks in the lower parts of the valleys between Camden, Penrith and Windsor, which present problems in the construction of excavated tanks and dams. In general the Wianamatta Group can be disregarded as a source of useful groundwater supplies.

Unconsolidated Sediments

Alluvial deposits of both Tertiary and Quaternary Age occur in the valley. The older formations outcrop in the Penrith - Richmond - Windsor area where they are comprised of clays, silts, sands and gravels, mainly poorly sorted. Occasionally deposits of clean sand are present at or near the surface and these beds contain the only useful groundwater, though in limited supply. In the clayey strata the water quality is usually brackish, and where there is contamination from the adjacent or underlying Wianamatta shales the water may be salty and unsuitable for any use.

More recent alluvium occurs in the upper Wollondilly catchment. It may be up to 60 feet thick and contains some sands and gravels capable of producing small irrigation supplies; yields up to 5,000 gallons per hour have been obtained and the salinity is usually low.

Between Penrith and Windsor there are extensive alluvial flats of post-Tertiary age. The deposits may be as thick as 60 feet and contain sands and gravels from which both wells and bores produce irrigation supplies ranging from a few thousand to 30,000 gallons per hour. The salinity is normally less than 50 p.p.h.t. except where water from the adjacent shales influences the quality, in which case it may be too saline for irrigation.

In the lower reaches of the Hawkesbury River downstream of the tidal limit, the alluvial flats are largely of estuarine origin and contain mainly saline water. In some areas, direct infiltration of rainfall provides a fresh water zone overlying the saline water, and small supplies of water suitable for stock and domestic use, and in some cases limited irrigation, are available from this zone.

There are extensive flats on the western sides of Tuggerah Lake and Lake Macquarie. Wells in the flats usually produce stock and domestic supplies from depths of the order of 30 feet. Near the lakes there is a tendency for the salinity to increase.

Sand Beds

Dune sands are restricted to the north-eastern part of the area along the coastal fringe. Small areas of sand occur north from Broken Bay to The Entrance. Water from them is exploited mainly by individual householders for domestic and garden supplies. The areas and depth of sand are limited and the supplies, therefore, are also limited, particularly in very dry times.

North from The Entrance to north-east of Lake Macquarie are extensive areas of dune sands and most of these have been or are being mined for rutile and other heavy minerals.

Irrigation supplies of water are probably available in these areas but as the land is either owned by the Crown or is not suitable for cultivation, there is unlikely to be any major development of the use of groundwater for agriculture. However throughout these areas numerous spearpoint installations are used to provide household and garden supplies.

5. STREAM GAUGING STATIONS

The accurate measurement of streamflow is necessary for the proper planning, design and operation of water resources projects for water supplies for town, city, industrial and irrigation usage and hydro-electric power generation.

The measurement of streamflow involves two basic steps, the first being the measurement of river levels or gauge height, in relation to some specific datum and the second the correlation of the measured height with stream discharge.

River heights are normally measured by visual observation of the water surface on a graduated scale or staff gauge, or alternatively by means of a continuous record produced by a float or pressure actuated recorder.

The discharge or rate of flow of a stream is obtained by combining flow velocities, in feet per second, with effective cross-sectional areas, in square feet, to yield the stream discharge in cubic feet per second or cusecs.

In terms of metric units, the combination of flow velocities in kilometres per day with cross-sectional area in square metres, yields stream discharge in megalitres per day.

The correlation between stage and discharge is obtained by graphically plotting observed discharge values against the corresponding gauge heights. This graph is known as the stage - discharge relation or rating curve and this curve enables values of discharge to be obtained when only gauge heights are available.

Streamflow records commenced in the Hawkesbury River Valley with the installation of a gauging station on the Cataract River at Broughtons Pass in 1888. Further stations were installed on the Nepean River in 1891 and 1900 at Penrith and Pheasants Nest respectively, and on the Colo River at Upper Colo in 1909.

At present there are seventeen gauging stations in the Hawkesbury Valley operated by the Water Conservation and Irrigation Commission. Of these, three are operated on behalf of the Electricity Commission of New South Wales. The Metropolitan Water Sewerage and Drainage Board is currently operating twenty one gauging stations within the valley. Two of these stations, although not discontinued, have produced only intermittent records since 1950.

The thirty eight gauging stations currently operating in the Hawkesbury catchment are so located as to measure the runoff from approximately 82 percent of the total catchment area.

In the adjoining Tuggerah Lakes and Lake Macquarie Systems there are five gauging stations in operation, all of these being under the control of the Water Conservation and Irrigation Commission.

Since the commencement of records in the valley in 1888, a total of seventeen gauging stations have been established and subsequently discontinued. (In some cases the stations have again been re-established.) A number of these stations were used to provide streamflow information for the design and appraisal of water resources projects in the valley or for use in the operation of existing storages.

The existing density of gauging stations in the Hawkesbury Catchment is about 5 stations per thousand square miles, which is more than twice the total New South Wales average and ten times the Australian average. In the Tuggerah Lakes - Lake Macquarie Systems the total of five gauging stations corresponds to a density of about 8 stations per thousand square miles of catchment which is much greater than any of the coastal or total New South Wales and Australian averages.

It can be expected that the existing network of gauging stations throughout the Valley will be increased from time to time as the need arises. In addition it is also proposed to improve the standard of stream height recording at a number of existing stations by the installation of long term automatic recorders.

The locations of existing and discontinued gauging stations in the Hawkesbury catchment and the adjacent Tuggerah Lakes - Lake Macquarie Systems are shown in Figure 17 and the relevant details concerning each station are given in Table 11.

TABLE 11

Stream	Station	Catchment Area (Sq. Miles)	Type of Gauge	Period of Operation
HAWKESBURY RIVER CATCHMENT				
(a) Water Conservation and Irrigation Commission				
Wollondilly River	Pomeroy	110	Pressure Recorder	1946 to 1962 1971 to date
Heffernans Creek	Pomeroy	42	Pressure Recorder	1946 to 1958
Wollondilly River	Goulburn	240	Pressure Recorder	1962 to date
Cookbundoon Creek	Swallowtail Crossing	240	Pressure Recorder	1971 to date
Wingecarribee River	Sheepwash Dam	15	Staff Gauge	1910 to 1929
Wingecarribee River	Greenstead	225	Pressure Recorder	1954 to date
Wollondilly River	Upper Burragorang	1,810	Staff Gauge	1925 to 1959
Coxs River	Bathurst Road	77	Pressure Recorder	1950 to date
Coxs River	Lithgow	155	Float Recorder	1960 to date
Blackheath Creek	Mt. Boyce	7	Float Recorder	1968 to date
Megalong Creek	Narrow Neck	10	Float Recorder	1968 to date
Kedumba Creek	Kedumba Crossing	29	Float Recorder	1968 to date
Coxs River	McMahons	960	Staff Gauge	1942 to 1958
Coxs River	Cedar Vale	1,040	Staff Gauge	1926 to 1933
Nepean River	Maguires Crossing	28	Float Recorder	1922 to 1945 1969 to date*
Nepean River	Penrith	4,250	Staff Gauge	1891 to dateØ
Burralow Creek	Kurrajong	10	Pressure Recorder	1926 to 1962
Grose River	Grosewold (Navua)	250	Staff Gauge	1925 to 1933 1939 to 1945
South Creek	Mulgoa Road	35	Float Recorder	1955 to date
Capertee River	Glen Davis	390	Pressure Recorder	1970 to date
Wolgan River	Wolgan Gap	20	Float Recorder	1968 to date
Colo River	Upper Colo	1,675	Servo/Pressure Recorder	1909 to 1933 1942 to dateØ
Macdonald River	Howes Valley	120	Pressure Recorder	1972 to date
Macdonald River	St. Albans	670	Manometer Servo Pressure Recorder	1954 to date
Mangrove Creek	Fairview	78	Pressure Recorder	1970 to date
(b) Metropolitan Water Sewerage and Drainage Board				
Wollondilly River	Golden Valley	744	Servo/Pressure Recorder	1967 to date
Wingecarribee River	Andrewville	15	Float Recorder	1968 to date
Caalang Creek	Maugers	1	Pressure Recorder	1969 to date
Wollondilly River	Jooriland	1,760	Float Recorder	1961 to date
Nattai River	Causeway	172	Float Recorder	1965 to date

* Re-established by Metropolitan Water Sewerage and Drainage Board

Ø Automatic recorder has been installed and is operated by Metropolitan Water Sewerage and Drainage Board

Stream	Station	Catchment Area (Sq. Miles)	Type of Gauge	Period of Operation.
Coxs River	Kelpie Point	559	Float Recorder	1962 to date
Kowmung River	Cedar Ford	283	Float Recorder	1966 to date
Warragamba River	Warragamba Weir	3,480	Staff Gauge	1931 to date
Warragamba River	Nepean Junction	3,480	Float Recorder	1908 to date
Nepean River	Pheasants Nest	262	Float Recorder	1900 to date
Nepean River	Maldon Weir	334	Servo/Pressure Recorder	1970 to date
Nepean River	Avon Dam Road	123	Float Recorder and Telemark	1919 to date
Cordeaux River	Cordeaux Weir	40	Staff Gauge	1910 to 1950
Avon River	Avon Weir	55	Float Recorder	1924 to 1965 1970 to date
Cataract River	Jordans Crossing	63	Float Recorder	1924 to date
Cataract River	Broughtons Pass	79	Pressure Recorder	1888 to 1950 1967 to date
Nepean River	Devines	587	Manometer Servo Pressure Recorder	1968 to date
Nepean River	Wallacia	680	Servo/Pressure Recorder	1917 to date
Grose River	D/S Burralow Creek	250	Servo/Pressure Recorder	1945 to date
Colo River	Morans Rock	1,790	Servo/Pressure Recorder	1971 to date
Hawkesbury River	North Richmond	4,490	Staff Gauge	1971 to date
LAKE MACQUARIE AND TUGGERAH LAKES SYSTEMS Water Conservation and Irrigation Commission				
Sandy Creek	Avondale	20	Float Recorder	1969 to date
Wyee Creek	Wyee	8	Float Recorder	1958 to date
Mannering Creek	Wyee	6	Float Recorder	1959 to 1965
Wallarah Creek	Warnervale	2	Float Recorder	1965 to date
Jilliby Creek	Jilliby Dam Site	3	Pressure Recorder	1961 to 1966
Wyong River	Wyong	96	Staff Gauge	1959 to 1969
Wyong River	Wyong Weir	137	Float Recorder	1966 to date
Ourimbah Creek	Tuggerah	58	Float Recorder	1965 to date

6. CATCHMENT YIELDS

The water yield of natural catchments varies considerably, being dependent on factors such as rainfall, topography, geology and vegetation in addition to the size of the catchment area. The relationship between these factors and the long term water yield of a catchment is extremely complex and therefore the continuous measurement of streamflow over a period of many years is necessary for the accurate estimation of the magnitude of catchment yield.

Streamflow discharges are usually expressed in terms of cusecs; one cusec being equivalent to a volume of one cubic foot of water per second. Volumes of flow for given periods of time are usually expressed in acre feet; one acre foot of water being equal to the volume of water required to cover an area of one acre to a depth of one foot.

In the metric system to be adopted by the Water Conservation and Irrigation Commission, streamflow discharge will be expressed in megalitres per day; one megalitre per day being equivalent to about 0.41 cusecs. Volumes of flow for given time periods will be expressed in megalitres, with one megalitre being equivalent to about 0.81 acre feet.

The streamflow statistics in this report are expressed in the Imperial system of units as conversion to the metric system for streamflow measurement will not commence until January, 1974.

For purposes of comparing the yield of different catchments it is convenient to express the rate or volume of runoff in terms of catchment area or drainage area. These measurements are therefore expressed as cusecs per square mile, acre feet per square mile, or as inches of runoff. An inch of runoff is equivalent to the volume of water required to uniformly cover the catchment area to a depth of one inch. This unit is particulrly appropriate when comparing runoff and rainfall.

Relatively long and continuous records of streamflow are available for a number of gauging stations in the Hawkesbury Valley.

Over the period of 42 years, concluding in 1950, the average annual discharge of the Warragamba River at Nepean Junction was 727,000 acre feet which is equivalent to an average flow of 995 cusecs (372,000 gallons per minute). Records at this station have been intermittent since 1950 and have not enabled

a more current estimate of the average runoff to be obtained. This gauging station at Nepean Junction is representative of the south-west and western section of the catchment and gives an indication of the average annual runoff for the Wollondilly, Warragamba and Coxs Rivers and their tributaries.

At the gauging station located on the Nepean River at Wallacia, the average flow over a 45 year period has been 227,000 acre feet per annum, equivalent to an average rate of 310 cusecs or 116,000 gallons per minute. This station records flow from the south-east of the catchment, incorporating the Nepean River and its tributaries.

Records of streamflow for the Nepean River at Penrith indicate that the average annual runoff at this station over a 77 year period was 1,151,000 acre feet (1,576 cusecs) or 589,000 gallons per minute. This figure is representative of the average runoff from the complete southern and south-western areas of the valley which is equivalent to about 50 percent of the total Hawkesbury River catchment.

It should be realised that flows in the Nepean River have been progressively affected since 1907 by the construction of the urban water supply dams in the upper valley and the Warragamba Dam, completed in 1960.

Flows in tributaries downstream of Penrith have also been monitored over lengthy periods. On the Colo River at Upper Colo, the average annual runoff over a period of 53 years was 448,000 acre feet or 614 cusecs (230,000 gallons per minute) while over an eighteen year period, the flow of the Grose River at the gauging station downstream of Burralow Creek was 221,000 acre feet per annum or 303 cusecs (113,000 gallons per minute).

In the Tuggerah Lakes - Lake Macquarie Systems, the gauging station on Wyee Creek at Wyee has yielded, over a period of nine years, an annual average runoff of 3,780 acre feet (5 cusecs or 1,870 gallons per minute) and on Wyong River at Wyong, the average runoff has been 68,400 acre feet per annum (35,200 gallons per minute or 94 cusecs) over the 5 years of complete records.

For comparative purposes, the yields at the foregoing stations, together with the yields at other selected gauging stations in the catchment, over the respective periods of available records, are shown in Table 12. Details of monthly maximum, minimum and mean flows for the gauging stations listed in Table 12 are given in Appendices 6 to 19 inclusive.

TABLE 12

Stream	Station	Complete Years of Record	Average Annual Yield over Period of Complete Years of Record.		
			Acre feet per Annum	Cusecs	Gallons per minute
Wollondilly River	Goulburn	9	30,400	42	15,700
Coxs River	Lithgow	11	53,000	73	27,300
Warragamba River	Nepean Junction	42	727,000	995	372,000
Nepean River	Pheasants Nest	56	168,000	230	86,000
Cataract River	Jordans Crossing	38	63,000	86	32,200
Cataract River	Broughtons Pass	23	59,400	81	30,300
Nepean River	Wallacia	45	227,000	310	116,000
Nepean River	Penrith	77	1,151,000	1,576	589,000
Grose River	D/S Burralow Creek	18	221,000	303	113,000
Colo River	Upper Colo	53	448,000	614	230,000
Wyee Creek	Wyee	9	3,780	5	1,870
Wyong River	Wyong	5	68,400	94	35,200
Wyong River	Wyong Weir	4	65,900	90	33,700
Ourimbah Creek	Tuggerah	6	34,500	47	17,600

7. AVERAGE ANNUAL RUNOFF

Based on streamflow records for the Nepean River at Penrith, which are available since 1891, estimates of the long term average annual runoff have been prepared for various sub-catchments of the Hawkesbury River Valley. Allowance has also been made for the magnitude of diversions made from the valley to satisfy the town water supply needs of the Sydney and Wollongong areas.

The estimates for these sub-catchments indicate that the average annual surface water resources of the Hawkesbury River catchment, are of the order of 2,000,000 acre feet, which is equivalent to a continuous flow of about 2,750 cusecs or one million gallons per minute. On a square mile of catchment basis, the average of 220 acre feet per annum per square mile is slightly more than half the average for coastal basins of New South Wales and over twice the average for the entire State.

The estimates for the adjoining Tuggerah Lakes - Lake Macquarie Systems indicate the long term average annual runoff from the systems to be of the order of 260,000 acre feet, (equivalent to a continuous rate of 356 cusecs).

In the following Table 13, the estimated long term average annual runoffs of the Hawkesbury catchment and Tuggerah Lakes - Lake Macquarie systems, are listed and may be compared with the corresponding averages for the adjoining Shoalhaven and Lower Hunter River Valleys.

TABLE 13

Catchment	Area (sq.miles)	Estimated Long Term Average Annual Runoff		
		Acre Feet per annum	Acre Feet per annum per sq.ml.	Percentage Runoff
Hawkesbury	8,390	2,000,000	220	11%
Tuggerah Lakes - Lake Macquarie	630	260,000	415	19%
Shoalhaven	2,820	1,460,000	520	28%
Lower Hunter	1,150	530,000	460	22%

A previous estimate of the long term average annual runoff for the Hawkesbury catchment was given as 1,850,000 acre feet in the 1963 publication "Review of Australia's Water Resources." This figure was based on streamflow records to 1960. The current estimate of 2,000,000 acre feet has included more recent streamflow information and is therefore more reliable.

The percentage runoff of 11% for the Hawkesbury catchment is low when compared with the 28% of the adjacent Shoalhaven River Valley. However the lower yield per square mile of catchment area can be expected as hydrologic experience indicates that the yield per square mile normally decreases with an increase in catchment area.

8. VARIABILITY OF STREAMFLOWS

Whilst average annual discharges are commonly used for the comparison of long term yields from a catchment they do not indicate the variability of flows from year to year. The variability of flows from a catchment is of utmost importance in the planning of water resources projects, the greater the variability, the more difficult it is to economically conserve the available surface water resources of a valley.

Streamflows in the Hawkesbury Valley, in common with many other rivers in New South Wales, exhibit a high degree of variability. This is indicated in Table 14, where, for selected gauging stations in the valley, the maximum, minimum and mean discharges recorded at these stations over the periods of available records, are listed.

TABLE 14

Stream	Station	Period of Computed Records	Recorded Discharges		
			Maximum	Minimum	Mean
Coxs River	Lithgow	June 1960 to December 1971	12,400 cusecs (4,638,000 g.p.m.)	0.5 cusecs (180 g.p.m.)	73 cusecs (27,300 g.p.m.)
Warragamba River	Nepean Junction	January 1909 to December 1950	252,000 cusecs (94,248,000 g.p.m.)	1 cusec (374 g.p.m.)	995 cusecs (372,000 g.p.m.)
Nepean River	Penrith	June 1891 to December 1971	550,000 cusecs (205,700,000 g.p.m.)	0	1,576 cusecs (589,000 g.p.m.)
Grose River	D/S Burralow Creek	August 1945 to December 1971	54,800 cusecs (20,495,000 g.p.m.)	3 cusecs (1,122 g.p.m.)	303 cusecs (113,000 g.p.m.)
Colo River	Upper Colo	July 1909 to August 1933, January 1942 to December 1971	163,000 cusecs (60,962,000 g.p.m.)	1 cusec (374 g.p.m.)	614 cusecs (230,000 g.p.m.)
Wyee Creek	Wyee	July 1959 to December 1971	1,230 cusecs (460,000 g.p.m.)	0	5 cusecs (1,870 g.p.m.)

The gauging stations on the Nepean River at Penrith, the Colo River at Upper Colo and the Grose River Downstream Burralow Creek represent streamflow from a total of about three quarters of the Hawkesbury River catchment. Therefore, the variability of these streams gives an indication of the behaviour of flows from the total valley.

On the Nepean River at Penrith, the maximum annual discharge of about 5,990,000 acre feet occurred in 1950 and was more than five times the average annual discharge over the period of records. In comparison, the minimum annual discharge at this station of 25,820 acre feet (1968) was only one fiftieth of the mean annual flow, which gives a ratio of about 230 to 1 between the maximum and minimum values. However, flows during 1968 would have been affected by storage in the urban water supply dams upstream.

The maximum annual discharge of the Colo River at Upper Colo was recorded in 1950 and was over five times greater than the average annual figure of 448,000 acre feet. On the other hand, the minimum annual discharge was only about 7½ percent of the annual average value and only about 2 percent of the maximum recorded annual value.

The annual discharge of the Grose River Downstream Burralow Creek has varied from a maximum value in 1950 of about 608,000 acre feet to a minimum value of about 51,000 acre feet in 1966. These values are 280 percent and 23 percent respectively of the average annual flow of 221,000 acre feet.

The periods of record for gauging stations in both the Tuggerah Lakes and Lake Macquarie Systems are of short duration and have not recorded the extremes of flow registered at long term stations within the Hawkesbury catchment.

As expected the variations in monthly streamflows are much greater than in annual flows. The maximum monthly flows recorded at the gauging stations at Penrith, Upper Colo and Downstream Burralow Creek are all about thirteen times greater than the mean, whereas the minimum monthly flows at the same stations are all less than 2 percent of the mean. In the Nepean River at Penrith, flow has ceased on seven different occasions.

Obviously the greatest flow variability is exhibited by instantaneous flows. The highest recorded flood on the Nepean River at Penrith over the period of available streamflow records occurred in 1900 and reached a maximum of the order of 550,000 cusecs.

In contrast to high flows, zero flow was observed during the period December 1941 to March 1942 at the Penrith gauging station for a total of 100 consecutive days.

Hydrographs of monthly streamflows over the periods of available records for the gauging stations on the Nepean River at Penrith, the Colo River at Upper Colo, the Grose River Downstream Burralow Creek and the Nepean River at Pheasants Nest, are appended as Figures 18 to 21 respectively. Similar graphs for the Coxs River at Lithgow and Wollondilly River at Goulburn are at Figure 22 and for Wyee Creek at Wyee and Wyong River at Wyong and Wyong Weir at Figure 23. This latter figure can be considered to indicate the variability of monthly streamflows for the adjacent Tuggerah Lakes - Lake Macquarie Systems.

Average monthly streamflows for the gauging stations on the Coxs River at Lithgow and the Nepean River at Pheasants Nest are appended at Figure 24 and for the Wollondilly River at Goulburn and the Colo River at Upper Colo at Figure 25. For comparison purposes, the variations in average monthly rainfalls for Goulburn, Kindarun, Cataract Dam and Bilpin are shown at Figures 26 and 27; Goulburn representing the rainfall pattern of the catchment of the Wollondilly River at Goulburn, Bilpin for the Coxs River at Lithgow, Kindarun for the Colo River at Upper Colo and Cataract Dam for the Nepean River at Pheasants Nest.

At the long term gauging stations at Colo and Pheasants Nest, maximum monthly streamflows occur during the winter months with a secondary peak in the summer months. Although not exactly following the average monthly rainfall pattern, it is apparent that maximum monthly streamflows generally follow months where the average rainfalls are high.

The short term streamflow records at Lithgow and Goulburn do not permit reliable comparisons to be made with the respective rainfall statistics.

9. PERSISTENCE OF STREAMFLOWS

The majority of streams in the Hawkesbury River Valley exhibit a high degree of low flow persistence and maintain flows for long periods after the cessation of runoff producing rainfall. Consequently, it would appear that the groundwater capacity of the valley is substantial and capable of sustaining a flow in the streams during prolonged dry periods.

An indication of the persistence of flow in any stream can readily be obtained from a flow duration curve of its recorded discharge. These curves show the percentage of time that flows in a stream are either greater than or less than a particular value. In this report the curves have been prepared to indicate the percentage of time a flow is greater than or equal to a particular value.

The shape of a flow duration curve also indicates certain characteristics of the drainage basin upstream of the stream gauging station. The average slope of the curve provides an indication of the natural storage of the catchment; a flat slope indicating a relatively large natural storage in the catchment and a steeper slope indicating little natural storage with high flows receding rapidly. The lower section of the curve is representative of the effect of groundwater during periods of low flow; a flat curve in the low flow range indicating a good persistence of flow in extended dry periods.

The flow duration curve of the Nepean River at Penrith is given at Figure 28 and the frequencies with which flow exceeded certain rates at this station are given in the following table.

TABLE 15

Percentage of time flow equalled or exceeded	Corresponding Flows	
	Cusecs	Gallons Per Minute
10%	2300	869,000
30%	600	224,000
50%	280	105,000
70%	100	37,400
90%	10	3,740
95%	5	1,870
100%	0	0

The duration curve of discharge for the Colo River at Upper Colo is shown at Figure 29 and selected flow frequency data for this station are given in the following table.

TABLE 16

Percentage of time flow equalled or exceeded	Corresponding Flows	
	Cusecs	Gallons Per Minute
10%	1180	441,000
30%	280	105,000
50%	140	52,400
70%	75	28,100
90%	30	11,200
95%	20	7,500
100%	1	374

Duration curves have also been prepared for the Grose River Downstream Burralow Creek, Coxs River at Lithgow and Wyee Creek at Wyee and are indicated at Figures 30, 31 and 32 respectively. The corresponding flow frequencies for these stations are given in the following tables 17, 18 and 19 respectively.

TABLE 17

Grose River Downstream Burralow Creek

Percentage of time flow equalled or exceeded	Corresponding Flows	
	Cusecs	Gallons Per Minute
10%	390	146,000
30%	116	43,400
50%	65	24,300
70%	40	15,000
90%	20	7,500
95%	10	3,740
100%	1	374

TABLE 18

Coxs River at Lithgow

Percentage of time flow equalled or exceeded	Corresponding Flows	
	Cusecs	Gallons Per Minute
10%	152	56,800
30%	58	21,700
50%	34	12,700
70%	22	8,200
90%	10	3,740
95%	5	1,870
100%	0	0

TABLE 19

Wyee Creek at Wyee

Percentage of time flow equalled or exceeded	Corresponding Flows	
	Cusecs	Gallons Per Minute
10%	6	2,250
30%	2.2	820
50%	1.3	490
70%	0.8	300
90%	0.3	112
95%	0.2	75
100%	0	0

The duration curve for the gauging station on Wyee Creek at Wyee is representative of streams in both the Lake Macquarie and Tuggerah Lakes Systems. The shape of the curve is typical of a catchment having a large groundwater capacity and a good low flow persistence.

To enable a comparison of the persistence of flow of the various sub-basins of the valley, the flow duration curves for the foregoing gauging stations have been replotted in the form of duration curves of flow per square mile of catchment area and are shown at Figure 33.

These curves indicate that the Grose River Downstream Burralow Creek exhibits the best low flow persistence of streams in the Hawkesbury Valley. The Coxs River at Lithgow, Wyee Creek at Wyee, Colo River at Upper Colo and the Nepean River at Penrith follow in order of low flow persistence.

Since 1907, flows at Penrith have been progressively reduced by storage held in the upstream urban water supply dams.

10. OCCURRENCE OF FLOODING

The Hawkesbury River catchment, in common with other major coastal valleys, is subject to relatively frequent and severe flooding. Since the commencement of reliable records in 1891, about sixty floods have occurred and these have caused varying degrees of damage throughout the valley. The fertile river flats below Penrith usually suffer most damage, however disruption to communications and services in the residential areas near Richmond and Windsor can also be severe.

Upstream of Penrith major floodwaters are generally confined within or close to the banks of the Nepean River. However, communications, roads and low level farming operations are affected along the river and also in smaller tributary streams into which backwater extends.

The main areas subject to flooding in the Hawkesbury catchment are the flatter, cultivated lands downstream of Penrith, particularly in the Richmond and Windsor Districts. These areas are affected by a wide range of floods and for the purposes of this report, flood heights recorded at Windsor have been classified into minor (or nuisance) medium and major categories. Details of these classifications including the number of floods occurring in each classification since 1891, are given in Table 20.

TABLE 20

Type of Flood	Range in Maximum Flood Level at Windsor	Number of Floods since 1891	Characteristics of Flooding in the Windsor Region.
Minor or Nuisance	Less than 25' 0"	24	No overbank flow occurs but low lying areas may be inundated by backwater from the river via creeks and other waterways.
Medium	25' 0" to 32' 0"	25	Limited overbank flow occurs.
Major	Greater than 32' 0"	11	Extensive overbank flow occurs causing large areas to be inundated.

In the Richmond and Windsor Districts large areas of low lying alluvial flats under cultivation are extensively flooded as a result of overbank flow which commences with medium floods.

These areas act as a temporary storage for backwater of the flooded Hawkesbury River and remain inundated for extended periods. The prolonged high stages of the backwater in the Richmond flats area cause damage to low lying pastures, delay cultivation of farm lands and may cause substantial river bank failure. Further downstream, in the region between Windsor and Wilberforce, large areas also suffer inundation during floods. Flood damage in this region is mainly due to the loss of crops and vegetables cultivated on the river flats.

Flooding in tributary streams downstream of Wilberforce is most significant in the Colo and Macdonald Rivers but flood damage in these streams is limited and confined to the river flats adjacent to the stream channels.

There are no storages in the Hawkesbury Valley with a specific allowance for flood mitigation. However the magnitude and nature of flooding in the lower Hawkesbury catchment is related to the available storage capacities in Warragamba Dam and to a lesser extent in the headwater water supply storages on the Nepean River System. The Warragamba River often provides a large part of the runoff passing down the Hawkesbury River during floods. Consequently, if the storage in Warrabamba Dam is low at the time of the flood, a considerable volume of the floodwaters can be stored and a subsequent reduction in flooding downstream can be achieved.

The smaller capacities of the Nepean, Avon, Cordeaux and Cataract dams, situated on the headwaters of the Nepean River System do not normally result in any substantial reduction in flood flows passing down the Nepean River. However, some reduction of major flood peaks is experienced if the storages are at low levels at the commencement of a flood.

Whilst flood heights at Windsor as far back as 1800 have been gleaned from the historical records of early settlers, reliable records of flood heights and corresponding streamflows did not commence in the lower Hawkesbury catchment until a gauge was established in 1891 on the Nepean River at Penrith. The graph at Figure 34 indicates the frequency and magnitude of floods at Penrith which have exceeded 15 feet since 1891. A total of 45 such floods have been recorded during this period.

The highest officially recorded flood level at Penrith occurred in 1900 when a gauge height of 37 feet 6 inches (estimated discharge 550,000 cusecs) was reached. However, it is known that a higher flood occurred in 1867, reaching a height of about 43 feet 9 inches, which is estimated to be equivalent to a discharge of about 750,000 cusecs.

The longest period without any floods exceeding 15 feet occurred in the 6½ year period between mid 1904 and 1910. Conversely, notable groupings of floods over 15 feet have occurred from 1891 to 1895 when 7 floods were experienced in five years, and from 1949 to 1956 when 10 floods were recorded in 8 years.

Downstream of Penrith the intensity of flooding can be increased as a result of flood flows entering the Hawkesbury River from the Grose and Colo Rivers. The maximum recorded discharge for the Colo River at Upper Colo was recorded in December, 1909 and was of the order of 163,000 cusecs. At the gauging station on the Grose River Downstream Burralow Creek a maximum discharge estimated at 54,800 cusecs occurred during the flood of June 1949.

The recorded floods exceeding 25 feet at the gauging station on the Nepean River at Penrith, are listed in Table 21 together with the two highest floods recorded at both the Grose River Downstream Burralow Creek and the Colo River at Upper Colo gauging stations.

TABLE 21

Station	Date	Maximum Flood Height	Estimated Maximum Flow Cusecs
Nepean River at Penrith	July 1900	37' 6"	550,000
	June 1925	35' 0"	475,000
	November 1961	32' 0"	400,000
	February 1956	31' 11"	398,000
	June 1964	31' 6"	388,000
	July 1904	31' 0"	376,000
	July 1952	27' 6"	292,000
	October 1916	25' 6"	250,000
Grose River Downstream Burralow Creek	June 1949	31' 4"	54,800
	November 1961	29' 2"	47,700
Colo River at Upper Colo	December 1909	44' 5" *	163,000
	May 1913	43' 8" *	150,000

* Gauge readings apply to initial gauge location that existed up to 1932.

In the Lake Macquarie and Tuggerah Lakes Systems, major flooding is normally confined to the proximity of the stream channels and to low lying areas near the mouth of the streams. Disruption to roads and communications, and to low lying farming operations comprise the main damage along streams in the Lakes Systems.

11. DROUGHT PERIODS

In general terms, a drought period can be considered as a prolonged period of time without significant rainfall. A more specific definition would involve the consideration of the variety of uses and needs of water by industrial, agricultural and domestic users during a dry period. For example, the effect of dry periods can usually be felt by the rural industry far more rapidly and severely than by secondary industry in the same area.

For the purpose of this report however, an area is considered to be under drought conditions when either the development or operation of industrial, agricultural or domestic activities in the area is affected as a result of depleted water supplies. In respect of streamflows, drought conditions are usually indicated by a diminished or exhausted rate of streamflow. Prolonged periods of low rainfall are also indicators of the severity of drought conditions.

An indication of drought conditions in the Valley can be obtained from the annual rainfalls recorded at Bilpin, Cataract Dam, Goulburn and Kindarun which are shown at Figures 35 and 36. The minimum calendar year totals recorded at Bilpin, Cataract Dam and Goulburn were 25.58 inches, 18.92 inches and 10.94 inches respectively, and all occurred in 1944 whilst at the Kindarun recording station, the 1944 total of 14.63 inches was the second lowest on record, the minimum value of 12.08 inches occurring in 1957.

Prolonged sequences of below average rainfall at some locations in the Hawkesbury Valley have extended for periods of up to 10 years. Of the abovementioned rainfall stations, the longest consecutive period of below average rainfall occurred at Goulburn in the 10 year period from 1901 to 1910 whilst at Kindarun, in the north of the catchment, a 7 year period occurred from 1935 to 1941.

The minimum recorded rainfalls for any twelve monthly period may be considerably less than the minimum calendar year totals. The following Table 22 compares the twelve monthly and calendar year minimum values for the Bilpin, Cataract Dam, Goulburn and Kindarun rainfall stations with the corresponding average annual rainfalls.

TABLE 22

Station	Average Annual Rainfall (inches)	Minimum Twelve Monthly Total (inches)	Minimum Calendar Year Total (inches)
Bilpin	51.73	18.56 (Oct. 1901 to Sept. 1902)	25.58 (1944)
Cataract Dam	41.34	14.49 (Dec. 1939 to Nov. 1940)	18.92 (1944)
Goulburn	26.34	10.61 (Feb. 1895 to Jan. 1896)	10.94 (1944)
Kindarun	28.37	9.76 (May 1939 to Apr. 1940)	12.08 (1957)

Streamflows in the Hawkesbury Valley have ceased at most gauging stations during periods of low rainfall and only at a few stations has flow persisted during extreme dry periods.

In the southern section of the Valley, comprising the catchments of the Wollondilly and Nepean Rivers, all streams on which streamflows are measured have ceased to flow on some occasions during the period of records. For example, the gauging station on the Nepean River at Wallacia represents flow from the total Nepean River catchment above the Warragamba River junction, and during the 45 years of record to 1971 the river has ceased to flow on a total of 1570 days, including a continuous period of 91 days from November 1957 to January 1958.

The Wollondilly River at Goulburn rises in the southern-most section of the Valley and although records have been obtained only since June, 1962, there have been 43 months in which at least one day of zero flow has been observed.

In comparison the Coxs River and its tributaries, which rise in the western sector of the Valley in regions of higher rainfall, have not ceased to flow during the period of available streamflow records. The contribution which the streams of this area make to the low flow characteristics of the Nepean River is apparent when the streamflow records for the Nepean River at Penrith and Wallacia are compared. At Penrith, which is below the junction of the Coxs-Warragamba system, the river has ceased to flow for a total of only 100 days during 77 years of records. Compared to this the Nepean River at Wallacia, located about 15 miles upstream and above the Coxs-Warragamba junction, has experienced a total of 1570 days of zero flow over the period of records of 45 years.

Streams originating in the higher rainfall areas in the north-west of the catchment have not ceased to flow during the period of available records. At the gauging station on the Grose River Downstream Burralow Creek, 15 days of flow less than 7 cusecs were recorded during January and February 1947 whilst at Colo River at Upper Colo, the lowest period of flow occurred in January and February 1942 when a flow of about 1 cusec was recorded for 50 consecutive days.

Table 23 indicates the minimum instantaneous and thirty day flows over the period of records for selected gauging stations, together with the periods of occurrence. At some stations the minimum thirty day flows have been recorded on more than one occasion. In these instances, only the first occasion of minimum flow has been listed.

TABLE 23

Stream	Station	Minimum Instantaneous Flows and Thirty Day Flows over Period of Records		
		Instantaneous Flows		Thirty Days (Acre Feet)
		Cusecs	Maximum Period (Days)	
Wollondilly River	Goulburn	0	122 Jan. to May 1968	0 Feb. to Mar.1963
Coxs River	Lithgow	4	5 Feb. to Mar.1965	306 Feb. to Mar.1965
Nepean River	Penrith	0	100 Dec.1941 to Mar. 1942	0 Dec.1941 to Jan. 1942
Grose River	D/S Burralow Creek	7	15 Jan. to Feb.1947	414 Jan. to Feb.1947
Colo River	Upper Colo	1	50 Jan. to Feb.1942	43 January 1942
Wyee Creek	Wyee	0	247 Nov.1964 to July 1965	0 February 1965

The following Table 24 indicates the minimum sixty day and twelve months flows that have occurred at these stations since records commenced. Again, only the first occurrence of the minimum flow has been listed for locations where more than one period has been observed.

TABLE 24

Stream	Station	Minimum Sixty Day and Twelve Monthly Flow over Period of Records	
		Sixty Day (Acre Feet)	Twelve Months (Acre Feet)
Wollondilly River	Goulburn	0 Dec.1963 to Feb.1964	6,013 Nov.1965 to Oct.1966
Coxs River	Lithgow	720 Feb. to Apr. 1965	14,600 Dec.1964 to Nov.1965
Nepean River	Penrith	0 Dec.1941 to Feb.1942	5,088 Dec.1939 to Nov.1940
Grose River	D/S Burralow Creek	1,070 Dec.1946 to Feb.1947	33,235 Nov.1965 to Oct.1966
Colo River	Upper Colo	519 Jan. to Mar.1942	30,592 Sept.1931 to Aug.1932
Wyee Creek	Wyee	0 Mar. to Apr. 1965	18 July 1964 to June 1965

12. THE 1964-1968 DROUGHT

During the years from 1964 to 1968 the Hawkesbury Valley in common with much of New South Wales, experienced several extended periods of extremely low rainfall. The recorded monthly rainfalls at Goulburn, Cataract Dam, Bilpin, Kindarun and Windsor for the period November 1964 to January 1969 are shown in Table 25.

TABLE 25

Month	Year	Rainfall in Points				
		Goulburn	Cataract Dam	Bilpin	Kindarun	Windsor
November	1964	110	277	472	234	270
December	1964	182	157	59	184	191
January	1965	17	74	298	161	48
February	1965	5	45	107	75	35
March	1965	23	28	16	11	7
April	1965	312	325	405	195	224
May	1965	40	114	85	116	47
June	1965	81	352	172	79	141
July	1965	115	463	494	198	475
August	1965	79	79	41	47	9
September	1965	164	145	286	123	209
October	1965	457	708	874	617	588
November	1965	123	63	249	54	47
December	1965	192	232	503	330	127
January	1966	58	N.R.	245	119	197
February	1966	162	434	573	161	257
March	1966	251	239	221	311	172
April	1966	58	146	295	85	239
May	1966	70	21	54	53	70
June	1966	190	587	333	70	136
July	1966	98	105	10	28	11
August	1966	140	200	216	157	179
September	1966	173	162	153	81	90
October	1966	349	186	454	281	161
November	1966	342	717	739	327	584
December	1966	452	369	599	231	263
January	1967	243	668	885	355	451
February	1967	91	N.R.	591	348	354
March	1967	44	526	553	486	348
April	1967	35	210	222	165	52
May	1967	93	85	154	206	70
June	1967	248	800	1321	475	425
July	1967	53	106	126	68	31
August	1967	298	1029	957	450	680
September	1967	456	392	287	332	154
October	1967	150	297	562	308	287
November	1967	105	209	90	35	66
December	1967	0	29	139	129	31
January	1968	284	410	1197	1084	536
February	1968	11	43	166	80	72
March	1968	210	205	422	250	295
April	1968	130	65	53	27	56
May	1968	508	502	398	523	421
June	1968	63	19	65	32	39
July	1968	118	161	74	102	72
August	1968	195	56	128	246	38
September	1968	30	2	100	89	60
October	1968	177	32	110	13	0
November	1968	93	147	162	66	145
December	1968	493	404	545	395	435
January	1969	379	140	198	46	107
Annual	1965	1608	2628	3530	2006	1957
Rainfall	1966	2343	-	3892	1904	2359
Totals	1967	1816	-	5887	3357	2949
	1968	2312	2046	3420	2907	2169
Minimum Twelve Monthly Rainfall During Period 1964-68		1585 (Nov.1964 to Oct.1965)	1671 (Dec.1967 to Nov.1968)	2421 (Feb.1968 to Jan.1969)	1730 (Nov.1965 to Oct.1966)	1686 (Nov.1965 to Oct.1966 and Nov.1967 to Oct.1968)
Minimum Twelve Monthly Rainfall over Period of Records		1061 (Feb.1895 to Jan.1896)	1449 (Dec.1939 to Nov.1940)	1856 (Oct.1901 to Sept.1902)	976 (May 1939 to Apr.1940)	871 (Sept.1901 to Aug.1902)

The most critical periods of low rainfall experienced during the drought occurred during the periods November 1964 to September 1966 and from November 1967 to November 1968.

From November 1964, the valley generally experienced about eleven months of below average rainfall before rainfalls in October 1965 resulted in minor relief from drought conditions. This was followed by a further period of below average rainfalls extending from November 1965 to September 1966.

As a result of the low rainfalls which culminated in depressed rural conditions, the whole of the Hawkesbury Valley was declared a drought area from January 1965 to October 1965. With the return of dry conditions after October 1965, some areas of the valley were again proclaimed drought affected during the period February 1966 to October 1966.

Good rainfalls occurred in October, November and December 1966 and significantly alleviated drought conditions. Follow up rainfalls through to October 1967 were about average.

From November 1967, the rainfalls in the valley again diminished and in the thirteen month period from November 1967 to November 1968, about ten months of below average rainfalls were generally recorded.

Conditions deteriorated rapidly during this dry period and in April 1968, the whole of the Hawkesbury Valley was again proclaimed a drought area. The rural situation did not improve until March 1969 following good rainfalls in December 1968 and February 1969.

At Goulburn, the lowest twelve monthly total during the period November 1964 to January 1969 occurred from November 1964 to October, 1965 and totalled 15.85 inches. This was about 50 percent greater than the minimum recorded twelve monthly value of 10.61 inches.

At Table 26 the minimum twelve monthly totals at the Goulburn, Kindarun, Bilpin, Cataract Dam and Windsor rainfall stations during the drought periods from November 1964 to December 1968 are compared with the minimum twelve monthly totals on record and the average annual rainfall over the period of records.

TABLE 26

Rainfall Station	Minimum Twelve Monthly Rainfall During Period 1964–68	Minimum Twelve Monthly Rainfall During period of Records	Average Annual Rainfall
Goulburn	15.85	10.61	26.34
Kindarun	17.30	9.76	28.37
Bilpin	24.21	18.56	51.73
Cataract Dam	16.71	14.49	41.34
Windsor	16.86	8.71	30.04

As a result of the low rainfalls during the drought period, streamflows in the valley diminished rapidly during the latter part of 1964 and by January 1965, streams in the southern and eastern sections of the valley ceased to flow. Other streams recorded very low flows during this time.

Above average rainfalls late in October 1965 improved flow in most streams in the valley, however flows again diminished throughout 1966 until revived by runoff producing rainfalls in October, November and December 1966. A maximum flow of about 27,000 cusecs was recorded at Penrith during November 1966.

Streamflows throughout most of 1967 were maintained at reasonable levels although in the south of the valley conditions deteriorated and the Wollondilly River at Goulburn ceased to flow during March, April and May, 1967.

Following low rainfalls in November and December 1967, flows throughout the valley generally decreased, but some improvement in flows occurred as a result of high rainfalls in January 1968. The Colo River at Upper Colo recorded a maximum flow of 6,500 cusecs during January 1968. Streams in the south of the valley did not benefit from the January 1968 rainfalls and at Goulburn, the Wollondilly River again ceased to flow during February, March and April 1968.

Good rainfalls in May 1968 were not sufficient to break the drought and streamflow conditions throughout the valley generally continued to deteriorate. By early December 1968 flow in the Nepean River at Penrith was reduced to a very low rate.

Good rainfalls late in December 1968 improved conditions, and further heavy rainfalls in February 1969 resulted in rises in all streams; a maximum flow of 5,500 cusecs was recorded at Upper Colo on the Colo River.

The Coxs River at Lithgow, the Colo River at Upper Colo and the Grose River Downstream Burralow Creek flowed continuously during the drought. However, periods of low flow were recorded at all stations. At the Coxs River at Lithgow a flow below 6 cusecs was recorded for 15 consecutive days; at the Grose River Downstream Burralow Creek, 7 cusecs were recorded for 15 consecutive days; and at the Colo River at Upper Colo, 19 cusecs were recorded for 3 consecutive days.

Extended periods of no flow occurred in the contributing streams of the Tuggerah Lake - Lake Macquarie Systems. At the gauging station on Wyee Creek at Wyee a total of 247 days of zero flow was recorded.

The minimum instantaneous, 30 day, 60 day and 12 monthly flows experienced during the 1964 to 1968 drought period are listed in the following Tables 27 and 28.

TABLE 27

Stream	Station	Minimum Instantaneous Flows and Thirty Day Flows during 1964-68 Drought		
		Instantaneous Flow		Thirty Day Flow (Acre Feet)
		Cusecs	Maximum Period (Days)	
Wollondilly River	Goulburn	0	122 (Jan. to May 1968)	0
Coxs River	Lithgow	4	5 (Feb. to Mar. 1965)	306
Nepean River	Penrith	0.2	1 (Dec. 1968)	240
Grose River	D/S Burralow Creek	15	7 (Dec. 1967)	960
Colo River	Upper Colo	19	3 (Dec. 1968)	2,062
Wyee Creek	Wyee	0	247 Nov.1964 to July 1965	0

TABLE 28

Stream	Station	Minimum Sixty Day and Twelve Monthly Flow During 1964-68 Drought	
		Sixty Day Flow (Acre Feet)	Twelve Monthly Flow (Acre Feet)
Wollondilly River	Goulburn	0	6013
Coxs River	Lithgow	720	14,600
Nepean River	Penrith	1284	16,764
Grose River	D/S Burralow Creek	2166	33,235
Colo River	Upper Colo	4751	68,812
Wyee Creek	Wyee	0	18

13. WATER REQUIREMENTS FOR CURRENT DEVELOPMENT

The varying topographic and climatic features that exist in the Hawkesbury Valley allow a wide variety of agricultural activities to be undertaken.

On much of the flatter areas, the growing of maize, oats and lucerne is undertaken while in the south-west of the Valley, where undulating terrain prevails, the cultivation of fodder crops for the support of beef cattle is common.

The flat fertile areas along the Nepean and Hawkesbury Rivers in the Penrith-Windsor districts are used extensively for grazing dairy cattle on natural and improved pastures. Vegetable growing and the cultivation of citrus orchards have shown increased activity in recent times, while pig raising and poultry farming are also carried out along the lower sections of the Hawkesbury River system below Penrith.

The mountainous sandstone country in the west and north of the Valley is not conducive to agricultural development, and timber getting in the more accessible areas is the only significant activity.

The area authorised for irrigation by license under the Water Act has increased from about 4,200 acres in June 1944 to about 45,000 acres at June 1972 and the total number of licenses has increased from about 280 in 1944 to 1,829 in 1972. The foregoing licenses and areas are applicable to the total area of the Hawkesbury Valley including the Lake Macquarie and Tuggerah Lake Systems. Of the licenses current in 1972, 286 authorised the irrigation of an area of about 4,120 acres that adjoins streams draining into the Lake Macquarie and Tuggerah Lake Systems.

The total area authorised and the corresponding number of licenses have increased at relatively constant rates since 1944, with the exception of declines in 1947 and 1965. The average irrigable area applicable to each license remained constant at about 15 acres from 1944 to 1952. Since June 1952 a gradual increase has occurred, reaching 25 acres in June 1972.

In addition to licenses for diversions for irrigation purposes, licenses are also issued for town, industrial and stock and domestic water supply purposes. At the end of June, 1972 a total of 180 such licenses in the Valley authorised the diversion of up to about 89,000 gallons per minute. Of these licenses, 32 are located on streams draining into the Lake Macquarie and Tuggerah Lake Systems and the licensed works have a capacity of about 8,240 gallons per minute.

A number of these licenses are associated with small storages used for providing water supplies to some of the larger towns in the Valley. The Blue Mountains City Council holds two licenses for dams and pumps on Greaves Creek and Woodford Creek in the Blue Mountains area, providing a total storage of about 180,000,000 gallons (660 acre feet). The combined capacity of the pumps in the systems is about 6,100 gallons per minute.

The towns of Bowral and Mittagong obtain water supplies from a dam on Medway Rivulet, having a capacity of 250,000,000 gallons (920 acre feet). Pumps incorporated in the system have a capacity of 8,300 gallons per minute.

The Gosford Shire Council holds two licenses for a total of two dams and five pumps on Mooney Mooney Creek to provide town water supplies to the Gosford Shire. The total capacity of the storages in this scheme is about 1,514 million gallons (5560 acre feet) served by pumps having a total capacity of about 12,100 gallons per minute.

There are no major water conservation storages in the Hawkesbury Valley. However, the Metropolitan Water, Sewerage and Drainage Board has for many years utilised the water resources of the Hawkesbury Valley as a source of town and industrial water supplies for the cities of Sydney and Wollongong. At present, the Board operates four dams on the headwater streams in the Nepean River catchment and a major storage, Warragamba Dam, on the lower reaches of the Warragamba River.

Details of these storages and the corresponding years of commencement of operation are given in Table 29.

TABLE 29

Dam	River	Capacity		Commencement of:-	
		Million Gallons	Acre Feet	Construction	Diversion of Water
Avon	Avon	47,153	174,000	1921	1928
Cordeaux	Cordeaux	20,597	75,700	1918	1927
Cataract	Cataract	20,743	65,700	1902	1907
Nepean	Nepean	17,898	66,600	1926	Not Available
Warragamba	Warragamba	452,500	1,665,000	1941	1956

Prior to the construction of these storages, two weirs at Pheasants Nest and Broughtons Pass, on the upper reaches of the Nepean and Cataract Rivers respectively, were constructed in 1880 and were used to divert water to the Sydney water supply system, diversion commencing in 1886.

Warragamba Dam, having a storage of 1,665,000 acre feet is the largest water supply storage in the valley and is located on the Warragamba River, a short distance upstream from the Nepean River junction. The dam is a concrete gravity structure with a maximum height of 450 feet and crest length of 1,150 feet. A gated spillway located centrally in the dam wall has a capacity of 450,000 cusecs.

Usage from the Board's storages has increased from year to year and annual consumption had reached about 397,000 acre feet (107,840 million gallons) by June 1972.

The distribution of areas authorised for irrigation on the various streams in the Valley at the 30th June, 1972 is given in Table 30.

TABLE 30

STREAM	AREA AUTHORISED FOR IRRIGATION AT 30TH JUNE 1972 (ACRES)
1. HAWKESBURY CATCHMENT	
a. Upstream of Penrith	
Wollondilly River and tributaries	5,953
Cox's River and tributaries	937
Warragamba River	580
Nepean River and tributaries - upstream of Warragamba River	9,674
- Warragamba River to Penrith	696
b. Downstream of Penrith	
Nepean and Hawkesbury Rivers	8,718
Grose River and tributaries	683
South Creek and tributaries	4,214
Colo River and tributaries	1,137
Macdonald River and tributaries	54
Minor Nepean River tributaries	8,405
Total - Hawkesbury Catchment	41,051
2. LAKE MACQUARIE AND TUGGERAH LAKES SYSTEMS	
Dora Creek and tributaries	157
Erina Creek and tributaries	537
Ourimbah Creek and tributaries	1,288
Wyong River and tributaries	1,813
Minor Tributaries	325
Total - L. Macquarie Tuggerah Lakes	4,120
TOTAL - HAWKESBURY VALLEY INCL. LAKE MACQUARIE AND TUGGERAH LAKES	45,171

The following Table 31 indicates the maximum pump diversion capacities in the Valley for town, industrial and licensed stock and domestic water supply purposes.

TABLE 31

Section of Valley	Maximum Diversion Capacities for Town, Industrial and Licensed Stock and Domestic Water Supplies (Cusecs)
1. HAWKESBURY CATCHMENT	
Nepean and Hawkesbury Rivers	
- above Penrith	31
- below Penrith	62
Wollondilly River and tributaries	33
Coxs River and tributaries	11
Grose River and tributaries	23
South Creek and tributaries	2
Colo River and tributaries	3
Macdonald River and tributaries	-
Other Nepean (Hawkesbury) River tributaries	52
TOTAL	217
2. LAKE MACQUARIE - TUGGERAH LAKES SYSTEMS	
Dora Creek and tributaries	2
Ourimbah Creek and tributaries	1
Wyong River and tributaries	14
Other tributaries	6
TOTAL	23

The above requirements are based on the continuous operation of licensed pumps at full capacity. Experience has shown that licensed pumps for these purposes do not usually operate continuously on a daily basis and it has been found that continuous operation at about one quarter pump capacity would approximate the maximum annual diversion.

In addition to irrigation, town, industrial and licensed stock and domestic water supplies, there is also a substantial demand for stock and domestic supplies for landholders whose properties border streams in the Valley, and who are entitled to divert water, subject to conditions, without requiring a license under the Water Act. Stream frontages of properties in the Hawkesbury catchment in this category total about 3,000 miles while similar properties border 400 miles in the Lake Macquarie - Tuggerah Lakes Systems.

14. POSSIBLE IRRIGATION DEVELOPMENT

The ultimate extent of irrigation development in the Hawkesbury Valley will be influenced by a number of factors including the quality and quantity of available surface water supplies as influenced by the requirements of the Metropolitan Water Sewerage and Drainage Board, the extent of upstream penetration of tidal salt water and the demand for land for urban and industrial development for the expanding metropolitan area.

The tidal influence extends along the Hawkesbury River upstream to about the North Richmond bridge. At most times, the water is sufficiently fresh for irrigation downstream to about Wilberforce. Irrigation water is pumped from the river almost as far downstream as Wisemans Ferry.

Many of the Nepean River tributaries pass through country too rugged for irrigation farming of any kind. In addition, the Wollondilly River and its tributaries flow through areas where climatic conditions restrict the range of irrigated crops which can be grown.

The areas within the Valley which are considered topographically suitable for irrigation have been determined from aerial photographs. These areas are summarised in Table 32.

TABLE 32

Section of Valley	Assessed Area Suitable for Irrigation (acres)
Wollondilly River and triburaries above Warragamba Dam	17,000
Coxs River and tributaries above Warragamba Dam	2,000
Warragamba River and tributaries below Warragamba Dam to the Nepean River junction	500
Nepean River and tributaries above Warragamba River junction	13,000
Nepean River and minor tributaries below Warragamba River junction to Penrith	1,500
Grose River and tributaries	1,500
Colo River and tributaries	6,000
Hawkesbury River and minor tributaries between Penrith and Windsor	11,000
Hawkesbury River and minor tributaries below Windsor	24,000
Macdonald River and tributaries	2,500
Streams and tributaries draining to Lake Macquarie and to Tuggerah Lakes	11,000
TOTAL AREA	90,000

All irrigation in the Valley is carried out privately, covering a wide range of farming activities including grazing, dairying, horticulture and market gardening, using water from streams, weir pools and small off-stream farm storages. It is expected that the present pattern of irrigation farming will not change greatly in the future.

The potentially suitable land for irrigation is not, however, confined to areas served only by streamflow. In most areas of the Hawkesbury Valley, except the extreme upper and lower elevations, the topography is suitable for the construction of farm dams. In addition, due to the temporal rainfall pattern, farm dams could provide an economic source of irrigation water supply in these areas.

A significant development of farm dams has occurred in the Valley for irrigation purposes and it is expected that further storages will be constructed to provide a substantial quantity of water for future development.

15. INVESTIGATION OF STORAGE PROPOSALS

To the present time, five major storages have been constructed in the Hawkesbury Valley. These storages were constructed and are operated by the Metropolitan Water Sewerage and Drainage Board for urban water supply purposes. An additional storage of 8,550 acre feet capacity will be created on the Wollondilly River when the Pejar Dam, now being designed by the Public Works Department, is constructed to augment the water supply to Goulburn. No large storages have been constructed by the Commission in this Valley.

The Commission has in recent years undertaken extensive investigations on behalf of the Inter-Departmental Committee of Inquiry into Nepean-Hawkesbury Flood Problems.

This Committee, comprising representatives of the Commission, the Department of Public Works, and the Metropolitan Water Sewerage and Drainage Board, was constituted in 1966 to inquire into, report on and recommend to the Government of N.S.W., through the Minister for Conservation, on a number of matters including:-

(1) the operation of the spillway gates at Warragamba Dam;

(2) short term works or measures which would be practicable in providing early effective relief against damage and loss caused by flooding in the Nepean-Hawkesbury Valley;

(3) long term works or measures which could be recommended for the mitigation or control of floods, particularly with regard to possible additional water storages to reduce flood intensities.

To date, this Committee has carried out investigations into short-term flood mitigation measures for the Nepean-Hawkesbury Valley and into the operation of the spillway gates at Warragamba Dam.

Investigations into long-term flood-mitigation measures, including studies concerning existing and possible additional storages, are at present only in an early stage and no proposals have yet been developed.

In 1966, the Metropolitan Water Sewerage and Drainage Board completed an investigation into means of augmenting the water supply to Sydney and the South Coast. This investigation which led to the Board's proposed Shoalhaven Valley Diversion Scheme, included studies of alternative schemes involving major storages on the lower Colo River (Colo Dam), the lower Nepean River (Devines Weir) and the Wollondilly River (Wollondilly or Paddys River Dam). The adopted Shoalhaven Scheme which is now under construction involves pumping of water to the Wingecarribee Dam in the upper Wollondilly River catchment from which it can be directed either to Warragamba Dam or the reservoirs serving the South Coast.

Investigations by the Commission into weirs on the Nepean River resulted in construction of the new Theresa Park Weir, and remedial works for the existing Penrith Weir. The Theresa Park Weir is a 15 feet high structure completed by the Commission in 1972. The remedial works at Penrith Weir included substantial gabion protection of the left abutment, extensions to the right abutment, provision of new buttresses to strengthen the wall, replacement of parts of the concrete apron and construction of a fishway. This work was essentially to repair flood damage which occurred in 1963 and 1967.

As well as the major storages previously mentioned, compensatory weirs have been constructed on the Nepean River at nine points between Menangle and Wallacia. These weirs serve to safeguard the riparian rights of landowners affected by the interception of the flow by the Board's water supply dams on the upper Nepean River System. The Commission has made preliminary investigations into a proposal to increase the storage impounded by the Menangle Weir, one of the compensatory weirs, by raising its crest by as much as four feet.

In addition there are other weir storages associated mainly with town water supply schemes and many small offstream storages in the form of farm dams.

The Commission has also undertaken very preliminary investigations into a proposal for a head-water storage and a series of weirs on Jilliby Creek, principally for farm water supplies in the Wyong District. This stream does not flow into the Nepean-Hawkesbury River system but drains into the Tuggerah Lake, at the north-eastern extremity of the Valley.

The locations of major storage sites which have been investigated are shown in Figure 38.

16. ACKNOWLEDGMENTS

The Water Conservation and Irrigation Commission wishes to acknowledge the assistance given in the preparation of this report by the Director, Commonwealth Bureau of Meteorology, in providing the section on Climatic Features, the Rainfall Statistical Data and the Median Rainfall Maps; by the Metropolitan Water Sewerage and Drainage Board in providing particulars of its water supply schemes; by the Forestry Commission in providing details of timber resources; and by the New South Wales Department of Public Works in providing details of the various town water supply schemes and the flood mitigation proposals.

ANNUAL RAINFALL
(Points)

Year	Bilpin	Camden	Cataract Dam	Crookwell	Dapto	Gosford	Goulburn	Year
1858							2510	1858
1859							2406	1859
1860							4052	1860
1861							2352	1861
1862							1635	1862
1863							3054	1863
1864							N.R.	1864
1865							N.R.	1865
1866							N.R.	1866
1867							N.R.	1867
1868							N.R.	1868
1869							N.R.	1869
1870							N.R.	1870
1871							3245	1871
1872							2999	1872
1873							3137	1873
1874							2685	1874
1875							2557	1875
1876							2334	1876
1877						*	2557	1877
1878						*	2823	1878
1879						*	3399	1879
1880						4050	2770	1880
1881						5257	2048	1881
1882						2514	1849	1882
1883				*		4052	1663	1883
1884		*		2521		*	1605	1884
1885		2406		2778		*	2279	1885
1886		2237		3321		4242	2220	1886
1887		1999		4681		7074	3378	1887
1888		3726		2144		1939	1927	1888
1889		1762		3415		5569	N.R.	1889
1890		2506		4089		7413	3184	1890
1891		3936		4236		6721	4090	1891
1892	*	3914		3323		8522	2568	1892
1893	6501	4497		4020		6612	3096	1893
1894	6534	2906		4400		5437	3676	1894
1895	4844	3165		2408		4311	1397	1895
1896	4500	2428		2784		3868	2305	1896
1897	4387	2105		2084		5253	1802	1897
1898	5212	2630		2235		4512	2185	1898
1899	5372	2521		2674		5510	2548	1899
1900	5157	3063		4222		5658	3551	1900
1901	3780	4703		2814		3261	2244	1901
1902	3142	2336		2241		3541	1521	1902
1903	6380	1582		3757		5713	2469	1903
1904	6069	2603	5700	2669		4929	2360	1904
1905	3939	2298	2891	3276		3705	1864	1905
1906	3985	1845	2450	3611	*	2965	2211	1906
1907	3726	1352	2596	2670	*	4430	1889	1907
1908	4876	2102	3467	3044	3002	5103	1814	1908
1909	3994	1900	2502	3548	2100	4927	2000	1909
1910	4711	2963	3543	3533	3276	5020	2322	1910
1911	4673	4239	4210	3773	4254	5166	2844	1911
1912	4944	2788	4289	2539	3246	4804	1819	1912
1913	6640	3398	4386	2920	4897	6188	2224	1913
1914	6318	4422	5317	3087	6458	6421	2623	1914
1915	2881	1978	2201	3126	3063	3730	2241	1915

* Incomplete Records.

ANNUAL RAINFALL
(Points)

Year	Bilpin	Camden	Cataract Dam	Crookwell	Dapto	Gosford	Goulburn	Year
1916	4912	3711	4051	4352	4777	4194	3394	1916
1917	4426	3228	3420	4250	3785	5814	2526	1917
1918	3432	2390	3137	2692	3943	4301	1923	1918
1919	4098	2821	4214	2026	N.R.	4718	1840	1919
1920	4952	3064	3441	3613	N.R.	4358	2549	1920
1921	7301	3805	4048	3364	N.R.	6930	2962	1921
1922	4354	2869	4031	3585	N.R.	4702	2604	1922
1923	3752	2763	2931	3979	N.R.	3655	2285	1923
1924	4680	2520	3035	3285	2925	5419	2562	1924
1925	5145	3363	4536	3636	5617	5038	3075	1925
1926	4743	2158	2837	4380	2944	4710	2132	1926
1927	4612	3047	3328	2676	3379	5927	1896	1927
1928	4865	2869	3551	3737	3155	4526	2645	1928
1929	6162	3816	4392	3110	4885	6057	2123	1929
1930	5409	2925	3129	3236	4150	5391	2200	1930
1931	5322	4258	3949	4910	4942	7936	2739	1931
1932	3536	3098	3071	3452	3614	3697	2065	1932
1933	6477	4465	4391	3100	4030	4890	1887	1933
1934	7181	4308	4854	4082	6766	6439	3388	1934
1935	3779	2869	2641	3704	2964	3180	2435	1935
1936	4569	2354	2389	3756	3095	3849	2971	1936
1937	5180	2884	3517	2659	3924	4832	2399	1937
1938	4741	2490	3607	3202	3885	3687	2456	1938
1939	4168	2004	2300	3437	2611	3679	2239	1939
1940	3537	1691	2209	2058	2307	3755	1754	1940
1941	3253	1751	2213	3416	1989	3155	2430	1941
1942	6483	2326	5374	4012	2519	5228	2621	1942
1943	6701	3374	5251	4162	5531	4817	3488	1943
1944	2558	1269	1892	1668	1970	2786	1094	1944
1945	5613	2638	4659	3218	3828	4628	2434	1945
1946	3830	2068	3230	2920	2907	5181	2210	1946
1947	6347	2811	4092	3730	3664	5034	3356	1947
1948	5538	2772	3491	3348	3967	4273	2859	1948
1949	8420	4230	6428	3540	5057	8069	3841	1949
1950	10008	6738	9026	5295	9129	9264	5731	1950
1951	5718	3503	7127	3767	5765	5379	3188	1951
1952	5853	3892	6821	5896	7339	6819	4897	1952
1953	4114	2245	3512	2896	3567	4896	2071	1953
1954	5734	2996	4366	2250	3250	4900	2136	1954
1955	6242	3653	4550	4222	4761	4905	3602	1955
1956	7964	4504	7043	4992	7300	6963	3830	1956
1957	3473	1850	3169	2035	2740	2979	1957	1957
1958	4432	3211	4565	3904	4221	5417	3107	1958
1959	6187	3561	4963	3651	7692	5702	4106	1959
1960	4560	2971	4742	4740	4318	5481	3548	1960
1961	6961	3803	6365	4087	8304	5351	4146	1961
1962	5890	3642	5111	3679	5513	5162	3054	1962
1963	8325	5709	8431	3561	7620	7999	3644	1963
1964	4435	3526	5085	3776	4527	4950	2636	1964
1965	3530	1746	2628	2369	2515	3615	1608	1965
1966	3892	2953	*	3896	3463	4569	2343	1966
1967	5887	3123	*	2045	4368	6758	2316	1967
1968	3420	1551	2046	3971	2269	3236	2312	1968
1969	5660	4409	5987	4195	5575	5477	3182	1969
1970	4792	3217	3519	4163	1181	3974	3169	1970
1971	4687	2267	3775	2694	3939	4833	2324	1971

* Incomplete Records

Appendix 2
Sheet 1

ANNUAL RAINFALL
(Points)

Year	Jenolan Caves	Katoomba	Kindarun	Lithgow	Moss Vale	Penrith	Picton	Year
1870					*			1870
1871					*			1871
1872					4551			1872
1873					5913			1873
1874					4688			1874
1875					4480			1875
1876					3847			1876
1877					4866			1877
1878					*			1878
1879					4736			1879
1880					3276		2777	1880
1881					4071		2369	1881
1882					2987		2530	1882
1883					4329		2733	1883
1884					3126		2217	1884
1885		*			3074		2179	1885
1886		4222			2933		2538	1886
1887		7696			4337		4427	1887
1888		2909			1467		1557	1888
1889		6086		*	3993		2498	1889
1890		9671		4864	5966		4406	1890
1891		7764		3889	5163		4462	1891
1892		9184		5040	3920		4120	1892
1893		7281		4686	4923		3711	1893
1894		6945		3696	3671		3722	1894
1895	*	5484		2696	2870		2393	1895
1896	2962	4035		2716	3441	*	2721	1896
1897	2911	4921		3031	3645	2652	2693	1897
1898	3178	6039		3669	3843	3129	3004	1898
1899	3195	6106		3202	4249	3181	3736	1899
1900	4815	5986		3791	5390	4288	4702	1900
1901	3097	3743		2948	2953	2156	2448	1901
1902	1769	3356		1922	3904	1722	1865	1902
1903	3502	5412		3299	3497	2644	2909	1903
1904	3916	5510		3531	4355	3592	3869	1904
1905	3421	4214		2486	2672	2251	2269	1905
1906	3091	4640		2703	3116	1930	1947	1906
1907	2672	3666		2793	2430	1750	1933	1907
1908	2821	5020		2822	2910	2478	2255	1908
1909	2922	4193		3404	2376	2100	2271	1909
1910	3447	5089		2686	3225	3256	2990	1910
1911	3528	6639		3946	4297	4193	4726	1911
1912	2909	5548		3079	3451	3154	3276	1912
1913	4131	7181		3855	4422	4189	3748	1913
1914	3256	6431	3183	3587	4120	4744	4466	1914
1915	2974	2991	1572	2497	3233	1740	2353	1915
1916	4881	5551	2770	4009	4770	3694	4152	1916
1917	4173	5598	2925	3614	3814	3232	3395	1917
1918	2835	3909	1646	2369	3029	2468	2432	1918
1919	2518	4902	1768	2443	3328	2676	3286	1919
1920	3709	5258	2802	3223	4073	3740	3111	1920
1921	4578	7530	3615	4511	4294	3723	3521	1921
1922	3158	5031	2263	3552	4069	2297	2999	1922
1923	3020	3792	1921	2705	3673	2183	2333	1923
1924	3041	4762	2888	3357	3305	2637	2448	1924
1925	3245	5711	2042	3029	5159	3169	3407	1925

* Incomplete Records

Appendix 2
Sheet 2

ANNUAL RAINFALL
(Points)

Year	Jenolan Caves	Katoomba	Kindarun	Lithgow	Moss Vale	Penrith	Picton	Year
1926	3824	5568	3471	3711	3515	2355	2244	1926
1927	3106	5722	2799	3300	4464	2686	2969	1927
1928	3750	5312	2560	3264	4049	2542	3499	1928
1929	3885	6815	2566	3490	4651	3709	4656	1929
1930	3310	5635	3147	2947	3520	2321	3000	1930
1931	4133	6037	3079	3228	4889	3435	3812	1931
1932	*	4350	2079	3088	3282	2562	2321	1932
1933	3763	6352	2893	3197	3417	3369	3919	1933
1934	5032	7740	3400	4919	5612	3463	4187	1934
1935	3092	4168	1952	2416	3324	2345	2865	1935
1936	3770	4206	2318	3400	3190	2629	2016	1936
1937	3189	5018	2593	3443	3581	2962	3108	1937
1938	3164	4379	2118	2600	3964	2993	2587	1938
1939	3040	4171	1978	3021	2571	2210	2215	1939
1940	2501	3206	1828	2287	2440	1789	1905	1940
1941	2398	2876	2074	2338	2552	1419	2130	1941
1942	4230	6039	2866	4211	4002	2870	2069	1942
1943	4305	5909	2572	4060	5029	3599	3087	1943
1944	2005	2433	1463	2108	1880	1046	1193	1944
1945	3731	4700	2775	3442	3958	2833	2964	1945
1946	2940	3868	2040	2675	2845	2193	2224	1946
1947	5042	6135	3044	3797	3239	3318	2936	1947
1948	3607	4801	3161	3354	3267	2434	2882	1948
1949	4210	7805	4677	3934	4577	4669	4288	1949
1950	6591	10953	5713	6488	7266	7450	6784	1950
1951	5178	6992	2775	3486	5225	3750	4385	1951
1952	6399	7446	3334	4279	5433	3930	4797	1952
1953	3126	3542	2201	2391	2668	2455	2579	1953
1954	3591	5234	3556	2955	3202	3378	2849	1954
1955	5170	6261	3970	4176	3868	3906	4240	1955
1956	6934	8111	3442	5322	5523	5108	5715	1956
1957	2680	3067	1208	2189	2466	1495	1892	1957
1958	4332	5181	2736	3114	3879	3263	3075	1958
1959	4404	6433	4094	3617	4919	3919	4277	1959
1960	4714	4724	2830	3888	4247	3041	3246	1960
1961	4602	6773	4071	3860	5427	4848	4851	1961
1962	4599	6067	3938	3463	4365	4117	3516	1962
1963	6521	8491	4748	4457	5483	5532	6051	1963
1964	5001	4714	3232	3725	4236	3092	3582	1964
1965	2588	4320	2006	1949	2561	2262	1945	1965
1966	4089	3914	1904	2803	3890	2657	2958	1966
1967	3633	*	3357	3659	3203	4125	3526	1967
1968	4041	3247	2907	2514	2391	2214	1594	1968
1969	*	6368	3985	3377	4768	4788	4794	1969
1970	4594	5136	3149	3924	3402	3128	2624	1970
1971	4347	5579	3349	3704	3472	2727	2883	1971

* Incomplete Records.

Appendix 3
Sheet 1

ANNUAL RAINFALL
(Points)

Year	Portland	Prospect Dam	Rylstone	Tarago	Taralga	Windsor	Wyee	Year
1881			*					1881
1882			N.R.		*			1882
1883			N.R.		2708			1883
1884			N.R.	*	2349			1884
1885			2223	2241	2517			1885
1886			2620	3140	2404			1886
1887		5168	4180	4420	4457			1887
1888		1943	1362	1687	1763			1888
1889		4275	3207	*	3303			1889
1890		5423	2999	N.R.	5198			1890
1891		4664	3104	N.R.	5079			1891
1892		5095	3178	N.R.	2733			1892
1893		3890	2971	N.R.	N.R.			1893
1894		3048	2226	N.R.	N.R.			1894
1895		2501	2205	*	2660			1895
1896		2687	2484	2683	2419			1896
1897		2982	1985	2387	2315	*		1897
1898		3629	2192	2063	2355	2983		1898
1899		3337	1997	2372	2624	2833	*	1899
1900		4791	2643	3445	4101	4076	5231	1900
1901		2269	2042	2176	2536	2163	3198	1901
1902		1842	1239	1518	1568	1737	4051	1902
1903		2831	3029	2596	2904	2796	5660	1903
1904	2835	3668	2497	1658	2509	3083	4220	1904
1905	2456	2383	1687	1978	2526	2063	4859	1905
1906	2516	2501	2436	2279	2590	1611	3358	1906
1907	2434	1926	2412	1755	2133	1860	4203	1907
1908	2020	3001	2143	1678	2476	2372	4908	1908
1909	2619	2213	3184	1973	2389	2153	4358	1909
1910	2335	3663	2499	1946	2868	3258	4084	1910
1911	3288	3684	2982	1851	3260	3537	4228	1911
1912	2233	3401	1739	924	2573	3082	4918	1912
1913	2764	4436	2523	988	3181	4600	5949	1913
1914	2437	4619	2759	1626	3294	3824	5710	1914
1915	2517	2083	2348	2846	2437	1901	3037	1915
1916	3587	3640	3796	*	3652	2956	3843	1916
1917	3382	3460	2867	1548	3298	2664	4942	1917
1918	2109	2707	1633	N.R.	2229	2022	4184	1918
1919	1350	2785	1677	N.R.	1860	2262	4433	1919
1920	2631	3481	3491	N.R.	2902	3049	4351	1920
1921	3577	3907	4197	N.R.	3094	3502	6731	1921
1922	1868	3026	2300	N.R.	2833	2310	4245	1922
1923	2049	2626	1543	N.R.	2346	2394	3170	1923
1924	2531	2936	3501	N.R.	2550	2369	4983	1924
1925	1790	2465	1526	N.R.	3071	2357	4075	1925
1926	2996	2396	3803	N.R.	3007	2506	4593	1926
1927	1911	3214	2187	N.R.	2488	2531	5234	1927
1928	2475	2848	2932	N.R.	3332	2544	3823	1928
1929	2164	4014	1899	N.R.	3405	3384	5639	1929
1930	2715	2630	2878	N.R.	2853	2345	6140	1930

Appendix 3
Sheet 2

ANNUAL RAINFALL

Year	Portland	Prospect Dam	Rylstone	Tarago	Taralga	Windsor	Wyee	Year
1931	2995	3879	2694	N.R.	4913	3842	5697	1931
1932	2536	2725	2283	N.R.	3176	2477	2927	1932
1933	2044	3617	2283	*	3027	3027	4520	1933
1934	2967	4204	3427	3909	4548	3789	5464	1934
1935	2204	2540	2110	2734	3098	2194	2713	1935
1936	2428	2665	2413	2741	3501	2652	3585	1936
1937	2029	3109	2129	2284	2615	2512	4757	1937
1938	1831	2942	1584	2635	3246	2848	4082	1938
1939	2137	2135	1802	2892	2907	2113	3798	1939
1940	1578	2049	1579	1517	1947	2288	3756	1940
1941	2022	1670	1910	2306	2688	1633	3188	1941
1942	3355	3219	2974	2373	3735	3234	4445	1942
1943	3152	4119	2342	2693	4376	3638	5034	1943
1944	1352	1553	1566	1095	1599	1228	2362	1944
1945	2785	3224	2757	1990	2778	3424	4311	1945
1946	2357	2974	1798	2089	2363	3360	4248	1946
1947	3271	3125	3168	2662	3371	4018	4089	1947
1948	2923	2566	2265	3048	3399	2451	4048	1948
1949	3008	4635	3369	3243	3941	4766	7755	1949
1950	5372	7479	5090	4912	5874	7324	7630	1950
1951	2463	4501	2283	2869	3554	3631	4853	1951
1952	3356	5033	2666	3965	5048	4558	5246	1952
1953	2088	3019	2086	1901	2259	2876	4433	1953
1954	2083	3661	2636	1696	2269	3419	4658	1954
1955	3517	4534	3559	2958	3585	4078	5707	1955
1956	4270	5897	3887	4252	5260	4913	5130	1956
1957	1642	1965	1712	1713	2191	1906	2513	1957
1958	2909	3397	3317	2418	3682	2924	3626	1958
1959	3161	4110	3115	4731	3896	3358	5206	1959
1960	3814	3227	2574	3421	4169	2887	4591	1960
1961	2746	4565	2697	4109	4551	3578	3929	1961
1962	2806	4388	2505	2879	3574	3273	4959	1962
1963	3570	5747	3208	3527	4338	5126	7124	1963
1964	3329	3215	2569	3072	3434	2832	4524	1964
1965	1877	2396	1626	1573	2295	1957	3232	1965
1966	2963	2774	2491	3058	3572	2359	3573	1966
1967	2443	4162	2076	*	2676	2949	6860	1967
1968	2899	2513	2715	2211	3179	2137	3584	1968
1969	3282	*	3292	*	3893	3747	5327	1969
1970	3398	3390	3431	*	3345	3017	*	1970
1971	2931	2750	2391	2363	3232	2867	4849	1971

* Incomplete Records.

STATISTICAL RAINFALL DATA
(Points)

Station	Rainfall Statistic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Bilpin (Period 72 years)	Minimum	99	15	16	31	10	15	7	2	0	22	15	45	2558
	10%	141	109	178	106	45	38	44	39	51	91	52	100	3536
	30%	346	336	265	231	93	95	86	98	138	163	181	250	4422
	50%	525	516	479	310	178	232	205	143	212	231	328	384	4894
	70%	723	802	681	572	361	510	312	301	303	347	478	605	5857
	90%	1048	1541	1404	992	1037	1148	862	619	589	717	898	1038	6883
	Maximum	2429	2838	2757	1633	2104	2235	1636	1519	1010	1671	2140	1827	10008
Cataract Dam (Period 61 years)	Minimum	33	0	9	33	10	3	4	0	4	32	0	15	1892
	10%	72	44	70	81	36	25	40	21	40	55	39	53	2401
	30%	141	169	172	186	98	105	99	71	114	117	120	141	3206
	50%	288	270	283	277	203	197	194	153	166	174	188	224	4031
	70%	401	542	430	412	461	461	439	235	238	251	315	376	4556
	90%	827	1002	1080	929	938	1091	830	738	441	550	496	804	6415
	Maximum	2281	2767	1469	1847	2668	2587	2339	1612	767	2113	1871	1268	9026
Camden (Period 80 years)	Minimum	15	0	0	0	0	0	0	0	0	6	0	0	1269
	10%	39	19	36	40	12	11	12	15	17	43	32	50	1855
	30%	155	76	128	109	60	55	63	51	84	98	129	124	2413
	50%	265	204	255	199	128	172	144	99	138	145	202	245	2876
	70%	448	410	366	340	279	317	256	205	204	201	340	385	3471
	90%	675	771	781	585	647	698	572	451	303	436	467	630	4303
	Maximum	1796	1442	1213	965	1308	1501	1154	975	718	1210	1390	959	6738

STATISTICAL RAINFALL DATA
(Points)

Station	Rainfall Statistic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Crookwell (Period 81 years)	Minimum	4	0	0	0	16	51	51	22	78	49	0	17	1668
	10%	32	20	43	44	65	142	129	138	124	120	43	65	2243
	30%	143	90	90	152	131	273	226	265	220	220	133	133	2994
	50%	238	166	166	210	221	360	340	314	283	295	196	218	3437
	70%	343	241	281	297	343	466	430	437	334	383	307	357	3760
	90%	539	420	638	495	561	694	612	586	492	511	455	537	4374
	Maximum	1010	1045	868	677	1313	965	1014	825	639	708	974	836	5896
Dapto (Period 52 years)	Minimum	5	13	3	20	3	0	0	0	0	15	3	19	1970
	10%	111	39	68	82	36	20	34	5	14	41	37	37	2547
	30%	197	181	209	152	87	101	98	55	81	94	122	148	3237
	50%	311	300	354	276	203	223	181	127	138	178	191	280	3933
	70%	472	489	566	483	475	423	307	221	254	321	361	397	4886
	90%	968	1127	1203	1000	1034	1289	794	714	611	705	482	1002	7327
	Maximum	1670	2579	1967	1691	2874	1702	1054	1474	982	2310	3268	1228	9129
Gosford (Period 83 years)	Minimum	19	0	21	6	18	3	8	3	0	25	3	15	1939
	10%	86	75	119	107	71	53	45	41	57	57	40	90	3373
	30%	219	231	227	270	199	150	148	113	149	152	153	195	4320
	50%	334	455	441	378	376	316	276	244	227	228	302	285	4950
	70%	544	631	697	553	565	483	528	419	318	350	416	407	5472
	90%	937	988	1442	1134	1244	1079	962	718	784	662	672	850	6950
	Maximum	1716	2110	2469	2631	2511	2715	2017	2112	1096	1096	1536	1778	9264

STATISTICAL RAINFALL DATA
(Points)

Station	Rainfall Statistic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Goulburn (Period 75 years)	Minimum	2	1	0	5	8	20	23	10	19	21	1	7	1094
	10%	44	8	32	29	33	68	66	73	77	79	48	59	1817
	30%	149	69	80	94	75	127	115	117	114	142	91	124	2208
	50%	258	161	173	157	117	187	164	180	164	214	175	191	2469
	70%	356	284	323	232	233	284	256	254	229	301	287	315	2988
	90%	513	528	601	425	503	463	392	352	336	433	432	497	3738
	Maximum	939	812	988	643	1179	1253	958	667	607	932	870	856	5731
Jenolan Caves (Period 68 years)	Minimum	19	0	21	19	13	29	32	37	36	39	4	20	1769
	10%	89	37	78	89	57	118	87	108	93	100	77	75	2679
	30%	192	141	146	155	125	182	183	190	187	212	160	165	3095
	50%	317	266	203	250	187	322	326	281	241	284	233	259	3515
	70%	411	385	380	353	301	429	447	371	295	359	377	435	4184
	90%	627	862	576	580	558	766	776	648	449	549	533	678	5055
	Maximum	906	1689	1141	837	1091	1416	1240	899	635	935	1021	1273	6934
Katoomba (Period 55 years)	Minimum	69	19	10	25	45	19	11	8	30	27	14	45	2909
	10%	132	63	157	103	59	49	35	38	77	89	41	107	3712
	30%	308	260	280	251	161	141	164	105	145	177	196	245	4373
	50%	480	429	463	375	204	267	300	207	252	233	340	462	5412
	70%	784	704	702	541	449	502	552	353	347	362	512	707	6037
	90%	1051	1575	1427	1036	1028	1082	1019	763	568	584	749	1023	7596
	Maximum	2692	2861	2761	2459	1921	2181	1885	2045	1532	1308	966	1459	9671

STATISTICAL RAINFALL DATA
(Points)

Station	Rainfall Statistic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Kindarun (Period 51 years)	Minimum	0	0	0	30	0	8	0	0	0	12	0	11	1208
	10%	49	45	44	57	11	15	18	12	18	41	40	49	1786
	30%	165	188	117	106	50	53	48	59	82	93	119	195	2257
	50%	322	236	212	154	94	103	134	90	118	182	213	303	2800
	70%	413	360	315	260	203	268	226	166	178	240	323	440	3188
	90%	693	674	576	536	516	616	416	278	323	485	639	708	4041
	Maximum	1054	1727	1218	953	792	1296	588	1297	652	787	820	1034	5713
Lithgow (Period 75 years)	Minimum	19	1	6	8	22	19	28	18	8	30	7	1	1922
	10%	98	37	78	58	43	62	61	67	75	82	64	64	2406
	30%	202	131	153	152	105	132	131	131	147	180	135	154	2954
	50%	314	259	232	222	164	264	225	226	198	236	230	238	3357
	70%	414	406	385	310	283	452	300	290	265	295	290	429	3714
	90%	650	722	661	492	588	678	635	435	404	426	569	680	4479
	Maximum	943	1182	1260	1162	1280	1164	1376	847	770	901	737	1126	6488
Moss Vale (Period 86 years)	Minimum	14	17	3	20	19	0	15	10	14	40	0	18	1467
	10%	90	44	62	62	56	50	54	41	54	79	30	55	2639
	30%	211	135	167	161	135	124	132	105	127	148	125	152	3268
	50%	352	280	251	288	219	262	250	158	182	222	233	257	3855
	70%	468	468	423	387	388	514	410	277	296	292	326	435	4297
	90%	735	683	779	696	872	858	765	581	479	537	474	650	5274
	Maximum	1058	1495	1617	1828	2298	1934	1864	1417	1026	1363	1050	1498	7266

STATISTICAL RAINFALL DATA
(Points)

Station	Rainfall Statistic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Penrith (Period 68 years)	Minimum	6	0	4	0	0	0	0	0	2	2	0	12	1046
	10%	78	16	60	42	28	4	13	11	21	37	19	27	1785
	30%	129	123	108	95	48	37	45	48	76	105	114	134	2464
	50%	268	201	276	209	112	115	117	97	123	154	207	217	3017
	70%	406	445	409	354	245	337	237	174	206	206	352	429	3502
	90%	809	857	735	614	666	607	601	385	328	490	526	722	4326
	Maximum	1466	1647	1251	1038	1416	1482	1500	961	536	1292	2126	1264	7450
Picton (Period 79 years)	Minimum	8	4	5	7	6	0	5	0	0	26	7	12	1193
	10%	53	29	55	31	33	21	20	13	26	48	34	62	2016
	30%	160	124	112	117	59	49	70	65	86	118	112	135	2432
	50%	258	256	249	194	135	172	110	97	137	182	207	220	2936
	70%	416	402	392	362	238	321	270	187	232	256	310	373	3521
	90%	674	774	658	610	812	625	533	400	382	426	481	638	4462
	Maximum	1549	1899	1618	957	1192	1374	1293	913	720	1338	955	939	6784
Portland (Period 61 years)	Minimum	13	0	0	5	14	30	25	13	2	11	6	0	1350
	10%	70	53	23	42	31	61	73	74	79	77	49	55	1838
	30%	168	122	77	109	74	113	128	146	133	189	128	128	2188
	50%	269	213	148	163	133	185	183	200	180	233	195	202	2531
	70%	363	273	266	219	254	285	267	265	231	283	309	303	2978
	90%	532	551	528	349	361	508	401	341	317	420	486	483	3559
	Maximum	688	813	857	489	741	771	896	438	501	528	670	757	5372

STATISTICAL RAINFALL DATA
(Points)

Station	Rainfall Statistic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Prospect Dam (Period 78 years)	Minimum	15	11	20	13	7	4	3	0	0	28	3	26	1553
	10%	79	36	71	58	39	23	25	25	33	52	36	72	2080
	30%	166	134	133	136	75	82	80	65	104	120	110	146	2720
	50%	257	224	295	219	156	174	151	142	162	169	199	223	3217
	70%	466	457	391	355	292	360	314	206	223	235	313	349	3882
	90%	705	743	813	626	738	803	657	512	412	485	478	705	4815
	Maximum	1680	2043	1499	1221	2190	2092	1274	1111	733	1059	1540	1332	7479
Rylstone (Period 80 years)	Minimum	7	0	0	0	5	23	0	0	5	7	0	11	1239
	10%	67	12	19	24	18	50	37	35	53	57	43	51	1637
	30%	152	81	79	85	68	107	98	105	108	135	119	130	2188
	50%	221	169	170	153	129	174	161	172	154	177	200	214	2498
	70%	342	316	249	246	218	275	229	239	218	252	311	336	2959
	90%	575	649	508	367	379	454	334	339	357	426	419	592	3500
	Maximum	761	1302	1240	644	655	761	674	544	614	565	979	895	5090
Tarago (Period 57 years)	Minimum	0	0	0	0	0	0	0	0	0	0	10	0	924
	10%	8	0	16	24	26	45	40	32	44	44	46	47	1542
	30%	132	57	64	95	73	116	113	81	109	142	90	116	1975
	50%	187	201	140	153	133	196	177	161	149	209	204	184	2387
	70%	323	317	243	215	211	332	231	250	235	316	287	278	2887
	90%	565	423	509	463	434	514	415	374	332	448	427	493	3994
	Maximum	1046	518	1050	790	744	683	491	649	578	1026	774	940	4912

STATISTICAL RAINFALL DATA
(Points)

Station	Rainfall Statistic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Taralga (Period 70 years)	Minimum	25	4	0	18	12	0	17	20	38	42	2	10	1568
	10%	46	22	43	59	50	73	88	101	96	90	58	48	2232
	30%	154	109	97	116	103	176	173	140	162	173	119	125	2540
	50%	241	213	161	196	166	242	287	221	203	229	210	209	2957
	70%	354	324	364	288	290	428	338	327	274	316	284	373	3403
	90%	497	566	574	408	470	541	566	446	415	490	481	509	4372
	Maximum	1168	1073	1161	905	1702	748	1011	996	473	625	1595	919	5874
Windsor (Period 67 years)	Minimum	18	0	14	0	0	4	0	0	0	3	0	0	1228
	10%	74	22	63	66	26	11	20	12	19	45	31	33	1905
	30%	157	115	150	103	65	51	58	65	80	114	122	126	2381
	50%	254	236	245	196	114	131	140	112	137	161	202	191	2876
	70%	423	411	368	327	275	315	250	211	194	233	316	362	3374
	90%	702	740	627	598	587	620	586	426	379	523	506	542	4174
	Maximum	1281	1516	1157	1364	1499	1707	1048	943	456	790	1117	1234	7324
Wyee (Period 66 years)	Minimum	47	14	72	63	8	2	0	6	8	0	0	0	2362
	10%	92	50	150	120	73	39	17	24	61	63	65	88	3183
	30%	181	203	283	252	177	124	139	123	117	119	157	195	4082
	50%	353	341	366	405	303	268	246	182	206	202	242	322	4439
	70%	505	520	598	586	448	384	477	325	349	319	325	487	4981
	90%	903	989	1081	1132	1139	1150	906	578	689	576	613	826	5782
	Maximum	1706	1790	1575	2346	2098	2212	1251	1946	854	1291	842	1603	7755

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.
Bilpin	1	99	15	16	31	10	15	7	2	0	22	15	45
	2	185	120	183	124	87	65	40	89	90	77	113	208
	3	335	343	282	194	131	118	134	218	156	181	372	294
	4	442	386	344	277	161	367	263	269	468	559	456	444
	5	485	430	554	389	467	523	416	685	751	831	707	551
	6	529	640	708	744	603	570	731	842	1043	1081	814	594
	7	739	866	925	803	918	761	1018	1237	1272	1188	857	638
	8	965	1011	1122	1201	1185	1101	1331	1420	1379	1231	901	848
	9	1110	1378	1429	1572	1434	1523	1468	1817	1422	1275	1111	1074
	10	1710	1747	1817	1816	1669	1539	2050	1940	1466	1485	1337	1219
	11	2102	2273	2020	2203	1685	2121	2124	1984	1676	1711	1482	1819
	12	2558	2476	2397	2405	2256	2195	2153	2172	1902	1856	2082	2195
Cataract Dam	1	33	0	9	33	10	3	4	0	4	32	0	15
	2	73	53	63	61	33	59	4	49	48	46	71	58
	3	189	364	120	219	217	127	91	96	112	217	146	231
	4	433	479	321	379	227	264	123	212	228	270	391	240
	5	566	591	517	471	364	477	304	272	277	484	441	558
	6	855	773	690	783	556	588	655	321	550	648	661	615
	7	909	810	1002	969	706	858	793	818	788	732	718	906
	8	946	1046	1068	1063	1104	1085	873	977	821	789	1107	960
	9	1182	1112	1218	1311	1154	1218	1161	1346	878	1319	1161	997
	10	1243	1262	1469	1344	1315	1227	1551	1452	1534	1373	1198	1233
	11	1398	1807	1302	1560	1324	1730	1713	1684	1588	1410	1434	1299
	12	1892	1840	1718	1769	1827	1779	1827	1827	1625	1646	1500	1449

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.
Gosford	1	28	0	21	6	18	3	8	3	0	25	3	15
	2	157	126	27	24	96	55	11	121	50	91	98	176
	3	352	453	45	157	212	94	169	203	181	133	191	314
	4	547	471	178	218	256	403	253	291	297	338	436	467
	5	565	604	239	262	588	464	405	407	359	681	589	799
	6	698	665	283	686	640	676	893	469	901	888	921	875
	7	759	709	707	800	914	1026	1047	942	1054	1244	997	960
	8	803	1133	857	920	1392	1253	1364	1268	1386	1320	1082	1193
	9	1227	1283	941	1398	1500	1512	1517	1600	1462	1405	1607	1237
	10	1377	1367	1419	1506	1702	1665	1849	1676	1547	1930	1936	1661
	11	1461	1845	1527	2006	1855	1997	1925	1761	2003	2022	2161	1811
	12	1939	1953	2027	2076	2094	2073	2010	2286	2047	2446	2571	1895
Goulburn	1	2	1	0	5	8	29	23	10	19	21	1	7
	2	51	2	41	20	79	97	97	118	97	79	85	74
	3	69	56	139	124	206	152	200	233	173	229	120	135
	4	192	161	253	239	282	245	306	358	331	243	184	174
	5	297	308	327	351	448	388	439	434	345	307	220	307
	6	400	389	465	458	549	494	531	493	409	343	353	338
	7	515	527	613	593	607	551	739	628	445	476	461	435
	8	627	642	634	651	771	822	780	664	578	693	558	550
	9	734	696	692	815	914	1014	926	797	827	816	673	662
	10	931	754	856	958	1103	1066	1059	1041	918	957	785	769
	11	1037	918	999	1150	1139	1199	1308	1137	1059	1099	892	1082
	12	1094	1061	1191	1349	1272	1448	1399	1278	1223	1206	1205	1211

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.
Katoomba	1	69	19	10	25	45	19	11	8	30	27	14	45
	2	145	72	262	143	83	107	55	114	157	98	211	169
	3	332	314	404	261	177	212	158	243	246	357	347	190
	4	438	469	496	302	316	454	254	369	477	556	389	377
	5	593	517	551	441	539	542	494	558	597	633	576	483
	6	641	742	690	781	713	705	755	678	892	820	682	638
	7	866	979	1042	963	954	1151	1054	1354	1079	926	837	686
	8	1103	1228	1224	1126	1295	1411	1551	1561	1185	1081	885	911
	9	1381	1315	1387	1646	1467	1741	1833	1698	1340	1129	1110	1148
	10	1652	1826	1907	1890	1896	1925	1998	1853	1388	1354	1347	1426
	11	2163	2611	2151	2079	2093	2142	2153	1901	1613	1591	1625	1701
	12	2909	2787	2340	2352	2327	2297	2201	2126	1850	1869	1922	2212
Lithgow	1	19	1	6	8	22	19	28	18	8	30	7	1
	2	99	8	82	66	73	90	137	87	45	62	150	55
	3	207	302	192	117	176	184	215	303	147	307	203	110
	4	395	331	312	292	304	352	391	418	373	419	336	283
	5	417	382	365	417	451	441	542	477	488	583	499	402
	6	468	565	490	581	631	592	777	506	655	798	632	424
	7	651	728	725	738	822	958	806	948	1055	977	654	475
	8	833	846	811	911	1050	1187	1148	1145	1159	999	705	658
	9	932	1010	984	1223	1268	1399	1377	1405	1181	1050	888	840
	10	1209	1201	1537	1504	1540	1741	1582	1505	1232	1233	1070	939
	11	1400	1800	1699	1635	1855	1861	1831	1782	1415	1415	1169	1285
	12	1922	1972	1830	1899	2014	1912	1917	1965	1597	1514	1501	1464

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.
Moss Vale	1	14	17	3	20	19	0	15	10	14	40	0	18
	2	86	30	80	68	74	57	44	57	86	75	79	95
	3	204	348	138	151	169	186	173	157	193	203	196	205
	4	536	419	221	189	234	312	213	273	257	323	264	341
	5	605	543	259	254	360	374	315	503	371	517	402	700
	6	688	653	324	380	422	398	587	521	629	655	714	848
	7	726	718	450	442	446	761	723	1027	767	967	902	972
	8	791	844	512	466	910	1124	1083	1117	1079	1208	1204	1100
	9	917	906	536	930	1234	1162	1249	1419	1320	1439	1224	1135
	10	979	930	1000	1254	1458	1328	1449	1672	1646	1516	1259	1477
	11	1003	1394	1324	1478	1519	1688	1715	1713	1688	1551	1729	1539
	12	1467	1718	1548	1539	1736	1923	1743	1895	1723	2021	1798	1563
Picton	1	8	4	5	7	6	0	5	0	0	26	7	12
	2	56	34	83	28	28	20	11	66	51	48	62	95
	3	150	161	110	90	90	60	101	127	129	97	196	124
	4	292	175	161	126	103	226	151	206	141	329	342	197
	5	306	237	200	225	285	328	273	432	392	450	415	356
	6	368	279	299	441	371	428	525	497	512	584	521	370
	7	410	410	515	505	481	695	708	734	841	718	535	432
	8	541	596	579	535	820	811	787	926	940	732	597	474
	9	727	831	630	907	846	899	972	1074	954	794	639	605
	10	915	926	981	1040	986	972	1259	1092	1016	836	770	791
	11	934	1142	1115	1180	1367	1371	1277	1190	1058	967	956	1050
	12	1193	1482	1287	1522	1406	1467	1360	1476	1189	1153	1399	1290

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.
Rylstone	1	7	0	0	0	5	23	0	0	5	7	0	11
	2	58	31	7	7	50	66	0	74	27	7	52	66
	3	130	95	79	59	107	170	165	163	100	108	185	83
	4	130	102	131	222	206	280	239	224	167	324	222	161
	5	137	154	289	315	308	336	261	475	412	383	294	161
	6	189	317	376	480	347	409	535	529	463	455	294	168
	7	352	491	499	539	420	689	653	550	535	455	301	220
	8	553	593	612	539	789	821	674	811	535	462	353	383
	9	666	749	612	813	925	842	848	845	542	514	516	584
	10	813	928	886	949	1043	950	870	852	594	677	717	697
	11	963	1199	1022	1126	1102	950	877	904	757	878	830	844
	12	1239	1240	1199	1126	1115	957	929	1067	958	991	977	994
Taralga	1	25	4	0	18	12	0	17	20	38	42	2	10
	2	54	9	68	30	82	50	127	178	166	82	120	54
	3	100	129	161	100	198	165	310	349	253	240	165	126
	4	209	180	242	216	293	431	439	414	393	327	283	192
	5	258	250	358	311	486	551	645	549	478	486	328	286
	6	328	366	453	504	699	668	751	594	616	506	532	298
	7	444	461	639	811	828	812	922	791	715	615	563	368
	8	539	654	914	963	1134	1081	1022	834	824	712	633	484
	9	732	961	999	1269	1301	1313	1084	943	921	889	749	579
	10	1039	1132	1305	1437	1439	1433	1340	1040	1074	1005	844	772
	11	1210	1490	1477	1634	1543	1590	1495	1472	1190	1100	1037	1079
	12	1568	1587	1694	1738	1656	1708	1565	1588	1285	1293	1344	1250

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.
Windsor	1	18	0	14	0	0	4	0	0	0	3	0	0
	2	100	20	65	64	18	26	0	13	25	3	46	109
	3	140	65	92	100	60	26	20	38	125	119	208	141
	4	251	92	120	143	60	89	45	182	217	341	239	155
	5	278	120	163	268	123	260	204	347	368	446	351	299
	6	306	163	288	447	294	357	354	433	507	466	396	326
	7	349	288	470	546	610	582	451	641	603	511	423	354
	8	474	470	641	718	760	645	851	843	648	538	451	397
	9	656	800	813	956	857	873	882	888	675	566	494	522
	10	986	1076	1063	1053	1070	893	927	915	703	609	619	704
	11	1207	1137	1206	1230	1084	938	954	943	746	734	801	1033
	12	1228	1387	1317	1364	1367	965	982	986	871	916	1131	1310

WOLLONDILLY RIVER AT GOULBURN

LOCATION:	Latitude 34°35' Longitude 149°44'
PERIOD OF ESTABLISHMENT:	May 1962 to date
COMPLETE YEARS OF COMPUTED RECORDS:	9
ZERO AT GAUGE:	R.L. 48.89 Assumed datum
CATCHMENT AREA:	240 Square miles
CONTROL:	Concrete weir
EQUIPMENT:	Automatic Recorder (Pressure Type) installed May 1962 Staff gauge, range 0 to 10 feet.
CURRENT METER OBSERVATIONS:	(a) Number obtained : 82 (b) Maximum observation in cusecs : 5,859 (c) Minimum observation in cusecs : 0
MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORD:	15,300 cusecs
MEAN DAILY DISCHARGE FOR 9 YEARS:	42 cusecs
MEAN ANNUAL DISCHARGE FOR 9 YEARS:	30,400 acre feet

WOLLONDILLY RIVER AT GOULBURN

Year 1962

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	..	..	..	..
Feb.	..	..	..	..
Mar.	..	..	..	..
Apr.	..	..	..	..
May	..	..	..	..
June	37	7	17	1,000
July	155	7	16	998
Aug.	450	28	126	7,818
Sept.	970	13	112	6,712
Oct.	71	13	27	1,670
Nov.	13	0	3	190
Dec.	1410	0	63	3,936
Total	..	..	..	..

Year 1963

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	409	0	19	1,148
Feb.	13	0	4	242
Mar.	0	0	0	0
Apr.	970	0	19	1,148
May	538	1	54	3,364
June	1570	1	133	8,020
July	795	48	220	13,626
Aug.	3600	48	217	13,468
Sept.	1570	48	213	12,780
Oct.	369	13	79	4,906
Nov.	97	7	24	1,464
Dec.	125	0	27	1,680
Total	..	..	..	61,846

Year 1964

Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	71	0	5	328
Apr.	59	0	6	338
May	13	1	9	554
June	48	7	21	1,256
July	687	28	228	14,112
Aug.	795	28	115	7,144
Sept.	687	13	147	8,798
Oct.	1640	13	193	11,950
Nov.	795	1	50	3,002
Dec.	13	0	0.6	42
Total	..	..	..	47,524

Year 1965

Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	0	0	0	0
Apr.	71	0	7	426
May	1	1	1	62
June	4	0	1	84
July	13	0	7	410
Aug.	28	1	12	746
Sept.	37	0	12	694
Oct.	240	0	93	5,764
Nov.	20	0	3	158
Dec.	28	0	4	254
Total	..	..	..	8,598

Year 1966

Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	7	0	0.2	14
Apr.	0	0	0	0
May	0	0	0	0
June	27	0.4	5	304
July	8	3	4	226
Aug.	54	1	13	791
Sept.	71	3	20	1,207
Oct.	535	3	49	3,059
Nov.	1550	14	173	10,400
Dec.	77	1	23	1,444
Total	..	..	..	17,445

Year 1967

Jan.	14	0	2	115
Feb.	8	0	1	40
Mar.	0	0	0	0
Apr.	0	0	0	0
May	0	0	0	0
June	8	0	5	291
July	8	3	5	334
Aug.	245	2	20	1,234
Sept.	2700	2	122	7,300
Oct.	128	0	15	925
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	10,239

Year 1968

Jan.	60	0	0.7	45
Feb.	0	0	0	0
Mar.	0	0	0	0
Apr.	0	0	0	0
May	640	0	72	4,450
June	490	5	47	2,890
July	118	10	23	1,420
Aug.	826	10	92	5,680
Sept.	51	4	14	850
Oct.	490	0	29	1,800
Nov.	2	0	0.2	12
Dec.	4	0	0.3	20
Total	..	..	..	17,167

Year 1969

Jan.	16	0	1	67
Feb.	150	0	2	852
Mar.	104	0	16	994
Apr.	4240	16	182	10,892
May	41	5	17	1,051
June	212	24	78	4,698
July	228	32	73	4,550
Aug.	450	25	73	4,510
Sept.	172	13	45	2,670
Oct.	5920	5	126	7,800
Nov.	1860	8	159	9,548
Dec.	78	0	13	794
Total	..	..	..	48,426

WOLLONDILLY RIVER AT GOULBURN

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.	265	0	14	881	Jan.	227	0	23	1,440
Feb.	443	0	9	480	Feb.	6300	8	365	20,500
Mar.	46	0	5	310	Mar.	10	.1	4	241
Apr.	11	0	2	126	Apr.	5	0	.5	31
May	173	3	19	1,200	May	10	.1	3	177
June	97	11	30	1,820	June	17	.8	5	313
July	26	3	8	520	July	16	.8	5	300
Aug.	730	4	46	2,860	Aug.	97	.8	17	1,040
Sept.	2990	25	255	15,300	Sept.	104	6	24	1,420
Oct.	371	9	65	4,000	Oct.	8	0	1.5	90
Nov.	106	0	24	1,470	Nov.	99	0	5	321
Dec.	1300	4	61	3,750	Dec.	1046	0	59	3,680
Total	..	..	..	32,717	Total	..	..	..	29,553

COXS RIVER AT LITHGOW

LOCATION:	Latitude 33°32' Longitude 150°06'
PERIOD OF ESTABLISHMENT:	May 1960 to date
COMPLETE YEARS OF COMPUTED RECORDS:	11
ZERO OF GAUGE:	R.L. 79.92 Assumed datum
CATCHMENT AREA:	155 Square miles
CONTROL:	Rock
EQUIPMENT:	Automatic Recorder (Float Type) installed May 1960. Staff gauge, range 0 to 20 feet
CURRENT METER OBSERVATIONS:	(a) Number obtained : 112 (b) Maximum observation in cusecs : 191 cusecs (c) Minimim observation in cusecs : 2.1 cusecs
MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORD:	12,400 cusecs
MEAN DAILY DISCHARGE FOR 11 YEARS:	73 cusecs
MEAN ANNUAL DISCHARGE FOR 11 YEARS:	53,000 acre feet

COXS RIVER AT LITHGOW

Year 1960					Year 1961				
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.	No Records			2,400*
Feb.	..	..	..	..	Feb.	56	18	25	1,386
Mar.	..	..	..	..	Mar.	452	16	32	2,016
Apr.	..	..	..	..	Apr.	96	14	27	1,636
May	..	..	..	..	May	37	16	20	1,252
June	52	33	39	2,347	June	120	18	36	2,152
July	675	34	116	7,193	July	188	18	35	2,200
Aug.	2780	42	161	9,986	Aug.	775	22	113	7,000
Sept.	297	38	75	4,482	Sept.	97	25	51	3,062
Oct.	655	29	69	4,296	Oct.	1350	18	62	3,822
Nov.	117	23	36	2,160	Nov.	2510	34	202	12,146
Dec.	602	20	111	6,900	Dec.	1638	41	146	9,044
Total	..	..	..	..	Total	..	..	..	48,116*

Year 1962					Year 1963				
Jan.	855	52	133	8,266	Jan.	3710	47	204	12,634
Feb.	1140	50	137	7,678	Feb.	835	31	116	6,510
Mar.	50	22	29	1,808	Mar.	359	22	60	3,750
Apr.	43	19	24	1,452	Apr.	1002	27	78	4,650
May	3260	22	121	6,948	May	1392	83	250	15,484
June	65	29	40	2,420	June	4002	105	284	17,026
July	508	30	65	4,010	July	460	73	40	8,720
Aug.	528	45	109	6,766	Aug.	No Records			10,000*
Sept.	150	42	59	3,514	Sept.	No Records			10,000*
Oct.	47	27	34	2,136	Oct.	650	43	110	6,828
Nov.	45	18	22	1,350	Nov.	89	18	36	2,144
Dec.	383	16	63	3,832	Dec.	1164	13	120	7,424
Total	..	..	..	50,180	Total	..	..	..	105,170*

Year 1964					Year 1965				
Jan.	90	15	31	1,922	Jan.	10	6	8	468
Feb.	65	13	20	1,144	Feb.	12	3	7	390
Mar.	124	13	20	1,248	Mar.	13	3	6	340
Apr.	860	13	65	3,884	Apr.	74	5	11	652
May	92	28	38	2,330	May	20	9	10	604
June	9120	29	701	42,048	June	19	9	12	708
July	774	89	197	12,238	July	305	94	38	2,334
Aug.	440	34	86	5,314	Aug.	25	15	18	1,106
Sept.	172	70	96	5,774	Sept.	56	12	25	1,522
Oct.	1050	24	81	7,822	Oct.	386	9	62	3,830
Nov.	3160	15	212	12,718	Nov.	61	14	28	1,664
Dec.	25	8	16	982	Dec.	262	9	30	1,830
Total	..	..	..	97,424	Total	..	..	..	15,448

Year 1966					Year 1967				
Jan.	92	4	8	510	Jan.	520	9	51	3,160
Feb.	33	4	9	502	Feb.	165	18	37	2,044
Mar.	156	4	19	1,178	Mar.	96	15	31	1,838
Apr.	56	6	10	604	Apr.	44	12	16	960
May	48	11	14	888	May	35	11	15	899
June	60	13	21	1,258	June	213	12	41	2,451
July	19	12	14	885	July	104	25	37	2,285
Aug.	58	11	18	1,114	Aug.	12400	24	366	22,702
Sept.	58	14	23	1,402	Sept.	1236	43	108	6,494
Oct.	480	15	58	3,580	Oct.	295	30	58	36,242
Nov.	580	18	59	3,530	Nov.	30	9	19	1,130
Dec.	122	13	31	1,916	Dec.	18	1	8	468
Total	..	..	..	17,367	Total	..	..	..	80,673

COXS RIVER AT LITHGOW

Year 1968

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	606	17	60	3,700
Feb.	1210	5	30	1,740
Mar.	35	6	10	617
Apr.	16	6	8	492
May	405	7	32	2,012
June	55	15	23	1,356
July	28	14	17	1,046
Aug.	51	13	23	1,422
Sept.	28	10	16	982
Oct.	35	6	13	779
Nov.	18	0.5	5	310
Dec.	40	1.2	8	478
Total	..	..	..	14,934

Year 1969

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	53	1	6	358
Feb.	792	1	54	3,024
Mar.	338	8	22	1,376
Apr.	990	11	52	3,140
May	267	16	29	1,800
June	375	27	65	3,914
July	80	30	41	2,600
Aug.	295	25	79	4,900
Sept.	108	36	75	4,500
Oct.	67	27	40	2,500
Nov.	2280	24	188	11,300
Dec.	530	6	32	2,000
Total	..	..	..	41,412

Year 1970

Jan.	1540	4	61	3,800
Feb.	80	14	32	1,804
Mar.	95	12	21	1,272
Apr.	40	12	17	1,010
May	118	12	22	1,380
June	37	14	17	1,000
July	19	12	13	793
Aug.	27	13	16	982
Sept.	2280	19	253	15,200
Oct.	408	28	68	4,230
Nov.	579	25	50	3,000
Dec.	972	21	108	6,700
Total	..	..	..	47,171

Year 1971

Jan.	7700	20	187	11,600
Feb.	3560	90	238	24,500
Mar.	145	26	64	3,960
Apr.	30	17	22	1,310
May	79	17	22	1,340
June	22	17	19	1,130
July	58	16	20	1,260
Aug.	122	18	30	1,890
Sept.	637	17	86	5,140
Oct.	45	16	24	1,460
Nov.	21	10	13	770
Dec.	2915	13	179	11,100
Total	..	..	..	65,460

WARRAGAMBA RIVER AT NEPEAN JUNCTION

LOCATION:	Latitude 33°52' Longitude 150° 37'
PERIOD OF ESTABLISHMENT:	August 1908 to date
COMPLETE YEARS OF COMPUTED RECORDS:	42
ZERO OF GAUGE:	R.L. 45.79 Standard datum
CATCHMENT AREA:	3,380 Square miles
CONTROL:	Gravel, sand and rock
EQUIPMENT:	Automatic recorder (Float Type), installed July 1924. Staff gauge, range 0 to 80 feet.
CURRENT METER OBSERVATIONS:	(a) Number obtained : 75 (b) Maximum observation in cusecs : 151,000 (c) Minimum observation in cusecs : 0.35
MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORD:	252,000 cusecs
MEAN DAILY DISCHARGE FOR 42 YEARS:	995 cusecs
MEAN ANNUAL DISCHARGE FOR 42 YEARS:	727,000 acre feet
REMARKS:	Due to unstable control conditions and the operation of Warragamba Dam since 1956, records have not been obtained since 1950. However the station is still instrumented.

WARRAGAMBA RIVER AT NEPEAN JUNCTION

Year 1909

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	267	10	73	4,508
Feb.	1480	68	341	19,118
Mar.	1940	44	351	21,738
Apr.	40	23	29	1,744
May	37	20	28	1,722
June	1900	37	296	17,742
July	574	92	220	13,666
Aug.	200	76	151	9,392
Sept.	236	120	188	11,284
Oct.	120	11	69	4,314
Nov.	230	9	55	3,298
Dec.	4450	5	399	24,734
Total	..	..	..	133,260

Year 1910

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	2420	11	402	24,922
Feb.	550	38	188	10,518
Mar.	3070	9	597	37,012
Apr.	230	66	130	7,836
May	66	11	41	2,528
June	121	11	53	3,178
July	29000	93	3002	186,134
Aug.	1420	175	416	25,792
Sept.	285	121	172	10,308
Oct.	285	10	104	6,430
Nov.	148	11	52	3,166
Dec.	7300	11	1743	108,080
Total	..	..	..	425,854

Year 1911

Jan.	40000	93	5867	360,024
Feb.	7940	1320	3760	213,040
Mar.	8400	367	2297	142,466
Apr.	450	66	218	13,100
May	285	93	167	10,324
June	203	10	109	6,572
July	2370	9	603	37,388
Aug.	5030	93	953	59,092
Sept.	1800	148	479	28,780
Oct.	550	121	326	20,216
Nov.	121	10	63	3,778
Dec.	623	9	313	19,406
Total	..	..	..	914,186

Year 1912

Jan.	11	0	6	360
Feb.	203	0	31	1,760
Mar.	395	148	280	17,344
Apr.	423	0	135	8,110
May	340	11	112	6,988
June	340	66	219	13,156
July	13100	258	3571	221,392
Aug.	10600	38	3114	193,046
Sept.	770	0	264	15,838
Oct.	175	121	154	9,562
Nov.	121	66	88	5,264
Dec.	550	11	69	4,328
Total	..	..	..	497,148

Year 1913

Jan.	230	10	82	5,118
Feb.	38	10	14	798
Mar.	10500	10	873	54,130
Apr.	6120	93	929	55,750
May	40000	230	6345	393,386
June	36500	2070	7850	471,020
July	8220	623	1964	121,742
Aug.	880	312	489	30,342
Sept.	340	230	289	17,314
Oct.	340	148	216	13,394
Nov.	312	38	173	10,358
Dec.	38	10	14	842
Total	..	..	..	1,174,194

Year 1914

Jan.	52	10	14	880
Feb.	38	10	11	634
Mar.	29900	11	4125	255,780
Apr.	1825	175	452	27,128
May	423	175	260	16,022
June	1610	148	425	25,514
July	8950	312	2067	128,124
Aug.	770	285	444	27,548
Sept.	11700	162	1477	88,614
Oct.	5700	258	934	57,932
Nov.	1850	367	699	41,934
Dec.	47500	148	1992	123,504
Total	..	..	..	793,614

Year 1915

Jan.	13800	175	1538	95,372
Feb.	230	66	151	8,434
Mar.	312	11	43	3,072
Apr.	2890	148	524	31,452
May	770	121	358	22,220
June	21200	148	1823	109,372
July	5370	312	935	57,990
Aug.	1560	258	632	39,204
Sept.	3070	175	590	35,418
Oct.	312	66	154	9,558
Nov.	66	9	21	1,266
Dec.	148	9	15	956
Total	..	..	..	414,314

Year 1916

Jan.	203	11	66	4,110
Feb.	148	10	39	2,256
Mar.	230	11	78	4,840
Apr.	660	11	296	17,784
May	203	38	78	4,818
June	1750	66	418	25,088
July	4450	285	626	38,804
Aug.	2890	395	965	58,834
Sept.	1320	148	389	23,360
Oct.	156000	880	11425	708,370
Nov.	2890	381	849	50,990
Dec.	7490	605	2943	182,516
Total	..	..	..	1,121,770

WARRAGAMBA RIVER AT NEPEAN JUNCTION

Year 1917

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	733	134	329	20,418
Feb.	2440	483	1214	67,988
Mar.	733	148	317	19,658
Apr.	4010	162	727	43,614
May	1170	230	451	27,166
June	516	175	289	17,330
July	1320	230	453	28,064
Aug.	990	340	544	33,734
Sept.	7980	285	1526	91,562
Oct.	3060	395	1026	63,624
Nov.	7980	285	2100	126,016
Dec.	8110	312	1855	114,980
Total	..	..	..	654,154

Year 1918

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	17800	203	2774	171,982
Feb.	13500	660	2424	135,760
Mar.	623	189	364	22,556
Apr.	450	175	236	14,132
May	367	148	218	13,530
June	217	148	174	10,408
July	5750	121	1065	66,008
Aug.	1810	550	936	57,984
Sept.	516	258	377	22,606
Oct.	258	79	163	10,122
Nov.	141	24	63	3,760
Dec.	59	9	22	1,364
Total	..	..	..	542,482

Year 1919

Jan.	10	9	10	615
Feb.	1485	7	103	5,773
Mar.	679	11	87	5,236
Apr.	38	10	13	790
May	16600	11	1792	111,076
June	4465	45	536	32,142
July	60	15	33	2,044
Aug.	35	8	19	1,130
Sept.	95	15	44	2,628
Oct.	8	2	3	186
Nov.	2	0	0.5	32
Dec.	4830	2	354	28,124
Total	..	..	..	189,776

Year 1920

Jan.	10100	25	1718	106,494
Feb.	134	15	50	2,880
Mar.	25	0.5	2	114
Apr.	40	1	9	532
May	8	1	1.5	90
June	95	1	43	2,608
July	970	120	315	19,542
Aug.	1830	212	435	27,018
Sept.	630	174	269	16,144
Oct.	200	95	143	8,872
Nov.	174	75	134	8,028
Dec.	34300	120	4772	295,868
Total	..	..	..	488,190

Year 1921

Jan.	5790	160	833	51,674
Feb.	225	75	156	8,752
Mar.	1830	75	451	27,078
Apr.	23100	75	3923	175,410
May	18200	200	3747	232,290
June	5300	460	1336	80,194
July	14500	460	3406	204,364
Aug.	2420	425	1068	66,232
Sept.	425	250	338	20,274
Oct.	250	95	177	11,002
Nov.	174	95	144	8,654
Dec.	4550	15	474	29,390
Total	..	..	..	915,314

Year 1922

Jan.	11400	330	2606	161,596
Feb.	6820	75	982	55,028
Mar.	875	75	303	18,808
Apr.	160	25	61	3,668
May	275	145	171	10,622
June	174	120	151	9,086
July	104000	75	9306	577,000
Aug.	7580	390	1649	102,258
Sept.	5690	300	1058	63,484
Oct.	811	174	304	18,850
Nov.	330	67	131	7,840
Dec.	225	75	125	7,742
Total	..	..	..	1,035,982

Year 1923

Jan.	120	25	59	3,624
Feb.	60	11	26	1,452
Mar.	185	8	56	3,444
Apr.	120	35	63	3,760
May	160	60	81	5,008
June	3160	60	330	19,816
July	4356	275	1308	81,090
Aug.	4300	300	1963	60,868
Sept.	10800	275	1564	93,820
Oct.	275	174	224	13,910
Nov.	174	75	128	7,680
Dec.	60	8	29	1,780
Total	..	..	..	296,252

Year 1924

Jan.	40	1	17	1,048
Feb.	330	75	208	12,038
Mar.	174	40	85	5,250
Apr.	2210	134	330	19,812
May	200	75	139	8,630
June	145	85	123	7,384
July	200	75	138	8,544
Aug.	225	145	189	11,748
Sept.	212	134	171	10,246
Oct.	250	145	190	11,602
Nov.	875	145	376	22,554
Dec.	460	95	177	10,964
Total	..	..	..	129,820

WARRAGAMBA RIVER AT NEPEAN JUNCTION

Year 1925

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	595	60	196	12,396
Feb.	765	75	398	22,286
Mar.	200	67	103	6,374
Apr.	120	75	87	5,240
May	85200	60	5854	362,950
June	252000	330	12328	739,700
July	3016	580	1182	73,314
Aug.	867	350	439	27,252
Sept.	390	180	285	17,144
Oct.	202	110	132	8,204
Nov.	1230	110	308	18,502
Dec.	180	8	68	4,258
Total	..	..	..	1,297,620

Year 1926

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	110	8	55	3,410
Feb.	8	0.5	3	164
Mar.	6749	0.2	714	43,889
Apr.	4066	390	966	57,936
May	4541	530	1608	99,706
June	4612	630	1741	104,470
July	3366	772	1530	94,862
Aug.	1300	305	612	37,946
Sept.	350	265	255	17,294
Oct.	580	150	262	16,264
Nov.	110	25	54	3,268
Dec.	225	10	49	3,054
Total	..	..	..	482,263

Year 1927

Jan.	507	75	222	13,740
Feb.	180	10	64	3,596
Mar.	62	8	22	1,356
Apr.	34000	8	3653	219,172
May	2380	180	531	32,908
June	245	150	179	10,738
July	150	150	150	9,300
Aug.	150	110	132	8,220
Sept.	150	48	89	5,342
Oct.	440	110	207	12,870
Nov.	1060	75	282	16,946
Dec.	580	150	294	17,656
Total	..	..	..	351,844

Year 1928

Jan.	390	110	199	12,326
Feb.	44500	110	4585	265,950
Mar.	3424	305	963	59,868
Apr.	5387	390	1187	71,258
May	391	180	285	17,664
June	13200	150	1561	93,686
July	38700	530	3246	201,298
Aug.	3074	507	1252	77,674
Sept.	530	180	312	18,776
Oct.	180	110	149	9,280
Nov.	110	36	67	4,034
Dec.	36	6	19	1,178
Total	..	..	..	832,992

Year 1929

Jan.	5	0.2	2	126
Feb.	37700	0	4203	235,376
Mar.	1538	260	579	35,954
Apr.	31600	260	2299	137,990
May	395	212	253	15,718
June	222	98	199	11,976
July	283	180	225	13,972
Aug.	2230	305	643	39,860
Sept.	10200	260	1149	68,958
Oct.	47600	260	3502	217,140
Nov.	11900	395	1581	94,870
Dec.	535	140	244	15,174
Total	..	..	..	887,114

Year 1930

Jan.	260	35	132	8,216
Feb.	No Records			5,000*
Mar.	222	23	91	5,648
Apr.	160	65	84	5,070
May	No Records			25,000*
June	13600	140	2437	146,232
July	5920	584	1488	92,300
Aug.	867	430	619	39,384
Sept.	630	160	280	17,394
Oct.	480	140	275	17,058
Nov.	442	50	170	10,190
Dec.	370	50	159	9,894
Total	..	..	..	381,386*

Year 1931

Jan.	507	14	127	7,904
Feb.	326	6	61	3,428
Mar.	2987	82	671	41,622
Apr.	25400	201	2910	174,638
May	27300	630	2680	166,186
June	4683	883	1727	103,650
July	35100	867	3485	216,104
Aug.	1190	370	646	40,068
Sept.	8950	340	1083	64,996
Oct.	900	180	373	23,130
Nov.	772	140	324	19,412
Dec.	2728	140	567	35,198
Total	..	..	..	896,336

Year 1932

Jan.	180	33	86	5,300
Feb.	480	35	95	5,518
Mar.	1966	35	261	16,180
Apr.	980	160	290	17,402
May	140	90	119	7,424
June	140	82	115	6,904
July	735	120	272	16,858
Aug.	630	150	285	17,660
Sept.	5738	201	1564	93,860
Oct.	1140	222	471	29,234
Nov.	520	108	208	12,514
Dec.	140	32	53	3,278
Total	..	..	..	232,132

* Estimated

WARRAGAMBA RIVER AT NEPEAN JUNCTION

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.	24300	26	2046	126,890	Jan.	29000	160	2102	130,334
Feb.	1190	28	189	10,568	Feb.	92300	305	7771	435,194
Mar.	98	10	23	1,426	Mar.	2728	305	706	43,756
Apr.	21800	140	1578	94,666	Apr.	4199	305	1132	67,912
May	1908	98	302	18,716	May	3192	241	808	50,130
June	470	140	209	12,532	June	5387	630	1766	105,946
July	6110	140	858	53,212	July	41400	305	3353	207,880
Aug.	1550	188	392	24,318	Aug.	27000	1500	3818	236,702
Sept.	6064	170	516	30,996	Sept.	7866	480	1880	112,824
Oct.	4400	160	961	59,612	Oct.	3366	275	583	36,148
Nov.	2090	119	448	26,886	Nov.	3540	310	787	47,220
Dec.	3600	283	855	53,006	Dec.	1020	346	541	33,544
Total	..	..	..	512,828	Total	..	..	..	1,507,590

Year 1935					Year 1936				
Jan.	1937	260	669	41,476	Jan.	2130	55	518	32,124
Feb.	2560	162	763	42,754	Feb.	680	163	317	18,398
Mar.	740	170	308	19,100	Mar.	2662	450	1213	75,274
Apr.	526	188	299	17,980	Apr.	760	205	393	23,550
May	335	190	240	14,862	May	230	150	188	11,654
June	207	185	191	11,486	June	5405	163	636	38,144
July	307	170	238	14,742	July	1790	312	687	42,590
Aug.	335	120	193	11,958	Aug.	4000	255	761	47,166
Sept.	1070	95	279	16,790	Sept.	395	140	265	15,930
Oct.	2360	95	402	24,942	Oct.	140	43	81	5,004
Nov.	340	50	156	9,382	Nov.	34	7	19	1,170
Dec.	6170	55	638	39,564	Dec.	1150	18	260	16,094
Total	..	..	..	265,036	Total	..	..	..	327,098

Year 1937					Year 1938				
Jan.	280	42	119	7,346	Jan.	570	24	223	13,860
Feb.	280	20	103	5,766	Feb.	1850	87	360	20,164
Mar.	13300	45	1071	66,394	Mar.	87	18	44	2,738
Apr.	185	55	100	6,014	Apr.	450	18	68	4,076
May	100	55	65	4,022	May	570	49	123	7,632
June	1426	55	403	24,142	June	395	79	132	7,910
July	2100	150	446	27,662	July	185	65	91	5,652
Aug.	935	140	211	13,060	Aug.	67300	140	4630	287,084
Sept.	1130	140	351	21,072	Sept.	2344	1100	1313	78,794
Oct.	400	135	170	10,524	Oct.	17300	900	227	138,084
Nov.	3600	128	966	57,956	Nov.	1640	1130	1296	77,780
Dec.	1075	50	289	17,942	Dec.	No Records			3,700*
Total	..	..	..	261,900	Total	..	..	..	647,474*

Year 1939					Year 1940				
Jan.	No Records			2,800*	Jan.	No Records			1,100*
Feb.	No Records			1,200*	Feb.	No Records			20*
Mar.	2452	2	533	33,022	Mar.	No Records			10*
Apr.	2770	255	798	47,858	Apr.	No Records			230*
May	477	131	236	14,648	May	No Records			1,100*
June	186	120	144	8,668	June	No Records			850*
July	298	117	179	11,106	July	No Records			990*
Aug.	1470	115	469	29,060	Aug.	No Records			770*
Sept.	475	110	229	13,750	Sept.	No Records			610*
Oct.	2242	206	544	33,746	Oct.	No Records			1,800*
Nov.	335	25	194	11,614	Nov.	No Records			570*
Dec.	No Records			800*	Dec.	No Records			49,000*
Total	..	..	..	208,272*	Total	..	..	..	57,050*

* Estimated

WARRAGAMBA RIVER AT NEPEAN JUNCTION

Discharge for Month - Acre Feet

Months	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
Jan.	58,550	7	29,503	8,026	19,401	2,628	210	112,685	25,800	120,130
Feb.	41,010	86	3,349	1,130	8,247	3,768	51,480	60,562	15,515	511,508
Mar.	4,866	5,688	861	1,899	2,915	1,709	38,184	20,851	166,811	696,929
Apr.	1,354	13,046	1,884	2,215	45,879	45,135	13,288	11,018	21,977	1,049,665
May	963	1,843	902,167	8,217	23,530	9,748	8,192	214,128	168,441	300,531
June	4,762	16,625	75,433	6,918	401,867	19,438	7,209	270,314	867,641	1,227,383
July	2,635	33,476	25,050	10,698	55,719	13,388	12,453	60,205	100,909	783,064
Aug.	1,792	8,703	115,081	15,327	38,964	6,896	9,274	23,475	63,230	266,458
Sept.	5,185	13,208	127,380	7,371	13,914	2,296	13,704	21,094	123,486	87,142
Oct.	4,934	190,801	156,080	2,826	4,891	2,156	4,861	10,473	117,888	342,144
Nov.	1,565	128,995	74,708	372	5,351	6,197	17,885	3,132	77,284	171,091
Dec.	88	25,797	32,727	37	4,839	2,307	317,095	946	44,565	76,231
Total	127,704	438,275	1,544,223	65,036	625,517	115,666	493,835	808,883	1,793,547	5,632,276

Records of maximum and minimum discharge are not available for period December 1939 to December 1950

NEPEAN RIVER AT PHEASANTS NEST

LOCATION:	Latitude 34°14' Longitude 150°40'
PERIOD OF ESTABLISHMENT:	June 1900 to date
COMPLETE YEARS OF COMPUTED RECORDS:	56
ZERO OF GAUGE:	R.L. 461.80 Standard datum
CATCHMENT AREA:	274 Square miles
CONTROL:	Weir
EQUIPMENT:	Automatic recorder (Float Type) installed 1919 Staff gauge, range 0 to 25 feet
CURRENT METER OBSERVATIONS:	(a) Number obtained : 17 (b) Maximum observation in cusecs : 389 (c) Minimum observation in cusecs : 6
MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORD:	96,100 cusecs
MEAN DAILY DISCHARGE FOR 56 YEARS:	230 cusecs
MEAN ANNUAL DISCHARGE FOR 56 YEARS:	168,000 acre feet
REMARKS:	The discharges shown are affected by the operation of Cordeaux, Avon and Nepean Dam Storages since 1907.

NEPEAN RIVER AT PHEASANTS NEST

Year 1900

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	..	..	..	..
Feb.	..	..	..	..
Mar.	..	..	..	..
Apr.	..	..	..	..
May	..	..	..	..
June	15500	210	1342	80,340
July	67000	405	4530	281,358
Aug.	509	28	137	8,484
Sept.	156	40	84	5,033
Oct.	76	11	36	2,214
Nov.	29900	10	1050	62,860
Dec.	180	18	72	4,443
Total	..	..	..	

Year 1901

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	63	16	24	1,463
Feb.	29	18	21	1,212
Mar.	444	5	57	3,541
Apr.	58	18	33	1,979
May	63	27	39	2,433
June	27	15	20	1,196
July	51	15	30	1,876
Aug.	1072	18	178	11,081
Sept.	223	58	92	5,503
Oct.	149	40	68	4,246
Nov.	100	28	62	3,731
Dec.	120	4	23	1,436
Total	..	..	..	39,697

Year 1902

Jan.	24	11	13	815
Feb.	11	1	5	267
Mar.	3	1	2	94
Apr.	8	2	4	223
May	5	3	4	215
June	5	2	4	213
July	70	4	14	874
Aug.	21	6	8	515
Sept.	31	6	13	786
Oct.	2397	4	187	11,625
Nov.	555	23	79	4,754
Dec.	2373	27	293	18,176
Total	..	..	..	38,557

Year 1903

Jan.	47	7	17	1,036
Feb.	21	6	10	592
Mar.	34	5	10	629
Apr.	12	5	7	414
May	323	11	31	1,899
June	2354	20	197	11,797
July	357	15	67	4,162
Aug.	5607	98	509	31,654
Sept.	3437	58	433	25,941
Oct.	1107	130	433	26,915
Nov.	195	37	99	5,945
Dec.	1124	32	135	8,391
Total	..	..	..	119,375

Year 1904

Jan.	155	52	80	4,972
Feb.	1576	16	150	8,406
Mar.	995	21	159	9,829
Apr.	40000	165	2243	138,987
May	3628	60	518	33,041
June	150	31	77	4,617
July	55900	3750	3746	232,785
Aug.	No Records			13,464*
Sept.	134	0	63	3,902
Oct.	478	31	145	9,005
Nov.	28	10	19	1,156
Dec.	13	6	9	543
Total	..	..	..	460,707*

Year 1905

Jan.	118	3	8	469
Feb.	39	5	12	673
Mar.	18	4	9	536
Apr.	3145	34	457	27,405
May	1174	42	178	11,037
June	No Records			10,730*
July	268	32	73	4,495
Aug.	52	18	26	1,631
Sept.	42	12	20	1,202
Oct.	52	10	21	1,324
Nov.	18	5	13	765
Dec.	3560	29	305	18,880
Total	..	..	..	79,147*

Year 1906

Jan.	67	12	32	1,957
Feb.	12	4	7	366
Mar.	1733	6	118	7,340
Apr.	109	21	42	2,512
May	281	10	24	1,507
June	34	14	21	1,258
July	14	9	11	688
Aug.	No Records			88,000*
Sept.	1313	56	190	11,377
Oct.	155	15	54	3,370
Nov.	72	7	19	1,132
Dec.	14	6	8	514
Total	..	..	..	120,021*

Year 1907

Jan.	213	4	19	1,187
Feb.	29	7	14	806
Mar.	260	7	43	2,656
Apr.	42	10	15	895
May	72	8	23	1,431
June	334	16	120	7,207
July	79	41	40	2,534
Aug.	28	11	19	1,195
Sept.	12	7	9	543
Oct.	6	3	4	255
Nov.	13	3	5	325
Dec.	8	2	4	244
Total	..	..	..	19,278

* Estimated

NEPEAN RIVER AT PHEASANTS NEST

Year 1908

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	4.3	0.7	3.7	230
Feb.	844	28	526	32,582
Mar.	107	14	30	1,820
Apr.	24	1	13	777
May	37	8	13	821
June	13	7	7	436
July	25	6	11	669
Aug.	3878	304	607	37,627
Sept.	54	38	42	2,527
Oct.	26	15	21	1,302
Nov.	16	11	13	773
Dec.	133	8	19	1,150
Total	..	..	..	80,714

Year 1909

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	7.8	1.7	3.3	203
Feb.	13	4.6	7.6	422
Mar.	11	7.4	9.3	577
Apr.	7.2	1.7	3.9	233
May	3.1	1.3	1.7	103
June	1676	2	94	5,635
July	132	14	35	2,083
Aug.	14	8	10	647
Sept.	15	9	12	732
Oct.	20	8	11	669
Nov.	10	2	5	307
Dec.	1307	0.4	115	7,104
Total	..	..	..	18,715

Year 1910

Jan.	1307	12	230	14,240
Feb.	180	12	43	2,386
Mar.	1780	10	156	9,680
Apr.	42	19	26	1,579
May	22	12	15	936
June	19	9	12	708
July	7285	13	1819	112,676
Aug.	143	41	73	4,499
Sept.	39	21	29	1,738
Oct.	38	13	24	1,465
Nov.	26	9	16	954
Dec.	7538	8	317	19,628
Total	..	..	..	170,489

Year 1911

Jan.	47700	27	3506	217,153
Feb.	3660	4	465	28,808
Mar.	2185	67	209	19,188
Apr.	62	31	39	2,331
May	81	24	38	2,334
June	31	17	23	1,350
July	697	17	92	5,668
Aug.	1926	35	229	14,210
Sept.	155	1.3	98	5,846
Oct.	787	0.3	71	4,432
Nov.	No Records			1,300*
Dec.	No Records			1,400*
Total	..	..	..	304,020*

Year 1912

Jan.	No Records			500*
Feb.	No Records			1,800*
Mar.	178	21	54	3,380
Apr.	178	12	38	2,282
May	1148	48	111	6,822
June	1554	46	234	14,010
July	11100	47	1665	103,189
Aug.	785	43	532	32,944
Sept.	No Records			4,700*
Oct.	28	12	18	1,117
Nov.	14	9	11	666
Dec.	13	3	7	440
Total	..	..	..	171,850*

Year 1913

Jan.	7	2	2	148
Feb.	7	2	3	181
Mar.	7000	2	504	31,250
Apr.	669	11	148	8,894
May	13200	43	1110	68,886
June	23700	313	2364	141,887
July	3835	14	530	32,922
Aug.	127	27	69	4,310
Sept.	36	19	34	2,049
Oct.	37	21	28	1,742
Nov.	37	13	29	1,757
Dec.	No Records			380*
Total	..	..	..	294,406*

Year 1914

Jan.	No Records			190*
Feb.	No Records			140*
Mar.	15600	2	1072	66,422
Apr.	304	37	102	6,319
May	85	30	53	3,307
June	511	65	143	8,606
July	4489	69	804	49,728
Aug.	332	91	150	9,305
Sept.	11600	46	824	50,468
Oct.	1204	78	207	12,839
Nov.	995	78	261	15,654
Dec.	18700	37	943	58,386
Total	..	..	..	281,364*

Year 1915

Jan.	1734	15	241	14,885
Feb.	61	20	37	2,094
Mar.	33	7	11	728
Apr.	356	24	78	4,702
May	704	30	117	7,174
June	661	33	106	6,304
July	1493	37	167	10,286
Aug.	195	57	132	8,143
Sept.	176	24	61	3,607
Oct.	33	15	20	1,280
Nov.	15	2	7	451
Dec.	4	2	2	118
Total	..	..	..	59,772

* Estimated

NEPEAN RIVER AT PHEASANTS NEST

Year 1916					Year 1917				
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.	20	7	13	814	Jan.	329	36	98	6,053
Feb.	25	11	17	1,054	Feb.	474	97	277	1,060
Mar.	43	7	20	1,235	Mar.	917	31	100	6,171
Apr.	16	7	11	647	Apr.	2890	22	451	27,032
May	13	8	11	632	May	661	46	143	8,880
June	31	12	20	1,265	June	No Records			2,500*
July	34	16	20	1,306	July	No Records			1,900*
Aug.	116	28	43	2,652	Aug.	No Records			1,100*
Sept.	782	15	56	3,352	Sept.	No Records			5,900*
Oct.	18500	89	2087	129,274	Oct.	No Records			4,800*
Nov.	2298	80	230	13,786	Nov.	No Records			21,300*
Dec.	2365	33	456	28,197	Dec.	No Records			13,700*
Total	..	..	..	184,214	Total	..	..	..	115,396*

Year 1918					Year 1919				
Jan.	8529	20	828	51,319	Jan.	No Records			390*
Feb.	10500	80	865	48,425	Feb.	No Records			1,500*
Mar.	135	43	78	4,787	Mar.	876	26	164	10,175
Apr.	61	24	39	2,334	Apr.	38	17	26	1,535
May	33	11	20	1,221	May	14100	17	1026	63,736
June	11	4	7	466	June	415	32	339	20,368
July	8529	2	611	37,832	July	101	38	50	3,122
Aug.	356	61	217	13,434	Aug.	78	26	40	2,490
Sept.	180	32	59	3,581	Sept.	93	22	50	2,982
Oct.	44	11	20	1,306	Oct.	75	12	22	1,369
Nov.	94	9	22	1,324	Nov.	654	6	30	1,739
Dec.	13	4	6	399	Dec.	2184	22	268	16,675
Total	..	..	..	166,428	Total	..	..	..	126,081*

Year 1920					Year 1921				
Jan.	4856	124	524	32,508	Jan.	5069	54	436	27,024
Feb.	176	26	59	3,429	Feb.	61	24	41	2,264
Mar.	32	15	22	1,360	Mar.	179	17	43	2,638
Apr.	25	9	15	906	Apr.	9380	17	812	48,740
May	11	7	9	521	May	6752	54	1166	72,312
June	11	8	10	584	June	647	93	188	11,299
July	124	9	28	1,735	July	4736	78	868	53,808
Aug.	108	12	31	1,935	Aug.	496	61	144	8,928
Sept.	73	15	25	1,483	Sept.	124	33	67	3,966
Oct.	28	6	11	673	Oct.	37	20	26	1,628
Nov.	12	4	7	418	Nov.	46	13	20	1,232
Dec.	40100	22	1470	91,156	Dec.	2368	6	109	6,748
Total	..	..	..	136,708	Total	..	..	..	240,587

Year 1922					Year 1923				
Jan.	6753	105	897	53,800	Jan.	22	4	7	403
Feb.	4310	31	344	19,240	Feb.	15	4	6	310
Mar.	418	28	104	6,465	Mar.	46	6	13	821
Apr.	257	11	31	1,838	Apr.	355	4	30	1,816
May	54	19	26	1,657	May	133	9	30	1,813
June	41	17	22	1,380	June	694	7	63	3,744
July	42600	20	3067	190,128	July	2368	46	337	20,890
Aug.	1084	83	333	20,682	Aug.	1665	83	290	18,026
Sept.	1443	61	310	18,644	Sept.	518	41	131	7,903
Oct.	1878	33	165	10,212	Oct.	355	20	46	2,852
Nov.	124	17	37	2,238	Nov.	46	13	24	1,465
Dec.	78	7	20	1,246	Dec.	31	7	11	703
Total	..	..	..	327,530	Total	..	..	..	60,746

* Estimated

NEPEAN RIVER AT PHEASANTS NEST

Year 1924					Year 1925				
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.	32	3.7	8	480	Jan.	264	3.7	44	2,753
Feb.	39	3.7	17	959	Feb.	574	22	118	6,875
Mar.	478	1.3	43	2,691	Mar.	45	14	20	1,221
Apr.	1728	20	230	13,757	Apr.	41	7.4	15	897
May	320	28	118	7,349	May	96100	8.7	1337	83,041
June	279	20	97	5,802	June	30100	66	1564	93,675
July	72	15	28	1,719	July	260	55	109	6,787
Aug.	28	17	20	1,243	Aug.	54	26	36	2,256
Sept.	131	13	46	2,752	Sept.	72	14	26	1,527
Oct.	111	7	23	1,439	Oct.	111	7.4	33	2,050
Nov.	33	6.5	11	684	Nov.	108	14	77	4,580
Dec.	15	5.9	7.3	453	Dec.	243	6.7	108	6,680
Total	..	..	..	39,328	Total	..	..	..	212,342

Year 1926					Year 1927				
Jan.	204	8.9	79	4,916	Jan.	37	8.2	17	1,029
Feb.	123	7.2	87	5,087	Feb.	7.4	2	4.1	240
Mar.	331	41	134	8,305	Mar.	26	2	8.1	504
Apr.	697	25	89	5,350	Apr.	34200	6.3	1061	63,540
May	916	24	111	6,873	May	916	33	110	6,854
June	2378	59	181	10,845	June	61	22	34	2,039
July	916	49	163	10,154	July	154	22	109	6,784
Aug.	52	25	36	2,219	Aug.	108	6.7	25	1,537
Sept.	26	15	19	1,116	Sept.	220	104	146	8,768
Oct.	26	7.8	13	826	Oct.	137	112	125	7,749
Nov.	125	3.9	39	2,355	Nov.	180	21	131	7,851
Dec.	18	4.4	7.9	492	Dec.	180	88	157	9,738
Total	..	..	..	58,538	Total	..	..	..	116,633

Year 1928					Year 1929				
Jan.	211	23	138	8,580	Jan.	137	76	126	7,811
Feb.	2222	9	170	9,835	Feb.	2970	109	616	34,314
Mar.	300	57	138	8,566	Mar.	259	34	69	4,299
Apr.	224	84	124	7,433	Apr.	10300	33	315	18,859
May	108	15	48	2,971	May	126	28	41	2,564
June	3756	20	321	19,266	June	36	21	27	1,598
July	18200	51	445	27,554	July	180	21	133	8,236
Aug.	300	53	114	7,086	Aug.	3852	25	109	6,752
Sept.	153	18	71	4,270	Sept.	5260	37	205	12,250
Oct.	157	149	152	9,420	Oct.	27900	35	1093	67,669
Nov.	180	10	136	8,125	Nov.	1111	77	237	14,212
Dec.	169	71	95	5,857	Dec.	76	19	34	2,112
Total	..	..	..	118,963	Total	..	..	..	180,676

Year 1930					Year 1931				
Jan.	190	99	165	10,227	Jan.	285	95	145	9,010
Feb.	185	112	173	9,664	Feb.	103	82	89	5,006
Mar.	207	15	118	7,319	Mar.	315	82	122	7,463
Apr.	162	4	102	6,087	Apr.	7593	19	504	30,188
May	908	15	61	3,798	May	5186	66	297	18,367
June	18500	131	711	42,606	June	296	555	104	6,205
July	1611	108	280	17,323	July	19900	56	774	47,937
Aug.	190	38	88	5,443	Aug.	263	37	88	5,450
Sept.	138	10	71	4,262	Sept.	4519	83	293	17,560
Oct.	220	10	115	7,111	Oct.	252	50	117	7,234
Nov.	256	154	176	10,523	Nov.	206	28	105	6,323
Dec.	2148	99	174	10,789	Dec.	419	22	119	7,370
Total	..	..	..	135,152	Total	..	..	..	168,113

NEPEAN RIVER AT PHEASANTS NEST

Year 1932

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	148	77	87	5,390
Feb.	326	44	125	7,252
Mar.	781	31	115	7,163
Apr.	149	19	57	3,429
May	220	95	106	6,537
June	158	11	57	3,400
July	268	21	88	5,442
Aug.	141	20	59	3,663
Sept.	3885	20	340	20,397
Oct.	231	27	112	6,904
Nov.	237	21	72	4,325
Dec.	216	62	116	7,189
Total	..	..	..	81,091

Year 1933

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	9219	81	475	29,459
Feb.	344	37	102	5,712
Mar.	192	3.7	89	5,505
Apr.	11800	3.7	690	41,440
May	2040	3.7	126	7,788
June	481	48	126	7,548
July	6734	45	280	17,371
Aug.	352	32	138	8,584
Sept.	2516	24	177	10,589
Oct.	1350	66	201	12,498
Nov.	278	49	121	7,263
Dec.	2368	57	193	11,965
Total	..	..	..	165,722

Year 1934

Jan.	21600	50	983	60,976
Feb.	35200	115	220	124,316
Mar.	424	55	168	10,441
Apr.	2683	99	548	32,885
May	2220	0	420	26,029
June	3885	239	586	35,157
July	13500	79	825	51,404
Aug.	4354	268	540	33,492
Sept.	3848	81	567	34,006
Oct.	340	52	129	8,029
Nov.	278	107	159	9,416
Dec.	287	80	139	8,650
Total	..	..	..	434,801

Year 1935

Jan.	333	50	141	8,817
Feb.	1350	55	210	11,777
Mar.	231	40	147	9,146
Apr.	253	9.3	122	7,292
May	179	9.3	74	4,924
June	179	13	103	6,212
July	159	11	70	4,336
Aug.	216	122	157	9,760
Sept.	190	79	140	8,158
Oct.	174	69	132	8,136
Nov.	155	85	123	7,407
Dec.	142	38	91	5,631
Total	..	..	..	91,596

Year 1936

Jan.	172	72	103	6,404
Feb.	299	97	145	8,794
Mar.	418	105	157	9,750
Apr.	202	3.5	85	5,124
May	220	3.5	118	7,355
June	949	3.5	92	5,520
July	187	3.5	111	6,874
Aug.	197	3.5	58	3,577
Sept.	183	47	171	10,260
Oct.	204	158	172	10,645
Nov.	183	164	173	10,408
Dec.	196	100	158	10,041
Total	..	..	..	94,752

Year 1937

Jan.	285	81	196	12,095
Feb.	275	196	216	12,513
Mar.	1323	93	221	13,734
Apr.	226	37	193	11,592
May	296	1.7	81	5,050
June	1100	0.4	187	11,222
July	616	5.6	84	5,216
Aug.	162	5.6	78	4,865
Sept.	181	41	93	5,564
Oct.	104	54	89	5,513
Nov.	183	49	79	4,724
Dec.	161	57	69	4,243
Total	..	..	..	96,331

Year 1938

Jan.	131	48	63	3,885
Feb.	324	31	64	3,589
Mar.	189	51	118	7,281
Apr.	352	118	195	11,673
May	200	1.3	78	4,817
June	244	19	178	10,733
July	207	140	196	12,250
Aug.	17200	22	329	20,468
Sept.	244	9.3	94	5,757
Oct.	1378	102	207	12,846
Nov.	244	74	165	9,941
Dec.	303	159	202	12,517
Total	..	..	..	115,757

Year 1939

Jan.	244	141	176	10,918
Feb.	196	30	176	9,882
Mar.	324	44	174	10,804
Apr.	370	50	146	8,754
May	144	5.6	48	3,030
June	181	5.6	143	8,587
July	180	2.4	102	6,371
Aug.	192	5.6	113	7,022
Sept.	192	112	180	10,852
Oct.	133	56	81	5,065
Nov.	200	74	152	9,131
Dec.	204	196	202	12,487
Total	..	..	..	102,903

Appendix 9
Sheet 7

NEPEAN RIVER AT PHEASANTS NEST.

Year 1940

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	207	199	203	12,572
Feb.	203	194	200	11,606
Mar.	207	185	200	12,391
Apr.	244	99	189	11,355
May	195	57	139	8,630
June	174	45	127	7,629
July	No Records			7,700*
Aug.	No Records			7,700*
Sept.	121	56	102	6,105
Oct.	140	39	94	5,853
Nov.	135	80	110	6,582
Dec.	285	25	61	3,781
Total	..	..	..	101,904*

Year 1941

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	285	46	118	7,344
Feb.	143	39	67	3,714
Mar.	91	0.8	11	736
Apr.	141	39	102	6,056
May	89	0	4	181
June	339	17	67	3,959
July	30	13	19	1,172
Aug.	32	24	30	1,857
Sept.	32	17	26	1,576
Oct.	80	19	28	1,720
Nov.	85	3.7	24	1,472
Dec.	91	3.7	70	4,351
Total	..	..	..	34,138

Year 1942

Jan.	119	3.9	19	1,188
Feb.	118	44	61	3,426
Mar.	1876	56	130	7,977
Apr.	50	28	32	1,938
May	32	17	22	1,402
June	26	23	25	1,494
July	28	22	26	1,557
Aug.	41	20	26	1,617
Sept.	56	39	44	2,630
Oct.	10700	13	529	32,770
Nov.	407	37	74	4,425
Dec.	107	43	74	4,532
Total	..	..	..	64,956

Year 1943

Jan.	118	65	96	5,960
Feb.	185	122	168	8,602
Mar.	183	117	176	10,988
Apr.	183	41	59	3,592
May	56000	59	1519	94,198
June	424	26	126	7,562
July	152	7.4	102	6,267
Aug.	355	41	126	7,799
Sept.	500	37	115	6,848
Oct.	448	52	218	13,527
Nov.	185	56	111	6,697
Dec.	226	61	111	6,870
Total	..	..	..	178,910

Year 1944

Jan.	185	83	165	10,234
Feb.	185	148	181	10,541
Mar.	185	80	174	10,826
Apr.	161	7.4	85	5,113
May	355	5.6	63	3,944
June	91	44	56	3,293
July	94	44	59	3,659
Aug.	96	46	61	3,766
Sept.	89	6.5	57	3,511
Oct.	102	1.5	41	2,608
Nov.	181	26	100	5,533
Dec.	181	124	178	10,959
Total	..	..	..	74,407

Year 1945

Jan.	183	30	167	10,045
Feb.	180	56	133	7,462
Mar.	150	39	83	5,154
Apr.	1813	17	115	6,889
May	331	5.6	54	3,281
June	7400	143	831	49,890
July	320	78	176	10,911
Aug.	161	87	126	7,781
Sept.	198	74	176	10,556
Oct.	180	128	179	11,066
Nov.	266	61	148	8,824
Dec.	180	133	167	10,271
Total	..	..	..	142,130

Year 1946

Jan.	274	154	168	10,437
Feb.	285	69	155	8,676
Mar.	622	15	106	6,549
Apr.	1486	13	128	7,670
May	168	7	85	5,276
June	137	1.9	48	2,900
July	113	1.1	63	3,892
Aug.	143	1.7	24	1,505
Sept.	180	109	146	8,720
Oct.	198	96	148	9,176
Nov.	481	61	133	7,984
Dec.	144	72	113	7,022
Total	..	..	..	79,807

Year 1947

Jan.	183	89	146	9,087
Feb.	955	100	167	9,372
Mar.	159	102	130	8,017
Apr.	518	1.7	52	3,060
May	180	5.2	63	3,919
June	7.4	1.7	3.9	229
July	92	2.2	81	5,046
Aug.	222	87	131	8,188
Sept.	155	76	89	5,309
Oct.	180	89	107	6,615
Nov.	257	91	141	8,484
Dec.	2516	35	161	9,919
Total	..	..	..	77,245

* Estimated

NEPEAN RIVER AT PHEASANTS NEST

Year 1948

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	818	50	136	8,413
Feb.	218	46	135	7,773
Mar.	78	44	78	4,769
Apr.	78	74	76	4,532
May	1042	7.4	100	6,167
June	1240	3.7	83	5,028
July	154	9.3	39	2,379
Aug.	180	54	133	8,243
Sept.	133	91	115	6,926
Oct.	180	91	146	9,109
Nov.	180	102	146	8,794
Dec.	239	85	170	10,556
Total	..	..	..	82,689

Year 1949

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	862	4.4	57	3,540
Feb.	154	3.3	57	3,248
Mar.	675	6.3	109	6,767
Apr.	109	50	93	5,564
May	2503	5.6	276	17,057
June	No Records			39,000*
July	355	113	191	11,832
Aug.	255	56	117	7,259
Sept.	481	93	157	9,412
Oct.	215	1	126	7,744
Nov.	205	98	155	9,331
Dec.	196	70	146	9,005
Total	..	..	..	129,759

Year 1950

Jan.	9620	111	298	18,414
Feb.	5643	101	894	50,024
Mar.	13300	155	1708	105,838
Apr.	64000	159	2150	128,941
May	8676	155	634	39,353
June	28900	154	4068	244,079
July	11400	265	1321	81,895
Aug.	1443	174	379	23,461
Sept.	418	141	196	11,770
Oct.	4847	155	599	37,192
Nov.	955	159	322	19,354
Dec.	261	120	185	11,495
Total	..	..	..	771,816

Year 1951

Jan.	18500	198	2046	126,862
Feb.	16200	129	1261	70,656
Mar.	955	126	305	18,930
Apr.	207	102	150	8,990
May	781	115	176	10,910
June	25500	122	2751	165,057
July	No Records			
Aug.	No Records			
Sept.	11400	136	535	32,112
Oct.	337	112	209	12,992
Nov.	211	198	200	12,006
Dec.	203	187	196	12,118
Total	..	..	..	

Year 1952

Jan.	231	179	181	11,282
Feb.	242	116	195	11,310
Mar.	2053	44	173	10,700
Apr.	3885	34	414	24,838
May	327	21	130	8,094
June	50600	132	2037	122,211
July	57600	88	1745	108,164
Aug.	23900	235	3287	203,800
Sept.	237	121	177	10,600
Oct.	1128	80	231	14,367
Nov.	250	98	191	11,400
Dec.	266	134	171	10,588
Total	..	..	..	547,354

Year 1953

Jan.	270	128	181	11,234
Feb.	242	75	161	9,056
Mar.	154	75	114	7,054
Apr.	169	90	105	6,310
May	8732	43	612	38,002
June	235	98	186	11,130
July	190	95	149	9,248
Aug.	196	65	176	10,892
Sept.	154	57	91	5,470
Oct.	203	57	85	5,292
Nov.	179	80	127	7,640
Dec.	235	159	192	11,922
Total	..	..	..	133,250

Year 1954

Jan.	235	83	122	7,564
Feb.	14300	77	556	31,168
Mar.	412	73	197	12,240
Apr.	196	151	175	10,496
May	179	91	144	8,934
June	91	1.7	34	2,054
July	No Records			4,750 *
Aug.	168	0	38	2,334
Sept.	No Records			
Oct.	No Records			
Nov.	No Records			
Dec.	233	149	171	10,424
Total	..	..	..	

Year 1955

Jan.	387	57	172	10,662
Feb.	1942	83	161	9,006
Mar.	327	46	97	6,002
Apr.	147	54	91	5,460
May	31800	86	1018	63,138
June	470	74	181	10,832
July	206	100	167	10,332
Aug.	153	105	125	7,762
Sept.	264	137	151	9,068
Oct.	217	136	161	9,980
Nov.	184	106	150	9,004
Dec.	122	77	105	6,520
Total	..	..	..	157,766

* Estimated

NEPEAN RIVER AT PHEASANT'S NEST

Year 1956

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	151	4.4	72	4,488
Feb.	45100	119	3754	217,720
Mar.	16400	372	3257	201,956
Apr.	418	139	244	14,658
May	4019	138	643	39,904
June	16100	86	1130	67,830
July	2451	138	468	29,034
Aug.	659	103	234	14,484
Sept.	210	115	159	9,524
Oct.	1369	138	343	21,262
Nov.	198	153	172	10,332
Dec.	No Records			
Total	..	..	..	

Year 1957

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	192	179	183	11,396
Feb.	895	84	196	10,962
Mar.	183	132	169	10,462
Apr.	266	168	181	10,868
May	177	151	165	10,264
June	179	75	156	9,366
July	600	31	87	5,285
Aug.	No Records			
Sept.	179	0	62	3,704
Oct.	179	111	164	10,192
Nov.	198	176	184	11,038
Dec.	No Records			10,848*
Total	..	..	..	

Year 1958

Jan.	No Records			9,538*
Feb.	207	54	107	6,000
Mar.	4560	17	344	21,346
Apr.	200	8.9	39	2,338
May	183	27	138	8,564
June	568	116	134	8,040
July	699	17	106	6,562
Aug.	196	0	62	3,848
Sept.	179	0	122	7,296
Oct.	166	93	143	8,878
Nov.	No Records			
Dec.	No Records			8,100*
Total	..	..	..	

Year 1959

Jan.	159	28	66	4,080
Feb.	5176	19	460	25,742
Mar.	No Records			
Apr.	No Records			16,800*
May	179	46	85	5,262
June	263	40	70	4,186
July	15700	13	1103	68,356
Aug.	285	124	157	9,732
Sept.	No Records			6,500*
Oct.	No Records			
Nov.	No Records			
Dec.	252	158	189	11,744
Total	..	..	..	

Year 1960

Jan.	199	154	169	10,508
Feb.	223	108	160	9,292
Mar.	180	158	170	10,516
Apr.	No Records			10,200*
May	378	126	183	11,324
June	148	120	125	7,490
July	No Records			7,600*
Aug.	122	47	79	4,876
Sept.	76	57	61	3,648
Oct.	199	69	117	7,260
Nov.	182	104	127	7,640
Dec.	No Records			
Total	..	..	..	

Year 1961

Jan.	No Records			
Feb.	178	151	157	8,802
Mar.	No Records			
Apr.	No Records			
May	No Records			9,000*
June	No Records			10,000*
July	No Records			
Aug.	No Records			48,700*
Sept.	496	105	244	14,656
Oct.	2694	100	333	20,634
Nov.	No Records			
Dec.	No Records			
Total	..	..	..	

Year 1962

Jan.	No Records			
Feb.	No Records			
Mar.	No Records			
Apr.	274	80	147	8,796
May	No Records			
June	231	105	183	10,966
July	404	129	179	11,072
Aug.	3330	98	565	35,044
Sept.	No Records			20,900*
Oct.	213	117	160	9,896
Nov.	179	115	144	8,650
Dec.	218	128	154	9,558
Total	..	..	..	

Year 1963

Jan.	No Records			13,200*
Feb.	No Records			10,600*
Mar.	14000	138	2014	124,890
Apr.	No Records			104,000*
May	No Records			94,300*
June	9222	182	1068	64,072
July	577	151	286	17,708
Aug.	28500	135	1328	82,350
Sept.	No Records			46,000*
Oct.	1156	154	347	21,502
Nov.	No Records			12,400*
Dec.	No Records			67,200*
Total	..	..	..	648,622*

* Estimated

NEPEAN RIVER AT PHEASANTS NEST

Year 1964

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	241	72	128	7,928
Feb.	179	151	170	9,872
Mar.	No Records			9,700*
Apr.	9481	168	898	53,882
May	No Records			11,900*
June	27600	137	2295	137,698
July	263	5.2	42	2,604
Aug.	281	5.9	155	9,632
Sept.	No Records			11,600*
Oct.	No Records			11,900*
Nov.	No Records			10,700*
Dec.	213	160	177	10,992
Total	..	..	..	288,408*

Year 1965

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	1624	107	493	30,578
Feb.	1852	91	738	41,292
Mar.	1835	1042	1446	89,624
Apr.	1637	47	448	27,856
May	78	73	75	4,682
June	58	38	53	3,210
July	2116	12	157	9,710
Aug.	19	6.7	13	826
Sept.	No Records			
Oct.	No Records			
Nov.	No Records			
Dec.	No Records			
Total	..	..	..	

Year 1966

Jan.	No Records			
Feb.	No Records			
Mar.	No Records			
Apr.	No Records			
May	No Records			
June	No Records			
July	No Records			
Aug.	No Records			
Sept.	No Records			
Oct.	No Records			
Nov.	6590	6.2	285	17,094
Dec.	157	87	115	7,096
Total	..	..	..	

Year 1967

Jan.	872	52	117	7,230
Feb.	371	24	56	3,110
Mar.	2100	28	248	15,400
Apr.	Records Incomplete			
May	Records Incomplete			
June	1430	21	236	14,200
July	1400	47	196	12,100
Aug.	35300	44	746	46,200
Sept.	19900	67	854	51,200
Oct.	332	42	91	5,620
Nov.	91	10	35	2,090
Dec.	59	12	54	3,360
Total	..	..	..	

Year 1968

Jan.	68	34	45	2,700
Feb.	Records Incomplete			
Mar.	44	26	27	1,770
Apr.	Records Incomplete			
May	44	4	18	1,120
June	3	3	3	180
July	3	3	3	173
Aug.	3	3	3	173
Sept.	15	1	3	171
Oct.	70	15	19	1,170
Nov.	Records Incomplete			
Dec.	Records Incomplete			
Total	..	..	..	

Year 1969

Jan.	28	18	21	1,293
Feb.	113	14	32	1,793
Mar.	Records Incomplete			
Apr.	8533	19	427	25,560
May	74	24	43	2,633
June	7420	24	420	25,140
July	250	63	136	8,406
Aug.	2690	35	406	25,110
Sept.	623	63	179	10,740
Oct.	325	2	82	5,073
Nov.	37300	138	2081	124,680
Dec.	180	27	87	5,369
Total	..	..	..	

Year 1970

Jan.	286	26	35	2,144
Feb.	236	24	51	2,829
Mar.	82	19	35	2,148
Apr.	32	16	21	1,259
May	30	26	27	1,648
June	30	26	28	1,644
July	27	26	26	1,622
Aug.	27	1	3	1,826
Sept.	28	3	13	778
Oct.	28	23	24	1,485
Nov.	25	23	23	1,392
Dec.	2100	23	215	13,294
Total	..	..	..	32,069

Year 1971

Jan.	37	22	29	1,807
Feb.	7643	28	1180	65,980
Mar.	2374	99	311	19,240
Apr.	239	3	83	4,939
May	7	1	3	159
June	42	2	15	877
July	149	0	28	1,755
Aug.	Records Incomplete			
Sept.	47	0	40	2,395
Oct.	118	2	27	1,684
Nov.	49	2	8	496
Dec.	286	2	24	1,488
Total	..	..	..	

* Estimated

CATARACT RIVER AT JORDANS CROSSING

LOCATION:	Latitude 34°14' Longitude 150°46'
PERIOD OF ESTABLISHMENT:	October 1923 to date
COMPLETE YEARS OF COMPUTED RECORDS:	38
ZERO OF GAUGE:	R.L. 46.00 Assumed datum
CATCHMENT AREA:	50 Square miles
CONTROL:	Measuring Weir
EQUIPMENT:	Automatic recorder (Float Type) Staff gauge, range 0 to 15 feet.
CURRENT METER OBSERVATIONS:	(a) Number obtained : - (b) Maximum Observation in Cusecs : - (c) Minimum Observation in Cusecs : -
MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORD:	29,240 cusecs
MEAN DAILY DISCHARGE FOR 38 YEARS:	86 cusecs
MEAN ANNUAL DISCHARGE FOR 38 YEARS:	63,000 acre feet
REMARKS:	The discharges shown are affected by the operation of Cataract Dam Storage since 1907. The discharges are computed by weir formula and hence no gaugings have been obtained.

Appendix 10
Sheet 2

CATARACT RIVER AT JORDANS CROSSING

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.	..	..	..	..	Jan.	250	8.6	158	9,788
Feb.	..	..	..	..	Feb.	173	4	61	3,544
Mar.	..	..	..	..	Mar.	140	5	106	6,576
Apr.	..	..	..	..	Apr.	37	4.8	12	730
May	..	..	..	..	May	16	4.7	5.9	366
June	..	..	..	..	June	7.4	4	5.4	326
July	..	..	..	..	July	173	4.8	64	3,996
Aug.	..	..	..	..	Aug.	170	4.7	94	5,829
Sept.	..	..	..	..	Sept.	119	4	31	1,872
Oct.	8.1	7	7.8	485	Oct.	156	4	78	4,826
Nov.	89	8.1	56	3,347	Nov.	158	153	155	9,285
Dec.	253	56	147	9,088	Dec.	153	4	96	5,951
Total	..	..	..	..	Total	..	..	..	53,089

Year 1925					Year 1926				
Jan.	164	4	77	4,777	Jan.	121	2.8	57	3,456
Feb.	155	3.3	29	1,634	Feb.	150	4.1	122	6,817
Mar.	158	5.6	127	7,896	Mar.	145	7.4	97	6,011
Apr.	153	5.6	101	6,062	Apr.	112	4.4	22	1,320
May	2500	4.1	105	6,512	May	365	4.8	47	2,934
June	No Records			29,000*	June	257	7.4	21	1,234
July	101	19	43	2,672	July	153	16	45	2,766
Aug.	74	11	20	1,213	Aug.	116	5.7	19	1,199
Sept.	143	14	109	6,522	Sept.	141	4.6	81	4,873
Oct.	161	140	148	9,183	Oct.	257	145	167	10,360
Nov.	161	4.3	100	6,012	Nov.	267	133	206	12,382
Dec.	103	2.6	59	3,652	Dec.	250	4.1	112	6,939
Total	..	..	..	85,135*	Total	..	..	..	60,291

Year 1927					Year 1928				
Jan.	248	48	131	8,092	Jan.	155	0.7	3.3	204
Feb.	233	97	154	8,632	Feb.	211	3.3	87	5,059
Mar.	254	2.4	131	8,135	Mar.	7.4	1.7	2.9	182
Apr.	5074	3.1	132	7,933	Apr.	3.3	2.3	2.6	155
May	17	2.6	5.3	329	May	129	2	84	5,210
June	2.6	2.2	2.4	146	June	283	3.7	75	4,525
July	239	2.6	109	6,750	July	8223	4.1	245	15,173
Aug.	100	1.4	19	1,165	Aug.	135	18	57	3,544
Sept.	100	61	67	4,038	Sept.	118	1.5	38	2,296
Oct.	62	1.5	7.1	442	Oct.	119	2.2	90	5,568
Nov.	1.9	1.5	1.5	91	Nov.	2.4	0.4	1.3	82
Dec.	1.6	1.3	1.4	90	Dec.	143	0	103	6,414
Total	..	..	..	45,843	Total	..	..	..	48,412

Year 1929					Year 1930				
Jan.	143	80	93	5,777	Jan.	48	1.5	41	2,545
Feb.	248	3.3	141	7,901	Feb.	50	0	2.4	139
Mar.	17	0.7	3.2	200	Mar.	138	51	66	4,124
Apr.	2161	1.4	104	6,338	Apr.	140	0.4	43	2,558
May	157	4.1	98	6,100	May	194	0.6	22	1,347
June	97	95	96	5,758	June	16850	47	576	34,592
July	121	7.8	103	6,420	July	1326	26	126	7,807
Aug.	289	1.1	12	742	Aug.	45	3.7	13	826
Sept.	1704	0.7	117	7,012	Sept.	128	3.3	72	4,334
Oct.	6757	11	252	15,606	Oct.	143	0.6	58	3,615
Nov.	281	6.3	47	2,815	Nov.	61	58	60	3,595
Dec.	145	1.9	116	7,182	Dec.	65	9.4	60	3,741
Total	..	..	..	71,851	Total	..	..	..	69,223

* Estimated

CATARACT RIVER AT JORDANS CROSSING

Year 1931

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	109	0.6	34	2,108
Feb.	114	77	97	5,440
Mar.	80	0.9	17	1,059
Apr.	626	0.9	59	3,558
May	550	1.5	33	2,019
June	94	11	36	2,177
July	14350	14	368	22,861
Aug.	112	4.3	27	1,666
Sept.	1269	11	93	5,553
Oct.	100	6.3	65	4,016
Nov.	89	1.3	34	2,033
Dec.	81	56	66	4,106
Total	..	..	..	56,596

Year 1932

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	141	74	117	7,168
Feb.	138	9.6	63	3,672
Mar.	196	6.1	85	5,247
Apr.	126	0.6	70	4,200
May	60	0.6	39	2,439
June	91	0.6	56	3,360
July	106	1.5	39	2,440
Aug.	111	1.3	63	3,927
Sept.	450	1.5	75	4,474
Oct.	183	26	68	4,233
Nov.	156	20	115	6,915
Dec.	133	59	85	5,255
Total	..	..	..	53,330

Year 1933

Jan.	14740	32	387	24,002
Feb.	181	13	103	5,759
Mar.	143	70	83	5,173
Apr.	5426	4.1	167	10,011
May	2093	0.9	90	5,598
June	143	1.8	80	4,780
July	1459	1.8	75	4,647
Aug.	99	1.5	68	4,236
Sept.	167	1.5	71	4,236
Oct.	67	2	28	1,725
Nov.	32	14	23	1,391
Dec.	118	4.3	34	2,105
Total	..	..	..	73,663

Year 1934

Jan.	20610	28	329	22,202
Feb.	8630	18	451	25,233
Mar.	176	20	61	3,764
Apr.	1093	4.8	152	9,121
May	1843	22	224	13,898
June	1693	44	181	10,855
July	3926	4.8	207	12,845
Aug.	593	47	160	9,651
Sept.	2222	28	281	16,854
Oct.	129	1.3	60	3,725
Nov.	108	68	93	5,568
Dec.	100	0.4	49	3,052
Total	..	..	..	136,768

Year 1935

Jan.	58	0.4	29	1,779
Feb.	128	1.5	58	3,284
Mar.	74	0	48	3,034
Apr.	75	1.1	29	1,774
May	103	0.4	46	2,888
June	103	0.6	64	3,858
July	44	0.2	17	1,067
Aug.	103	44	60	4,105
Sept.	103	59	74	4,422
Oct.	79	32	58	3,621
Nov.	112	51	83	4,957
Dec.	112	37	79	4,891
Total	..	..	..	39,680

Year 1936

Jan.	109	52	86	5,315
Feb.	124	0.9	26	1,508
Mar.	43	1.5	11	687
Apr.	85	0.7	25	1,501
May	108	0.7	73	4,557
June	278	1.3	62	3,734
July	107	1.5	65	4,033
Aug.	103	0.6	38	2,357
Sept.	110	64	101	6,039
Oct.	69	37	60	3,736
Nov.	94	32	66	3,993
Dec.	..	0.6	29	1,800*
Total	..	..	..	39,260*

Year 1937

Jan.	39	0.6	12	746
Feb.	39	0.2	8.1	452
Mar.	139	0.2	5	307
Apr.	0.3	0.2	0.2	13
May	7.8	0.2	0.7	46
June	626	0.2	53	3,204
July	515	1.7	41	2,518
Aug.	179	1.3	84	5,196
Sept.	122	76	104	6,266
Oct.	163	63	90	5,581
Nov.	156	18	100	6,028
Dec.	202	157	176	10,943
Total	..	..	..	41,300

Year 1938

Jan.	183	36	161	9,955
Feb.	163	9.4	133	7,464
Mar.	188	0.6	97	6,035
Apr.	63	0.2	12	714
May	19	0.2	5.2	321
June	53	0.2	4.3	258
July	1.5	0.2	0.3	17
Aug.	2963	0.2	60	3,748
Sept.	59	1.7	22	1,349
Oct.	189	1.2	33	2,074
Nov.	126	2.6	37	2,227
Dec.	81	11	72	4,465
Total	..	..	..	38,627

*Estimated

CATARACT RIVER AT JORDANS CROSSING

Year 1939

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	96	30	67	4,157
Feb.	79	11	72	4,022
Mar.	83	0.6	22	1,386
Apr.	248	1.5	9.8	589
May	79	0.5	15	942
June	99	0.5	79	4,755
July	99	1.2	38	2,388
Aug.	93	0.5	60	3,748
Sept.	100	70	93	5,567
Oct.	133	69	94	5,800
Nov.	140	2.8	61	3,650
Dec.	75	28	68	4,214
Total	..	..	..	41,218

Year 1940

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	77	75	75	4,674
Feb.	79	75	76	4,434
Mar.	76	75	76	4,739
Apr.	77	0.5	27	1,614
May	1	0.5	0.6	36
June	0.5	0.5	0.5	30
July	0.5	0.5	0.5	29
Aug.	0.5	0.5	0.5	30
Sept.	0.5	0.3	0.4	24
Oct.	0.5	0.2	0.4	26
Nov.	0.2	0	0	1
Dec.	15	0.5	3.1	193
Total	..	..	..	15,830

Year 1941

Jan.	2.6	0.5	1	66
Feb.	129	0.5	42	2,349
Mar.	158	3.9	113	6,991
Apr.	155	0.2	11	637
May	49	0.4	3.5	216
June	155	27	77	4,634
July	40	21	28	1,734
Aug.	40	40	40	2,500
Sept.	45	16	30	1,802
Oct.	30	0.4	15	927
Nov.	128	0.5	81	4,880
Dec.	87	0	21	1,275
Total	..	..	..	28,011

Year 1942

Jan.	119	3.3	106	6,651
Feb.	77	0.4	37	2,106
Mar.	1393	0.5	41	2,524
Apr.	15	0.2	1.7	101
May	3.3	0.2	0.7	44
June	3.3	0.6	1.2	71
July	1.5	0.4	0.6	40
Aug.	0.2	0.2	0.2	14
Sept.	0.6	0.2	0.2	12
Oct.	3185	0.6	105	6,521
Nov.	91	0.7	10	608
Dec.	2.4	0.2	0.4	27
Total	..	..	..	18,719

Year 1943

Jan.	0.4	0.2	0.2	12
Feb.	0.2	0	0.2	10
Mar.	44	0	23	1,406
Apr.	49	41	43	2,612
May	14740	48	598	37,144
June	248	8.9	56	3,354
July	123	0.5	18	1,114
Aug.	850	0.5	67	4,163
Sept.	3204	23	129	7,723
Oct.	633	4.4	78	4,839
Nov.	339	4.1	63	3,743
Dec.	174	4.1	38	2,342
Total	..	..	..	68,462

Year 1944

Jan.	81	1.4	31	1,900
Feb.	69	24	54	3,164
Mar.	44	25	34	2,136
Apr.	98	0.6	52	3,536
May	139	2	89	5,468
June	2	0.5	1	61
July	4	0.5	1.3	76
Aug.	1.9	0.5	0.7	51
Sept.	68	0.6	36	2,194
Oct.	123	63	92	5,697
Nov.	148	80	122	7,278
Dec.	100	85	89	5,500
Total	..	..	..	37,061

Year 1945

Jan.	115	0.2	47	2,905
Feb.	43	0.2	5	282
Mar.	160	61	106	6,586
Apr.	5279	3	78	4,710
May	294	4.4	91	5,581
June	No Records			43,000*
July	226	20	55	3,397
Aug.	102	5.6	23	1,459
Sept.	98	4.4	39	2,335
Oct.	78	0.6	26	1,632
Nov.	100	2.2	62	3,749
Dec.	109	26	74	4,593
Total	..	..	..	80,229*

Year 1946

Jan.	100	26	83	5,115
Feb.	98	0.6	45	2,532
Mar.	113	2.2	45	2,783
Apr.	550	2.2	63	3,735
May	114	1.1	38	2,354
June	76	1.1	33	1,989
July	96	1.1	44	2,711
Aug.	106	32	57	3,532
Sept.	107	1.5	74	4,447
Oct.	113	0.7	39	2,433
Nov.	106	4.4	61	3,690
Dec.	91	3.3	65	4,009
Total	..	..	..	39,303

* Estimated

CATARACT RIVER AT JORDANS CROSSING

Year 1947

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	105	93	93	5,785
Feb.	239	3	65	3,652
Mar.	3	2.2	2.2	142
Apr.	108	29	55	3,282
May	123	1.1	33	2,078
June	112	6.7	96	5,739
July	112	0.6	6.5	397
Aug.	43	0.2	10	642
Sept.	43	1.1	16	959
Oct.	83	42	55	3,363
Nov.	59	0.6	18	1,077
Dec.	306	0.6	27	1,675
Total	..	..	..	28,792

Year 1948

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	664	2.2	31	1,943
Feb.	80	3	72	4,169
Mar.	93	80	81	5,016
Apr.	82	0.6	25	1,526
May	750	0.6	89	5,512
June	587	7.4	83	5,007
July	218	4.1	44	2,737
Aug.	218	0.6	72	4,449
Sept.	0.6	0.2	0.3	20
Oct.	111	0.2	36	2,213
Nov.	111	1.1	41	2,481
Dec.	111	32	78	4,810
Total	..	..	..	39,883

Year 1949

Jan.	160	15	79	4,907
Feb.	219	1.9	100	5,594
Mar.	196	7.4	81	5,049
Apr.	67	1.7	33	2,001
May	6235	3	200	12,359
June	23500	35	1100	66,156
July	107	18	68	4,255
Aug.	131	1.5	63	3,870
Sept.	361	9.3	70	4,244
Oct.	200	46	111	6,837
Nov.	111	0.6	33	1,985
Dec.	105	0.2	35	2,148
Total	..	..	..	119,405

Year 1950

Jan.	No Records			11,000*
Feb.	No Records			19,000*
Mar.	No Records			32,000*
Apr.	12030	10	509	30,572
May	2738	10	209	12,951
June	15730	4.4	1190	71,478
July	6984	28	440	27,298
Aug.	514	26	102	6,344
Sept.	466	3.7	104	6,252
Oct.	1443	10	131	8,137
Nov.	586	3.7	105	6,300
Dec.	126	41	100	6,181
Total	..	..	..	237,513*

Year 1951

Jan.	10680	107	623	38,672
Feb.	3478	59	259	14,467
Mar.	266	5.6	92	5,750
Apr.	82	63	81	4,834
May	134	10	63	3,937
June	9130	84	644	38,619
July	992	22	101	6,273
Aug.	1391	26	125	7,727
Sept.	459	11	82	4,912
Oct.	107	28	83	5,138
Nov.	107	105	105	6,318
Dec.	105	1	77	4,747
Total	..	..	..	141,394

Year 1952

Jan.	79	0	36	2,237
Feb.	116	2	83	4,801
Mar.	333	0	23	1,406
Apr.	184	2	95	5,707
May	369	25	72	4,484
June	26090	14	732	43,910
July	8214	15	405	25,163
Aug.	9231	45	840	52,126
Sept.	103	48	66	3,986
Oct.	586	68	95	5,896
Nov.	114	86	105	6,290
Dec.	114	0.2	72	4,474
Total	..	..	..	160,480

Year 1953

Jan.	51	2	16	1,016
Feb.	32	3	20	1,120
Mar.	88	0.4	27	1,690
Apr.	105	1	36	2,178
May	7233	1	415	25,737
June	666	462	57	3,408
July	110	0.2	51	3,139
Aug.	120	4	87	5,391
Sept.	94	2	14	856
Oct.	127	0.6	19	1,190
Nov.	102	0.2	27	1,652
Dec.	107	1	79	4,919
Total	..	..	..	52,296

Year 1954

Jan.	119	0	3	2,042
Feb.	11600	1	291	16,321
Mar.	464	13	96	5,974
Apr.	112	13	108	6,454
May	13	0.2	0.8	49
June	88	2	8	471
July	113	0.6	50	3,118
Aug.	91	0.1	10	618
Sept.	0	0	0	0
Oct.	91	0	31	1,884
Nov.	139	3	37	2,230
Dec.	126	3	38	2,396
	..	..	..	41,557

* Estimated

CATARACT RIVER AT JORDANS CROSSING

Year 1955

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	139	13	89	5,482
Feb.	1848	3	121	6,800
Mar.	499	74	197	12,207
Apr.	195	49	100	6,026
May	No Records			
June	123	74	82	4,921
July	74	32	47	2,931
Aug.	46	2	4	244
Sept.	23	0	3	183
Oct.	32	0	3	213
Nov.	119	2	45	2,730
Dec.	148	13	51	3,188
Total	..	..	..	

Year 1956

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	190	3	92	5,701
Feb.	19210	2	1610	93,368
Mar.	4915	108	717	44,434
Apr.	162	54	94	5,656
May	150	30	78	4,847
June	4583	26	288	17,273
July	444	30	83	5,138
Aug.	379	33	108	6,696
Sept.	110	2	44	2,660
Oct.	151	2	80	4,959
Nov.	103	61	86	5,146
Dec.	No Records			
Total	..	..	..	

Year 1957

Jan.	No Records			
Feb.	140	36	66	3,690
Mar.	70	2	41	2,561
Apr.	69	1	12	703
May	108	1	61	3,755
June	108	2	44	2,642
July	310	2	24	1,481
Aug.	145	2	21	1,302
Sept.	100	4	53	3,198
Oct.	110	2	62	3,818
Nov.	110	102	107	6,391
Dec.	115	108	112	6,933
Total	..	..	..	

Year 1958

Jan.	115	8	47	2,919
Feb.	244	3	44	2,445
Mar.	2548	3	264	16,365
Apr.	116	15	88	5,297
May	103	4	69	4,278
June	250	2	12	699
July	1026	81	174	10,753
Aug.	132	80	102	6,292
Sept.	106	2	28	1,711
Oct.	115	2	37	2,285
Nov.	105	72	88	5,309
Dec.	76	2	31	1,913
Total	..	..	..	60,266

Year 1959

Jan.	145	1	71	4,414
Feb.	1006	35	173	9,694
Mar.	No Records			
Apr.	No Records			
May	109	3	23	1,435
June	88	2	7	437
July	2978	7	275	17,083
Aug.	135	20	79	4,903
Sept.	165	20	128	7,718
Oct.	2030	51	276	17,175
Nov.	700	91	215	12,898
Dec.	116	75	102	6,338
Total	..	..	..	

Year 1960

Jan.	109	18	76	4,687
Feb.	121	60	68	3,944
Mar.	59	0.6	13	836
Apr.	3	0.2	1	67
May	246	2	47	2,914
June	61	35	43	2,579
July	275	45	103	6,386
Aug.	167	105	127	7,844
Sept.	110	76	104	6,219
Oct.	157	68	85	5,265
Nov.	121	68	92	5,532
Dec.		26	154	9,216*
Total	..	..	..	55,507*

Year 1961

Jan.	No Records			
Feb.	67	59	64	3,569
Mar.	No Records			
Apr.	483	35	125	6,507
May	75	21	33	2,026
June	284	10	221	13,307
July	116	12	70	4,348
Aug.	2422	64	221	13,730
Sept.	143	45	81	4,373
Oct.	181	54	110	6,822
Nov.	29240	123	1747	104,807
Dec.	5627	43	395	24,501
Total	..	..	..	

Year 1962

Jan.	1215	27	266	16,484
Feb.	2337	68	367	20,575
Mar.	289	8	86	5,320
Apr.	272	22	80	4,782
May	7030	11	409	23,740
June	80	5	43	2,597
July	83	37	76	4,736
Aug.	272	25	91	5,662
Sept.	1006	8	137	7,914
Oct.	107	103	107	6,624
Nov.	105	52	83	4,981
Dec.	123	81	93	5,777
Total	..	..	..	109,192

* Estimated

Appendix 10
Sheet 7

CATARACT RIVER AT JORDANS CROSSING

Year 1963

Month	Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	463	18	97	6,019
Feb.	105	31	65	3,666
Mar.	7965	58	656	40,695
Apr.	No Records			
May	No Records			
June	1935	25	282	16,935
July	241	27	78	4,817
Aug.	7133	35	365	22,623
Sept.	No Records			
Oct.	145	41	71	4,410
Nov.	101	67	74	4,417
Dec.	2615	67	315	19,552
Total	..	..	..	

Year 1964

Month	Discharge In Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	110	86	94	5,837
Feb.	110	105	109	6,303
Mar.	120	72	95	5,872
Apr.	No Records			
May	110	11	67	4,163
June	18729	68	1095	65,675
July	116	38	85	5,262
Aug.	142	95	108	6,671
Sept.	110	100	105	6,307
Oct.	110	105	107	6,663
Nov.	125	95	97	5,839
Dec.	103	99	98	6,092
Total	..	..	..	

Year 1965

Jan.	98	18	81	5,049
Feb.	83	16	44	2,465
Mar.	100	50	82	5,106
Apr.	91	0	18	1,093
May	0	0	0	0
June	4	0.9	0.3	17
July	41	0.2	6.5	4,055
Aug.	16	0.2	3	194
Sept.	14	2	9	518
Oct.	180	8	22	1,336
Nov.	49	2	29	1,733
Dec.	48	24	27	1,688
Total	..	..	..	23,254

Year 1966

Jan.	58	40	46	2,870
Feb.	Records Incomplete			2,274
Mar.	Records Incomplete			599
Apr.	37	32	33	1,959
May	33	22	23	1,445
June	143	5.9	19	1,132
July	19	13	14	872
Aug.	20	10	14	866
Sept.	19	1.4	9.8	587
Oct.	24	13	18	307
Nov.	295	2	28	445
Dec.	26	0.6	4.5	283
Total	..	..	..	15,670

Year 1967

Jan.	1328	0.2	125	7,732
Feb.	Records Incomplete			
Mar.	Records Incomplete			
Apr.	Records Incomplete			
May	No Records			
June	No Records			
July	No Records			
Aug.	No Records			
Sept.	No Records			
Oct.	No Records			
Nov.	No Records			
Dec.	56	15	32	1,968
Total	..	..	..	

Year 1968

Jan.	56	15	24	1,464
Feb.	15	15	15	891
Mar.	17	15	16	968
Apr.	17	15	16	945
May	51	13	18	1,113
June	22	21	21	1,283
July	21	21	21	1,308
Aug.	21	21	21	1,308
Sept.	38	21	22	1,790
Oct.	170	32	38	2,346
Nov.	147	40	72	4,307
Dec.	Records Incomplete			
Total	..	..	..	

Year 1969

Jan.	Records Incomplete			
Feb.	82	6.7	25	1,386
Mar.	49	24	26	1,586
Apr.	3565	7.4	59	3,632
May	Records Incomplete			
June	2600	19	199	11,934
July	170	15	62	3,851
Aug.	934	59	168	10,381
Sept.	249	51	97	5,792
Oct.	477	28	62	3,851
Nov.	Records Incomplete			
Dec.	147	15	71	6,965
Total	..	..	..	

Year 1970

Jan.	22	17	21	1,275
Feb.	43	0	17	925
Mar.	21	0.2	7.7	475
Apr.	18	18	18	1,055
May	18	18	18	1,090
June	18	18	18	1,055
July	21	18	18	1,093
Aug.	40	28	38	2,333
Sept.	38	20	29	1,763
Oct.	21	21	21	1,308
Nov.	24	21	22	1,309
Dec.	1263	24	188	11,594
Total	..	..	..	25,275

CATARACT RIVER AT JORDANS CROSSING

Year 1971

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	78	17	24	1,509
Feb.	3788	48	328	18,303
Mar.	708	15	108	6,650
Apr.	101	51	69	4,120
May	51	37	42	2,615
June	42	0.6	23	1,438
July	101	0.6	16	1,007
Aug.	78	0.6	34	2,129
Sept.	28	0.2	2.0	121
Oct.	78	0.6	25	1,529
Nov.	182	0.6	54	3,214
Dec.	170	15	50	829
Total	..	..	..	45,704

CATARACT RIVER AT BROUGHTON'S PASS

LOCATION:	Latitude 34°14' Longitude 150°45'
PERIOD OF ESTABLISHMENT:	June 1888 to December 1950
COMPLETE YEARS OF COMPUTED RECORDS:	23
ZERO OF GAUGE:	R.L. 436.67 Standard datum
CATCHMENT AREA:	80 Square miles
CONTROL:	Measuring weir
EQUIPMENT:	Staff gauge, range 0 to 20 feet
CURRENT METER OBSERVATIONS:	(a) Number obtained : 1 (b) Maximum observation in cusecs :18 (c) Minimum observation in cusecs :18
MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORD:	23,400 cusecs
MEAN DAILY DISCHARGE FOR 23 YEARS:	81 cusecs
MEAN ANNUAL DISCHARGE FOR 23 YEARS:	59,400 acre feet
REMARKS:	The discharges are computed by weir formula, and are affected by the operation of Cataract Dam storage for city water supply purposes since 1907. No records are available for period January, 1920 to October, 1941 and since 1950.

CATARACT RIVER AT BROUGHTON'S PASS

Year 1900

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	..	..	..	..
Feb.	..	..	..	..
Mar.	..	..	..	..
Apr.	..	..	..	..
May	..	..	..	..
June	5920	107	598	35,901
July	23400	80	1471	91,182
Aug.	178	22	63	4,351
Sept.	148	15	50	3,053
Oct.	63	1.1	13	777
Nov.	3256	1.9	198	11,914
Dec.	2146	11	26	1,991
Total	..	..	..	..

Year 1901

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	107	3.7	15	929
Feb.	9.3	3.7	5.6	300
Mar.	215	1.9	28	1,780
Apr.	50	5.6	13	847
May	54	5.6	15	929
June	6.2	3.7	4.6	270
July	89	5.6	22	1,469
Aug.	2422	7.4	209	12,965
Sept.	464	13	76	4,671
Oct.	921	20	96	5,742
Nov.	41	7.4	13	855
Dec.	7.4	0.4	3.7	189
Total	..	..	..	30,946

Year 1902

Jan.	0.9	0.2	0.6	41
Feb.	0.2	0	0.1	7
Mar.	0	0	0	0
Apr.	0	0	0	0
May	0.4	0.1	0.2	11
June	0.8	0.4	0.5	30
July	3.7	0.2	1.3	85
Aug.	20	0.6	1.8	126
Sept.	22	1.1	5.6	326
Oct.	224	1.9	22	1,395
Nov.	313	3.7	26	1,536
Dec.	808	3.7	81	5,417
Total	..	..	..	8,974

Year 1903

Jan.	22	1.9	5.6	381
Feb.	7.4	0.4	1.9	130
Mar.	3.7	0.2	0.9	56
Apr.	3.7	0.6	1.1	70
May	540	1.1	24	1,935
June	459	9.3	68	4,174
July	457	5.6	44	2,742
Aug.	1084	13	185	11,526
Sept.	808	13	179	10,845
Oct.	385	41	165	10,201
Nov.	259	11	80	4,836
Dec.	760	11	81	5,069
Total	..	..	..	51,965

Year 1904

Jan.	50	13	22	1,402
Feb.	505	3.7	63	3,648
Mar.	955	17	163	10,120
Apr.	23286	41	1286	77,275
May	1162	41	204	12,647
June	120	17	39	2,338
July	18667	13	1915	118,640
Aug.	294	57	124	7,752
Sept.	100	3.7	26	1,617
Oct.	400	11	78	4,888
Nov.	11	1.9	5.6	333
Dec.	1.9	0	1.3	89
Total	..	..	..	240,749

Year 1905

Jan.	0.4	0.1	0.2	19
Feb.	18	1.2	3.7	229
Mar.	3.7	1	1.9	130
Apr.	945	3.7	150	9,291
May	660	17	117	7,259
June	1208	22	124	7,500
July	216	17	55	3,526
Aug.	18	7.4	11	707
Sept.	18	1.1	5.6	440
Oct.	35	3.7	7.8	513
Nov.	157	1.3	7.4	474
Dec.	881	7.4	81	5,121
Total	..	..	..	35,209

Year 1906

Jan.	50	3.7	11	710
Feb.	3.7	0.7	1.9	104
Mar.	204	3.7	26	1,428
Apr.	31	3.7	9.3	603
May	346	1.9	24	1,480
June	15	3.7	7.4	485
July	4.4	2.2	2.9	118
Aug.	2044	1.7	122	7,596
Sept.	736	0.4	131	7,877
Oct.	1.9	0	0.6	33
Nov.	5.6	0	0.7	41
Dec.	No Records			10*
Total	..	..	..	20,485*

Year 1907

Jan.	No Records			41*
Feb.	263	0.4	46	2,642
Mar.	11	0.2	1.9	111
Apr.	1.1	0.1	0.2	11
May	0.7	0.1	0.4	22
June	3.7	0.2	1.7	103
July	1.9	0.1	1	63
Aug.	9.3	0.1	1	56
Sept.	0.1	0.1	0.1	5
Oct.	76	0	22	1,247
Nov.	117	22	87	5,273
Dec.	83	50	67	4,203
Total	..	..	..	13,777*

* Estimated

CATARACT RIVER AT BROUGHTON'S PASS

Year 1908

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	129	63	83	5,224
Feb.	875	0.7	44	2,616
Mar.	3.7	0.2	0.7	52
Apr.	135	0.1	44	2,727
May	168	96	150	9,313
June	91	0.2	17	1,006
July	0.5	0.1	0.2	15
Aug.	592	0.7	61	3,804
Sept.	1.9	0.9	1.7	93
Oct.	1	0.1	0.4	19
Nov.	168	0	59	3,952
Dec.	429	1.7	233	14,519
Total	..	..	..	43,340

Year 1909

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	414	0.2	83	5,191
Feb.	28	0.9	5.6	311
Mar.	3.7	1.1	1.9	155
Apr.	216	0.2	166	9,797
May	233	0.2	152	9,394
June	216	0.7	9.3	496
July	1.3	0.4	1.1	67
Aug.	0.4	0.3	0.3	19
Sept.	0.2	0.2	0.2	19
Oct.	278	0.2	142	8,899
Nov.	272	0.7	98	5,953
Dec.	52	0.2	5.6	433
Total	..	..	..	40,916

Year 1910

Jan.	91	0.2	7	437
Feb.	13	0.2	1.9	111
Mar.	26	0.1	5.6	352
Apr.	1.5	0.4	0.7	52
May	0.4	0.1	0.2	15
June	0.4	0.1	0.2	15
July	446	0.3	22	1,769
Aug.	5.6	0.3	1.9	141
Sept.	0.7	0.3	0.4	33
Oct.	5.6	0.2	1.3	81
Nov.	302	0.1	120	7,245
Dec.	300	0.4	11	703
Total	..	..	..	10,954

Year 1911

Jan.	12500	0.2	755	46,768
Feb.	622	107	307	17,053
Mar.	586	15	126	7,900
Apr.	22	1.5	6.8	407
May	218	3.7	102	6,364
June	287	0.4	92	5,517
July	287	3.7	107	6,690
Aug.	159	1.5	18	1,191
Sept.	35	3.7	5.6	374
Oct.	218	1.9	28	1,769
Nov.	94	1.1	15	958
Dec.	189	100	174	10,841
Total	..	..	..	105,832

Year 1912

Jan.	189	185	187	11,651
Feb.	216	0.9	98	5,654
Mar.	220	1.9	187	11,688
Apr.	394	0.2	17	1,014
May	435	0.2	18	1,273
June	174	1.7	15	918
July	4907	3.7	553	34,377
Aug.	3108	37	237	14,677
Sept.	192	11	39	2,316
Oct.	163	50	72	4,581
Nov.	163	0.2	94	5,639
Dec.	159	0.2	34	2,213
Total	..	..	..	96,001

Year 1913

Jan.	159	83	100	6,157
Feb.	87	4.3	79	4,455
Mar.	598	0.4	54	3,341
Apr.	496	3.7	94	5,661
May	6797	3.7	633	39,287
June	6797	87	668	41,066
July	955	26	126	7,814
Aug.	65	3.7	18	1,151
Sept.	37	0.7	5.6	403
Oct.	168	7.4	78	4,843
Nov.	150	0.2	57	3,478
Dec.	165	0.2	89	5,561
Total	..	..	..	123,217

Year 1914

Jan.	No Records			
Feb.	until January, 1918			
Mar.	..	..	..	..
Apr.	..	..	..	..
May	..	..	..	..
June	..	..	..	..
July	..	..	..	..
Aug.	..	..	..	..
Sept.	..	..	..	..
Oct.	..	..	..	..
Nov.	..	..	..	..
Dec.	..	..	..	..
Total	..	..	..	..

Year 1918

Jan.	3200	274	381	23,573
Feb.	1761	13	163	9,139
Mar.	189	3.1	52	3,223
Apr.	235	2.4	94	5,632
May	235	0.6	100	6,190
June	1.6	0.2	0.7	44
July	241	0.2	135	8,325
Aug.	109	16	46	2,864
Sept.	263	3.7	39	2,298
Oct.	39	0.7	7.4	466
Nov.	235	0.4	105	6,379
Dec.	250	0.2	80	4,895
Total	..	..	..	73,027

CATARACT RIVER AT BROUGHTONS PASS.

Year 1919

Month	Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	No Records			5,731*
Feb.	No Records			4,503*
Mar.	No Records			311*
Apr.	No Records			3,992*
May	No Records			16,791*
June	No Records			4,100*
July	No Records			918*
Aug.	No Records			7,289*
Sept.	No Records			340*
Oct.	No Records			3,504*
Nov.	No Records			10,649*
Dec.	No Records			1,143*
Total	..	..	..	59,271*

Year 1941

Month	Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	No Records from January 1920 to November, 1941.			
Feb.				
Mar.				
Apr.	..	..	..	..
May	..	..	..	..
June	..	..	..	..
July	..	..	..	..
Aug.	..	..	..	..
Sept.	..	..	..	..
Oct.	..	..	..	..
Nov.	122	0.2	72	4,339
Dec.	77	0.2	18	1,147
Total	..	..	..	..

Year 1942

Jan.	119	2.4	104	6,405
Feb.	67	0.4	30	1,698
Mar.	65	0.2	46	2,875
Apr.	13	0.4	2.2	134
May	2.2	0.4	0.9	61
June	7.8	1.3	2.9	170
July	4.7	1	1.8	114
Aug.	1.3	0.5	0.8	50
Sept.	1.1	0.3	0.4	27
Oct.	7363	0.1	363	22,484
Nov.	63	2.3	13	773
Dec.	3.7	0.5	1.6	98
Total	..	..	..	34,889

Year 1943

Jan.	3.9	0.3	1	60
Feb.	0.4	0.1	0.2	9
Mar.	37	0	18	1,158
Apr.	41	33	35	2,139
May	3737	41	786	48,796
June	261	9.3	54	3,263
July	135	1.3	17	977
Aug.	1045	0.9	78	4,832
Sept.	2590	16	144	8,636
Oct.	583	17	94	5,853
Nov.	200	5.9	56	3,363
Dec.	144	6.3	35	2,124
Total	..	..	..	81,210

Year 1944

Jan.	54	2.2	26	1,658
Feb.	63	18	52	2,849
Mar.	35	20	30	1,820
Apr.	98	1.1	57	3,334
May	150	3	91	5,572
June	2.2	0.5	0.9	56
July	7.8	0.6	2.2	118
Aug.	3.3	0.6	1.5	93
Sept.	65	0.5	33	2,035
Oct.	122	54	85	5,243
Nov.	148	72	118	7,082
Dec.	98	82	83	5,191
Total	..	..	..	35,051

Year 1945

Jan.	100	0.4	44	2,705
Feb.	54	0.4	4.4	248
Mar.	159	48	96	5,920
Apr.	305	3.1	81	4,851
May	316	3.7	91	5,613
June	2917	3.3	405	24,272
July	218	18	44	2,794
Aug.	46	4.6	20	1,210
Sept.	52	3.1	33	1,946
Oct.	67	0.4	22	1,399
Nov.	98	0.4	57	3,382
Dec.	98	33	68	4,185
Total	..	..	..	58,525

Year 1946

Jan.	96	20	74	4,610
Feb.	98	0.2	41	2,253
Mar.	107	0.1	41	2,516
Apr.	118	0.6	46	2,727
May	98	1.3	39	2,420
June	63	1.1	28	1,695
July	91	2.2	41	2,512
Aug.	102	22	46	2,863
Sept.	102	0.6	68	4,103
Oct.	102	0.4	32	1,980
Nov.	107	0.2	57	3,411
Dec.	83	2.4	59	3,652
Total	..	..	..	34,747

Year 1947

Jan.	102	83	85	5,228
Feb.	292	1.6	80	4,425
Mar.	4.6	0.1	1.2	78
Apr.	107	0.1	46	2,805
May	116	1.1	30	1,880
June	107	13	89	5,287
July	104	0.4	5.6	340
Aug.	35	0.2	7.4	474
Sept.	35	0.3	13	725
Oct.	76	33	46	2,834
Nov.	48	0.2	15	881
Dec.	237	0.3	30	1,832
Total	..	..	..	26,789

* Estimated

CATARACT RIVER AT BROUGHTONS PASS

Year 1948

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	403	2.4	33	2,120
Feb.	80	3.1	67	3,881
Mar.	87	72	74	4,559
Apr.	74	0.4	24	1,484
May	450	9.3	105	6,527
June	342	10	98	5,846
July	228	5.7	40	2,499
Aug.	224	1.2	72	4,495
Sept.	2	1.1	1.2	72
Oct.	107	0.5	29	1,807
Nov.	107	2.2	39	2,318
Dec.	102	30	71	4,399
Total	..	..	..	40,007

Year 1949

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	No Records			
Feb.	No Records			
Mar.	196	7	81	2,550
Apr.	67	2	33	1,011
May	6235	3	200	6,241
June	23400	35	1100	33,409
July	107	19	69	2,149
Aug.	131	2	63	1,954
Sept.	361	9	70	2,143
Oct.	200	46	111	3,453
Nov.	111	0.6	33	1,002
Dec.	106	0.2	35	1,085
Total	..	..	..	

Year 1950

Jan.	No Records			5,573*
Feb.	No Records			9,351*
Mar.	No Records			16,084*
Apr.	12000	10	509	15,439
May	2738	10	209	6,540
June	15700	4	1190	36,096
July	6984	28	440	13,785
Aug.	514	26	102	3,204
Sept.	466	4	104	3,157
Oct.	1443	10	131	4,109
Nov.	586	4	105	3,182
Dec.	126	41	100	3,121
Total	..	..	..	119,641*

* Estimated

NEPEAN RIVER AT WALLACIA

LOCATION:	Latitude 33°53' Longitude 150°39'
PERIOD OF ESTABLISHMENT:	January 1917 to date
COMPLETE YEARS OF COMPUTED RECORDS:	45
ZERO OF GAUGE:	R.L. 87.12 Standard datum
CATCHMENT AREA:	680 Square miles
CONTROL:	Weir
EQUIPMENT:	Staff gauge 0 to 10 feet
CURRENT METER OBSERVATIONS:	(a) Number obtained : 84
	(b) Maximum observation in cusecs : 13,090
	(c) Minimum observation in cusecs : 0
MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS:	120,000 cusecs
MEAN DAILY DISCHARGE FOR 45 YEARS:	310 cusecs
MEAN ANNUAL DISCHARGE FOR 45 YEARS:	227,000 acre feet
REMARKS:	The discharges shown are affected by operation of storages at Cataract, Avon, Cordeaux and Nepean Dams since 1907.

NEPEAN RIVER AT WALLACIA

Year 1917

Month	Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	..	..	..	..
Feb.	1265	145	418	23,640
Mar.	No Records			4,000*
Apr.	No Records			18,000*
May	No Records			9,000*
June	105	15	28	1,708
July	30	15	19	1,140
Aug.	15	15	15	930
Sept.	670	15	99	5,964
Oct.	340	15	59	3,648
Nov.	No Records			25,000*
Dec.	1180	30	324	20,110
Total	..	..	..	..

Year 1918

Month	Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	No Records			56,000*
Feb.	No Records			26,000*
Mar.	No Records			69,000*
Apr.	235	15	66	3,958
May	105	15	60	3,732
June	67	15	41	2,438
July	No Records			30,000*
Aug.	670	105	244	15,154
Sept.	125	30	58	3,478
Oct.	86	11	43	2,712
Nov.	15	11	14	828
Dec.	15	0	12	760
Total	..	..	..	214,060*

Year 1919

Jan.	23	0	3	194
Feb.	670	0	33	1,860
Mar.	235	3	68	4,238
Apr.	15	7	12	748
May	No Records			30,000*
June	No Records			23,000*
July	125	30	75	4,668
Aug.	145	30	52	3,232
Sept.	145	30	76	4,568
Oct.	48	0	25	1,580
Nov.	145	0	9	520
Dec.	No Records			8,000*
Total	..	..	..	82,608*

Year 1920

Jan.	No Records			45,000*
Feb.	86	3	32	1,892
Mar.	15	0	6	380
Apr.	15	7	11	684
May	15	3	11	680
June	15	0	5	320
July	30	15	19	1,234
Aug.	67	0	21	1,366
Sept.	15	7	13	788
Oct.	23	0	4	262
Nov.	7	0	0.7	42
Dec.	No Records			66,000*
Total	..	..	..	118,648*

Year 1921

Jan.	No Records			27,000*
Feb.	125	30	54	3,056
Mar.	67	15	26	1,616
Apr.	No Records			8,000*
May	No Records			29,000*
June	1180	125	352	21,148
July	No Records			49,000*
Aug.	460	67	150	9,358
Sept.	125	15	37	2,206
Oct.	30	0	10	594
Nov.	30	0	10	616
Dec.	1180	7	70	2,342
Total	..	..	..	153,936*

Year 1922

Jan.	No Records			49,000*
Feb.	No Records			13,000*
Mar.	755	15	111	7,908
Apr.	67	15	19	1,124
May	67	15	23	1,454
June	30	15	25	1,532
July	No Records			300*
Aug.	No Records			42,000*
Sept.	1435	30	397	23,800
Oct.	No Records			9,000*
Nov.	143	0	22	1,344
Dec.	23	0	2	176
Total	..	..	..	151,638*

Year 1923

Jan.	23	0	2	136
Feb.	0	0	0	0
Mar.	15	0	5	330
Apr.	15	7	11	724
May	145	0	14	888
June	525	7	52	3,130
July	No Records			42,000*
Aug.	No Records			24,000*
Sept.	1180	0	149	4,944
Oct.	15	0	1	74
Nov.	15	0	2	148
Dec.	15	0	0.5	30
Total	..	..	..	76,239

Year 1924

Jan.	0	0	0	0
Feb.	285	0	46	2,694
Mar.	145	0	22	1,404
Apr.	No Records			12,000*
May	30	0	6	388
June	15	0	4	278
July	30	15	25	1,592
Aug.	23	15	16	994
Sept.	15	0	6	358
Oct.	7	0	0.7	42
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	19,750*

* Estimated

NEPEAN RIVER AT WALLACIA

Year 1925

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	1180	0	192	5,948
Feb.	362	3	62	3,470
Mar.	3	0.5	1	76
Apr.	0.2	0.1	0.1	6
May	29200	0.1	1577	97,792
June	67720	10	3681	220,858
July	572	52	153	9,520
Aug.	52	7	34	2,096
Sept.	7	7	7	420
Oct.	7	3	5	278
Nov.	186	3	34	2,004
Dec.	7	3	5	306
Total	..	..	..	342,774

Year 1926

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	3	0.5	2	120
Feb.	0.5	0.1	0.1	9
Mar.	4510	0	87	5,406
Apr.	980	7	88	5,268
May	330	7	66	4,034
June	650	7	51	3,012
July	270	7	56	3,278
Aug.	7	3	5	298
Sept.	3	1.5	2	138
Oct.	2	0.1	1	54
Nov.	0	0	0	0
Dec.	0.5	0	0	0
Total	..	..	..	21,623

Year 1927

Jan.	2	0.5	1	62
Feb.	7	0	1	72
Mar.	7	0	2	150
Apr.	17500	1	1638	98,298
May	300	7	37	2,288
June	7	5	7	416
July	5	3	3	214
Aug.	52	3	17	1,054
Sept.	7	3	4	236
Oct.	7	2	4	230
Nov.	52	2	9	526
Dec.	73	3	12	712
Total	..	..	..	104,258

Year 1928

Jan.	3	2	3	162
Feb.	2120	2	381	21,328
Mar.	32	3	17	1,046
Apr.	7	3	7	404
May	3	1	2	142
June	4210	3	372	22,292
July	13980	10	1014	62,886
Aug.	572	7	127	7,842
Sept.	52	7	24	1,444
Oct.	7	2	3	214
Nov.	2	0.2	1	50
Dec.	0.5	0	0.2	15
Total	..	..	..	117,825

Year 1929

Jan.	0	0	0	0
Feb.	No Records			186,000*
Mar.	142	7	43	2,642
Apr.	8510	10	700	42,022
May	52	7	17	1,056
June	7	7	7	420
July	7	7	7	434
Aug.	500	7	56	3,446
Sept.	4640	10	458	27,492
Oct.	18550	10	1898	117,658
Nov.	2240	7	311	18,650
Dec.	52	5	14	860
Total	..	..	..	400,680

Year 1930

Jan.	7	3	5	314
Feb.	7	1.5	4	218
Mar.	3	0.7	2	136
Apr.	7	3	7	404
May	186	7	37	2,306
June	13380	28	1454	87,240
July	2900	52	547	33,892
Aug.	73	7	16	1,028
Sept.	7	7	7	420
Oct.	32	3	8	474
Nov.	142	1	9	528
Dec.	430	3	24	1,480
Total	..	..	..	128,440

Year 1931

Jan.	980	1	52	3,210
Feb.	104	1	9	514
Mar.	186	7	39	2,422
Apr.	4640	4	661	39,656
May	2650	32	383	23,724
June	500	7	85	5,130
July	17150	10	1271	78,788
Aug.	73	7	33	2,030
Sept.	No Records			7,600*
Oct.	73	7	27	1,648
Nov.	650	7	62	3,748
Dec.	730	7	109	6,774
Total	..	..	..	175,244*

Year 1932

Jan.	7	2	5	290
Feb.	7	2	5	306
Mar.	572	7	56	3,460
Apr.	142	7	28	1,704
May	7	7	7	434
June	7	7	7	420
July	52	7	17	1,054
Aug.	7	7	7	434
Sept.	1460	7	301	18,094
Oct.	300	7	70	4,362
Nov.	73	3	16	958
Dec.	3	2	2	150
Total	..	..	..	31,666

* Estimated

NEPEAN RIVER AT WALLACIA

Year 1933

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	19390	2	1875	116,228
Feb.	No Records			3,000*
Mar.	7	3	5	338
Apr.	12500	10	1125	67,472
May	2770	52	206	12,818
June	186	32	62	3,710
July	3850	32	339	21,016
Aug.	142	7	45	2,800
Sept.	240	7	25	1,492
Oct.	1100	3	163	10,090
Nov.	142	3	23	1,382
Dec.	980	7	133	8,222
Total	..	..	..	248,568*

Year 1934

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	11660	10	1123	69,596
Feb.	35680	28	2994	167,656
Mar.	920	28	167	10,326
Apr.	2000	32	524	31,436
May	3850	32	421	26,108
June	3160	104	903	54,196
July	15520	28	1004	62,260
Aug.	13080	307	1085	67,240
Sept.	4750	52	1053	63,182
Oct.	73	32	33	2,018
Nov.	186	32	62	3,754
Dec.	52	7	20	1,224
Total	..	..	..	558,996

Year 1935

Jan.	52	7	16	966
Feb.	1460	7	196	10,976
Mar.	52	7	17	954
Apr.	32	7	10	620
May	32	7	15	934
June	7	7	7	420
July	32	7	18	1,084
Aug.	7	7	7	434
Sept.	7	7	7	420
Oct.	73	3	12	760
Nov.	52	3	14	868
Dec.	1740	3	116	7,174
Total	..	..	..	25,610

Year 1936

Jan.	52	2	18	1,090
Feb.	32	7	10	574
Mar.	73	7	39	2,444
Apr.	52	7	21	1,290
May	7	7	7	434
June	142	7	31	1,884
July	52	7	22	1,394
Aug.	7	7	7	434
Sept.	7	2	4	278
Oct.	1	0.1	0.5	28
Nov.	0.1	0	0	4
Dec.	7	0	2	173
Total	..	..	..	10,027

Year 1937

Jan.	7	3	3	228
Feb.	32	1	3	288
Mar.	2240	1	170	10,434
Apr.	7	3	3	260
May	7	2	4	278
June	1210	3	114	6,850
July	2000	7	75	10,842
Aug.	7	7	7	434
Sept.	7	1	4	280
Oct.	3	1	2	136
Nov.	780	3	105	6,296
Dec.	52	3	9	552
Total	..	..	..	36,978

Year 1938

Jan.	32	1	5	290
Feb.	300	2	32	1,786
Mar.	7	0	1	88
Apr.	0.5	0	0.2	10
May	52	0	8	501
June	52	3	31	1,856
July	7	3	4	250
Aug.	13080	10	941	58,332
Sept.	142	13	42	2,516
Oct.	8430	10	333	20,658
Nov.	88	5	28	1,684
Dec.	7	1	3.7	232
Total	..	..	..	88,203

Year 1939

Jan.	7	1	4	244
Feb.	3	0	1	64
Mar.	52	0	13	814
Apr.	1330	0	94	5,660
May	29	0	4.8	299
June	16	0	4	237
July	8	0	1.3	82
Aug.	43	0	4.9	305
Sept.	3	0.5	1.5	90
Oct.	7	1.5	3	199
Nov.	5	1	2.6	158
Dec.	1	0	0.2	16
Total	..	..	..	8,168

Year 1940

Jan.	5	0	1.7	108
Feb.	0.5	0	0	1
Mar.	0	0	0	0
Apr.	3	0	0.8	49
May	1	0	0.4	27
June	0	0	0	0
July	0.2	0	0	2
Aug.	0.1	0.1	0.1	6
Sept.	0.5	0	0.1	3
Oct.	0.5	0	0.2	12
Nov.	2	0	0.1	4
Dec.	650	3	58	3,592
Total	..	..	..	3,804

* Estimated

NEPEAN RIVER AT WALLACIA

Year 1941

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	362	3	58	3,611
Feb.	32	2	7	377
Mar.	1	0	0.4	26
Apr.	0.5	0	0.2	10
May	0.5	0.1	0.2	13
June	0.5	0.5	0.5	30
July	0.5	0.1	0.4	24
Aug.	0.3	0.1	0.1	8
Sept.	0.5	0.1	0.5	29
Oct.	0.7	0	0.7	25
Nov.	104	0	11	635
Dec.	3.0	0	0.6	36
Total	..	..	..	4,824

Year 1942

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	0	0	0	0
Feb.	2	0.1	0	13
Mar.	3780	0	172	10,690
Apr.	73	3	11	640
May	3	0.5	1	68
June	2	1	1.4	87
July	32	2	7	438
Aug.	3	0.8	1.8	112
Sept.	1.5	0.1	0.4	26
Oct.	11750	0	700	43,418
Nov.	300	7	40	2,420
Dec.	186	1	6.5	405
Total	..	..	..	58,317

Year 1943

Jan.	362	1	21	1,287
Feb.	1	0.3	0.5	29
Mar.	0.3	0	0.1	6
Apr.	0.5	0.1	0.2	13
May	23350	0.1	2986	185,142
June	1100	32	217	12,996
July	32	7	17	1,078
Aug.	730	7	74	4,576
Sept.	3040	7	149	8,910
Oct.	2180	32	323	20,040
Nov.	572	7	100	6,226
Dec.	52	7	31	1,934
Total	..	..	..	242,237

Year 1944

Jan.	7	1	3	199
Feb.	13	1	4	248
Mar.	1	0.5	0.9	54
Apr.	0.9	0.5	0.6	39
May	52	0.9	7	402
June	7	2.8	5	318
July	10	3	7	460
Aug.	7	3	5	324
Sept.	6	2	3	184
Oct.	2	0.1	1	57
Nov.	0.1	0	0	1
Dec.	0	0	0	0
Total	..	..	..	2,287

Year 1945

Jan.	4100	0	133	8,226
Feb.	186	2	28	1,580
Mar.	52	0.8	11	662
Apr.	980	0.5	73	4,398
May	142	7	23	1,418
June	12690	10	1547	92,826
July	300	13	83	5,172
Aug.	32	7	16	824
Sept.	7	5	6.6	396
Oct.	7	1	4	251
Nov.	0.7	0.1	0.4	25
Dec.	32	0.3	4.8	297
Total	..	..	..	116,075

Year 1946

Jan.	0.5	0	0	3
Feb.	7	0	1	93
Mar.	2	0	0.5	31
Apr.	1100	0	107	6,444
May	52	8	23	1,400
June	38	7	18	1,057
July	42	2.8	15	948
Aug.	2.9	0.8	1.3	79
Sept.	0.9	0.1	0.3	17
Oct.	0.1	0	0.4	3
Nov.	104	0	25	1,494
Dec.	10	0.3	2.8	172
Total	..	..	..	11,741

Year 1947

Jan.	0.2	0	0	2
Feb.	142	0	25	1,369
Mar.	104	1	16	1,012
Apr.	240	0.6	31	1,845
May	45	5	14	875
June	6.5	2	4.3	261
July	2	1	2	96
Aug.	1	0.6	0.8	50
Sept.	0.9	0	0.4	27
Oct.	0	0	0	0
Nov.	48	0	8	469
Dec.	2510	10	467	28,981
Total	..	..	..	34,987

Year 1948

Jan.	1395	25	150	9,289
Feb.	67	3	20	1,136
Mar.	13	3	6	377
Apr.	7	1	3	180
May	1860	1.5	156	9,686
June	3780	9	543	32,564
July	113	45	61	3,770
Aug.	73	7	25	1,552
Sept.	7	4	6	353
Oct.	4	0.1	2	114
Nov.	0	0	0	0
Dec.	1.5	0.3	0.7	45
Total	..	..	..	59,067

NEPEAN RIVER AT WALLACIA

Year 1941

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	362	3	58	3,611
Feb.	32	2	7	377
Mar.	1	0	0.4	26
Apr.	0.5	0	0.2	10
May	0.5	0.1	0.2	13
June	0.5	0.5	0.5	30
July	0.5	0.1	0.4	24
Aug.	0.3	0.1	0.1	8
Sept.	0.5	0.1	0.5	29
Oct.	0.7	0	0.7	25
Nov.	104	0	11	635
Dec.	3.0	0	0.6	36
Total	..	..	..	4,824

Year 1942

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	0	0	0	0
Feb.	2	0.1	0	13
Mar.	3780	0	172	10,690
Apr.	73	3	11	640
May	3	0.5	1	68
June	2	1	1.4	87
July	32	2	7	438
Aug.	3	0.8	1.8	112
Sept.	1.5	0.1	0.4	26
Oct.	11750	0	700	43,418
Nov.	300	7	40	2,420
Dec.	186	1	6.5	405
Total	..	..	..	58,317

Year 1943

Jan.	362	1	21	1,287
Feb.	1	0.3	0.5	29
Mar.	0.3	0	0.1	6
Apr.	0.5	0.1	0.2	13
May	23350	0.1	2986	185,142
June	1100	32	217	12,996
July	32	7	17	1,078
Aug.	730	7	74	4,576
Sept.	3040	7	149	8,910
Oct.	2180	32	323	20,040
Nov.	572	7	100	6,226
Dec.	52	7	31	1,934
Total	..	..	..	242,237

Year 1944

Jan.	7	1	3	199
Feb.	13	1	4	248
Mar.	1	0.5	0.9	54
Apr.	0.9	0.5	0.6	39
May	52	0.9	7	402
June	7	2.8	5	318
July	10	3	7	460
Aug.	7	3	5	324
Sept.	6	2	3	184
Oct.	2	0.1	1	57
Nov.	0.1	0	0	1
Dec.	0	0	0	0
Total	..	..	..	2,287

Year 1945

Jan.	4100	0	133	8,226
Feb.	186	2	28	1,580
Mar.	52	0.8	11	662
Apr.	980	0.5	73	4,398
May	142	7	23	1,418
June	12690	10	1547	92,826
July	300	13	83	5,172
Aug.	32	7	16	824
Sept.	7	5	6.6	396
Oct.	7	1	4	251
Nov.	0.7	0.1	0.4	25
Dec.	32	0.3	4.8	297
Total	..	..	..	116,075

Year 1946

Jan.	0.5	0	0	3
Feb.	7	0	1	93
Mar.	2	0	0.5	31
Apr.	1100	0	107	6,444
May	52	8	23	1,400
June	38	7	18	1,057
July	42	2.8	15	948
Aug.	2.9	0.8	1.3	79
Sept.	0.9	0.1	0.3	17
Oct.	0.1	0	0.4	3
Nov.	104	0	25	1,494
Dec.	10	0.3	2.8	172
Total	..	..	..	11,741

Year 1947

Jan.	0.2	0	0	2
Feb.	142	0	25	1,369
Mar.	104	1	16	1,012
Apr.	240	0.6	31	1,845
May	45	5	14	875
June	6.5	2	4.3	261
July	2	1	2	96
Aug.	1	0.6	0.8	50
Sept.	0.9	0	0.4	27
Oct.	0	0	0	0
Nov.	48	0	8	469
Dec.	2510	10	467	28,981
Total	..	..	..	34,987

Year 1948

Jan.	1395	25	150	9,289
Feb.	67	3	20	1,136
Mar.	13	3	6	377
Apr.	7	1	3	180
May	1860	1.5	156	9,686
June	3780	9	543	32,564
July	113	45	61	3,770
Aug.	73	7	25	1,552
Sept.	7	4	6	353
Oct.	4	0.1	2	114
Nov.	0	0	0	0
Dec.	1.5	0.3	0.7	45
Total	..	..	..	59,067

NEPEAN RIVER AT WALLACIA

Year 1949

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	572	0	46	2,824
Feb.	104	6	29	1,623
Mar.	1330	25	157	9,754
Apr.	52	5	16	944
May	8910	4	820	50,866
June	81680	174	7253	435,156
July	213	57	135	8,374
Aug.	108	28	68	4,242
Sept.	880	25	94	5,626
Oct.	213	28	60	3,708
Nov.	62	12	29	1,732
Dec.	57	6	19	1,144
Total	..	..	..	525,993

Year 1950

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	7770	3	656	40,654
Feb.	7260	40	1482	83,006
Mar.	16490	66	3314	205,440
Apr.	43000	150	4132	247,918
May	5360	103	939	58,210
June	33610	197	7300	438,034
July	9680	550	2752	170,594
Aug.	3145	103	688	42,652
Sept.	2000	62	273	16,360
Oct.	7770	66	941	58,372
Nov.	1730	82	435	26,100
Dec.	148	37	66	4,086
Total	..	..	..	1,391,426

Year 1951

Jan.	21700	28	3566	221,112
Feb.	17500	79	2016	112,896
Mar.	1100	82	286	17,750
Apr.	55	31	37	2,244
May	480	31	65	4,056
June	18000	40	4364	261,870
July	6300	52	835	51,752
Aug.	3770	55	454	28,148
Sept.	8190	28	655	39,322
Oct.	560	31	123	7,662
Nov.	43	18	31	1,858
Dec.	31	8	18	1,096
Total	..	..	..	749,767

Year 1952

Jan.	31	8	12	722
Feb.	55	6	13	796
Mar.	525	7	40	2,466
Apr.	3620	8	476	28,540
May	240	11	61	3,782
June	55400	10	3354	201,240
July	65000	28	3552	220,232
Aug.	29600	224	5339	331,014
Sept.	191	43	78	4,862
Oct.	1050	31	113	6,980
Nov.	191	13	49	2,970
Dec.	55	13	26	1,654
Total	..	..	..	805,078

Year 1953

Jan.	112	11	53	3,276
Feb.	65	11	34	1,902
Mar.	30	6	9	580
Apr.	51	5	13	774
May	13700	10	1270	78,760
June	51	11	24	1,440
July	23	7	14	878
Aug.	23	7	11	702
Sept.	11	6	8	452
Oct.	112	3	14	876
Nov.	8	2	4	256
Dec.	11	0.5	1.2	76
Total	..	..	..	89,972

Year 1954

Jan.	65	6	17	1,042
Feb.	12500	15	960	53,774
Mar.	765	8	123	7,652
Apr.	23	6	11	670
May	8	4	6	372
June	6	6	6	360
July	11	5.5	7	422
Aug.	8	6	6	388
Sept.	6	1.7	2.5	148
Oct.	130	0.9	13	830
Nov.	1300	6	86	5,172
Dec.	51	1.4	9.3	579
Total	..	..	..	71,409

Year 1955

Jan.	600	0	46	2,871
Feb.	3320	6	356	19,922
Mar.	268	43	129	8,012
Apr.	11750	10	297	17,934
May	21900	49	2003	124,202
June	560	37	113	6,774
July	37	11	21	1,316
Aug.	23	6	17	1,018
Sept.	11	6	9	540
Oct.	11	6	7	436
Nov.	295	6	21	1,234
Dec.	900	6	107	6,624
Total	..	..	..	190,783

Year 1956

Jan.	112	8	31	1,890
Feb.	78900	24	10175	590,136
Mar.	32900	519	5878	364,446
Apr.	1750	46	284	17,014
May	10310	95	1093	67,746
June	29200	52	2071	124,270
July	3820	112	576	35,738
Aug.	1730	51	276	17,138
Sept.	65	23	45	2,688
Oct.	2085	23	207	12,862
Nov.	37	6	16	986
Dec.	37	5.5	10	632
Total	..	..	..	1,235,546

NEPEAN RIVER AT WALLACIA

Year 1949

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	572	0	46	2,824
Feb.	104	6	29	1,623
Mar.	1330	25	157	9,754
Apr.	52	5	16	944
May	8910	4	820	50,866
June	81680	174	7253	435,156
July	213	57	135	8,374
Aug.	108	28	68	4,242
Sept.	880	25	94	5,626
Oct.	213	28	60	3,708
Nov.	62	12	29	1,732
Dec.	57	6	19	1,144
Total	..	..	..	525,993

Year 1950

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	7770	3	656	40,654
Feb.	7260	40	1482	83,006
Mar.	16490	66	3314	205,440
Apr.	43000	150	4132	247,918
May	5360	103	939	58,210
June	33610	197	7300	438,034
July	9680	550	2752	170,594
Aug.	3145	103	688	42,652
Sept.	2000	62	273	16,360
Oct.	7770	66	941	58,372
Nov.	1730	82	435	26,100
Dec.	148	37	66	4,086
Total	..	..	..	1,391,426

Year 1951

Jan.	21700	28	3566	221,112
Feb.	17500	79	2016	112,896
Mar.	1100	82	286	17,750
Apr.	55	31	37	2,244
May	480	31	65	4,056
June	18000	40	4364	261,870
July	6300	52	835	51,752
Aug.	3770	55	454	28,148
Sept.	8190	28	655	39,322
Oct.	560	31	123	7,662
Nov.	43	18	31	1,858
Dec.	31	8	18	1,096
Total	..	..	..	749,767

Year 1952

Jan.	31	8	12	722
Feb.	55	6	13	796
Mar.	525	7	40	2,466
Apr.	3620	8	476	28,540
May	240	11	61	3,782
June	55400	10	3354	201,240
July	65000	28	3552	220,232
Aug.	29600	224	5339	331,014
Sept.	191	43	78	4,862
Oct.	1050	31	113	6,980
Nov.	191	13	49	2,970
Dec.	55	13	26	1,654
Total	..	..	..	805,078

Year 1953

Jan.	112	11	53	3,276
Feb.	65	11	34	1,902
Mar.	30	6	9	580
Apr.	51	5	13	774
May	13700	10	1270	78,760
June	51	11	24	1,440
July	23	7	14	878
Aug.	23	7	11	702
Sept.	11	6	8	452
Oct.	112	3	14	876
Nov.	8	2	4	256
Dec.	11	0.5	1.2	76
Total	..	..	..	89,972

Year 1954

Jan.	65	6	17	1,042
Feb.	12500	15	960	53,774
Mar.	765	8	123	7,652
Apr.	23	6	11	670
May	8	4	6	372
June	6	6	6	360
July	11	5.5	7	422
Aug.	8	6	6	388
Sept.	6	1.7	2.5	148
Oct.	130	0.9	13	830
Nov.	1300	6	86	5,172
Dec.	51	1.4	9.3	579
Total	..	..	..	71,409

Year 1955

Jan.	600	0	46	2,871
Feb.	3320	6	356	19,922
Mar.	268	43	129	8,012
Apr.	11750	10	297	17,934
May	21900	49	2003	124,202
June	560	37	113	6,774
July	37	11	21	1,316
Aug.	23	6	17	1,018
Sept.	11	6	9	540
Oct.	11	6	7	436
Nov.	295	6	21	1,234
Dec.	900	6	107	6,624
Total	..	..	..	190,783

Year 1956

Jan.	112	8	31	1,890
Feb.	78900	24	10175	590,136
Mar.	32900	519	5878	364,446
Apr.	1750	46	284	17,014
May	10310	95	1093	67,746
June	29200	52	2071	124,270
July	3820	112	576	35,738
Aug.	1730	51	276	17,138
Sept.	65	23	45	2,688
Oct.	2085	23	207	12,862
Nov.	37	6	16	986
Dec.	37	5.5	10	632
Total	..	..	..	1,235,546

NEPEAN RIVER AT WALLACIA

Year 1957

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	11	4	5.6	344
Feb.	560	4	34	1,937
Mar.	11	4	5.6	347
Apr.	6	2	4.7	279
May	2	1.6	1.8	110
June	6	1.7	3	176
July	1300	4	84	5,220
Aug.	472	4	37	2,270
Sept.	37	4	11	664
Oct.	5	0	1.4	88
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	11,435

Year 1958

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	0	0	0	0
Feb.	3040	11	302	16,910
Mar.	6740	7	722	44,734
Apr.	121	6	29	1,752
May	51	5	15	948
June	386	6	20	1,174
July	3210	5	214	13,258
Aug.	112	4	29	1,800
Sept.	23	2	5.6	342
Oct.	6	0.2	1.5	94
Nov.	0.1	0	0	0
Dec.	0	0	0	0
Total	..	..	..	81,012

Year 1959

Jan.	0	0	0	0
Feb.	6300	0	409	22,900
Mar.	3820	6	334	20,738
Apr.	3005	11	428	25,726
May	51	4	15	968
June	112	5	14	818
July	17800	9	1360	84,336
Aug.	216	6	59	3,676
Sept.	65	6	24	1,518
Oct.	15900	10	2247	139,324
Nov.	8750	81	1422	85,298
Dec.	180	6	47	2,942
Total	..	..	..	388,244

Year 1960

Jan.	32	8	23	1,426
Feb.	32	12	17	976
Mar.	14	2	9	576
Apr.	23	2	9	544
May	785	2	57	3,510
June	23	6	9	564
July	1960	6	117	7,224
Aug.	132	4	23	1,426
Sept.	10	0.9	2.8	168
Oct.	1030	0.6	110	6,792
Nov.	32	1.5	11	672
Dec.	7600	12	943	58,482
Total	..	..	..	82,360

Year 1961

Jan.	4000	5	332	20,602
Feb.	12	1	5	255
Mar.	7960	2	458	28,376
Apr.	2090	32	281	16,874
May	92	12	27	1,670
June	92	12	34	2,028
July	32	8	19	1,160
Aug.	12900	10	1121	69,498
Sept.	755	10	175	10,526
Oct.	3145	10	218	13,502
Nov.	121000	10	8950	536,992
Dec.	9870	130	1392	86,276
Total	..	..	..	787,759

Year 1962

Jan.	No Records			
Feb.	No Records			
Mar.	996	31	247	15,416
Apr.	No Records			5,400*
May	No Records			
June	No Records			
July	No Records			
Aug.	No Records			
Sept.	No Records			
Oct.	No Records			
Nov.	No Records			
Dec.	1651	0	135	8,380
Total	..	..	..	

Year 1963

Jan.	8220	27	916	56,780
Feb.	No Records			
Mar.	No Records			
Apr.	40600	51	1392	83,540
May	37300	320	3907	234,416
June	23100	144	2242	134,490
July	1273	46	375	23,264
Aug.	No Records			47,600*
Sept.	No Records			82,500*
Oct.	1919	79	302	18,732
Nov.	197	31	72	4,344
Dec.	9925	3	1514	93,846
Total	..	..	..	

Year 1964

Jan.	79	10	33	2,060
Feb.	27	6	18	1,046
Mar.	27	2	11	670
Apr.	9980	2	884	53,066
May	320	27	70	4,350
June	No Records			
July	No Records			6,850*
Aug.	No Records			2,950*
Sept.	No Records			1,600*
Oct.	No Records			1,600*
Nov.	No Records			1,800*
Dec.	10	0	3	160
Total	..	..	..	

* Estimated

NEPEAN RIVER AT WALLACIA

Year 1957

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	11	4	5.6	344
Feb.	560	4	34	1,937
Mar.	11	4	5.6	347
Apr.	6	2	4.7	279
May	2	1.6	1.8	110
June	6	1.7	3	176
July	1300	4	84	5,220
Aug.	472	4	37	2,270
Sept.	37	4	11	664
Oct.	5	0	1.4	88
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	11,435

Year 1958

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	0	0	0	0
Feb.	3040	11	302	16,910
Mar.	6740	7	722	44,734
Apr.	121	6	29	1,752
May	51	5	15	948
June	386	6	20	1,174
July	3210	5	214	13,258
Aug.	112	4	29	1,800
Sept.	23	2	5.6	342
Oct.	6	0.2	1.5	94
Nov.	0.1	0	0	0
Dec.	0	0	0	0
Total	..	..	..	81,012

Year 1959

Jan.	0	0	0	0
Feb.	6300	0	409	22,900
Mar.	3820	6	334	20,738
Apr.	3005	11	428	25,726
May	51	4	15	968
June	112	5	14	818
July	17800	9	1360	84,336
Aug.	216	6	59	3,676
Sept.	65	6	24	1,518
Oct.	15900	10	2247	139,324
Nov.	8750	81	1422	85,298
Dec.	180	6	47	2,942
Total	..	..	..	388,244

Year 1960

Jan.	32	8	23	1,426
Feb.	32	12	17	976
Mar.	14	2	9	576
Apr.	23	2	9	544
May	785	2	57	3,510
June	23	6	9	564
July	1960	6	117	7,224
Aug.	132	4	23	1,426
Sept.	10	0.9	2.8	168
Oct.	1030	0.6	110	6,792
Nov.	32	1.5	11	672
Dec.	7600	12	943	58,482
Total	..	..	..	82,360

Year 1961

Jan.	4000	5	332	20,602
Feb.	12	1	5	255
Mar.	7960	2	458	28,376
Apr.	2090	32	281	16,874
May	92	12	27	1,670
June	92	12	34	2,028
July	32	8	19	1,160
Aug.	12900	10	1121	69,498
Sept.	755	10	175	10,526
Oct.	3145	10	218	13,502
Nov.	121000	10	8950	536,992
Dec.	9870	130	1392	86,276
Total	..	..	..	787,759

Year 1962

Jan.	No Records			
Feb.	No Records			
Mar.	996	31	247	15,416
Apr.	No Records			5,400*
May	No Records			
June	No Records			
July	No Records			
Aug.	No Records			
Sept.	No Records			
Oct.	No Records			
Nov.	No Records			
Dec.	1651	0	135	8,380
Total	..	..	..	

Year 1963

Jan.	8220	27	916	56,780
Feb.	No Records			
Mar.	No Records			
Apr.	40600	51	1392	83,540
May	37300	320	3907	234,416
June	23100	144	2242	134,490
July	1273	46	375	23,264
Aug.	No Records			47,600*
Sept.	No Records			82,500*
Oct.	1919	79	302	18,732
Nov.	197	31	72	4,344
Dec.	9925	3	1514	93,846
Total	..	..	..	

Year 1964

Jan.	79	10	33	2,060
Feb.	27	6	18	1,046
Mar.	27	2	11	670
Apr.	9980	2	884	53,066
May	320	27	70	4,350
June	No Records			
July	No Records			6,850*
Aug.	No Records			2,950*
Sept.	No Records			1,600*
Oct.	No Records			1,600*
Nov.	No Records			1,800*
Dec.	10	0	3	160
Total	..	..	..	

* Estimated

NEPEAN RIVER AT WALLACIA

Year 1965

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	0.2	0	0.2	1
Feb.	0	0	0	0
Mar.	0	0	0	0
Apr.	0	0	0	0
May	0	0	0	0
June	0	0	0	0
July	No Records			
Aug.	No Records			
Sept.	No Records			
Oct.	No Records			
Nov.	No Records			
Dec.	No Records			
Total	..	..	..	

Year 1966

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	0	0	0	0
Apr.	0	0	0	0
May	0	0	0	0
June	0	0	0	0
July	0	0	0	0
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	No Records			
Dec.	No Records			
Total	..	..	..	

Year 1967

Jan.	2	0	1	39
Feb.	Records Incomplete			
Mar.	Records Incomplete			
Apr.	14	2	6	386
May	5	1	2	131
June	Records Incomplete			
July	Records Incomplete			
Aug.	Records Incomplete			
Sept.	Records Incomplete			
Oct.	Records Incomplete			
Nov.	28	2	18	1,060
Dec.	2	0	0.3	17
Total	..	..	..	

Year 1968

Jan.	27	0	6	383
Feb.	2	0	1	48
Mar.	0.6	0	0	4
Apr.	0	0	0	0
May	2	0.3	0.6	40
June	2	0.2	0.5	35
July	0.6	0	0.3	16
Aug.	0.7	0.3	0.5	31
Sept.	0.4	0	0.1	1
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	558

Year 1969

Jan.	0	0	0	0
Feb.	Records Incomplete			
Mar.	Records Incomplete			
Apr.	Records Incomplete			
May	Records Incomplete			
June	Records Incomplete			
July	170	15	28	2,630
Aug.	2570	10	396	24,500
Sept.	507	10	117	7,000
Oct.	100	10	34	2,090
Nov.	Records Incomplete			
Dec.	Records Incomplete			
Total	..	..	..	

Year 1970

Jan.	12	8	10	603
Feb.	21	0.2	8	456
Mar.	10	0.2	6	352
Apr.	7	1	3	177
May	Records Incomplete			
June	Records Incomplete			
July	3	0	2	104
Aug.	0	0	0	0
Sept.	1	0	0.4	23
Oct.	1.9	0.04	1	60
Nov.	0.35	0	0.09	6
Dec.	2590	0	269	16,700
Total	..	..	..	

Year 1971

Jan.	48	2	17	1,070
Feb.	8710	226	1828	102,000
Mar.	1933	48	271	16,800
Apr.	51	14	48	2,890
May	16	5	10	636
June	9	4	7	396
July	10	5	8	482
Aug.	18	2	5	304
Sept.	16	0.06	4.7	282
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	405	0	24	1,510
Total	..	..	..	126,000

NEPEAN RIVER AT WALLACIA

Year 1965

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	0.2	0	0.2	1
Feb.	0	0	0	0
Mar.	0	0	0	0
Apr.	0	0	0	0
May	0	0	0	0
June	0	0	0	0
July	No Records			
Aug.	No Records			
Sept.	No Records			
Oct.	No Records			
Nov.	No Records			
Dec.	No Records			
Total	..	..	..	

Year 1966

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	0	0	0	0
Apr.	0	0	0	0
May	0	0	0	0
June	0	0	0	0
July	0	0	0	0
Aug.	0	0	0	0
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	No Records			
Dec.	No Records			
Total	..	..	..	

Year 1967

Jan.	2	0	1	39
Feb.	Records Incomplete			
Mar.	Records Incomplete			
Apr.	14	2	6	386
May	5	1	2	131
June	Records Incomplete			
July	Records Incomplete			
Aug.	Records Incomplete			
Sept.	Records Incomplete			
Oct.	Records Incomplete			
Nov.	28	2	18	1,060
Dec.	2	0	0.3	17
Total	..	..	..	

Year 1968

Jan.	27	0	6	383
Feb.	2	0	1	48
Mar.	0.6	0	0	4
Apr.	0	0	0	0
May	2	0.3	0.6	40
June	2	0.2	0.5	35
July	0.6	0	0.3	16
Aug.	0.7	0.3	0.5	31
Sept.	0.4	0	0.1	1
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	558

Year 1969

Jan.	0	0	0	0
Feb.	Records Incomplete			
Mar.	Records Incomplete			
Apr.	Records Incomplete			
May	Records Incomplete			
June	Records Incomplete			
July	170	15	28	2,630
Aug.	2570	10	396	24,500
Sept.	507	10	117	7,000
Oct.	100	10	34	2,090
Nov.	Records Incomplete			
Dec.	Records Incomplete			
Total	..	..	..	

Year 1970

Jan.	12	8	10	603
Feb.	21	0.2	8	456
Mar.	10	0.2	6	352
Apr.	7	1	3	177
May	Records Incomplete			
June	Records Incomplete			
July	3	0	2	104
Aug.	0	0	0	0
Sept.	1	0	0.4	23
Oct.	1.9	0.04	1	60
Nov.	0.35	0	0.09	6
Dec.	2590	0	269	16,700
Total	..	..	..	

Year 1971

Jan.	48	2	17	1,070
Feb.	8710	226	1828	102,000
Mar.	1933	48	271	16,800
Apr.	51	14	48	2,890
May	16	5	10	636
June	9	4	7	396
July	10	5	8	482
Aug.	18	2	5	304
Sept.	16	0.06	4.7	282
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	405	0	24	1,510
Total	..	..	..	126,000

NEPEAN RIVER AT PENRITH

LOCATION:	Latitude 33°45' Longitude 150°41'
PERIOD OF ESTABLISHMENT:	January 1891 to date
COMPLETE YEARS OF COMPUTED RECORDS:	80
ZERO OF GAUGE:	R.L. 46.67 Standard datum
CATCHMENT AREA:	4,250 Square miles
CONTROL:	Concrete weir
EQUIPMENT:	Staff gauge, range 0 to 40.5 feet
CURRENT METER OBSERVATIONS:	(a) Number obtained : 251
	(b) Maximum observation in cusecs : 352,000
	(c) Minimum observation in cusecs : 0
MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORD:	550,000 cusecs
MEAN DAILY DISCHARGE FOR 80 YEARS:	1,576 cusecs
MEAN ANNUAL DISCHARGE FOR 80 YEARS:	1,151,000 acre feet
REMARKS:	The discharges shown are affected by operation of storages at Cataract, Avon, Cordeaux and Nepean Dams since 1907 and Warragamba Dam since November 1956.

NEPEAN RIVER AT PENRITH

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.	..	..	..	..	Jan.	6000	140	916	56,305
Feb.	..	..	..	..	Feb.	783	140	253	14,531
Mar.	..	..	..	..	Mar.	41600	783	4548	282,000
Apr.	..	..	..	..	Apr.	38900	954	6060	360,488
May	..	..	..	..	May	954	612	689	42,369
June	210000	140	34664	2,080,000	June	1125	555	793	47,146
July	13700	1300	4318	265,464	July	1300	442	859	52,787
Aug.	11100	1240	3975	244,405	Aug.	8770	442	1793	110,209
Sept.	15500	1068	3047	181,294	Sept.	160000	1125	11700	702,000
Oct.	1760	612	1059	65,094	Oct.	27900	1500	5348	328,781
Nov.	1500	442	802	47,683	Nov.	4630	783	1744	103,727
Dec.	3250	275	879	54,061	Dec.	2050	442	911	55,996
Total	..	..	..	..	Total	..	..	..	2,156,339

Year 1893					Year 1894				
Jan.	32300	140	3744	230,177	Jan.	15500	275	1982	121,849
Feb.	7160	954	1967	109,196	Feb.	11100	954	3405	189,071
Mar.	97600	954	15517	962,000	Mar.	165500	783	31243	1,973,000
Apr.	14200	1125	3158	187,889	Apr.	51200	1300	5774	346,000
May	10300	783	2121	130,392	May	1760	783	1060	65,153
June	82000	1760	11943	716,500	June	9500	783	1826	108,603
July	5320	954	1755	107,893	July	1500	442	1166	71,664
Aug.	4630	612	1213	74,539	Aug.	1300	442	878	53,957
Sept.	1125	275	738	43,898	Sept.	8080	783	2105	125,244
Oct.	1125	275	724	44,489	Oct.	1760	612	1071	65,861
Nov.	6700	140	1431	85,158	Nov.	612	140	368	21,898
Dec.	783	140	459	28,222	Dec.	954	140	501	30,796
Total	..	..	..	2,720,353	Total	..	..	..	3,173,096

Year 1895					Year 1896				
Jan.	215000	275	9997	620,000	Jan.	140	32	57	3,508
Feb.	56600	1125	9022	505,000	Feb.	2050	75	663	38,149
Mar.	1125	275	727	44,663	Mar.	3250	612	1275	78,402
Apr.	442	140	322	19,126	Apr.	783	140	404	24,060
May	140	140	140	8,606	May	140	140	140	8,606
June	275	140	172	10,203	June	30000	275	3745	222,804
July	275	275	275	16,905	July	1500	275	582	35,791
Aug.	275	140	166	10,203	Aug.	442	140	218	13,411
Sept.	2400	140	368	21,863	Sept.	783	140	204	12,154
Oct.	954	75	334	20,562	Oct.	140	32	73	4,491
Nov.	612	75	208	12,388	Nov.	612	32	244	14,293
Dec.	275	32	106	6,544	Dec.	612	140	388	23,828
Total	..	..	..	1,296,063	Total	..	..	..	479,497

Year 1897					Year 1898				
Jan.	32	0	19	1,198	Jan.	5780	18	367	22,590
Feb.	0	0	0	0	Feb.	236700	32	14043	786,000
Mar.	32	0	17	1,023	Mar.	726	140	346	21,278
Apr.	442	13	44	2,848	Apr.	220	75	112	6,673
May	1300	13	250	15,356	May	2050	75	408	25,085
June	48800	442	3378	203,000	June	10300	75	1869	111,195
July	67300	140	5237	325,000	July	1240	442	671	41,258
Aug.	2800	1125	1414	86,895	Aug.	13100	498	1641	100,865
Sept.	2050	1125	1177	70,028	Sept.	15500	230	2539	151,065
Oct.	442	275	302	18,561	Oct.	1590	90	383	23,546
Nov.	275	275	275	16,360	Nov.	442	32	134	7,966
Dec.	140	140	140	8,606	Dec.	60	18	30	1,842
Total	..	..	..	748,875	Total	..	..	..	1,299,363

NEPEAN RIVER AT PENRITH

Month	Year 1899 Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet	Month	Year 1900 Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	32	8	17	1,063	Jan.	275	18	80	4,940
Feb.	13	0	5	252	Feb.	7390	25	325	18,039
Mar.	32	0	13	797	Mar.	32	13	16	987
Apr.	140	13	48	2,840	Apr.	2160	220	743	44,219
May	32	13	22	1,325	May	76000	498	10523	652,000
June	3100	32	323	19,227	June	52100	1760	7241	435,000
July	56600	140	3376	209,000	July	550000	1500	37505	2,330,000
Aug.	79000	555	16128	1,000,000	Aug.	1760	442	966	59,369
Sept.	2800	386	859	51,086	Sept.	2050	442	732	43,517
Oct.	897	220	342	33,289	Oct.	498	75	219	13,478
Nov.	3900	180	1009	60,014	Nov.	5320	25	764	45,478
Dec.	180	25	66	4,071	Dec.	115	25	63	3,901
Total	..	..	..	1,382,964	Total	..	..	..	3,650,928
	Year 1901					Year 1902			
Jan.	38900	13	1576	96,875	Jan.	18	0	7	452
Feb.	612	25	225	12,481	Feb.	0	0	0	0
Mar.	1300	18	217	13,338	Mar.	0	0	0	0
Apr.	442	18	75	4,448	Apr.	13	0	5	286
May	90	60	77	4,759	May	8	0	3	160
June	75	46	55	3,244	June	13	0	8	488
July	140	75	98	6,028	July	13	0	7	406
Aug.	10300	46	1507	92,632	Aug.	No Records			1,600*
Sept.	1125	140	578	34,399	Sept.	No Records			2,100*
Oct.	840	75	357	21,958	Oct.	No Records			15,000*
Nov.	612	60	262	15,559	Nov.	No Records			1,500*
Dec.	60	8	25	1,547	Dec.	No Records			45,000*
Total	..	..	..	307,268	Total	..	..	..	65,992*
	Year 1903					Year 1904			
Jan.	568	160	271	16,659	Jan.	1140	521	823	50,624
Feb.	427	192	278	15,416	Feb.	1330	257	435	24,996
Mar.	427	192	278	17,095	Mar.	1430	380	631	38,784
Apr.	1140	192	340	20,219	Apr.	82000	806	5350	321,000
May	854	335	487	29,923	May	30100	806	3032	186,366
June	1760	335	772	45,904	June	950	474	608	36,162
July	1610	380	571	35,091	July	376000	427	22760	1,410,000
Aug.	13700	568	1756	107,974	Aug.	2270	806	1235	75,913
Sept.	14200	521	2574	153,153	Sept.	806	474	586	34,843
Oct.	7850	902	2059	126,575	Oct.	1330	521	787	48,351
Nov.	1610	568	979	58,243	Nov.	521	290	440	26,176
Dec.	7160	521	1418	87,196	Dec.	290	160	215	13,235
Total	..	..	..	713,450	Total	..	..	..	2,266,450
	Year 1905					Year 1906			
Jan.	160	102	138	8,511	Jan.	474	120	275	16,913
Feb.	380	102	175	9,735	Feb.	140	85	108	5,975
Mar.	290	160	166	10,220	Mar.	23500	120	1229	75,560
Apr.	6700	257	1127	67,025	Apr.	806	140	269	15,989
May	1240	335	557	34,242	May	950	140	240	14,752
June	1330	335	590	35,077	June	380	225	292	17,349
July	1240	474	736	45,250	July	380	192	243	14,916
Aug.	474	335	379	23,326	Aug.	39700	192	1282	78,842
Sept.	662	290	388	23,078	Sept.	32300	380	2848	169,428
Oct.	521	290	382	23,512	Oct.	854	290	475	29,206
Nov.	380	160	251	14,948	Nov.	806	257	369	21,924
Dec.	2950	257	750	46,125	Dec.	380	160	218	13,413
Total	..	..	..	341,050	Total	..	..	..	474,266

* Estimated

Appendix 13
Sheet 4

NEPEAN RIVER AT PENRITH

Year 1907

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	160	60	98	6,022
Feb.	380	120	231	12,816
Mar.	806	120	392	24,082
Apr.	380	192	251	14,924
May	257	160	208	12,786
June	950	160	619	36,826
July	806	290	618	37,965
Aug.	380	160	296	18,172
Sept.	160	120	139	8,289
Oct.	120	60	94	5,769
Nov.	257	60	131	7,771
Dec.	72	13	40	2,489
Total	..	..	..	187,911

Year 1908

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	806	0	67	4,129
Feb.	12700	225	1611	92,640
Mar.	615	102	379	23,316
Apr.	160	60	96	5,717
May	160	60	93	5,695
June	102	85	88	5,259
July	160	85	100	6,177
Aug.	19100	160	2748	168,952
Sept.	335	225	259	15,382
Oct.	225	102	152	9,344
Nov.	380	72	118	7,016
Dec.	950	20	134	8,257
Total	..	..	..	351,883

Year 1909

Jan.	290	3	69	4,218
Feb.	1760	85	346	19,221
Mar.	1240	35	243	14,944
Apr.	35	20	25	1,461
May	35	20	22	1,331
June	1950	35	272	16,165
July	854	120	239	14,670
Aug.	662	160	428	26,281
Sept.	710	380	566	33,699
Oct.	No Records			16,600*
Nov.	No Records			4,200*
Dec.	No Records			31,700*
Total	..	..	..	184,490*

Year 1910

Jan.	No Records			39,100*
Feb.	No Records			13,500*
Mar.	No Records			47,400*
Apr.	No Records			10,000*
May	No Records			3,200*
June	No Records			4,100*
July	89000	150	5019	311,0000
Aug.	No Records			33,000*
Sept.	No Records			13,200*
Oct.	No Records			8,300*
Nov.	No Records			4,000*
Dec.	No Records			138,000*
Total	..	..	..	624,800*

Year 1911

Jan.	104500	86	10790	669,000
Feb.	No Records			273,000*
Mar.	No Records			182,400*
Apr.	No Records			16,800*
May	No Records			13,200*
June	No Records			8,400*
July	No Records			47,900*
Aug.	No Records			75,600*
Sept.	No Records			36,800*
Oct.	No Records			25,900*
Nov.	No Records			4,800*
Dec.	No Records			24,800*
Total	..	..	..	1,378,600*

Year 1912

Jan.	No Records			460*
Feb.	No Records			2,300*
Mar.	No Records			22,200*
Apr.	No Records			10,400*
May	No Records			8,900*
June	No Records			16,800*
July	108100	300	12267	761,000
Aug.	No Records			247,000*
Sept.	No Records			20,300*
Oct.	No Records			12,200*
Nov.	No Records			6,700*
Dec.	No Records			6,500*
Total	..	..	..	1,114,760*

Year 1913

Jan.	No Records			6,600*
Feb.	No Records			1,000*
Mar.	No Records			69,300*
Apr.	No Records			71,400*
May	79000	220	10145	629,000
June	59300	2390	10853	651,000
July	No Records			42,300*
Aug.	No Records			10,500*
Sept.	No Records			6,000*
Oct.	No Records			17,100*
Nov.	No Records			13,300*
Dec.	No Records			1,000*
Total	..	..	..	1,518,500*

Year 1914

Jan.	No Records			1,100*
Feb.	No Records			800*
Mar.	48800	43	5776	358,000
Apr.	No Records			34,700*
May	No Records			20,500*
June	No Records			32,700*
July	No Records			169,000*
Aug.	No Records			35,300*
Sept.	No Records			113,400*
Oct.	No Records			74,200*
Nov.	No Records			53,700*
Dec.	91000	220	2661	165,000
Total	..	..	..	1,058,400*

* Estimated

NEPEAN RIVER AT PENRITH

Year 1915

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	27900	220	2000	124,120
Feb.	300	118	200	11,236
Mar.	220	43	94	5,820
Apr.	3780	220	710	42,640
May	1180	180	438	27,140
June	27900	180	2070	130,216
July	7160	350	1137	70,478
Aug.	2600	350	781	48,456
Sept.	3900	250	697	41,806
Oct.	450	118	158	9,800
Nov.	118	0	35	2,106
Dec.	118	0	20	1,266
Total	..	..	..	515,084

Year 1916

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	325	86	146	9,030
Feb.	220	43	97	5,430
Mar.	235	0	121	7,520
Apr.	1030	118	373	22,384
May	350	118	165	10,220
June	2190	150	522	31,310
July	5820	350	810	50,206
Aug.	5330	528	1345	83,434
Sept.	2600	220	497	29,846
Oct.	280000	640	17340	1,075,000
Nov.	2190	400	984	59,046
Dec.	11100	850	3856	239,090
Total	..	..	..	1,623,016

Year 1917

Jan.	970	221	413	25,610
Feb.	7330	640	1845	103,540
Mar.	2000	220	413	25,612
Apr.	6300	220	1026	61,536
May	1620	300	560	34,476
June	580	250	371	22,276
July	1620	300	589	36,590
Aug.	1260	525	663	41,128
Sept.	9250	350	1805	104,296
Oct.	3900	350	1287	79,786
Nov.	7559	350	2516	150,970
Dec.	7060	528	2240	138,902
Total	..	..	..	824,722

Year 1918

Jan.	27900	250	3685	228,456
Feb.	16600	970	3217	180,170
Mar.	970	350	477	29,580
Apr.	580	220	313	18,812
May	450	220	295	18,300
June	250	220	225	13,500
July	10000	220	1547	95,920
Aug.	2390	640	1176	72,890
Sept.	640	350	470	28,196
Oct.	300	150	233	14,440
Nov.	180	86	133	7,956
Dec.	86	0	40	2,494
Total	..	..	..	710,714

Year 1919

Jan.	43	0	6	344
Feb.	2600	0	78	4,380
Mar.	740	43	184	11,442
Apr.	86	43	47	2,838
May	23500	43	2273	140,954
June	6550	300	1018	61,100
July	250	180	219	13,590
Aug.	300	180	208	12,880
Sept.	350	180	252	15,100
Oct.	220	86	125	7,740
Nov.	250	0	35	2,096
Dec.	325	118	152	9,408
Total	..	..	..	281,872

Year 1920

Jan.	11400	300	2441	151,370
Feb.	350	118	225	13,056
Mar.	150	86	112	7,092
Apr.	150	86	112	6,696
May	86	86	86	5,332
June	34	4	21	1,266
July	1180	81	493	30,592
Aug.	2385	340	580	35,940
Sept.	600	300	440	26,420
Oct.	260	100	151	9,370
Nov.	190	34	96	5,788
Dec.	56400	34	5901	365,884
Total	..	..	..	658,806

Year 1921

Jan.	5975	190	1276	79,120
Feb.	260	34	112	6,268
Mar.	3120	62	699	43,340
Apr.	30300	62	2695	161,708
May	16300	260	4208	260,900
June	6300	600	1728	103,660
July	19300	600	4093	253,800
Aug.	3600	510	1380	85,540
Sept.	800	340	463	27,800
Oct.	340	100	211	13,100
Nov.	190	34	79	4,752
Dec.	6600	7	747	46,306
Total	..	..	..	1,086,294

Year 1922

Jan.	14200	510	3400	210,840
Feb.	9300	100	1282	71,800
Mar.	1520	62	379	23,480
Apr.	430	9	55	3,282
May	340	100	219	13,560
June	260	190	206	12,380
July	173000	190	16450	1,019,940
Aug.	9640	600	2335	144,800
Sept.	4780	510	1438	86,300
Oct.	1020	260	449	27,860
Nov.	340	34	151	9,068
Dec.	260	20	106	6,564
Total	..	..	..	1,629,874

Appendix 13
Sheet 6

NEPEAN RIVER AT PENRITH

Year 1923

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	62	9	18	1,138
Feb.	34	5	10	595
Mar.	700	4	96	5,966
Apr.	190	14	35	2,132
May	190	20	64	3,952
June	4300	20	349	20,992
July	11500	430	1983	122,968
Aug.	6600	430	1377	85,360
Sept.	16300	430	2208	132,330
Oct.	430	190	346	21,440
Nov.	340	20	140	8,432
Dec.	20	4	9	545
Total	..	..	..	405,850

Year 1924

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	34	1	7	476
Feb.	600	34	260	15,080
Mar.	430	14	107	6,672
Apr.	4070	100	532	31,920
May	510	100	199	12,360
June	510	190	227	13,640
July	510	190	247	15,320
Aug.	430	190	271	16,840
Sept.	260	190	213	12,800
Oct.	510	100	236	14,600
Nov.	3120	100	727	43,644
Dec.	600	62	240	14,896
Total	..	..	..	198,248

Year 1925

Jan.	1340	20	288	17,836
Feb.	1340	100	537	30,084
Mar.	260	34	114	7,072
Apr.	100	34	52	3,232
May	138000	34	9702	601,512
June	475000	600	23943	1,436,600
July	4300	700	1582	98,100
Aug.	1340	430	635	39,400
Sept.	510	260	392	23,500
Oct.	260	100	157	9,720
Nov.	1520	100	338	20,280
Dec.	260	20	89	5,522
Total	..	..	..	2,292,858

Year 1926

Jan.	190	11	70	4,332
Feb.	11	1	4	218
Mar.	7860	0	923	57,232
Apr.	4780	510	1188	71,264
May	6000	800	1945	120,580
June	6300	510	2237	134,240
July	4300	800	1973	122,340
Aug.	1520	430	719	44,580
Sept.	550	260	373	22,360
Oct.	700	100	315	19,550
Nov.	100	20	54	3,220
Dec.	260	17	38	2,340
Total	..	..	..	602,256

Year 1927

Jan.	600	100	322	19,980
Feb.	190	14	63	3,502
Mar.	42	11	20	1,252
Apr.	58300	20	7047	422,834
May	3120	300	920	57,080
June	300	220	260	15,600
July	260	190	253	15,680
Aug.	220	190	206	12,800
Sept.	190	34	97	5,834
Oct.	470	100	266	16,480
Nov.	1340	100	395	23,694
Dec.	700	220	445	27,560
Total	..	..	..	622,296

Year 1928

Jan.	380	145	213	13,200
Feb.	73900	190	7841	433,916
Mar.	4070	430	1245	77,182
Apr.	8469	600	1614	96,852
May	600	340	432	26,800
June	20400	340	2327	139,740
July	62100	600	5221	323,694
Aug.	6300	600	1714	106,260
Sept.	600	260	415	25,100
Oct.	260	100	209	12,760
Nov.	100	34	72	4,354
Dec.	34	7	22	1,349
Total	..	..	..	1,261,207

Year 1929

Jan.	6	0	3	168
Feb.	54600	0	7533	421,852
Mar.	2410	340	743	46,062
Apr.	32100	260	2919	175,140
May	600	340	394	24,454
June	340	280	322	19,320
July	300	260	292	18,120
Aug.	2880	300	1052	65,260
Sept.	15200	510	1939	116,340
Oct.	78500	380	9493	588,546
Nov.	14700	510	2443	146,580
Dec.	650	220	345	21,440
Total	..	..	..	1,643,282

Year 1930

Jan.	340	62	191	11,840
Feb.	145	42	74	4,154
Mar.	340	42	130	8,060
Apr.	190	62	111	6,688
May	1170	100	451	27,990
June	19300	510	3739	224,346
July	9640	900	2149	133,228
Aug.	960	600	673	41,770
Sept.	665	190	358	21,506
Oct.	430	207	367	22,858
Nov.	430	81	213	12,814
Dec.	700	62	215	13,362
Total	..	..	..	528,616

NEPEAN RIVER AT PENRITH

Year 1931					Year 1932				
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.	800	14	218	13,506	Jan.	210	43	87	5,410
Feb.	340	14	106	5,930	Feb.	950	35	169	9,800
Mar.	3350	90	909	56,350	Mar.	1160	43	409	25,416
Apr.	32800	260	3592	215,500	Apr.	880	143	300	17,982
May	29000	900	3197	198,204	May	143	143	143	8,866
June	6000	900	2078	124,680	June	143	97	131	7,262
July	41000	1250	4293	266,170	July	880	120	339	21,004
Aug.	1520	450	728	45,176	Aug.	600	210	302	18,720
Sept.	9300	450	1247	74,810	Sept.	8570	217	2206	132,376
Oct.	770	210	373	23,120	Oct.	1520	210	498	30,890
Nov.	950	143	386	23,174	Nov.	770	120	253	15,194
Dec.	2650	143	878	54,470	Dec.	120	43	59	3,690
Total	..	..	..	1,101,081	Total	..	..	..	296,610

Year 1933					Year 1934				
Jan.	29600	43	3390	210,230	Jan.	35000	210	3239	200,794
Feb.	1250	43	205	11,488	Feb.	158000	370	7536	422,018
Mar.	176	26	36	2,254	Mar.	3470	410	912	56,540
Apr.	36500	143	3276	196,536	Apr.	5750	370	1523	91,416
May	2650	143	408	25,196	May	4550	450	1007	62,560
June	550	143	267	16,050	June	6900	550	2303	138,196
July	9970	250	1399	86,718	July	56400	450	4785	296,678
Aug.	1700	250	505	31,330	Aug.	31100	1940	5329	330,400
Sept.	11100	210	717	43,038	Sept.	11500	550	2643	159,594
Oct.	7050	250	1388	86,240	Oct.	3350	370	701	43,460
Nov.	3120	143	499	29,974	Nov.	4300	370	916	55,060
Dec.	5260	370	1137	70,480	Dec.	1020	370	567	35,160
Total	..	..	..	809,634	Total	..	..	..	1,891,876

Year 1935					Year 1936				
Jan.	2190	290	724	44,660	Jan.	2880	67	629	38,982
Feb.	3350	210	985	55,174	Feb.	880	143	357	20,716
Mar.	650	143	273	16,908	Mar.	3600	550	1635	101,298
Apr.	450	97	239	14,348	Apr.	650	290	439	26,360
May	210	143	165	10,206	May	290	143	206	12,748
June	143	143	143	8,580	June	7200	210	817	49,048
July	290	143	185	11,464	July	2650	550	808	50,100
Aug.	370	143	228	14,162	Aug.	5000	290	877	54,360
Sept.	1340	97	340	20,436	Sept.	450	143	312	18,732
Oct.	2880	97	445	27,462	Oct.	190	67	94	5,842
Nov.	450	67	190	11,408	Nov.	43	21	31	1,878
Dec.	8570	67	965	59,730	Dec.	1700	20	323	20,024
Total	..	..	..	254,338	Total	..	..	..	400,080

Year 1937					Year 1938				
Jan.	290	43	130	8,034	Jan.	550	43	256	15,846
Feb.	290	27	134	7,508	Feb.	3120	97	512	28,650
Mar.	22600	43	1827	113,248	Mar.	97	43	56	3,474
Apr.	210	97	129	7,728	Apr.	450	27	91	5,440
May	97	67	80	4,934	May	770	67	156	9,676
June	1940	67	494	29,664	June	450	97	167	10,044
July	3120	210	592	36,678	July	210	97	105	6,516
Aug.	1020	143	251	15,538	Aug.	96000	143	8173	506,714
Sept.	1160	143	392	23,472	Sept.	2880	290	655	39,320
Oct.	290	97	189	11,722	Oct.	21500	143	188	116,352
Nov.	5750	143	1364	81,910	Nov.	1160	210	438	26,280
Dec.	1020	67	310	19,250	Dec.	210	21	63	3,914
Total	..	..	..	359,686	Total	..	..	..	772,499

NEPEAN RIVER AT PENRITH

Year 1939

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	120	21	50	3,086
Feb.	67	2	22	1,220
Mar.	2650	2	615	38,156
Apr.	4780	290	992	59,540
May	290	143	237	14,724
June	210	97	139	8,330
July,	320	97	176	10,908
Aug.	1700	97	514	31,888
Sept.	450	97	238	14,300
Oct.	3350	143	572	35,486
Nov.	370	32	188	11,308
Dec.	97	10	32	1,978
Total	..	..	..	230,924

Year 1940

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	97	10	23	1,426
Feb.	13	0	1.8	106
Mar.	0	0	0	0
Apr.	5	0	0.5	35
May	23	4	15	907
June	3.5	2	2.4	145
July	3.5	2	3.3	203
Aug.	3.5	1	1.8	114
Sept.	6.5	0	1.1	72
Oct.	6.5	0	1.6	102
Nov.	0	0	0	0
Dec.	8200	0.5	804	49,840
Total	..	..	..	52,943

Year 1941

Jan.	4780	42	1042	64,590
Feb.	5260	62	757	42,372
Mar.	97	13	33	2,063
Apr.	13	1	4.5	272
May	6	3	4	230
June	13	6	10	586
July	7	4	6	383
Aug.	4	2	3.1	195
Sept.	97	4	20	1,200
Oct.	290	1	43	2,664
Nov.	27	0.5	10	611
Dec.	8	0	1.4	85
Total	..	..	..	115,251

Year 1942

Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	23800	0	1847	114,532
Apr.	1700	7	172	10,317
May	14	0	2	136
June	2650	0	215	12,888
July	1340	97	424	26,314
Aug.	143	43	73	4,526
Sept.	270	43	141	8,438
Oct.	59300	27	4382	271,662
Nov.	9970	370	2150	129,006
Dec.	880	143	338	20,986
Total	..	..	..	598,805

Year 1943

Jan.	2880	25	506	31,344
Feb.	23	6	13	721
Mar.	10	0.6	2.5	156
Apr.	10	1.7	5	305
May	210000	2	18918	1,172,920
June	5260	550	1371	82,240
July	500	210	344	21,320
Aug.	5500	210	1753	108,678
Sept.	11500	880	2207	132,414
Oct.	9300	575	2594	160,800
Nov.	6900	350	1425	85,492
Dec.	950	290	552	34,230
Total	..	..	..	1,830,620

Year 1944

Jan.	290	55	125	7,734
Feb.	61	24	33	1,892
Mar.	49	12	22	1,340
Apr.	31	10	23	1,376
May	1020	2	107	6,654
June	290	21	54	3,272
July	410	23	116	7,194
Aug.	550	22	180	11,150
Sept.	210	27	65	3,928
Oct.	55	2	14	868
Nov.	2	0	0.3	18
Dec.	0	0	0	0
Total	..	..	..	45,426

Year 1945

Jan.	10300	0	630	39,038
Feb.	621	22	178	9,954
Mar.	317	27	100	6,222
Apr.	6155	31	703	42,165
May	4450	105	513	31,823
June	67300	151	7791	467,480
July	1850	400	893	55,372
Aug.	966	359	592	36,720
Sept.	358	177	244	14,658
Oct.	177	98	138	8,548
Nov.	357	13	62	3,716
Dec.	448	68	145	8,986
Total	..	..	..	724,682

Year 1946

Jan.	207	14	69	4,268
Feb.	126	18	54	3,026
Mar.	48	11	20	1,220
Apr.	9860	16	1226	73,536
May	358	105	162	10,010
June	1340	79	308	18,452
July	674	120	207	12,814
Aug.	187	20	96	5,974
Sept.	20	12	14	842
Oct.	15	12	13	814
Nov.	400	8	99	5,952
Dec.	79	10	23	1,452
Total	..	..	..	138,360

NEPEAN RIVER AT PENRITH

Year 1947

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	10	0	7	400
Feb.	11600	0	1107	61,976
Mar.	3575	105	677	41,970
Apr.	1340	24	239	14,346
May	257	79	137	8,502
June	177	53	123	7,364
July	257	46	155	9,618
Aug.	272	85	140	8,706
Sept.	359	105	190	11,384
Oct.	105	14	59	3,664
Nov.	1340	18	245	14,726
Dec.	40800	167	5674	351,794
Total	..	..	..	534,450

Year 1948

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	13800	400	2117	131,220
Feb.	5830	245	946	54,866
Mar.	595	167	260	16,124
Apr.	207	79	139	8,358
May	25900	151	3306	204,954
June	25600	207	4565	273,884
July	2850	317	718	44,498
Aug.	379	167	144	15,108
Sept.	495	143	242	14,530
Oct.	151	12	85	5,274
Nov.	12	7	10	572
Dec.	12	0	7	436
Total	..	..	..	769,824

Year 1949

Jan.	10700	6	622	38,540
Feb.	1660	31	275	15,376
Mar.	22800	257	3216	193,820
Apr.	495	112	215	12,902
May	28400	79	3061	189,768
June	215000	700	21745	1,304,684
July	2500	700	1164	72,178
Aug.	1060	317	551	34,152
Sept.	5450	570	1585	95,074
Oct.	4200	317	1235	76,594
Nov.	7000	167	862	51,720
Dec.	873	105	249	15,434
Total	..	..	..	2,100,242

Year 1950

Jan.	26825	35	2328	144,354
Feb.	44000	232	6938	388,500
Mar.	121300	700	13868	859,806
Apr.	78000	1480	16573	994,386
May	18600	1190	4775	296,042
June	68200	1850	23937	1,436,244
July	49600	3210	13185	817,460
Aug.	13750	1570	4380	271,550
Sept.	3950	872	1411	84,638
Oct.	42800	700	6060	375,732
Nov.	13750	1125	4419	265,144
Dec.	2615	317	850	52,694
Total	..	..	..	5,986,550

Year 1951

Jan.	56600	257	9302	576,722
Feb.	27150	495	4898	274,270
Mar.	5450	595	1552	96,240
Apr.	595	245	354	21,240
May	935	232	350	21,726
June	70000	257	14155	849,288
July	18050	1190	4414	273,640
Aug.	23350	1060	4014	248,860
Sept.	70000	207	4882	292,936
Oct.	10290	495	1821	112,920
Nov.	495	135	221	13,230
Dec.	187	38	100	6,170
Total	..	..	..	2,787,242

Year 1952

Jan.	448	18	105	6,486
Feb.	53	13	20	1,156
Mar.	12010	20	915	56,718
Apr.	28400	187	4393	263,592
May	4700	595	1419	87,980
June	91000	910	12851	771,050
July	292000	495	12822	794,960
Aug.	78000	1670	21109	1,308,744
Sept.	2080	480	1071	64,256
Oct.	7610	715	2255	139,850
Nov.	3280	480	1024	61,446
Dec.	4640	200	747	46,290
Total	..	..	..	3,602,528

Year 1953

Jan.	6260	715	1774	109,994
Feb.	3030	153	876	49,046
Mar.	850	153	325	20,128
Apr.	320	88	183	10,998
May	24550	90	3797	235,388
June	200	3	28	1,702
July	575	90	370	22,924
Aug.	715	255	502	31,090
Sept.	715	90	247	14,814
Oct.	1000	47	231	14,290
Nov.	320	22	59	3,536
Dec.	22	4	8	500
Total	..	..	..	514,410

Year 1954

Jan.	850	4	190	11,764
Feb.	46400	30	3880	217,268
Mar.	2280	123	628	38,924
Apr.	195	15	132	7,920
May	51	25	30	1,880
June	37	28	31	1,860
July	1700	25	381	23,600
Aug.	255	45	118	7,328
Sept.	57	25	32	1,948
Oct.	3450	15	892	55,300
Nov.	4450	195	1680	100,770
Dec.	320	25	150	9,290
Total	..	..	..	477,852

NEPEAN RIVER AT PENRITH

Year 1955

Month	Discharge in Cusecs			Discharge For Month Acre Feet
	Max.	Min.	Mean	
Jan.	1140	8	147	9,103
Feb.	26500	51	3406	190,762
Mar.	16950	910	3764	233,340
Apr.	103000	195	1688	101,360
May	97600	500	9323	578,006
June	7000	600	1843	110,550
July	700	320	553	34,320
Aug.	3210	195	1233	76,450
Sept.	805	320	500	30,010
Oct.	1550	195	390	24,210
Nov.	3210	45	480	28,770
Dec.	1400	195	573	35,550
Total	..	..	..	1,452,431

Year 1956

Month	Discharge in Cusecs			Discharge For Month Acre Feet
	Max.	Min.	Mean	
Jan.	1140	51	383	23,744
Feb.	398000	320	36370	2,109,474
Mar.	118900	2970	23597	1,463,000
Apr.	9860	1290	2773	166,420
May	46400	1420	6372	395,086
June	104500	1420	10715	642,900
July	24550	1900	5461	388,600
Aug.	12440	1420	3291	204,040
Sept.	1700	640	1121	67,240
Oct.	10720	460	2194	136,060
Nov.	640	68	246	14,784
Dec.	460	68	151	9,338
Total	..	..	..	5,620,686

Year 1957

Jan.	225	10	63	3,904
Feb.	2970	20	296	16,600
Mar.	850	34	183	11,366
Apr.	225	34	84	5,042
May	34	20	23	1,436
June	68	20	30	1,828
July	2933	34	361	22,382
Aug.	4700	48	832	51,604
Sept.	850	68	264	15,858
Oct.	68	10	38	2,344
Nov.	20	0	7	420
Dec.	0	0	0	0
Total	..	..	..	132,784

Year 1958

Jan.	8320	0	328	20,344
Feb.	22750	183	4341	243,106
Mar.	11580	88	1828	113,356
Apr.	275	10	78	4,696
May	68	20	34	2,116
June	7800	20	278	16,684
July	19150	32	2518	156,144
Aug.	275	32	81	5,034
Sept.	32	16	24	1,440
Oct.	32	8	17	1,088
Nov.	16	0	6	384
Dec.	115	12	34	2,108
Total	..	..	..	566,500

Year 1959

Jan.	1900	12	177	10,986
Feb.	7000	41	724	40,552
Mar.	5450	115	1384	85,826
Apr.	11580	850	4212	252,726
May	1070	41	379	23,484
June	540	24	68	4,082
July	21550	32	4040	250,484
Aug.	6450	39	2670	165,528
Sept.	84	23	45	2,686
Oct.	18050	30	3654	226,556
Nov.	12440	3420	5010	300,620
Dec.	3630	30	1749	108,454
Total	..	..	..	1,471,984

Year 1960

Jan.	2270	84	1670	103,522
Feb.	464	30	109	6,344
Mar.	1455	110	659	40,884
Apr.	900	30	266	15,938
May	1915	96	734	45,530
June	1605	124	656	39,390
July	1915	30	515	31,924
Aug.	1915	30	957	59,328
Sept.	1605	96	480	28,782
Oct.	2270	72	955	59,194
Nov.	1455	30	518	31,068
Dec.	6190	96	1261	78,162
Total	..	..	..	540,066

Year 1961

Jan.	5000	8	1100	68,186
Feb.	464	12	67	3,742
Mar.	7000	16	943	58,470
Apr.	1455	224	758	45,470
May	1760	224	955	59,240
June	1605	72	717	43,046
July	1605	96	601	39,246
Aug.	13310	196	1606	99,592
Sept.	2090	96	771	46,260
Oct.	3850	8	592	36,722
Nov.	400000	156	30223	1,813,402
Dec.	29800	2455	6217	385,470
Total	..	..	..	2,698,846

Year 1962

Jan.	70000	2640	10432	646,810
Feb.	17600	3200	5266	294,920
Mar.	4100	149	3039	188,412
Apr.	570	119	211	12,688
May	21760	92	3020	187,254
June	3200	119	1701	102,040
July	3420	265	1685	104,450
Aug.	6670	2800	3479	215,700
Sept.	3870	184	2209	132,528
Oct.	2800	170	1879	116,520
Nov.	1140	222	547	32,834
Dec.	2600	310	772	47,860
Total	..	..	..	2,082,016

NEPEAN RIVER AT PENRITH

Year 1955

Month	Discharge in Cusecs			Discharge For Month Acre Feet
	Max.	Min.	Mean	
Jan.	1140	8	147	9,103
Feb.	26500	51	3406	190,762
Mar.	16950	910	3764	233,340
Apr.	103000	195	1688	101,360
May	97600	500	9323	578,006
June	7000	600	1843	110,550
July	700	320	553	34,320
Aug.	3210	195	1233	76,450
Sept.	805	320	500	30,010
Oct.	1550	195	390	24,210
Nov.	3210	45	480	28,770
Dec.	1400	195	573	35,550
Total	..	..	..	1,452,431

Year 1956

Month	Discharge in Cusecs			Discharge For Month Acre Feet
	Max.	Min.	Mean	
Jan.	1140	51	383	23,744
Feb.	398000	320	36370	2,109,474
Mar.	118900	2970	23597	1,463,000
Apr.	9860	1290	2773	166,420
May	46400	1420	6372	395,086
June	104500	1420	10715	642,900
July	24550	1900	5461	388,600
Aug.	12440	1420	3291	204,040
Sept.	1700	640	1121	67,240
Oct.	10720	460	2194	136,060
Nov.	640	68	246	14,784
Dec.	460	68	151	9,338
Total	..	..	..	5,620,686

Year 1957

Jan.	225	10	63	3,904
Feb.	2970	20	296	16,600
Mar.	850	34	183	11,366
Apr.	225	34	84	5,042
May	34	20	23	1,436
June	68	20	30	1,828
July	2933	34	361	22,382
Aug.	4700	48	832	51,604
Sept.	850	68	264	15,858
Oct.	68	10	38	2,344
Nov.	20	0	7	420
Dec.	0	0	0	0
Total	..	..	..	132,784

Year 1958

Jan.	8320	0	328	20,344
Feb.	22750	183	4341	243,106
Mar.	11580	88	1828	113,356
Apr.	275	10	78	4,696
May	68	20	34	2,116
June	7800	20	278	16,684
July	19150	32	2518	156,144
Aug.	275	32	81	5,034
Sept.	32	16	24	1,440
Oct.	32	8	17	1,088
Nov.	16	0	6	384
Dec.	115	12	34	2,108
Total	..	..	..	566,500

Year 1959

Jan.	1900	12	177	10,986
Feb.	7000	41	724	40,552
Mar.	5450	115	1384	85,826
Apr.	11580	850	4212	252,726
May	1070	41	379	23,484
June	540	24	68	4,082
July	21550	32	4040	250,484
Aug.	6450	39	2670	165,528
Sept.	84	23	45	2,686
Oct.	18050	30	3654	226,556
Nov.	12440	3420	5010	300,620
Dec.	3630	30	1749	108,454
Total	..	..	..	1,471,984

Year 1960

Jan.	2270	84	1670	103,522
Feb.	464	30	109	6,344
Mar.	1455	110	659	40,884
Apr.	900	30	266	15,938
May	1915	96	734	45,530
June	1605	124	656	39,390
July	1915	30	515	31,924
Aug.	1915	30	957	59,328
Sept.	1605	96	480	28,782
Oct.	2270	72	955	59,194
Nov.	1455	30	518	31,068
Dec.	6190	96	1261	78,162
Total	..	..	..	540,066

Year 1961

Jan.	5000	8	1100	68,186
Feb.	464	12	67	3,742
Mar.	7000	16	943	58,470
Apr.	1455	224	758	45,470
May	1760	224	955	59,240
June	1605	72	717	43,046
July	1605	96	601	39,246
Aug.	13310	196	1606	99,592
Sept.	2090	96	771	46,260
Oct.	3850	8	592	36,722
Nov.	400000	156	30223	1,813,402
Dec.	29800	2455	6217	385,470
Total	..	..	..	2,698,846

Year 1962

Jan.	70000	2640	10432	646,810
Feb.	17600	3200	5266	294,920
Mar.	4100	149	3039	188,412
Apr.	570	119	211	12,688
May	21760	92	3020	187,254
June	3200	119	1701	102,040
July	3420	265	1685	104,450
Aug.	6670	2800	3479	215,700
Sept.	3870	184	2209	132,528
Oct.	2800	170	1879	116,520
Nov.	1140	222	547	32,834
Dec.	2600	310	772	47,860
Total	..	..	..	2,082,016

NEPEAN RIVER AT PENRITH

Year 1963

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	13850	370	2731	169,320
Feb.	3420	370	2357	131,980
Mar.	24600	119	5187	321,596
Apr.	76000	700	6436	386,162
May	54800	3420	15427	956,444
June	75000	3000	10996	659,776
July	6940	2800	3490	216,360
Aug.	90000	2800	6794	421,234
Sept.	23460	2400	5785	347,080
Oct.	6940	2200	3217	199,440
Nov.	3000	2400	2460	147,600
Dec.	17100	2200	4984	308,986
Total	..	..	..	4,265,978

Year 1964

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	2400	184	2096	129,936
Feb.	47	30	31	1,808
Mar.	119	18	40	2,482
Apr.	11850	30	1670	100,176
May	3200	990	2623	162,640
June	388000	700	21356	1,281,340
July	2430	2430	2430	150,660
Aug.	2430	1440	2382	147,660
Sept.	2430	945	2071	124,260
Oct.	2430	16	474	29,410
Nov.	260	16	68	4,092
Dec.	2430	26	652	40,446
Total	..	..	..	2,174,910

Year 1965

Jan.	400	16	185	11,496
Feb.	530	26	154	8,646
Mar.	400	26	101	6,296
Apr.	880	8	74	4,410
May	48	17	27	1,688
June	48	17	30	1,810
July	170	30	69	4,260
Aug.	44	21	23	1,440
Sept.	70	8	28	1,662
Oct.	1440	8	220	13,654
Nov.	330	8	49	2,934
Dec.	130	21	59	3,678
Total				61,974

Year 1966

Jan.	23	4	5	286
Feb.	70	4	20	1,136
Mar.	51	21	30	1,890
Apr.	44	4	14	822
May	10	10	10	620
June	33	10	17	996
July	16	16	16	992
Aug.	33	16	17	1,026
Sept.	44	16	20	1,174
Oct.	33	16	20	1,210
Nov.	26500	16	1698	101,902
Dec.	170	44	84	5,230
Total				117,284

Year 1967

Jan.	5830	4	594	36,808
Feb.	1600	70	488	27,354
Mar.	17500	96	2696	167,168
Apr.	1140	96	374	22,464
May	1920	23	372	23,034
June	2080	33	727	43,620
July	2610	48	565	35,028
Aug.	40800	215	4267	264,534
Sept.	34700	144	3506	210,330
Oct.	1190	171	758	47,004
Nov.	1060	66	379	22,714
Dec.	82	66	78	4,860
Total	..	..	..	904,918

Year 1968

Jan.	580	82	131	8,100
Feb.	120	23	96	5,590
Mar.	120	23	78	4,840
Apr.	51	10	15	893
May	151	10	30	1,854
June	21	17	17	1,028
July	22	17	17	1,082
Aug.	26	17	18	1,090
Sept.	14	5	10	624
Oct.	8	2	5	337
Nov.	2	0.5	2	78
Dec.	17	0.2	5	304
Total	..	..	..	25,820

Year 1969

Jan.	11	1	4	220
Feb.	8460	1	276	15,464
Mar.	1130	11	39	2,438
Apr.	18100	49	1227	73,620
May	130	38	79	4,868
June	4200	70	435	26,082
July	No Records			36,200*
Aug.	No Records			54,200*
Sept.	No Records			13,000*
Oct.	No Records			5,000*
Nov.	No Records			98,000*
Dec.	No Records			6,000*
Total	..	..	..	335,092*

Year 1970

Jan.	No Records			2,000*
Feb.	No Records			1,800*
Mar.	No Records			4,000*
Apr.	No Records			2,400*
May	No Records			1,140*
June	No Records			1,320*
July	No Records			920*
Aug.	No Records			1,060*
Sept.	No Records			3,200*
Oct.	No Records			2,000*
Nov.	No Records			1,800*
Dec.	No Records			70,400*
Total	..	..	..	92,040*

* Estimated

NEPEAN RIVER AT PENRITH

1971

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.				143,000*
Feb.				559,000*
Mar.				105,000*
Apr.				36,500*
May				3,100*
June				2,300*
July				2,200*
Aug.				8,700*
Sept.				2,400*
Oct.				1,420*
Nov.				1,400*
Dec.				7,600*
Total	..	..	..	743,920*

* Estimated

GROSE RIVER D/S BURRALOW CREEK

LOCATION:	Latitude 33°38' Longitude 150°38'
PERIOD OF ESTABLISHMENT:	July 1945 to date
COMPLETE YEARS OF COMPUTED RECORDS:	18
ZERO OF GAUGE:	R.L. 64.07 Assumed datum
CATCHMENT AREA:	250 Square miles
CONTROL:	Rock
EQUIPMENT:	Automatic Recorder (Float Type) installed April 1957 Staff gauge, range 0 - 30 feet
CURRENT METER OBSERVATIONS:	(a) Number obtained : 259 (b) Maximum observation in cusecs : 23,909 (c) Minimum observation in cusecs : 2.9
MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORD:	54,800 cusecs
MEAN DAILY DISCHARGE FOR 18 YEARS:	303 cusecs
MEAN ANNUAL DISCHARGE FOR 18 YEARS:	221,000 acre feet

GROSE RIVER D/S BURRALOW CREEK.

Month	Year 1945 Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet	Month	Year 1946 Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	..	..	..	..	Jan.	13	6	7	435
Feb.	..	..	..	..	Feb.	243	7	41	2,292
Mar.	..	..	..	..	Mar.	22	9	13	814
Apr.	..	..	..	..	Apr.	25800	8	750	45,016
May	..	..	..	..	May	95	22	41	2,524
June	..	..	..	..	June	105	20	37	2,190
July	..	..	..	..	July	135	17	31	1,944
Aug.	116	30	57	3,562	Aug.	17	10	12	754
Sept.	42	13	21	1,244	Sept.	13	8	9	556
Oct.	19	9	12	747	Oct.	35	9	11	687
Nov.	24	8	13	753	Nov.	340	8	29	1,760
Dec.	91	8	15	944	Dec.	169	7	12	742
Total	..	..	..	..	Total	..	..	..	59,714

	Year 1947					Year 1948			
Jan.	10	7	8	484	Jan.	3333	41	255	15,788
Feb.	14900	3	961	53,811	Feb.	385	31	96	5,380
Mar.	2510	33	198	12,270	Mar.	101	31	57	3,538
Apr.	1630	27	110	6,592	Apr.	380	31	71	4,250
May	61	32	44	2,750	May	21100	44	855	52,988
June	54	21	27	1,632	June	4875	44	489	29,314
July	37	19	25	1,528	July	161	59	80	4,946
Aug.	36	16	21	1,289	Aug.	60	35	51	3,188
Sept.	31	10	17	1,016	Sept.	251	36	58	3,452
Oct.	17	7	12	722	Oct.	44	13	24	1,460
Nov.	196	11	27	1,594	Nov.	14	10	12	752
Dec.	11300	50	1149	71,266	Dec.	14	4	8	513
Total	..	..	..	154,954	Total	..	..	..	125,569

	Year 1949					Year 1950			
Jan.	46000	10	708	43,884	Jan.	20300	31	452	28,020
Feb.	1790	27	188	10,514	Feb.	17500	44	1250	69,996
Mar.	12400	89	867	53,754	Mar.	24400	130	1105	68,496
Apr.	117	39	58	3,460	Apr.	No Records			46,000*
May	2065	33	79	4,902	May	No Records			17,500*
June	54800	105	1940	116,432	June	24700	135	3303	198,182
July	159	72	93	5,748	July	11200	270	1109	68,790
Aug.	920	49	132	8,160	Aug.	1140	146	305	18,886
Sept.	1380	108	338	20,250	Sept.	1580	93	218	13,094
Oct.	582	54	130	8,048	Oct.	8683	79	303	18,796
Nov.	790	41	93	5,604	Nov.	8693	77	879	52,720
Dec.	220	37	58	3,614	Dec.	437	53	117	7,264
Total	..	..	..	284,370	Total	..	..	..	607,744*

	Year 1951					Year 1952			
Jan.	24600	61	2316	143,594	Jan.	111	10	29	1,802
Feb.	No Records			13,300*	Feb.	86	5	16	946
Mar.	No Records			12,800*	Mar.	No Records			10,600*
Apr.	No Records			450*	Apr.	No Records			32,900*
May	275	60	100	6,184	May	No Records			1,100*
June	27000	64	1366	81,974	June	No Records			16,600*
July	520	106	197	12,156	July	No Records			30,500*
Aug.	661	67	125	7,766	Aug.	No Records			52,200*
Sept.	645	58	99	5,916	Sept.	No Records			800*
Oct.	102	52	75	4,678	Oct.	No Records			7,600*
Nov.	51	31	38	2,272	Nov.	No Records			1,300*
Dec.	43	14	26	1,602	Dec.	No Records			5,500*
Total	..	..	..	292,692*	Total	..	..	..	161,848*

* Estimated

GROSE RIVER D/S BURRALOW CREEK

Year 1953

Month	Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	No Records			9,200*
Feb.	No Records			14,700*
Mar.	No Records			3,600*
Apr.	No Records			600*
May	No Records			23,400*
June	No Records			400*
July	No Records			450*
Aug.	No Records			900*
Sept.	No Records			1,700*
Oct.	168	27	44	2,702
Nov.	63	16	31	1,854
Dec.	25	10	14	860
Total	..	..	..	60,366*

Year 1954

Month	Discharge in Cusecs Max.	Min.	Mean	Discharge for Month Acre Feet
Jan.	550	12	74	4,602
Feb.	37800	48	882	49,412
Mar.	No Records			6,100*
Apr.	81	29	43	2,578
May	72	30	40	2,452
June	63	32	38	2,262
July	2055	26	219	13,560
Aug.	162	50	73	4,538
Sept.	77	38	49	2,954
Oct.	9865	26	360	22,316
Nov.	805	52	185	11,124
Dec.	95	25	53	3,272
Total	..	..	..	125,170*

Year 1955

Jan.	1630	19	104	6,422
Feb.	17000	101	1393	78,004
Mar.	3967	137	457	28,332
Apr.	14000	93	205	12,324
May	13900	114	544	33,728
June	168	93	124	7,424
July	89	61	75	4,620
Aug.	93	52	63	3,938
Sept.	192	44	57	3,400
Oct.	210	33	58	3,572
Nov.	2570	25	130	7,822
Dec.	1165	44	131	8,148
Total	..	..	..	197,734

Year 1956

Jan.	No Records			
Feb.	No Records			
Mar.	No Records			
Apr.	No Records			
May	12700	123	684	41,052
June	No Records			
July	No Records			
Aug.	1165	105	179	11,088
Sept.	115	73	92	5,508
Oct.	No Records			
Nov.	115	41	61	3,670
Dec.	No Records			
Total	..	..	..	

Year 1957

Jan.	No Records			
Feb.	No Records			
Mar.	No Records			
Apr.	No Records			
May	37	29	31	1,894
June	288	26	38	2,274
July	895	29	66	4,092
Aug.	1630	35	171	10,598
Sept.	137	34	59	3,556
Oct.	32	24	27	1,694
Nov.	34	9	20	1,218
Dec.	15	8	9	564
Total	..	..	..	

Year 1958

Jan.	10200	16	200	12,430
Feb.	9800	44	463	25,948
Mar.	3925	41	305	18,912
Apr.	119	41	62	3,750
May	108	29	46	2,846
June	5367	29	202	12,108
July	5367	56	180	11,166
Aug.	595	48	78	4,858
Sept.	70	41	50	3,024
Oct.	70	26	42	2,632
Nov.	246	16	26	1,562
Dec.	915	16	97	6,042
Total	..	..	..	105,278

Year 1959

Jan.	4900	26	427	26,478
Feb.	22800	59	721	40,200
Mar.	No Records			
Apr.	No Records			
May	No Records			
June	No Records			
July	No Records			
Aug.	139	59	79	4,920
Sept.	169	44	65	3,912
Oct.	4175	41	413	25,628
Nov.	No Records			
Dec.	No Records			
Total	..	..	..	

Year 1960

Jan.	No Records			
Feb.	4519	78	251	14,544
Mar.	2497	78	244	15,098
Apr.	410	53	83	4,974
May	780	44	89	5,538
June	158	56	70	4,178
July	1030	55	132	8,172
Aug.	462	48	80	4,944
Sept.	118	39	58	3,506
Oct.	600	31	89	5,530
Nov.	135	32	46	2,742
Dec.	760	34	175	10,864
Total	..	..	..	

* Estimated

GROSE RIVER D/S BURRALOW CREEK.

Year 1961

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	273	28	68	4,240
Feb.	1470	28	76	4,140
Mar.	3521	38	278	17,212
Apr.	1000	50	145	8,716
May	110	44	61	3,808
June	445	44	93	5,570
July	306	41	61	3,990
Aug.	830	41	185	11,478
Sept.	147	41	74	4,424
Oct.	970	37	133	8,250
Nov.	47700	39	4209	252,520
Dec.	9665	123	860	53,308
Total	..	..	..	377,656

Year 1962

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	7890	171	773	47,924
Feb.	10900	136	677	37,870
Mar.	389	74	129	7,870
Apr.	317	70	109	6,516
May	40600	57	886	54,916
June	147	62	87	5,242
July	1488	59	158	9,800
Aug.	1688	95	287	17,814
Sept.	1886	81	217	13,022
Oct.	131	63	89	5,516
Nov.	82	32	50	3,024
Dec.	2453	31	371	23,016
Total	..	..	..	232,530

Year 1963

Jan.	9200	121	680	42,130
Feb.	4186	120	403	22,586
Mar.	21800	108	1534	95,092
Apr.	30900	125	1396	83,774
May	17300	262	1737	107,720
June	12300	244	758	45,466
July	417	138	208	12,880
Aug.	11300	108	542	33,622
Sept.	5510	104	425	25,528
Oct.	1520	119	215	13,356
Nov.	315	86	124	7,440
Dec.	7622	65	1040	64,460
Total	..	..	..	554,054

Year 1964

Jan.	No Records			6,000*
Feb.	171	37	55	3,164
Mar.	898	35	79	4,868
Apr.	13700	43	523	31,394
May	128	60	86	5,328
June	36900	57	3448	206,876
July	178	83	115	7,112
Aug.	424	60	85	5,290
Sept.	122	50	65	3,882
Oct.	143	41	62	3,854
Nov.	1760	46	133	7,986
Dec.	46	25	33	2,032
Total	..	..	..	287,786*

Year 1965

Jan.	34	19	24	1,466
Feb.	42	18	24	1,364
Mar.	18	16	16	1,008
Apr.	430	16	48	2,868
May	38	24	27	1,690
June	66	21	28	1,648
July	2183	28	169	10,472
Aug.	55	32	39	2,446
Sept.	134	28	56	3,350
Oct.	6752	22	358	22,224
Nov.	127	24	42	2,522
Dec.	1048	43	156	9,712
Total	..	..	..	60,770

Year 1966

Jan.	324	22	40	2,490
Feb.	333	19	55	3,094
Mar.	65	19	31	1,938
Apr.	135	17	27	1,615
May	52	23	27	1,664
June	142	22	41	2,456
July	28	22	25	1,561
Aug.	41	21	28	1,718
Sept.	107	22	33	1,957
Oct.	201	20	40	2,508
Nov.	11800	23	445	26,698
Dec.	284	27	58	3,621
Total	..	..	..	51,320

Year 1967

Jan.	8000	18	245	23,529
Feb.	680	52	194	10,860
Mar.	4404	62	455	28,188
Apr.	142	46	74	4,436
May	88	36	44	2,750
June	3801	32	709	42,532
July	820	75	157	9,714
Aug.	47700	71	1275	79,034
Sept.	3301	73	222	13,326
Oct.	1435	53	184	11,440
Nov.	88	30	52	3,131
Dec.	28	15	21	1,314
Total	..	..	..	230,254

Year 1968

Jan.	2792	17	299	18,520
Feb.	76	24	44	2,530
Mar.	671	23	59	3,670
Apr.	43	24	29	1,720
May	2111	22	87	5,400
June	43	32	36	2,150
July	50	31	33	2,169
Aug.	65	29	37	2,372
Sept.	34	19	26	1,560
Oct.	25	20	24	1,420
Nov.	Records Incomplete			
Dec.	Records Incomplete			
Total	..	..	..	

* Estimated

GROSE RIVER AT D/S BURRALOW CREEK

Year 1969

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	Records Incomplete			
Feb.	Records Incomplete			
Mar.	350	27	94	5,840
Apr.	18100	66	913	54,700
May	70	23	42	2,490
June	708	14	74	4,470
July	75	18	53	3,320
Aug.	Records Incomplete			
Sept.	Records Incomplete			
Oct.	Records Incomplete			
Nov.	Records Incomplete			
Dec.	Records Incomplete			
Total	..	..	..	

Year 1970

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	Records Incomplete			
Feb.	2530	90	284	15,900
Mar.	158	56	101	6,240
Apr.	56	34	42	2,540
May	Records Incomplete			
June	Records Incomplete			
July	40	25	31	1,890
Aug.	Records Incomplete			
Sept.	Records Incomplete			
Oct.	Records Incomplete			
Nov.	720	25	79	4,720
Dec.	31120	34	950	58,900
Total	..	..	..	

Year 1971

Jan.	Records Incomplete			
Feb.	6218	182	1374	77,000
Mar.	2586	137	403	25,000
Apr.	Records Incomplete			
May	Records Incomplete			
June	76	52	65	3,900
July	64	45	50	3,110
Aug.	146	40	56	3,460
Sept.	268	38	66	3,960
Oct.	40	17	26	1,610
Nov.	404	16	38	2,290
Dec.	3250	29	177	11,000
Total	..	..	..	

COLO RIVER AT UPPER COLO

LOCATION:	Latitude 33°24' Longitude 150°42'
PERIOD OF ESTABLISHMENT:	June 1909 to date
COMPLETE YEARS OF COMPUTED RECORDS:	53
ZERO OF GAUGE:	R.L. 4.98 Standard datum
CATCHMENT AREA:	1,675 Square miles
CONTROL:	Sand (Unstable)
EQUIPMENT:	Staff gauge, range 0 - 60 feet
CURRENT METER OBSERVATIONS:	(a) Number obtained : 248
	(b) Maximum observation in cusecs : 9,900
	(c) Minimum observation in cusecs : 0.72
MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORD:	163,000 cusecs
MEAN DAILY DISCHARGE FOR 53 YEARS:	614 cusecs
MEAN ANNUAL DISCHARGE FOR 53 YEARS:	448,000 acre feet
REMARKS:	Station discontinued in August 1933. Recommenced January 1942.

COLO RIVER AT UPPER COLO

Year 1909

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	..	..	..	..
Feb.	..	..	..	..
Mar.	..	..	..	..
Apr.	..	..	..	..
May	..	..	..	..
June	No Records			
July	50	35	41	2,536
Aug.	35	30	33	2,130
Sept.	780	35	131	7,852
Oct.	56	35	40	2,470
Nov.	35	35	35	2,100
Dec.	163000	15	6632	411,236
Total	..	..	..	..

Year 1910

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	43000	120	2389	148,152
Feb.	935	42	252	14,092
Mar.	2500	42	622	38,602
Apr.	135	63	84	5,068
May	63	42	49	3,040
June	63	35	42	2,522
July	17400	42	1073	66,542
Aug.	195	70	94	5,828
Sept.	80	56	65	3,888
Oct.	80	35	55	3,412
Nov.	90	25	40	2,376
Dec.	1300	30	150	9,240
Total	..	..	..	302,762

Year 1911

Jan.	17900	30	1922	119,172
Feb.	19500	680	4510	252,580
Mar.	1000	245	639	19,805
Apr.	245	105	159	9,556
May	120	70	87	5,410
June	90	63	73	4,362
July	436	70	149	9,232
Aug.	880	70	189	10,454
Sept.	296	174	224	13,438
Oct.	365	56	155	9,590
Nov.	155	25	53	3,184
Dec.	1200	30	288	17,898
Total	..	..	..	494,486

Year 1912

Jan.	60	30	42	2,632
Feb.	1250	35	132	7,632
Mar.	935	42	378	23,426
Apr.	245	42	132	7,918
May	220	56	90	5,562
June	3400	63	436	28,192
July	14440	220	1795	111,090
Aug.	1130	220	632	39,236
Sept.	615	174	280	16,814
Oct.	174	105	140	8,668
Nov.	105	63	76	4,598
Dec.	63	42	47	2,940
Total	..	..	..	258,708

Year 1913

Jan.	120	42	71	4,410
Feb.	63	42	54	3,008
Mar.	950	42	132	8,194
Apr.	13640	42	1009	60,530
May	150000	200	7796	483,340
June	14000	360	1868	115,798
July	776	80	351	21,780
Aug.	670	45	161	9,986
Sept.	50	35	43	2,570
Oct.	40	27	32	1,966
Nov.	40	18	28	1,684
Dec.	16	12	14	880
Total	..	..	..	714,146

Year 1914

Jan.	14	10	11	692
Feb.	14	10	11	636
Mar.	1600	16	188	11,656
Apr.	152	71	102	6,132
May	71	40	49	3,036
June	2100	31	243	16,614
July	166	100	124	7,876
Aug.	90	40	59	3,666
Sept.	4400	27	304	18,242
Oct.	13900	57	1646	102,030
Nov.	776	71	212	12,708
Dec.	17400	45	649	40,238
Total	..	..	..	223,526

Year 1915

Jan.	17000	136	1048	64,978
Feb.	136	64	80	4,458
Mar.	57	27	42	2,604
Apr.	360	57	98	5,982
May	2000	50	467	30,992
June	395	64	172	10,318
July	245	40	83	5,176
Aug.	110	50	75	4,638
Sept.	50	35	45	2,676
Oct.	31	21	26	1,552
Nov.	24	10	16	938
Dec.	265	9	32	2,004
Total	..	..	..	136,316

Year 1916

Jan.	752	50	74	4,566
Feb.	100	50	65	3,750
Mar.	468	50	88	5,478
Apr.	265	50	74	4,440
May	64	50	59	3,660
June	1600	40	243	14,596
July	1140	50	154	9,554
Aug.	826	35	211	13,100
Sept.	184	31	56	3,356
Oct.	7500	50	1344	83,370
Nov.	57	80	49	2,936
Dec.	430	40	124	7,666
Total	..	..	..	156,472

COLO RIVER AT UPPER COLO

Year 1917

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	80	40	56	3,488
Feb.	3200	50	675	37,818
Mar.	80	40	52	3,232
Apr.	265	24	76	4,536
May	100	21	45	2,790
June	184	24	76	4,576
July	71	31	46	2,832
Aug.	100	50	65	4,032
Sept.	2700	50	468	28,098
Oct.	314	35	98	6,102
Nov.	4700	35	1410	84,626
Dec.	225	50	108	6,720
Total	..	..	..	188,850

Year 1918

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	18400	184	3917	242,882
Feb.	1140	71	323	18,112
Mar.	265	50	73	4,498
Apr.	100	50	55	3,270
May	50	35	40	2,460
June	35	24	33	1,982
July	40	31	33	2,040
Aug.	40	31	36	2,226
Sept.	290	31	106	6,346
Oct.	57	12	20	1,262
Nov.	136	31	43	2,604
Dec.	136	21	52	3,248
Total	..	..	..	290,930

Year 1919

Jan.	31	18	21	1,298
Feb.	2640	12	96	5,370
Mar.	3350	24	870	53,994
Apr.	24	12	16	942
May	982	21	317	19,626
June	430	64	136	8,148
July	71	40	57	3,522
Aug.	64	35	44	2,704
Sept.	40	24	33	2,006
Oct.	45	21	27	1,700
Nov.	193	16	28	1,694
Dec.	880	184	366	22,720
Total	..	..	..	123,724

Year 1920

Jan.	3200	336	1108	68,694
Feb.	336	110	186	10,768
Mar.	122	57	80	4,960
Apr.	110	57	72	4,294
May	64	14	30	1,852
June	31	12	17	1,042
July	3730	31	1935	120,174
Aug.	1095	80	345	21,390
Sept.	100	24	54	3,232
Oct.	35	14	23	1,436
Nov.	21	12	14	850
Dec.	8000	12	944	58,556
Total	..	..	..	297,248

Year 1921

Jan.	2700	57	440	27,282
Feb.	8450	40	3674	205,770
Mar.	4200	100	897	55,578
Apr.	25300	90	3856	231,368
May	2400	90	914	56,686
June	2900	515	1236	74,146
July	34413	314	4165	254,554
Aug.	10700	245	3202	198,518
Sept.	1900	205	666	39,960
Oct.	1700	71	413	25,642
Nov.	620	57	135	7,904
Dec.	13300	57	2163	134,100
Total	..	..	..	1,311,508

Year 1922

Jan.	16000	226	3125	193,776
Feb.	2400	564	1033	57,840
Mar.	1140	57	351	21,762
Apr.	184	50	71	4,272
May	71	45	57	3,540
June	90	45	61	3,676
July	75000	57	6170	382,400
Aug.	6800	165	1376	85,342
Sept.	580	118	253	15,186
Oct.	118	66	90	5,600
Nov.	97	53	72	4,318
Dec.	140	59	85	5,302
Total	..	..	..	783,014

Year 1923

Jan.	97	42	65	4,032
Feb.	73	42	59	3,294
Mar.	88	42	66	4,080
Apr.	88	47	64	3,822
May	88	59	74	4,578
June	228	59	85	5,118
July	930	66	279	17,294
Aug.	825	140	280	17,354
Sept.	140	42	92	5,514
Oct.	80	42	66	4,118
Nov.	80	53	68	4,088
Dec.	350	42	84	5,222
Total	..	..	..	78,514

Year 1924

Jan.	228	47	83	5,086
Feb.	1800	53	440	25,512
Mar.	97	47	64	3,954
Apr.	825	42	421	25,256
May	80	26	31	1,928
June	42	23	31	1,870
July	140	20	40	2,400
Aug.	97	23	53	3,292
Sept.	184	16	57	3,428
Oct.	73	23	45	2,800
Nov.	2300	18	693	41,602
Dec.	540	30	125	7,726
Total	..	..	..	124,854

COLO RIVER AT UPPER COLO

Year 1925

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	66	23	40	2,466
Feb.	305	26	85	4,936
Mar.	34	20	25	1,464
Apr.	34	20	25	1,484
May	770	23	115	7,158
June	16700	26	167	95,160
July	1040	110	266	16,492
Aug.	228	63	121	7,522
Sept.	90	30	44	2,664
Oct.	43	30	38	2,352
Nov.	292	70	159	9,580
Dec.	174	37	68	4,268
Total	..	..	..	155,546

Year 1926

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	118	17	69	4,064
Feb.	17	6	10	546
Mar.	5900	3	3575	221,648
Apr.	1600	162	466	27,966
May	725	119	237	14,722
June	405	90	219	12,510
July	314	90	120	7,416
Aug.	128	63	96	5,932
Sept.	63	37	50	3,012
Oct.	187	37	72	4,490
Nov.	37	10	20	1,186
Dec.	405	10	51	3,154
Total	..	..	..	306,646

Year 1927

Jan.	560	80	185	11,462
Feb.	110	22	51	2,862
Mar.	128	10	42	2,594
Apr.	52400	15	3491	209,716
May	228	65	114	7,114
June	65	41	50	3,036
July	41	30	35	2,162
Aug.	36	24	32	2,004
Sept.	30	21	23	1,416
Oct.	93	18	44	2,726
Nov.	16700	18	894	53,846
Dec.	532	84	167	11,374
Total	..	..	..	310,312

Year 1928

Jan.	259	65	126	7,798
Feb.	28230	65	3223	180,488
Mar.	4300	126	540	33,492
Apr.	3400	174	678	40,688
May	174	93	109	6,794
June	1090	84	190	11,402
July	453	65	170	10,480
Aug.	228	84	129	7,990
Sept.	74	42	62	3,744
Oct.	42	36	39	2,448
Nov.	17	8	11	662
Dec.	8	8	8	496
Total	..	..	..	306,482

Year 1929

Jan.	8	4	5	308
Feb.	22400	6	2080	115,928
Mar.	187	74	101	6,264
Apr.	18730	74	1046	62,772
May	104	65	84	5,224
June	84	65	73	4,386
July	187	57	89	5,536
Aug.	187	74	116	7,226
Sept.	8000	93	687	41,198
Oct.	46300	74	2685	166,486
Nov.	1730	126	232	14,208
Dec.	115	49	75	4,640
Total	..	..	..	434,176

Year 1930

Jan.	383	49	91	5,698
Feb.	126	42	72	4,082
Mar.	309	36	91	5,698
Apr.	84	49	61	3,700
May	590	49	129	8,046
June	54100	65	4015	240,940
July	5233	228	883	54,592
Aug.	228	115	173	10,710
Sept.	187	65	128	7,710
Oct.	162	49	99	6,124
Nov.	93	36	61	3,640
Dec.	126	30	50	3,142
Total	..	..	..	354,082

Year 1931

Jan.	39	10	19	1,236
Feb.	93	13	30	1,682
Mar.	228	28	118	7,306
Apr.	64000	104	3498	209,876
May	9000	150	751	46,554
June	1430	126	343	20,608
July	16030	162	1253	77,724
Aug.	150	74	114	7,060
Sept.	84	50	64	3,860
Oct.	115	17	54	3,360
Nov.	84	23	53	3,192
Dec.	200	23	63	3,914
Total	..	..	..	386,372

Year 1932

Jan.	39	10	15	932
Feb.	93	10	29	1,658
Mar.	243	13	90	5,232
Apr.	84	39	56	3,394
May	49	30	35	2,186
June	17	13	15	924
July	28	13	16	994
Aug.	23	13	15	946
Sept.	2000	17	352	21,122
Oct.	200	49	112	6,990
Nov.	115	28	51	3,048
Dec.	49	19	25	1,588
Total	..	..	..	49,014

COLO RIVER AT UPPER COLO

Year 1925

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	66	23	40	2,466
Feb.	305	26	85	4,936
Mar.	34	20	25	1,464
Apr.	34	20	25	1,484
May	770	23	115	7,158
June	16700	26	167	95,160
July	1040	110	266	16,492
Aug.	228	63	121	7,522
Sept.	90	30	44	2,664
Oct.	43	30	38	2,352
Nov.	292	70	159	9,580
Dec.	174	37	68	4,268
Total	..	..	..	155,546

Year 1926

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	118	17	69	4,064
Feb.	17	6	10	546
Mar.	5900	3	3575	221,648
Apr.	1600	162	466	27,966
May	725	119	237	14,722
June	405	90	219	12,510
July	314	90	120	7,416
Aug.	128	63	96	5,932
Sept.	63	37	50	3,012
Oct.	187	37	72	4,490
Nov.	37	10	20	1,186
Dec.	405	10	51	3,154
Total	..	..	..	306,646

Year 1927

Jan.	560	80	185	11,462
Feb.	110	22	51	2,862
Mar.	128	10	42	2,594
Apr.	52400	15	3491	209,716
May	228	65	114	7,114
June	65	41	50	3,036
July	41	30	35	2,162
Aug.	36	24	32	2,004
Sept.	30	21	23	1,416
Oct.	93	18	44	2,726
Nov.	16700	18	894	53,846
Dec.	532	84	167	11,374
Total	..	..	..	310,312

Year 1928

Jan.	259	65	126	7,798
Feb.	28230	65	3223	180,488
Mar.	4300	126	540	33,492
Apr.	3400	174	678	40,688
May	174	93	109	6,794
June	1090	84	190	11,402
July	453	65	170	10,480
Aug.	228	84	129	7,990
Sept.	74	42	62	3,744
Oct.	42	36	39	2,448
Nov.	17	8	11	662
Dec.	8	8	8	496
Total	..	..	..	306,482

Year 1929

Jan.	8	4	5	308
Feb.	22400	6	2080	115,928
Mar.	187	74	101	6,264
Apr.	18730	74	1046	62,772
May	104	65	84	5,224
June	84	65	73	4,386
July	187	57	89	5,536
Aug.	187	74	116	7,226
Sept.	8000	93	687	41,198
Oct.	46300	74	2685	166,486
Nov.	1730	126	232	14,208
Dec.	115	49	75	4,640
Total	..	..	..	434,176

Year 1930

Jan.	383	49	91	5,698
Feb.	126	42	72	4,082
Mar.	309	36	91	5,698
Apr.	84	49	61	3,700
May	590	49	129	8,046
June	54100	65	4015	240,940
July	5233	228	883	54,592
Aug.	228	115	173	10,710
Sept.	187	65	128	7,710
Oct.	162	49	99	6,124
Nov.	93	36	61	3,640
Dec.	126	30	50	3,142
Total	..	..	..	354,082

Year 1931

Jan.	39	10	19	1,236
Feb.	93	13	30	1,682
Mar.	228	28	118	7,306
Apr.	64000	104	3498	209,876
May	9000	150	751	46,554
June	1430	126	343	20,608
July	16030	162	1253	77,724
Aug.	150	74	114	7,060
Sept.	84	50	64	3,860
Oct.	115	17	54	3,360
Nov.	84	23	53	3,192
Dec.	200	23	63	3,914
Total	..	..	..	386,372

Year 1932

Jan.	39	10	15	932
Feb.	93	10	29	1,658
Mar.	243	13	90	5,232
Apr.	84	39	56	3,394
May	49	30	35	2,186
June	17	13	15	924
July	28	13	16	994
Aug.	23	13	15	946
Sept.	2000	17	352	21,122
Oct.	200	49	112	6,990
Nov.	115	28	51	3,048
Dec.	49	19	25	1,588
Total	..	..	..	49,014

COLO RIVER AT UPPER COLO

Year 1933					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	
					Station Recommenced January 1st 1942				
Jan.	1190	10	106	6,588	Jan.	1	1	1	45
Feb.	126	13	41	2,318	Feb.	27	1	8	463
Mar.	36	24	25	1,536	Mar.	54000	6	2535	157,144
Apr.	1930	23	156	9,344	Apr.	1880	51	211	12,690
May	50	28	31	1,912	May	66	35	47	2,906
June	84	28	54	3,226	June	253	42	70	4,200
July	7000	42	522	32,380	July	2225	43	30	18,288
Aug.	383	50	124	7,704	Aug.	66	32	47	2,898
Sept.	Station Discontinued				Sept.	45	32	35	2,096
Oct.	31st August, 1933.				Oct.	43570	35	3006	186,354
Nov.					Nov.	15020	146	1988	119,252
Dec.					Dec.	222	70	129	8,032
Total	..	..	..	..	Total	..	..	..	514,368

Year 1943					Year 1944				
Jan.	663	52	209	12,950	Jan.	179	35	68	4,236
Feb.	66	40	48	2,706	Feb.	46	22	28	1,650
Mar.	37	12	20	1,242	Mar.	35	16	21	1,284
Apr.	42	16	27	1,604	Apr.	27	16	19	1,158
May	24860	13	1596	98,954	May	160	16	21	1,912
June	663	70	189	11,344	June	66	25	34	2,024
July	70	43	54	3,388	July	79	27	38	2,340
Aug.	280	44	107	6,604	Aug.	1500	22	193	11,980
Sept.	5065	78	335	20,118	Sept.	179	32	62	3,720
Oct.	2445	116	410	25,448	Oct.	55	16	30	1,800
Nov.	2740	79	456	27,374	Nov.	14	6	10	586
Dec.	305	93	149	9,276	Dec.	7	3	4	261
Total	..	..	..	221,008	Total	..	..	..	32,951

Year 1945					Year 1946				
Jan.	866	3	131	8,136	Jan.	66	9	23	1,418
Feb.	397	32	143	8,012	Feb.	397	9	89	4,998
Mar.	294	14	55	3,406	Mar.	61	22	33	2,060
Apr.	502	27	122	7,332	Apr.	54000	19	3418	205,074
May	261	27	66	4,076	May	305	51	113	6,994
June	29600	32	3720	223,250	June	502	32	118	7,094
July	509	88	181	11,208	July	219	30	65	4,030
Aug.	253	74	122	7,584	Aug.	27	12	21	1,268
Sept.	79	42	52	3,100	Sept.	26	21	23	1,390
Oct.	60	25	37	2,292	Oct.	160	17	37	2,290
Nov.	27	19	23	1,389	Nov.	271	15	59	3,530
Dec.	202	22	51	3,170	Dec.	38	17	23	1,424
Total	..	..	..	282,955	Total	..	..	..	241,570

Year 1947					Year 1948				
Jan.	21	6	10	646	Jan.	3380	260	745	46,160
Feb.	12500	5	1111	62,192	Feb.	1200	144	465	26,962
Mar.	4800	66	621	38,532	Mar.	260	113	160	9,930
Apr.	1560	57	228	13,698	Apr.	399	113	148	8,874
May	188	54	81	5,052	May	14900	217	1966	121,866
June	76	38	52	3,120	June	9600	144	1704	102,214
July	44	28	33	2,050	July	No Records			45,000*
Aug.	50	30	38	2,356	Aug.	172	87	119	7,404
Sept.	188	36	62	3,728	Sept.	350	76	133	7,996
Oct.	44	23	33	2,062	Oct.	144	50	75	4,662
Nov.	197	23	61	3,644	Nov.	87	44	48	2,866
Dec.	29270	66	4246	263,270	Dec.	44	38	38	2,380
Total	..	..	..	400,350	Total	..	..	..	386,314*

* Estimated

Appendix 15
Sheet 6

COLO RIVER AT UPPER COLO

Year 1949

Month	Discharge in cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	4800	44	368	22,790
Feb.	940	57	150	8,412
Mar.	7130	217	1352	83,860
Apr.	217	57	100	5,972
May	1022	44	167	10,370
June	75440	87	7175	438,884
July	617	82	299	18,532
Aug.	4880	57	404	25,058
Sept.	2300	304	751	45,068
Oct.	2150	156	589	36,526
Nov.	476	117	203	12,186
Dec.	250	105	168	10,392
Total	..	..	..	718,050

Year 1950

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	18980	54	1706	105,782
Feb.	54000	200	6977	390,308
Mar.	4250	454	1529	94,804
Apr.	35200	425	3941	236,436
May	1025	270	467	28,058
June	41020	410	10849	650,954
July	24200	5030	8884	550,800
Aug.	No Records			17,000*
Sept.	920	300	513	30,800
Oct.	4650	217	974	60,380
Nov.	35050	282	5537	332,228
Dec.	2080	178	598	37,076
Total	..	..	..	2,534,626*

Year 1951

Jan.	41580	164	6020	373,264
Feb.	2870	374	1042	58,350
Mar.	5320	315	778	48,238
Apr.	315	144	197	11,837
May	249	128	146	9,100
June	20030	132	3267	196,044
July	3840	397	960	59,450
Aug.	2520	316	633	39,242
Sept.	746	178	257	15,418
Oct.	327	124	195	12,102
Nov.	112	53	74	4,432
Dec.	86	38	51	3,176
Total	..	..	..	830,653

Year 1952

Jan.	67	20	36	2,236
Feb.	70	15	26	1,484
Mar.	885	35	136	8,426
Apr.	5340	78	592	35,528
May	394	131	194	12,026
June	19690	130	1867	112,000
July	49510	158	3565	221,060
Aug.	75000	851	8721	540,676
Sept.	775	181	421	25,234
Oct.	851	162	353	21,852
Nov.	267	93	130	7,794
Dec.	196	69	87	5,400
Total	..	..	..	993,716

Year 1953

Jan.	2206	192	498	30,866
Feb.	4535	151	743	41,638
Mar.	503	151	197	12,202
Apr.	187	125	140	8,404
May	57620	127	4719	292,556
June	247	159	187	11,254
July	157	130	144	8,972
Aug.	161	123	132	8,170
Sept.	141	115	122	7,342
Oct.	236	109	132	8,222
Nov.	138	48	79	4,756
Dec.	113	13	38	2,354
Total	..	..	..	436,736

Year 1954

Jan.	400	48	156	9,672
Feb.	42170	75	2731	152,942
Mar.	11016	100	281	17,398
Apr.	148	83	98	5,906
May	96	78	84	5,176
June	95	73	81	4,890
July	1200	65	221	13,694
Aug.	118	70	94	5,802
Sept.	98	73	81	4,840
Oct.	8275	53	923	57,210
Nov.	2150	136	636	38,132
Dec.	139	69	97	6,036
Total	..	..	..	321,698

Year 1955

Jan.	2225	30	251	15,578
Feb.	64530	120	6770	379,134
Mar.	9510	567	2073	128,508
Apr.	20850	183	929	55,720
May	12400	236	1493	92,544
June	775	191	333	19,990
July	250	156	176	10,916
Aug.	335	152	204	12,628
Sept.	261	163	190	11,430
Oct.	281	130	172	10,682
Nov.	5620	100	404	24,210
Dec.	1245	136	358	22,196
Total	..	..	..	783,536

Year 1956

Jan.	2805	149	408	25,280
Feb.	65430	298	8419	488,316
Mar.	32350	1425	9221	571,722
Apr.	6390	328	1554	93,216
May	6760	384	1203	74,576
June	30200	216	3035	182,118
July	4950	415	1866	115,736
Aug.	3160	316	1041	14,546
Sept.	384	237	297	17,836
Oct.	610	172	281	17,408
Nov.	156	88	123	7,386
Dec.	384	69	128	7,914
Total	..	..	..	1,616,054

* Estimated

COLO RIVER AT UPPER COLO

Year 1957

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	108	48	70	4,186
Feb.	5180	52	527	29,510
Mar.	303	28	91	5,614
Apr.	184	28	78	4,694
May	88	58	71	4,386
June	112	66	76	4,576
July	196	58	97	6,018
Aug.	1490	92	233	14,470
Sept.	237	59	103	6,150
Oct.	55	38	46	2,882
Nov.	65	22	36	2,170
Dec.	38	19	23	1,398
Total	..	..	..	86,054

Year 1958

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	15310	46	867	53,780
Feb.	12400	123	1356	75,926
Mar.	4125	34	590	36,628
Apr.	237	58	117	6,996
May	117	73	87	5,410
June	2760	73	295	17,708
July	2760	115	392	24,302
Aug.	210	107	121	7,516
Sept.	188	100	124	7,414
Oct.	337	71	147	9,142
Nov.	163	33	53	3,194
Dec.	482	60	223	13,812
Total	..	..	..	261,828

Year 1959

Jan.	3967	102	626	38,784
Feb.	21700	199	1512	84,694
Mar.	3356	190	696	63,160
Apr.	6600	108	888	53,300
May	145	94	106	6,592
June	3066	76	245	14,724
July	11750	132	1125	69,754
Aug.	337	110	192	11,876
Sept.	160	100	118	7,070
Oct.	3356	91	615	38,106
Nov.	13900	350	1910	114,576
Dec.	610	130	294	18,240
Total	..	..	..	520,876

Year 1960

Jan.	840	100	257	15,906
Feb.	1500	141	393	22,782
Mar.	5300	146	467	28,972
Apr.	375	111	157	9,434
May	640	136	199	12,336
June	370	113	151	9,040
July	978	109	264	16,370
Aug.	460	129	223	13,838
Sept.	445	100	134	8,064
Oct.	610	68	224	13,864
Nov.	370	53	107	6,418
Dec.	880	60	339	21,044
Total	..	..	..	178,068

Year 1961

Jan.	640	57	200	12,410
Feb.	109	53	65	3,664
Mar.	1935	68	351	21,752
Apr.	424	100	196	11,772
May	250	75	109	6,784
June	400	71	162	9,690
July	192	91	110	6,834
Aug.	1326	100	433	26,828
Sept.	322	85	172	10,292
Oct.	490	63	219	13,562
Nov.	20250	109	2302	138,106
Dec.	7087	244	1374	85,226
Total	..	..	..	346,920

Year 1962

Jan.	8579	365	1712	106,126
Feb.	3820	375	1288	72,152
Mar.	435	141	253	15,696
Apr.	315	131	187	11,210
May	37920	83	1992	123,530
June	469	144	234	14,064
July	2080	90	471	29,178
Aug.	3240	122	742	45,982
Sept.	416	122	225	13,474
Oct.	200	99	138	8,572
Nov.	99	64	82	4,898
Dec.	1240	62	327	20,290
Total	..	..	..	465,172

Year 1963

Jan.	21500	325	2813	174,396
Feb.	6712	302	1146	64,164
Mar.	14324	204	2077	128,776
Apr.	48350	264	2818	169,076
May	27680	326	5047	312,932
June	12250	326	2388	143,290
July	1964	289	684	42,418
Aug.	5248	240	470	29,116
Sept.	4469	264	1106	66,332
Oct.	4469	364	1272	78,294
Nov.	636	240	346	20,774
Dec.	4469	192	1263	78,328
Total	..	..	..	1,307,896

Year 1964

Jan.	339	144	223	13,812
Feb.	390	133	178	10,336
Mar.	636	122	220	13,634
Apr.	27882	108	1700	101,980
May	390	174	263	16,320
June	52725	168	6494	389,610
July	696	192	393	24,388
Aug.	606	48	151	9,382
Sept.	240	26	82	4,950
Oct.	72	16	36	2,206
Nov.	5498	136	502	30,140
Dec.	129	58	78	4,826
Total	..	..	..	621,584

COLO RIVER AT UPPER COLO

Year 1965

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	108	44	56	3,492
Feb.	62	44	51	2,864
Mar.	42	34	36	2,211
Apr.	172	35	64	3,846
May	72	47	56	3,498
June	108	54	59	3,516
July	2600	62	493	30,564
Aug.	555	78	167	10,372
Sept.	129	60	81	4,838
Oct.	3940	52	724	44,910
Nov.	360	55	110	6,620
Dec.	630	64	240	14,888
Total	..	..	..	131,619

Year 1966

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	79	40	55	3,384
Feb.	200	44	69	3,874
Mar.	200	50	83	5,142
Apr.	85	40	47	2,796
May	130	54	71	4,418
June	81	50	55	3,324
July	76	46	57	3,516
Aug.	190	54	67	4,136
Sept.	160	54	101	6,046
Oct.	480	78	172	10,668
Nov.	11508	77	794	47,632
Dec.	580	54	100	6,188
Total	..	..	..	101,124

Year 1967

Jan.	5310	72	574	35,594
Feb.	1674	51	426	23,852
Mar.	7013	66	713	44,192
Apr.	150	115	132	7,948
May	115	98	104	6,426
June	13400	72	1441	86,480
July	1616	245	492	30,522
Aug.	57116	245	3561	220,802
Sept.	No Records			26,712*
Oct.	930	120	374	23,204
Nov.	158	54	97	5,824
Dec.	53	31	43	2,634
Total	..	..	..	514,190*

Year 1968

Jan.	6458	29	1036	64,270
Feb.	230	54	162	6,740
Mar.	83	53	63	3,900
Apr.	66	54	58	3,460
May	1848	54	330	20,460
June	172	77	106	6,374
July	82	72	76	4,736
Aug.	69	50	61	3,802
Sept.	76	54	68	4,078
Oct.	63	43	54	3,340
Nov.	42	20	30	1,816
Dec.	468	19	112	6,938
Total	..	..	..	129,914

Year 1969

Jan.	48	23	32	1,910
Feb.	7050	22	1104	61,828
Mar.	134	23	38	2,372
Apr.	9160	23	831	49,830
May	176	106	138	8,528
June	350	158	183	10,960
July	176	142	155	9,590
Aug.	7710	113	998	61,850
Sept.	930	92	283	17,006
Oct.	606	80	233	14,458
Nov.	20200	182	3156	189,378
Dec.	250	66	118	7,326
Total	..	..	..	435,035

Year 1970

Jan.	6060	60	764	47,354
Feb.	1260	114	299	16,740
Mar.	231	114	129	8,008
Apr.	122	72	82	4,946
May	153	60	82	5,064
June	80	68	70	4,190
July	68	55	60	3,690
Aug.	63	53	57	3,500
Sept.	8320	170	704	42,300
Oct.	520	121	166	10,300
Nov.	550	121	207	12,400
Dec.	13300	114	1410	87,500
Total	..	..	..	245,992

Year 1971

Jan.	43880	145	854	52,900
Feb.	46000	565	7404	414,600
Mar.	795	380	462	28,600
Apr.	405	105	255	15,300
May	1260	138	271	16,800
June	177	105	130	7,800
July	209	88	112	6,960
Aug.	201	93	114	7,080
Sept.	230	91	168	10,000
Oct.	190	68	113	6,980
Nov.	99	50	67	4,030
Dec.	2290	70	545	33,800
Total	..	..	..	314,850

* Estimated

COLO RIVER AT UPPER COLO

Year 1965

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	108	44	56	3,492
Feb.	62	44	51	2,864
Mar.	42	34	36	2,211
Apr.	172	35	64	3,846
May	72	47	56	3,498
June	108	54	59	3,516
July	2600	62	493	30,564
Aug.	555	78	167	10,372
Sept.	129	60	81	4,838
Oct.	3940	52	724	44,910
Nov.	360	55	110	6,620
Dec.	630	64	240	14,888
Total	..	..	..	131,619

Year 1966

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	79	40	55	3,384
Feb.	200	44	69	3,874
Mar.	200	50	83	5,142
Apr.	85	40	47	2,796
May	130	54	71	4,418
June	81	50	55	3,324
July	76	46	57	3,516
Aug.	190	54	67	4,136
Sept.	160	54	101	6,046
Oct.	480	78	172	10,668
Nov.	11508	77	794	47,632
Dec.	580	54	100	6,188
Total	..	..	..	101,124

Year 1967

Jan.	5310	72	574	35,594
Feb.	1674	51	426	23,852
Mar.	7013	66	713	44,192
Apr.	150	115	132	7,948
May	115	98	104	6,426
June	13400	72	1441	86,480
July	1616	245	492	30,522
Aug.	57116	245	3561	220,802
Sept.	No Records			26,712*
Oct.	930	120	374	23,204
Nov.	158	54	97	5,824
Dec.	53	31	43	2,634
Total	..	..	..	514,190*

Year 1968

Jan.	6458	29	1036	64,270
Feb.	230	54	162	6,740
Mar.	83	53	63	3,900
Apr.	66	54	58	3,460
May	1848	54	330	20,460
June	172	77	106	6,374
July	82	72	76	4,736
Aug.	69	50	61	3,802
Sept.	76	54	68	4,078
Oct.	63	43	54	3,340
Nov.	42	20	30	1,816
Dec.	468	19	112	6,938
Total	..	..	..	129,914

Year 1969

Jan.	48	23	32	1,910
Feb.	7050	22	1104	61,828
Mar.	134	23	38	2,372
Apr.	9160	23	831	49,830
May	176	106	138	8,528
June	350	158	183	10,960
July	176	142	155	9,590
Aug.	7710	113	998	61,850
Sept.	930	92	283	17,006
Oct.	606	80	233	14,458
Nov.	20200	182	3156	189,378
Dec.	250	66	118	7,326
Total	..	..	..	435,035

Year 1970

Jan.	6060	60	764	47,354
Feb.	1260	114	299	16,740
Mar.	231	114	129	8,008
Apr.	122	72	82	4,946
May	153	60	82	5,064
June	80	68	70	4,190
July	68	55	60	3,690
Aug.	63	53	57	3,500
Sept.	8320	170	704	42,300
Oct.	520	121	166	10,300
Nov.	550	121	207	12,400
Dec.	13300	114	1410	87,500
Total	..	..	..	245,992

Year 1971

Jan.	43880	145	854	52,900
Feb.	46000	565	7404	414,600
Mar.	795	380	462	28,600
Apr.	405	105	255	15,300
May	1260	138	271	16,800
June	177	105	130	7,800
July	209	88	112	6,960
Aug.	201	93	114	7,080
Sept.	230	91	168	10,000
Oct.	190	68	113	6,980
Nov.	99	50	67	4,030
Dec.	2290	70	545	33,800
Total	..	..	..	314,850

* Estimated

WYEE CREEK AT WYEE

LOCATION:	Latitude 33°10' Longitude 151°29'
PERIOD OF ESTABLISHMENT:	November 1958 to date
COMPLETE YEARS OF COMPUTED RECORDS:	9
ZERO OF GAUGE:	R.L. 82.87 Assumed datum
CATCHMENT AREA:	8 Square miles
CONTROL:	Log control
EQUIPMENT:	Automatic Recorder (Float Type) installed November 1958 Staff gauge, range 0 to 15 feet
CURRENT METER OBSERVATIONS:	(a) Number obtained : 93 (b) Maximum observation in cusecs : 205 (c) Minimum observation in cusecs : 0
MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORD:	1,230 cusecs
MEAN DAILY DISCHARGE FOR 9 YEARS:	5.2 cusecs
MEAN ANNUAL DISCHARGE FOR 9 YEARS:	3,780 acre feet
REMARKS:	Records were not obtained until July 1959 due to malfunction of the instrument.

WYEE CREEK AT WYEE

Year 1958

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	..	..	..	..
Feb.	..	..	..	..
Mar.	..	..	..	..
Apr.	..	..	..	..
May	..	..	..	..
June	..	..	..	..
July	..	..	..	..
Aug.	..	..	..	..
Sept.	..	..	..	..
Oct.	..	..	..	..
Nov.	No Records			
Dec.	No Records			
Total	..	..	..	..

Year 1959

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	No Records			
Feb.	No Records			
Mar.	No Records			
Apr.	No Records			
May	No Records			
June	No Records			
July	108	0.1	4	227
Aug.	55	0.06	3	210
Sept.	158	0.1	5	312
Oct.	377	0.1	25	1,556
Nov.	106	0	11	660
Dec.	0	0	0	0
Total	..	..	..	..

Year 1960

Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	0	0	0	0
Apr.	0	0	0	0
May	0.7	0	0.1	4
June	68	0	6	372
July	26	0.1	1.5	93
Aug.	8	0	0.6	34
Sept.	13	0	0.7	43
Oct.	60	0	2	122
Nov.	8	0	0.3	17
Dec.	231	0	22	1,336
Total	..	..	..	2,021

Year 1961

Jan.	1	0	0.1	5
Feb.	8	0	0.9	50
Mar.	2	0	0.1	8
Apr.	3	0	0.4	23
May	No Records			
June	No Records			
July	No Records			
Aug.	No Records			
Sept.	No Records			
Oct.	0.2	0	0	0.9
Nov.	200	0	12	746
Dec.	45	0	3	190
Total	..	..	..	..

Year 1962

Jan.	154	0	9	577
Feb.	165	0	8	448
Mar.	247	0	10	618
Apr.	1	0	0.2	12
May	No Records			
June	0.4	0	0.1	8
July	14	0	2	92
Aug.	21	0	2	94
Sept.	46	0	2	146
Oct.	0.2	0	0	2
Nov.	0.1	0	0	0.2
Dec.	82	0	6	372
Total	..	..	..	..

Year 1963

Jan.	29	0.1	4	252
Feb.	69	0	9	486
Mar.	610	0	41	2,524
Apr.	1230	1	50	3,014
May	335	0.2	34	2,080
June	253	0.1	22	1,314
July	52	0.4	4	240
Aug.	280	0.1	8	516
Sept.	13	0	1	74
Oct.	7	0	1	60
Nov.	1	0	0.3	16
Dec.	4	0	0.2	13
Total	..	..	..	10,589

Year 1964

Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	543	0	14	838
Apr.	3	0	0.3	16
May	28	0	1	84
June	1198	0	53	3,176
July	0.1	0.1	0.1	5
Aug.	0.1	0	0.1	3
Sept.	0.04	0	0.01	0.7
Oct.	0	0	0	0
Nov.	3	0	0.1	9
Dec.	0	0	0	0
Total	..	..	..	4,132

Year 1965

Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	0	0	0	0
Apr.	0	0	0	0
May	0	0	0	0
June	0	0	0	0
July	199	0	5	328
Aug.	0.3	0	0.1	5
Sept.	0.8	0	0.1	5
Oct.	238	0	7	402
Nov.	0.1	0	0	1
Dec.	44	0	2	128
Total	..	..	..	869

WYEE CREEK AT WYEE

Year 1966

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	0	0	0	0
Apr.	94	0	3	162
May	17	0	0.7	41
June	11	0	0.8	49
July	0.05	0	0.02	0.9
Aug.	49	0	1	63
Sept.	28	0	0.8	45
Oct.	0.02	0	0	0.1
Nov.	453	0	10	590
Dec.	3	0	0.2	13
Total	..	..	..	964

Year 1967

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	39	0	2	104
Feb.	854	0	23	1,304
Mar.	718	0.6	31	1,940
Apr.	15	0.3	2	106
May	0.6	0.2	0.3	21
June	696	0	34	2,036
July	683	0	19	1,150
Aug.	718	0.1	21	1,326
Sept.	112	0	6	338
Oct.	273	0	7	418
Nov.	322	0	4	210
Dec.	0	0	0	0
Total	..	..	..	8,953

Year 1968

Jan.	292	0	24	1,460
Feb.	0.3	0	0.1	6
Mar.	8	0	0.5	30
Apr.	0.2	0	0	1
May	6	0	0.2	15
June	0	0	0	0
July	0.5	0	0.1	4
Aug.	37	0	1.8	112
Sept.	0.6	0	0.1	3
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	1,631

Year 1969

Jan.	0	0	0	0
Feb.	290	0	10	582
Mar.	152	0	5	336
Apr.	108	0	4	239
May	0	0	0	1
June	248	0	13	793
July	2	0	0	25
Aug.	60	0	7	420
Sept.	37	0	2	130
Oct.	30	1	4	230
Nov.	202	0	16	900
Dec.	1	0	0	11
Total	..	..	..	3,667

Year 1970

Jan.	1	0	0	3
Feb.	1	0	0	4
Mar.	1	0	0	19
Apr.	0	0	0	1
May	0	0	0	0
June	0	0	0	0
July	0	0	0	0
Aug.	0	0	0	0
Sept.	123	0	4	220
Oct.	1	0	0	3
Nov.	16	0	1	40
Dec.	436	0	15	927
Total	..	..	..	1,217

Year 1971

Jan.	560	0	24	1,470
Feb.	454	0	21	1,200
Mar.	90	0	3	208
Apr.	Records Incomplete			
May	Records Incomplete			
June	190	0	4	259
July	1	0	0	2
Aug.	1	0	0	6
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	55	0	2	147
Total	..	..	..	

WYEE CREEK AT WYEE

Year 1966

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	0	0	0	0
Feb.	0	0	0	0
Mar.	0	0	0	0
Apr.	94	0	3	162
May	17	0	0.7	41
June	11	0	0.8	49
July	0.05	0	0.02	0.9
Aug.	49	0	1	63
Sept.	28	0	0.8	45
Oct.	0.02	0	0	0.1
Nov.	453	0	10	590
Dec.	3	0	0.2	13
Total	..	..	..	964

Year 1967

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	39	0	2	104
Feb.	854	0	23	1,304
Mar.	718	0.6	31	1,940
Apr.	15	0.3	2	106
May	0.6	0.2	0.3	21
June	696	0	34	2,036
July	683	0	19	1,150
Aug.	718	0.1	21	1,326
Sept.	112	0	6	338
Oct.	273	0	7	418
Nov.	322	0	4	210
Dec.	0	0	0	0
Total	..	..	..	8,953

Year 1968

Jan.	292	0	24	1,460
Feb.	0.3	0	0.1	6
Mar.	8	0	0.5	30
Apr.	0.2	0	0	1
May	6	0	0.2	15
June	0	0	0	0
July	0.5	0	0.1	4
Aug.	37	0	1.8	112
Sept.	0.6	0	0.1	3
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	1,631

Year 1969

Jan.	0	0	0	0
Feb.	290	0	10	582
Mar.	152	0	5	336
Apr.	108	0	4	239
May	0	0	0	1
June	248	0	13	793
July	2	0	0	25
Aug.	60	0	7	420
Sept.	37	0	2	130
Oct.	30	1	4	230
Nov.	202	0	16	900
Dec.	1	0	0	11
Total	..	..	..	3,667

Year 1970

Jan.	1	0	0	3
Feb.	1	0	0	4
Mar.	1	0	0	19
Apr.	0	0	0	1
May	0	0	0	0
June	0	0	0	0
July	0	0	0	0
Aug.	0	0	0	0
Sept.	123	0	4	220
Oct.	1	0	0	3
Nov.	16	0	1	40
Dec.	436	0	15	927
Total	..	..	..	1,217

Year 1971

Jan.	560	0	24	1,470
Feb.	454	0	21	1,200
Mar.	90	0	3	208
Apr.	Records Incomplete			
May	Records Incomplete			
June	190	0	4	259
July	1	0	0	2
Aug.	1	0	0	6
Sept.	0	0	0	0
Oct.	0	0	0	0
Nov.	0	0	0	0
Dec.	55	0	2	147
Total	..	..	..	

WYONG RIVER AT WYONG

LOCATION:	Latitude 33°16' Longitude 151°23'
PERIOD OF ESTABLISHMENT:	March 1959 to June 1966
COMPLETE YEARS OF COMPUTED RECORDS:	5
ZERO OF GAUGE:	R.L. 76.19 Assumed datum
CATCHMENT AREA:	96 Square miles
CONTROL:	Sand (Unstable)
EQUIPMENT:	Staff gauge, range 0-35 feet
CURRENT METER OBSERVATIONS:	(a) Number obtained : 68
	(b) Maximum observation in cusecs : 4,900
	(c) Minimum observation in cusecs : 0.4
MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS:	6,470 cusecs
MEAN DAILY DISCHARGE FOR 5 YEARS:	94 cusecs
MEAN ANNUAL DISCHARGE FOR 5 YEARS:	68,400 acre feet
REMARKS:	This station was superseded by Wyong River at Wyong Weir.

WYONG RIVER AT WYONG

LOCATION:	Latitude 33°16' Longitude 151°23'
PERIOD OF ESTABLISHMENT:	March 1959 to June 1966
COMPLETE YEARS OF COMPUTED RECORDS:	5
ZERO OF GAUGE:	R.L. 76.19 Assumed datum
CATCHMENT AREA:	96 Square miles
CONTROL:	Sand (Unstable)
EQUIPMENT:	Staff gauge, range 0-35 feet
CURRENT METER OBSERVATIONS:	(a) Number obtained : 68
	(b) Maximum observation in cusecs : 4,900
	(c) Minimum observation in cusecs : 0.4
MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS:	6,470 cusecs
MEAN DAILY DISCHARGE FOR 5 YEARS:	94 cusecs
MEAN ANNUAL DISCHARGE FOR 5 YEARS:	68,400 acre feet
REMARKS:	This station was superseded by Wyong River at Wyong Weir.

WYONG RIVER AT WYONG

Year 1959

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	..	..	..	..
Feb.	..	..	..	..
Mar.	..	..	..	..
Apr.	No Records			
May	13	7	10	592
June	40	6	10	585
July	169	10	29	1,819
Aug.	46	10	18	1,086
Sept.	121	12	32	1,931
Oct.	546	13	96	3,945
Nov.	1095	31	176	10,572
Dec.	37	16	25	1,535
Total	..	..	..	..

Year 1960

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	23	10	15	930
Feb.	16	9	12	694
Mar.	58	11	19	1,186
Apr.	12	6	9	528
May	23	4	10	628
June	197	11	29	1,713
July	63	13	22	1,384
Aug.	23	8	13	790
Sept.	16	6	9	526
Oct.	40	3	14	846
Nov.	79	5	13	804
Dec.	868	9	137	8,530
Total	..	..	..	18,559

Year 1961

Jan.	61	10	28	1,720
Feb.	38	9	16	912
Mar.	115	6	16	980
Apr.	27	6	12	698
May	14	6	8	494
June	48	6	20	1,184
July	14	6	8	520
Aug.	847	6	103	6,412
Sept.	70	14	26	1,570
Oct.	48	12	18	1,094
Nov.	609	8	151	9,040
Dec.	645	34	187	11,574
Total	..	..	..	36,198

Year 1962

Jan.	1390	40	332	20,604
Feb.	1780	31	231	12,932
Mar.	779	29	132	8,186
Apr.	63	21	33	1,962
May	4010	17	354	21,922
June	52	22	32	1,935
July	440	19	59	3,646
Aug.	67	22	35	2,162
Sept.	46	13	23	1,358
Oct.	16	6	9	576
Nov.	26	5	11	638
Dec.	497	4	64	3,992
Total	..	..	..	79,913

Year 1963

Jan.	175	20	43	2,676
Feb.	73	15	35	1,954
Mar.	1840	14	455	28,224
Apr.	5580	36	570	34,220
May	5360	69	737	45,684
June	703	58	219	13,120
July	228	34	74	4,600
Aug.	973	25	87	5,396
Sept.	723	27	97	5,808
Oct.	71	25	42	2,610
Nov.	48	21	28	1,680
Dec.	713	16	115	7,102
Total	..	..	..	153,074

Year 1964

Jan.	34	13	20	1,249
Feb.	22	10	13	775
Mar.	214	10	38	2,363
Apr.	52	9	17	988
May	23	11	13	825
June	6470	11	697	41,828
July	42	20	29	1,780
Aug.	46	13	20	1,244
Sept.	19	12	14	842
Oct.	16	7	11	664
Nov.	115	6	20	1,190
Dec.	8	4	6	370
Total	..	..	..	54,118

Year 1965

Jan.	4	2	3	198
Feb.	4	1	2	140
Mar.	No Records			
Apr.	No Records			
May	No Records			
June	No Records			
July	No Records			
Aug.	No Records			
Sept.	No Records			
Oct.	No Records			
Nov.	15	2	6	381
Dec.	25	6	15	933
Total	..	..	..	..

Year 1966

Jan.	5	1	3	182
Feb.	12	1	3	186
Mar.	8	0.5	3	207
Apr.	5	0.4	2	119
May	11	3	5	338
June	11	4	6	384
July				
Aug.				
Sept.				
Oct.				
Nov.				
Dec.				
Total	..	..	..	..

WYONG RIVER AT WYONG

Year 1959

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	..	..	..	..
Feb.	..	..	..	..
Mar.	..	..	..	..
Apr.	No Records			
May	13	7	10	592
June	40	6	10	585
July	169	10	29	1,819
Aug.	46	10	18	1,086
Sept.	121	12	32	1,931
Oct.	546	13	96	3,945
Nov.	1095	31	176	10,572
Dec.	37	16	25	1,535
Total	..	..	..	..

Year 1960

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	23	10	15	930
Feb.	16	9	12	694
Mar.	58	11	19	1,186
Apr.	12	6	9	528
May	23	4	10	628
June	197	11	29	1,713
July	63	13	22	1,384
Aug.	23	8	13	790
Sept.	16	6	9	526
Oct.	40	3	14	846
Nov.	79	5	13	804
Dec.	868	9	137	8,530
Total	..	..	..	18,559

Year 1961

Jan.	61	10	28	1,720
Feb.	38	9	16	912
Mar.	115	6	16	980
Apr.	27	6	12	698
May	14	6	8	494
June	48	6	20	1,184
July	14	6	8	520
Aug.	847	6	103	6,412
Sept.	70	14	26	1,570
Oct.	48	12	18	1,094
Nov.	609	8	151	9,040
Dec.	645	34	187	11,574
Total	..	..	..	36,198

Year 1962

Jan.	1390	40	332	20,604
Feb.	1780	31	231	12,932
Mar.	779	29	132	8,186
Apr.	63	21	33	1,962
May	4010	17	354	21,922
June	52	22	32	1,935
July	440	19	59	3,646
Aug.	67	22	35	2,162
Sept.	46	13	23	1,358
Oct.	16	6	9	576
Nov.	26	5	11	638
Dec.	497	4	64	3,992
Total	..	..	..	79,913

Year 1963

Jan.	175	20	43	2,676
Feb.	73	15	35	1,954
Mar.	1840	14	455	28,224
Apr.	5580	36	570	34,220
May	5360	69	737	45,684
June	703	58	219	13,120
July	228	34	74	4,600
Aug.	973	25	87	5,396
Sept.	723	27	97	5,808
Oct.	71	25	42	2,610
Nov.	48	21	28	1,680
Dec.	713	16	115	7,102
Total	..	..	..	153,074

Year 1964

Jan.	34	13	20	1,249
Feb.	22	10	13	775
Mar.	214	10	38	2,363
Apr.	52	9	17	988
May	23	11	13	825
June	6470	11	697	41,828
July	42	20	29	1,780
Aug.	46	13	20	1,244
Sept.	19	12	14	842
Oct.	16	7	11	664
Nov.	115	6	20	1,190
Dec.	8	4	6	370
Total	..	..	..	54,118

Year 1965

Jan.	4	2	3	198
Feb.	4	1	2	140
Mar.	No Records			
Apr.	No Records			
May	No Records			
June	No Records			
July	No Records			
Aug.	No Records			
Sept.	No Records			
Oct.	No Records			
Nov.	15	2	6	381
Dec.	25	6	15	933
Total	..	..	..	..

Year 1966

Jan.	5	1	3	182
Feb.	12	1	3	186
Mar.	8	0.5	3	207
Apr.	5	0.4	2	119
May	11	3	5	338
June	11	4	6	384
July				
Aug.				
Sept.				
Oct.				
Nov.				
Dec.				
Total	..	..	..	..

WYONG RIVER AT WYONG WEIR

LOCATION:	Latitude 33°17' Longitude 151°24'
PERIOD OF ESTABLISHMENT:	June 1966 to date
COMPLETE YEARS OF COMPUTED RECORDS:	4
ZERO OF GAUGE:	R.L. 28.64 Assumed datum
CATCHMENT AREA:	137 Square miles
CONTROL:	Weir
EQUIPMENT:	Automatic recorder (Float Type) Staff gauge, range 0 to 25 feet.
CURRENT METER OBSERVATIONS:	(a) Number obtained : 44
	(b) Maximum observation in Cusecs : 2,459
	(c) Minimum observation in Cusecs : 0
MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS:	22,000 cusecs
MEAN DAILY DISCHARGE FOR 4 YEARS:	90 cusecs
MEAN ANNUAL DISCHARGE FOR 4 YEARS:	65,900 acre feet
REMARKS:	This station supersedes Wyong River at Wyong and is situated some 3 miles downstream.

WYONG RIVER AT WYONG WEIR

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PERIOD OF ESTABLISHMENT:	June 1966 to date
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MEAN ANNUAL DISCHARGE FOR 4 YEARS:	65,900 acre feet
REMARKS:	This station supersedes Wyong River at Wyong and is situated some 3 miles downstream.

WYONG RIVER AT WYONG WEIR

Year 1966

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	–	–	–	–
Feb.	–	–	–	–
Mar.	–	–	–	–
Apr.	–	–	–	–
May	–	–	–	–
June	0	0	0	0
July	0	0	0	0
Aug.	25	0	0	22
Sept.	10	0	0	21
Oct.	0	0	0	0
Nov.	787	0	58	3,480
Dec.	6	0	0	12
Total	..	..	..	

Year 1967

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	186	0	12	766
Feb.	2940	0	169	9,490
Mar.	2520	41	364	22,560
Apr.	64	18	41	2,470
May	22	11	16	1,010
June	18500	8	810	48,620
July	1970	20	242	15,010
Aug.	22000	48	702	43,550
Sept.	925	32	135	8,120
Oct.	437	24	71	4,370
Nov.	38	9	21	1,290
Dec.	10	0	3	172
Total	..	..	..	157,428

Year 1968

Jan.	3110	0	365	22,620
Feb.	74	9	30	1,740
Mar.	130	9	45	2,780
Apr.	38	0	15	890
May	397	0	47	2,920
June	16	0	6	347
July	23	0	8	505
Aug.	95	2	27	1,670
Sept.	53	0	8	467
Oct.	10	0	1	77
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	34,016

Year 1969

Jan.	20	0	1	32
Feb.	193	0	30	1,690
Mar.	34	0	7	460
Apr.	201	0	30	1,820
May	5	0	1	90
June	1000	2	184	11,020
July	58	10	25	1,550
Aug.	626	8	106	6,620
Sept.	116	26	57	3,440
Oct.	118	16	48	2,950
Nov.	1770	23	260	15,600
Dec.	66	5	25	1,580
Total	..	..	..	46,852

Year 1970

Jan.	897	2	62	3,850
Feb.	896	15	71	3,960
Mar.	71	8	30	1,880
Apr.	29	2	13	780
May	15	3	8	470
June	7	4	6	380
July	4	2	3	192
Aug.	5	1	3	160
Sept.	311	2	39	2,320
Oct.	7	0	1	80
Nov.	83	0	9	530
Dec.	1570	1	174	10,800
Total	..	..	..	25,402

Year 1971

Jan.	1920	5	243	15,000
Feb.	2316	80	501	28,100
Mar.	Records		Incomplete	
Apr.	408	38	97	5,800
May	3679	12	322	20,000
June	98	40	66	3,890
July	40	13	29	1,780
Aug.	21	9	15	940
Sept.	10	5	7	436
Oct.	5	5	5	310
Nov.	7	0	10	580
Dec.	148	0	47	2,950
Total	..	..	..	

WYONG RIVER AT WYONG WEIR

Year 1966

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	–	–	–	–
Feb.	–	–	–	–
Mar.	–	–	–	–
Apr.	–	–	–	–
May	–	–	–	–
June	0	0	0	0
July	0	0	0	0
Aug.	25	0	0	22
Sept.	10	0	0	21
Oct.	0	0	0	0
Nov.	787	0	58	3,480
Dec.	6	0	0	12
Total	..	..	..	

Year 1967

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	186	0	12	766
Feb.	2940	0	169	9,490
Mar.	2520	41	364	22,560
Apr.	64	18	41	2,470
May	22	11	16	1,010
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Total	..	..	..	157,428

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Mar.	130	9	45	2,780
Apr.	38	0	15	890
May	397	0	47	2,920
June	16	0	6	347
July	23	0	8	505
Aug.	95	2	27	1,670
Sept.	53	0	8	467
Oct.	10	0	1	77
Nov.	0	0	0	0
Dec.	0	0	0	0
Total	..	..	..	34,016

Year 1969

Jan.	20	0	1	32
Feb.	193	0	30	1,690
Mar.	34	0	7	460
Apr.	201	0	30	1,820
May	5	0	1	90
June	1000	2	184	11,020
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Aug.	626	8	106	6,620
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Oct.	118	16	48	2,950
Nov.	1770	23	260	15,600
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Feb.	896	15	71	3,960
Mar.	71	8	30	1,880
Apr.	29	2	13	780
May	15	3	8	470
June	7	4	6	380
July	4	2	3	192
Aug.	5	1	3	160
Sept.	311	2	39	2,320
Oct.	7	0	1	80
Nov.	83	0	9	530
Dec.	1570	1	174	10,800
Total	..	..	..	25,402

Year 1971

Jan.	1920	5	243	15,000
Feb.	2316	80	501	28,100
Mar.	Records		Incomplete	
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July	40	13	29	1,780
Aug.	21	9	15	940
Sept.	10	5	7	436
Oct.	5	5	5	310
Nov.	7	0	10	580
Dec.	148	0	47	2,950
Total	..	..	..	

OURIMBAH CREEK AT TUGGERAH

LOCATION:	Latitude 33°19' Longitude 151°24'
PERIOD OF ESTABLISHMENT:	October 1965 to date
COMPLETE YEARS OF COMPUTED RECORDS:	6
ZERO OF GAUGE:	R.L. 29.88 Assumed datum
CATCHMENT AREA:	58 Square miles
CONTROL:	Improved Sandstone Bar
EQUIPMENT:	Automatic Recorder (Float Type) installed October 1965. Staff gauge, range 0 to 35 feet.
CURRENT METER OBSERVATIONS:	(a) Number obtained : 68 (b) Maximum observation in cusecs : 658 (c) Minimum observation in cusecs : 0.7
MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORD:	7,565 cusecs
MEAN DAILY DISCHARGE FOR 6 YEARS:	47 cusecs
MEAN ANNUAL DISCHARGE FOR 6 YEARS:	34,500 acre feet

OURIMBAH CREEK AT TUGGERAH

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PERIOD OF ESTABLISHMENT:	October 1965 to date
COMPLETE YEARS OF COMPUTED RECORDS:	6
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MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORD:	7,565 cusecs
MEAN DAILY DISCHARGE FOR 6 YEARS:	47 cusecs
MEAN ANNUAL DISCHARGE FOR 6 YEARS:	34,500 acre feet

OURIMBAH CREEK AT TUGGERAH

Year 1965

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	..	..	..	..
Feb.	..	..	..	..
Mar.	..	..	..	..
Apr.	..	..	..	..
May	..	..	..	..
June	..	..	..	..
July	..	..	..	..
Aug.	..	..	..	..
Sept.	..	..	..	..
Oct.	..	..	..	..
Nov.	27	5	12	694
Dec.	61	7	17	1,057
Total	..	..	..	..

Year 1966

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	10	2	4	257
Feb.	24	0.1	4	107
Mar.	216	0.1	9	545
Apr.	203	0.4	13	798
May	83	6	15	906
June	94	7	16	978
July	11	5	8	485
Aug.	105	5	9	564
Sept.	68	5	10	602
Oct.	13	4	6	354
Nov.	3620	3	122	7,312
Dec.	128	7	18	1,132
Total	..	..	..	14,040

Year 1967

Jan.	257	3	24	1,486
Feb.	2680	11	124	6,930
Mar.	4240	27	263	16,290
Apr.	78	18	33	1,972
May	25	13	16	994
June	7080	13	333	19,971
July	1500	28	122	7,548
Aug.	7570	33	280	17,384
Sept.	1050	19	79	4,732
Oct.	377	0	29	1,798
Nov.	128	9	24	1,450
Dec.	10	2	5	320
Total	..	..	..	80,875

Year 1968

Jan.	1880	3	158	9,778
Feb.	75	11	19	1,116
Mar.	48	11	18	1,128
Apr.	14	7	10	570
May	344	7	24	1,502
June	10	7	8	478
July	31	5	8	494
Aug.	63	6	14	844
Sept.	40	6	10	580
Oct.	6	2	3	189
Nov.	3	0.6	1	85
Dec.	17	0.8	5	291
Total	..	..	..	17,055

Year 1969

Jan.	12	1	4	225
Feb.	503	1	40	2,237
Mar.	32	6	10	642
Apr.	570	5	30	1,809
May	16	9	11	702
June	1190	10	106	6,374
July	192	15	28	1,760
Aug.	705	10	67	4,150
Sept.	179	16	35	1,070
Oct.	74	20	30	1,850
Nov.	1850	21	139	8,400
Dec.	110	11	22	1,400
Total	..	..	..	30,619

Year 1970

Jan.	513	10	43	2,700
Feb.	98	12	23	1,300
Mar.	100	10	23	1,400
Apr.	44	11	16	1,000
May	11	8	9	580
June	9	6	7	440
July	6	4	5	300
Aug.	5	3	4	250
Sept.	395	4	29	1,740
Oct.	14	6	8	480
Nov.	28	5	10	620
Dec.	1850	5	105	6,510
Total	..	..	..	17,320

Year 1971

Jan.	2290	11	179	11,100
Feb.	2330	46	206	11,500
Mar.	211	27	56	3,470
Apr.	139	18	32	1,910
May	3680	14	179	11,100
June	148	25	41	2,480
July	32	17	22	1,350
Aug.	30	12	17	1,050
Sept.	13	7	10	610
Oct.	7	1	4	224
Nov.	18	1	4	254
Dec.	301	3	32	2,010
Total	..	..	..	47,058

OURIMBAH CREEK AT TUGGERAH

Year 1965

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	..	..	..	..
Feb.	..	..	..	..
Mar.	..	..	..	..
Apr.	..	..	..	..
May	..	..	..	..
June	..	..	..	..
July	..	..	..	..
Aug.	..	..	..	..
Sept.	..	..	..	..
Oct.	..	..	..	..
Nov.	27	5	12	694
Dec.	61	7	17	1,057
Total	..	..	..	..

Year 1966

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	10	2	4	257
Feb.	24	0.1	4	107
Mar.	216	0.1	9	545
Apr.	203	0.4	13	798
May	83	6	15	906
June	94	7	16	978
July	11	5	8	485
Aug.	105	5	9	564
Sept.	68	5	10	602
Oct.	13	4	6	354
Nov.	3620	3	122	7,312
Dec.	128	7	18	1,132
Total	..	..	..	14,040

Year 1967

Jan.	257	3	24	1,486
Feb.	2680	11	124	6,930
Mar.	4240	27	263	16,290
Apr.	78	18	33	1,972
May	25	13	16	994
June	7080	13	333	19,971
July	1500	28	122	7,548
Aug.	7570	33	280	17,384
Sept.	1050	19	79	4,732
Oct.	377	0	29	1,798
Nov.	128	9	24	1,450
Dec.	10	2	5	320
Total	..	..	..	80,875

Year 1968

Jan.	1880	3	158	9,778
Feb.	75	11	19	1,116
Mar.	48	11	18	1,128
Apr.	14	7	10	570
May	344	7	24	1,502
June	10	7	8	478
July	31	5	8	494
Aug.	63	6	14	844
Sept.	40	6	10	580
Oct.	6	2	3	189
Nov.	3	0.6	1	85
Dec.	17	0.8	5	291
Total	..	..	..	17,055

Year 1969

Jan.	12	1	4	225
Feb.	503	1	40	2,237
Mar.	32	6	10	642
Apr.	570	5	30	1,809
May	16	9	11	702
June	1190	10	106	6,374
July	192	15	28	1,760
Aug.	705	10	67	4,150
Sept.	179	16	35	1,070
Oct.	74	20	30	1,850
Nov.	1850	21	139	8,400
Dec.	110	11	22	1,400
Total	..	..	..	30,619

Year 1970

Jan.	513	10	43	2,700
Feb.	98	12	23	1,300
Mar.	100	10	23	1,400
Apr.	44	11	16	1,000
May	11	8	9	580
June	9	6	7	440
July	6	4	5	300
Aug.	5	3	4	250
Sept.	395	4	29	1,740
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Jan.	2290	11	179	11,100
Feb.	2330	46	206	11,500
Mar.	211	27	56	3,470
Apr.	139	18	32	1,910
May	3680	14	179	11,100
June	148	25	41	2,480
July	32	17	22	1,350
Aug.	30	12	17	1,050
Sept.	13	7	10	610
Oct.	7	1	4	224
Nov.	18	1	4	254
Dec.	301	3	32	2,010
Total	..	..	..	47,058

OURIMBAH CREEK AT TUGGERAH

Year 1965

Month	Discharge in Cusecs			Discharge for Month Acre Feet
	Max.	Min.	Mean	
Jan.	..	..	..	..
Feb.	..	..	..	..
Mar.	..	..	..	..
Apr.	..	..	..	..
May	..	..	..	..
June	..	..	..	..
July	..	..	..	..
Aug.	..	..	..	..
Sept.	..	..	..	..
Oct.	..	..	..	..
Nov.	27	5	12	694
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Year 1966

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Feb.	24	0.1	4	107
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