# WATER RESOURCES

## OF THE

# BELLINGER AND NAMBUCCA VALLEYS

## INCLUDING WOOGOOLGA CREEK

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

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# WATER RESOURCES OF THE BELLINGER AND NAMBUCCA VALLEYS

## 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, I 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, involves the preparation of twenty eight reports covering thirty two major river valleys of the State.

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

Reports are being prepared progressively and those issued to date have covered twenty three major valleys and a number of minor valleys. This report on the water resources of the Bellinger and Nambucca Valleys is the nineteenth to be issued.

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August, 1970.

# WATER RESOURCES OF THE BELLINGER AND NAMBUCCA RIVER VALLEYS (INCLUDING WOOGOOLGA CREEK)

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# WATER RESOURCES OF THE BELLINGER AND NAMBUCCA RIVER VALLEYS (INCLUDING WOOGOOLGA CREEK)

## 1. INTRODUCTION.

Water is one of man's most valuable natural resources for without it no life is possible.

The abundance of this resource is apparent when it is realised that there are about 320 million cubic miles of water in various forms on the Earth. However, 97.2 percent of this amount is in the oceans, 2 percent lies frozen in polar ice caps and over 99.5 percent of the remaining 0.8 percent is in the form of underground water. As surface water in streams and lakes represents only about 0.004 percent of the total water resources it is obvious that the proportion of the Earth's water resources which are in a form or location readily available for man's consumptive use is very small.

The gross water resources available to a nation are normally considered to be the amounts of rainfall and snow which fall on the land whilst surface water resources are the components which eventually appear as streamflow. These water resources are not distributed evenly throughout the world in either location or time.

Due to factors associated with geographical location and low topographic relief, Australia is the world's driest continent receiving an average annual rainfall of only about 1½ feet. This estimate may be compared with the estimates of about 2 feet for Africa, Asia and Europe and almost 4½ feet for South America. However, when allowance is made for the evaporation and transpiration processes and the replenishment of underground water resources the comparison of the residuals, or surface water resources, is even more unfavourable.

The average annual surface water resources of the Australian mainland have been assessed at 240 million acre feet, a volume which is equivalent to a uniform depth of about 1.8 inches over the entire continent. The corresponding average annual values for other continents are Africa, 7 inches; Asia and Europe, 9 inches; South America, 19 inches.

Another way of illustrating Australia's relatively meagre surface water resources is to compare them with those of some of the world's largest rivers. The total average annual flow of 240 million acre feet for all rivers on the Australian mainland is only about half that of the Mississippi River, a quarter that of the Congo River and only about one twelfth that of the Amazon River.

In contrast with the other continents, there are no streams on the Australian mainland which are permanently snow fed. Consequently stream flows in Australia are largely dependent on runoff producing storms and they tend to be more variable than those in other continents.

A modern society makes huge demands on water for domestic, stock and industrial purposes. When it is realised that about one thousand tons of water are required in the production of either a ton of food or four tons of steel, the need for Australia to conserve and wisely use its relatively meagre and highly variable water resources is readily apparent.

The Bellinger and Nambucca River Valleys (including Woogoolga Creek) receive an average annual rainfall of about 57 inches and their total surface water resources have been assessed as being of the order of 730,000 acre feet per annum which is equivalent to an average of about 13 inches of rainfall occurring without loss over the two valleys. On a catchment area basis the total surface water resources of the Bellinger and Nambucca River Valleys are nearly twice the average value for Coastal New South Wales and about seven times the average for Australia. However, in common with all other valleys in Australia the water resources of the Bellinger and Nambucca Valleys vary considerably from year to year.

## 2. PHYSIOGRAPHIC FEATURES

The catchment area of the Bellinger and Nambucca Valleys, as adopted for the purpose of this report, embraces some 1,080 square miles. The boundaries and principal features of the valleys are shown on Figure 1.

As indicated at Figure 1, the Bellinger Valley includes a number of minor coastal streams which enter the South Pacific Ocean between Raleigh and Woolgoolga whilst the Nambucca Valley includes Deep Creek, a minor stream draining a small coastal catchment area between the Bellinger and Nambucca Rivers. On this basis the catchment areas of the Bellinger and Nambucca Valleys are 510 and 570 square miles respectively. However, it is worthy of note that the total area of the

Bellinger and Nambucca Valleys as covered by this report does not include the catchments of several minor coastal streams north of Woogoolga Creek which were included in the area of 1,330 square miles adopted for the Bellinger and Nambucca Valleys in the 1963 "Review of Australia's Water Resources" published for the Australian Water Resources Council by the Department of National Development.

The Bellinger and Nambucca Rivers rise in the extremely rugged fringe of the New England Plateau into which they have cut deep and precipitous gorges. The northern boundary, separating the Bellinger and Clarence Valleys is formed by the high and well defined southern perimeter of the Dorrigo Plateau. In the south, the Nambucca and Macleay Valleys are separated by an elevated spur of the New England Plateau extending to Mount Yarrahapinni only about four miles from the coast.

The most elevated sections of the valleys lie along the western boundary where peaks such as Point Lookout and Mount Darkie reach over 5,000 feet above sea level. The northern boundary is generally over 3,000 feet but falls rapidly to less than 1,000 feet near the coast. In the south the boundary is above 3,000 feet as far east as The Stockyard but falls rapidly to less than 100 feet near Eungai. Between Eungai and the coast the catchment boundary elevation is variable, rising to 1,700 feet at Mount Yarrahapinni.

The Bellinger and Nambucca Valleys extend inland from the coast for a distance of only about 38 miles and unlike the adjacent Clarence and Macleay Valleys they do not include any significant area of tablelands. Because the western section of the valleys is composed of rugged mountainous country the greater proportion of the population in the valleys is centred on or near the coast where the principal towns of Coffs Harbour, Macksville, Nambucca Heads and Bellingen are situated.

The catchment extends north in a narrow coastal strip from Raleigh to Woolgoolga and includes a series of small coastal streams draining the eastern fringe of the Dorrigo Plateau. The principal of these streams are Pine, Bonville and Woogoolga Creeks.

The Bellinger River consists of the North and South Arms which join at the coast near the village of Urunga. The North Arm which has the larger catchment area, rises near Point Lookout at the western extremity of the valleys. In its passage downstream it flows in a general eastward direction being joined by its

principal tributary Never Never Creek on its left bank about six miles upstream of Bellingen.

The South Arm rises in deeply dissected country about ten miles east of Point Lookout and flows generally parallel to the North Arm before turning northward about two miles from the coast and joining the North Arm near Urunga.

The main tributary of the Nambucca River is Taylors Arm which rises in an elevated spur of the New England Plateau south east from Point Lookout. Initially Taylors Arm flows in a general south easterly direction parallel with the southern boundary of the Nambucca Valley. However near the village of Taylors Arm it deviates to the north east. Near the town of Macksville it is joined by the Bowra River and becomes the Nambucca River. Below Macksville the Nambucca River is joined on its left bank by Newee Creek and on its right bank near Nambucca Heads by Warrell Creek.

The Bowra River drains the area between the catchments of Taylors Arm and the South Arm of the Bellinger River. The main tributary of the Bowra River is North Creek which rises about nine miles east of Point Lookout and travels in a general easterly direction to meet the Bowra River near Bowraville. Other tributaries of the Bowra River are Missabotti, South and Buckra Bendinni Creeks.

Tidal influence extends upstream as far as the town of Bellingen on the Bellinger River and to about two miles downstream of both Bowraville and Utungun on the Nambucca River system. On Warrell Creek, the tidal influence extends only to the barrage across the stream about one mile west of Scott's Head. Between these points and the sea the various valleys exhibit substantial flood plain development with the alluvial flats being most extensive in the vicinity of Raleigh and Urunga in the Bellinger Valley and Macksville and Nambucca Heads in the Nambucca Valley.

Rugged and heavily timbered country with slopes in excess of 15 degrees characterises the more elevated sections in the upper central section of the valleys and along the northern and southern boundaries; this classification totalling about one third of the total area of the valleys. The generalised land slopes of the Bellinger and Nambucca Valleys are depicted at Figure 2 whilst details of the various land slope classifications are summarised in Table 1.

TABLE 1.

| Land Slope Classification | Percentage of the Total Area of the Bellinger and Nambucca Valleys |
|---|---|
| Mostly Flat - Slopes less than 3 degrees | 22% |
| Undulating to Hilly - Slopes from 3 to 8 degrees | 21% |
| Hilly to Steep - Slopes from 8 to 15 degrees | 25% |
| Rugged or Mountainous - Slopes greater than 15 degrees | 32% |

## 3. CLIMATIC FEATURES.

### Rainfall

The rainfall measuring stations in the Bellinger and Nambucca Valleys are, with few exceptions, situated at low levels, the highest station being Weeroona which is only about 900 feet above sea level. Median isohyets, both monthly and annual, have been located by the use of information from adjoining catchments and knowledge of rainfall distribution in similar terrain. (The median rainfall is that rainfall equalled or exceeded on fifty percent of occasions).

Annual and monthly isohyets of median rainfall for the valleys are shown at Figures 3 to 15 inclusive. The highest values of median rainfall, both annual and monthly, occur on the higher elevations with slopes facing in the direction between east and south.

Annual median rainfall is least in the area located about 18 miles inland from the coast along a line extending from the southern boundary of the valleys to about six miles south of Bellingen. From this point the median annual rainfall increases northward to more than 70 inches on the central part of the northern boundary of the valleys. The plateau area in the western part of the valleys, with more than 55 inches median rainfall, shows a maximum in annual isohyets which is not as pronounced as that on the northern boundary.

The pattern of the distribution of values of median monthly rainfall in the valleys is similar to that of annual rainfall. The wettest month at all places is March and the driest is August. In descending order of amount of rainfall, February and January follow March whilst July and September (not always in the same relative position to each other) precede August. In March

the median rainfall near the centre of the northern watershed is 9 inches and in the area with the lowest rainfall, near Warrell Creek, it is between 6 and 7 inches. In the remaining high rainfall months, December to April, the ratio of the median rainfalls between the wettest and driest areas is about two to one, the respective areas being much the same as in March.

In the drier months the ratio is less, reaching a minimum of 1.3 to 1 in September when the greatest median rainfall in the catchment is near 2¼ inches and the lowest is close to 1¾ inches.

Monthly and annual rainfalls recorded at Bellbrook, Bellingen, Bowraville, Brooklana, Coffs Harbour, Dairyville, Deer Vale, Dorrigo, Guy Fawkes, Kempsey (West), Macksville, Nambucca Heads, Orara Upper, Raleigh Central and Urunga are given at Appendices 1 to 15 respectively. The tables at Appendix 16 show on a monthly and annual basis, the following data for these fifteen stations:

(a) The maximum and minimum rainfalls.

(b) The 10th, 30th, 50th, 70th and 90th percentiles

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

Rainfall amounts between the 30th and 70th percentile values is in the range described as "about average". At almost all places in the valleys and in all months the 70th percentile value is more than double the 30th percentile value. Such a range indicates that the rainfall is of moderately high variability, or conversely, that the reliability of monthly rainfall is fairly low. However, from February to April the 30th percentile value of monthly rainfall is not much below (at many places in some of these months it is above) the monthly evaporation. Therefore the variability of rainfall greater than the 30th percentile value is of little consequence as far as plant growth is concerned as the rainfall is more than adequate.

In the heavier rainfall areas, particularly towards Dorrigo, the 30th percentile value of rainfall is either greater than or only slightly less than the evaporation in all months except those in late winter and spring (July to

November). In the low level areas the October and November rainfall is less than the evaporation in at least 70 percent of years.

Monthly rainfalls of more than 10 inches have occurred on the average of at least one year in ten at most places during the months December to June. In the Bellinger Valley during the months of February and March, 10 inches of rainfall is experienced or exceeded on the average once in about three years. In each of the months of the first half of the year, most locations have experienced monthly totals of more than 20 inches whilst at some locations, monthly totals in excess of 20 inches have been received in the months of July, August or November.

Very large 24 hour rainfalls occur in the valleys when a depression, often one which has moved from the tropics, is off the coast just north of the valleys. Dorrigo which is located just over the northern boundary of the valleys recorded 25 inches in the 24 hours to 9 a.m. 24th June, 1950.

Commencing in any month from April to October, dry spells are not uncommon with rainfalls averaging an inch per month for successive months. Generally heavy rainfall of late summer has terminated dry spells which commenced in the drier months of the year. However very dry conditions have persisted for several months commencing in any month of the year. Minimum recorded rainfalls at Bellbrook, Bellingen, Bowraville, Coffs Harbour, Guy Fawkes and Raleigh Central are shown in the tables at Appendix 17. These tables indicate the minimum cumulative rainfalls, commencing in any month of the year and continuing for up to twelve months, which have occurred at the selected stations.

Temperature.

Temperature records for Bellingen and Coffs Harbour (Aerodrome) are set out in Tables 2 and 3 which show the average daily maximum and minimum temperatures for each month and for the year. Further up the river valleys minimum temperatures are largely dependent upon the effects of local topography which affects the drainage down slopes, or the stagnation of, cold air over the particular location. Maximum temperatures in the higher, more rugged country are lower than those at Bellingen by approximately 3 degrees F. for each thousand feet of elevation.

TABLE 2

BELLINGEN

Average Daily Temperature (°F) Based on 8 Years of Record

| | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average Maximum | 84.3 | 83.7 | 82.1 | 78.2 | 72.7 | 68.3 | 67.6 | 70.2 | 75.3 | 79.3 | 83.3 | 85.6 | 77.6 |
| Average Minimum | 61.9 | 64.5 | 62.8 | 54.7 | 47.0 | 44.0 | 40.5 | 41.3 | 46.7 | 52.5 | 55.4 | 60.7 | 52.7 |
| Average Mean | 73.1 | 74.1 | 72.4 | 66.4 | 59.9 | 56.2 | 54.0 | 55.8 | 61.0 | 65.9 | 69.3 | 73.2 | 65.1 |
| Extreme Highest on Record 108.0°F Extreme Lowest on Record 27.0°F | | | | | | | | | | | | | |

TABLE 3

COFFS HARBOUR (AERODROME)

Average Daily Temperature (°F) Based on 9 Years of Record

| | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average Maximum | 79.9 | 79.9 | 79.1 | 76.3 | 70.8 | 67.2 | 65.5 | 67.3 | 70.2 | 73.9 | 77.8 | 79.7 | 74.0 |
| Average Minimum | 65.6 | 66.4 | 64.4 | 59.4 | 50.8 | 46.5 | 44.3 | 45.3 | 50.1 | 55.0 | 59.7 | 63.4 | 55.9 |
| Average Mean | 72.7 | 73.2 | 71.8 | 67.8 | 60.8 | 56.8 | 54.9 | 56.3 | 60.2 | 64.4 | 68.8 | 71.6 | 65.0 |
| Extreme Highest on Record 106.0°F Extreme Lowest on Record 27.1°F | | | | | | | | | | | | | |

Frosts.

The occurrence of frosts is governed by local conditions, slope being an influencing factor. Many locations in the valleys are frost free, however there are some areas in which frosts have occurred as early as June and as late as October.

Sunshine.

The average daily duration of bright sunshine has been estimated from observations of cloud amount and is set out in Table 4 for coastal and inland areas. The cloudiness is greatest, and the duration of bright sunshine least, on the ranges on the northern side of the catchment.

TABLE 4

Estimated Average Daily Hours of Bright Sunshine

| | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Coastal Fringe | 8.1 | 7.6 | 7.0 | 6.1 | 5.9 | 5.2 | 6.1 | 6.8 | 7.3 | 7.5 | 8.0 | 8.4 | 7.0 |
| Inland Areas | 8.2 | 7.8 | 7.4 | 6.7 | 6.4 | 5.5 | 6.5 | 7.1 | 7.8 | 7.9 | 8.3 | 8.6 | 7.3 |

Evaporation.

Direct readings of pan evaporation have not been made in the valleys. However estimates based on consideration of radiation, air temperature and humidity have been prepared and are shown in Table 5.

TABLE 5

Estimated Total Evaporation (From a Sunken Tank).

| | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average (inches) | 5.4 | 3.4 | 3.3 | 2.4 | 2.4 | 1.7 | 1.6 | 2.4 | 3.0 | 4.1 | 4.9 | 5.5 | 40.1 |
| Standard Deviation (inches) | 0.7 | 0.6 | 0.6 | 0.4 | 0.4 | 0.5 | 0.4 | 0.4 | 0.5 | 0.7 | 0.9 | 0.8 | 3.6 |

Wind.

An anemograph has been in operation at Coffs Harbour Aerodrome since 1960. The highest wind speed recorded is 65 knots (72 m.p.h.).

Strong winds continuing over a period of hours occur mainly in the south east quadrant and are associated with cyclonic depressions just off the coast of the valleys or a little to the north east. Under these conditions, heavy rain may occur over the whole of the catchment with very heavy falls occurring on slopes which face into the wind. The wind strength is greatest near the coastline.

Violent squalls associated with thunderstorms give the greatest wind speeds. Occasionally, less than about once in ten years over the whole catchment a thunderstorm may have a tornado associated with it. The thunderstorm squalls vary with location in the valleys being strengthened when passing down valleys and weakened when passing across valleys. From consideration of wind behaviour in many parts of Australia the following wind speed estimates have been prepared for the Bellinger and Nambucca Valleys.

TABLE 6

Wind Gust to be Expected with Given Return Periods.

| Return Period (Years) | 10 | 20 | 50 | 100 |
|---|---|---|---|---|
| Wind Gust equalled or exceeded (miles per hour) | 80 | 92 | 98 | 110 |

## 4. GROUNDWATER POTENTIAL.

Examination of the geological map of the valleys of the Bellinger and Nambucca Rivers which is shown at Figure 16 will reveal that between 80 and 90 percent of their catchments is underlain by metamorphic rocks and metasediments belonging to the Silurian period. Carboniferous strata occupy a small area in the extreme south where they unconformably overlie the Silurian sequence. Granites outcrop in the south east near Warrell Creek, to the north west of Nambucca and to the north and west of Bellingen township, whilst there is a small area of basalt adjacent to the last mentioned granitic outcrop.

The headwaters of the two main streams and their tributaries are in a fairly active state of erosion, but even in these youthful stages, their courses appear to reflect a pattern of meanders more typical of the mature stage of stream development. Further downstream the meander pattern is strongly developed and small alluvial terraces begin to appear. Nearer the coast the flats become continuous and then open out to relatively large areas underlain by estuarine alluvium. Along the coast behind the beaches there are narrow areas of sand which originally were deposited as beach sand, but much of which has since been transported inland by the wind.

In these valleys groundwater is used primarily for stock and domestic purposes with only occasional supplies utilized for irrigation. There are less than 30 licensed bores and wells in the valleys, although the total number is estimated to be considerably greater.

It is convenient to discuss the groundwater potential of an area under three subdivisions based on the mode of occurrence of the groundwater and the nature of the strata in which it is stored viz. Jointed Rocks, which although impervious in themselves contain fractures, cracks, joints and partings i.e. secondary openings; Porous Rocks, usually sandstones, which contain water in the openings between the cemented sand grains; and Unconsolidated Deposits,

in which water may be held in the pore spaces in sands and/or gravels associated with alluvial materials, or in accumulations of aeolian and beach sands near the coastline. However, as far as is known there are no representatives of the Porous Rocks subdivision in this area.

Jointed Rocks.

The rocks in this group include all those in the area except the alluvia and the sand beds. The rock types vary from metamorphics such as slate and quartzite, through slightly altered and indurated sediments, to granites, tuffs and other volcanics.

The water bearing potential of this group is extremely variable and depends on a number of factors, including the rock type (its origin and geological history), the elevation and relief at the bore site, the amount and distribution of the rainfall, and the degree of penetration of the rainfall through the varying soil types which local conditions have produced.

The oldest and most metamorphosed rocks in these valleys are the Silurian strata which include slates, greywackes, quartzites, indurated sandstones, tuffs and interbedded volcanics. The harder, more competent of these strata are normally more heavily jointed than the softer strata and the best potential for groundwater may be expected from such rock types as greywackes, quartzites and volcanics. A feature of the Silurian strata is the presence of extensive sheets and veins of quartz which suggest that, although outcroppings are small and few, granite may be present at no great depth beneath the country rock.

There are no records of bores in these strata but experience in other nearby valleys suggests that useful stock supplies should be obtainable within a depth of 100 feet at sites selected to take advantage of local conditions. The total salinity of the water from these strata is expected to be of the order of 100 parts per hundred thousand, with a hardness in excess of 10 parts per hundred thousand.

The Carboniferous strata are insignificant both as regards extent and actual water bearing potential, the only outcrop of these heavily indurated strata being a very small one on the divide in the extreme south of the area. The granites do not offer much better potential, although it seems likely that suitably sited bores would produce small supplies for watering stock, or for domestic and perhaps garden use.

Because of the very small size of the only outcrop in this area the basalts have no significant groundwater potential.

Unconsolidated Deposits

The streams in the Bellinger and Nambucca Valleys do not extend into the highlands forming the New England Plateau, and they do not have the physiographic features typical of the larger valleys such as the Macleay to the south and the Clarence to the north. In fact, the more active headwaters of these larger streams appear to have increased the catchment area of their particular stream systems at the expense of the less active, shorter, coastal streams in the Bellinger and Nambucca Valleys.

In their upper reaches, the various streams in the Bellinger and Nambucca Valleys have relatively steep gradients and there are no significant accumulations of alluvial material. However, throughout their middle reaches there are narrow, but often continuous, alluvial flats of fluviatile origin on all the major streams. The flats are less than 100 yards wide towards the headwaters but gradually widen from ½ to ¾ mile near the point of tidal influence. The maximum thickness of the alluvium is not known but probably does not exceed 60 feet. It is considerably less than this further upstream and towards the upper limits of alluvial deposition the streams are entrenched to rock, so that the alluvium stands completely above creek level, and therefore has virtually no groundwater potential.

However, although the overall potential of the fluviatile alluvium is not great, many landholders obtain useful stock supplies from wells less than 20 feet deep and yields of the order of 2,000 or 3,000 gallons per hour are not unusual. Such wells rarely fully penetrate the alluvium, and if they did, it is likely that yields between 5,000 and 10,000 gallons per hour would be more common.

The quality of the water obtained from the fluviatile alluvium is usually described as fresh or good. No analyses are available but it is reasonable to assume that the total salinity is low and the water will usually be suitable for domestic, stock and irrigation use, except for occasional instances where local hydrogeological conditions cause contamination from sources outside the alluvium e.g. migration from adjacent jointed rocks.

As is usual on this State's coastal rivers, there are major towns located close to the tidal limit which is also virtually the downstream limit of alluvial flats of purely fluviatile origin. The two highest yielding wells recorded in this area are located near the butter factory at Bellingen. Both wells are reported to produce 10,000 gallons per hour, but the one near the river yields brackish water, probably as a result of intrusion of saline water from the river which is tidal at this point.

Downstream of the tidal limit the alluvial flats broaden out and a change in the nature of the strata reflects the environment under which they were deposited. Estuarine conditions must have prevailed with the various streams building up small internal deltas. The sediments are finer than those of fluviatile origin and consist mainly of black sands, silts, clays and muds with occasional shelly bands. As the shells are marine types, it may be assumed that most of this deltaic deposition took place in either brackish or salty water.

There are considerable variations, both laterally as well as vertically, in the permeability of these deposits. The only zones which can be relied on to produce useful supplies of groundwater are those in the levees which have been built up during periods of flooding by the deposition of silt and sand.

Wells, and occasionally spearpoints, sunk in the levees, usually produce good quality water from depths of the order of 20 feet. Yields are normally adequate for stock, domestic and garden use, but are very variable. Away from the levees connate salt is present in most of the sediments and groundwater occurring at depths greater than 20 to 25 feet is usually brackish or salty. Lenses of better quality water may occur at shallow depths in some areas as a result of flushing out and replacement of the water containing connate salt, either by direct infiltration of rainfall, concentration of runoff from local catchments on the side slopes, or flooding.

Behind many of the beaches forming the present coastline there are sandbeds which are thought to have been deposited partly as beaches which mark the positions of old strandlines and partly as wind blown (aeolian) sands. Immediately behind some of the present beaches there are dunes, but further inland some of the sandbeds are low-lying and swampy.

The sandbeds often provide conditions favourable to the occurrence of good quality groundwater, but it is not unusual for the swampy environment in which some beds have formed to cause the groundwater to be acid and peaty. In such conditions sulphide producing bacteria may be responsible for contamination by sulphuretted hydrogen.

However, because of the rather limited extent of the various sandbeds in the Bellinger and Nambucca Valleys, the overall groundwater potential is not great, although locally they may provide some very useful supplies of water of excellent quality.

Utilization of the water from the sandbeds is mainly confined to camping grounds, caravan parks and domestic and garden supplies, the most common means of extracting water being the hand-driven spear point.

## 5. STREAM GAUGING STATIONS.

Streamflow results from the precipitation of atmospheric moisture, which is carried over the land masses by weather systems. After subtracting losses due to evaporation, transpiration and deep seepage from the total amount of precipitation, the remainder which appears as flow in stream channels is normally termed runoff.

If a complete understanding existed of the various factors involved in the rainfall runoff process it would be possible to estimate runoff, or streamflow, by analysis of rainfall records. However, despite intensive research, no reliable method has yet been devised of estimating streamflows from rainfall in the absence of any streamflow information. Nevertheless various approximate methods are currently employed to extend streamflow records using concurrent streamflow and rainfall information. Obviously this method necessitates the collection of streamflow records over a lengthy period if satisfactory results are to be obtained.

It is therefore apparent that the most essential element in water resources investigations is streamflow measurement.

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

River levels are generally obtained by visual observation of the level of the water surface on a graduated scale or staff gauge which is usually erected either on the stream bank or on bridge piers. As these measurements only indicate the water level at the time of obtaining the reading it is desirable to record the continuous variation of river height between the times of actual readings. This may be obtained by means of a continuous record which is produced by a float or pressure actuated recorder.

Current meters are employed to measure flow velocities across stream channels and this data is used in conjunction with survey methods to compute streamflows in cubic feet per second or cusecs.

Graphical relations are established between gauge heights and measured discharges for each stream gauging station and, in stable channels, these relations tend to remain relatively constant. These relationships are used to estimate streamflows during periods when gauge heights, but not measured discharges are obtained at the streamflow station, thereby allowing continuous gauge height records to be converted to continuous streamflow records.

Streamflows are normally given in terms of cusecs, one cusec flowing for one day being approximately equal to two acre feet or the volume of water which would cover one acre to a depth of two feet. Another unit which is frequently employed in catchment yield investigations is inches depth over the area of the catchment.

The first measurement of streamflow in the Bellinger and Nambucca Valleys commenced with the establishment of a stream gauging station on the Never Never Creek at Gleniffer in 1925. This station was discontinued in 1928 and no further stations were established until 1948 when a station was established on Never Never Creek at Slingsbys Road about 2 miles upstream of Gleniffer.

In 1955 a gauging station was installed on the North Arm of the Bellinger River at Thora but, due to difficulties in operation, was discontinued in 1960. From 1959 until 1966, measurements of streamflow in the North Arm of the Bellinger River were made at the Boggy Creek station which measured the combined flow of the Bellinger River and Never Never Creek. In 1966 the Thora gauging station was re-established and the Boggy Creek station discontinued.

Streamflow records for the gauging stations on the South Arm of the Bellinger River at Scotchman and on the Bowra River at Bowraville commenced in 1959. Three further stations have since been established making a total of six stations at present in operation in the valleys.

The density of the stations in the combined Bellinger and Nambucca River Valleys of 6 stations per 1,000 square miles compares most favourably with the remainder of the State. Corresponding densities for New South Wales and Australia are 2.2 and 0.5 stations respectively.

The gauging stations currently in operation in the Bellinger and Nambucca Valleys are located so as to measure the runoff from about 65 percent of the total catchment and thereby provide reasonable data for use in the investigation of water resource proposals.

It is intended to expand the existing network to eight stations so as to provide adequate basic data for all types of water resources investigations likely to be required for the valleys.

The locations of existing and discontinued streamflow stations in the Bellinger and Nambucca Valleys are shown in Figure 17 and relevant operational details of each station are given in Table 7.

TABLE 7.

| Stream | Station | Catchment Area (Sq.Miles) | Type of Gauging Station | Period of Operation |
|---|---|---|---|---|
| North Arm Bellinger River | Thora | 190 | Staff Gauge | 1955 to 1960<br>1966 to date |
| North Arm Bellinger River | Boggy Creek* | 240 | Staff Gauge | 1959 to 1966 |
| South Arm Bellinger River | Scotchman | 64 | Staff Gauge | 1959 to date |
| Bowra River | Bowraville | 208 | Staff Gauge | 1959 to date |
| Never Never Ck. | Gleniffer* | 9 | Staff Gauge | 1925 to 1928 |
| Never Never Ck. | Slingsbys Rd.* | 4.6 | Pressure Recorder | 1948 to 1956 |
| Woogoolga Creek | Woolgoolga (Downstream Dam Site) | 4.2 | Float Recorder | 1960 to date |
| Taylors Arm | Grays Crossing | 123 | Manometer Servo Pressure Recorder | 1970 to date |
| Warrell Creek | Warrell Creek | 79 | Pressure Recorder | 1970 to date |

* Discontinued Station.

## 6. CATCHMENT YIELDS

The regular measurement of streamflows within the Bellinger and Nambucca Valleys has provided a considerable volume of hydrologic data for estimation of water yields from various sub-catchments in the valleys. The water yield from natural catchments varies considerably, being dependent on factors such as rainfall, topography, geology and vegetation in addition to the main factor of 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 a desirable prerequisite for the estimation of catchment yields.

The current stream gauging station in the Bellinger Valley with the longest period of record is that located on the South Arm of the Bellinger River at Scotchman. Over the nine year period commencing in 1959 the average flow of the South Arm at this station has been 92,000 acre feet per annum which is equivalent to an average rate of flow of 126 cusecs (47,000 gallons per minute).

A continuous period of streamflow record extending over nine years has been obtained for the gauging station located on the Bowra River at Bowraville in the Nambucca Valley. The average annual flow at this station over the period was 201,000 acre feet which corresponds to an average discharge of 275 cusecs (103,000 gallons per minute).

Records of streamflow for the North Arm of the Bellinger River at Thora and Boggy Creek indicate that average flows at these stations have been about 527 cusecs (197,000 gallons per minute) and 530 cusecs (198,000 gallons per minute) over respective periods of six and seven years.

On the Woogoolga Creek at Woolgoolga the average flow over a period of 8 years of record has been 5,800 acre feet per annum which is equivalent to 8.0 cusecs (3,000 gallons per minute).

Streamflow records for Never Never Creek at the discontinued stations of Gleniffer and Slingsbys Road over the periods of available record indicate that the average annual yield from these catchments has been 21,900 acre feet and 25,200 acre feet respectively.

To enable comparisons to be made of the yields from various streams over the respective periods of records, the average annual yields for the seven gauging stations in the Bellinger and Numbucca Valleys are listed in Table 8.

TABLE 8

| Stream | Station | Complete Years of Computed Record | Average Annual Yield over Period of Complete Years of Record | | |
|---|---|---|---|---|---|
| | | | Acre Feet Per Annum | Cusecs | Gallons Per Minute |
| North Arm Bellinger River | Thora | 6 | 384,000 | 527 | 197,000 |
| North Arm Bellinger River | Boggy Creek* | 7 | 387,000 | 530 | 198,000 |
| South Arm Bellinger River | Scotchman | 9 | 92,000 | 126 | 47,000 |
| Bowra River | Bowraville | 9 | 201,000 | 275 | 103,000 |
| Never Never Creek | Gleniffer* | 2 | 21,900 | 30 | 11,200 |
| Never Never Creek | Slingsbys Road* | 7 | 25,200 | 34 | 12,700 |
| Woogoolga Creek | Woolgoolga (Downstream Dam Site) | 8 | 5,800 | 8 | 3,000 |

* Discontinued Station

Details of monthly maximum, minimum and mean flows for the gauging stations listed in Table 8 are tabulated in Appendices 18 to 24 inclusive.

7. AVERAGE ANNUAL RUNOFF.

In comparison with many other valleys in the State, streamflow records for the Bellinger and Nambucca Valleys are of relatively short durations. The current estimates of the long term average annual surface water resources of the valleys have therefore been based on approximate streamflow correlations with the nearby Clarence River Valley for which suitable streamflow records are available from 1922.

These correlations indicate that the average annual surface water resources of the Bellinger and Nambucca Valleys are 430,000 acre feet and 300,000 acre feet respectively.

On a square mile basis the runoff for the Bellinger Valley (including all northern creeks to Woogoolga Creek) is more than double the average runoff for Coastal New South Wales and nearly nine times the average for the State. The

average runoff for the Nambucca Valley (including Deep Creek) is only about three quarters of that of the Bellinger Valley and is equivalent to a runoff per unit area of about 1½ times that of coastal New South Wales and almost six times the average for the total area of the State.

In the following Table 9 the estimated long term average annual runoffs of the Bellinger and Nambucca Valleys are compared with the corresponding averages for the adjoining Richmond and Clarence Valleys.

TABLE 9

| River Valley | Catchment Area in Square Miles | Estimated Long Term Average Annual Runoff | | |
|---|---|---|---|---|
| | | Acre Feet | Acre Feet Per Square Mile | Percentage Runoff |
| Bellinger | 510 | 430,000 | 840 | 25% |
| Nambucca | 570 | 300,000 | 530 | 19% |
| Richmond | 2,680 | 1,600,000 | 600 | 22% |
| Clarence | 8,750 | 4,000,000 | 460 | 20% |

The previous estimate of the long term average annual runoff for the Bellinger and Nambucca Valleys was given in the 1963 publication "Review of Australia's Water Resources" under the heading of Bellinger River Basin which encompassed a total area of 1,330 square miles. The estimated average annual discharge from the area was 830,000 acre feet. The reduction in the estimate of average annual runoff is due to adoption of a reduced catchment area and a longer period of more reliable streamflow records.

## 8. VARIABILITY OF STREAMFLOWS

Although average annual flows are suitable for comparison of long term yields from catchments they do not indicate the variability of surface water resources during a particular year or the probable extent to which the valleys' surface water resources could be utilised without the construction of conservation works.

An indication of the variability of streamflows at selected stations in the Bellinger and Nambucca Valleys is given at Table 10. This table shows the maximum, minimum and mean discharges recorded at the selected stations over the periods of available records.

TABLE 10

| Stream | Station | Complete Years of Computed Records | Recorded Discharges | | |
|---|---|---|---|---|---|
| | | | Maximum | Minimum | Mean |
| North Arm Bellinger River | Boggy Creek | 7 | 50,000 cusecs (19,000,000 gpm) | 12 cusecs (4,500 gpm) | 530 cusecs (198,000 gpm) |
| South Arm Bellinger River | Scotchman | 9 | 24,100 cusecs (9,000,000 gpm) | 0.2 cusecs (75 gpm) | 126 cusecs (47,000 gpm) |
| Bowra River | Bowraville | 9 | 45,000 cusecs (17,000,000 gpm) | 0 | 275 cusecs (103,000 gpm) |
| Never Never Creek | Slingsbys Road | 7 | 17,200 cusecs (6,000,000 gpm) | 0.2 cusecs (75 gpm) | 34 cusecs (12,700 gpm) |
| Woogoolga Creek | Woolgoolga (Downstream Dam Site) | 8 | 3,600 cusecs (1,500,000 gpm) | 0 | 8 cusecs (3,000 gpm) |

A high degree of streamflow variability has been experienced in the valleys during the fairly short period of streamflow record. This is illustrated in Table 10 which shows that discharges have fluctuated from extreme flood conditions (during the wet years of 1962 to 1963) to extreme drought conditions (extending from 1964 to 1966). An indication of the variation in annual volume of runoff for the North Arm of the Bellinger River over the period from 1956 to 1968 is shown at Figure 18.

During the flood month of April 1962 the total monthly flows in the Bellinger River North Arm at Boggy Creek and the Bellinger River South Arm at Scotchman were 318,000 acre feet and 105,000 acre feet, respectively which are equivalent to about four fifths and one and one eighth of the recorded average annual flows at these stations. The peak discharges at these stations during the same month were about 50,000 cusecs (19 million gallons per minute) and 24,100 cusecs (9 million gallons per minute) respectively.

Flows of similar magnitude were experienced during the flood of May, 1963 and at some stations this flood produced substantially greater runoff volumes. The monthly volume recorded during May 1963, for the Bowra River at Bowraville was about one and a half times the volume recorded in April, 1962. Extensive flooding was also experienced in June 1967, when all gauging stations recorded flood flows which approached, and in some cases exceeded, the volumes registered in April, 1962.

Monthly discharge hydrographs of streamflows of the Bellinger River North Arm at Thora and Boggy Creek and the Bellinger River South Arm at Scotchman are shown in Figure 19. Similar graphs for Woogoolga Creek at Woolgoolga and the Bowra River at Bowraville are appended at Figure 20. These graphs illustrate the high degree of variability of streamflows in the Bellinger and Nambucca Valleys.

The variation in average monthly rainfalls at Coffs Harbour and Bowraville are shown at Figure 21 and these locations can be considered to be representative of the coastal and inland sections of the valleys respectively. Reference to Figure 21 shows that, for both locations, the highest average rainfalls occur in February-March and the lowest in August-September. Figure 21 also shows that a pronounced seasonal variation occurs, the summer months rainfalls being substantially greater than those in the winter months.

Average monthly streamflows in the valleys display distributions similar to the average monthly rainfalls, with the highest runoffs occurring towards the end of summer.

## 9. PERSISTENCE OF STREAMFLOWS

Streamflows in the Bellinger and Nambucca Valleys continue for extended periods of time after the cessation of rainfall. This indicates that groundwater flow into the streams is relatively high and persists for substantial periods.

An indication of the persistence of flows can be obtained from examination of flow duration curves which indicate the percentages of time that flows have varied over a selected range.

A flow duration curve shows the percentages of time that flows were either equal to or greater than, or alternatively, equal to or less than, a particular value. In this report all flow duration curves and flow duration statistics indicate the percentages of time that flows were equal to or greater than a particular value.

The flow duration curve for the North Arm of the Bellinger River at Boggy Creek is given at Figure 22 and the frequencies of flow at this station are shown in Table 11.

TABLE 11

| Percent of Time Flow Equalled or Exceeded | Corresponding Flows | |
|---|---|---|
| | Cusecs | Gallons Per Minute |
| 10% | 900 | 337,000 |
| 30% | 308 | 115,000 |
| 50% | 142 | 53,000 |
| 70% | 68 | 25,400 |
| 90% | 33 | 12,400 |
| 95% | 23 | 8,600 |
| 100% | 12 | 4,500 |

The duration curve of discharge for the South Arm of the Bellinger River at Scotchman is appended at Figure 23 and flow frequency statistics for this station, applicable to a period of 9 years, are shown in the following Table 12.

TABLE 12.

| Percent of Time Flow Equalled or Exceeded | Corresponding Flows | |
|---|---|---|
| | Cusecs | Gallons Per Minute |
| 10% | 130 | 48,600 |
| 30% | 30 | 11,200 |
| 50% | 17 | 6,400 |
| 70% | 7 | 2,600 |
| 90% | 2 | 750 |
| 95% | 0.8 | 300 |
| 100% | 0.2 | 75 |

The flow duration curve for Never Never Creek at Slingsbys Road, applicable to a period of 7 years extending from 1948 to 1956 is appended at Figure 24. Flow frequency statistics for this station are given in Table 13.

TABLE 13

| Percent of Time Flow Equalled or Exceeded | Corresponding Flows | |
|---|---|---|
| | Cusecs | Gallons Per Minute |
| 10% | 75 | 28,000 |
| 30% | 22 | 8,200 |
| 50% | 9 | 3,400 |
| 70% | 2 | 750 |
| 90% | 0.3 | 110 |
| 95% | 0.2 | 75 |
| 100% | 0.2 | 75 |

The flow duration curve for the Bowra River at Bowraville, computed for an overall period of record of 9 years, is appended at Figure 25. Flow frequency data for this station is given in the following Table 14.

TABLE 14

| Percent of Time Flow Equalled or Exceeded | Corresponding Flows | |
|---|---|---|
| | Cusecs | Gallons Per Minute |
| 10% | 340 | 127,000 |
| 30% | 104 | 38,900 |
| 50% | 50 | 18,700 |
| 70% | 25 | 9,350 |
| 90% | 10 | 3,740 |
| 95% | 5 | 1,870 |
| 100% | 0 | 0 |

The duration curve of discharge for Woogoolga Creek at Woolgoolga is given at Figure 26. Flow frequency statistics applicable to an overall period of 8 years of record, are shown in Table 15.

TABLE 15

| Percent of Time Flow Equalled or Exceeded | Corresponding Flows | |
|---|---|---|
| | Cusecs | Gallons Per Minute |
| 10% | 6.7 | 2,500 |
| 30% | 1.5 | 560 |
| 50% | 0.8 | 300 |
| 70% | 0.5 | 190 |
| 73% | 0 | 0 |
| 100% | 0 | 0 |

For comparative purposes flow duration curves for the foregoing stations have been replotted in the form of duration curves of flow per square mile and are shown at Figure 27.

Reference to Figure 27 shows that, based on available records, the station located on the Bellinger River at Boggy Creek exhibits the best low flow persistence of the five stations considered. The duration curve of flow per square mile for the station on Never Never Creek at Slingsbys Road indicates that flows from the catchment exhibit a poor persistence, in the low flow range. However flows at this station in the low to medium flow range are substantially higher than at all the other stations thereby indicating that, while the Never Never Creek has a relatively low groundwater storage, relatively good yields can be expected during the major percentage of time.

Poor low flow characteristics are also exhibited by the flow duration curve for Woogoolga Creek which indicates that this stream ceased to flow for 27 percent of the time.

## 10. OCCURRENCE OF FLOODING

In contrast with other valleys on the north coast of New South Wales, records of floods in the Bellinger and Nambucca Valleys do not extend over a great number of years. However based on the records which are available, it is apparent that these valleys are subject to relatively frequent flooding.

A diagram showing the occurrence and magnitude of recorded floods exceeding 10 feet on the gauge on the North Arm Bellinger River at Thora is given at Figure 28. As indicated on this diagram, reliable records are not available for the period from April 1946 to January 1953 inclusive.

The highest flood in the North Arm Bellinger River at Thora since 1946, occurred in June 1950. Although actual records are not available, this flood is believed to have reached a peak level of about 29 feet or about 5 feet higher than the next highest flood of February 1953.

Since the commencement of regular measurement of flow in the principal streams in the valleys in 1955, 21 floods exceeding 10 feet on the gauge at Thora have been recorded. Details of the estimated peak discharges at selected gauging stations on the North Arm Bellinger River, South Arm Bellinger River and the Bowra River in the six major floods in this period are given in Table 16.

TABLE 16.

| Stream | Station | Peak Discharges (Cusecs) | | | | | |
|---|---|---|---|---|---|---|---|
| | | January 1959 | April 1962 | July 1962 | May 1963 | March 1964 | June 1967 |
| North Arm Bellinger River | Boggy Creek | No Records | 50,000 | 35,160 | 49,600 | 38,820 | No Record |
| North Arm Bellinger River | Thora | 54,000 | No Record | No Record | No Record | No Record | 51,500 |
| South Arm Bellinger River | Scotchman | No Record | 24,100 | 13,460 | No Record | 18,920 | 17,060 |
| Bowra River | Bowraville | No Record | 44,500 | 27,500 | 45,000 | 42,000 | 30,500 |

As indicated in Table 16, the June 1967 flood produced very high flows in all major streams in the Bellinger and Nambucca Valleys. On the North Arm Bellinger River at Thora the peak flood level of 20 feet 7 inches was the fifth highest level which has occurred since the recording of flood heights commenced in 1946. The total discharge of 309,000 acre feet which passed Thora during June 1967 was over eighty percent of the average annual discharge.

## 11. DROUGHT PERIODS

The term "drought" is somewhat difficult to define but it is often applied to a period when soil moisture is insufficient for most crops during the growing season. An area which is subject to a shortage of water for domestic, municipal, and industrial use, which arises as a result of below average precipitation, is commonly regarded as being under drought conditions. A diminished rate of streamflow as a result of a decline in precipitation is normally a prime indication of drought conditions.

A graph depicting annual rainfalls recorded at Bellingen, which is considered to be representative of the overall climatic conditions, in the Bellinger and Nambucca Valleys, is appended at Figure 29. This graph shows that the lowest calendar year rainfall at Bellingen occurred in 1902 and was of the order of 25 inches.

The most prolonged period of low rainfalls at Bellingen occurred in the period from 1900 to 1921 and appears to have been experienced generally over the valleys. As shown on figure 29 a period of six consecutive years of below average rainfall occurred during the drought period extending from 1939 to 1944. Other periods of below average rainfall have occurred since 1950 but these periods are of fairly short duration and have been interspersed by years of above average rainfall.

Since the commencement of regular recording of streamflows in the Bellinger and Nambucca Valleys in December 1948, the minimum flow over any twelve month period occurred in the 1964-1966 drought. On the smaller catchments the minimum twelve monthly flow commenced in early June, 1964 but on the larger catchments the effective start of this drought period was delayed until later in June or early July. The minimum twelve monthly flows and their precentages of the respective mean annual flows are shown in Table 17 for selected stations in the valleys.

TABLE 17

| Stream | Station | Minimum Twelve Monthly Flow | | |
|---|---|---|---|---|
| | | Period | Acre Feet | Percentage of Mean Annual Flow |
| North Arm Bellinger River | Boggy Creek | July 1964 to June 1965 | 43,300 | 11% |
| South Arm Bellinger River | Scotchman | July 1964 to June 1965 | 4,500 | 5% |
| Bowra River | Bowraville | July 1964 to June 1965 | 12,600 | 6% |
| Woogoolga Creek | Woolgoolga | June 1964 to May 1965 | 96 | 2% |

During the period of record at the Bellinger River gauging stations which are located on the North Arm at Boggy Creek and the South Arm at Scotchman, the river has never ceased to flow. The lowest recorded flows have been 12 cusecs (4,500 gallons per minute) for a period of 9 days at Boggy Creek and 0.2 cusecs (75 gallons per minute) for 4 days at Scotchman.

Since the commencement of regular recording of flows on the Bowra River at Bowraville, this river has only ceased to flow for a total of 16 consecutive days or less than 0.1 percent of the time. Alternatively records of flow for Woogoolga Creek at Woolgoolga show that this stream has ceased to flow for a total period of 881 days or 27 percent of time since the station was installed in February 1960.

12. THE 1964-1966 DROUGHT.

In common with many other valleys in the State, the Bellinger and Nambucca River Valleys experienced periods of extremely low rainfall between May 1964 and December 1966. Over a twelve monthly period from May 1964 to April 1965, the total rainfall recorded at Bellingen was 22.40 inches or about 15 percent more than the lowest twelve monthly rainfall since 1900, which was 19.54 inches occurring from September, 1901 to August 1902.

At Coffs Harbour the lowest twelve monthly rainfall occurred from June 1964 to May 1965 when a total rainfall of 30.84 inches was registered. This is the third lowest twelve monthly rainfall on record since this station was established in 1900 and only exceeds the lowest recorded value by about 14 percent. The twelve monthly rainfall recorded at Macksville for the period, June 1964 to May 1965, comprised a total of 19.34 inches and this total exceeds the absolute

minimum recorded value of 16.13 inches for November 1901 to October 1902 by about 20 percent.

The recorded monthly rainfalls at Bellingen, Coffs Harbour, and Macksville over the period from May 1964 to December 1968 are shown in Table 18.

TABLE 18

| Month | | RAINFALL (Points) | | |
|---|---|---|---|---|
| | | Bellingen | Coffs Harbour | Macksville |
| May | 1964 | 36 | 224 | 109 |
| June | 1964 | 76 | 98 | 101 |
| July | 1964 | 53 | 50 | 65 |
| August | 1964 | 85 | 162 | 151 |
| September | 1964 | 87 | 161 | 102 |
| October | 1964 | 205 | 215 | 173 |
| November | 1964 | 307 | 324 | 184 |
| December | 1964 | 344 | 236 | 134 |
| January | 1965 | 164 | 288 | 95 |
| February | 1965 | 278 | 398 | 437 |
| March | 1965 | 179 | 78 | 36 |
| April | 1965 | 426 | 969 | 366 |
| May | 1965 | 80 | 105 | 90 |
| June | 1965 | 411 | 717 | 298 |
| July | 1965 | 858 | 513 | 609 |
| August | 1965 | 328 | 389 | 149 |
| September | 1965 | 59 | 98 | 74 |
| October | 1965 | 187 | 447 | 363 |
| November | 1965 | 600 | 245 | 152 |
| December | 1965 | 1,211 | 700 | 583 |
| January | 1966 | 144 | 152 | 56 |
| February | 1966 | 504 | 643 | 478 |
| March | 1966 | 509 | 326 | 322 |
| April | 1966 | 299 | 850 | 349 |
| May | 1966 | 109 | 188 | 150 |
| June | 1966 | 327 | 405 | 256 |
| July | 1966 | 8 | 5 | 19 |
| August | 1966 | 255 | 470 | 246 |
| September | 1966 | 126 | 143 | 91 |
| October | 1966 | 363 | 529 | 239 |
| November | 1966 | 562 | 704 | 478 |
| December | 1966 | 170 | 178 | 96 |
| January | 1967 | 1,963 | 2,018 | 1,426 |
| February | 1967 | 252 | 201 | 258 |
| March | 1967 | 850 | 1,116 | 726 |
| April | 1967 | 877 | 730 | 1,019 |
| May | 1967 | 93 | 467 | 41 |
| June | 1967 | 3,715 | 2,088 | 2,462 |
| July | 1967 | 47 | 49 | 66 |
| August | 1967 | 303 | 612 | N.R. |
| September | 1967 | 129 | 133 | 207 |
| October | 1967 | 752 | 651 | 541 |
| November | 1967 | 115 | 95 | 213 |
| December | 1967 | 308 | 383 | 319 |
| January | 1968 | 1,156 | 589 | 647 |
| February | 1968 | 509 | 817 | 598 |
| March | 1968 | 304 | 351 | 177 |
| April | 1968 | 22 | 86 | 8 |
| May | 1968 | 189 | 304 | 235 |
| June | 1968 | 9 | 121 | 0 |
| July | 1968 | 26 | 65 | 47 |
| August | 1968 | 863 | 748 | 699 |
| September | 1968 | 37 | 49 | 59 |
| October | 1968 | 125 | 132 | 162 |
| November | 1968 | 446 | 439 | 217 |
| December | 1968 | 503 | 513 | 292 |
| Minimum Twelve Monthly Totals (1964-1966 drought) | | 2,240 (May 1964 to April 1965 ) | 3,084 (June 1964 to May 1965 ) | 1,934 (June 1964 to May 1965) |

As indicated in Table 18, drought conditions in the Bellinger and Nambucca River Valleys were alleviated in June 1965 by the occurrence of above average rainfalls when over four and seven inches were recorded at Bellingen and Coffs Harbour respectively. These falls were followed by further heavy rainfalls in July 1965 when over 8 inches, 5 inches and 6 inches were experienced at Bellingen, Coffs Harbour and Macksville respectively. Except for the month of September, rainfalls for the remainder of 1965 exceeded average values in each month.

Rainfalls recorded during the first ten months of 1966 reflected extremely dry conditions in the valleys with below average rainfalls at the majority of stations. The dry conditions persisted from January until October when drought relieving falls were registered in November. However, below average rainfalls were recorded for December which culminated in a total average annual deficit of approximately 40 percent for the year.

Flood producing rains occurred in January 1967 and these were followed by above average rainfalls in subsequent months. Extremely heavy falls in June produced floods of major proportions throughout the valleys.

The three lowest recorded flows in the Bellinger and Nambucca River Valleys, over a continuous twelve monthly period since continuous streamflow recording commenced in 1948, occurred in the 1960-61, 1964-65 and 1966 periods. The minimum twelve monthly flows recorded at the gauging stations of Boggy Creek, Scotchman and Bowraville in each of these periods and the respective percentages of the average annual flows, are shown in Table 19.

TABLE 19

| Minimum Twelve Monthly Flows | | | | | |
|---|---|---|---|---|---|
| Boggy Creek | | Scotchman | | Bowraville | |
| Period | Flow (Ac.Ft.) | Period | Flow (Ac.Ft.) | Period | Flow (Ac.Ft.) |
| July 1964 to June 1965 | 43,300<br>11% | July 1964 to June 1965 | 4,500<br>5% | July 1964 to June 1965 | 12,000<br>6% |
| January 1966 to December 1966 | 50,000<br>13% | January 1966 to December 1966 | 5,100<br>6% | January 1966 to December 1966 | 15,700<br>8% |
| June 1960 to May 1961 | 120,000<br>31% | September 1960 to August 1961 | 11,200<br>12% | June 1960 to May 1961 | 28,700<br>14% |

Reference to Table 19 shows that in all three drought periods, the North Arm Bellinger River at Boggy Creek maintained a considerably higher flow even on a percentage of average basis, than either the South Arm Bellinger River at Scotchman or the Bowra River at Bowraville. As indicated previously in this report, the flows at Boggy Creek are also less variable and more persistent than the flows at the other stations.

While streamflows were well below average in the years of 1960 and 1961, the relative volume of streamflows during this drought was significantly greater than that recorded in the drought years 1964, 1965 and 1966.

The minimum consecutive 30 day, 90 day and 6 monthly flow volumes registered during the May 1964 to December 1966 drought period are given in Table 20, for the gauging stations at Boggy Creek, Scotchman and Bowraville.

TABLE 20

| Stream | Station | Minimum Flows 1964 to 1966 (Acre Feet) | | |
|---|---|---|---|---|
| | | 30 days | 90 days | 6 months |
| North Arm Bellinger River | Boggy Creek | 960 | 4,220 | 13,200 |
| South Arm Bellinger River | Scotchman | 75 | 350 | 960 |
| Bowra River | Bowraville | 400 | 1,360 | 3,050 |

Since the commencement of records in June 1959 the Bellinger River North Arm at Boggy Creek has not ceased to flow. However very low flows were experienced at this station during the 1964-1966 drought period when a minimum flow of 12 cusecs (4,500 gallons per minute) occurred on nine consecutive days. This is the lowest flow recorded at this station since the commencement of records.

The minimum flow recorded at Bowraville on the Bowra River during the 1964-1966 drought was 5 cusecs (1,900 gallons per minute) in April 1965. The longest period of minimum flow recorded at this station was experienced when the river ceased to flow for 16 consecutive days in January and February 1961.

During the drought period of 1964-1966, a flow of 1 cusec (370 gallons per minute) was recorded at Scotchman on the Bellinger River South Arm on three periods which totalled 25 days. This flow was greater than the previous minimum of 0.2 cusecs (75 gallons per minute) recorded over a period of 4 days in January 1961.

The 1964-66 drought period ended in January 1967 when maximum flows of 11,500 cusecs (4,300,000 gallons per minute) and 8,200 cusecs (3,100,000 gallons per minute) were recorded at Scotchman and Bowraville, respectively. The January 1967 flood was followed by above average streamflows with floods being experienced in June 1967 and January 1968. Again flows deteriorated, and by July 1968, had reached lowest levels since 1965. Good rainfalls produced improved conditions in the latter part of 1968 and these conditions were maintained throughout 1969.

## 13. WATER REQUIREMENTS FOR CURRENT DEVELOPMENT

Intensive dairying and beef cattle grazing are the main rural activities in the Bellinger and Nambucca Valleys. Secondary rural industries are vegetable and banana growing.

The area authorised for irrigation by license under the Water Act has increased from 395 acres in June 1944 to 3,160 acres in June 1969 and the total number of licenses has increased from 57 in 1944 to 310 in 1969. The variations in total number of irrigation licenses and corresponding areas over the twenty six year period from 1944 to 1969 are indicated at Figure 30.

The foregoing licenses and areas are applicable to the total catchment of the Bellinger and Nambucca Valleys and include Warrell Creek, Deep Creek and the coastal strip north of Raleigh to Woolgoolga.

The total area authorised for irrigation increased at a relatively constant rate from June 1944 to June 1950 when a total of about 1,350 acres were licensed, Following the receipt of above average rainfall in 1950 however, the total area authorised showed a decline of about 130 acres over the next year. This decline was followed in 1952 by an upward trend in irrigable area which continued until June 1958 when the area licensed for irrigation reached about 2,730 acres.

Between June 1958 and June 1963 the total area authorised for irrigation in the valleys remained relatively constant. However since June 1963 the area has steadily increased and now stands at 3,160 acres.

The average irrigable area applicable to each license has increased from about 7 acres at June 1944 to about 10 acres at June 1969.

At the end of June 1969 there was a total of 27 licenses in the valleys for the diversion of up to 3,963 gallons per minute for industrial, town and stock water supply purposes. In addition town water supply schemes for Bellingen, Bowraville, Macksville and Nambucca Heads which were installed prior to 1930 and are therefore not required to be licensed under the Water Act, are capable of the diversion of an additional flow of about 1,000 gallons per minute.

While there are no major water conservation storages in the valleys a weir type barrage has been constructed across Warrell Creek to prevent the entry of salt water.

The construction of this barrage and associated works, comprising Warrell Creek River Improvement District, was commenced in 1954. The effect of these works is to provide a fresh water supply to 39 holdings along 12½ miles of creek frontage lands.

The distribution of areas authorised for irrigation on the various tributaries in the valleys at the 30th June 1969 together with the estimated total average demands (including town and industrial water supplies) and riparian usage, but excluding transmission losses, are given in Table 21.

TABLE 21

| Stream | Area Authorised For Irrigation at 30th June 1969 (Acres) | Total Average Demand | |
|---|---|---|---|
| | | Cusecs | Gallons per Minute |
| North Arm Bellinger River and Tributaries | 329 | 7.4 | 2,780 |
| South Arm Bellinger River and Tributaries | 123 | 2.6 | 970 |
| Woogoolga Creek | 67 | 7.2 | 2,700 |
| Boambee Creek | 504 | 2.4 | 900 |
| Bonville Creek | 243 | 1.8 | 670 |
| Minor Coastal Streams of Bellinger Valley | 317 | 3.1 | 1,160 |
| Nambucca River North Arm (Bowra River and Tributaries) | 708 | 8.7 | 3,250 |
| Nambucca River South Arm (Taylors Arm and Tributaries) | 192 | 4.0 | 1,510 |
| Warrell Creek and Tributaries | 279 | 3.9 | 1,460 |
| Deep Creek and Tributaries | 398 | 2.9 | 1,100 |
| Totals | 3,160 | 44.0 | 16,500 |

The estimated maximum requirements in the Bellinger and Nambucca Valleys under present conditions for irrigation under license, water supply and riparian usage (not including transmission losses) are given in Table 22.

TABLE 22

Estimated Present Maximum Requirements

| Requirement | Bellinger Valley | | Nambucca Valley | | Totals | |
|---|---|---|---|---|---|---|
| | Cusecs | Gallons per Minute | Cusecs | Gallons per Minute | Cusecs | Gallons per Minute |
| Irrigation under license (2.0 ft. per acre per season) | 6.4 | 2,400 | 6.4 | 2,400 | 12.8 | 2,800 |
| Town, Commercial and Stock Water Supply | 8.3 | 3,100 | 2.0 | 750 | 10.3 | 3,850 |
| Riparian Usage | 9.8 | 3,680 | 11.1 | 4,170 | 20.9 | 7,850 |
| Totals | 24.5 | 9,180 | 19.5 | 7,320 | 44.0 | 16,500 |

## 14. POSSIBLE IRRIGATION DEVELOPMENT

It is anticipated that any intensification of irrigation activities will be associated principally with the growing of pastures and fodder crops for dairy and beef cattle raising. Irrigation of bananas and vegetables is expected to be of increasing significance.

An assessment of the areas which appear suitable for irrigation has been made with the assistance of aerial photographic interpretation. Areas suitable only for banana growing have not been included in this assessment for although there is a physical limit to the acreage of bananas it would be possible to grow under supplementary irrigation, it is likely that development of banana growing will be influenced by considerations of supply and demand. The extent of areas thus assessed as suitable for irrigation is summarised in Table 23.

TABLE 23.

| Section of Valley | Assessed Area Suitable for Irrigation (Acres) |
|---|---|
| North Arm Bellinger River and Tributaries | |
| Above tidal limit | 5,000 |
| Below tidal limit | 4,300 |
| South Arm Bellinger River and Tributaries (Non tidal) | 400 |
| Boambee Creek and Tributaries | |
| Above tidal limit | 1,000 |
| Below tidal limit | 100 |
| Bonville Creek and Tributaries | |
| Above tidal limit | 1,300 |
| Below tidal limit | 600 |
| Nambucca River (All tidal) | 1,900 |
| Bowra River and Tributaries | |
| Above tidal limit | 5,400 |
| Below tidal limit | 1,600 |
| Taylors Arm and Tributaries | |
| Above tidal limit | 2,800 |
| Below tidal limit | 1,000 |
| Warrell Creek and Tributaries | 3,600 |
| Deep Creek and Tributaries | |
| Above tidal limit | 1,000 |
| Below tidal limit | 400 |
| Other streams | 1,100 |
| Total Irrigable Area | 31,500 acres |

Almost one quarter of the area assessed as suitable for irrigation lies adjacent to sections of streams within the limit of tidal influence. River water in these sections becomes saline when natural flow is insufficient to prevent the upstream advance of salt water.

The ultimate extent of irrigation development will be influenced largely by the flood liability of the more downstream areas, the extent of upstream penetration of tidal water and the acidity of some soil types in the valley.

Due to the generally steep topography of the valleys and the limited number of suitable sites, there has been negligible development of farm dams as a means of water supply. However the temporal pattern of rainfall is such that farm dams could provide an economic source of water for supplemental irrigation and it is expected that farm dams will provide limited supplies of water for irrigation in the future.

## 15. INVESTIGATION OF STORAGE PROPOSALS.

Investigation of storage sites on the Bellinger and Nambucca Rivers has been confined within narrow areal limits because of the characteristic catchment topography. The streams rise at a relatively short distance from the coast and descend rapidly to the narrow coastal plain where they divide into a number of channels.

The general topography of the catchment is such that there is not a great deal of irrigable land between any of the potential storage sites and the limit of tidal influence. It is therefore apparent that implementation of an economically sound water conservation proposal would involve the provision of a suitable water supply for domestic, stock and irrigation purposes to those areas adjacent to streams within the limit of tidal influence, and for this reason all investigations undertaken to date have been directed towards providing a water supply to these areas.

The need for increased agricultural production during the Second World War and the drought which accompanied that period emphasised the importance of water conservation within the valley. Between the years 1944 and 1950 surveys and investigations were undertaken for the proposed Macksville-Utungun Domestic and Stock Water Supply and Irrigation District. This District was to be situated on Taylors Arm between the towns of Macksville and Utungun.

The proposal was to initially provide a fresh water supply for domestic, stock and irrigation purposes to 57 landholders with the ultimate intention of serving 86 landholders as subdivision took place. Water was to be pumped from a weir located on the river just below Utungun at the site shown on Figure 31, into a service reservoir and thence reticulated under pressure through distributary mains on either side of the river. However investigation indicated the scheme to be financially unattractive to landholders without a substantial government subsidy.

To date irrigation development has not warranted detailed investigations of other water conservation proposals. However it is envisaged that if the current rate of increase in areas authorised for irrigation continues then it will be necessary for consideration to be given to the provision of storages to ensure a regulated flow during drought periods.

## 16. ACKNOWLEDGMENTS.

The Water Conservation and Irrigation Commission wishes to acknowledge the assistance given in the preparation of this report by the Director, Bureau of Meteorology in providing the section on Climatic Features, the Rainfall Statistical Data and the Median Rainfall Maps; and by the New South Wales Department of Public Works in providing details of the various town water supply schemes.

Appendix 1
Sheet 1

BELLBROOK RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1889 | | NO | RECORDS | | 450 | 13 | 534 | 746 | 265 | 182 | 508 | 421 | |
| 1890 | 997 | 1888 | 2272 | 218 | 333 | 230 | 314 | 43 | 184 | 233 | 347 | 335 | 7394 |
| 1891 | 861 | 288 | 518 | 306 | 299 | 773 | 110 | 174 | 354 | 156 | 328 | 319 | 4486 |
| 1892 | 425 | 248 | 1195 | 1629 | 175 | 135 | 248 | 264 | 311 | 503 | 621 | 641 | 6395 |
| 1893 | 507 | 1728 | 1008 | 213 | 127 | 1322 | 83 | 257 | 92 | 424 | 301 | 101 | 6163 |
| 1894 | 683 | 892 | 1890 | 263 | 181 | 116 | 12 | 11 | 178 | 507 | 281 | 339 | 5353 |
| 1895 | 1889 | 441 | 195 | 84 | 47 | 8 | 9 | 19 | 163 | 245 | 553 | 933 | 4586 |
| 1896 | 169 | 734 | 300 | 43 | 108 | 127 | 99 | 104 | 180 | 107 | 955 | 353 | 3279 |
| 1897 | 191 | 209 | 294 | 56 | 246 | 336 | 584 | 130 | 56 | 48 | 40 | 1415 | 3605 |
| 1898 | 610 | 422 | 531 | 65 | 478 | 961 | 68 | 198 | 502 | 185 | 54 | 338 | 4412 |
| 1899 | 203 | 166 | 379 | 266 | 332 | 165 | 763 | 878 | 407 | 231 | 409 | 285 | 4484 |
| 1900 | 61 | 264 | 184 | 142 | 595 | 252 | 798 | 30 | 180 | 9 | 231 | 426 | 3172 |
| 1901 | 468 | 334 | 869 | 128 | 367 | 285 | 68 | 244 | 56 | 469 | 319 | 158 | 3765 |
| 1902 | 306 | 101 | 68 | 107 | 21 | 38 | 39 | 75 | 116 | 472 | 371 | 339 | 2053 |
| 1903 | 136 | 431 | 622 | 67 | 295 | 1263 | 511 | 389 | 182 | 366 | 417 | 586 | 5265 |
| 1904 | 131 | 213 | 446 | 962 | 371 | 22 | 592 | 100 | 165 | 350 | 154 | 276 | 3782 |
| 1905 | 302 | 512 | 394 | 709 | 221 | 47 | 17 | 47 | 31 | 231 | 173 | 407 | 3091 |
| 1906 | 162 | 340 | 523 | 153 | 310 | 50 | 4 | 588 | 614 | 521 | 201 | 207 | 3673 |

Appendix 1
Sheet 2

## BELLBROOK RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1907 | 502 | 689 | 600 | 146 | 168 | 129 | 35 | 10 | 0 | 81 | 297 | 416 | 3073 |
| 1908 | 223 | 1074 | 587 | 282 | 52 | 27 | 108 | 421 | 149 | 100 | 558 | 358 | 3939 |
| 1909 | 48 | 273 | 188 | 229 | 103 | 124 | 85 | 72 | 124 | 213 | 579 | 692 | 2730 |
| 1910 | 773 | 246 | 1013 | 353 | 64 | 294 | 5 | 11 | 50 | 361 | 182 | 501 | 3853 |
| 1911 | 1188 | 1189 | 361 | 105 | 194 | 0 | 301 | 633 | 200 | 150 | 476 | 235 | 5032 |
| 1912 | 140 | 1105 | 498 | 40 | 130 | 245 | 405 | 130 | 40 | 245 | 53 | 429 | 3460 |
| 1913 | 218 | 340 | 325 | 1131 | 1019 | 454 | 89 | 22 | 281 | 249 | 120 | 297 | 4545 |
| 1914 | 380 | 514 | 658 | 3 | 326 | 636 | 80 | 102 | 300 | 762 | 553 | 736 | 5050 |
| 1915 | 236 | 423 | 75 | 213 | 720 | 93 | 90 | 96 | 54 | 59 | 76 | 213 | 2348 |
| 1916 | 267 | 521 | 157 | 840 | 655 | 105 | 33 | 140 | 100 | 229 | 305 | 860 | 4212 |
| 1917 | 617 | 393 | 161 | 65 | 194 | 26 | 54 | 54 | 517 | 260 | 1438 | 381 | 4160 |
| 1918 | 831 | 357 | 467 | 375 | 180 | 44 | 77 | 247 | 47 | 154 | 137 | 189 | 3105 |
| 1919 | 378 | 226 | 845 | 450 | 647 | 76 | 58 | 1 | 28 | 239 | 137 | 341 | 3426 |
| 1920 | 839 | 474 | 236 | 285 | 231 | 179 | 347 | 38 | 230 | 332 | 340 | 306 | 3837 |
| 1921 | 862 | 385 | 636 | 297 | 1531 | 522 | 1523 | 45 | 174 | 307 | 233 | 800 | 7315 |
| 1922 | 141 | 958 | 44 | 38 | 440 | 48 | 450 | 351 | 639 | 241 | 221 | 341 | 3912 |
| 1923 | 366 | 80 | 158 | 983 | 6 | 61 | 290 | 304 | 274 | 226 | 40 | 410 | 3198 |
| 1924 | 289 | 510 | 225 | 269 | 34 | 429 | 909 | 151 | 78 | 266 | 640 | 343 | 4143 |

Appendix 1
Sheet 3

BELLBROOK RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1925 | 518 | 292 | 484 | 257 | 554 | 746 | 0 | 337 | 43 | 182 | 638 | 511 | 4562 |
| 1926 | 363 | 72 | 487 | 263 | 243 | 264 | 317 | 85 | 18 | 31 | 5 | 662 | 2810 |
| 1927 | 597 | 238 | 190 | 475 | 61 | 100 | 30 | 10 | 9 | 465 | 713 | 521 | 3409 |
| 1928 | 1050 | 1170 | 449 | 840 | 187 | 657 | 210 | 50 | 8 | 170 | 293 | 236 | 5320 |
| 1929 | 305 | 3056 | 204 | 344 | 134 | 403 | 218 | 150 | 519 | 980 | 390 | 192 | 6895 |
| 1930 | 388 | 419 | 1049 | 582 | 555 | 988 | 156 | 120 | 18 | 285 | 252 | 228 | 5040 |
| 1931 | 151 | 625 | 662 | 1241 | 272 | 72 | 207 | 37 | 43 | 15 | 328 | 838 | 4491 |
| 1932 | 122 | 136 | 333 | 362 | 206 | 44 | 225 | 46 | 1096 | 466 | 574 | 74 | 3684 |
| 1933 | 1090 | 18 | 198 | 496 | 21 | 1293 | 1407 | 38 | 598 | 603 | 407 | 1058 | 7227 |
| 1934 | 256 | 943 | 361 | 668 | 318 | 0 | 163 | 173 | 336 | 170 | 112 | 666 | 4166 |
| 1935 | 332 | 287 | 570 | 12 | 0 | 0 | 454 | 7 | 727 | 197 | 24 | 721 | 3331 |
| 1936 | 619 | 802 | 712 | 328 | 94 | 136 | 49 | 18 | 243 | 110 | 43 | 791 | 3945 |
| 1937 | 635 | 1189 | 938 | 198 | 30 | 461 | 126 | 246 | 56 | 350 | 738 | 363 | 5330 |
| 1938 | 1614 | 823 | 107 | 666 | 534 | 42 | 41 | 142 | 186 | 280 | 394 | 35 | 4864 |
| 1939 | 324 | 0 | 1636 | 636 | 47 | 133 | 25 | 103 | 161 | 366 | 68 | 394 | 3893 |
| 1940 | 336 | 64 | 620 | 221 | 49 | 108 | 7 | 75 | 45 | 164 | 313 | 685 | 2687 |
| 1941 | 772 | 527 | 383 | 170 | 180 | 111 | 103 | 14 | 7 | 95 | 311 | 51 | 2724 |
| 1942 | 60 | 819 | 256 | 53 | 43 | 197 | 239 | 5 | 34 | 826 | 514 | 1025 | 4071 |

BELLBROOK RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1943 | 373 | 114 | 219 | 178 | 622 | 38 | 38 | 388 | 280 | 488 | 595 | 758 | 4091 |
| 1944 | 1132 | 326 | 132 | 56 | 80 | 112 | 440 | 1277 | 76 | 90 | 129 | 235 | 4085 |
| 1945 | 334 | 410 | 60 | 368 | 173 | 1196 | 398 | 124 | 110 | 245 | 770 | 521 | 4709 |
| 1946 | 494 | 627 | 1684 | 441 | 27 | 6 | 0 | 0 | 220 | 88 | 182 | 321 | 4090 |
| 1947 | 630 | 1452 | 633 | 357 | 118 | 8 | 10 | 81 | 179 | 147 | 649 | 1296 | 5560 |
| 1948 | 478 | 241 | 895 | 190 | 858 | 1150 | 125 | 74 | 245 | 21 | 283 | 310 | 4870 |
| 1949 | 502 | 780 | 999 | 258 | 276 | 240 | 623 | 1557 | 293 | 412 | 440 | 339 | 6719 |
| 1950 | 620 | 728 | 415 | 385 | 62 | 2574 | 738 | 923 | 184 | 382 | 788 | 277 | 8076 |
| 1951 | 1158 | 579 | 1447 | 60 | 156 | 704 | 0 | 144 | 4 | 99 | 50 | 149 | 4550 |
| 1952 | 188 | 845 | 433 | 351 | 105 | 311 | 359 | 1450 | 78 | 431 | 72 | 322 | 4945 |
| 1953 | 967 | 1194 | 836 | 103 | 269 | 0 | 15 | 192 | 56 | 151 | 65 | 165 | 4013 |
| 1954 | 401 | 1997 | 157 | 183 | 308 | 183 | 562 | 188 | 414 | 594 | 417 | 569 | 5973 |
| 1955 | 775 | 676 | 985 | 718 | 416 | 63 | 29 | 0 | 207 | 429 | 71 | 925 | 5339 |
| 1956 | 519 | 2786 | 1417 | 412 | 379 | 356 | 13 | 51 | 127 | 172 | 15 | 136 | 638 |
| 1957 | 197 | 876 | 417 | 33 | 4 | 31 | 115 | 264 | 34 | 227 | 172 | 148 | 2518 |
| 1958 | 635 | 402 | 306 | 582 | 101 | 556 | 0 | 541 | 145 | 99 | 41 | 969 | 4377 |
| 1959 | 1540 | 555 | 1538 | 68 | 49 | 300 | 257 | 111 | 466 | 337 | 1443 | 689 | 7353 |
| 1960 | 553 | 502 | 500 | 277 | 191 | 135 | 39 | 21 | 63 | 267 | 148 | 174 | 2870 |

## BELLBROOK RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1961 | 244 | 773 | 415 | 216 | 146 | 283 | 89 | 74 | 71 | 625 | 236 | 671 | 3843 |
| 1962 | 896 | 275 | 653 | 1407 | 525 | 10 | 824 | 149 | 144 | 188 | 125 | 1777 | 6973 |
| 1963 | 693 | 518 | 999 | 1077 | 1829 | 375 | 17 | 129 | 762 | 336 | 511 | 585 | 7831 |
| 1964 | 505 | 481 | 838 | 523 | 68 | 108 | 97 | 102 | 73 | 132 | 134 | 134 | 3195 |
| 1965 | 178 | 236 | 8 | 197 | 99 | 82 | 589 | 108 | 34 | 253 | 419 | 823 | 3026 |
| 1966 | 84 | 489 | 422 | 93 | 42 | 143 | 2 | 152 | 38 | 443 | 453 | 154 | 2515 |
| 1967 | 944 | 259 | 815 | 695 | 124 | 2397 | 54 | 255 | 113 | 728 | 77 | 252 | 6713 |
| 1968 | 1640 | 253 | 366 | 9 | 192 | 5 | 45 | 470 | 74 | 60 | 265 | 408 | 3787 |

Appendix 2
Sheet 1

## BELLINGEN RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1899 | N.R. | 212 | 815 | 293 | 317 | 299 | 1238 | 975 | 895 | 424 | 307 | 465 | |
| 1900 | 143 | 253 | 168 | 312 | 888 | 773 | 1148 | 52 | 137 | 56 | 283 | 393 | 4606 |
| 1901 | 340 | 501 | 1505 | 324 | 791 | 588 | 78 | 412 | 109 | 396 | 218 | 194 | 5456 |
| 1902 | 383 | 81 | 128 | 162 | 2 | 148 | 53 | 80 | 166 | 388 | 715 | 252 | 2558 |
| 1903 | 471 | 261 | 719 | 97 | 404 | 1604 | 621 | 368 | 255 | 416 | 630 | 675 | 6521 |
| 1904 | 364 | 188 | 589 | 1736 | 674 | 0 | 849 | 71 | 119 | 875 | 216 | 240 | 5921 |
| 1905 | 179 | 1085 | 413 | 1587 | 514 | 0 | 0 | 125 | 80 | 252 | 652 | 487 | 5374 |
| 1906 | 365 | 381 | 968 | 370 | 588 | 110 | 0 | 641 | 1021 | 923 | 90 | 320 | 5777 |
| 1907 | 610 | 775 | 879 | 76 | 323 | 316 | 62 | 0 | 0 | 97 | 502 | 195 | 3835 |
| 1908 | 251 | 1722 | 789 | 411 | 88 | 47 | 113 | 671 | 223 | 101 | 459 | 603 | 5478 |
| 1909 | 136 | 320 | 486 | 350 | 120 | 117 | 106 | 62 | 217 | 192 | 567 | 829 | 3502 |
| 1910 | 1293 | 225 | 1550 | 846 | 89 | 580 | 0 | 21 | 145 | 364 | 335 | 469 | 5917 |
| 1911 | 1963 | 1006 | 524 | 80 | 191 | 8 | 434 | 761 | 328 | 231 | 382 | 239 | 6147 |
| 1912 | 404 | 780 | 704 | 8 | 75 | 427 | 757 | 78 | 30 | 300 | 161 | 696 | 4420 |
| 1913 | 337 | 485 | 92 | 1409 | 1150 | 791 | 103 | 0 | 433 | 118 | 150 | 338 | 5406 |
| 1914 | 289 | 536 | 1541 | 135 | 302 | 933 | 369 | 203 | 294 | 1790 | 818 | 766 | 7976 |
| 1915 | 370 | 737 | 210 | 199 | 523 | 5 | 99 | 52 | 42 | 41 | 65 | 620 | 2963 |
| 1916 | 344 | 1103 | 322 | 1130 | 640 | 60 | 23 | 353 | 256 | 269 | 498 | 1292 | 6290 |

Appendix 2
Sheet 2

## BELLINGEN RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1917 | 538 | 462 | 449 | 161 | 219 | 99 | 71 | 113 | 336 | 190 | 1822 | 469 | 4929 |
| 1918 | 1245 | 247 | 1218 | 439 | 273 | 0 | 138 | 48 | 101 | 61 | 363 | 164 | 4297 |
| 1919 | 530 | 245 | 2117 | 749 | 1223 | 233 | 101 | 9 | 2 | 273 | 257 | 402 | 6141 |
| 1920 | 1425 | 697 | 561 | 516 | 247 | 121 | 371 | 70 | 220 | 532 | 613 | 167 | 5540 |
| 1921 | 2197 | 435 | 748 | 727 | 2594 | 765 | 1642 | 136 | 362 | 343 | 340 | 1106 | 11395 |
| 1922 | 351 | 2395 | 18 | 155 | 525 | 311 | 708 | 254 | 1337 | 194 | 188 | 220 | 6656 |
| 1923 | 655 | 210 | 517 | 2652 | 8 | 155 | 446 | 333 | 149 | 210 | 83 | 436 | 5854 |
| 1924 | 224 | 415 | 462 | 315 | 155 | 544 | 681 | 184 | 99 | 246 | 316 | 488 | 4129 |
| 1925 | 655 | 184 | 1203 | 492 | 1256 | 1001 | 11 | 470 | 8 | 115 | 963 | 736 | 7094 |
| 1926 | 564 | 200 | 856 | 347 | 404 | 334 | 405 | 78 | 30 | 108 | 0 | 605 | 3931 |
| 1927 | 1424 | 322 | 643 | 711 | 3 | 112 | 10 | 0 | 86 | 705 | 1204 | 351 | 5571 |
| 1928 | 1104 | 1338 | 623 | 1554 | 335 | 1067 | 311 | 72 | 9 | 160 | 205 | 410 | 7188 |
| 1929 | 538 | 2353 | 1081 | 510 | 445 | 391 | 412 | 137 | 502 | 1329 | 138 | 199 | 8035 |
| 1930 | 606 | 352 | 1167 | 633 | 845 | 1019 | 239 | 117 | 29 | 217 | 152 | 175 | 5551 |
| 1931 | 276 | 1312 | 679 | 1166 | 498 | 83 | 233 | 48 | 22 | 48 | 501 | 1239 | 6105 |
| 1932 | 264 | 636 | 50 | 478 | 438 | 78 | 331 | 9 | 1040 | 256 | 356 | 215 | 4151 |
| 1933 | 1017 | 27 | 355 | 954 | 20 | 2123 | 1612 | 63 | 462 | 939 | 358 | 981 | 8911 |
| 1934 | 251 | 1125 | 677 | 1451 | 1020 | 21 | 796 | 363 | 418 | 382 | 141 | 402 | 7047 |

Appendix 2
Sheet 3

## BELLINGEN RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1935 | 518 | 1068 | 866 | 75 | 45 | 0 | 410 | 20 | 739 | 110 | 71 | 634 | 4556 |
| 1936 | 420 | 639 | 938 | 402 | 232 | 81 | 28 | 5 | 274 | 144 | 54 | 901 | 4118 |
| 1937 | 529 | 2561 | 971 | 484 | 7 | 557 | 130 | 216 | 52 | 762 | 847 | 480 | 7596 |
| 1938 | 2041 | 783 | 723 | 670 | 899 | 52 | 48 | 164 | 232 | 322 | 307 | 34 | 6275 |
| 1939 | 662 | 3 | 2266 | 504 | 134 | 71 | 51 | 169 | 318 | 1011 | 145 | 335 | 5669 |
| 1940 | 317 | 247 | 838 | 678 | 17 | 89 | 8 | 118 | 19 | 293 | 232 | 901 | 3757 |
| 1941 | 747 | 586 | 592 | 313 | 164 | 94 | 158 | 62 | 1 | 130 | 532 | 168 | 3547 |
| 1942 | 126 | 1214 | 319 | 123 | 48 | 259 | 271 | 57 | 17 | 860 | 508 | 787 | 4589 |
| 1943 | 304 | 125 | 633 | 127 | 942 | 15 | 7 | 495 | 290 | 332 | 523 | 913 | 4706 |
| 1944 | 1109 | 78 | 481 | 31 | 21 | 151 | 649 | 1235 | 115 | 44 | 158 | 199 | 4271 |
| 1945 | 650 | 495 | 274 | 382 | 216 | 1547 | 951 | 53 | 79 | 288 | 778 | 435 | 6148 |
| 1946 | 335 | 792 | 1782 | 521 | 28 | 14 | 0 | 15 | 177 | 261 | 179 | 725 | 4829 |
| 1947 | 767 | 1442 | 464 | 638 | 284 | 8 | 2 | 83 | 226 | 180 | 908 | 1230 | 6232 |
| 1948 | 611 | 217 | 1286 | 379 | 766 | 1382 | 91 | 148 | 259 | 60 | 409 | 432 | 6040 |
| 1949 | 712 | 617 | 1545 | 209 | 293 | 373 | 353 | 1295 | 171 | 435 | 330 | 356 | 6689 |
| 1950 | 765 | 1095 | 738 | 581 | 257 | 2783 | 1293 | 768 | 264 | 622 | 772 | 492 | 10430 |
| 1951 | 1392 | 425 | 1441 | 136 | 296 | 916 | 2 | 86 | 11 | 117 | 115 | 150 | 5087 |
| 1952 | 81 | 1007 | 498 | 253 | 199 | 424 | 375 | 1097 | 34 | 373 | 60 | 308 | 4709 |

Appendix 2
Sheet 4

## BELLINGEN RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1953 | 722 | 1702 | 1049 | 291 | 321 | 3 | 48 | 209 | 15 | 177 | 157 | 224 | 4918 |
| 1954 | 842 | 2011 | 192 | 452 | 692 | 241 | 1142 | 210 | 752 | 793 | 442 | 540 | 8246 |
| 1955 | 1056 | 929 | 1303 | 1007 | 660 | 99 | 69 | 2 | 435 | 757 | 58 | 975 | 7350 |
| 1956 | 1072 | 2500 | 1658 | 228 | 652 | 645 | 20 | 72 | 146 | 190 | 20 | 447 | 7650 |
| 1957 | 327 | 837 | 1130 | 79 | 2 | 26 | 225 | 557 | 14 | 216 | 49 | 316 | 3778 |
| 1958 | 715 | 811 | 546 | 1350 | 100 | 653 | 3 | 978 | 97 | 113 | 125 | 731 | 6222 |
| 1959 | 2159 | 1722 | 1419 | 146 | 123 | 263 | 366 | 229 | 770 | 318 | 1492 | 619 | 9626 |
| 1960 | 1138 | 655 | 885 | 317 | 302 | 169 | 59 | 51 | 87 | 539 | 171 | 80 | 4453 |
| 1961 | 388 | 1004 | 672 | 331 | 420 | 695 | 124 | 233 | 355 | 612 | 410 | 705 | 5949 |
| 1962 | 1249 | 468 | 1135 | 2842 | 921 | 19 | 1285 | 290 | 212 | 82 | 291 | 1181 | 9975 |
| 1963 | 650 | 298 | 1582 | 2020 | 1897 | 565 | 17 | 88 | 530 | 323 | 547 | 809 | 9326 |
| 1964 | 476 | 1191 | 1237 | 732 | 36 | 76 | 53 | 85 | 87 | 205 | 307 | 344 | 4829 |
| 1965 | 164 | 278 | 179 | 426 | 80 | 411 | 858 | 328 | 59 | 187 | 600 | 1211 | 4781 |
| 1966 | 144 | 504 | 509 | 299 | 109 | 327 | 8 | 255 | 126 | 363 | 562 | 170 | 3376 |
| 1967 | 1963 | 252 | 850 | 877 | 93 | 3715 | 47 | 303 | 129 | 752 | 115 | 308 | 9404 |
| 1968 | 1156 | 509 | 304 | 22 | 189 | 9 | 26 | 863 | 37 | 125 | 446 | 503 | 4189 |

Appendix 3
Sheet 1

## BOWRAVILLE RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1890 | | NO | RECORDS | | 12 | 230 | 426 | 63 | 210 | 273 | 287 | 661 | |
| 1891 | 1146 | 1091 | 1027 | 274 | 386 | 988 | 113 | 202 | 390 | 180 | 403 | 728 | 6928 |
| 1892 | 544 | 239 | 1205 | 2294 | 299 | 250 | 274 | 167 | 231 | 543 | 650 | 589 | 7285 |
| 1893 | 444 | 2285 | 1016 | 284 | 229 | 1687 | 81 | 333 | 86 | 868 | 299 | 120 | 7732 |
| 1894 | 1161 | 787 | 1336 | 223 | 238 | 118 | 16 | 24 | 269 | 642 | 155 | 430 | 5399 |
| 1895 | 2493 | 606 | 212 | 108 | 57 | 10 | 28 | 28 | 300 | 152 | 355 | 549 | 4898 |
| 1896 | 218 | 811 | 229 | 35 | 198 | 196 | 116 | 183 | 103 | 186 | 888 | 259 | 3422 |
| 1897 | 90 | 313 | 388 | 99 | 317 | 666 | 904 | 112 | 90 | 104 | 92 | 1325 | 4500 |
| 1898 | 618 | 557 | 850 | 65 | 808 | 1977 | 130 | 233 | 545 | 212 | 87 | 382 | 6464 |
| 1899 | 250 | 455 | 667 | 244 | 397 | 270 | 1251 | 1435 | 857 | 412 | 340 | 412 | 6990 |
| 1900 | 164 | 173 | 162 | 154 | 870 | 661 | 1113 | 25 | 134 | 21 | 357 | 296 | 4130 |
| 1901 | 692 | 450 | 1159 | 282 | 688 | 440 | 46 | 228 | 115 | 480 | 124 | 237 | 4941 |
| 1902 | 319 | 52 | 101 | 193 | 12 | 110 | 72 | 81 | 125 | 388 | 621 | 232 | 2306 |
| 1903 | 297 | 144 | 624 | 187 | 265 | 1074 | 642 | 316 | 253 | 375 | 392 | 427 | 4996 |
| 1904 | 170 | 146 | 936 | 757 | 528 | 28 | 587 | 90 | 141 | 567 | 238 | 195 | 4383 |
| 1905 | 291 | 954 | 250 | 1289 | 350 | 45 | 26 | 65 | 84 | 150 | 295 | 465 | 4264 |
| 1906 | 250 | 295 | 620 | 134 | 512 | 22 | 0 | 816 | 748 | 569 | 84 | 203 | 4253 |

Appendix 3
Sheet 2

## BOWRAVILLE RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1907 | 664 | 552 | 688 | 88 | 290 | 262 | 29 | 0 | 0 | 74 | 201 | 260 | 3108 |
| 1908 | 276 | 2048 | 1036 | 303 | 127 | 24 | 102 | 611 | 179 | 43 | 510 | 326 | 5585 |
| 1909 | 93 | 167 | 408 | 352 | 126 | 59 | 118 | 51 | 176 | 187 | 443 | 483 | 2663 |
| 1910 | 776 | 125 | 1427 | 493 | 61 | 482 | 0 | 22 | 48 | 390 | 320 | 356 | 4500 |
| 1911 | 1315 | 1179 | 643 | 89 | 92 | 22 | 321 | 768 | 171 | 154 | 340 | 78 | 5172 |
| 1912 | 196 | 740 | 883 | 54 | 49 | 344 | 805 | 250 | 80 | 221 | 144 | 589 | 4355 |
| 1913 | 235 | 522 | 80 | 1120 | 1243 | 773 | 68 | 11 | 458 | 132 | 115 | 199 | 4956 |
| 1914 | 198 | 360 | 1060 | 63 | 292 | 724 | 218 | 112 | 603 | 1307 | 573 | 727 | 6237 |
| 1915 | 287 | 421 | 171 | 249 | 650 | 27 | 41 | 56 | 30 | 29 | 95 | 385 | 2441 |
| 1916 | 200 | 637 | 130 | 969 | 530 | 74 | 41 | 172 | 126 | 195 | 345 | 793 | 4212 |
| 1917 | 365 | 451 | 360 | 106 | 124 | 69 | 53 | 94 | 356 | 216 | 1878 | 381 | 4453 |
| 1918 | 788 | 285 | 718 | 421 | 403 | 16 | 96 | 81 | 122 | 101 | 142 | 125 | 3298 |
| 1919 | 454 | 312 | 1796 | 895 | 1061 | 68 | 64 | 2 | 3 | 260 | 176 | 196 | 5287 |
| 1920 | 1245 | 489 | 256 | 515 | 242 | 214 | 386 | 33 | 169 | 457 | 482 | 363 | 4851 |
| 1921 | 1433 | 423 | 452 | 493 | 1997 | 622 | 1393 | 146 | 208 | 317 | 170 | 925 | 8579 |
| 1922 | 344 | 2233 | 91 | 100 | 456 | 250 | 530 | 315 | 1338 | 131 | 396 | 291 | 6475 |
| 1923 | 368 | 133 | 523 | 1900 | 0 | 99 | 335 | 266 | 188 | 255 | 76 | 712 | 4855 |

Appendix 3
Sheet 3

## BOWRAVILLE RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1924 | 482 | 375 | 532 | 301 | 100 | 397 | 646 | 137 | 185 | 223 | 388 | 379 | 4145 |
| 1925 | 568 | 160 | 1139 | 420 | 1018 | 745 | 0 | 357 | 8 | 83 | 1139 | 550 | 6187 |
| 1926 | 273 | 60 | 650 | 118 | 446 | 280 | 344 | 69 | 47 | 44 | 0 | 620 | 2951 |
| 1927 | 1225 | 222 | 537 | 529 | 10 | 100 | 5 | 10 | 93 | 674 | 911 | 583 | 4899 |
| 1928 | 935 | 1142 | 352 | 1294 | 238 | 900 | 213 | 5 | 0 | 260 | 192 | 181 | 5712 |
| 1929 | 452 | 2719 | 761 | 546 | 257 | 296 | 299 | 111 | 325 | 1381 | 139 | 182 | 7468 |
| 1930 | 515 | 225 | 938 | 753 | 602 | 1313 | 174 | 140 | 48 | 199 | 159 | 158 | 5224 |
| 1931 | 143 | 867 | 424 | 1203 | 403 | 83 | 211 | 0 | 62 | 27 | 394 | 1015 | 4832 |
| 1932 | 394 | 231 | 165 | 424 | 271 | 35 | 241 | 6 | 1146 | 409 | 284 | 198 | 3804 |
| 1933 | 753 | 125 | 312 | 1066 | 5 | 1837 | 1556 | 15 | 488 | 620 | 552 | 1174 | 8503 |
| 1934 | 176 | 1232 | 414 | 905 | 1091 | 0 | 703 | 264 | 460 | 136 | 179 | 327 | 5887 |
| 1935 | 586 | 734 | 932 | 89 | 26 | 0 | 466 | 4 | 1024 | 85 | 123 | 647 | 4716 |
| 1936 | 218 | 651 | 776 | 539 | 216 | 83 | 47 | 24 | 255 | 72 | 28 | 979 | 3888 |
| 1937 | 645 | 1368 | 1034 | 263 | 0 | 401 | 139 | 184 | 70 | 417 | 721 | 440 | 5682 |
| 1938 | 1593 | 1007 | 382 | 389 | 506 | 54 | 58 | 117 | 159 | 181 | 219 | 28 | 4693 |
| 1939 | 416 | 0 | 1421 | 474 | 64 | 84 | 78 | 149 | 222 | 658 | 137 | 433 | 4136 |
| 1940 | 358 | 100 | 867 | 372 | 15 | 107 | 14 | 218 | 35 | 121 | 158 | 897 | 3262 |

Appendix 3
Sheet 4

## BOWRAVILLE RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1941 | 637 | 456 | 567 | 234 | 265 | 81 | 156 | 52 | 3 | 102 | 530 | 137 | 3220 |
| 1942 | 70 | 1504 | 364 | 99 | 46 | 212 | 222 | 6 | 20 | 658 | 480 | 935 | 4616 |
| 1943 | 148 | 203 | 736 | 222 | 977 | 26 | 6 | 467 | 526 | 589 | 730 | 1127 | 5757 |
| 1944 | 1672 | 150 | 270 | 142 | 64 | 228 | 580 | 1391 | 207 | 129 | 149 | 329 | 5311 |
| 1945 | 304 | 534 | 185 | 339 | 190 | 1307 | 622 | 60 | 73 | 328 | 914 | 493 | 5349 |
| 1946 | 401 | 640 | 2019 | 489 | 25 | 23 | 0 | 47 | 177 | 156 | 160 | 310 | 4447 |
| 1947 | 489 | 1211 | 428 | 563 | 170 | 0 | 0 | 77 | 211 | 187 | 590 | 1109 | 5035 |
| 1948 | 321 | 225 | 1210 | 292 | 704 | 1324 | 93 | 137 | 168 | 71 | 325 | 223 | 5093 |
| 1949 | 657 | 699 | 1399 | 333 | 285 | 254 | 487 | 1503 | 149 | 426 | 598 | 229 | 7019 |
| 1950 | 550 | 872 | 362 | 417 | 274 | 2706 | 1387 | 1032 | 428 | 540 | 1025 | 456 | 10049 |
| 1951 | 1250 | 613 | 1255 | 128 | 208 | 692 | 2 | 92 | 16 | 125 | 135 | 107 | 4623 |
| 1952 | 143 | 1166 | 1001 | 222 | 218 | 442 | 292 | 1338 | 84 | 383 | 41 | 239 | 5569 |
| 1953 | 802 | 1417 | 598 | 133 | 229 | 0 | 43 | 206 | 15 | 180 | 153 | 184 | 3960 |
| 1954 | 732 | 1614 | 249 | 249 | 519 | 226 | 957 | 234 | 597 | 585 | 385 | 1025 | 7372 |
| 1955 | 1485 | 922 | 1118 | 889 | 744 | 86 | 44 | 1 | 325 | 688 | 84 | 954 | 7340 |
| 1956 | 924 | 2385 | 1500 | 277 | 641 | 638 | 23 | 51 | 203 | 152 | 25 | 282 | 7101 |
| 1957 | 173 | 1134 | 609 | 49 | 0 | 41 | 191 | 455 | 10 | 405 | 76 | 240 | 3383 |

Appendix 3
Sheet 5

## BOWRAVILLE RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1958 | 497 | 775 | 426 | 916 | 96 | 730 | 6 | 882 | 191 | 134 | 57 | 647 | 5357 |
| 1959 | 1384 | 1042 | 977 | 69 | 101 | 261 | 388 | 237 | 585 | 280 | 1747 | 388 | 7459 |
| 1960 | 1146 | 666 | 635 | 241 | 388 | 104 | 68 | 63 | 42 | 213 | 252 | 198 | 4016 |
| 1961 | 350 | 1164 | 406 | 270 | 266 | 694 | 97 | 143 | 233 | 519 | 189 | 554 | 4885 |
| 1962 | 1192 | 230 | 1030 | 2133 | 691 | 19 | 973 | 209 | 160 | 131 | 343 | 1141 | 8252 |
| 1963 | 569 | 183 | 1592 | 2074 | 2217 | 499 | 24 | 98 | 699 | 304 | 449 | 913 | 9621 |
| 1964 | 456 | 1111 | 1663 | 711 | 62 | 129 | 83 | 95 | 82 | 196 | 158 | 83 | 4829 |
| 1965 | 130 | 419 | 197 | 319 | 82 | 237 | 627 | 200 | 76 | 362 | 159 | 1201 | 4009 |
| 1966 | 109 | 568 | 221 | 231 | 887 | 313 | 23 | 226 | 95 | 268 | 448 | 104 | 2693 |
| 1967 | 1650 | 248 | 873 | 1006 | 80 | 2686 | 29 | 289 | 161 | No Records | | | |
| 1968 | No Records | | | | | | | | | | | | |

Appendix 4
Sheet 1

## BROOKLANA RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1908 | | | | NO RECORDS | | | | 1374 | 151 | 58 | 737 | 519 | |
| 1909 | 207 | 359 | 704 | 377 | 122 | 135 | 135 | 95 | 260 | 110 | 708 | 1203 | 4415 |
| 1910 | 1463 | 296 | 2293 | 784 | 270 | 740 | 7 | 33 | 207 | 356 | 579 | 791 | 7819 |
| 1911 | 2597 | 2018 | 738 | 158 | 233 | 12 | 559 | 1040 | 190 | 245 | 412 | 254 | 8456 |
| 1912 | 388 | 961 | 1105 | 22 | 136 | 860 | 721 | 168 | 50 | 248 | 540 | 757 | 5956 |
| 1913 | 397 | 776 | 108 | 2222 | 1018 | 1095 | 181 | 0 | 526 | 283 | 169 | 357 | 7132 |
| 1914 | 274 | 779 | 1708 | 142 | 393 | 908 | 317 | 297 | 197 | 2145 | 817 | 574 | 8551 |
| 1915 | 178 | 432 | 35 | 43 | 280 | 21 | 49 | 37 | 20 | 23 | 100 | 244 | 1462 |
| 1916 | 304 | 955 | 396 | 1447 | 847 | 75 | 42 | | | NO RECORDS | | | |
| 1917 | | | | | | | NO RECORDS | | | | | | |
| 1918 | 691 | 356 | 1318 | 664 | | | | | NO RECORDS | | | | |
| 1919 | | | | | | | NO RECORDS | | | | | | |
| 1920 | 1040 | 681 | 600 | 573 | 240 | 341 | 515 | 35 | 325 | 662 | 629 | 201 | 5842 |
| 1921 | 1720 | 398 | 808 | 546 | 2562 | 907 | 2348 | 247 | 302 | 316 | 359 | 1222 | 11735 |
| 1922 | 473 | 2388 | 187 | 120 | 627 | 383 | 732 | 375 | 1424 | 240 | 174 | 312 | 7435 |
| 1923 | 386 | 242 | 1067 | 2411 | 24 | 226 | 340 | 657 | 156 | 189 | 27 | 379 | 6104 |
| 1924 | 341 | 729 | 411 | 542 | 153 | 1172 | 844 | 166 | 109 | 256 | 513 | 485 | 5721 |

Appendix 4
Sheet 2

BROOKLANA RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1925 | 749 | 496 | 1519 | 645 | 1723 | 2760 | 22 | 405 | 63 | 130 | 1330 | 988 | 10830 |
| 1926 | 685 | 175 | 657 | 383 | 764 | 403 | 777 | 90 | 219 | 138 | 19 | 1121 | 5431 |
| 1927 | 1679 | 448 | 673 | 618 | 63 | 138 | 14 | 0 | 200 | 467 | 1234 | 308 | 5842 |
| 1928 | 1381 | 2558 | 712 | 1377 | 305 | 1254 | 232 | 85 | 9 | 196 | 164 | 514 | 8787 |
| 1929 | 569 | 1928 | 1890 | 840 | 210 | 1094 | 218 | 205 | 716 | 781 | 129 | 129 | 8709 |
| 1930 | 788 | 483 | 1109 | 862 | 1151 | 1112 | 217 | 140 | 63 | 299 | 287 | 279 | 6790 |
| 1931 | 398 | 1391 | 968 | 861 | 339 | 121 | 202 | 51 | 68 | 94 | 618 | 1081 | 6192 |
| 1932 | 268 | 400 | 54 | 402 | 375 | 96 | 265 | 47 | 1175 | 353 | 635 | 233 | 4303 |
| 1933 | 1390 | 80 | 246 | 560 | 52 | 1637 | 1753 | 104 | 369 | 642 | 402 | 955 | 8190 |
| 1934 | 416 | 1574 | 708 | 878 | 905 | 26 | 898 | 423 | 396 | 211 | 334 | 467 | 7236 |
| 1935 | 434 | 1174 | 654 | 292 | 39 | 0 | 567 | 61 | 254 | 171 | 75 | 467 | 4188 |
| 1936 | 637 | 614 | 1060 | 539 | 581 | 172 | 125 | 39 | 259 | 36 | 59 | 986 | 5107 |
| 1937 | 544 | 2131 | 1466 | 391 | 6 | 573 | 229 | 254 | 29 | 622 | 1309 | 842 | 8396 |
| 1938 | 1762 | 916 | 592 | 1138 | 908 | 84 | 234 | 111 | 241 | 177 | 335 | 85 | 6583 |
| 1939 | 729 | 16 | 2508 | 500 | 292 | 156 | 114 | 289 | 377 | 878 | 410 | 553 | 6822 |
| 1940 | 319 | 173 | 1167 | 497 | 39 | 177 | 18 | 330 | 140 | 114 | 199 | 991 | 4164 |
| 1941 | 790 | 838 | 571 | 210 | 243 | 117 | 254 | 138 | 26 | 178 | 342 | 128 | 3835 |

Appendix 4
Sheet 3

BROOKLANA RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1942 | 178 | 1360 | 740 | 121 | 75 | 416 | 272 | 16 | 33 | 1226 | 816 | 853 | 6106 |
| 1943 | 392 | 221 | 500 | 222 | 867 | 73 | 6 | 414 | 312 | 532 | 942 | 871 | 5352 |
| 1944 | 1422 | 171 | 818 | 65 | 89 | 146 | 592 | 1264 | 130 | 53 | 101 | 556 | 5407 |
| 1945 | 463 | 318 | 183 | 440 | 260 | 1743 | 830 | 55 | 230 | 148 | 599 | 392 | 5661 |
| 1946 | 321 | 789 | 2356 | 428 | 17 | 96 | 0 | 79 | 240 | 144 | 239 | 470 | 5179 |
| 1947 | 970 | 1284 | 857 | 858 | 173 | 0 | 25 | 140 | 164 | 202 | 991 | 914 | 6578 |
| 1948 | 447 | 305 | 1367 | 302 | 813 | 2507 | 146 | 99 | 230 | 25 | 575 | 299 | 7115 |
| 1949 | 585 | 701 | 1888 | 92 | 301 | 235 | 341 | 1217 | 352 | 561 | 546 | 464 | 7283 |
| 1950 | 1328 | 1622 | 631 | 799 | 187 | 3473 | 2010 | 622 | 558 | 534 | 999 | 734 | 13497 |
| 1951 | 1816 | 338 | 1339 | 168 | 272 | 907 | 0 | 87 | 2 | 130 | 165 | 97 | 5321 |
| 1952 | 159 | 845 | 602 | 515 | 239 | 475 | 331 | 1601 | 48 | 524 | 138 | 355 | 5832 |
| 1953 | 769 | 1397 | 1147 | 205 | 471 | 0 | 33 | 175 | 85 | 162 | 59 | 229 | 4732 |
| 1954 | 1086 | 2726 | 281 | 431 | 564 | 261 | 1676 | 274 | 1532 | 772 | 490 | 611 | 10704 |
| 1955 | 749 | 663 | 1944 | 1058 | 1029 | 145 | 220 | 5 | 385 | 540 | 159 | 2071 | 8968 |
| 1956 | 1600 | 4095 | 1394 | 343 | 761 | 854 | 44 | 176 | 141 | 119 | 3 | 463 | 9993 |
| 1957 | 463 | 1277 | 1004 | 157 | 3 | 77 | 307 | 609 | 11 | 350 | 164 | 445 | 4867 |
| 1958 | 396 | 596 | 554 | 805 | 74 | 1103 | 0 | 626 | 206 | 160 | 114 | 600 | 5234 |

Appendix 4
Sheet 4

## BROOKLANA RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1959 | 2469 | 1310 | 1710 | 334 | 121 | 200 | 481 | 224 | 472 | 318 | 1798 | 999 | 10436 |
| 1960 | 761 | 1278 | 1140 | 334 | 513 | 156 | 102 | 82 | 199 | 206 | 331 | 125 | 5227 |
| 1961 | 529 | 1108 | 588 | 448 | 432 | 866 | 217 | 415 | 687 | 635 | 469 | 970 | 7364 |
| 1962 | 1356 | 543 | 811 | 3203 | 579 | 43 | 2436 | 460 | 229 | 138 | 210 | 1726 | 11734 |
| 1963 | 1193 | 398 | 1425 | 1870 | 2290 | 482 | 22 | 172 | 530 | 395 | 582 | 1034 | 10393 |
| 1964 | 412 | 791 | 1595 | 837 | 93 | 30 | 130 | 108 | 136 | 306 | 450 | 194 | 5082 |
| 1965 | 323 | 410 | 66 | 393 | 85 | 573 | 490 | No Records | | 260 | 599 | 1592 | |
| 1966 | 164 | 282 | 462 | 458 | 52 | 255 | 10 | 687 | 166 | 557 | 853 | 328 | 4274 |
| 1967 | 2505 | 427 | 1256 | 922 | 115 | 5257 | 360 | No Records | | No Records | | No Records | |
| 1968 | No Records | | | | | | | | | | | | |

Appendix 5
Sheet 1

## COFFS HARBOUR RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1899 | | | | | NO | RECORDS | | | | | 740 | N.R. | |
| 1900 | 259 | 311 | 142 | 181 | 1157 | 1620 | 1118 | 69 | 61 | 62 | 257 | 379 | 5616 |
| 1901 | 550 | 687 | 1299 | 1502 | 973 | 536 | 158 | 361 | 214 | 442 | 136 | 185 | 7043 |
| 1902 | 363 | 79 | 280 | 231 | 184 | 15 | 115 | 207 | 220 | 863 | 199 | 145 | 2901 |
| 1903 | 345 | 236 | 514 | 313 | 425 | 956 | 688 | 365 | 397 | 384 | 646 | 453 | 5722 |
| 1904 | 409 | 364 | 1161 | 1557 | 850 | 50 | 758 | 230 | 121 | 1134 | 214 | 337 | 7185 |
| 1905 | 242 | 947 | 858 | 1732 | 1231 | 124 | 14 | 128 | 64 | 306 | 411 | 509 | 6566 |
| 1906 | 326 | 644 | 1211 | 445 | 573 | 99 | 0 | 1526 | 1039 | 629 | 154 | 527 | 7173 |
| 1907 | 742 | 1218 | 927 | 192 | 568 | 511 | 63 | 56 | 0 | 124 | 514 | 273 | 5188 |
| 1908 | 376 | 1655 | 604 | 419 | 208 | 74 | 294 | 600 | 148 | 31 | 526 | 710 | 5645 |
| 1909 | 148 | 381 | 1471 | 321 | 307 | 136 | 152 | 40 | 341 | 115 | 499 | 292 | 4203 |
| 1910 | 1142 | 466 | 1194 | 1132 | 233 | 420 | 9 | 80 | 205 | 531 | 500 | 830 | 6742 |
| 1911 | N.R. | 1161 | 721 | 91 | 203 | 79 | 305 | 883 | 200 | 186 | 266 | 157 | |
| 1912 | 352 | 721 | 618 | 66 | 187 | 603 | 1249 | 124 | 28 | 239 | 306 | 430 | 4923 |
| 1913 | 304 | 556 | 85 | 1250 | 1316 | 1092 | 280 | 2 | 443 | 103 | 135 | 485 | 6051 |
| 1914 | 161 | 422 | 1772 | 125 | 809 | 1030 | 401 | 304 | 374 | 1651 | 596 | 609 | 8254 |
| 1915 | 254 | 426 | 234 | 271 | 674 | 20 | 148 | 67 | 68 | 65 | 143 | 326 | 2696 |
| 1916 | 317 | 981 | 237 | 858 | 349 | 36 | 135 | 367 | 208 | 499 | 586 | 922 | 5495 |

Appendix 5
Sheet 2

## COFFS HARBOUR RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1917 | 520 | 399 | 433 | 353 | 218 | 122 | 67 | 187 | 367 | 238 | 1917 | 730 | 5551 |
| 1918 | 903 | 696 | 454 | 834 | 858 | 82 | 178 | 264 | 118 | 161 | 435 | 267 | 5250 |
| 1919 | 226 | 346 | 1516 | 1013 | 1237 | 474 | 110 | 0 | 1 | 256 | 214 | 415 | 5808 |
| 1920 | 1621 | 607 | 808 | 434 | 500 | 226 | 505 | 49 | 283 | 826 | 986 | 194 | 7039 |
| 1921 | 2336 | 434 | 734 | 1052 | 1318 | 651 | 1436 | 163 | 380 | 376 | 194 | 1295 | 10369 |
| 1922 | 294 | 2097 | 160 | 109 | 400 | 579 | 525 | 271 | 1246 | 192 | 61 | 185 | 6119 |
| 1923 | 510 | 482 | 511 | 2735 | 27 | 308 | 340 | 408 | 267 | 208 | 26 | 601 | 6423 |
| 1924 | 334 | 949 | 620 | 504 | 437 | 606 | 623 | 237 | 296 | 331 | 369 | 668 | 5974 |
| 1925 | 717 | 349 | 1259 | 395 | 1314 | 985 | 11 | 637 | 36 | 198 | 646 | 1164 | 7711 |
| 1926 | 312 | 118 | 1023 | 768 | 463 | 495 | 633 | 101 | 186 | 139 | 5 | 596 | 4839 |
| 1927 | 1727 | 1027 | 1021 | 1111 | 0 | 349 | 39 | 0 | 215 | 702 | 763 | 804 | 7758 |
| 1928 | 1298 | 1254 | 659 | 1102 | 322 | 879 | 332 | 94 | 24 | 138 | 214 | 229 | 6545 |
| 1929 | 778 | 1913 | 1102 | 1126 | 539 | 379 | 361 | 235 | 229 | 739 | 166 | 99 | 7666 |
| 1930 | 691 | 499 | 1302 | 1004 | 1286 | 1207 | 223 | 95 | 74 | 149 | 277 | 147 | 6954 |
| 1931 | 230 | 1308 | 674 | 1167 | 233 | 125 | 174 | 75 | 43 | 152 | 476 | 1393 | 6050 |
| 1932 | 348 | 641 | 23 | 656 | 649 | 171 | 289 | 83 | 806 | 445 | 447 | 139 | 4697 |
| 1933 | 711 | 77 | 229 | 1050 | 103 | 1541 | 957 | 77 | 577 | 682 | 391 | 866 | 7261 |
| 1934 | 266 | 994 | 725 | 1481 | 1055 | 12 | 835 | 481 | 750 | 203 | 199 | 481 | 7482 |

Appendix 5
Sheet 3

## COFFS HARBOUR RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1935 | 387 | 1041 | 1568 | 277 | 173 | 10 | 330 | 135 | 614 | 240 | 176 | 395 | 5346 |
| 1936 | 522 | 445 | 1269 | 670 | 526 | 111 | 54 | 77 | 325 | 84 | 35 | 1334 | 5452 |
| 1937 | 858 | 1874 | 1836 | 1072 | 9 | 626 | 344 | 177 | 24 | 337 | 1347 | 520 | 9024 |
| 1938 | 1270 | 1154 | 1072 | 689 | 1179 | 106 | 171 | 182 | 184 | 272 | 192 | 86 | 6557 |
| 1939 | 610 | 19 | 1941 | 480 | 589 | 99 | 127 | 309 | 310 | 1273 | 181 | 265 | 6203 |
| 1940 | 330 | 93 | 1366 | 468 | 102 | 408 | 70 | 177 | 36 | 345 | 183 | 1631 | 5209 |
| 1941 | 439 | 461 | 1679 | 659 | 125 | 115 | 278 | 171 | 11 | 253 | 638 | 152 | 4981 |
| 1942 | 153 | 1396 | 371 | 242 | 71 | 329 | 164 | 51 | 25 | 1112 | 268 | 853 | 5035 |
| 1943 | 175 | 214 | 762 | 166 | 1322 | 36 | 0 | 774 | 429 | 339 | 1164 | 906 | 6287 |
| 1944 | 1538 | 321 | 392 | 70 | 73 | 177 | 518 | 1344 | 115 | 114 | 93 | 473 | 5228 |
| 1945 | 231 | 255 | 365 | 708 | 246 | 1669 | 1173 | 61 | 93 | 270 | 797 | 386 | 6254 |
| 1946 | 495 | 659 | 1605 | 476 | 93 | 40 | 0 | 7 | 199 | 278 | 242 | 314 | 4408 |
| 1947 | 596 | 1103 | 509 | 617 | 479 | 5 | 10 | 109 | 216 | 213 | 750 | 944 | 5551 |
| 1948 | 520 | 284 | 583 | 416 | 672 | 1396 | 94 | 213 | 274 | 0 | 352 | 169 | 4973 |
| 1949 | 518 | 648 | 1612 | 496 | 403 | 469 | 242 | 1076 | 287 | 459 | 561 | 314 | 7085 |
| 1950 | 683 | 1419 | 547 | 1303 | 159 | 2570 | 3542 | 907 | 229 | 554 | 944 | 433 | 13290 |
| 1951 | 1292 | 880 | 984 | 171 | 508 | 1398 | 9 | 90 | 9 | 132 | 109 | 127 | 5709 |
| 1952 | 106 | 1048 | 701 | 548 | 297 | 664 | 338 | 1022 | 71 | 391 | 75 | 212 | 5473 |

Appendix 5
Sheet 4

## COFFS HARBOUR RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1953 | 548 | 2388 | 1052 | 181 | 514 | 0 | 23 | 173 | 83 | 131 | 86 | 224 | 5403 |
| 1954 | 856 | 2217 | 406 | 496 | 901 | 154 | 848 | 298 | 1232 | 680 | 686 | 858 | 9632 |
| 1955 | 1280 | 537 | 1386 | 1238 | 1269 | 214 | 92 | 4 | 476 | 695 | 108 | 1599 | 8898 |
| 1956 | 1287 | 2687 | 1520 | 374 | 969 | 825 | 87 | 155 | 146 | 161 | 117 | 490 | 8818 |
| 1957 | 461 | 1243 | 1136 | 204 | 0 | 50 | 514 | 800 | 18 | 175 | 76 | 238 | 4915 |
| 1958 | 693 | 487 | 970 | 1527 | 96 | 991 | 23 | 1339 | 176 | 145 | 228 | 1527 | 8202 |
| 1959 | 1305 | 1480 | 2078 | 335 | 317 | 256 | 709 | 445 | 805 | 215 | 1385 | 479 | 9809 |
| 1960 | 1168 | 621 | 947 | 549 | 205 | 351 | 91 | 79 | 97 | 218 | 256 | 147 | 4729 |
| 1961 | 556 | 1195 | 509 | 334 | 507 | 732 | 124 | 262 | 715 | 616 | 293 | 726 | 6569 |
| 1962 | 1282 | 377 | 1361 | 2153 | 1190 | 48 | 967 | 712 | 180 | 103 | 367 | 930 | 9670 |
| 1963 | 560 | 546 | 2085 | 2941 | 1941 | 815 | 7 | 201 | 317 | 536 | 489 | 720 | 11158 |
| 1964 | 493 | 1650 | 2408 | 854 | 224 | 98 | 50 | 162 | 161 | 215 | 324 | 236 | 6875 |
| 1965 | 288 | 398 | 78 | 969 | 105 | 717 | 513 | 389 | 98 | 447 | 245 | 700 | 4947 |
| 1966 | 152 | 643 | 326 | 850 | 188 | 405 | 5 | 470 | 143 | 529 | 704 | 178 | 4593 |
| 1967 | 2018 | 201 | 1116 | 730 | 467 | 2088 | 49 | 612 | 133 | 651 | 95 | 383 | 8543 |
| 1968 | 589 | 817 | 351 | 86 | 304 | 121 | 65 | 748 | 49 | 132 | 439 | 513 | 4214 |

Appendix 6
Sheet 1

## DAIRYVILLE RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1908 | | | NO RECORDS | | | 14 | 196 | 658 | 180 | 54 | 474 | 494 | |
| 1909 | 137 | 293 | 657 | 287 | 105 | 98 | 92 | 62 | 253 | 119 | 624 | 723 | 3450 |
| 1910 | 1172 | 313 | 1706 | 661 | 262 | 575 | 6 | 22 | 166 | 366 | 452 | 693 | 6394 |
| 1911 | 2323 | 1546 | 592 | 104 | 180 | 6 | 440 | 845 | 169 | 64 | 465 | 138 | 6872 |
| 1912 | 269 | 831 | 1053 | 40 | 32 | 783 | 467 | 100 | 32 | 263 | 295 | 1093 | 5258 |
| 1913 | 218 | 811 | 75 | 1511 | 816 | 833 | 88 | 12 | 593 | 406 | 140 | 350 | 5853 |
| 1914 | 290 | 765 | 1608 | 384 | 159 | 1052 | 349 | 107 | 200 | 2144 | 828 | 854 | 8740 |
| 1915 | 0 | 339 | 181 | 127 | 428 | 6 | 6 | 9 | 49 | 0 | 120 | 312 | 1577 |
| 1916 | 253 | 827 | 225 | 1387 | 88 | 117 | 111 | 101 | 283 | 187 | 1174 | 874 | 5627 |
| 1917 | 491 | 557 | 475 | 110 | 160 | 160 | 57 | 103 | 182 | 218 | 1355 | 464 | 4332 |
| 1918 | 916 | 374 | 1182 | 616 | 432 | 0 | 104 | 178 | 101 | 96 | 330 | 297 | 4626 |
| 1919 | 287 | 200 | 2206 | 688 | 1131 | 175 | 113 | 12 | 12 | 179 | 355 | 535 | 5893 |
| 1920 | 1275 | 699 | 469 | 501 | 269 | 316 | 356 | 61 | 294 | 756 | 584 | 218 | 5798 |
| 1921 | 2300 | 367 | 936 | 891 | 2651 | 943 | 1907 | 228 | 316 | 353 | 200 | 956 | 12048 |
| 1922 | 302 | 2685 | 99 | 149 | 561 | 392 | 914 | 355 | 1649 | 181 | 124 | 326 | 7737 |
| 1923 | 437 | 256 | 1000 | 2373 | 23 | 390 | 315 | 481 | 145 | 115 | 29 | 514 | 6078 |
| 1924 | 346 | 758 | 379 | 422 | 151 | 732 | 673 | 47 | 148 | 229 | 294 | 473 | 4652 |

Appendix 6
Sheet 2

## DAIRYVILLE RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1925 | 527 | 360 | 1152 | 381 | 1288 | 1322 | 54 | 474 | 53 | 64 | 989 | 1239 | 7903 |
| 1926 | 518 | 100 | 609 | 418 | 704 | 304 | 596 | 70 | 130 | 184 | 0 | 929 | 4562 |
| 1927 | 1628 | 637 | 905 | 734 | 0 | 129 | 0 | 0 | 197 | 490 | 1122 | 372 | 6214 |
| 1928 | 1371 | 2093 | 578 | 1112 | 164 | 735 | 0 | 0 | 154 | 140 | 252 | 239 | 6838 |
| 1929 | 516 | 2281 | 1521 | 893 | 73 | 929 | 75 | 139 | 477 | 836 | 135 | 0 | 7875 |
| 1930 | 766 | 312 | 1029 | 1488 | 907 | 1223 | 207 | 146 | 64 | 181 | 265 | 242 | 6830 |
| 1931 | 347 | 1586 | 739 | 866 | 295 | 89 | 178 | 53 | 51 | 83 | 693 | 1211 | 6191 |
| 1932 | 568 | 688 | 25 | 556 | 349 | 51 | 260 | 12 | 1041 | 582 | 536 | 146 | 4814 |
| 1933 | 1397 | 87 | 265 | 902 | 54 | 1797 | 1583 | 73 | 399 | 790 | 541 | 957 | 8845 |
| 1934 | 357 | 1547 | 643 | 1343 | 1016 | 29 | 1076 | 319 | 485 | 326 | 550 | 465 | 8156 |
| 1935 | 340 | 1026 | 815 | 295 | 116 | 8 | 467 | 76 | 789 | 158 | 131 | 615 | 4836 |
| 1936 | 549 | 888 | 1095 | 516 | 350 | 75 | 85 | 42 | 281 | 34 | 31 | 1088 | 5034 |
| 1937 | 682 | 2816 | 1870 | 377 | 0 | 527 | 233 | 271 | 32 | 535 | 1308 | 874 | 9525 |
| 1938 | 1919 | 1263 | 590 | 971 | 1093 | 40 | 126 | 164 | 197 | 244 | 269 | N.R. | |
| 1939 | N.R. | 24 | | | NO RECORDS | | | 316 | 129 | 847 | N.R. | 360 | |
| 1940 | 497 | 191 | 868 | 715 | 100 | 205 | 0 | 279 | 19 | 209 | 278 | 1471 | 4832 |
| 1941 | | | NO RECORDS | | | 15 | 280 | 109 | 15 | 167 | 675 | 87 | |

Appendix 6
Sheet 3

## DAIRYVILLE RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1942 | 258 | 1873 | 698 | 158 | 58 | 464 | 232 | 22 | 136 | 1000 | 443 | 1251 | 6593 |
| 1943 | | | | NO RECORDS | | | | 125 | 82 | 685 | 169 | 1034 | |
| 1944 | 801 | 373 | 624 | 169 | N.R. | 153 | 0 | 895 | 204 | 67 | 92 | 333 | |
| 1945 | 168 | 545 | 228 | 499 | 223 | | NO RECORDS | | 43 | 178 | 640 | N.R. | |
| 1946 | 627 | N.R. | 1498 | 626 | 68 | 74 | 0 | 39 | 171 | 298 | 275 | 969 | |
| 1947 | 726 | 1313 | 659 | 693 | N.R. | 3 | 14 | 123 | 161 | 213 | 665 | 1136 | |
| 1948 | 469 | 358 | 1177 | 410 | 756 | 2041 | 107 | 82 | 266 | 23 | 438 | 204 | 6331 |
| 1949 | 658 | 755 | 1914 | 287 | 249 | 417 | 285 | 1459 | 327 | 306 | 626 | 282 | 7565 |
| 1950 | 827 | 1334 | 616 | 650 | 245 | 2725 | 2332 | 512 | 335 | 548 | 886 | 709 | 11719 |
| 1951 | 1438 | 339 | 1115 | 220 | 300 | 783 | 20 | 130 | 5 | 190 | 67 | 83 | 4690 |
| 1952 | 135 | 630 | 601 | 391 | 225 | 628 | 256 | 1595 | 50 | 377 | 113 | 287 | 5288 |
| 1953 | 719 | 1664 | 1176 | 129 | 331 | 0 | 52 | 146 | 46 | 90 | 61 | 272 | 4686 |
| 1954 | 758 | 2496 | 273 | 510 | 580 | 72 | 1469 | 183 | 1360 | 692 | 893 | 766 | 10052 |
| 1955 | 787 | 553 | 1522 | 1000 | 1236 | 138 | 139 | 12 | 555 | 498 | 89 | 1398 | 7927 |
| 1956 | 975 | 2894 | 1632 | 420 | 945 | 934 | 46 | 102 | 190 | 86 | 11 | 516 | 8751 |
| 1957 | 274 | 1271 | 1106 | 82 | 17 | 34 | 259 | 903 | 9 | 183 | 106 | 450 | 4694 |
| 1958 | 657 | 633 | 1213 | 848 | 91 | 862 | 11 | 1005 | 185 | 116 | 120 | 770 | 6511 |

Appendix 6
Sheet 4

## DAIRYVILLE RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1959 | 2143 | 1423 | 1612 | 259 | 151 | 223 | 378 | 223 | 707 | 430 | 1664 | 849 | 10062 |
| 1960 | 1211 | 793 | 1115 | 353 | 445 | 187 | 73 | 52 | 44 | 231 | 314 | 68 | 4886 |
| 1961 | 410 | 1583 | 530 | 394 | 455 | 583 | 131 | 264 | 623 | 792 | 489 | 661 | 6915 |
| 1962 | 1254 | 641 | 1029 | 2841 | 526 | 41 | 1552 | 470 | 213 | 70 | 299 | 1530 | 10466 |
| 1963 | 802 | 374 | 1857 | 2314 | 2445 | 536 | 17 | 154 | 733 | 402 | 500 | 859 | 10993 |
| 1964 | 482 | 1277 | 1725 | 963 | 90 | 30 | 86 | 239 | 156 | 193 | 522 | 275 | 6038 |
| 1965 | 236 | 423 | 34 | 419 | 78 | 540 | 1030 | 2262 | 109 | 233 | 574 | 1153 | 5091 |
| 1966 | 99 | 447 | 592 | 525 | 126 | 327 | 5 | 498 | 144 | 438 | 837 | 256 | 4294 |
| 1967 | 2571 | 530 | 1321 | 901 | 143 | 4108 | 141 | 424 | 114 | 686 | 207 | 386 | 11532 |
| 1968 | 1554 | 671 | 390 | 32 | 165 | 40 | 92 | 1177 | 127 | 247 | 194 | 469 | 5158 |

Appendix 7
Sheet 1

## DEER VALE RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1913 | 349 | 461 | 420 | 2370 | 1031 | 1015 | 172 | 12 | 537 | 315 | 0 | 575 | 7257 |
| 1914 | 916 | 1405 | 1889 | 0 | 465 | 1109 | 325 | 601 | 243 | 2399 | 1221 | 742 | 11315 |
| 1915 | 247 | 595 | 0 | 290 | 338 | 16 | 151 | 157 | 127 | 38 | 299 | 415 | 2673 |
| 1916 | | | | NO RECORDS | | | | 198 | 272 | 546 | 437 | 1128 | |
| 1917 | 912 | 867 | 542 | 251 | 109 | 79 | 80 | 134 | 372 | 208 | 1739 | 671 | 5964 |
| 1918 | 1143 | 448 | 764 | 805 | 288 | 81 | 152 | 174 | 182 | 202 | 244 | 148 | 4631 |
| 1919 | 396 | 547 | 1977 | 876 | 1016 | 283 | 156 | 18 | 20 | 270 | 612 | 800 | 6971 |
| 1920 | 1340 | 710 | 512 | 548 | 333 | 381 | 525 | 89 | 481 | 567 | 609 | 373 | 6468 |
| 1921 | 1657 | 610 | 1042 | 694 | 1692 | 733 | 2262 | 213 | 434 | 420 | 361 | 1174 | 11292 |
| 1922 | 516 | 2506 | 166 | 130 | 736 | 417 | 588 | 329 | 911 | 333 | 231 | 594 | 7457 |
| 1923 | 633 | 333 | 796 | 2101 | 39 | 177 | 274 | 436 | 271 | 306 | 30 | 426 | 5822 |
| 1924 | 510 | 573 | 846 | 534 | 231 | 679 | 921 | 243 | 114 | 257 | 863 | 607 | 6378 |
| 1925 | 838 | 582 | 1196 | 721 | 1073 | 1514 | 39 | 392 | 21 | 165 | 1185 | 687 | 8413 |
| 1926 | 1172 | 186 | 605 | 580 | 628 | 422 | 425 | 143 | 229 | 121 | 32 | 1099 | 5642 |
| 1927 | 1521 | 443 | 784 | 543 | 78 | 205 | 11 | 48 | 272 | 433 | 872 | 721 | 5931 |
| 1928 | 1139 | 2934 | 751 | 1388 | 331 | 820 | 342 | 99 | 27 | 191 | 185 | 824 | 9031 |
| 1929 | 696 | 2085 | 832 | 768 | 308 | 630 | 138 | 250 | 372 | 802 | 297 | 343 | 7521 |
| 1930 | 1031 | 496 | 974 | 893 | 808 | 1330 | 191 | 235 | 51 | 460 | 303 | 274 | 7046 |

Appendix 7
Sheet 2

## DEER VALE RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1931 | 489 | 1490 | 842 | 1062 | 663 | 144 | 276 | 51 | 127 | 110 | 675 | 1042 | 6971 |
| 1932 | 451 | 343 | 353 | 751 | 499 | 96 | 243 | 71 | 1188 | 367 | 765 | 177 | 5304 |
| 1933 | 1367 | 214 | 370 | 468 | 65 | 1415 | 1264 | 185 | 466 | 975 | 869 | 1255 | 8913 |
| 1934 | 612 | 1295 | 851 | 848 | 801 | 79 | 811 | 417 | 606 | 334 | 641 | 882 | 8177 |
| 1935 | 744 | 877 | 472 | 195 | 112 | 19 | 558 | 53 | 602 | 139 | 95 | 641 | 4507 |
| 1936 | 804 | 810 | 1121 | 510 | 427 | 158 | 101 | 57 | 300 | 66 | 122 | 977 | 5453 |
| 1937 | 469 | 1416 | 1317 | 259 | 19 | 512 | 184 | 188 | 96 | 490 | 1135 | 573 | 6658 |
| 1938 | 1281 | 837 | 329 | 902 | 758 | 205 | 121 | 258 | 220 | 262 | 577 | 140 | 5890 |
| 1939 | 612 | 107 | 1696 | 508 | 113 | 196 | 60 | 303 | 239 | 447 | 295 | 1051 | 5627 |
| 1940 | 524 | 332 | 851 | 226 | 34 | 157 | 29 | 157 | 82 | 211 | 421 | 944 | 3968 |
| 1941 | 1255 | 341 | 711 | 196 | 219 | 215 | 74 | 50 | 3 | 239 | 397 | 160 | 3860 |
| 1942 | 211 | 1566 | 600 | 109 | 71 | 277 | 341 | 21 | 33 | 1195 | 620 | 718 | 5762 |
| 1943 | 667 | 353 | 270 | 256 | 513 | 108 | 52 | 419 | 334 | 510 | 819 | 1045 | 5346 |
| 1944 | 1198 | 199 | 467 | 106 | 115 | 115 | 494 | 1376 | 119 | 72 | 184 | 342 | 4787 |
| 1945 | 357 | 564 | 541 | 396 | 322 | 1832 | 653 | 100 | 112 | 136 | 605 | 755 | 6373 |
| 1946 | 571 | 832 | 1943 | 301 | 49 | 22 | 3 | 22 | 362 | 229 | 272 | 481 | 5087 |
| 1947 | 1182 | 1463 | 1067 | 570 | 263 | 24 | 23 | 227 | 250 | 175 | 848 | 1039 | 7131 |
| 1948 | 776 | 405 | 1112 | 247 | 609 | 1734 | 112 | 127 | 253 | 44 | 498 | 591 | 6508 |

Appendix 7
Sheet 3

## DEER VALEE RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1949 | 949 | 778 | 1675 | 337 | 222 | 371 | 577 | 777 | 450 | 713 | 560 | 326 | 7735 |
| 1950 | 1289 | 1548 | 1065 | 516 | 105 | 2901 | 1557 | 379 | 530 | 611 | 996 | 543 | 12040 |
| 1951 | 1415 | 714 | 804 | 134 | 262 | 581 | 13 | 132 | 14 | 172 | 136 | 157 | 4534 |
| 1952 | 180 | 607 | 595 | 410 | 239 | 378 | 445 | 1345 | 77 | 498 | 120 | 603 | 5497 |
| 1953 | 738 | 1362 | 1236 | 229 | 310 | 6 | 49 | 179 | 156 | 283 | 108 | 210 | 4857 |
| 1954 | 639 | 2957 | 364 | 309 | 697 | 249 | 974 | 422 | 818 | 1083 | 559 | 671 | 9742 |
| 1955 | 1018 | 866 | 1333 | 959 | 721 | 200 | 211 | 5 | 342 | 492 | 120 | 1140 | 7407 |
| 1956 | 1297 | 2764 | 1688 | 507 | 623 | 510 | 85 | 96 | 144 | 198 | 101 | 503 | 8516 |
| 1957 | 500 | 1320 | 602 | 227 | 3 | 54 | 243 | 716 | 5 | 356 | 57 | 502 | 4585 |
| 1958 | 923 | 661 | 589 | 784 | 105 | 856 | 9 | 468 | 262 | 189 | 210 | 1062 | 6118 |
| 1959 | 2837 | 950 | 1766 | 323 | 112 | 373 | 335 | 270 | 448 | 373 | 1676 | 1117 | 10580 |
| 1960 | 498 | 953 | 852 | 390 | 379 | 220 | 133 | 66 | 97 | 305 | 206 | 230 | 4329 |
| 1961 | 668 | 1026 | 559 | 406 | 217 | 571 | 198 | 336 | 541 | 694 | 810 | 1099 | 7125 |
| 1962 | 1548 | 502 | 984 | 1857 | 540 | 60 | 1685 | 446 | 222 | 300 | 624 | 1890 | 10658 |
| 1963 | 1272 | 458 | 1207 | 844 | 1980 | 521 | 21 | 191 | 180 | 615 | 654 | 1260 | 9203 |
| 1964 | 662 | 792 | 1546 | 1021 | 152 | 98 | 173 | 174 | 183 | 331 | 376 | 185 | 5693 |
| 1965 | 612 | 458 | 92 | 327 | 251 | 420 | 1392 | 142 | 190 | 244 | 473 | 1443 | 6044 |
| 1966 | 313 | 589 | 286 | 311 | 155 | 267 | 48 | 463 | 217 | 400 | 604 | 360 | 4053 |
| 1967 | 1694 | 518 | 1352 | 1123 | 155 | 3421 | 189 | 318 | 195 | 1187 | 342 | 326 | 10820 |
| 1968 | 1929 | 630 | 469 | 39 | 222 | 32 | 113 | 993 | 162 | 192 | 234 | 421 | 5436 |

Appendix 8
Sheet 1

## DORRIGO RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1905 | | NO | RECORDS | | 131 | 131 | 45 | 104 | 60 | 288 | 408 | 718 | |
| 1906 | 691 | 1149 | 2177 | 589 | 625 | 84 | 22 | 1148 | 508 | 715 | 169 | 721 | 8598 |
| 1907 | 1714 | | | | | | NO | RECORDS | | | | | |
| 1908 | | | | | | | NO | RECORDS | | | | | |
| 1909 | | | | | | | NO | RECORDS | | | | | |
| 1910 | 1372 | 417 | 2178 | 668 | 153 | 696 | 16 | | | NO | RECORDS | | |
| 1911 | | | | | | | NO | RECORDS | | | | | |
| 1912 | | | | NO | RECORDS | | | | 28 | 351 | 297 | 427 | |
| 1913 | 435 | 396 | 166 | 2340 | 1029 | 854 | 136 | 6 | 503 | 561 | 116 | 525 | 7067 |
| 1914 | 220 | 1619 | 1212 | 56 | | | | NO | RECORDS | | | | |
| 1915 | | | | | | | NO | RECORDS | | | | | |
| 1916 | | | | | | | NO | RECORDS | | | | | |
| 1917 | | | | | | | NO | RECORDS | | | | | |
| 1918 | | | | | | | NO | RECORDS | | | | | |
| 1919 | 363 | 312 | 2310 | 915 | 1092 | 295 | 209 | 18 | 0 | 335 | 303 | 486 | 6638 |
| 1920 | 1368 | 919 | 683 | 591 | 339 | 223 | 557 | 64 | 494 | 768 | 975 | 250 | 7231 |
| 1921 | 2152 | 494 | 908 | 740 | 2353 | 804 | 2973 | 210 | 373 | 362 | 403 | 1504 | 13276 |
| 1922 | 590 | 2727 | 125 | 100 | 822 | 473 | 491 | 368 | 1458 | 275 | 185 | 405 | 8019 |

Appendix 8
Sheet 2

## DORRIGO RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1923 | 866 | 249 | 827 | 2735 | 27 | 161 | 373 | 556 | 276 | 312 | 21 | 485 | 6888 |
| 1924 | 415 | 503 | 636 | 658 | 215 | 871 | 1197 | 209 | 117 | 297 | 568 | 574 | 6260 |
| 1925 | 895 | 390 | 1508 | 750 | 1480 | 1757 | 35 | 549 | 40 | 155 | 1317 | 687 | 9563 |
| 1926 | 1329 | 198 | 869 | 604 | 829 | 501 | 550 | 164 | 122 | 125 | 50 | 989 | 6328 |
| 1927 | 1602 | 564 | 893 | 966 | 59 | 168 | 9 | 8 | 208 | 552 | 1279 | 656 | 6964 |
| 1928 | 1346 | 2381 | 602 | 1591 | 400 | 880 | 426 | 94 | 18 | 203 | 180 | 752 | 8873 |
| 1929 | 1147 | 2251 | 1248 | 676 | 376 | 872 | 209 | 242 | 549 | 837 | 254 | 220 | 8881 |
| 1930 | 876 | 434 | 1010 | 1012 | 854 | 1092 | 118 | 219 | 63 | 373 | 168 | 378 | 6597 |
| 1931 | 557 | 2028 | 826 | 1356 | 606 | 116 | 256 | 79 | 72 | 156 | 867 | 1076 | 7995 |
| 1932 | 430 | 349 | 294 | 756 | 512 | 128 | 260 | 49 | 1203 | 381 | 543 | 299 | 5204 |
| 1933 | 1052 | 133 | 429 | 561 | 48 | 2225 | 1536 | 143 | 457 | 659 | 951 | 1547 | 9741 |
| 1934 | 465 | 1038 | 869 | 982 | 1270 | 29 | 922 | 527 | 485 | 344 | 272 | 719 | 7922 |
| 1935 | 853 | 1627 | 667 | 248 | 121 | 19 | 687 | 52 | 537 | 204 | 121 | 778 | 5914 |
| 1936 | 1027 | 749 | 1558 | 741 | 518 | 146 | 69 | 23 | 321 | 80 | 109 | 1226 | 6567 |
| 1937 | 671 | 2595 | 1193 | 503 | 20 | 591 | 153 | 327 | 83 | 659 | 1126 | 743 | 8664 |
| 1938 | 2280 | 882 | 793 | 1264 | 808 | 161 | 158 | 175 | 214 | 356 | 628 | 181 | 7900 |
| 1939 | 718 | 60 | 2440 | 481 | 315 | 177 | 95 | 222 | 305 | 907 | 298 | 773 | 6791 |
| 1940 | 460 | 221 | 853 | 508 | 88 | 248 | 46 | 326 | 69 | 228 | 215 | 824 | 4086 |

Appendix 8
Sheet 3

## DORRIGO RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1941 | 1112 | 1116 | 599 | 371 | 418 | 123 | 155 | 98 | 7 | 207 | 368 | 192 | 4766 |
| 1942 | 363 | 1463 | 958 | 146 | 101 | 431 | 296 | 39 | 22 | 1133 | 832 | 905 | 6689 |
| 1943 | 448 | 386 | 714 | 304 | 911 | 104 | 29 | 519 | 333 | 517 | 686 | 1192 | 6143 |
| 1944 | 1645 | 346 | 796 | 84 | 81 | 335 | 624 | 1766 | 171 | 51 | 297 | 353 | 6549 |
| 1945 | 554 | 788 | 370 | 531 | 398 | 3335 | 966 | 88 | 119 | 281 | 652 | 731 | 8813 |
| 1946 | 646 | 1212 | 2491 | 486 | 51 | 37 | 3 | 45 | 310 | 311 | 274 | 385 | 6251 |
| 1947 | 1394 | 2120 | 840 | 769 | 409 | 28 | 21 | 135 | 314 | 243 | 868 | 1106 | 8247 |
| 1948 | 788 | 393 | 1876 | 346 | 697 | 2124 | 126 | 140 | 422 | 31 | 574 | 554 | 8071 |
| 1949 | 710 | 1034 | 2482 | 384 | 338 | 279 | 607 | 1932 | 340 | 552 | 527 | 562 | 9747 |
| 1950 | 864 | 1378 | 969 | 961 | 277 | 5580 | 1548 | 832 | 405 | 953 | 1091 | 1493 | 16351 |
| 1951 | 2256 | 834 | 2265 | 136 | 304 | 901 | 15 | 108 | 16 | 449 | 205 | 168 | 7657 |
| 1952 | 244 | 1123 | 879 | 382 | 290 | 354 | 488 | 1884 | 67 | 561 | 155 | 635 | 7062 |
| 1953 | 1108 | 2463 | 1261 | 255 | 276 | 13 | 65 | 235 | 103 | 261 | 176 | 170 | 6386 |
| 1954 | 728 | 2870 | 567 | 514 | 870 | 303 | 1565 | 389 | 1083 | 930 | 773 | 977 | 11569 |
| 1955 | 884 | 957 | 1865 | 1142 | 797 | 269 | 135 | 3 | 545 | 585 | 117 | 1779 | 9078 |
| 1956 | 1629 | 3537 | 2048 | 412 | 478 | 516 | 61 | 95 | 222 | 160 | 38 | 539 | 9735 |
| 1957 | 550 | 1784 | 957 | 212 | 17 | 53 | 302 | 812 | 21 | 408 | 167 | 555 | 5838 |
| 1958 | 648 | 533 | 660 | 1462 | 75 | 1152 | 4 | 511 | 235 | 137 | 367 | 1147 | 6931 |

## DORRIGO RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1959 | 3978 | 1303 | 1868 | 220 | 185 | 335 | 546 | 305 | 606 | 365 | 1841 | 827 | 12379 |
| 1960 | 884 | 1167 | 1693 | 474 | 530 | 219 | 132 | 91 | 183 | 341 | 158 | 177 | 6049 |
| 1961 | 592 | 1374 | 563 | 384 | 388 | 620 | 190 | 284 | 632 | 652 | 472 | 859 | 7010 |
| 1962 | 1601 | 435 | 1057 | 2695 | 800 | 74 | 2877 | 276 | 233 | 233 | 469 | 1772 | 12522 |
| 1963 | 1311 | 589 | 1575 | 1417 | 2442 | 642 | 21 | 186 | 236 | 789 | 588 | 838 | 10634 |
| 1964 | 578 | 1036 | 2231 | 902 | 105 | 71 | 108 | 202 | 148 | 298 | 418 | 465 | 6562 |
| 1965 | 648 | 384 | 114 | 425 | 129 | 481 | 2067 | 278 | 82 | 389 | 347 | 1749 | 7093 |
| 1966 | 300 | 433 | 431 | 351 | 83 | 302 | 223 | 378 | 151 | 587 | 553 | 320 | 3912 |
| 1967 | 2173 | 713 | 1686 | 1410 | 267 | 4437 | 179 | 315 | 152 | 966 | 321 | 531 | 13150 |
| 1968 | 1796 | 608 | 599 | 58 | 200 | 26 | 92 | 1132 | 130 | 147 | 165 | 495 | 5448 |

Appendix 9
Sheet 1

GUY FAWKES RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1887 | NO | RECORDS | | 341 | 220 | 153 | 329 | 645 | 169 | 79 | 566 | 891 | |
| 1888 | 248 | 796 | 153 | 133 | 53 | 296 | 116 | 65 | 408 | 709 | 115 | 646 | 3738 |
| 1889 | 486 | 344 | 348 | 492 | 550 | 129 | 1742 | 891 | 206 | 377 | 619 | 565 | 6749 |
| 1890 | 885 | 2666 | 3677 | 506 | 512 | 317 | 452 | 73 | 218 | 529 | 535 | 660 | 11030 |
| 1891 | 1507 | 375 | 743 | 342 | 361 | 1401 | 236 | 335 | 562 | 145 | 675 | 427 | 7109 |
| 1892 | 276 | 346 | 1370 | 2230 | 390 | 359 | 295 | 297 | 377 | 492 | 474 | 628 | 7534 |
| 1893 | 1070 | 1894 | 1558 | 257 | 204 | 2116 | 216 | 365 | 186 | 869 | 475 | 208 | 9418 |
| 1894 | 1256 | 636 | 1466 | 422 | 254 | 231 | 54 | 85 | 266 | 665 | 216 | 493 | 6044 |
| 1895 | 1348 | 893 | 254 | 92 | 101 | 37 | 33 | 32 | 345 | 192 | 647 | 1185 | 5159 |
| 1896 | 387 | 1308 | 287 | 125 | 240 | 80 | 169 | 185 | 190 | 165 | 1233 | 856 | 5225 |
| 1897 | 354 | 226 | 318 | 73 | 156 | 531 | 437 | 210 | 149 | 205 | 143 | 1349 | 4151 |
| 1898 | 648 | 556 | 839 | 123 | 562 | 634 | 248 | 193 | 456 | 203 | 117 | 279 | 4858 |
| 1899 | 437 | 300 | 438 | 275 | 255 | 332 | 1253 | 769 | 316 | 400 | 380 | 517 | 5672 |
| 1900 | 277 | 388 | 366 | 176 | 552 | 491 | 674 | 36 | 161 | 39 | 468 | 564 | 4192 |
| 1901 | 431 | 435 | 589 | 321 | 350 | 343 | 184 | 423 | 81 | 277 | 141 | 223 | 3798 |
| 1902 | 515 | 121 | 243 | 86 | 51 | 120 | 45 | 259 | 98 | 514 | 487 | 517 | 3056 |
| 1903 | 260 | 400 | 593 | 269 | 348 | 2063 | 563 | 446 | 375 | 439 | 548 | 627 | 6931 |
| 1904 | 168 | 438 | 515 | 988 | 522 | 68 | 597 | 93 | 152 | 249 | 331 | 514 | 4635 |

Appendix 9
Sheet 2

## GUY FAWKES RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1905 | 363 | 419 | 573 | 506 | 255 | 123 | 41 | 70 | 49 | 222 | 198 | 383 | 3202 |
| 1906 | 623 | 281 | 706 | 285 | 409 | 92 | 42 | 485 | 327 | 265 | 329 | 406 | 4250 |
| 1907 | 521 | 540 | 663 | 152 | 128 | 339 | 88 | 115 | 20 | 219 | 307 | 393 | 3485 |
| 1908 | 259 | 1064 | 454 | 368 | 83 | 83 | 144 | 739 | 257 | 140 | 501 | 446 | 4538 |
| 1909 | 106 | 806 | 278 | 235 | 166 | 177 | 120 | 236 | 156 | 194 | 706 | 750 | 3930 |
| 1910 | 985 | 140 | 734 | 309 | 163 | 462 | 67 | 88 | 64 | 558 | 278 | 510 | 4358 |
| 1911 | 1113 | 824 | 381 | 112 | 301 | 48 | 405 | 550 | 187 | 213 | 466 | 162 | 4762 |
| 1912 | 210 | 1288 | 466 | 30 | 70 | 308 | 430 | 118 | 150 | 300 | 204 | 380 | 4054 |
| 1913 | 225 | 407 | 320 | 1332 | 839 | 597 | 124 | 37 | 299 | 256 | 97 | 329 | 4862 |
| 1914 | 413 | 398 | 705 | 16 | 307 | 995 | 138 | 151 | 120 | 823 | 472 | 655 | 5193 |
| 1915 | 202 | 247 | 115 | 306 | 308 | 125 | 159 | 179 | 102 | 61 | 146 | 658 | 2608 |
| 1916 | 457 | 540 | 218 | 636 | 890 | 161 | 228 | 244 | 178 | 298 | 369 | 409 | 4628 |
| 1917 | 689 | 272 | 271 | 112 | 113 | 99 | 68 | 117 | 393 | 339 | 1283 | 344 | 4100 |
| 1918 | 682 | 307 | 397 | 377 | 163 | 93 | 158 | 155 | 111 | 148 | 592 | 265 | 3448 |
| 1919 | 504 | 213 | 936 | 432 | 715 | 162 | 157 | 32 | 37 | 181 | 176 | 740 | 4285 |
| 1920 | 769 | 343 | 272 | 309 | 231 | 396 | 362 | 150 | 304 | 409 | 356 | 314 | 4215 |
| 1921 | 574 | 280 | 740 | 222 | 1271 | 601 | 1910 | 130 | 401 | 362 | 472 | 841 | 7804 |
| 1922 | 217 | 1092 | 74 | 37 | 342 | 201 | 369 | 353 | 431 | 278 | 373 | 494 | 4261 |

Appendix 9
Sheet 3

## GUY FAWKES RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1923 | 420 | 59 | 301 | 815 | 18 | 192 | 284 | 275 | 316 | 185 | 111 | 555 | 3531 |
| 1924 | 293 | 382 | 195 | 265 | 99 | 375 | 876 | 205 | 126 | 340 | 574 | 717 | 4447 |
| 1925 | 794 | 228 | 415 | 232 | 661 | 653 | 65 | 230 | 34 | 169 | 526 | 544 | 4551 |
| 1926 | 420 | 163 | 269 | 194 | 443 | 303 | 330 | 136 | 120 | 88 | 82 | 797 | 3345 |
| 1927 | 954 | 184 | 393 | 320 | 41 | 115 | 18 | 8 | 51 | 281 | 394 | 417 | 3176 |
| 1928 | 645 | 2352 | 273 | 817 | 171 | 771 | 177 | 84 | 19 | 212 | 168 | 810 | 6499 |
| 1929 | 278 | 1678 | 625 | 355 | 73 | 349 | 129 | 195 | 449 | 451 | 254 | 437 | 5273 |
| 1930 | 474 | 148 | 567 | 541 | 295 | 800 | 114 | 126 | 101 | 351 | 200 | 185 | 3902 |
| 1931 | 452 | 610 | 500 | 756 | 369 | 195 | 223 | 12 | 123 | 54 | 393 | 524 | 4211 |
| 1932 | 447 | 346 | 332 | 678 | 243 | 83 | 195 | 10 | 812 | 250 | 693 | 151 | 4240 |
| 1933 | 998 | 156 | 63 | 195 | 88 | 816 | 966 | 110 | 307 | 818 | 400 | 637 | 5554 |
| 1934 | 627 | 809 | 201 | 490 | 486 | 63 | 455 | 375 | 506 | 236 | 436 | 703 | 5387 |
| 1935 | 734 | 424 | 249 | 89 | 63 | 16 | 468 | 50 | 423 | 258 | 56 | 585 | 3415 |
| 1936 | 521 | 441 | 648 | 389 | 271 | 141 | 185 | 111 | 345 | 40 | 100 | 835 | 4027 |
| 1937 | 447 | 962 | 801 | 199 | 22 | 593 | 26 | 278 | 172 | 324 | 596 | 633 | 5053 |
| 1938 | 1175 | 496 | 219 | 679 | 384 | 140 | 118 | 236 | 259 | 206 | 601 | 36 | 4549 |
| 1939 | 394 | 27 | 1447 | 282 | 72 | 211 | 87 | 209 | 243 | 331 | 194 | 557 | 4054 |
| 1940 | 327 | 236 | 598 | 141 | 43 | 151 | 40 | 133 | 63 | 256 | 275 | 455 | 2718 |

## GUY FAWKES RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1941 | 1048 | 199 | 601 | 207 | 251 | 166 | 95 | 27 | 21 | 280 | 303 | 59 | 3257 |
| 1942 | 185 | 618 | 462 | 74 | 50 | 475 | 354 | 46 | 67 | 1080 | 712 | 677 | 4800 |
| 1943 | 526 | 129 | 161 | 156 | 438 | 149 | 73 | 301 | 236 | 301 | 743 | 871 | 4084 |
| 1944 | 892 | 241 | 113 | 110 | 116 | 104 | 439 | 1129 | 141 | 162 | 166 | 142 | 3755 |
| 1945 | 324 | 548 | 82 | 268 | 282 | 1463 | 512 | 135 | 201 | 94 | 457 | 237 | 4603 |
| 1946 | 395 | 378 | 1411 | 164 | 45 | 24 | 13 | 1 | 279 | 365 | 308 | 194 | 3577 |
| 1947 | 727 | 1228 | 558 | 550 | 238 | 48 | 7 | 70 | 263 | 220 | 595 | 749 | 5253 |
| 1948 | 426 | 275 | 540 | 132 | 394 | 994 | 113 | 158 | 260 | 142 | 299 | 436 | 4169 |
| 1949 | 648 | 519 | 829 | 268 | 141 | 212 | 509 | 1074 | 350 | 577 | 579 | 254 | 5960 |
| 1950 | 1005 | 887 | 281 | 418 | 154 | 3544 | 850 | 479 | 380 | 462 | 815 | 462 | 9737 |
| 1951 | 1007 | 502 | 683 | 88 | 148 | 1003 | 19 | 135 | 22 | 63 | 186 | 180 | 4036 |
| 1952 | 362 | 724 | 390 | 177 | 270 | 198 | 333 | 1173 | 75 | 585 | 102 | 341 | 4730 |
| 1953 | 414 | 1133 | 646 | 148 | 195 | 0 | 67 | 213 | 50 | 137 | 141 | 213 | 3357 |
| 1954 | 331 | 1966 | 104 | 202 | 374 | 215 | 1134 | 285 | 588 | 748 | 491 | 874 | 7312 |
| 1955 | 575 | 697 | 836 | 1047 | 384 | 105 | 173 | 8 | 284 | 420 | 65 | 670 | 5264 |
| 1956 | 905 | 1676 | 747 | 284 | 303 | 348 | 85 | 94 | 113 | 209 | 67 | 304 | 5135 |
| 1957 | 547 | 836 | 356 | 39 | 0 | 52 | 226 | 417 | 0 | 272 | 106 | 455 | 3306 |
| 1958 | 559 | 378 | 265 | 403 | 100 | 615 | 35 | 326 | 262 | 165 | 114 | 654 | 3876 |

## GUY FAWKES RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1959 | 2370 | 425 | 1135 | 301 | 151 | 338 | 288 | 235 | 350 | 363 | 1160 | 855 | 7971 |
| 1960 | 304 | 463 | 405 | 191 | 402 | 186 | 143 | 64 | 93 | 127 | 227 | 272 | 2877 |
| 1961 | 302 | 636 | 303 | 186 | 150 | 480 | 200 | 281 | 248 | 596 | 394 | 609 | 4385 |
| 1962 | 896 | 531 | 587 | 1656 | 422 | 28 | 1674 | 153 | 154 | 139 | 301 | 953 | 7494 |
| 1963 | 876 | 147 | 470 | 592 | 1420 | 459 | 27 | 125 | 77 | 246 | 535 | N.R. | |
| 1964 | 536 | 544 | 1026 | 390 | 161 | 93 | 197 | 124 | 92 | 247 | 293 | 452 | 4155 |
| 1965 | 548 | 250 | 15 | 173 | 58 | 276 | 1281 | 84 | 42 | 179 | 194 | 717 | 3817 |
| 1966 | 134 | 419 | 188 | 267 | 104 | 174 | 19 | 440 | 188 | 379 | 444 | 314 | 3070 |
| 1967 | 1445 | 380 | 795 | 571 | 104 | 3149 | 124 | 266 | 195 | 856 | 107 | 324 | 8316 |
| 1968 | 1536 | 199 | 544 | 35 | 205 | 24 | 122 | 787 | 104 | N.R. | 189 | 365 | |

Appendix 10
Sheet 1

## KEMPSEY (WEST) RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1882 | 130 | 661 | 173 | 260 | 239 | 592 | 154 | 125 | 8 | 745 | 327 | 369 | 3783 |
| 1883 | 763 | 927 | 183 | 504 | 800 | 0 | 186 | 201 | 203 | 252 | 309 | 225 | 4553 |
| 1884 | 134 | 192 | 153 | 350 | 462 | 225 | 746 | 78 | 246 | 270 | 316 | 263 | 3435 |
| 1885 | 780 | 310 | 67 | 407 | 132 | 329 | 216 | 11 | 138 | 125 | 94 | 901 | 3510 |
| 1886 | 558 | 106 | 74 | 191 | 145 | 359 | 677 | 139 | 357 | 291 | 372 | 326 | 3595 |
| 1887 | 500 | 1112 | 910 | 868 | 570 | 230 | 346 | 1189 | 52 | 42 | 262 | 1295 | 7376 |
| 1888 | | | | | | | NO RECORDS | | | | | | |
| 1889 | 440 | 167 | 297 | 642 | 613 | 47 | 761 | 1253 | 662 | 118 | 351 | 257 | 5608 |
| 1890 | 1530 | 2382 | 1587 | 310 | 386 | 291 | 492 | 130 | 215 | 238 | 291 | 852 | 8704 |
| 1891 | 699 | 499 | 574 | 208 | 474 | 592 | 135 | 183 | 478 | 60 | 525 | 801 | 5228 |
| 1892 | 402 | 1069 | 891 | 1483 | 202 | 224 | 132 | 261 | 175 | 769 | 434 | 622 | 6664 |
| 1893 | 310 | 1290 | 1860 | 274 | 231 | 1178 | 60 | 313 | 118 | 836 | 228 | 91 | 6789 |
| 1894 | 726 | 721 | 2431 | 471 | 198 | 159 | 11 | 52 | 247 | 518 | 122 | 308 | 5964 |
| 1895 | 2264 | 493 | 159 | 120 | 5 | 0 | 2 | 4 | 210 | 132 | 516 | 601 | 4506 |
| 1896 | 202 | 551 | 284 | 15 | 212 | 169 | 102 | 170 | 70 | 113 | 1163 | 294 | 3345 |
| 1897 | 100 | 98 | 400 | 134 | 298 | 695 | 431 | 203 | 47 | 26 | 41 | 1229 | 3702 |
| 1898 | 516 | 451 | 423 | 85 | 843 | 1825 | 105 | 346 | 524 | 68 | 34 | 385 | 5605 |
| 1899 | 400 | 269 | 249 | 121 | 327 | 317 | 799 | 1473 | 872 | 350 | 185 | 313 | 5675 |

Appendix 10
Sheet 2

## KEMPSEY (WEST) RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1900 | 30 | 175 | 131 | 129 | 755 | 481 | 834 | 2 | 76 | 22 | 262 | 94 | 2991 |
| 1901 | 260 | 169 | 476 | 147 | 238 | 179 | 109 | 256 | 72 | 516 | 172 | 136 | 2730 |
| 1902 | 127 | 56 | 257 | 94 | 6 | 45 | 44 | 98 | 116 | 422 | 374 | 318 | 1957 |
| 1903 | 222 | 199 | 522 | 182 | 377 | 817 | 634 | 340 | 364 | 207 | 270 | 464 | 4598 |
| 1904 | 191 | 262 | 330 | 1176 | 283 | 10 | 781 | 170 | 86 | 326 | 301 | 62 | 3978 |
| 1905 | 313 | 663 | 197 | 767 | 347 | 36 | 5 | 35 | 23 | 144 | 197 | 372 | 3099 |
| 1906 | 83 | 204 | 630 | 403 | 322 | 19 | 1 | 1245 | 770 | 210 | 293 | 181 | 4361 |
| 1907 | 574 | 425 | 606 | 17 | 278 | 389 | 9 | 20 | 0 | 167 | 182 | 240 | 2907 |
| 1908 | 42 | 1176 | 526 | 293 | 101 | 20 | 222 | 575 | 77 | 17 | 402 | 222 | 3673 |
| 1909 | 95 | 195 | 233 | 242 | 150 | 126 | 51 | 57 | 197 | 201 | 486 | 407 | 2440 |
| 1910 | 726 | 205 | 1225 | 763 | 100 | 490 | 3 | 35 | 25 | 287 | 159 | 427 | 4445 |
| 1911 | 959 | 964 | 464 | 93 | 203 | 20 | 448 | 632 | 113 | 231 | 290 | 138 | 4555 |
| 1912 | 187 | 678 | 474 | 48 | 65 | 286 | 910 | 143 | 52 | 169 | 316 | 464 | 3792 |
| 1913 | 341 | 437 | 89 | 817 | 1289 | 990 | 103 | 18 | 351 | 285 | 139 | 217 | 5076 |
| 1914 | 120 | 431 | 1226 | 25 | 460 | 864 | 122 | 131 | 1193 | 1719 | 535 | 494 | 7320 |
| 1915 | 227 | 402 | 55 | 187 | 667 | 44 | 76 | 113 | 58 | 37 | 35 | 309 | 2210 |
| 1916 | 267 | 342 | 279 | 1135 | 699 | 67 | 31 | 209 | 116 | 177 | 345 | 582 | 4249 |
| 1917 | 344 | 253 | 452 | 160 | 303 | 148 | 44 | 112 | 362 | 302 | 1228 | 418 | 4126 |

Appendix 10
Sheet 3

## KEMPSEY (WEST) RAINFALL STATISTICS
(points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1918 | 662 | 414 | 325 | 371 | 367 | 22 | 87 | 114 | 179 | 122 | 97 | 226 | 2986 |
| 1919 | 250 | 232 | 763 | 225 | 771 | 157 | 109 | 0 | 14 | 236 | 239 | 326 | 3322 |
| 1920 | 855 | 278 | 195 | 306 | 184 | 199 | 500 | 41 | 292 | 282 | 419 | 273 | 3824 |
| 1921 | 984 | 187 | 290 | 477 | 1549 | 669 | 1174 | 72 | 265 | 319 | 138 | 447 | 6571 |
| 1922 | 397 | 1594 | 34 | 98 | 342 | 292 | 1137 | 450 | 630 | 155 | 130 | 203 | 5462 |
| 1923 | 270 | 188 | 326 | 1380 | 11 | 122 | 428 | 414 | 230 | 167 | 41 | 605 | 4182 |
| 1924 | 504 | 219 | 245 | 500 | 181 | 270 | 655 | 179 | 164 | 231 | 597 | 324 | 4069 |
| 1925 | 284 | 385 | 769 | 248 | 794 | 493 | 6 | 411 | 9 | 136 | 849 | 650 | 5034 |
| 1926 | 357 | 390 | 407 | 222 | 290 | 376 | 536 | 97 | 64 | 34 | 5 | 656 | 3434 |
| 1927 | 1008 | 325 | 325 | 623 | 2 | 113 | 19 | 5 | 77 | 380 | 894 | 448 | 4219 |
| 1928 | 1165 | 907 | 370 | 628 | 245 | 942 | 218 | 29 | 0 | 369 | 178 | 154 | 5205 |
| 1929 | 272 | 3474 | 629 | 686 | 185 | 341 | 310 | 240 | 443 | 1061 | 162 | 41 | 7844 |
| 1930 | 411 | 475 | 786 | 1049 | 564 | 985 | 272 | 136 | 13 | 148 | 67 | 241 | 5147 |
| 1931 | 116 | 403 | 470 | 1543 | 220 | 87 | 186 | 46 | 65 | 19 | 328 | 881 | 4364 |
| 1932 | 214 | 236 | 190 | 479 | 282 | 58 | 276 | 34 | 1181 | 329 | 385 | 105 | 3769 |
| 1933 | 802 | 10 | 178 | 1108 | 43 | 1650 | 1072 | 73 | 1012 | 587 | 396 | 710 | 7641 |
| 1934 | 235 | 1173 | 851 | 1624 | 587 | 23 | 764 | 196 | 693 | 169 | 200 | 338 | 6853 |
| 1935 | 531 | 939 | 594 | 166 | 56 | 2 | 382 | 54 | 841 | 200 | 102 | 444 | 4311 |

KEMPSEY (WEST) RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1936 | 523 | 492 | 731 | 286 | 146 | 126 | 29 | 37 | 173 | 245 | 35 | 846 | 3669 |
| 1937 | 607 | 561 | 893 | 343 | 36 | 567 | 209 | 268 | 39 | 340 | 817 | 252 | 4932 |
| 1938 | 904 | 746 | 149 | 503 | 590 | 58 | 116 | 229 | 124 | 274 | 221 | 37 | 3951 |
| 1939 | 295 | 0 | 1332 | 311 | 101 | 100 | 35 | 277 | 277 | 481 | 337 | 250 | 3796 |
| 1940 | 336 | 123 | 783 | 257 | 15 | 89 | 36 | 161 | 52 | 248 | 111 | 573 | 2784 |
| 1941 | 659 | 364 | 449 | 209 | 255 | 155 | 238 | 26 | 10 | 161 | 204 | 104 | 2834 |
| 1942 | 118 | 998 | 511 | 132 | 82 | 372 | 233 | 28 | 54 | 999 | 435 | 424 | 4386 |
| 1943 | 512 | 111 | 206 | 127 | 990 | 22 | 21 | 369 | 295 | 204 | 1116 | 765 | 4738 |
| 1944 | 1001 | 100 | 168 | 54 | 52 | 205 | 464 | 840 | 98 | 121 | 229 | 233 | 3565 |
| 1945 | 583 | 422 | 61 | 299 | 313 | 1294 | 591 | 151 | 68 | 215 | 1065 | 270 | 5332 |
| 1946 | 505 | 387 | 1328 | 755 | 108 | 9 | 6 | 20 | 198 | 213 | 200 | 222 | 3951 |
| 1947 | 371 | 1137 | 594 | 627 | 242 | 23 | 11 | 101 | 119 | 174 | 527 | 1339 | 5265 |
| 1948 | 375 | 112 | 982 | 162 | 704 | 1188 | 106 | 26 | 237 | 21 | 315 | 265 | 4493 |
| 1949 | 1079 | 678 | 699 | 333 | 164 | 158 | 577 | 1479 | 375 | 299 | 378 | 271 | 6490 |
| 1950 | 390 | 793 | 502 | 390 | 130 | 2186 | 1732 | 866 | 262 | 387 | 1183 | 460 | 9281 |
| 1951 | 1155 | 449 | 928 | 118 | 142 | 882 | 0 | 143 | 32 | 129 | 49 | 103 | 4130 |
| 1952 | 125 | 665 | 468 | 282 | 209 | 517 | 342 | 1306 | 122 | 429 | 80 | 234 | 4779 |
| 1953 | 702 | 1259 | 565 | 326 | 400 | 0 | 45 | 182 | 36 | 274 | 87 | 90 | 3966 |

## KEMPSEY (WEST) RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1954 | 251 | 1924 | 184 | 320 | 427 | 243 | 348 | 309 | | NO RECORDS | | | |
| 1955 | | | | | | NO RECORDS | | | | | | | |
| 1956 | | NO RECORDS | | | | 789 | 40 | 85 | 101 | NR. | 36 | 281 | |
| 1957 | 136 | 897 | 688 | 143 | 0 | 45 | 280 | 533 | 2 | 216 | 38 | 121 | 3099 |
| 1958 | 346 | 609 | 518 | 653 | 53 | 593 | 6 | 609 | 185 | 99 | 54 | 1098 | 4823 |
| 1959 | 1057 | 694 | 829 | 172 | 75 | 366 | 392 | 249 | 529 | 285 | 1132 | 477 | 6257 |
| 1960 | 689 | 676 | 642 | 211 | 201 | 220 | 30 | 52 | 66 | 134 | 269 | 70 | 3260 |
| 1961 | 314 | 879 | 529 | 228 | 293 | 673 | 95 | 115 | 76 | 700 | 296 | 374 | 4572 |
| 1962 | 1178 | 136 | 704 | 1891 | 841 | 24 | 1070 | 510 | 250 | 132 | 259 | 893 | 7888 |
| 1963 | 522 | 228 | 1842 | 2282 | 1684 | 421 | 29 | 198 | 325 | 248 | 362 | 720 | 8861 |
| 1964 | 563 | 728 | 1081 | 836 | 100 | 179 | 57 | 262 | 96 | 159 | 96 | 133 | 4290 |
| 1965 | 107 | 170 | 175 | 311 | 159 | 302 | 422 | 144 | 63 | 312 | 132 | 712 | 3009 |
| 1966 | 107 | 614 | 445 | 413 | NR | NR | NR | 186 | 95 | 292 | 749 | 66 | |
| 1967 | 1137 | 427 | 714 | 646 | 105 | 2194 | 70 | 769 | 157 | 556 | 98 | 241 | 7114 |
| 1968 | 1532 | 350 | 380 | 34 | 164 | 4 | 85 | 778 | 51 | 73 | 233 | 332 | 4016* |

* Kempsey 2KP Rainfall statistics have been adopted for 1968.

Appendix 11
Sheet 1

MACKSVILLE RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1889 | 216 | 298 | 1320 | 854 | 570 | 44 | 1022 | 1883 | 633 | 212 | 328 | 498 | 7878 |
| 1890 | 1859 | 1842 | 1971 | 429 | 516 | 284 | 550 | 113 | 231 | 389 | 250 | 756 | 9190 |
| 1891 | 1216 | 1457 | 660 | 288 | 550 | 783 | 113 | 272 | 384 | 199 | 497 | 897 | 7316 |
| 1892 | 375 | 247 | 1479 | 1833 | 389 | 308 | 232 | 212 | 209 | 686 | 632 | 1000 | 7602 |
| 1893 | 459 | 1352 | 1628 | 140 | 260 | 1437 | 107 | 355 | 120 | 989 | 313 | 42 | 7202 |
| 1894 | 656 | 852 | 1769 | 132 | 225 | 115 | 16 | 128 | 514 | 475 | 76 | 434 | 5392 |
| 1895 | 2789 | 738 | 278 | 111 | 36 | 0 | 14 | 42 | 201 | 94 | 340 | 783 | 5426 |
| 1896 | 244 | 669 | 229 | 35 | 198 | 196 | 116 | 183 | 103 | 186 | 888 | 259 | 3306 |
| 1897 | 90 | 296 | 400 | 124 | 349 | 749 | 481 | 132 | 89 | 85 | 53 | 934 | 3782 |
| 1898 | 605 | 393 | 518 | 35 | 977 | 984 | 292 | 320 | 534 | 238 | 111 | 340 | 5347 |
| 1899 | 219 | 417 | 798 | 280 | 455 | 224 | 575 | 2273 | 900 | 355 | 275 | 373 | 7144 |
| 1900 | 189 | 215 | 97 | 198 | 1177 | 570 | 910 | 0 | 132 | 18 | 360 | 190 | 4056 |
| 1901 | 713 | 285 | 823 | 503 | 789 | 420 | 300 | 283 | 180 | 427 | 65 | 125 | 4913 |
| 1902 | 319 | 52 | 101 | 193 | 12 | 110 | 100 | 125 | 150 | 261 | 422 | 291 | 2136 |
| 1903 | 393 | 150 | 685 | 21 | 120 | 1146 | 638 | 150 | 250 | 135 | 290 | 400 | 4378 |
| 1904 | NO RECORDS | | 129 | | | NO RECORDS | | | | 573 | NO RECORDS | | |
| 1905 | 218 | 330 | 211 | 1855 | 687 | 75 | 13 | 20 | 34 | 203 | 316 | 714 | 4676 |

Appendix 11
Sheet 2

MACKSVILLE RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1906 | 111 | 259 | 902 | 224 | 401 | 52 | 0 | 705 | 1038 | 338 | 0 | 135 | 4165 |
| 1907 | 735 | 270 | 400 | 88 | 480 | 293 | | | NO RECORDS | | | | |
| 1908 | | | | | | | NO RECORDS | | | | | | |
| 1909 | | | | | | | NO RECORDS | | | | | | |
| 1910 | 698 | 182 | 1124 | 604 | 149 | 379 | 10 | 5 | 20 | 411 | 225 | 362 | 4169 |
| 1911 | 1102 | 1025 | 680 | 134 | 59 | 13 | 266 | 800 | 158 | 84 | 271 | 79 | 4671 |
| 1912 | 186 | 951 | 679 | 13 | 82 | 379 | 957 | 126 | 66 | 171 | 229 | 294 | 4133 |
| 1913 | 255 | 449 | 30 | 954 | 1232 | 957 | 64 | 7 | 461 | | NO RECORDS | | |
| 1914 | 251 | 374 | 975 | 124 | 736 | 725 | 180 | 151 | 712 | 1725 | 489 | 450 | 6892 |
| 1915 | NO RECORDS | | 141 | 110 | 850 | 30 | 117 | 60 | 20 | 0 | 71 | 360 | |
| 1916 | 222 | 823 | 105 | 811 | 524 | 65 | 32 | N.R. | 142 | 125 | 349 | 718 | |
| 1917 | 383 | 300 | 465 | 238 | 242 | 115 | 83 | 131 | 443 | 228 | 1542 | 219 | 4389 |
| 1918 | 817 | 178 | 619 | 365 | 280 | 90 | 130 | 140 | 152 | 122 | 110 | 122 | 3125 |
| 1919 | 305 | 354 | 1248 | 902 | 969 | 154 | 79 | 0 | 5 | 298 | 192 | 170 | 4676 |
| 1920 | 1202 | 407 | 243 | 519 | 294 | 210 | 323 | 50 | 215 | 422 | 415 | 363 | 4663 |
| 1921 | 1279 | 248 | 439 | 521 | 1999 | 895 | 1589 | 207 | 54 | 303 | 263 | 775 | 8572 |
| 1922 | 291 | 2033 | 34 | 322 | 450 | 278 | 568 | 382 | 1477 | 220 | 175 | 497 | 6727 |

Appendix 11
Sheet 3

MACKSVILLE RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1923 | 226 | 95 | 437 | 1897 | 0 | 130 | 295 | 324 | 237 | 163 | 63 | 791 | 4658 |
| 1924 | 318 | 494 | 512 | 410 | 110 | 303 | 582 | 170 | 160 | 170 | 396 | 326 | 3951 |
| 1925 | 401 | 169 | 995 | 638 | 915 | 648 | 8 | 493 | 13 | 121 | 785 | 735 | 5921 |
| 1926 | 286 | 62 | 664 | 127 | 452 | 358 | 373 | 36 | 32 | 90 | 0 | 610 | 3090 |
| 1927 | 1282 | 303 | 408 | 716 | 0 | 112 | 0 | 14 | 159 | 674 | 815 | 388 | 4871 |
| 1928 | 752 | 802 | 252 | 1366 | 311 | 873 | 204 | 117 | 10 | 178 | 260 | 187 | 5312 |
| 1929 | 373 | 2188 | 588 | 723 | 272 | 326 | 361 | 153 | 369 | 1059 | 188 | 104 | 6704 |
| 1930 | 467 | 392 | 720 | 812 | 581 | 1169 | 208 | 79 | 125 | 227 | 177 | 307 | 5264 |
| 1931 | 163 | 639 | 429 | 1333 | 271 | 89 | 204 | 41 | 43 | 25 | 344 | 1207 | 4788 |
| 1932 | 171 | 201 | 176 | 356 | 379 | 52 | 363 | 9 | 1043 | 377 | 294 | 125 | 3546 |
| 1933 | 432 | 22 | 209 | 1106 | 0 | 1650 | 1035 | 23 | 376 | 637 | 321 | 925 | 6736 |
| 1934 | 270 | 1074 | 409 | 822 | 1037 | 7 | 382 | 237 | 520 | 121 | 143 | 249 | 5271 |
| 1935 | 640 | 719 | 852 | 173 | 37 | 0 | 375 | 5 | 1040 | 74 | 178 | 476 | 4569 |
| 1936 | 202 | 816 | 499 | 304 | 135 | 53 | 25 | 6 | 214 | 114 | 17 | 950 | 3335 |
| 1937 | 638 | 1369 | 1054 | 246 | 30 | 345 | 206 | 268 | 103 | 380 | 1107 | 245 | 5991 |
| 1938 | 1158 | 1241 | 513 | 465 | 918 | 52 | 63 | 127 | 179 | 271 | 169 | 75 | 5231 |
| 1939 | 464 | 7 | 2315 | 364 | 102 | 149 | 32 | 266 | 423 | 796 | 157 | 363 | 5438 |

Appendix 11
Sheet 4

## MACKSVILLE RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1940 | 319 | 87 | 1071 | 491 | 28 | 127 | 8 | 146 | 24 | 140 | 134 | 1439 | 4014 |
| 1941 | 645 | 333 | 573 | 356 | 275 | 109 | 259 | 24 | 0 | 133 | 438 | 96 | 3241 |
| 1942 | 35 | 1250 | 219 | 48 | 52 | 321 | 277 | 42 | 36 | 1310 | 362 | 907 | 4859 |
| 1943 | 341 | 327 | 263 | 238 | 1070 | 28 | 10 | 485 | 625 | 511 | 661 | 596 | 5155 |
| 1944 | 1435 | 183 | 196 | 57 | 50 | 301 | 555 | 1204 | 95 | 77 | 133 | 159 | 4445 |
| 1945 | 305 | 628 | 186 | 391 | 301 | 1264 | 745 | 95 | 93 | 173 | 1062 | 364 | 5607 |
| 1946 | 392 | 597 | 1988 | 534 | 75 | 13 | 0 | 17 | 186 | 211 | 111 | 305 | 4429 |
| 1947 | 645 | 1016 | 383 | 699 | 170 | 19 | 7 | 75 | 183 | 213 | 546 | 1533 | 5489 |
| 1948 | 359 | 136 | 1126 | 325 | 1136 | 1382 | 85 | 223 | 185 | 8 | 270 | 173 | 5408 |
| 1949 | 743 | 667 | 1215 | 324 | 329 | 274 | 0 | 1532 | 289 | 398 | 454 | 250 | 6475 |
| 1950 | 353 | 727 | 459 | 461 | 220 | 2083 | 2176 | 1012 | 273 | 438 | 1010 | 431 | 9643 |
| 1951 | 1083 | 563 | 1157 | 94 | 186 | 841 | 2 | 92 | 20 | 99 | 131 | 140 | 4408 |
| 1952 | 137 | 978 | 625 | 140 | 215 | 538 | 310 | 1385 | 85 | 396 | 25 | 208 | 5042 |
| 1953 | 447 | 1252 | 587 | 115 | 343 | 0 | 43 | 176 | 54 | 170 | 163 | 131 | 3481 |
| 1954 | 549 | 1621 | 379 | 321 | 690 | 206 | 864 | 197 | 651 | 599 | 337 | 726 | 7140 |
| 1955 | 933 | 740 | 945 | 808 | 690 | 71 | 69 | 2 | 321 | 597 | 80 | 1082 | 6338 |
| 1956 | 815 | 1645 | 1125 | 254 | 600 | 818 | 20 | 78 | 160 | 130 | 8 | 252 | 5905 |

Appexdix 11
Sheet 5

MACKSVILLE RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1957 | 175 | 869 | 689 | 20 | 15 | 37 | 190 | 453 | 0 | 332 | 24 | 142 | 2946 |
| 1958 | 368 | 443 | 395 | 938 | 169 | 685 | 3 | 1124 | 199 | 140 | 53 | 869 | 5386 |
| 1959 | 1262 | 1408 | 1255 | 87 | 74 | 273 | 341 | 204 | 610 | 332 | 1703 | 654 | 8203 |
| 1960 | 1443 | 564 | 624 | 386 | 278 | 175 | 70 | 53 | 49 | 146 | 220 | 160 | 4168 |
| 1961 | 264 | 807 | 537 | 297 | 309 | 923 | 132 | 125 | 239 | 640 | 174 | 479 | 4926 |
| 1962 | 1323 | 195 | 974 | 1796 | 898 | 22 | 875 | 306 | 142 | 134 | 308 | 1059 | 8032 |
| 1963 | 526 | 296 | 1879 | 1970 | 1879 | 543 | 22 | 126 | 557 | 266 | 409 | 661 | 9134 |
| 1964 | 521 | 917 | 1387 | 580 | 109 | 101 | 65 | 151 | 102 | 173 | 184 | 134 | 4424 |
| 1965 | 95 | 437 | 336 | 366 | 90 | 298 | 609 | 149 | 74 | 363 | 152 | 583 | 3252 |
| 1966 | 56 | 478 | 322 | 349 | 150 | 256 | 19 | 246 | 91 | 239 | 478 | 96 | 2780 |
| 1967 | 1426 | 258 | 726 | 1019 | 41 | 2462 | 66 | N.R. | 207 | 541 | 213 | 319 | |
| 1968 | 647 | 598 | 177 | 8 | 235 | 0 | 47 | 699 | 59 | 162 | 217 | 292 | 3141 |

Appendix 12
Sheet 1

## NAMBUCCA HEADS RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1905 | 300 | 1167 | 269 | 1672 | 687 | 75 | 13 | 59 | 80 | 137 | 263 | 711 | 5433 |
| 1906 | 315 | 253 | 938 | 209 | 395 | 110 | 0 | 1005 | 1045 | 425 | 115 | 295 | 5105 |
| 1907 | 717 | 800 | 773 | 101 | 701 | 403 | 16 | 46 | 0 | 123 | 269 | 253 | 4202 |
| 1908 | 362 | 1511 | 901 | 459 | 79 | 33 | 117 | 603 | 279 | 45 | 521 | 208 | 5118 |
| 1909 | 86 | 302 | 705 | 498 | 110 | 184 | 180 | 43 | 248 | 130 | 482 | 386 | 3354 |
| 1910 | 690 | 200 | 1208 | 824 | 95 | 235 | 0 | 36 | 20 | 310 | 292 | 307 | 4217 |
| 1911 | 1020 | 665 | 1015 | 130 | 130 | 4 | 239 | 750 | 126 | 60 | 341 | 160 | 4640 |
| 1912 | 250 | 736 | 455 | 13 | 149 | 356 | 1098 | 101 | 23 | 136 | 196 | 290 | 3803 |
| 1913 | 79 | 555 | 30 | 992 | 1535 | 770 | 140 | 0 | 450 | 100 | 199 | 205 | 5055 |
| 1914 | 110 | 422 | 1673 | 30 | 558 | 458 | 168 | 145 | 629 | 1630 | 460 | 672 | 6955 |
| 1915 | 290 | 400 | 270 | 173 | 718 | 0 | 71 | 60 | 10 | 30 | 50 | 335 | 2407 |
| 1916 | 240 | 690 | 219 | 880 | 360 | 10 | 0 | 256 | 136 | 311 | 343 | 665 | 4110 |
| 1917 | 312 | 405 | 496 | 225 | 242 | 125 | 0 | 245 | 310 | 110 | 1449 | 214 | 4133 |
| 1918 | 618 | 194 | 729 | 695 | 356 | 100 | 146 | 109 | 194 | 87 | 160 | 153 | 3541 |
| 1919 | NO RECORDS | | | | | | | | | | | | |
| 1920 | 910 | 554 | 308 | 781 | 317 | 409 | 410 | 412 | 235 | 518 | 582 | 362 | 5798 |
| 1921 | 1624 | 294 | 564 | 638 | 1935 | 950 | 1415 | 158 | 242 | 225 | 262 | 846 | 9153 |
| 1922 | 483 | 1859 | 81 | 91 | 429 | 348 | 431 | 357 | 1080 | 224 | 238 | 318 | 5939 |

Appendix 12
Sheet 2

## NAMBUCCA HEADS RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1923 | 621 | 189 | 418 | 1602 | 12 | 265 | 285 | 680 | 300 | 252 | 106 | 823 | 5553 |
| 1924 | 480 | 415 | 697 | 479 | 101 | 367 | 513 | 138 | 169 | 168 | 388 | 436 | 4351 |
| 1925 | 423 | 118 | 1025 | 323 | 1153 | 507 | 3 | 502 | 28 | 115 | 762 | 550 | 5509 |
| 1926 | 440 | 452 | 848 | 371 | 375 | 500 | 588 | 100 | 65 | 66 | 26 | 508 | 4339 |
| 1927 | 1282 | 381 | 629 | 1055 | 55 | 113 | 0 | 87 | 90 | 467 | 925 | 419 | 5503 |
| 1928 | 690 | 919 | 463 | 1362 | 325 | 1037 | 188 | 58 | 4 | 252 | 226 | 298 | 5822 |
| 1929 | 684 | 2397 | 876 | 709 | 373 | 440 | 163 | 126 | 297 | 1074 | 124 | 154 | 7417 |
| 1930 | 566 | 428 | 912 | 839 | 759 | 1181 | 272 | 121 | 37 | 241 | 307 | 214 | 5877 |
| 1931 | 119 | 593 | 578 | 1316 | 261 | 115 | 255 | 44 | 51 | 93 | 391 | 938 | 4754 |
| 1932 | 155 | 141 | 78 | 675 | 425 | 69 | 304 | 14 | 902 | 296 | 270 | 184 | 3513 |
| 1933 | 501 | 29 | 234 | 793 | 27 | 1624 | 981 | 48 | 651 | 739 | 407 | 796 | 6830 |
| 1934 | 430 | 1098 | 721 | 1183 | 911 | 22 | 885 | 451 | 534 | 228 | 253 | 150 | 6866 |
| 1935 | 406 | 891 | 1263 | 303 | 105 | 6 | 330 | 27 | 1156 | 132 | 178 | 507 | 5304 |
| 1936 | 314 | 775 | 1041 | 445 | 283 | 99 | 73 | 11 | 316 | 210 | 16 | 1059 | 4642 |
| 1937 | 597 | 1112 | 1285 | 609 | 3 | 659 | 189 | 194 | 35 | 331 | 912 | 357 | 6283 |
| 1938 | 1083 | 1192 | 634 | 431 | 898 | 60 | 85 | 137 | 184 | 272 | 179 | 54 | 5209 |
| 1939 | 1039 | 9 | 2169 | 459 | 209 | 120 | 79 | 222 | 382 | 1284 | 136 | 261 | 6369 |
| 1940 | 337 | 92 | 1030 | 431 | 51 | 141 | 5 | 219 | 36 | 120 | 209 | 1223 | 3894 |

Appendix 12
Sheet 3

NAMBUCCA HEADS RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1941 | 824 | 467 | 606 | 569 | 231 | 112 | 286 | 79 | 3 | 205 | 482 | 74 | 3938 |
| 1942 | 62 | 1258 | 245 | 184 | 39 | 342 | 182 | 89 | 9 | 1227 | 453 | 1085 | 5175 |
| 1943 | 287 | 217 | 567 | 217 | 1055 | 32 | 4 | 532 | 567 | 259 | 788 | 606 | 5142 |
| 1944 | 1609 | 57 | 219 | 39 | 28 | 418 | 603 | 996 | 138 | 137 | 177 | 245 | 4666 |
| 1945 | 175 | 466 | 238 | 526 | 270 | 1345 | 751 | 66 | 146 | 268 | 1038 | 363 | 5652 |
| 1946 | 378 | 755 | 1497 | 671 | 35 | 18 | 0 | 32 | 199 | 194 | 254 | 280 | 4313 |
| 1947 | 476 | 1280 | 446 | 846 | 254 | 36 | 0 | 117 | 198 | 267 | 686 | 1301 | 5907 |
| 1948 | 382 | 197 | 1099 | 275 | 774 | 1300 | 81 | 107 | 245 | 5 | 438 | 191 | 5094 |
| 1949 | 611 | 823 | 1307 | 413 | 447 | 333 | 525 | 1220 | 366 | 510 | 430 | 243 | 7228 |
| 1950 | 422 | 1121 | 493 | 888 | 284 | 2209 | 2774 | 1132 | 273 | 501 | 1282 | 492 | 11871 |
| 1951 | 1236 | 623 | 1290 | 112 | 300 | 992 | 0 | 88 | 19 | 274 | 124 | 154 | 5212 |
| 1952 | 82 | 1250 | 848 | 231 | 245 | 581 | 342 | 1359 | 64 | 408 | 22 | 277 | 5709 |
| 1953 | 535 | 1644 | 528 | 234 | 649 | 0 | 89 | 244 | 56 | 154 | 89 | 117 | 4339 |
| 1954 | 799 | 1797 | 366 | 494 | 775 | 218 | 678 | 357 | 828 | 643 | 413 | 493 | 7861 |
| 1955 | 914 | 779 | 909 | 1009 | 1105 | 164 | 125 | 3 | 374 | 891 | 82 | 1217 | 7572 |
| 1956 | 1219 | 1727 | 1042 | 400 | 763 | 851 | 26 | 115 | 148 | 146 | 20 | 282 | 6739 |
| 1957 | 153 | 951 | 644 | 50 | 2 | 49 | 333 | 719 | 19 | 293 | 48 | 234 | 3495 |
| 1958 | 479 | 539 | 474 | 1237 | 276 | 782 | 22 | 1480 | 198 | 130 | 45 | 565 | 6227 |

## NAMBUCCA HEADS RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1959 | 1208 | 1405 | 1205 | 193 | 133 | 261 | 444 | 251 | 794 | 278 | 1470 | 491 | 8233 |
| 1960 | 1260 | 547 | 726 | 301 | 400 | 289 | 66 | 64 | 55 | 162 | 317 | 200 | 4387 |
| 1961 | 349 | 789 | 543 | 346 | 336 | 679 | 129 | 192 | 515 | 539 | 241 | 580 | 5238 |
| 1962 | 1605 | 208 | 1144 | 2299 | 1232 | 14 | 779 | 385 | 148 | 108 | 297 | 1063 | 9282 |
| 1963 | 642 | 210 | 1801 | 2149 | 1930 | 558 | 11 | 144 | 323 | 276 | 348 | 707 | 9099 |
| 1964 | 427 | 885 | 1170 | 658 | 129 | 161 | 75 | 259 | 107 | 172 | 141 | 130 | 4314 |
| 1965 | 186 | 237 | 104 | 571 | 132 | 526 | 410 | 142 | 90 | 358 | 83 | 558 | 3397 |
| 1966 | 109 | 588 | 295 | 476 | 121 | 461 | 17 | 367 | 96 | 271 | 571 | 94 | 3466 |
| 1967 | 2078 | 226 | 680 | 1021 | 67 | 2103 | 33 | 457 | 186 | 489 | 266 | 384 | 7990 |
| 1968 | 606 | 901 | 189 | 18 | 250 | 00 | 53 | 622 | 94 | 284 | 132 | 271 | 3430 |

Appendix 13
Sheet 1

## ORARA UPPER RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1899 | | NO | RECORDS | | 298 | 439 | 1876 | 1423 | 856 | 440 | 346 | 574 | |
| 1900 | 232 | 197 | 114 | 145 | 967 | 796 | 1336 | 79 | 151 | 48 | 427 | 358 | 4850 |
| 1901 | 549 | 449 | 1755 | 679 | 647 | 694 | 101 | 360 | 178 | 396 | 120 | 166 | 6094 |
| 1902 | 331 | 43 | 187 | 33 | 0 | 8 | 125 | 225 | 122 | 489 | 199 | 145 | 1907 |
| 1903 | 378 | 267 | 292 | 313 | 619 | 956 | 713 | 267 | 363 | 397 | 496 | 525 | 5586 |
| 1904 | 200 | 63 | 1408 | | | NO | RECORDS | | 71 | 400 | N.R. | 206 | |
| 1905 | 242 | 947 | 895 | 1845 | 1231 | 70 | 14 | 128 | 64 | 306 | 411 | 509 | 6662 |
| 1906 | NO | RECORDS | 1343 | 394 | 827 | 63 | 1 | 996 | 958 | 800 | 192 | 469 | |
| 1907 | 973 | 921 | 1006 | 213 | 391 | 466 | 134 | 84 | 1 | 113 | 383 | 330 | 5015 |
| 1908 | 506 | 1692 | 893 | 534 | 104 | 37 | 231 | 811 | 179 | 74 | 551 | 604 | 6216 |
| 1909 | 203 | 435 | 768 | 386 | 100 | 139 | 111 | 30 | 332 | 135 | 588 | 764 | 3941 |
| 1910 | 1174 | 158 | 2001 | 961 | 246 | 662 | 5 | 43 | 210 | 509 | 571 | 801 | 7341 |
| 1911 | 2143 | 1664 | 966 | 108 | 218 | 10 | 366 | 979 | 162 | 219 | 433 | 372 | 7640 |
| 1912 | 420 | 788 | 1086 | 29 | 148 | 822 | 794 | | | NO | RECORDS | | |
| 1913 | | | | | | | NO | RECORDS | | | | | |
| 1914 | | | | | | | NO | RECORDS | | | | | |
| 1915 | | | | | | NO | RECORDS | | | | 121 | 437 | |
| 1916 | 308 | 801 | 228 | 1393 | 612 | 47 | 92 | 316 | 260 | 350 | 753 | 1428 | 6588 |

Appendix 13
Sheet 2

## ORARA UPPER RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1917 | 690 | 648 | 490 | 214 | 221 | 114 | 109 | 121 | 398 | 195 | 2495 | 598 | 6293 |
| 1918 | 1064 | 460 | 1135 | 758 | 517 | 60 | 195 | 204 | 218 | 117 | 270 | 353 | 5351 |
| 1919 | 435 | 208 | 2382 | 926 | 1384 | 257 | 158 | 8 | 11 | 283 | 291 | 379 | 6722 |
| 1920 | 1519 | 985 | 540 | 582 | 307 | 258 | 475 | 63 | 336 | 813 | 812 | 154 | 6844 |
| 1921 | 2496 | 376 | 855 | 802 | 2691 | 1283 | 1737 | 234 | 265 | 243 | 310 | 1231 | 12523 |
| 1922 | 148 | 2854 | 176 | 229 | 684 | 557 | 837 | 325 | 1156 | 189 | 146 | 257 | 7558 |
| 1923 | 367 | 301 | 1022 | 2801 | 12 | 349 | 261 | 530 | 85 | 112 | 90 | 475 | 6405 |
| 1924 | 380 | 624 | 459 | 459 | 183 | 689 | 567 | 109 | 263 | 236 | 496 | 515 | 4980 |
| 1925 | 485 | 408 | 1688 | 419 | 1567 | 1658 | 43 | 560 | 40 | 155 | 1168 | 1199 | 9390 |
| 1926 | 574 | 210 | 410 | 464 | 629 | 439 | 517 | 115 | 156 | 141 | 14 | 880 | 4549 |
| 1927 | 1384 | 566 | 697 | 606 | 36 | 252 | 15 | 12 | 223 | 722 | 1237 | 768 | 6518 |
| 1928 | 1345 | 1811 | 677 | 1133 | 411 | 954 | 232 | 150 | 14 | 187 | 195 | 319 | 7428 |
| 1929 | 776 | 1866 | 1539 | 924 | 253 | 664 | 211 | 147 | 580 | 1090 | 156 | 131 | 8337 |
| 1930 | 586 | 396 | 1144 | 1010 | 893 | 1284 | 226 | 103 | 73 | 186 | 293 | 261 | 6455 |
| 1931 | 419 | 2190 | 756 | 830 | 263 | 224 | 77 | 54 | 35 | 213 | 783 | 1270 | 7114 |
| 1932 | 594 | 1126 | 54 | 419 | 418 | 67 | 295 | 34 | 1193 | 827 | 550 | 124 | 5701 |
| 1933 | 1273 | 90 | 313 | 1191 | 50 | 1818 | 1654 | 84 | 580 | 607 | 396 | 883 | 8939 |
| 1934 | 340 | 1558 | 696 | 1818 | 951 | 58 | 1184 | 279 | 398 | 309 | 372 | 431 | 8394 |

Appendix 13
Sheet 3

## ORARA UPPER RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1935 | 344 | 1048 | 927 | 307 | 96 | 19 | 440 | 68 | 767 | 293 | 154 | 623 | 5086 |
| 1936 | 565 | 916 | 1483 | 541 | 597 | 145 | 57 | 63 | 346 | 136 | 51 | 1076 | 5976 |
| 1937 | 697 | 3027 | 1696 | 702 | 5 | 585 | 285 | 280 | 35 | 683 | 1549 | 611 | 10155 |
| 1938 | 2011 | 1284 | 752 | 1025 | 993 | 86 | 218 | 169 | 239 | 260 | 248 | 74 | 7359 |
| 1939 | 962 | 58 | 2352 | 540 | 313 | 137 | 120 | 335 | 440 | 1127 | 281 | 344 | 7009 |
| 1940 | 364 | 185 | 1203 | 913 | 75 | 196 | 4 | 211 | 54 | 282 | 128 | 1156 | 4771 |
| 1941 | 667 | 733 | 769 | 447 | 340 | 98 | 273 | 215 | 10 | 202 | 629 | 130 | 4513 |
| 1942 | 122 | 1734 | 611 | 182 | 470 | 74 | 214 | 36 | 26 | 926 | 424 | 825 | 5644 |
| 1943 | 256 | 217 | 729 | 321 | 1378 | 20 | 14 | 577 | 440 | 560 | 1252 | 1692 | 7456 |
| 1944 | 872 | 263 | 817 | 100 | 41 | 376 | 327 | 1755 | 186 | 111 | 132 | 493 | 5473 |
| 1945 | 495 | 508 | 398 | 578 | 209 | 1909 | 903 | 60 | 109 | 270 | 590 | 525 | 6554 |
| 1946 | 448 | 1199 | 2064 | 551 | 75 | 52 | 0 | 20 | 351 | 309 | 404 | 816 | 6289 |
| 1947 | 1191 | 1776 | 570 | 960 | 368 | 8 | 20 | 141 | 248 | 219 | 968 | 1338 | 7807 |
| 1948 | 446 | 254 | 1603 | 624 | 724 | 1945 | 130 | 75 | 391 | 23 | 441 | 261 | 6917 |
| 1949 | 620 | 721 | 2058 | 372 | 286 | 240 | 302 | 1267 | 294 | 495 | 693 | 349 | 7697 |
| 1950 | 878 | 1637 | 924 | 953 | 194 | 3915 | 2312 | 790 | 273 | 769 | 1254 | 1011 | 14910 |
| 1951 | 1764 | 743 | 1676 | 315 | 334 | 1224 | 18 | 78 | 0 | 282 | 191 | 106 | 6731 |
| 1952 | 257 | 1082 | 699 | 732 | 261 | 595 | 234 | 1537 | 63 | 395 | 89 | 285 | 6229 |

## ORARA UPPER RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1953 | 1016 | 2504 | 1675 | 218 | 401 | 0 | 82 | 188 | 62 | 116 | 118 | 248 | 6628 |
| 1954 | 820 | 3353 | 470 | 846 | 843 | 215 | 1685 | 268 | 1535 | 993 | 755 | 940 | 12723 |
| 1955 | 1015 | 611 | 1747 | 1269 | 1350 | 251 | 115 | 11 | 770 | 655 | 74 | 1466 | 9334 |
| 1956 | 1470 | 3651 | 2726 | 411 | 1053 | 828 | 32 | 160 | 205 | 128 | 38 | 666 | 11368 |
| 1957 | 620 | 1357 | 144 | 62 | 18 | 49 | 317 | 1133 | 9 | 210 | 142 | 440 | 5801 |
| 1958 | 697 | 625 | 1208 | 1562 | 153 | 1016 | 0 | 1122 | 172 | 177 | 204 | 716 | 7652 |
| 1959 | 2721 | 1817 | 1480 | 277 | 156 | 257 | 493 | 280 | 729 | 359 | 1811 | 698 | 11078 |
| 1960 | 1316 | 1189 | 1560 | 618 | 475 | 282 | 70 | 42 | 105 | 294 | 334 | 108 | 6393 |
| 1961 | 611 | 1406 | 714 | 440 | 485 | 811 | 133 | 272 | 1023 | 660 | 437 | 923 | 7915 |
| 1962 | 1345 | 592 | 1225 | 3986 | 922 | 42 | 1496 | 582 | 231 | 145 | 267 | 1160 | 11993 |
| 1963 | 1306 | 545 | 2283 | 2573 | 2224 | 757 | 16 | 133 | 514 | 569 | 708 | 890 | 12518 |
| 1964 | 503 | 1371 | 2453 | 939 | 139 | 74 | 70 | 166 | 59 | 289 | 684 | 302 | 7049 |
| 1965 | 374 | 604 | 83 | 668 | 126 | 850 | 971 | 340 | 98 | 350 | 767 | 1451 | 6682 |
| 1966 | 120 | 663 | 431 | 762 | 112 | 387 | 21 | 478 | 120 | 442 | 820 | 325 | 4681 |
| 1967 | 3502 | 592 | 1625 | 1089 | 305 | 4301 | 224 | 493 | 154 | 879 | 161 | 502 | 13827 |
| 1968 | 1373 | 677 | 358 | 48 | 192 | 31 | 75 | 1039 | 86 | 282 | 297 | 647 | 5105 |

Appendix 14
Sheet 1

## RALEIGH CENTRAL RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1902 | NO RECORDS | | 154 | 122 | 48 | 29 | 86 | 134 | 294 | 411 | 527 | 222 | |
| 1903 | 495 | 171 | 597 | 210 | 465 | 1028 | 810 | 359 | 427 | 288 | 712 | 626 | 6188 |
| 1904 | 377 | 220 | 574 | 1340 | 786 | 22 | 768 | 129 | 158 | 1273 | 228 | 232 | 6107 |
| 1905 | 217 | 849 | 640 | 1258 | 306 | 118 | 21 | 76 | 68 | 212 | 601 | 529 | 4895 |
| 1906 | 436 | 733 | 869 | 287 | 650 | 184 | 12 | 1307 | 1320 | 401 | 105 | 381 | 6685 |
| 1907 | 611 | 1146 | 734 | 306 | 464 | 759 | 53 | 62 | 0 | 127 | 331 | 290 | 4883 |
| 1908 | 316 | 1670 | 849 | 654 | 50 | 66 | 183 | 738 | 208 | 78 | 405 | 525 | 5742 |
| 1909 | 129 | 291 | 864 | 461 | 175 | 132 | 143 | 64 | 313 | 180 | 611 | 770 | 4133 |
| 1910 | 729 | 196 | 1789 | 1033 | 191 | 364 | 24 | 42 | 122 | 391 | 402 | 564 | 5847 |
| 1911 | 1532 | 1279 | 994 | 70 | 220 | 16 | 344 | 803 | 296 | 201 | 289 | 257 | 6301 |
| 1912 | 459 | 789 | 794 | 61 | 135 | 564 | 1066 | 114 | 26 | 235 | 180 | 607 | 5030 |
| 1913 | 522 | 537 | 81 | 994 | 1159 | 798 | 184 | 0 | 458 | 169 | 131 | 313 | 5346 |
| 1914 | 204 | 544 | 2412 | 48 | 490 | 1012 | 491 | 282 | 497 | 2068 | 541 | 515 | 9104 |
| 1915 | 249 | 387 | 115 | 195 | 514 | 36 | 108 | 66 | 45 | 30 | 115 | 620 | 2480 |
| 1916 | 312 | 869 | 312 | 912 | 345 | 59 | 46 | 286 | 230 | 440 | 371 | 784 | 4966 |
| 1917 | 523 | 315 | 453 | 288 | 284 | 100 | 65 | 217 | 357 | 165 | 2316 | 545 | 5628 |
| 1918 | 812 | 280 | 1157 | 582 | 324 | 26 | 123 | 185 | 114 | 85 | 214 | 205 | 4107 |
| 1919 | 446 | 200 | 1377 | 629 | 1274 | 280 | 61 | 14 | 0 | 337 | 269 | 573 | 5460 |

Appendix 14
Sheet 2

RALEIGH CENTRAL RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1920 | 978 | 802 | 944 | 512 | 459 | 154 | 439 | 72 | 379 | 633 | 808 | 180 | 6360 |
| 1921 | 2471 | 508 | 649 | 874 | 2068 | 1215 | 1123 | 177 | 376 | 273 | 283 | 1205 | 11222 |
| 1922 | 329 | 2154 | 41 | 258 | 398 | 474 | 547 | 318 | 1021 | 170 | 173 | 258 | 6141 |
| 1923 | 611 | 298 | 392 | 2712 | 13 | 273 | 338 | 504 | 182 | 203 | 58 | 635 | 6219 |
| 1924 | 293 | 431 | 694 | 355 | 133 | 444 | 587 | 230 | 102 | 208 | 468 | 699 | 4644 |
| 1925 | 584 | 232 | 1096 | 599 | 1273 | 589 | 22 | 690 | 51 | 120 | 782 | 602 | 6640 |
| 1926 | 543 | 106 | 1005 | 605 | 336 | 439 | 621 | 65 | 105 | 111 | 15 | 550 | 4501 |
| 1927 | 1169 | 580 | 861 | 1394 | 0 | 176 | 20 | 16 | 115 | 690 | 1049 | 511 | 6581 |
| 1928 | 789 | 928 | 714 | 1592 | 384 | 1185 | 431 | 104 | 20 | 138 | 206 | 496 | 6987 |
| 1929 | 686 | 2061 | 1015 | 537 | 595 | 585 | 186 | 154 | 404 | 1186 | 170 | 148 | 7727 |
| 1930 | 405 | 634 | 1475 | 740 | 1008 | 1195 | 290 | 106 | 0 | 219 | 280 | 185 | 6537 |
| 1931 | 259 | 1101 | 736 | 1193 | 193 | 162 | 220 | 59 | 33 | 72 | 521 | 1388 | 5937 |
| 1932 | 514 | 218 | 29 | 874 | 651 | 93 | 344 | 18 | 1021 | 241 | 301 | 235 | 4539 |
| 1933 | 749 | 94 | 269 | 1481 | 62 | 1985 | 1107 | 63 | 521 | 937 | 449 | 920 | 8637 |
| 1934 | 235 | 1259 | 780 | 1502 | 838 | 19 | 840 | 354 | 581 | 428 | 103 | 296 | 7235 |
| 1935 | 420 | 1292 | 1281 | 119 | 88 | 0 | 448 | 37 | 911 | 105 | 144 | 510 | 5355 |
| 1936 | 309 | 740 | 1178 | 340 | 217 | 102 | 59 | 15 | 293 | 191 | 12 | 1213 | 4669 |
| 1937 | 635 | 1898 | 1274 | 668 | 12 | 665 | 119 | 165 | 33 | 415 | 1136 | 413 | 7433 |

Appendix 14
Sheet 3

RALEIGH CENTRAL RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1938 | 1521 | 1308 | 753 | 547 | 973 | 63 | 88 | 118 | 260 | 294 | 212 | 90 | 6227 |
| 1939 | 877 | 0 | 1862 | 552 | 319 | 76 | 63 | 58 | 378 | 1377 | 112 | 384 | 6058 |
| 1940 | 358 | 146 | 1008 | 395 | 66 | 149 | 11 | 265 | 22 | 180 | 358 | 1122 | 4080 |
| 1941 | 756 | 647 | 686 | 520 | 232 | 120 | 240 | 163 | 0 | 187 | 724 | 116 | 4391 |
| 1942 | 177 | 1339 | 356 | 228 | 30 | 299 | 222 | 62 | 13 | 1075 | 323 | 618 | 4742 |
| 1943 | 191 | 133 | 359 | 167 | 1239 | 0 | 0 | 602 | 295 | 237 | 652 | 1024 | 4899 |
| 1944 | 1562 | 120 | 340 | 15 | 28 | 148 | 736 | 1258 | 203 | 70 | 98 | 195 | 4773 |
| 1945 | 485 | 577 | 276 | 593 | 212 | 1455 | 1156 | 36 | 95 | 429 | 949 | 425 | 6688 |
| 1946 | 407 | 936 | 1596 | 752 | 80 | 11 | 0 | 0 | 183 | 380 | 122 | 581 | 5048 |
| 1947 | 763 | 1490 | 407 | 748 | 382 | 0 | 0 | 107 | 234 | 235 | 724 | 1215 | 6305 |
| 1948 | 593 | 247 | 1045 | 474 | 573 | 1460 | 100 | 126 | 339 | 58 | 438 | 270 | 5723 |
| 1949 | 744 | 1249 | 1771 | 312 | 436 | 422 | 382 | 1354 | 265 | 533 | 381 | 355 | 8204 |
| 1950 | 409 | 1663 | 568 | 1084 | 422 | 2623 | 2732 | 833 | 250 | 593 | 1009 | 539 | 12725 |
| 1951 | 1325 | 709 | 1382 | 109 | 411 | 1342 | 0 | 81 | 0 | 218 | 60 | 126 | 5763 |
| 1952 | 125 | 1157 | 563 | 322 | 229 | 601 | 220 | 995 | 35 | 401 | 0 | 145 | 4793 |
| 1953 | 798 | 2019 | 735 | 328 | 368 | 0 | 103 | 245 | 94 | 77 | 162 | 220 | 5149 |
| 1954 | 920 | 1880 | 139 | 506 | 895 | 122 | 667 | 240 | 811 | 609 | 737 | 567 | 8093 |
| 1955 | 1283 | 927 | 1314 | 1319 | 971 | 149 | 69 | 0 | 582 | 497 | 45 | 909 | 8065 |

Appendix 14
Sheet 4

RALEIGH CENTRAL RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1956 | 1443 | 2380 | 1466 | 358 | 487 | 859 | 23 | 149 | 114 | 184 | 50 | 351 | 7864 |
| 1957 | 240 | 962 | 916 | 17 | 0 | 28 | 358 | 634 | 0 | 250 | 0 | 215 | 3620 |
| 1958 | 681 | 540 | 835 | 1311 | 361 | 623 | 19 | 1137 | 122 | 80 | 134 | 835 | 6678 |
| 1959 | 1361 | 1674 | 1052 | 303 | 92 | 404 | 647 | 392 | 870 | 281 | 1478 | 418 | 8972 |
| 1960 | 1245 | 617 | 586 | 455 | 289 | 299 | 30 | 0 | 26 | 400 | 97 | 117 | 4161 |
| 1961 | 346 | 1075 | 868 | 515 | 529 | 505 | 90 | 130 | 408 | 397 | 239 | 656 | 5758 |
| 1962 | 1353 | 301 | 1264 | 2911 | 1206 | 20 | NR | 480 | 266 | 111 | 244 | 1122 | |
| 1963 | 336 | 320 | 1658 | 2913 | 1968 | 820 | 28 | 71 | 407 | 227 | 521 | 556 | 9825 |
| 1964 | 503 | 1371 | 2453 | 939 | 139 | 74 | 70 | 166 | 59 | 289 | 684 | 302 | 7049 |
| 1965 | 374 | 604 | 83 | 668 | 126 | 850 | 971 | 340 | 98 | 350 | 767 | 1451 | 6682 |
| 1966 | 120 | 663 | 431 | 762 | 112 | 387 | 21 | 478 | 120 | 442 | 820 | 325 | 4681 |

Appendix 15
Sheet 1

## URUNGA RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1913 | 332 | 602 | 0 | 879 | 1179 | 796 | 149 | 0 | 450 | 129 | 17 | 128 | 4661 |
| 1914 | 202 | 443 | 2259 | 30 | 516 | 1089 | 481 | 190 | 510 | 1774 | 456 | 636 | 8586 |
| 1915 | 225 | 366 | 193 | 230 | 526 | 0 | 101 | 66 | 81 | 50 | 55 | 680 | 2573 |
| 1916 | 223 | 775 | 211 | 985 | 367 | 40 | 10 | 282 | 229 | 437 | 365 | 753 | 4677 |
| 1917 | 387 | 487 | 568 | 247 | 302 | 94 | 37 | 137 | 329 | 161 | 1811 | 629 | 5189 |
| 1918 | 735 | 269 | 1146 | 593 | 465 | 13 | 168 | 189 | 126 | 76 | 137 | 139 | 4056 |
| 1919 | 288 | 213 | 1516 | 856 | 1218 | 286 | 67 | 6 | 5 | 265 | 213 | 318 | 5251 |
| 1920 | 1338 | 782 | 727 | 490 | 426 | 187 | 477 | 84 | 369 | 525 | 837 | 173 | 6415 |
| 1921 | 1973 | 416 | 533 | 831 | 2272 | 1114 | 1776 | 104 | 396 | 316 | 202 | 921 | 10854 |
| 1922 | 363 | 2097 | 74 | 191 | 432 | 396 | 430 | 307 | 1242 | 170 | 114 | 139 | 5955 |
| 1923 | 552 | 259 | 450 | 2380 | 11 | 310 | 263 | 628 | 228 | 244 | 11 | 696 | 6032 |
| 1924 | 290 | 550 | 645 | 265 | 174 | 508 | 645 | 125 | 111 | 188 | 411 | 487 | 4399 |
| 1925 | 453 | 104 | 1023 | 567 | 1565 | 741 | 3 | 615 | 0 | 91 | 792 | 697 | 6651 |
| 1926 | 325 | 74 | 871 | 392 | 422 | 382 | 625 | 23 | 86 | 164 | 27 | 565 | 3956 |
| 1927 | 1156 | 422 | 837 | 885 | 0 | 137 | 4 | 72 | 166 | 552 | 1035 | 361 | 5627 |
| 1928 | 940 | 1095 | 628 | 1657 | 287 | 1096 | 284 | 87 | 0 | 112 | 291 | 456 | 6933 |
| 1929 | 488 | 1967 | 823 | 529 | 600 | 681 | 123 | NO | RECORDS | 1151 | NO | RECORDS | |
| 1930 | 306 | 403 | 880 | 733 | 993 | 1095 | 274 | 107 | 30 | 214 | 147 | 177 | 5359 |

Appendix 15
Sheet 2

URUNGA RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1931 | 208 | 843 | 585 | 1023 | 153 | 144 | 264 | 27 | 30 | 46 | 471 | 1021 | 4815 |
| 1932 | 424 | 182 | 53 | 794 | 352 | 86 | 355 | 0 | 879 | 256 | 356 | 212 | 3949 |
| 1933 | 888 | 77 | 426 | 1308 | 55 | 1598 | 1184 | 37 | 442 | 886 | 333 | 876 | 8110 |
| 1934 | 163 | 1159 | 505 | 1249 | 850 | 0 | 928 | 358 | 628 | 239 | 113 | 267 | 6459 |
| 1935 | 427 | 546 | 1248 | 158 | 148 | 0 | 356 | 34 | 989 | 123 | 128 | 612 | 4769 |
| 1936 | 258 | 718 | 1247 | 400 | 241 | 79 | 52 | 23 | 329 | 215 | 24 | 1193 | 4779 |
| 1937 | 578 | 1597 | 1199 | 753 | 4 | 677 | 170 | 193 | 35 | 630 | 1034 | 324 | 7194 |
| 1938 | 1075 | 1209 | 666 | 568 | 1037 | 74 | 148 | 155 | 167 | 308 | 135 | 69 | 5611 |
| 1939 | 1103 | 31 | 2001 | 681 | 415 | 118 | 82 | 242 | 338 | 1208 | 146 | 376 | 6741 |
| 1940 | 293 | 153 | 1041 | 363 | 43 | 142 | 11 | 194 | 27 | 203 | 454 | 1129 | 4053 |
| 1941 | 741 | 621 | 640 | 545 | 246 | 138 | 248 | 89 | 0 | 170 | 663 | 119 | 4220 |
| 1942 | 103 | 1397 | 281 | 250 | 68 | 269 | 204 | 91 | 19 | 1145 | 350 | 748 | 4925 |
| 1943 | 394 | 104 | 272 | 117 | 1295 | 28 | 5 | 584 | 300 | 310 | 612 | 852 | 4873 |
| 1944 | 1424 | 109 | 338 | 17 | 49 | 202 | 563 | 1343 | 151 | 118 | 112 | 235 | 4661 |
| 1945 | 317 | 447 | 273 | 567 | 217 | 1293 | 850 | 78 | 112 | 284 | 1222 | 376 | 6036 |
| 1946 | 337 | 582 | 1511 | 768 | 31 | 18 | 0 | 13 | 166 | 265 | 106 | 532 | 4329 |
| 1947 | 673 | 1129 | 354 | 731 | 382 | 10 | 4 | 110 | 209 | 223 | 979 | 1140 | 5944 |
| 1948 | 449 | 229 | 722 | 265 | 604 | 1406 | 82 | 114 | 253 | 61 | 452 | 201 | 4838 |

Appendix 15
Sheet 3

## URUNGA RAINFALL STATISTICS
(Points)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1949 | 655 | 680 | 1567 | 322 | 346 | 441 | 398 | 1415 | 259 | 485 | 383 | 311 | 7262 |
| 1950 | 499 | 1487 | 481 | 852 | 317 | 2209 | 2185 | 835 | 124 | 407 | 1100 | 448 | 10944 |
| 1951 | 1240 | 769 | 1159 | 133 | 371 | 1226 | 1 | 72 | 2 | 128 | 105 | 219 | 5425 |
| 1952 | 82 | 1066 | 631 | 326 | 224 | 594 | 302 | 1138 | 32 | 444 | 49 | 230 | 5118 |
| 1953 | 594 | 1972 | 692 | 184 | 352 | 3 | 104 | 282 | 35 | 168 | 135 | 252 | 4773 |
| 1954 | 533 | 1864 | 263 | 788 | 771 | 206 | 660 | 270 | 832 | 660 | 845 | 423 | 8115 |
| 1955 | 1184 | 815 | 1038 | 1221 | 965 | 154 | 96 | 3 | 435 | 579 | 126 | 967 | 7583 |
| 1956 | 1163 | 1883 | 851 | 466 | 955 | 793 | 8 | 125 | 204 | 146 | 20 | 443 | 7057 |
| 1957 | 173 | 620 | 635 | 111 | 0 | 3 | 351 | 598 | 2 | 216 | 26 | 425 | 3160 |
| 1958 | 512 | 651 | 516 | 1121 | 245 | 542 | 0 | 1133 | 125 | 102 | 152 | 850 | 5949 |
| 1959 | 1327 | 1438 | 1037 | 331 | 86 | 358 | 591 | 372 | 793 | 209 | 1840 | 200 | 8582 |
| 1960 | 1180 | 477 | 706 | 332 | 317 | 256 | 63 | 555 | 48 | 367 | 189 | 177 | 4167 |
| 1961 | 302 | 873 | 741 | 446 | 456 | 880 | 121 | 149 | 458 | 523 | 356 | 548 | 5853 |
| 1962 | 1413 | 194 | 1174 | 2794 | 1240 | 13 | 976 | 400 | 154 | 97 | 183 | 911 | 9549 |
| 1963 | 329 | 245 | 2014 | 2712 | 18941 | 819 | 82 | 63 | 368 | 285 | 376 | 656 | 9843 |
| 1964 | 555 | 1328 | 1762 | 836 | 80 | 114 | 62 | 102 | 83 | 163 | 188 | 204 | 5477 |
| 1965 | 116 | 125 | 63 | 742 | 82 | 531 | 511 | 321 | 44 | 248 | 246 | 779 | 3811 |
| 1966 | 82 | 423 | 359 | 684 | 164 | 361 | 4 | 309 | 94 | 302 | 537 | 187 | 3806 |
| 1967 | 2118 | 91 | 619 | 936 | 190 | 2163 | 39 | 430 | 105 | 825 | 154 | 286 | 7956 |
| 1968 | 634 | 804 | 214 | 12 | 288 | 1 | 34 | 811 | 27 | 152 | 444 | 356 | 3777 |

# STATISTICAL RAINFALL DATA
(Points)

| Station | Rainfall Statistic | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bellbrook (Period 59 years) | Minimum | 48 | 0 | 44 | 3 | 0 | 0 | 0 | 0 | 0 | 9 | 5 | 35 | 2053 |
| | 10% | 136 | 101 | 132 | 53 | 30 | 8 | 9 | 10 | 18 | 59 | 53 | 189 | 2810 |
| | 30% | 267 | 273 | 236 | 153 | 108 | 61 | 54 | 45 | 56 | 164 | 182 | 310 | 3673 |
| | 50% | 378 | 419 | 449 | 263 | 194 | 129 | 108 | 100 | 165 | 239 | 311 | 363 | 4090 |
| | 70% | 617 | 627 | 622 | 368 | 326 | 294 | 290 | 173 | 243 | 350 | 417 | 586 | 4586 |
| | 90% | 1050 | 1189 | 1049 | 840 | 647 | 988 | 592 | 389 | 519 | 507 | 649 | 860 | 6163 |
| | Maximum | 1889 | 3056 | 2272 | 1629 | 1531 | 1322 | 1523 | 1277 | 1096 | 980 | 1438 | 1415 | 7394 |
| Bellingen (Period 65 years) | Minimum | 81 | 3 | 18 | 8 | 2 | 0 | 0 | 0 | 0 | 41 | 0 | 34 | 2558 |
| | 10% | 240 | 186 | 203 | 90 | 19 | 7 | 3 | 9 | 13 | 74 | 63 | 172 | 3812 |
| | 30% | 361 | 346 | 523 | 283 | 151 | 80 | 53 | 63 | 85 | 179 | 160 | 319 | 4708 |
| | 50% | 538 | 636 | 723 | 411 | 302 | 169 | 130 | 117 | 166 | 261 | 316 | 447 | 5669 |
| | 70% | 751 | 1006 | 1091 | 672 | 538 | 559 | 381 | 230 | 277 | 383 | 501 | 679 | 6278 |
| | 90% | 1405 | 1722 | 1547 | 1492 | 973 | 1038 | 1027 | 707 | 614 | 866 | 830 | 977 | 8512 |
| | Maximum | 2197 | 2561 | 2266 | 2842 | 2594 | 2783 | 1642 | 1295 | 1337 | 1790 | 1822 | 1292 | 11395 |
| Bowraville (Period 74 years) | Minimum | 70 | 0 | 80 | 35 | 0 | 0 | 0 | 0 | 0 | 21 | 0 | 28 | 2306 |
| | 10% | 167 | 139 | 178 | 89 | 20 | 21 | 6 | 6 | 16 | 73 | 80 | 148 | 3280 |
| | 30% | 294 | 290 | 407 | 208 | 127 | 78 | 50 | 58 | 85 | 151 | 154 | 240 | 4415 |
| | 50% | 455 | 555 | 639 | 297 | 266 | 220 | 117 | 115 | 170 | 215 | 290 | 384 | 4920 |
| | 70% | 678 | 897 | 989 | 504 | 451 | 462 | 328 | 223 | 254 | 407 | 400 | 586 | 5697 |
| | 90% | 1283 | 1461 | 1410 | 1162 | 924 | 1191 | 931 | 792 | 600 | 650 | 809 | 997 | 7464 |
| | Maximum | 2493 | 2719 | 2019 | 2294 | 2217 | 2706 | 1556 | 1503 | 1338 | 1381 | 1878 | 1325 | 10049 |

STATISTICAL RAINFALL DATA
(Points)

| Station | Rainfall Statistic | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Brooklana (Period 52 years) | Minimum | 159 | 16 | 35 | 22 | 3 | 0 | 0 | 0 | 2 | 23 | 3 | 85 | 1462 |
| | 10% | 270 | 189 | 205 | 120 | 39 | 23 | 9 | 34 | 27 | 99 | 64 | 149 | 4337 |
| | 30% | 411 | 429 | 628 | 331 | 151 | 134 | 124 | 87 | 135 | 162 | 169 | 351 | 5402 |
| | 50% | 611 | 753 | 815 | 473 | 276 | 248 | 231 | 167 | 213 | 247 | 381 | 500 | 6385 |
| | 70% | 1045 | 1277 | 1184 | 786 | 566 | 861 | 484 | 300 | 313 | 402 | 579 | 855 | 7856 |
| | 90% | 1708 | 2097 | 1889 | 1305 | 1026 | 1522 | 1443 | 648 | 648 | 739 | 997 | 1109 | 10624 |
| | Maximum | 2597 | 4095 | 2508 | 3203 | 2562 | 3473 | 2436 | 1601 | 1532 | 2145 | 1798 | 2071 | 13497 |
| Coffs Harbour (Period 53 years) | Minimum | 106 | 19 | 23 | 66 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 86 | 2696 |
| | 10% | 228 | 230 | 235 | 168 | 72 | 26 | 10 | 24 | 24 | 107 | 75 | 147 | 4869 |
| | 30% | 349 | 448 | 554 | 399 | 219 | 116 | 92 | 94 | 94 | 178 | 181 | 265 | 5456 |
| | 50% | 522 | 648 | 947 | 617 | 463 | 349 | 223 | 177 | 208 | 240 | 277 | 479 | 6203 |
| | 70% | 766 | 1092 | 1295 | 1011 | 674 | 646 | 393 | 293 | 316 | 388 | 486 | 729 | 7226 |
| | 90% | 1302 | 1897 | 1810 | 1410 | 1303 | 1320 | 963 | 864 | 736 | 724 | 969 | 1318 | 9659 |
| | Maximum | 2336 | 2687 | 2408 | 2941 | 1941 | 2570 | 3542 | 1344 | 1246 | 1651 | 1917 | 1631 | 13290 |
| Dairyville (Period 47 years) | Minimum | 0 | 87 | 25 | 40 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 1577 |
| | 10% | 246 | 245 | 216 | 124 | 30 | 8 | 6 | 12 | 29 | 64 | 55 | 192 | 4613 |
| | 30% | 351 | 374 | 604 | 379 | 130 | 106 | 85 | 65 | 132 | 147 | 137 | 318 | 5270 |
| | 50% | 527 | 755 | 936 | 510 | 262 | 390 | 178 | 130 | 190 | 209 | 355 | 535 | 6331 |
| | 70% | 796 | 1311 | 1177 | 859 | 498 | 734 | 353 | 254 | 323 | 404 | 546 | 857 | 7820 |
| | 90% | 1476 | 2324 | 1751 | 1493 | 1152 | 1243 | 1486 | 857 | 744 | 790 | 1132 | 1241 | 10143 |
| | Maximum | 2323 | 2894 | 2206 | 2841 | 2651 | 2725 | 2332 | 1595 | 1649 | 2144 | 1664 | 1530 | 12048 |

STATISTICAL RAINFALL DATA
(Points)

| Station | Rainfall Statistic | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Deer Vale (Period 51 years) | Minimum | 180 | 107 | 0 | 0 | 3 | 6 | 3 | 5 | 3 | 38 | 0 | 140 | 2673 |
| | 10% | 365 | 332 | 355 | 146 | 52 | 30 | 21 | 27 | 22 | 112 | 96 | 179 | 4512 |
| | 30% | 596 | 500 | 593 | 297 | 137 | 152 | 108 | 100 | 124 | 206 | 223 | 459 | 5575 |
| | 50% | 776 | 714 | 832 | 508 | 310 | 277 | 191 | 185 | 239 | 306 | 421 | 641 | 6378 |
| | 70% | 1155 | 982 | 1085 | 758 | 568 | 541 | 375 | 313 | 366 | 452 | 646 | 907 | 7427 |
| | 90% | 1405 | 1981 | 1694 | 1054 | 974 | 1398 | 963 | 574 | 590 | 784 | 1107 | 1135 | 10412 |
| | Maximum | 2837 | 2957 | 1977 | 2370 | 1980 | 2901 | 2262 | 1376 | 1188 | 2399 | 1739 | 1890 | 12040 |
| Dorrigo (Period 48 years) | Minimum | 244 | 60 | 125 | 84 | 17 | 13 | 3 | 3 | 0 | 31 | 21 | 168 | 4086 |
| | 10% | 429 | 246 | 423 | 205 | 51 | 36 | 20 | 23 | 21 | 136 | 115 | 191 | 5906 |
| | 30% | 591 | 476 | 769 | 404 | 258 | 157 | 104 | 95 | 118 | 256 | 184 | 486 | 6588 |
| | 50% | 859 | 938 | 901 | 590 | 399 | 299 | 200 | 206 | 236 | 350 | 368 | 703 | 7149 |
| | 70% | 1123 | 1324 | 1523 | 906 | 727 | 627 | 507 | 326 | 410 | 555 | 600 | 844 | 8709 |
| | 90% | 1696 | 2476 | 2270 | 1475 | 1110 | 1794 | 1537 | 864 | 609 | 844 | 1095 | 1494 | 11650 |
| | Maximum | 3978 | 3537 | 2491 | 2735 | 2442 | 5580 | 2973 | 1932 | 1458 | 1133 | 1841 | 1779 | 16351 |
| Guy Fawkes (Period 75 years) | Minimum | 106 | 27 | 63 | 16 | 0 | 0 | 7 | 1 | 0 | 39 | 56 | 36 | 2608 |
| | 10% | 239 | 160 | 158 | 87 | 51 | 50 | 38 | 32 | 44 | 114 | 104 | 190 | 3286 |
| | 30% | 382 | 336 | 286 | 174 | 147 | 128 | 114 | 107 | 120 | 201 | 200 | 382 | 4034 |
| | 50% | 486 | 435 | 438 | 268 | 251 | 212 | 184 | 158 | 201 | 265 | 369 | 514 | 4385 |
| | 70% | 683 | 648 | 629 | 379 | 363 | 419 | 356 | 276 | 305 | 363 | 488 | 648 | 5166 |
| | 90% | 1057 | 1296 | 1016 | 780 | 551 | 994 | 860 | 511 | 426 | 624 | 698 | 847 | 7385 |
| | Maximum | 2370 | 2666 | 3677 | 2230 | 1271 | 3544 | 1910 | 1173 | 812 | 1080 | 1283 | 1349 | 11030 |

STATISTICAL RAINFALL DATA.
(Points)

| Station | Rainfall Statistic | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kempsey (West) (Period 79 years) | Minimum | 30 | 0 | 34 | 15 | 0 | 0 | 0 | 0 | 0 | 17 | 5 | 37 | 1957 |
| | 10% | 120 | 112 | 149 | 94 | 43 | 20 | 6 | 20 | 14 | 42 | 49 | 103 | 2986 |
| | 30% | 270 | 236 | 284 | 187 | 146 | 89 | 57 | 73 | 70 | 155 | 172 | 234 | 3783 |
| | 50% | 400 | 425 | 474 | 299 | 242 | 220 | 186 | 151 | 138 | 216 | 270 | 324 | 4361 |
| | 70% | 607 | 678 | 688 | 503 | 377 | 421 | 428 | 261 | 262 | 291 | 372 | 464 | 5147 |
| | 90% | 1008 | 1137 | 1225 | 1135 | 794 | 985 | 799 | 840 | 662 | 587 | 849 | 852 | 7320 |
| | Maximum | 2264 | 3474 | 2431 | 2282 | 1684 | 2186 | 1732 | 1479 | 1193 | 1719 | 1228 | 1339 | 9281 |
| Macksville (Period 69 years) | Minimum | 35 | 7 | 34 | 13 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 42 | 2136 |
| | 10% | 175 | 136 | 209 | 57 | 30 | 19 | 7 | 9 | 20 | 85 | 53 | 125 | 3335 |
| | 30% | 305 | 296 | 429 | 198 | 149 | 109 | 65 | 79 | 102 | 146 | 163 | 219 | 4424 |
| | 50% | 401 | 494 | 624 | 356 | 280 | 273 | 204 | 146 | 180 | 220 | 263 | 363 | 5042 |
| | 70% | 656 | 816 | 974 | 534 | 516 | 538 | 361 | 266 | 289 | 380 | 360 | 654 | 5905 |
| | 90% | 1279 | 1408 | 1479 | 1333 | 977 | 1146 | 875 | 1012 | 651 | 674 | 815 | 950 | 7878 |
| | Maximum | 2789 | 2188 | 2315 | 1970 | 1999 | 2083 | 2176 | 2273 | 1477 | 1725 | 1703 | 1533 | 9643 |
| Nambucca Heads (Period 59 years) | Minimum | 62 | 9 | 30 | 13 | 2 | 0 | 0 | 0 | 0 | 5 | 16 | 54 | 2407 |
| | 10% | 119 | 141 | 234 | 101 | 35 | 14 | 0 | 32 | 19 | 87 | 48 | 153 | 3803 |
| | 30% | 337 | 400 | 493 | 301 | 149 | 110 | 71 | 87 | 65 | 137 | 178 | 243 | 4387 |
| | 50% | 479 | 593 | 705 | 479 | 317 | 261 | 163 | 138 | 194 | 228 | 269 | 335 | 5212 |
| | 70% | 690 | 891 | 1015 | 781 | 558 | 458 | 330 | 259 | 310 | 296 | 413 | 550 | 5907 |
| | 90% | 1236 | 1511 | 1290 | 1316 | 1105 | 1037 | 779 | 996 | 794 | 739 | 912 | 1059 | 7861 |
| | Maximum | 1624 | 2397 | 2169 | 2299 | 1935 | 2209 | 2774 | 1480 | 1156 | 1630 | 1470 | 1301 | 11871 |

## STATISTICAL RAINFALL DATA
(Points)

| Station | Rainfall Statistic | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Orara Upper (Period 59 years) | Minimum | 122 | 43 | 54 | 33 | 0 | 0 | 0 | 8 | 0 | 23 | 14 | 74 | 1907 |
| | 10% | 256 | 197 | 292 | 182 | 41 | 20 | 14 | 34 | 14 | 113 | 90 | 131 | 4850 |
| | 30% | 446 | 449 | 697 | 411 | 209 | 86 | 92 | 84 | 105 | 189 | 204 | 344 | 6216 |
| | 50% | 620 | 743 | 924 | 582 | 368 | 257 | 211 | 166 | 218 | 282 | 404 | 525 | 6722 |
| | 70% | 1015 | 1357 | 1483 | 924 | 629 | 664 | 317 | 280 | 346 | 397 | 588 | 816 | 7640 |
| | 90% | 1519 | 2190 | 2064 | 1562 | 1350 | 1284 | 1336 | 979 | 767 | 813 | 1237 | 1231 | 11368 |
| | Maximum | 2721 | 3651 | 2726 | 3986 | 2691 | 3915 | 2312 | 1755 | 1535 | 1127 | 2495 | 1692 | 14910 |
| Raleigh Central (Period 59 years) | Minimum | 125 | 0 | 29 | 15 | 0 | 0 | 0 | 0 | 0 | 30 | 0 | 90 | 2480 |
| | 10% | 217 | 146 | 269 | 109 | 30 | 16 | 12 | 15 | 0 | 78 | 50 | 148 | 4161 |
| | 30% | 377 | 387 | 586 | 322 | 212 | 102 | 63 | 65 | 94 | 180 | 144 | 290 | 4966 |
| | 50% | 523 | 733 | 794 | 520 | 361 | 273 | 184 | 130 | 203 | 237 | 283 | 511 | 5847 |
| | 70% | 756 | 1146 | 1015 | 748 | 490 | 585 | 431 | 282 | 357 | 401 | 468 | 607 | 6581 |
| | 90% | 1361 | 1880 | 1475 | 1340 | 1008 | 1215 | 840 | 833 | 811 | 937 | 949 | 1024 | 8204 |
| | Maximum | 2471 | 2380 | 2412 | 2712 | 2068 | 2623 | 2732 | 1354 | 1320 | 2068 | 2316 | 1388 | 12725 |
| Urunga (Period 51 years) | Minimum | 82 | 31 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 46 | 11 | 69 | 2573 |
| | 10% | 203 | 105 | 221 | 138 | 33 | 4 | 4 | 15 | 3 | 92 | 26 | 146 | 4054 |
| | 30% | 322 | 388 | 512 | 329 | 221 | 106 | 76 | 76 | 82 | 164 | 132 | 245 | 4777 |
| | 50% | 453 | 602 | 692 | 567 | 352 | 256 | 170 | 125 | 166 | 223 | 213 | 443 | 5477 |
| | 70% | 737 | 855 | 1037 | 833 | 520 | 627 | 373 | 275 | 333 | 336 | 453 | 666 | 6536 |
| | 90% | 1310 | 1575 | 1557 | 1296 | 1236 | 1204 | 912 | 794 | 760 | 654 | 1035 | 958 | 8585 |
| | Maximum | 1973 | 2097 | 2259 | 2794 | 2272 | 2209 | 2185 | 1415 | 1242 | 1774 | 1840 | 1193 | 10944 |

MINIMUM RAINFALL RECORDED IN 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. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bellbrook | 1 | 48 | 0 | 44 | 3 | 0 | 0 | 0 | 0 | 0 | 9 | 5 | 35 |
| | 2 | 258 | 169 | 82 | 12 | 0 | 6 | 0 | 10 | 49 | 36 | 289 | 111 |
| | 3 | 475 | 276 | 196 | 12 | 33 | 6 | 45 | 91 | 54 | 348 | 422 | 359 |
| | 4 | 582 | 297 | 234 | 205 | 33 | 142 | 126 | 139 | 402 | 517 | 753 | 633 |
| | 5 | 603 | 335 | 273 | 280 | 210 | 255 | 375 | 478 | 524 | 946 | 952 | 740 |
| | 6 | 641 | 374 | 348 | 396 | 341 | 468 | 581 | 538 | 1131 | 1258 | 1059 | 761 |
| | 7 | 680 | 449 | 464 | 569 | 523 | 681 | 641 | 1286 | 1334 | 1528 | 1080 | 799 |
| | 8 | 755 | 565 | 936 | 866 | 844 | 752 | 1376 | 1443 | 1584 | 1549 | 1118 | 838 |
| | 9 | 871 | 1037 | 1307 | 1042 | 932 | 1444 | 1533 | 1666 | 1605 | 1587 | 1157 | 913 |
| | 10 | 1343 | 1408 | 1425 | 1102 | 1676 | 1626 | 1769 | 1709 | 1643 | 1626 | 1232 | 1029 |
| | 11 | 1714 | 1747 | 1485 | 1921 | 2007 | 1880 | 1812 | 1887 | 1682 | 1701 | 1348 | 1501 |
| | 12 | 2053 | 1883 | 2213 | 2177 | 2060 | 1923 | 1955 | 1926 | 1757 | 1817 | 1820 | 1872 |
| Bellingen | 1 | 81 | 3 | 18 | 8 | 2 | 0 | 0 | 0 | 0 | 41 | 0 | 34 |
| | 2 | 396 | 209 | 173 | 52 | 28 | 0 | 10 | 0 | 70 | 106 | 251 | 231 |
| | 3 | 564 | 371 | 292 | 107 | 42 | 29 | 62 | 97 | 138 | 382 | 346 | 658 |
| | 4 | 754 | 373 | 440 | 332 | 57 | 198 | 159 | 200 | 393 | 463 | 876 | 786 |
| | 5 | 756 | 521 | 493 | 445 | 211 | 239 | 299 | 479 | 474 | 1272 | 1004 | 948 |
| | 6 | 904 | 574 | 573 | 611 | 495 | 304 | 481 | 560 | 1381 | 1400 | 1166 | 950 |
| | 7 | 957 | 654 | 739 | 874 | 674 | 833 | 562 | 1512 | 1509 | 1562 | 1168 | 1098 |
| | 8 | 1037 | 820 | 1127 | 1026 | 1148 | 1268 | 1569 | 1921 | 1671 | 1564 | 1316 | 1151 |
| | 9 | 1203 | 1208 | 1236 | 1445 | 1435 | 1650 | 1999 | 2083 | 1673 | 1712 | 1369 | 1231 |
| | 10 | 1591 | 1923 | 1856 | 1748 | 1923 | 2587 | 2161 | 2085 | 1821 | 1765 | 1449 | 1397 |
| | 11 | 2306 | 2175 | 2200 | 2362 | 2921 | 2749 | 2163 | 2233 | 1874 | 1845 | 1615 | 1785 |
| | 12 | 2558 | 2646 | 2826 | 3281 | 3091 | 2751 | 2311 | 2286 | 1954 | 2011 | 2003 | 2500 |

MINIMUM RAINFALL RECORDED IN 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. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bowraville | 1 | 70 | 0 | 80 | 35 | 0 | 0 | 0 | 0 | 0 | 21 | 0 | 28 |
| | 2 | 260 | 153 | 191 | 49 | 26 | 0 | 15 | 0 | 59 | 44 | 241 | 207 |
| | 3 | 472 | 346 | 306 | 90 | 48 | 66 | 29 | 74 | 91 | 367 | 385 | 444 |
| | 4 | 653 | 358 | 387 | 203 | 95 | 137 | 103 | 160 | 383 | 510 | 663 | 709 |
| | 5 | 677 | 468 | 415 | 231 | 218 | 183 | 251 | 475 | 526 | 844 | 833 | 902 |
| | 6 | 787 | 540 | 443 | 531 | 428 | 278 | 477 | 618 | 1003 | 1313 | 1026 | 914 |
| | 7 | 859 | 621 | 694 | 683 | 588 | 663 | 620 | 1120 | 1428 | 1506 | 1038 | 1024 |
| | 8 | 940 | 746 | 895 | 944 | 888 | 863 | 1178 | 1562 | 1621 | 1518 | 1148 | 1096 |
| | 9 | 1065 | 1134 | 1250 | 1143 | 1387 | 1232 | 1603 | 1849 | 1633 | 1628 | 1220 | 1177 |
| | 10 | 1453 | 1755 | 1733 | 1480 | 1738 | 1630 | 1895 | 1861 | 1743 | 1700 | 1301 | 1302 |
| | 11 | 2056 | 1987 | 1933 | 2127 | 2280 | 2335 | 1907 | 1971 | 1815 | 1781 | 1426 | 1690 |
| | 12 | 2306 | 2284 | 2376 | 2529 | 2772 | 2347 | 2017 | 2043 | 1896 | 1906 | 1814 | 2311 |
| Coffs Harbour | 1 | 106 | 19 | 23 | 66 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 86 |
| | 2 | 389 | 306 | 269 | 143 | 50 | 15 | 7 | 1 | 133 | 119 | 236 | 233 |
| | 3 | 851 | 783 | 535 | 254 | 133 | 47 | 108 | 200 | 250 | 368 | 342 | 688 |
| | 4 | 1185 | 856 | 712 | 609 | 140 | 246 | 240 | 340 | 377 | 474 | 869 | 1156 |
| | 5 | 1805 | 1033 | 1177 | 616 | 339 | 368 | 349 | 467 | 483 | 1166 | 1417 | 1794 |
| | 6 | 1879 | 1551 | 1228 | 815 | 617 | 496 | 476 | 573 | 1281 | 1531 | 2125 | 2278 |
| | 7 | 2027 | 1779 | 1253 | 1093 | 859 | 720 | 582 | 1545 | 1646 | 2239 | 2371 | 2488 |
| | 8 | 2094 | 1908 | 1547 | 1191 | 1173 | 1154 | 1630 | 2072 | 2354 | 2485 | 3084 | 2636 |
| | 9 | 2162 | 1973 | 1690 | 1415 | 1769 | 1822 | 2331 | 2870 | 2600 | 3312 | 3232 | 2703 |
| | 10 | 2227 | 2116 | 2016 | 2099 | 2809 | 2372 | 2879 | 3167 | 3380 | 3447 | 3299 | 2771 |
| | 11 | 2370 | 2442 | 2333 | 3080 | 3046 | 3230 | 3176 | 3447 | 3515 | 3814 | 3367 | 2836 |
| | 12 | 2696 | 2759 | 3314 | 3317 | 3904 | 3579 | 3595 | 3582 | 3831 | 3845 | 3432 | 2979 |

MINIMUM RAINFALL RECORDED IN 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. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Guy Fawkes | 1 | 106 | 27 | 63 | 16 | 0 | 0 | 7 | 1 | 0 | 39 | 56 | 36 |
| | 2 | 421 | 219 | 111 | 39 | 52 | 37 | 14 | 48 | 85 | 140 | 308 | 244 |
| | 3 | 564 | 414 | 339 | 91 | 82 | 38 | 17 | 189 | 271 | 429 | 547 | 457 |
| | 4 | 870 | 501 | 417 | 246 | 83 | 192 | 239 | 406 | 451 | 791 | 1000 | 1096 |
| | 5 | 1016 | 621 | 517 | 247 | 233 | 467 | 425 | 586 | 813 | 1264 | 1243 | 1188 |
| | 6 | 1136 | 666 | 549 | 526 | 514 | 608 | 605 | 875 | 1358 | 1424 | 1329 | 1239 |
| | 7 | 1181 | 925 | 894 | 810 | 803 | 821 | 967 | 1493 | 1565 | 1606 | 1380 | 1359 |
| | 8 | 1440 | 1023 | 1086 | 951 | 1016 | 1136 | 1588 | 1955 | 1687 | 1657 | 1500 | 1404 |
| | 9 | 1538 | 1411 | 1468 | 1164 | 1347 | 1754 | 2050 | 2029 | 1738 | 1777 | 1545 | 1663 |
| | 10 | 1804 | 1748 | 1810 | 1495 | 2005 | 2216 | 2124 | 2079 | 1858 | 1822 | 1804 | 1761 |
| | 11 | 1950 | 2209 | 2141 | 2212 | 2467 | 2290 | 2174 | 2281 | 1903 | 2081 | 1902 | 2275 |
| | 12 | 2608 | 2394 | 2813 | 2674 | 2541 | 2340 | 2465 | 2326 | 2162 | 2179 | 2416 | 2605 |
| Raleigh Central | 1 | 125 | 0 | 29 | 15 | 0 | 0 | 0 | 0 | 0 | 30 | 0 | 90 |
| | 2 | 324 | 247 | 299 | 17 | 28 | 0 | 0 | 14 | 75 | 126 | 145 | 251 |
| | 3 | 683 | 475 | 383 | 45 | 91 | 11 | 56 | 141 | 190 | 363 | 111 | 851 |
| | 4 | 850 | 203 | 531 | 403 | 91 | 194 | 242 | 256 | 404 | 929 | 1000 | 1266 |
| | 5 | 1460 | 652 | 968 | 692 | 274 | 285 | 359 | 485 | 529 | 1150 | 1624 | 1461 |
| | 6 | 1496 | 1355 | 1034 | 854 | 654 | 400 | 485 | 610 | 1264 | 1701 | 1791 | 1975 |
| | 7 | 1604 | 1421 | 1079 | 994 | 776 | 901 | 610 | 1449 | 1904 | 2294 | 2436 | 2011 |
| | 8 | 1670 | 1460 | 1109 | 1109 | 1258 | 1315 | 1572 | 2302 | 2497 | 2506 | 2552 | 2119 |
| | 9 | 1715 | 1496 | 1224 | 1502 | 1604 | 1598 | 2330 | 2652 | 2709 | 2748 | 2629 | 2185 |
| | 10 | 1745 | 1611 | 1844 | 2041 | 1922 | 2513 | 2652 | 2881 | 2862 | 3106 | 2726 | 2230 |
| | 11 | 1860 | 2231 | 2156 | 2504 | 3027 | 3425 | 2881 | 3011 | 3220 | 3267 | 2771 | 2260 |
| | 12 | 2480 | 2543 | 3025 | 3222 | 3492 | 3680 | 3034 | 3369 | 3475 | 3580 | 2801 | 2375 |

## BELLINGER RIVER (NORTH ARM) AT THORA

| | |
|---|---|
| LOCATION: | Latitude 30°26'S Longitude 152°47'E |
| PERIOD OF ESTABLISHMENT: | June 1955 to February 1960<br>November 1966 to date |
| COMPLETE YEARS OF COMPUTED RECORDS: | 6 |
| ZERO OF GAUGE: | R.L.86.66 Assumed Datum |
| CATCHMENT AREA: | 190 square miles |
| CONTROL: | Gravel |
| EQUIPMENT: | Staff gauge, range 0 to 30 feet |
| CURRENT METER OBSERVATIONS: | (a) Number obtained : 48 |
| | (b) Maximum observation in cusecs : 9,625 |
| | (c) Minimum observation in cusecs : 13.3 |
| MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS: | 54,000 cusecs |
| MEAN DAILY DISCHARGE FOR 6 YEARS: | 527 cusecs |
| MEAN ANNUAL DISCHARGE FOR 6 YEARS: | 384,000 acre feet |
| REMARKS: | The station was discontinued in February 1960 and re-established in November 1966. |

## BELLINGER RIVER (NORTH ARM) AT THORA

Year 1955

| Month | Discharge in Cusecs | | | Discharge for Month Acre Feet |
|---|---|---|---|---|
| | Max. | Min. | Mean | |
| Jan. | .. | .. | .. | .. |
| Feb. | .. | .. | .. | .. |
| Mar. | .. | .. | .. | .. |
| Apr. | .. | .. | .. | .. |
| May | .. | .. | .. | .. |
| June | .. | .. | .. | .. |
| July | 136 | 78 | 113 | 7,010 |
| Aug. | 78 | 49 | 69 | 4,298 |
| Sept. | 350 | 49 | 79 | 4,752 |
| Oct. | 427 | 33 | 93 | 5,790 |
| Nov. | 109 | 26 | 59 | 3,524 |
| Dec. | 2240 | 26 | 637 | 39,480 |
| Total | .. | .. | .. | .. |

Year 1956

| Month | Discharge in Cusecs | | | Discharge for Month Acre Feet |
|---|---|---|---|---|
| | Max. | Min. | Mean | |
| Jan. | 3660 | 58 | 699 | 43,338 |
| Feb. | 33500 | 700 | 4585 | 265,920 |
| Mar. | 10200 | 1970 | 3287 | 203,800 |
| Apr. | 3340 | 259 | 1405 | 84,294 |
| May | 3550 | 140 | 641 | 39,720 |
| June | 910 | 47 | 159 | 9,516 |
| July | 124 | 47 | 77 | 4,770 |
| Aug. | 57 | 38 | 48 | 2,948 |
| Sept. | 77 | 38 | 47 | 2,816 |
| Oct. | 38 | 24 | 33 | 2,020 |
| Nov. | 24 | 13 | 18 | 1,049 |
| Dec. | 67 | 15.5 | 31 | 1,934 |
| Total | .. | .. | .. | 662,125 |

Year 1957

| | | | | |
|---|---|---|---|---|
| Jan. | 87 | 15.5 | 33 | 2,052 |
| Feb. | 2640 | 24 | 616 | 34,518 |
| Mar. | 3240 | 124 | 719 | 44,568 |
| Apr. | 513 | 38 | 98 | 5,870 |
| May | 30 | 24 | 27 | 1,680 |
| June | 24 | 18 | 19 | 1,140 |
| July | 30 | 18 | 24 | 1,500 |
| Aug. | 272 | 18 | 50 | 3,116 |
| Sept. | 96 | 11 | 31 | 1,874 |
| Oct. | 230 | 3.8 | 16 | 1,012 |
| Nov. | 297 | 1.7 | 39 | 2,330 |
| Dec. | 52 | 1.2 | 12 | 740 |
| Total | .. | .. | .. | 100,400 |

Year 1958

| | | | | |
|---|---|---|---|---|
| Jan. | 230 | 20 | 96 | 5,970 |
| Feb. | 160 | 30 | 106 | 5,920 |
| Mar. | 770 | 7 | 225 | 13,958 |
| Apr. | 1490 | 30 | 467 | 28,012 |
| May | 325 | 20 | 102 | 6,342 |
| June | 1010 | 11 | 198 | 11,892 |
| July | 108 | 47 | 81 | 5,024 |
| Aug. | 1420 | 55 | 448 | 27,746 |
| Sept. | 55 | 44 | 46 | 2,794 |
| Oct. | 44 | 26 | 36 | 2,252 |
| Nov. | 26 | 19 | 25 | 1,504 |
| Dec. | 378 | 14 | 91 | 5,636 |
| Total | .. | .. | .. | 117,050 |

Year 1959

| | | | | |
|---|---|---|---|---|
| Jan. | 54000 | 102 | 2181 | 135,210 |
| Feb. | 14500 | 270 | 1882 | 105,372 |
| Mar. | 5910 | 230 | 1762 | 109,238 |
| Apr. | 2520 | 183 | 790 | 47,400 |
| May | 183 | 72 | 122 | 7,552 |
| June | 270 | 72 | 84 | 5,062 |
| July | 230 | 72 | 129 | 8,016 |
| Aug. | 127 | 72 | 91 | 5,628 |
| Sept. | 1610 | 83 | 279 | 16,720 |
| Oct. | 133 | 83 | 89 | 5,516 |
| Nov. | 22000 | 127 | 1600 | 96,048 |
| Dec. | 860 | 155 | 342 | 21,180 |
| Total | .. | .. | .. | 562,942 |

Year 1960

| | | | | |
|---|---|---|---|---|
| Jan | 3300 | 95 | 547 | 33,940 |
| Feb. | | | | |
| Mar. | | | | |
| Apr. | | | | |
| May | | | | |
| June | | | | |
| July | | | | |
| Aug. | | | | |
| Sept. | | | | |
| Oct. | | | | |
| Nov. | | | | |
| Dec. | | | | |
| Total | | | | |

Year 1966

| | | | | |
|---|---|---|---|---|
| Jan. | | | | |
| Feb. | | | | |
| Mar. | | | | |
| Apr. | | | | |
| May | | | | |
| June | | | | |
| July | | | | |
| Aug. | | | | |
| Sept. | | | | |
| Oct. | | | | |
| Nov. | No Records | | | |
| Dec. | 27 | 14 | 17 | 1,050 |
| Total | | | | |

Year 1967

| | | | | |
|---|---|---|---|---|
| Jan. | 14000 | 16 | 880 | 54,600 |
| Feb. | 1200 | 121 | 400 | 22,400 |
| Mar. | 3500 | 255 | 803 | 49,800 |
| Apr. | 4850 | 210 | 1030 | 61,500 |
| May | 210 | 72 | 162 | 10,100 |
| June | 51500 | 52 | 5150 | 309,000 |
| July | 2430 | 240 | 703 | 43,600 |
| Aug. | 240 | 108 | 163 | 10,100 |
| Sept. | 133 | 56 | 86 | 5,190 |
| Oct. | 3800 | 48 | 461 | 28,600 |
| Nov. | 420 | 133 | 225 | 13,500 |
| Dec. | 220 | 83 | 141 | 8,720 |
| Total | | | | 617,110 |

BELLINGER RIVER (NORTH ARM) AT THORA

Year 1968

| Month | Discharge in Cusecs | | | Discharge for Month Acre Feet |
|---|---|---|---|---|
| | Max. | Min. | Mean | |
| Jan. | 27800 | 108 | 1210 | 75,000 |
| Feb. | 850 | 133 | 412 | 23,900 |
| Mar. | 380 | 108 | 196 | 12,200 |
| Apr. | 108 | 49 | 78 | 4,660 |
| May | 56 | 38 | 44 | 2,750 |
| June | 34 | 29 | 31 | 1,880 |
| July | 29 | 17 | 22 | 1,360 |
| Aug. | 1400 | 15 | 132 | 8,180 |
| Sept. | 34 | 25 | 28 | 1,690 |
| Oct. | 26 | 19 | 21 | 1,330 |
| Nov. | 34 | 10 | 19 | 1,150 |
| Dec. | 49 | 9 | 20 | 1,230 |
| Total | .. | .. | .. | 135,330 |

## BELLINGER RIVER (NORTH ARM) AT BOGGY CREEK

| | |
|---|---|
| LOCATION: | Latitude 30°26'S Longitude 152°51'E |
| PERIOD OF ESTABLISHMENT: | June 1959 to December 1966. |
| COMPLETE YEARS OF COMPUTED RECORDS: | 7 |
| ZERO OF GAUGE: | R.L. 70.00 Assumed Datum |
| CATCHMENT AREA: | 240 square miles |
| CONTROL: | Gravel |
| EQUIPMENT: | Staff gauge, range 0-30 feet. |
| CURRENT METER OBSERVATIONS: | (a) Number obtained : 67 |
| | (b) Maximum observation in cusecs : 9,870 |
| | (c) Minimum observation in cusecs : 14.3 |
| MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS: | 50,000 cusecs |
| MEAN DAILY DISCHARGE FOR 7 YEARS: | 530 cusecs |
| MEAN ANNUAL DISCHARGE FOR 7 YEARS: | 387,000 acre feet. |
| REMARKS: | Station was discontinued in December 1966. |

Appendix 19
Sheet 2

BELLINGER RIVER (NORTH ARM) AT BOGGY CREEK

Year 1959

| Month | Discharge in Cusecs | | | Discharge for Month Acre Feet |
|---|---|---|---|---|
| | Max. | Min. | Mean | |
| Jan. | .. | .. | .. | .. |
| Feb. | .. | .. | .. | .. |
| Mar. | .. | .. | .. | .. |
| Apr. | .. | .. | .. | .. |
| May | .. | .. | .. | .. |
| June | .. | .. | .. | .. |
| July | 900 | 104 | 295 | 18,270 |
| Aug. | 255 | 104 | 147 | 9,112 |
| Sept. | 3090 | 153 | 527 | 31,598 |
| Oct. | 241 | 104 | 140 | 8,702 |
| Nov. | 34000 | 153 | 2561 | 153,652 |
| Dec. | 690 | 309 | 458 | 28,386 |
| Total | .. | .. | .. | .. |

Year 1960

| Month | Discharge in Cusecs | | | Discharge for Month Acre Feet |
|---|---|---|---|---|
| | Max. | Min. | Mean | |
| Jan. | 8500 | 203 | 1001 | 62,050 |
| Feb. | 1830 | 309 | 611 | 35,412 |
| Mar. | 12800 | 392 | 1742 | 107,984 |
| Apr. | 690 | 242 | 395 | 23,708 |
| May | 1020 | 148 | 238 | 14,752 |
| June | 262 | 148 | 182 | 10,932 |
| July | 148 | 85 | 125 | 7,756 |
| Aug. | 85 | 60 | 75 | 4,650 |
| Sept. | 60 | 42 | 53 | 3,184 |
| Oct. | 99 | 34 | 48 | 3,002 |
| Nov. | 42 | 27 | 33 | 1,952 |
| Dec. | 114 | 21 | 33 | 2,026 |
| Total | .. | .. | .. | 277,408 |

Year 1961

| | | | | |
|---|---|---|---|---|
| Jan. | 282 | 16 | 80 | 4,960 |
| Feb. | 7210 | 50 | 585 | 32,700 |
| Mar. | 1480 | 131 | 341 | 21,200 |
| Apr. | 740 | 162 | 321 | 19,200 |
| May | 385 | 100 | 143 | 8,890 |
| June | 1625 | 162 | 566 | 33,900 |
| July | 162 | 88 | 109 | 6,790 |
| Aug. | 162 | 68 | 86 | 5,320 |
| Sept. | 1625 | 68 | 200 | 12,000 |
| Oct. | 1350 | 78 | 368 | 22,800 |
| Nov. | 420 | 88 | 157 | 9,410 |
| Dec. | 990 | 162 | 400 | 24,800 |
| Total | .. | .. | .. | 201,970 |

Year 1962

| | | | | |
|---|---|---|---|---|
| Jan. | 4480 | 560 | 1420 | 88,300 |
| Feb. | 1140 | 307 | 564 | 31,600 |
| Mar. | 4280 | 235 | 1190 | 73,600 |
| Apr. | 50000 | 368 | 5300 | 318,000 |
| May | 4280 | 248 | 750 | 46,500 |
| June | 262 | 148 | 187 | 11,200 |
| July | 35160 | 148 | 2770 | 172,000 |
| Aug. | 480 | 166 | 279 | 17,300 |
| Sept. | 166 | 109 | 137 | 8,220 |
| Oct. | 145 | 64 | 82 | 5,070 |
| Nov. | 360 | 58 | 93 | 5,580 |
| Dec. | 5580 | 46 | 907 | 56,200 |
| Total | .. | .. | .. | 833,570 |

Appendix 19
Sheet 3

BELLINGER RIVER (NORTH ARM) AT BOGGY CREEK

Year 1963

| Month | Discharge in Cusecs | | | Discharge for Month Acre Feet |
|---|---|---|---|---|
| | Max. | Min. | Mean | |
| Jan. | 16700 | 600 | 2370 | 147,000 |
| Feb. | 840 | 570 | 647 | 36,200 |
| Mar. | 3730 | 510 | 2010 | 125,000 |
| Apr. | 19200 | 635 | 2340 | 141,000 |
| May | 49600 | 720 | 5110 | 317,000 |
| June | 2580 | 462 | 615 | 36,900 |
| July | 505 | 143 | 248 | 15,400 |
| Aug. | 143 | 75 | 102 | 6,330 |
| Sept. | 310 | 39 | 70 | 4,230 |
| Oct. | 590 | 50 | 157 | 9,730 |
| Nov. | 900 | 66 | 215 | 12,900 |
| Dec. | 1540 | 155 | 599 | 37,100 |
| Total | .. | .. | .. | 888,790 |

Year 1964

| Month | Discharge in Cusecs | | | Discharge for Month Acre Feet |
|---|---|---|---|---|
| | Max. | Min. | Mean | |
| Jan. | 590 | 186 | 260 | 16,100 |
| Feb. | 6950 | 204 | 782 | 45,300 |
| Mar. | 38820 | 420 | 2490 | 154,000 |
| Apr. | 2390 | 440 | 714 | 42,900 |
| May | 465 | 186 | 281 | 17,400 |
| June | 186 | 114 | 140 | 8,390 |
| July | 114 | 48 | 73 | 4,530 |
| Aug. | 119 | 28 | 48 | 3,000 |
| Sept. | 77 | 42 | 48 | 2,890 |
| Oct. | 48 | 31 | 36 | 2,230 |
| Nov. | 147 | 31 | 64 | 3,850 |
| Dec. | 57 | 18 | 40 | 2,460 |
| Total | .. | .. | .. | 303,050 |

Year 1965

| | | | | |
|---|---|---|---|---|
| Jan. | 305 | 39 | 87 | 5,410 |
| Feb. | 178 | 39 | 113 | 6,320 |
| Mar. | 410 | 24 | 75 | 4,660 |
| Apr. | 132 | 18 | 46 | 2,770 |
| May | 48 | 18 | 38 | 2,350 |
| June | 224 | 12 | 47 | 2,800 |
| July | 11300 | 39 | 722 | 44,800 |
| Aug. | 230 | 60 | 110 | 6,800 |
| Sept. | 105 | 38 | 66 | 3,940 |
| Oct. | 80 | 31 | 45 | 2,760 |
| Nov. | 1690 | 13 | 94 | 5,620 |
| Dec. | 1870 | 430 | 1060 | 65,600 |
| Total | .. | .. | .. | 153,830 |

Year 1966

| | | | | |
|---|---|---|---|---|
| Jan. | 500 | 61 | 217 | 13,400 |
| Feb. | 310 | 51 | 127 | 7,130 |
| Mar. | 230 | 46 | 79 | 4,910 |
| Apr. | 370 | 14 | 63 | 3,810 |
| May | 85 | 26 | 45 | 2,760 |
| June | 500 | 26 | 73 | 4,360 |
| July | 32 | 20 | 24 | 1,470 |
| Aug. | 72 | 14 | 30 | 1,830 |
| Sept. | 32 | 14 | 21 | 1,260 |
| Oct. | 63 | 14 | 25 | 1,530 |
| Nov. | 990 | 32 | 105 | 6,270 |
| Dec. | 32 | 26 | 28 | 1,720 |
| Total | .. | .. | .. | 50,450 |

Appendix 20
Sheet 1

## NEVER NEVER CREEK AT GLENIFFER

| | |
|---|---|
| LOCATION: | Latitude 30°22'S. Longitude 152°56'E. |
| PERIOD OF ESTABLISHMENT: | June 1925 to August 1928. |
| COMPLETE YEARS OF COMPUTED RECORDS: | 2 |
| ZERO OF GAUGE: | R.L. 41.22 Assumed Datum |
| CATCHMENT AREA: | 9 square miles. |
| CONTROL: | Gravel. |
| EQUIPMENT: | Staff gauge, range 0 to 15 feet. |
| CURRENT METER OBSERVATIONS: | (a) Number obtained : 15 |
| | (b) Maximum observation in cusecs : 59 |
| | (c) Minimum observation in cusecs : 2.4 |
| MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS: | 1,750 cusecs. |
| MEAN DAILY DISCHARGE FOR 2 YEARS: | 30 cusecs. |
| MEAN ANNUAL DISCHARGE FOR 2 YEARS: | 21,900 acre feet. |

Appendix 20
Sheet 2

NEVER NEVER CREEK AT GLENIFFER.

| Year 1925 | | | | | Year 1926 | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Month | Discharge in Cusecs | | | Discharge for Month Acre Feet | Month | Discharge in Cusecs | | | Discharge for Month Acre Feet |
| | Max. | Min. | Mean | | | Max. | Min. | Mean | |
| Jan. | .. | .. | .. | .. | Jan. | 190 | 28 | 58 | 3,622 |
| Feb. | .. | .. | .. | .. | Feb. | 28 | 10 | 15 | 844 |
| Mar. | .. | .. | .. | .. | Mar. | 380 | 7 | 40 | 2,498 |
| Apr. | .. | .. | .. | .. | Apr. | 230 | 20 | 55 | 3,300 |
| May | .. | .. | .. | .. | May | 130 | 13 | 34 | 2,100 |
| June | 740 | 28 | 110 | 6,622 | June | 46 | 24 | 34 | 2,038 |
| July | 41 | 10 | 22 | 1,380 | July | 130 | 16 | 40 | 2,500 |
| Aug. | 74 | 10 | 22 | 1,332 | Aug. | 16 | 10 | 11 | 704 |
| Sept. | 13 | 7 | 10 | 594 | Sept. | 10 | 7 | 8 | 480 |
| Oct. | 7 | 4.5 | 6 | 354 | Oct. | 7 | 2.5 | 5 | 280 |
| Nov. | 230 | 4.5 | 46 | 2,739 | Nov. | 2.5 | 2.5 | 2.5 | 150 |
| Dec. | 1240 | 16 | 55 | 3,424 | Dec. | 122 | 2.5 | 20 | 1,213 |
| Total | | | | .. | Total | | | | 19,729 |

| Year 1927 | | | | | Year 1928 | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Jan. | 200 | 20 | 59 | 3,660 | Jan. | 200 | 32 | 67 | 4,126 |
| Feb. | 93 | 56 | 75 | 4,222 | Feb. | 850 | 62 | 152 | 8,836 |
| Mar. | 220 | 32 | 49 | 3,056 | Mar. | 86 | 74 | 79 | 4,864 |
| Apr. | 700 | 24 | 77 | 4,636 | Apr. | 570 | 62 | 101 | 6,034 |
| May | 24 | 10 | 15 | 908 | May | 62 | 32 | 47 | 2,904 |
| June | 10 | 7 | 9 | 564 | June | 1750 | 24 | 84 | 5,044 |
| July | 7 | 4.5 | 6.4 | 385 | July | 100 | 28 | 47 | 2,900 |
| Aug. | 4.5 | 4.5 | 4.5 | 279 | Aug. | 28 | 20 | 25 | 1,552 |
| Sept. | 7 | 2.5 | 5 | 269 | Sept. | | | | |
| Oct. | 46 | 4.5 | 10 | 588 | Oct. | | | | |
| Nov. | 330 | 4.5 | 40 | 2,406 | Nov. | | | | |
| Dec. | 190 | 28 | 51 | 3,132 | Dec. | | | | |
| Total | .. | .. | .. | 24,105 | Total | .. | .. | .. | .. |

Appendix 21
Sheet 1

## NEVER NEVER CREEK AT SLINGSBYS ROAD

| | |
|---|---|
| LOCATION: | Latitude 30°20'S. Longitude 152°52'E. |
| PERIOD OF ESTABLISHMENT: | December 1948 to February 1956. |
| COMPLETE YEARS OF COMPUTED RECORDS: | 7 |
| ZERO OF GAUGE: | R.L. 71.48 Assumed Datum |
| CATCHMENT AREA: | 4.6 square miles |
| CONTROL: | Rock |
| EQUIPMENT: | Automatic recorder (Pressure Type)<br>Staff gauge, range 0 to 20 feet. |
| CURRENT METER OBSERVATIONS: | (a) Number obtained : 37 |
| | (b) Maximum observation in cusecs : 703 |
| | (c) Minimum observation in cusecs : 0.5 |
| MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS: | 17,200 cusecs |
| MEAN DAILY DISCHARGE FOR 7 YEARS: | 34 cusecs |
| MEAN ANNUAL DISCHARGE FOR 7 YEARS: | 25,200 acre feet |

Appendix 21
Sheet 2

## NEVER NEVER CREEK AT SLINGSBYS ROAD

| Year 1949 | | | | | Year 1950 | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Month | Discharge in Cusecs | | | Discharge for Month Acre Feet | Month | Discharge in Cusecs | | | Discharge for Month Acre Feet |
| | Max. | Min. | Mean | | | Max. | Min. | Mean | |
| Jan. | No Records | | | 402* | Jan. | 1840 | 3.7 | 51 | 3,162 |
| Feb. | No Records | | | 1,140* | Feb. | 780 | 8 | 78 | 4,386 |
| Mar. | No Records | | | 7,434* | Mar. | 173 | 15 | 41 | 2,369 |
| Apr. | No Records | | | 1,044* | Apr. | 349 | 21 | 47 | 2,830 |
| May | No Records | | | 742* | May | No Records | | | 1,706* |
| June | No Records | | | 420* | June | 17200 | 2 | 383 | 22,996 |
| July | 202 | 3 | 7 | 434 | July | No Records | | | 7,500* |
| Aug. | 9220 | 1.2 | 94 | 5,844 | Aug. | 870 | 7 | 49 | 3,012 |
| Sept. | 34 | 5 | 16 | 964 | Sept. | 21 | 8 | 11 | 660 |
| Oct. | 59 | 4 | 8.1 | 504 | Oct. | 380 | 8 | 40 | 2,478 |
| Nov. | 25 | 3 | 5.3 | 318 | Nov. | 670 | 6.5 | 43 | 2,594 |
| Dec. | 146 | 4 | 9 | 546 | Dec. | 1080 | 10 | 69 | 4,296 |
| Total | .. | .. | .. | 19,792* | Total | .. | .. | .. | 57,989* |

| Year 1951 | | | | | Year 1952 | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Jan. | 2530 | 25 | 153 | 9,488 | Jan. | 1.5 | 0.3 | 0.7 | 43 |
| Feb. | 725 | 18 | 53 | 2,966 | Feb. | 572 | 0.2 | 18.5 | 1,071 |
| Mar. | 1090 | 12 | 102 | 6,354 | Mar. | 778 | 10 | 29 | 1,784 |
| Apr. | 52 | 4 | 15 | 908 | Apr. | 16.5 | 6.5 | 13 | 768 |
| May | 18 | 4 | 5.6 | 350 | May | 8 | 3.5 | 5.3 | 329 |
| June | 1000 | 5 | 41 | 2,440 | June | 227 | 2 | 8 | 504 |
| July | 8 | 4 | 5.4 | 337 | July | 29 | 1.5 | 4.6 | 285 |
| Aug. | 4 | 2.5 | 3.0 | 185 | Aug. | 2130 | 8 | 72 | 4,462 |
| Sept. | 2 | 1.7 | 1.9 | 116 | Sept. | 18 | 4 | 5.9 | 351 |
| Oct. | 29 | 1 | 3 | 186 | Oct. | 34 | 4 | 6 | 369 |
| Nov. | 1 | 0.9 | 0.9 | 53 | Nov. | 4 | 1.5 | 2.1 | 129 |
| Dec. | 3 | 0.7 | 0.9 | 57 | Dec. | 2 | 1.5 | 1.5 | 95 |
| Total | .. | .. | .. | 23,440 | Total | .. | .. | .. | 10,190 |

* Estimated.

Appendix 21
Sheet 3

NEVER NEVER CREEK AT SLINGSBYS ROAD

Year 1953

| Month | Discharge in Cusecs | | | Discharge for Month Acre Feet |
|---|---|---|---|---|
| | Max. | Min. | Mean | |
| Jan. | 357 | 1.5 | 11.2 | 693 |
| Feb. | 647 | 5 | 75 | 4,223 |
| Mar. | 1690 | 12 | 90 | 5,604 |
| Apr. | 21 | 5.8 | 9.1 | 545 |
| May | 12 | 3.5 | 6.2 | 384 |
| June | 4.5 | 3 | 3.4 | 205 |
| July | 3 | 2 | 2.4 | 148 |
| Aug. | 2 | 1.5 | 1.8 | 109 |
| Sept. | 2 | 1.7 | 1.7 | 103 |
| Oct. | 1.7 | 1.3 | 1.5 | 92 |
| Nov. | 2 | 1 | 1.4 | 85 |
| Dec. | 6.5 | 0.9 | 1.8 | 112 |
| Total | .. | .. | .. | 12,303 |

Year 1954

| Month | Discharge in Cusecs | | | Discharge for Month Acre Feet |
|---|---|---|---|---|
| | Max. | Min. | Mean | |
| Jan. | 29 | 1 | 4.2 | 261 |
| Feb. | 6790 | 6.5 | 176 | 9,868 |
| Mar. | 66 | 4.5 | 20 | 1,253 |
| Apr. | 21 | 5.8 | 7 | 417 |
| May | 241 | 5 | 26 | 1,592 |
| June | 105 | 4.5 | 20 | 1,224 |
| July | 2090 | 3.5 | 96 | 5,933 |
| Aug. | 139 | 5.8 | 10.5 | 648 |
| Sept. | 459 | 3 | 39 | 2,313 |
| Oct. | 134 | 15 | 43 | 2,660 |
| Nov. | 1210 | 5.8 | 39 | 2,337 |
| Dec. | 46 | 4.5 | 10.7 | 665 |
| Total | .. | .. | .. | 29,171 |

Year 1955

| | | | | |
|---|---|---|---|---|
| Jan. | 25 | 4 | 6 | 371 |
| Feb. | 271 | 6.5 | 64 | 3,588 |
| Mar. | 1560 | 8 | 104 | 6,452 |
| Apr. | 492 | 25 | 69 | 4,110 |
| May | 188 | 6.5 | 22 | 1,376 |
| June | 25 | 6.5 | 13 | 789 |
| July | 34 | 3 | 7.2 | 444 |
| Aug. | 3 | 1 | 1.7 | 103 |
| Sept. | 320 | 2.3 | 23.8 | 1,429 |
| Oct. | 338 | 2.7 | 14.5 | 900 |
| Nov. | 35 | 3.5 | 13.4 | 803 |
| Dec. | 2570 | 3.5 | 48.6 | 3,014 |
| Total | .. | .. | .. | 23,379 |

Year 1956

| | | | | |
|---|---|---|---|---|
| Jan. | 1590 | 9 | 53 | 3,316 |
| Feb. | 4670 | 30 | 177 | 10,252 |
| Mar. | | | | |
| Apr. | | | | |
| May | | | | |
| June | | | | |
| July | | | | |
| Aug. | | | | |
| Sept. | | | | |
| Oct. | | | | |
| Nov. | | | | |
| Dec. | | | | |
| Total | .. | .. | .. | .. |

# BELLINGER RIVER (SOUTH ARM) AT SCOTCHMAN

| | |
|---|---|
| LOCATION: | Latitude 30°28'S Longitude 152°51'E |
| PERIOD OF ESTABLISHMENT: | June 1959 to date |
| COMPLETE YEARS OF COMPUTED RECORDS: | 9 |
| ZERO GAUGE: | R.L.65.00 Assumed Datum |
| CATCHMENT AREA: | 64 Square miles. |
| CONTROL: | Gravel |
| EQUIPMENT: | Staff gauge, range 0 to 25 feet. |
| CURRENT METER OBSERVATIONS: | (a) Number obtained : 90 |
| | (b) Maximum observation in cusecs : 1,917 |
| | (c) Minimum observation in cusecs : 0.7 |
| MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS: | 24,100 cusecs |
| MEAN DAILY DISCHARGE FOR 9 YEARS: | 126 cusecs |
| MEAN ANNUAL DISCHARGE FOR 9 YEARS: | 92,000 acre feet. |

Appendix 22
Sheet 2

BELLINGER RIVER (SOUTH ARM) AT SCOTCHMAN

Year 1959

| Month | Discharge in Cusecs | | | Discharge for Month Acre Feet |
|---|---|---|---|---|
| | Max. | Min. | Mean | |
| Jan. | .. | .. | .. | .. |
| Feb. | .. | .. | .. | .. |
| Mar. | .. | .. | .. | .. |
| Apr. | .. | .. | .. | .. |
| May | .. | .. | .. | .. |
| June | .. | .. | .. | .. |
| July | 74 | 14 | 27 | 1,660 |
| Aug. | 18 | 14 | 16.8 | 1,040 |
| Sept. | 670 | 14 | 73 | 4,400 |
| Oct. | 50 | 14 | 21 | 1,330 |
| Nov. | 10980 | 14 | 690 | 41,400 |
| Dec. | 130 | 31 | 52 | 3,250 |
| Total | .. | .. | .. | .. |

Year 1960

| Month | Discharge in Cusecs | | | Discharge for Month Acre Feet |
|---|---|---|---|---|
| | Max. | Min. | Mean | |
| Jan. | 2280 | 22 | 293 | 18,200 |
| Feb. | 320 | 40 | 85 | 4,920 |
| Mar. | 4260 | 89 | 347 | 21,500 |
| Apr. | 81 | 40 | 60 | 3,630 |
| May | 74 | 40 | 43 | 2,650 |
| June | 40 | 22 | 27 | 1,640 |
| July | 22 | 14.0 | 16.9 | 1,040 |
| Aug. | 14 | 8.0 | 10.2 | 632 |
| Sept. | 8 | 3.0 | 4.2 | 252 |
| Oct. | 31 | 4.0 | 11.1 | 686 |
| Nov. | 40 | 2.5 | 6.7 | 402 |
| Dec. | 2.2 | 1.5 | 2.1 | 128 |
| Total | .. | .. | .. | 55,680 |

Year 1961

| | | | | |
|---|---|---|---|---|
| Jan. | 22 | 0.2 | 5.3 | 327 |
| Feb. | 1100 | 2.5 | 41 | 2,320 |
| Mar. | 157 | 6.0 | 28 | 1,730 |
| Apr. | 89 | 10 | 23 | 1,360 |
| May | 40 | 4.0 | 11.4 | 704 |
| June | 107 | 16 | 36 | 2,140 |
| July | 16.0 | 6.0 | 10.1 | 628 |
| Aug. | 31 | 3.0 | 8.2 | 508 |
| Sept. | 40 | 6.0 | 10.0 | 602 |
| Oct. | 31 | 6.0 | 15.5 | 958 |
| Nov. | 74 | 6.0 | 19.5 | 1,170 |
| Dec. | 50 | 10 | 22 | 1,370 |
| Total | .. | .. | .. | 13,817 |

Year 1962

| | | | | |
|---|---|---|---|---|
| Jan. | 570 | 31 | 170 | 10,500 |
| Feb. | 74 | 12 | 25 | 1,400 |
| Mar. | 1080 | 4 | 243 | 15,100 |
| Apr. | 24140 | 150 | 1750 | 105,000 |
| May | 3160 | 74 | 364 | 22,600 |
| June | 74 | 28 | 46 | 2,760 |
| July | 13460 | 28 | 659 | 40,800 |
| Aug. | 39 | 12 | 21 | 1,320 |
| Sept. | 12 | 12 | 12 | 720 |
| Oct. | 12 | 12 | 12 | 744 |
| Nov. | 54 | 5 | 9.7 | 582 |
| Dec. | 1510 | 5 | 236 | 14,600 |
| Total | .. | .. | .. | 216,126 |

Appendix 22
Sheet 3

BELLINGER RIVER (SOUTHARM) AT SCOTCHMAN

Year 1963

| Month | Discharge in Cusecs | | | Discharge for Month Acre Feet |
|---|---|---|---|---|
| | Max. | Min. | Mean | |
| Jan. | 2940 | 54 | 395 | 24,500 |
| Feb. | 54 | 28 | 37 | 2,090 |
| Mar. | 1410 | 28 | 374 | 23,200 |
| Apr. | No Records | | | 35,000* |
| May | No Records | | | 80,000* |
| June | 74 | 4 | 27 | 1,590 |
| July | 79 | 17 | 34 | 2,130 |
| Aug. | 17 | 17 | 17 | 1,050 |
| Sept. | 38 | 14.5 | 17.5 | 1,050 |
| Oct. | 20 | 17 | 17.2 | 1,070 |
| Nov. | 27 | 17 | 18.2 | 1,090 |
| Dec. | 620 | 40 | 136 | 8,430 |
| Total | .. | .. | .. | 181,200* |

Year 1964

| Month | Discharge in Cusecs | | | Discharge for Month Acre Feet |
|---|---|---|---|---|
| | Max. | Min. | Mean | |
| Jan. | 47 | 26 | 32 | 1,990 |
| Feb. | 3270 | 33 | 220 | 12,800 |
| Mar. | 18920 | 40 | 876 | 54,300 |
| Apr. | 1610 | 80 | 250 | 15,000 |
| May | 240 | 42 | 94 | 5,820 |
| June | 42 | 20 | 31 | 1,880 |
| July | 20 | 14 | 17.2 | 1,070 |
| Aug. | 14 | 8.5 | 10.5 | 653 |
| Sept. | 10 | 7 | 8.6 | 516 |
| Oct. | 10 | 7 | 7.3 | 452 |
| Nov. | 10 | 5 | 6.6 | 398 |
| Dec. | 7 | 4 | 4.7 | 294 |
| Total | .. | .. | .. | 95,173 |

Year 1965

| | | | | |
|---|---|---|---|---|
| Jan. | 7 | 3.5 | 5.4 | 337 |
| Feb. | 7 | 4 | 4.2 | 236 |
| Mar. | 7 | 1 | 2.9 | 180 |
| Apr. | 3 | 2 | 2.1 | 126 |
| May | 3 | 1.5 | 2.2 | 134 |
| June | 5 | 1 | 1.7 | 103 |
| July | 1120 | 1.5 | 142 | 8,780 |
| Aug. | 14 | 6.5 | 7.8 | 486 |
| Sept. | 11 | 3 | 5.6 | 337 |
| Oct. | 3 | 3 | 3 | 186 |
| Nov. | 1350 | 3 | 52 | 3,090 |
| Dec. | 1050 | 42 | 191 | 11,800 |
| Total | .. | .. | .. | 25,795 |

Year 1966

| | | | | |
|---|---|---|---|---|
| Jan. | 70 | 4.5 | 15.5 | 964 |
| Feb. | 60 | 6.5 | 13.5 | 755 |
| Mar. | 42 | 5.5 | 12.2 | 758 |
| Apr. | 6.5 | 2.0 | 3.7 | 223 |
| May | 3 | 2 | 2 | 126 |
| June | 4.5 | 3 | 3.9 | 234 |
| July | 3 | 2 | 2.2 | 138 |
| Aug. | 15.0 | 1.0 | 4.1 | 254 |
| Sept. | 3.7 | 2.0 | 2.7 | 164 |
| Oct. | 9 | 1.5 | 3.5 | 220 |
| Nov. | 65 | 3.0 | 17.5 | 1,050 |
| Dec. | 6 | 2 | 3.8 | 238 |
| Total | .. | .. | .. | 5,124 |

BELLINGER RIVER (SOUTH ARM) AT SCOTCHMAN

| Year 1967 | | | | | Year 1968 | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Month | Discharge in Cusecs | | | Discharge in Month Acre Feet | Month | Discharge in Cusecs | | | Discharge in Month Acre Feet |
| | Max. | Min. | Mean | | | Max. | Min. | Mean | |
| Jan. | 11480 | 2 | 264 | 16,400 | Jan | 11220 | 46 | 421 | 26,100 |
| Feb. | 139 | 15 | 45 | 2,510 | Feb. | 144 | 90 | 105 | 6,080 |
| Mar. | 500 | 29 | 167 | 10,300 | Mar. | 72 | 29 | 37 | 2,278 |
| Apr. | 1610 | 48 | 270 | 16,200 | Apr. | 20 | 13 | 14 | 830 |
| May | 163 | 16 | 42 | 2,590 | May | 13 | 8 | 10 | 608 |
| June | 17060 | 16 | 2152 | 129,000 | June | 7 | 7 | 7 | 420 |
| July | 305 | 33 | 81 | 5,030 | July | 7 | 5 | 6 | 368 |
| Aug. | 46 | 23 | 33 | 2,060 | Aug. | 1030 | 4 | 31 | 1,890 |
| Sept. | 23 | 16 | 20 | 1,210 | Sept. | 20 | 7 | 9 | 548 |
| Oct. | 930 | 23 | 66 | 4,102 | Oct. | 5 | 4 | 4.6 | 288 |
| Nov. | 46 | 23 | 31 | 1,880 | Nov. | | No Records | | 300* |
| Dec. | 46 | 10 | 28 | 1,752 | Dec. | 14 | 2 | 6 | 356 |
| Total | | | | 193,034 | Total | | | | 40,066* |

* Estimated

# BOWRA RIVER AT BOWRAVILLE

| | |
|---|---|
| LOCATION: | Latitude 30°39'S Longitude 152°52'E |
| PERIOD OF ESTABLISHMENT: | September 1959 to date |
| COMPLETE YEARS OF COMPUTED RECORDS: | 9 |
| ZERO OF GAUGE: | R.L. 61.93 Assumed Datum |
| CATCHMENT AREA: | 208 Square Miles. |
| CONTROL: | Gravel |
| EQUIPMENT: | Staff Gauge, range 0 to 35 feet. |
| CURRENT METER OBSERVATIONS: | (a) Number obtained : 75 |
| | (b) Maximum observation in cusecs : 5,243 |
| | (c) Minimum observation in cusecs : 7.2 |
| MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS: | 45,000 cusecs |
| MEAN DAILY DISCHARGE FOR 9 YEARS: | 275 cusecs |
| MEAN ANNUAL DISCHARGE FOR 9 YEARS: | 201,000 acre feet. |

Appendix 23
Sheet 2

BOWRA RIVER AT BOWRAVILLE

Year 1959

| Month | Discharge in Cusecs | | | Discharge for Month Acre Feet |
|---|---|---|---|---|
| | Max. | Min. | Mean | |
| Jan. | .. | .. | .. | .. |
| Feb. | .. | .. | .. | .. |
| Mar. | .. | .. | .. | .. |
| Apr. | .. | .. | .. | .. |
| May | .. | .. | .. | .. |
| June | .. | .. | .. | .. |
| July | .. | .. | .. | .. |
| Aug. | .. | .. | .. | .. |
| Sept. | .. | .. | .. | .. |
| Oct. | 75 | 56 | 62 | 3,870 |
| Nov. | 41000 | 102 | 2148 | 129,000 |
| Dec. | 220 | 98 | 144 | 8,920 |
| Total | .. | .. | .. | .. |

Year 1960

| Month | Discharge in Cusecs | | | Discharge for Month Acre Feet |
|---|---|---|---|---|
| | Max. | Min. | Mean | |
| Jan. | 3150 | 56 | 362 | 22,400 |
| Feb. | 535 | 130 | 178 | 10,300 |
| Mar. | 2470 | 148 | 519 | 32,200 |
| Apr. | 610 | 114 | 201 | 12,100 |
| May | 148 | 61 | 86 | 5,360 |
| June | 106 | 66 | 80 | 4,820 |
| July | 72 | 42 | 56 | 3,480 |
| Aug. | 72 | 26 | 38 | 2,350 |
| Sept. | 31 | 17 | 25 | 1,490 |
| Oct. | 20 | 16 | 18.7 | 1,160 |
| Nov. | 20 | 12 | 15.5 | 932 |
| Dec. | 14 | 4.5 | 9.5 | 590 |
| Total | .. | .. | .. | 97,182 |

Year 1961

| | | | | |
|---|---|---|---|---|
| Jan. | 26 | 0 | 5.6 | 348 |
| Feb. | 1150 | 0 | 124 | 6,960 |
| Mar. | 79 | 33 | 42 | 2,620 |
| Apr. | 44 | 31 | 38 | 2,280 |
| May | 40 | 23 | 27 | 1,670 |
| June | 1095 | 33 | 182 | 10,900 |
| July | 56 | 33 | 40 | 2,510 |
| Aug. | 40 | 23 | 30 | 1,850 |
| Sept. | 48 | 20 | 27 | 1,590 |
| Oct. | 195 | 19 | 44 | 2,710 |
| Nov. | 65 | 23 | 32 | 1,920 |
| Dec. | 74 | 33 | 46 | 2,840 |
| Total | .. | .. | .. | 38,198 |

Year 1962

| | | | | |
|---|---|---|---|---|
| Jan. | 2350 | 33 | 447 | 27,700 |
| Feb. | 311 | 65 | 138 | 7,750 |
| Mar. | 1355 | 65 | 391 | 24,200 |
| Apr. | 44500 | 153 | 2510 | 151,000 |
| May | 6400 | 94 | 455 | 28,200 |
| June | 125 | 56 | 91 | 5,440 |
| July | 27500 | 56 | 1260 | 78,200 |
| Aug. | 150 | 51 | 85 | 5,290 |
| Sept. | 51 | 41 | 47 | 2,840 |
| Oct. | 46 | 32 | 38 | 2,340 |
| Nov. | 77 | 24 | 37 | 2,210 |
| Dec. | 7060 | 24 | 426 | 26,400 |
| Total | .. | .. | .. | 361,570 |

Appendix 23
Sheet 3

## BOWRA RIVER AT BOWRAVILLE

Year 1963

| Month | Discharge in Cusecs | | | Discharge for Month Acre Feet |
|---|---|---|---|---|
| | Max. | Min. | Mean | |
| Jan. | 4380 | 117 | 687 | 42,600 |
| Feb. | 149 | 79 | 111 | 6,210 |
| Mar. | 2520 | 88 | 703 | 43,600 |
| Apr. | 30900 | 127 | 1950 | 117,000 |
| May | 45000 | 245 | 3700 | 229,000 |
| June | 570 | 127 | 219 | 13,100 |
| July | 275 | 88 | 136 | 8,420 |
| Aug. | 85 | 61 | 72 | 4,450 |
| Sept. | 4150 | 40 | 181 | 10,900 |
| Oct. | 325 | 61 | 109 | 6,750 |
| Nov. | 430 | 79 | 142 | 8,500 |
| Dec. | 1730 | 53 | 372 | 23,100 |
| Total | .. | .. | .. | 513,630 |

Year 1964

| Month | Discharge in Cusecs | | | Discharge for Month Acre Feet |
|---|---|---|---|---|
| | Max. | Min. | Mean | |
| Jan. | 585 | 79 | 145 | 8,980 |
| Feb. | 9110 | 53 | 623 | 36,200 |
| Mar. | 42000 | 127 | 1670 | 103,000 |
| Apr. | 4500 | 127 | 671 | 40,300 |
| May | 340 | 77 | 151 | 9,390 |
| June | 107 | 38 | 76 | 4,550 |
| July | 87 | 38 | 55 | 3,440 |
| Aug. | 38 | 19 | 26 | 1,620 |
| Sept. | 34 | 23 | 28 | 1,700 |
| Oct. | 23 | 13 | 18.6 | 1,150 |
| Nov. | 23 | 13 | 15.8 | 946 |
| Dec. | 19.0 | 7 | 11.8 | 732 |
| Total | .. | .. | .. | 212,008 |

Year 1965

| | | | | |
|---|---|---|---|---|
| Jan. | No Records | | | 500* |
| Feb. | 16 | 7 | 8.4 | 472 |
| Mar. | 22 | 6 | 11.0 | 680 |
| Apr. | 12 | 5 | 7.2 | 430 |
| May | 12 | 7 | 8 | 498 |
| June | 11 | 7 | 7.8 | 470 |
| July | 3200 | 7 | 201 | 12,500 |
| Aug. | 68 | 29 | 37 | 2,330 |
| Sept. | 29 | 20 | 24 | 1,450 |
| Oct. | 160 | 12 | 23 | 1,450 |
| Nov. | 31 | 7 | 13.9 | 834 |
| Dec. | 820 | 52 | 272 | 16,900 |
| Total | .. | .. | .. | 38,514* |

Year 1966

| | | | | |
|---|---|---|---|---|
| Jan. | 56 | 28 | 36 | 2,250 |
| Feb. | 220 | 14 | 44 | 2,460 |
| Mar. | 97 | 16 | 34 | 2,100 |
| Apr. | 44 | 11 | 16.6 | 994 |
| May | 22 | 11 | 13.1 | 810 |
| June | 160 | 11 | 40 | 2,430 |
| July | 13 | 8 | 10.3 | 636 |
| Aug. | 14 | 6.2 | 8.6 | 532 |
| Sept. | 9.5 | 6.5 | 7.6 | 453 |
| Oct. | 13 | 6 | 7.9 | 491 |
| Nov. | 122 | 5.5 | 34 | 2,070 |
| Dec. | 12 | 6.0 | 7.5 | 462 |
| Total | .. | .. | .. | 15,688 |

BOWRA RIVER AT BOWRAVILLE

| Year 1967 | | | | | Year 1968 | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Month | Discharge in Cusecs | | | Discharge for Month Acre Feet | Month | Discharge in Cusecs | | | Discharge for Month Acre Feet |
| | Max. | Min. | Mean | | | Max. | Min. | Mean | |
| Jan. | 8220 | 5 | 419 | 26,000 | Jan. | 34100 | 17 | 1780 | 111,000 |
| Feb. | 820 | 55 | 174 | 9,730 | Feb. | 480 | 106 | 177 | 10,300 |
| Mar. | 2020 | 95 | 448 | 27,800 | Mar. | 96 | 56 | 73 | 4,530 |
| Apr. | 5600 | 134 | 801 | 48,000 | Apr. | 56 | 28 | 37 | 2,220 |
| May | 128 | 55 | 87 | 5,370 | May | 46 | 22 | 34 | 2,130 |
| June | 30500 | 50 | 3675 | 220,000 | June | 35 | 18 | 25 | 1,510 |
| July | 1240 | 133 | 290 | 18,000 | July | 21 | 13 | 16 | 1,010 |
| Aug. | 207 | 71 | 104 | 6,460 | Aug. | 820 | 9 | 96 | 5,950 |
| Sept. | 98 | 51 | 67 | 4,040 | Sept. | 42 | 25 | 32 | 1,930 |
| Oct. | 1860 | 45 | 240 | 14,900 | Oct. | 28 | 15 | 19 | 1,180 |
| Nov. | 181 | 45 | 84 | 5,060 | Nov. | 38 | 10 | 18 | 1,050 |
| Dec. | 109 | 11 | 46 | 2,840 | Dec. | 28 | 10 | 11 | 706 |
| Total | | | | 388,200 | Total | | | | 143,516 |

## WOOGOOLGA CREEK AT WOOLGOOLGA.

| | |
|---|---|
| LOCATION: | Latitude 30°07'S Longitude 153°10'E |
| PERIOD OF ESTABLISHMENT: | February 1960 to date. |
| COMPLETE YEARS OF COMPUTED RECORDS: | 8 |
| ZERO OF GAUGE: | R.L. 44.64 Assumed Datum |
| CATCHMENT AREA: | 4.2 Square Miles |
| CONTROL: | Concrete weir and V Notch |
| EQUIPMENT: | Automatic recorder (Float Type)<br>Staff Gauge, range 0 to 10 feet |
| CURRENT METER OBSERVATIONS: | (a) Number obtained: 60 |
| | (b) Maximum observation in cusecs : 402 |
| | (c) Minimum observation in cusecs : 0 |
| MAXIMUM ESTIMATED DISCHARGE DURING PERIOD OF RECORDS: | 3,600 cusecs |
| MEAN DAILY DISCHARGE FOR 8 YEARS: | 8.0 cusecs |
| MEAN ANNUAL DISCHARGE FOR 8 YEARS: | 5,800 acre feet |

## WOOGOOLGA CREEK AT WOOLGOOLGA.

| 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. | 0.8 | 0 | 0.1 | 4 |
| Feb. | .. | .. | .. | .. | Feb. | 805 | 0 | 12.6 | 704 |
| Mar. | 150 | 1 | 20 | 1,230 | Mar. | 51 | 0 | 2.6 | 162 |
| Apr. | 1320 | 0.7 | 14 | 850 | Apr. | 4 | 0.1 | 1 | 60 |
| May | 1 | 0.2 | 0.6 | 34 | May | 32 | 0 | 1.2 | 74 |
| June | 5.2 | 0.2 | 0.9 | 52 | June | 160 | 0.7 | 8.7 | 523 |
| July | 0.4 | 0.1 | 0.3 | 21 | July | 0.6 | 0 | 0.2 | 10 |
| Aug. | 0.2 | 0 | 0.1 | 5 | Aug. | 1.1 | 0.1 | 0.5 | 28 |
| Sept. | 0 | 0 | 0 | 0 | Sept. | 210 | 0 | 6.4 | 381 |
| Oct. | 0 | 0 | 0 | 0 | Oct. | 41 | 0.2 | 2.8 | 176 |
| Nov. | 0.4 | 0 | 0.1 | 6 | Nov. | 69 | 0.5 | 3.6 | 217 |
| Dec. | 0 | 0 | 0 | 0 | Dec. | 89 | 0.9 | 6.5 | 402 |
| Total | .. | .. | .. | .. | Total | .. | .. | .. | 2,741 |

| Year 1962 | | | | | Year 1963 | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Jan. | 2020 | 0.6 | 36 | 2,240 | Jan. | 387 | 0.4 | 12.8 | 792 |
| Feb. | 27 | 1.5 | 4.4 | 246 | Feb. | 0.7 | 0 | 0.3 | 17 |
| Mar. | 943 | 1 | 19 | 1,202 | Mar. | 337 | 0 | 30 | 1,890 |
| Apr. | 3600 | 2.2 | 81 | 4,882 | Apr. | 3105 | 0.7 | 93 | 5,580 |
| May | 387 | 0.9 | 21 | 1,292 | May | 2000 | 2.4 | 91 | 5,660 |
| June | 1.9 | 0.4 | 1 | 58 | June | 160 | 1.1 | 6.7 | 400 |
| July | 565 | 0.4 | 23 | 1,414 | July | 10 | 0.6 | 1.9 | 120 |
| Aug. | 95 | 0.8 | 10 | 616 | Aug. | 0.6 | 0.3 | 0.4 | 27 |
| Sept. | 1.2 | 0.4 | 0.7 | 43 | Sept. | 2.4 | 0.1 | 0.5 | 30 |
| Oct. | 0.6 | 0 | 0.1 | 8 | Oct. | 1.4 | 0.3 | 0.6 | 40 |
| Nov. | 0.4 | 0 | 0.1 | 5 | Nov. | 0.7 | 0.2 | 0.4 | 23 |
| Dec. | 19 | 0 | 2.1 | 128 | Dec. | 120 | 0.6 | 6.7 | 417 |
| Total | .. | .. | .. | 12,134 | Total | .. | .. | .. | 14,996 |

| Year 1964 | | | | | Year 1965 | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Jan. | 41 | 0.4 | 2.5 | 156 | Jan. | 0 | 0 | 0 | 0 |
| Feb. | 250 | 0.4 | 16 | 920 | Feb. | 0 | 0 | 0 | 0 |
| Mar. | 2340 | 0.9 | 59 | 3,638 | Mar. | 0 | 0 | 0 | 0 |
| Apr. | 520 | 3.1 | 18 | 1,104 | Apr. | 0.5 | 0 | 0.1 | 9 |
| May | 5 | 1 | 2.0 | 126 | May | 0 | 0 | 0 | 0 |
| June | 1 | 0.3 | 0.8 | 49 | June | 26 | 0 | 1.3 | 81 |
| July | 0.5 | 0.1 | 0.3 | 21 | July | 140 | 0.2 | 5.8 | 358 |
| Aug. | 0.3 | 0 | 0.03 | 2 | Aug. | 2.1 | 0.1 | 0.7 | 41 |
| Sept. | 0.3 | 0 | 0.1 | 4 | Sept. | No Records | | | 10* |
| Oct. | 0.1 | 0 | 0.01 | 1 | Oct. | No Records | | | 3* |
| Nov. | 1 | 0 | 0.1 | 6 | Nov. | 0 | 0 | 0 | 0 |
| Dec. | 0.7 | 0 | 0.1 | 5 | Dec. | 8.5 | 0 | 3.3 | 204 |
| Total | .. | .. | .. | 6,032 | Total | .. | .. | .. | 706* |

| Year 1966 | | | | | Year 1967 | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Jan. | 1.7 | 0 | 0.3 | 22 | Jan. | 1380 | 0 | 27 | 1650 |
| Feb. | 4.2 | 0 | 0.7 | 42 | Feb. | 18 | 0.55 | 2.5 | 140 |
| Mar. | 1 | 0.1 | 0.3 | 19 | Mar. | No Records | | | 800* |
| Apr. | 20 | 0 | 1.6 | 95 | Apr. | No Records | | | 500* |
| May | 7 | 0.3 | 1.6 | 97 | May | No Records | | | 240* |
| June | 130 | 0.3 | 5.1 | 308 | June | 1100 | 0.4 | 68 | 4094 |
| July | 0.5 | 0 | 0.2 | 12 | July | 18 | 1 | 3 | 195 |
| Aug. | 5 | 0 | 0.9 | 57 | Aug. | 200 | 1 | 6.2 | 386 |
| Sept. | 4.2 | 0.1 | 1 | 63 | Sept. | 1.0 | 0.3 | 0.6 | 37 |
| Oct. | 1.4 | 0 | 0.3 | 20 | Oct. | 23 | 0.1 | 2.6 | 161 |
| Nov. | 595 | 0.4 | 8.6 | 518 | Nov. | 1.6 | 0 | 0.4 | 27 |
| Dec. | 0.7 | 0.1 | 0.3 | 19 | Dec. | 0.8 | 0 | 0.2 | 15 |
| Total | | | | 1,272 | Total | | | | 8,245 |

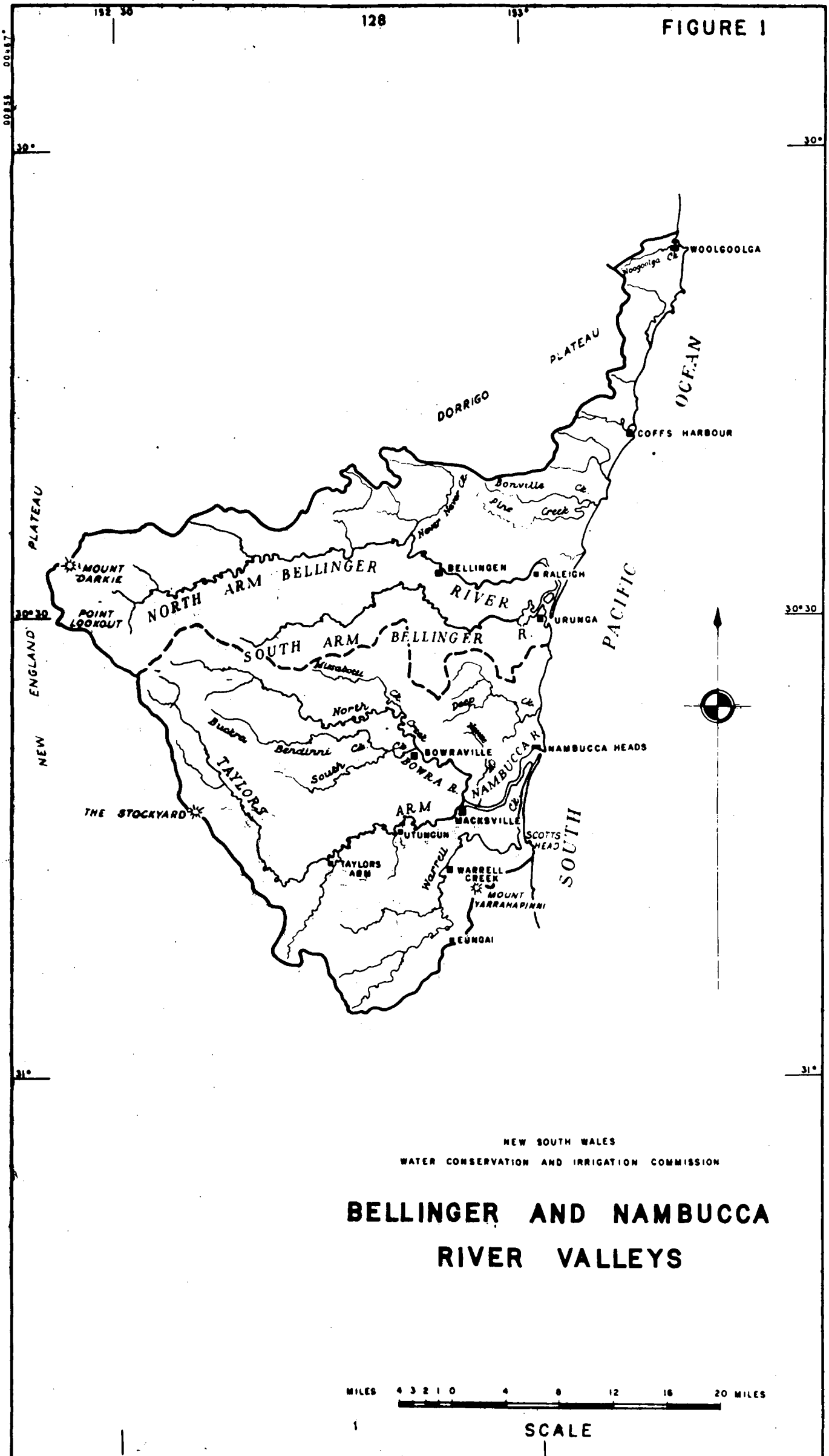
* Estimated

WOOGOOLGA CREEK AT WOOLGOOLGA

Year 1968

| Month | Discharge in Cusecs | | | Discharge for Month Acre Feet |
|---|---|---|---|---|
| | Max. | Min. | Mean | |
| Jan. | 3.1 | 0 | 0.6 | 35 |
| Feb. | 103 | 0 | 6 | 348 |
| Mar. | 0.6 | 0.2 | 0.3 | 17 |
| Apr. | 0.3 | 0 | 0.1 | 3 |
| May | 0 | 0 | 0 | 0 |
| June | 0 | 0 | 0 | 0 |
| July | 0 | 0 | 0 | 0 |
| Aug. | 5 | 0 | 0.7 | 43 |
| Sept. | 0.2 | 0 | 0.02 | 1 |
| Oct. | 0 | 0 | 0 | 0 |
| Nov. | 0.05 | 0 | 0.01 | 1 |
| Dec. | 0.7 | 0 | 0.14 | 8 |
| Total | | | | 456 |

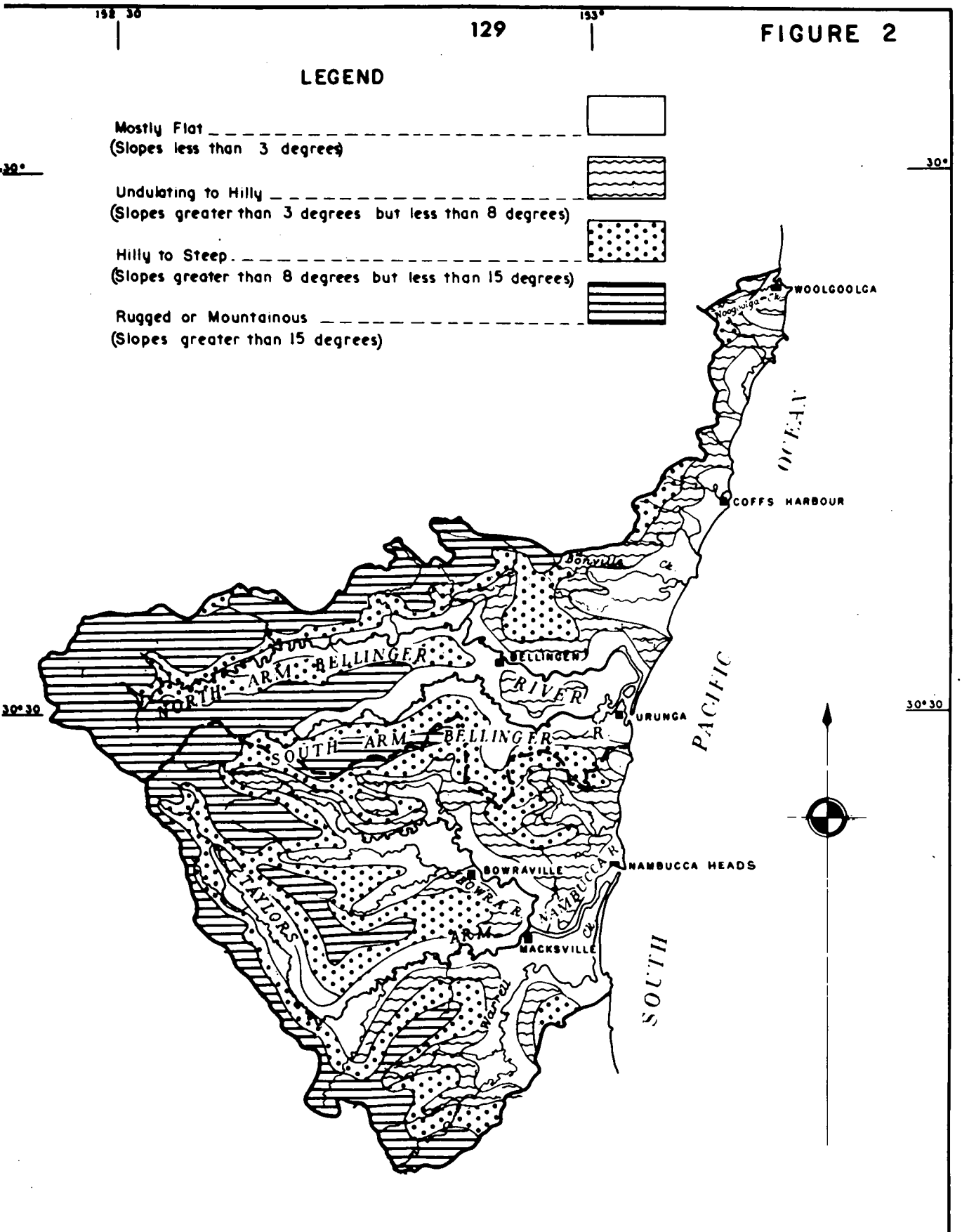
FIGURE 1




NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION

# BELLINGER AND NAMBUCCA RIVER VALLEYS

FIGURE 2




NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION

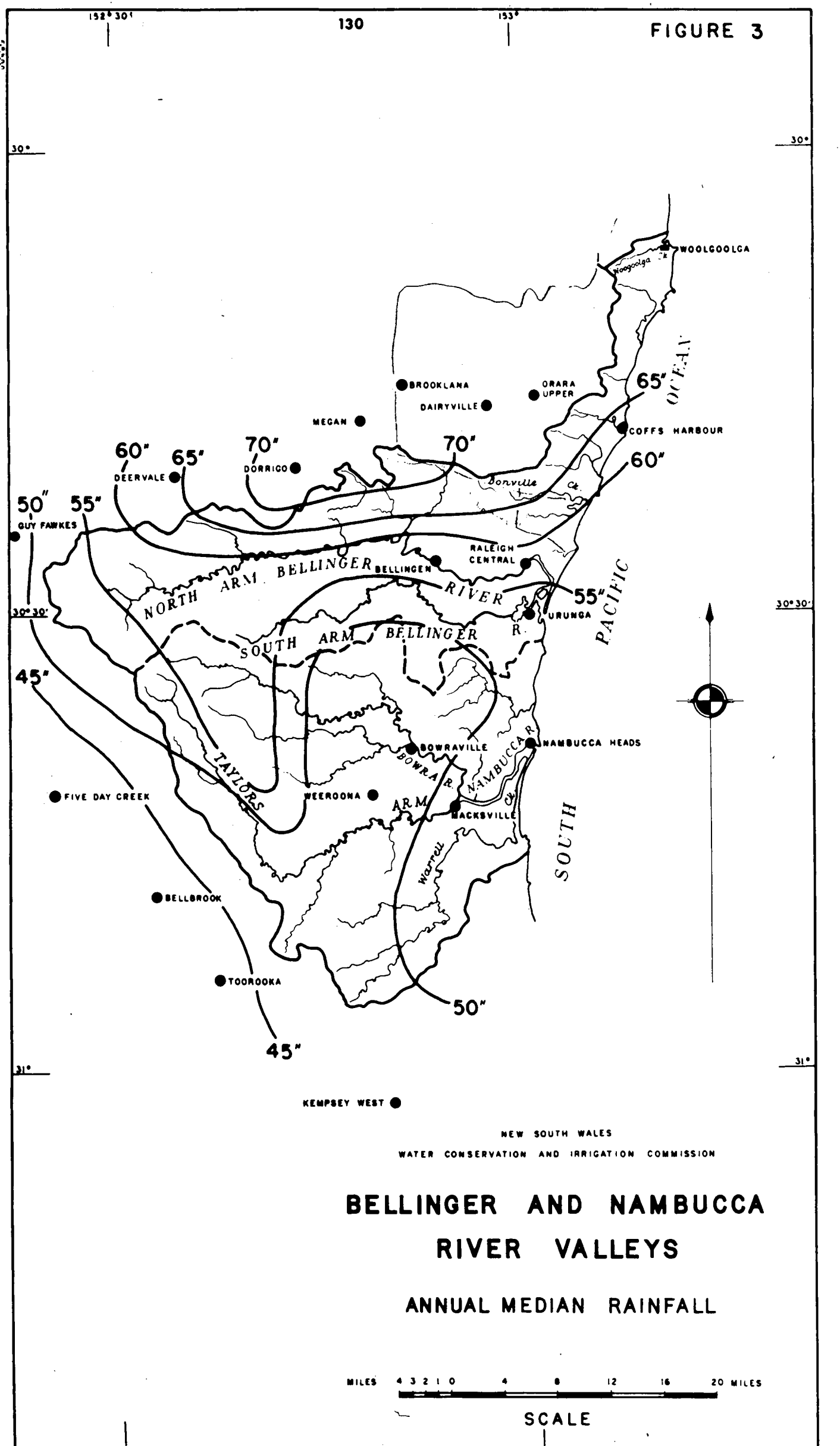
# BELLINGER AND NAMBUCCA RIVER VALLEYS

## LAND SLOPES

MILES 4 3 2 1 0 4 8 12 16 20 MILES

SCALE

FIGURE 3




NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION

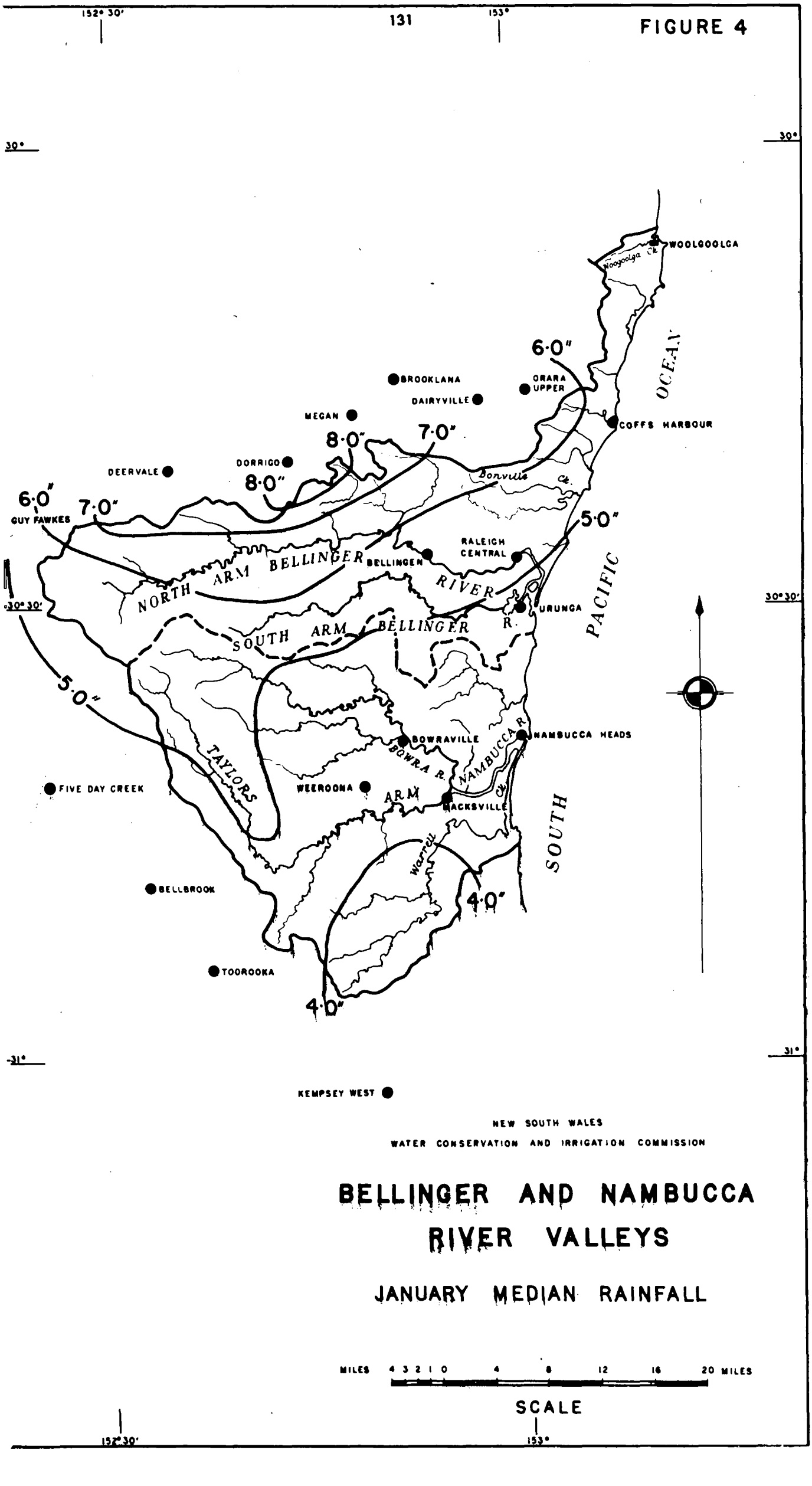
# BELLINGER AND NAMBUCCA RIVER VALLEYS

## ANNUAL MEDIAN RAINFALL

MILES 4 3 2 1 0 4 8 12 16 20 MILES

SCALE

FIGURE 4

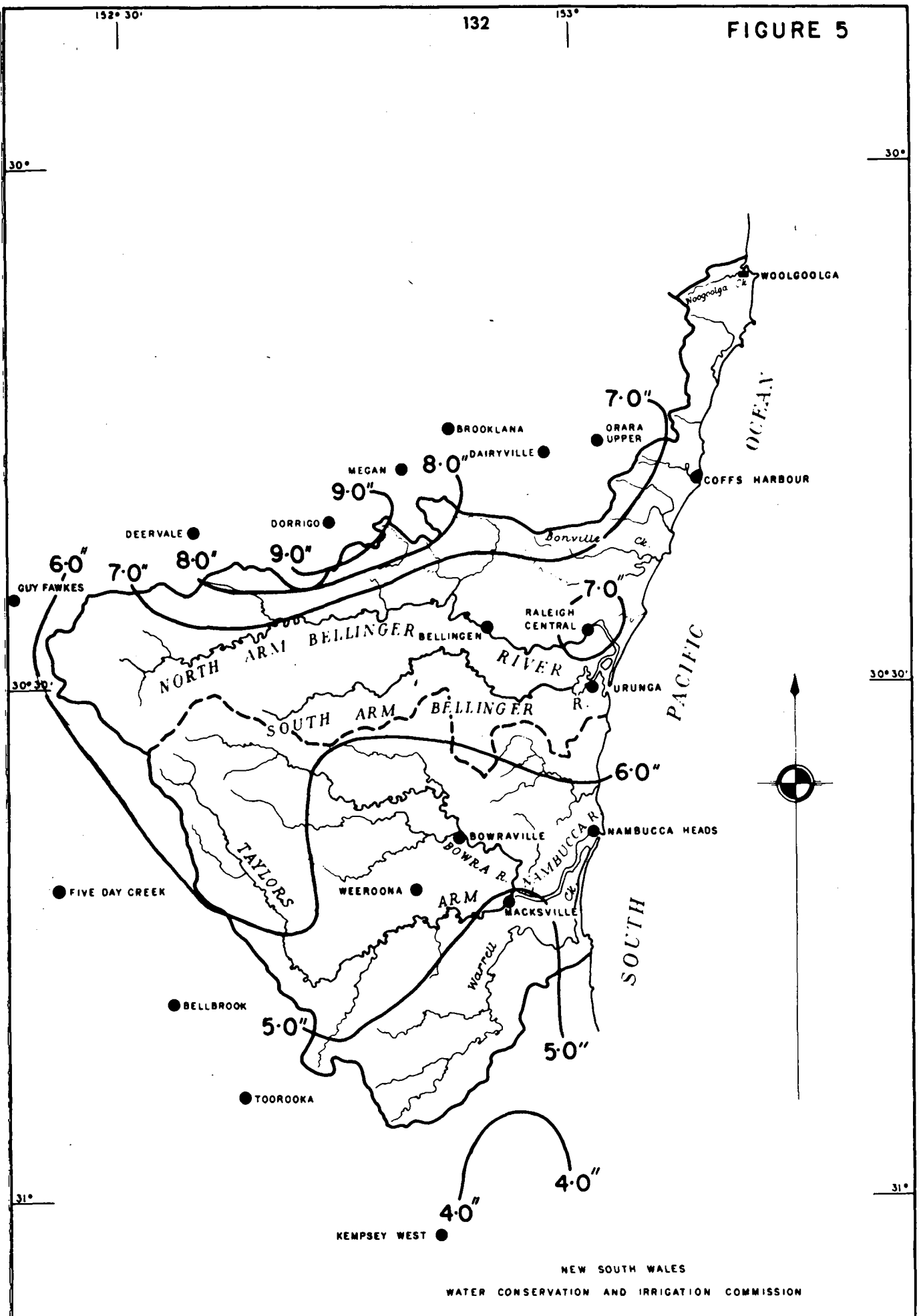



NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION

# BELLINGER AND NAMBUCCA RIVER VALLEYS

## JANUARY MEDIAN RAINFALL

FIGURE 5




NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION

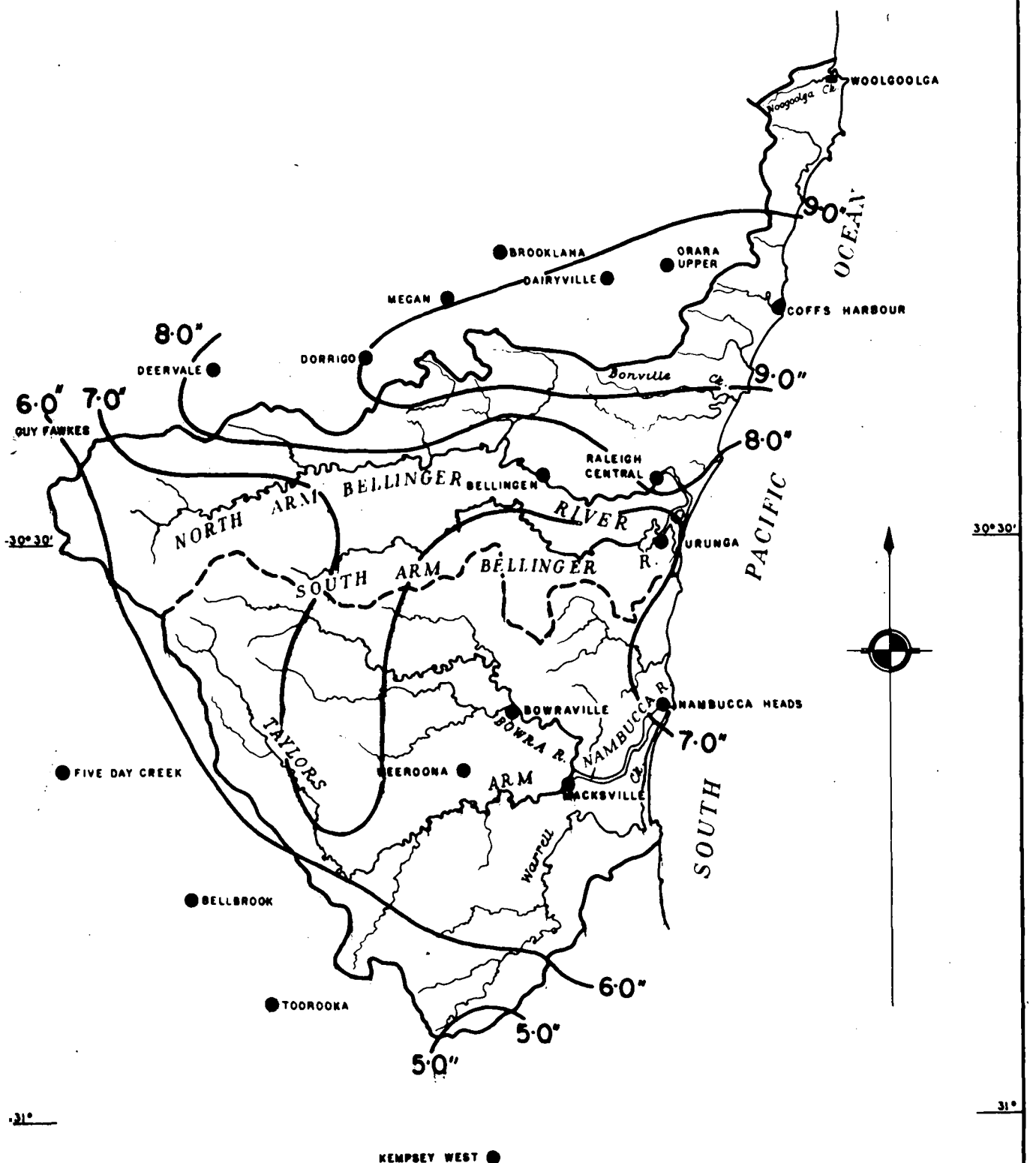
# BELLINGER AND NAMBUCCA RIVER VALLEYS

## FEBRUARY MEDIAN RAINFALL

MILES 4 3 2 1 0 4 8 12 16 20 MILES

SCALE

FIGURE 6




NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION

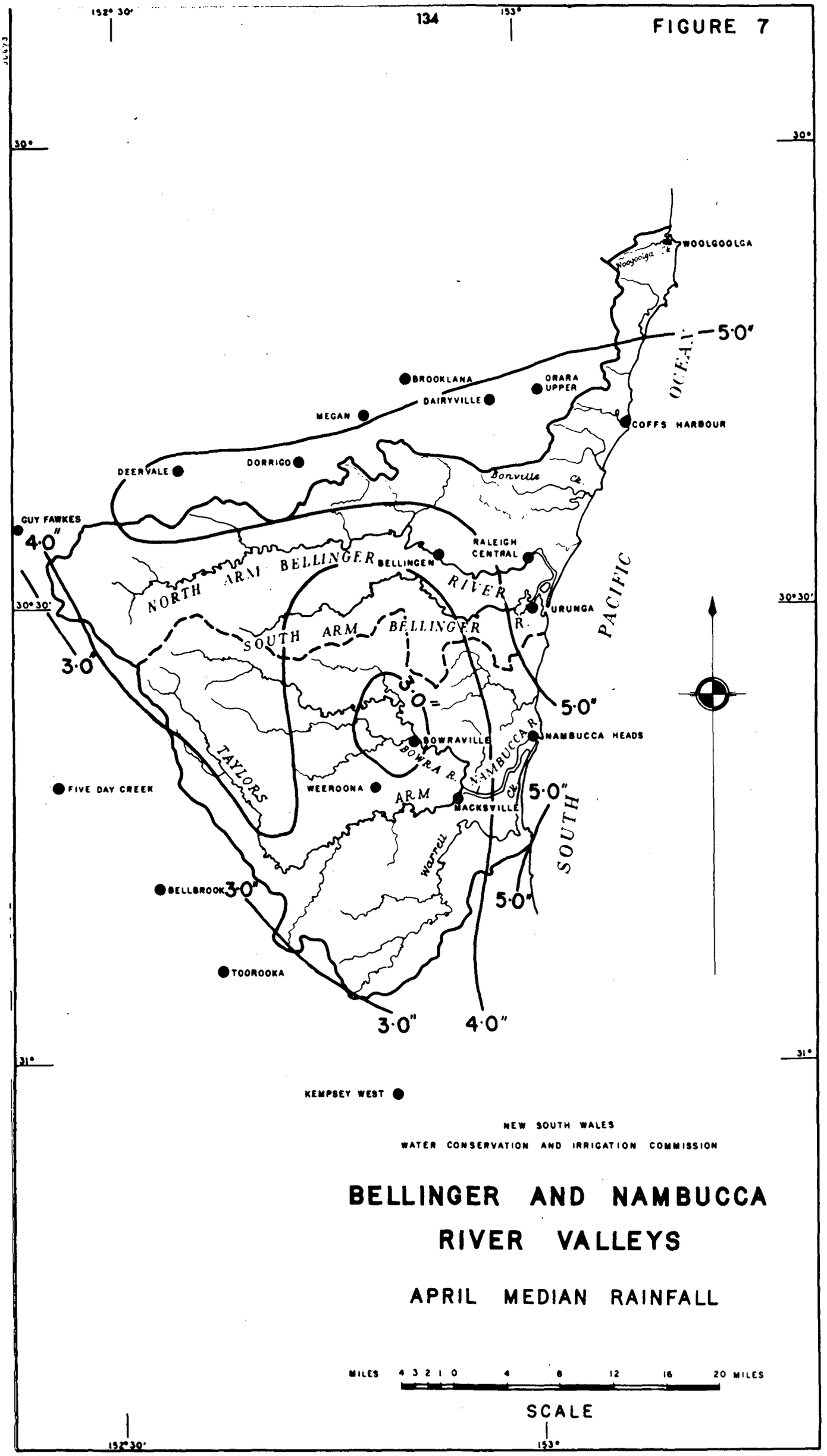
# BELLINGER AND NAMBUCCA RIVER VALLEYS

## MARCH MEDIAN RAINFALL

MILES 4 3 2 1 0 4 8 12 16 20 MILES

SCALE

FIGURE 7




NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION

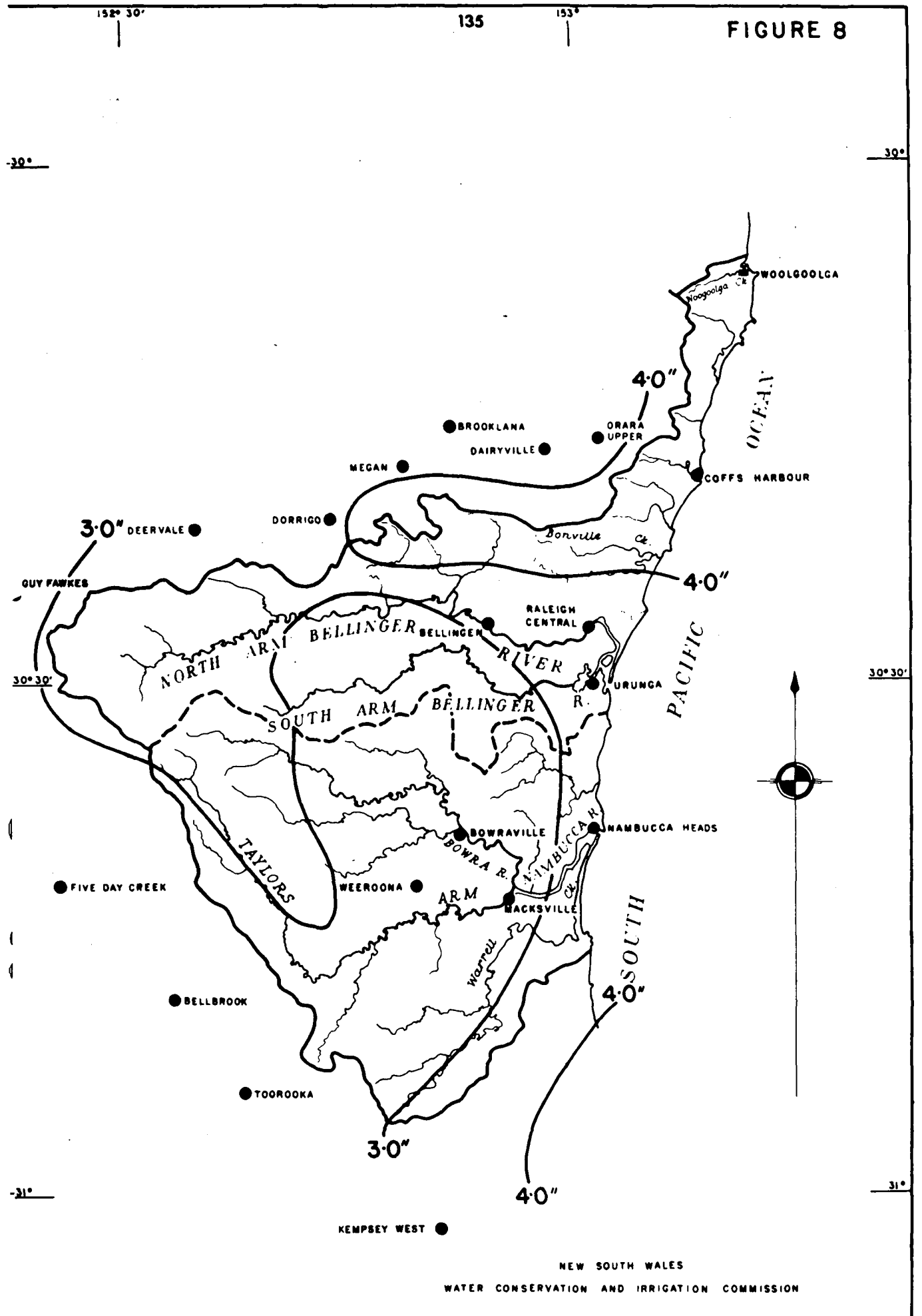
# BELLINGER AND NAMBUCCA RIVER VALLEYS

## APRIL MEDIAN RAINFALL

MILES 4 3 2 1 0 4 8 12 16 20 MILES

SCALE

FIGURE 8




NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION

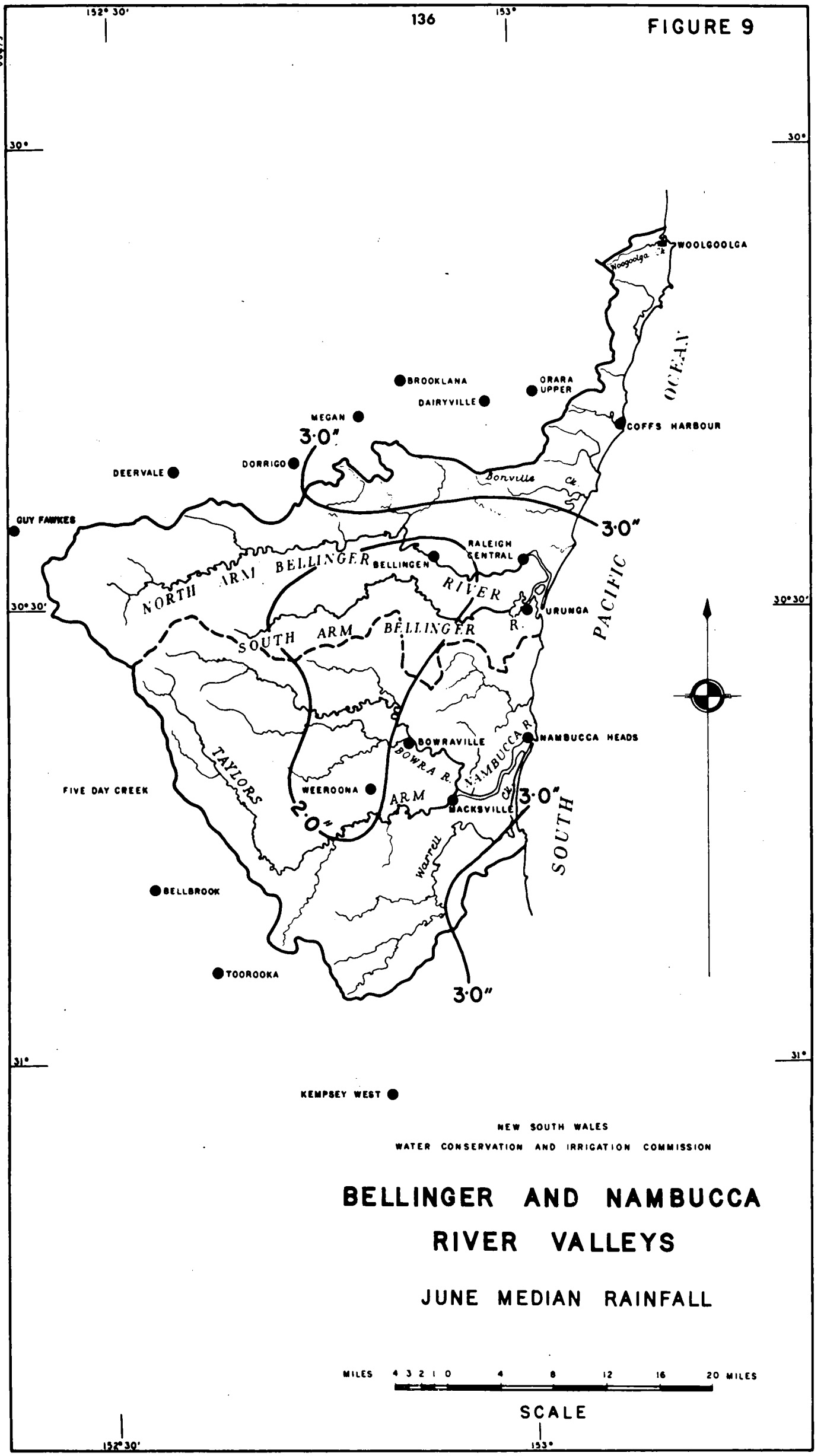
# BELLINGER AND NAMBUCCA RIVER VALLEYS

## MAY MEDIAN RAINFALL

MILES 4 3 2 1 0 4 8 12 16 20 MILES

SCALE

FIGURE 9




NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION

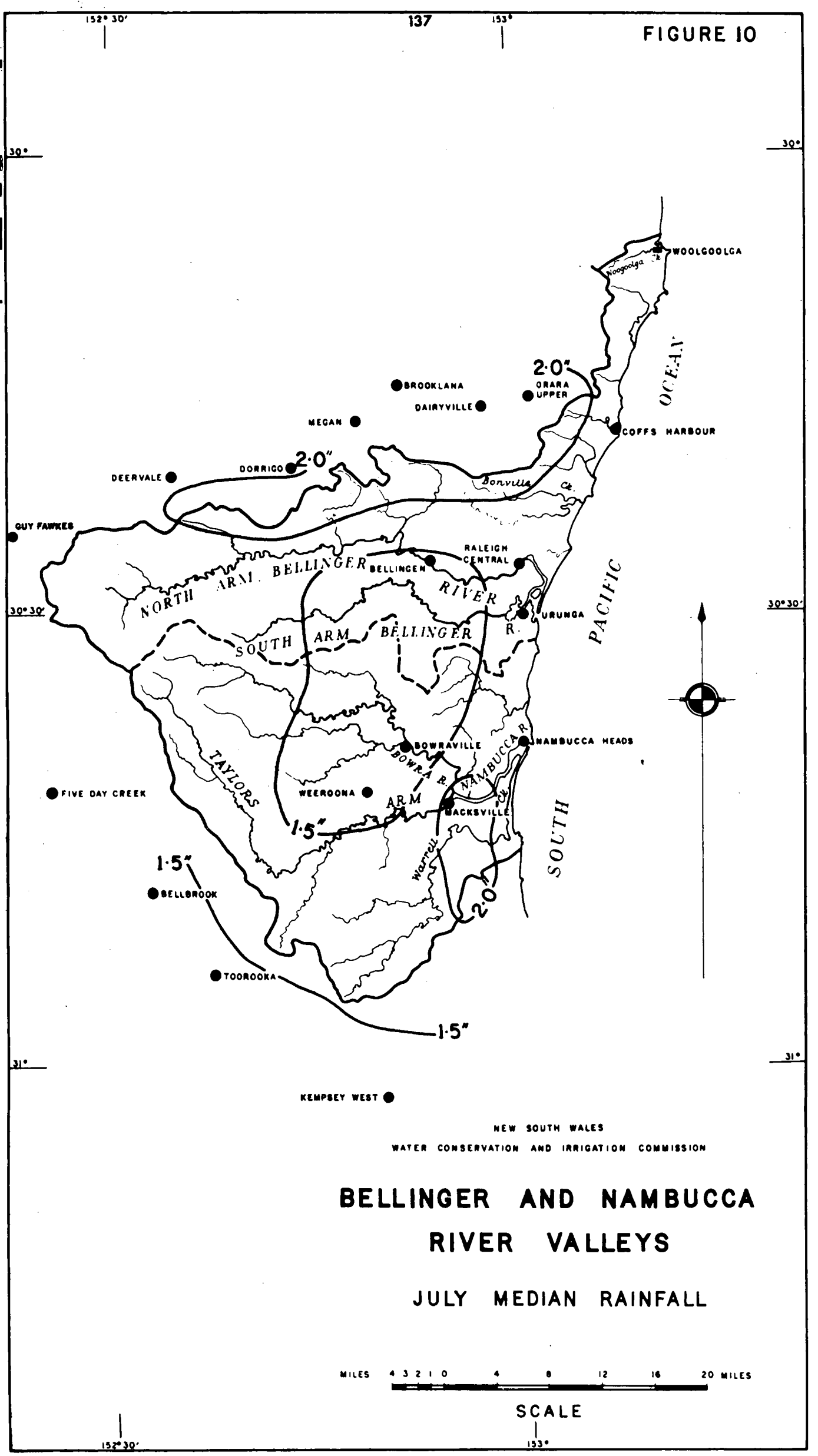
# BELLINGER AND NAMBUCCA RIVER VALLEYS

## JUNE MEDIAN RAINFALL

MILES 4 3 2 1 0 4 8 12 16 20 MILES

SCALE

FIGURE 10

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WATER CONSERVATION AND IRRIGATION COMMISSION

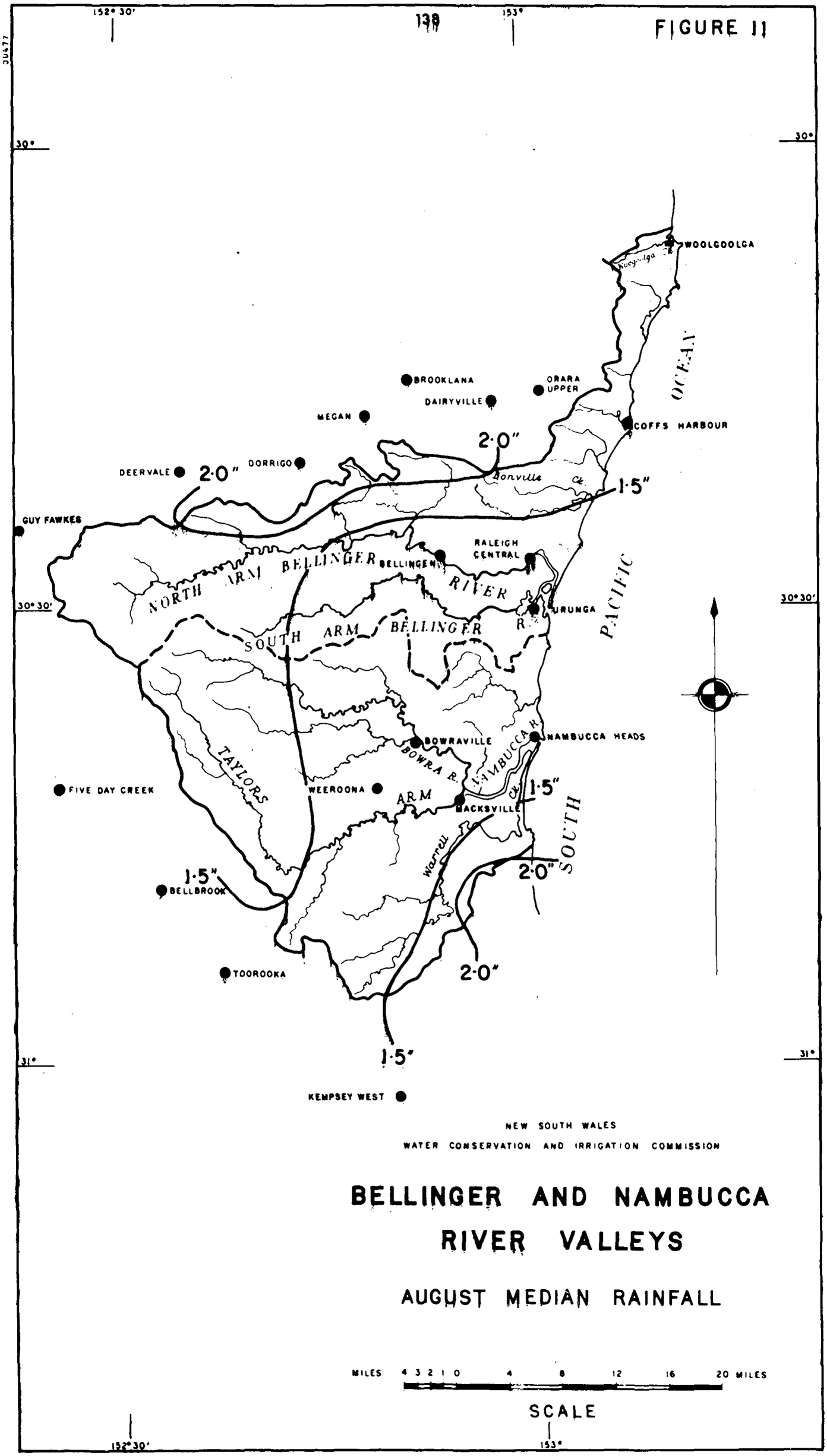
# BELLINGER AND NAMBUCCA RIVER VALLEYS

## JULY MEDIAN RAINFALL

MILES 4 3 2 1 0 4 8 12 16 20 MILES

SCALE

FIGURE 11




NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION

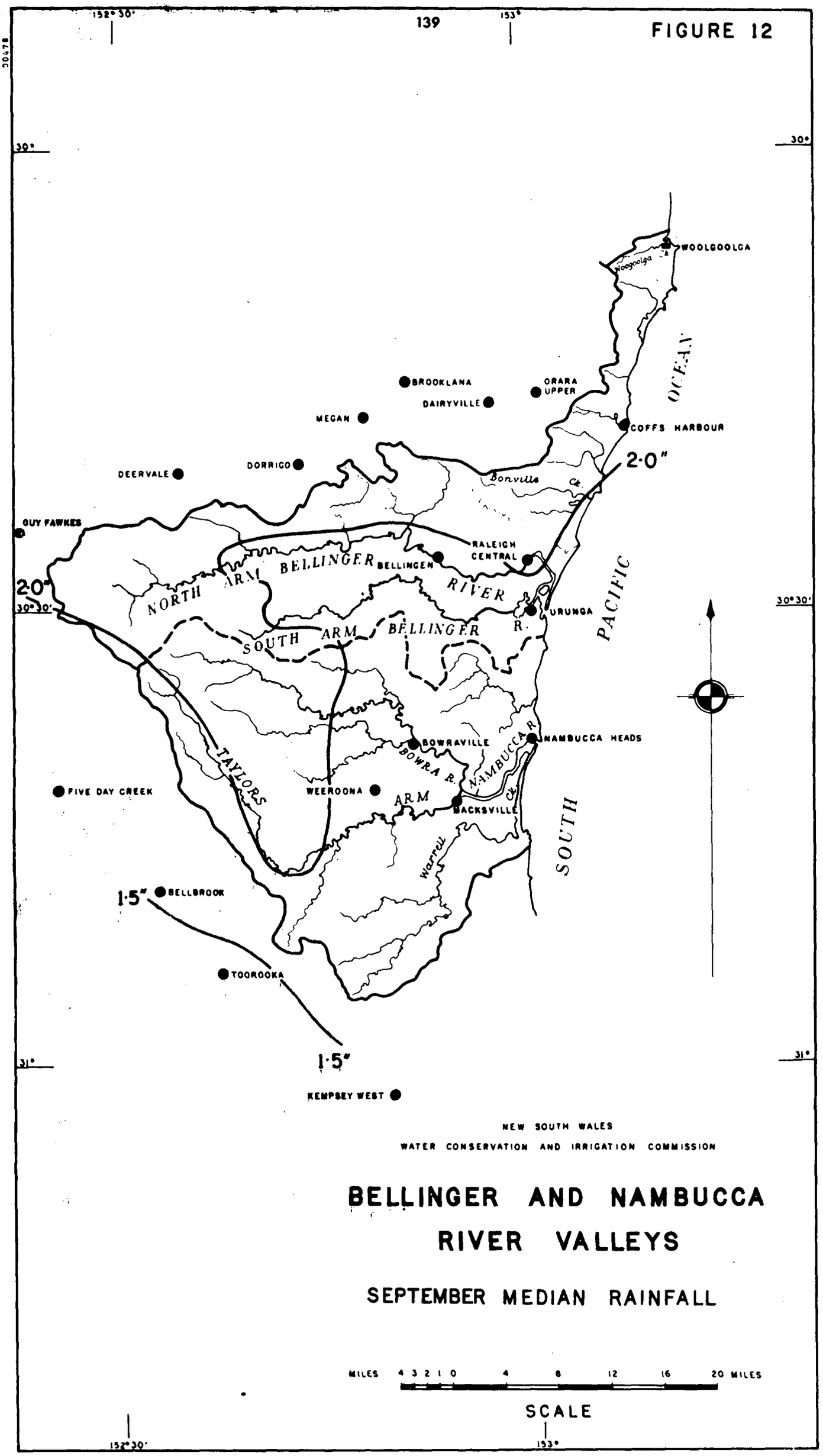
# BELLINGER AND NAMBUCCA RIVER VALLEYS

## AUGUST MEDIAN RAINFALL

MILES 4 3 2 1 0 4 8 12 16 20 MILES

SCALE

FIGURE 12

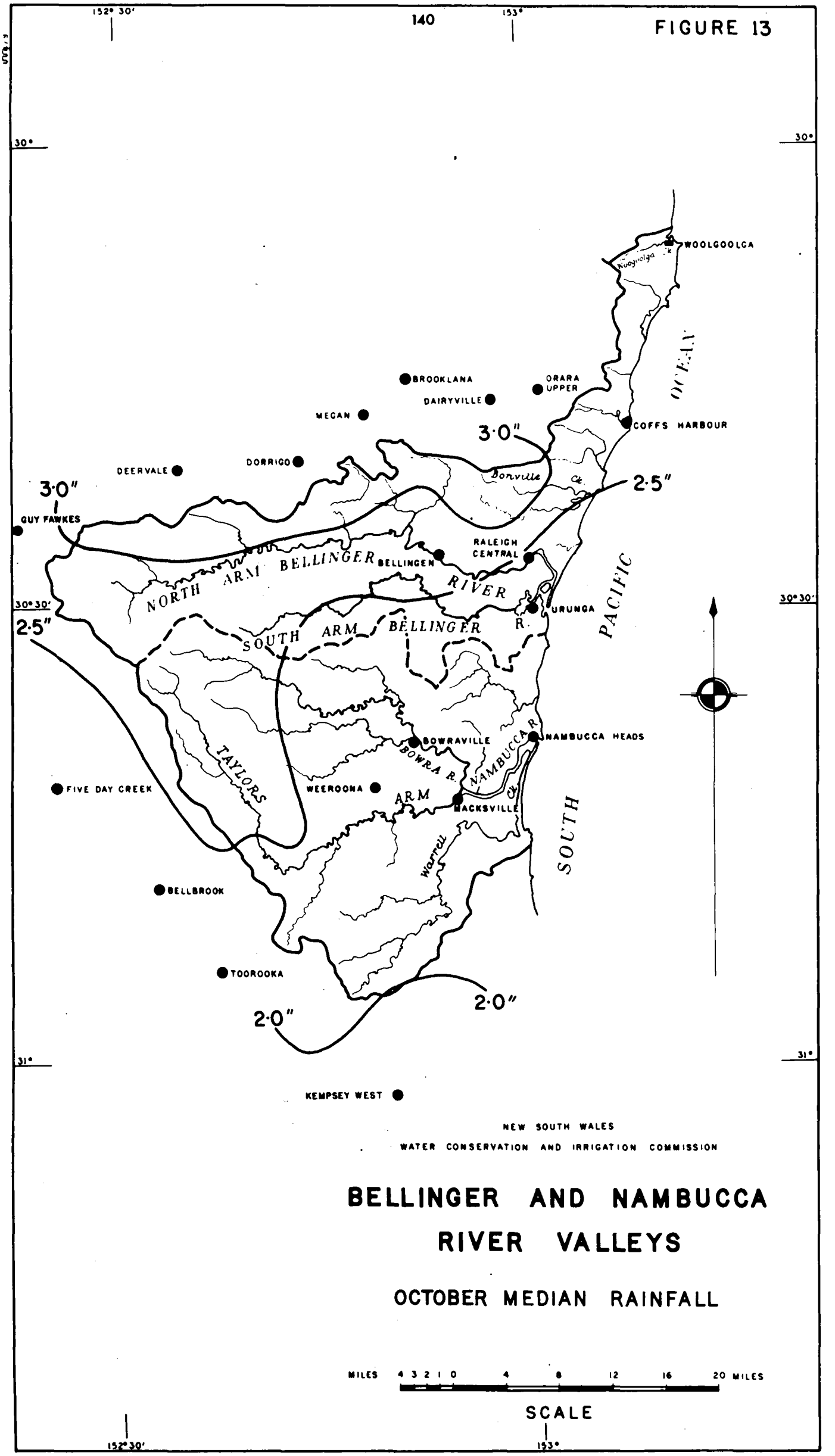



NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION

# BELLINGER AND NAMBUCCA RIVER VALLEYS

## SEPTEMBER MEDIAN RAINFALL

FIGURE 13




NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION

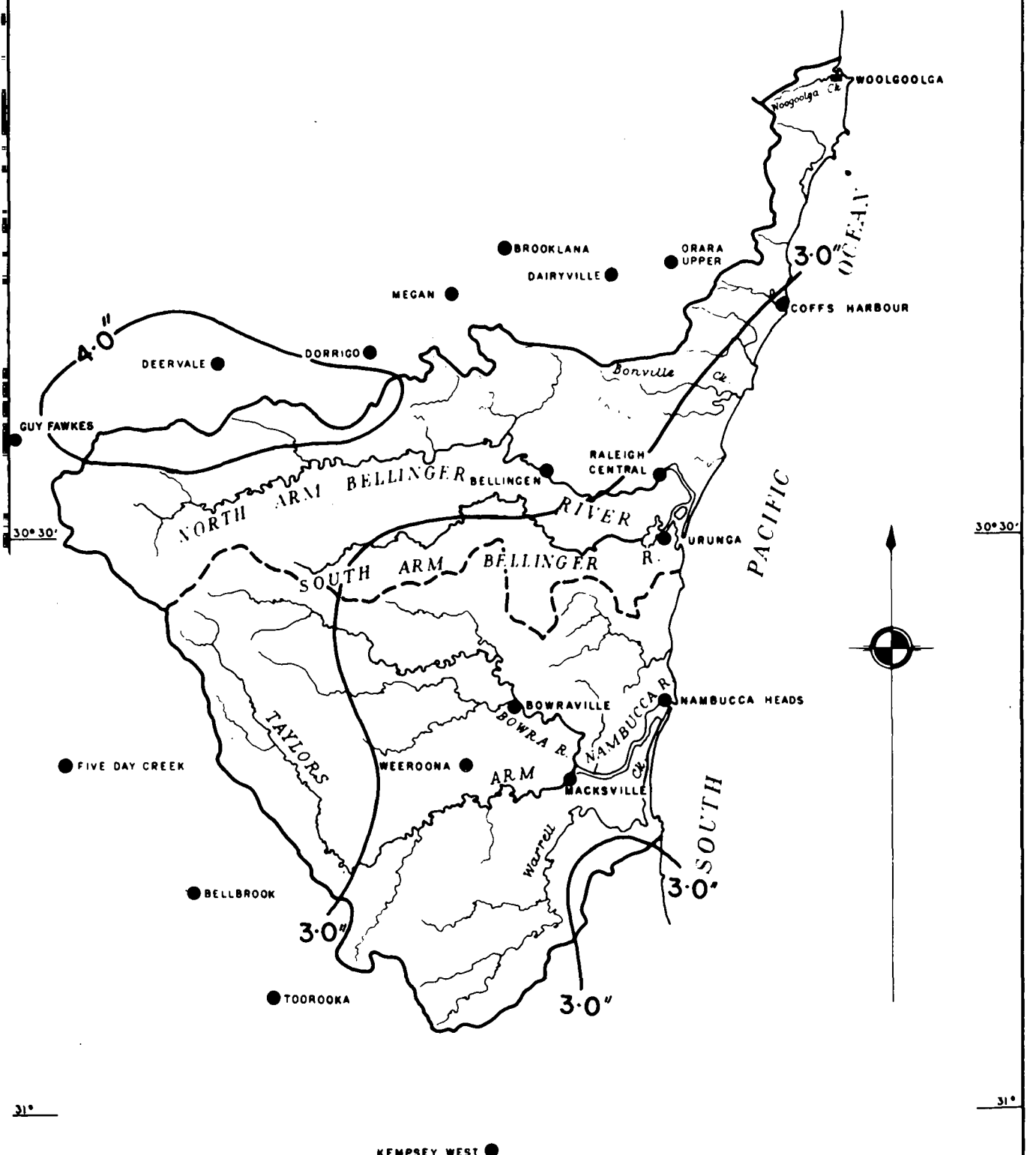
# BELLINGER AND NAMBUCCA RIVER VALLEYS

## OCTOBER MEDIAN RAINFALL

MILES 4 3 2 1 0 4 8 12 16 20 MILES

SCALE

FIGURE 14




NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION

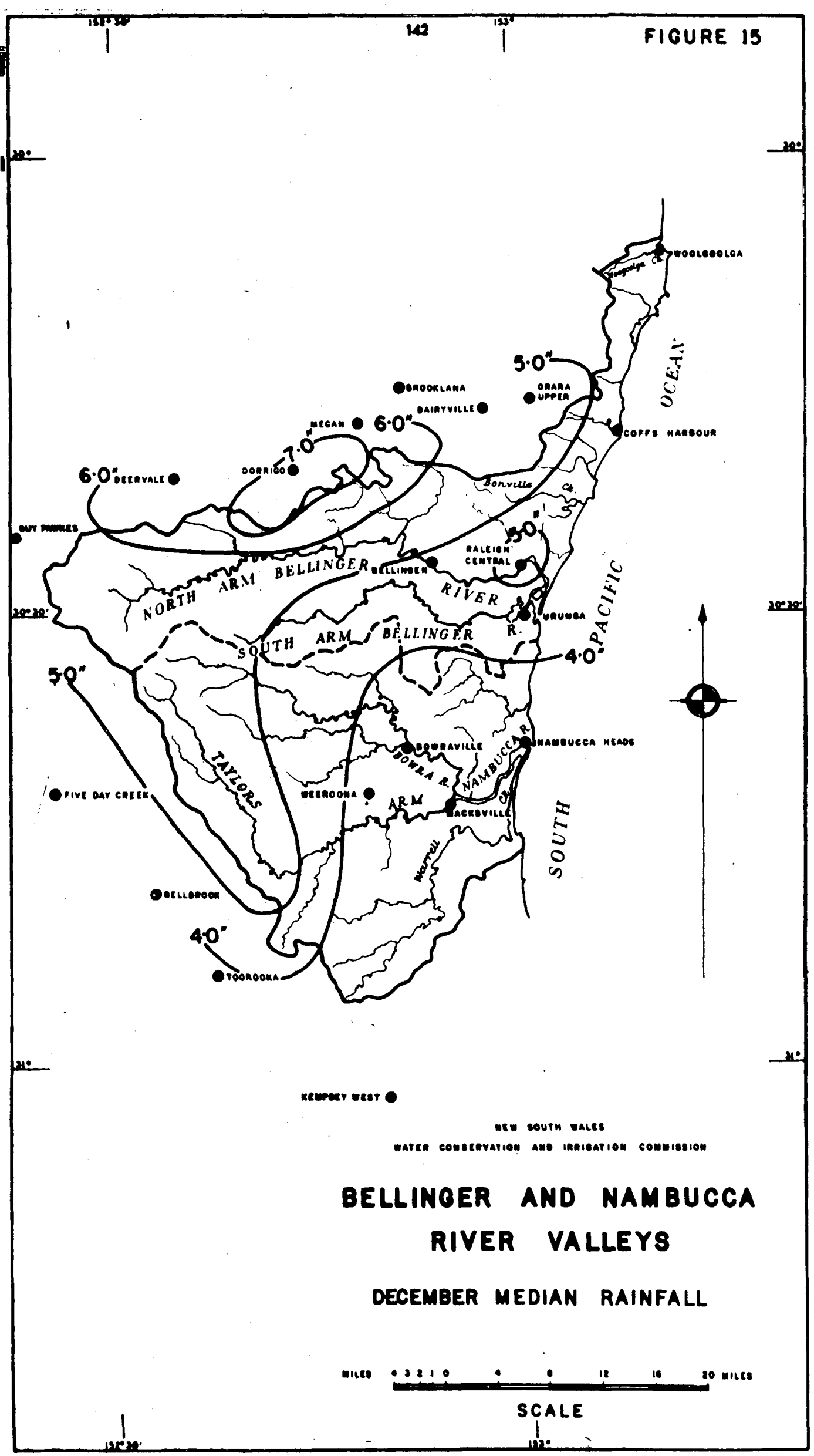
# BELLINGER AND NAMBUCCA RIVER VALLEYS

## NOVEMBER MEDIAN RAINFALL

MILES 4 3 2 1 0 4 8 12 16 20 MILES

SCALE

FIGURE 15




NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION

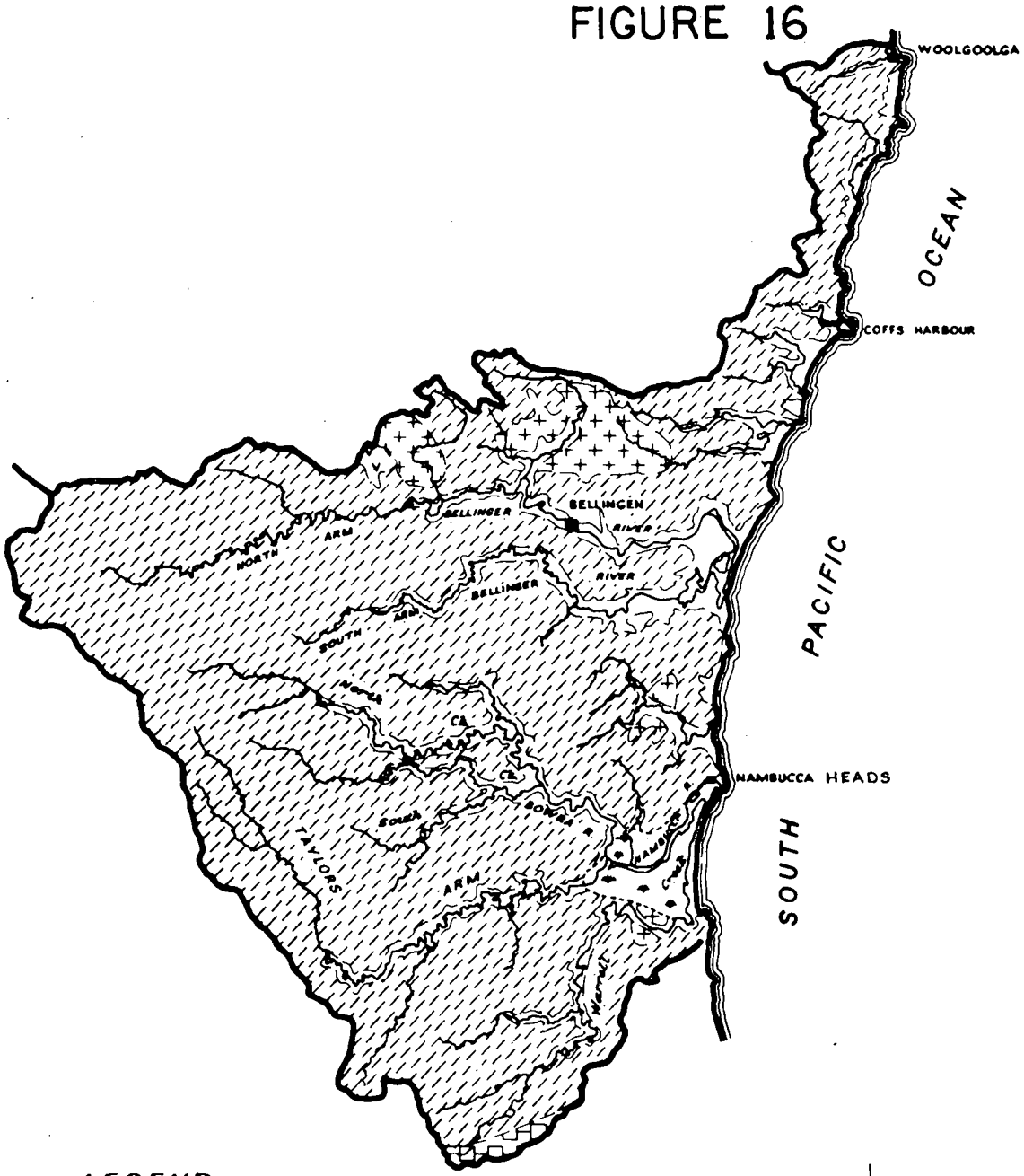
# BELLINGER AND NAMBUCCA RIVER VALLEYS

## DECEMBER MEDIAN RAINFALL

MILES 4 3 2 1 0 4 8 12 16 20 MILES

SCALE

FIGURE 16




## LEGEND

| | |
|---|---|
| TERTIARY - RECENT | Alluvium - clay, sand and gravel, ..... indicates swamp |
| CARBONIFEROUS | Undifferentiated, mainly shales, sandstones quartzites & interbedded volcanics |
| SILURIAN | Slates, quartzites, sandstones, tuffs and interbedded volcanics |

### IGNEOUS

| | |
|---|---|
| | Basalt |
| | Granite |

GRID NORTH

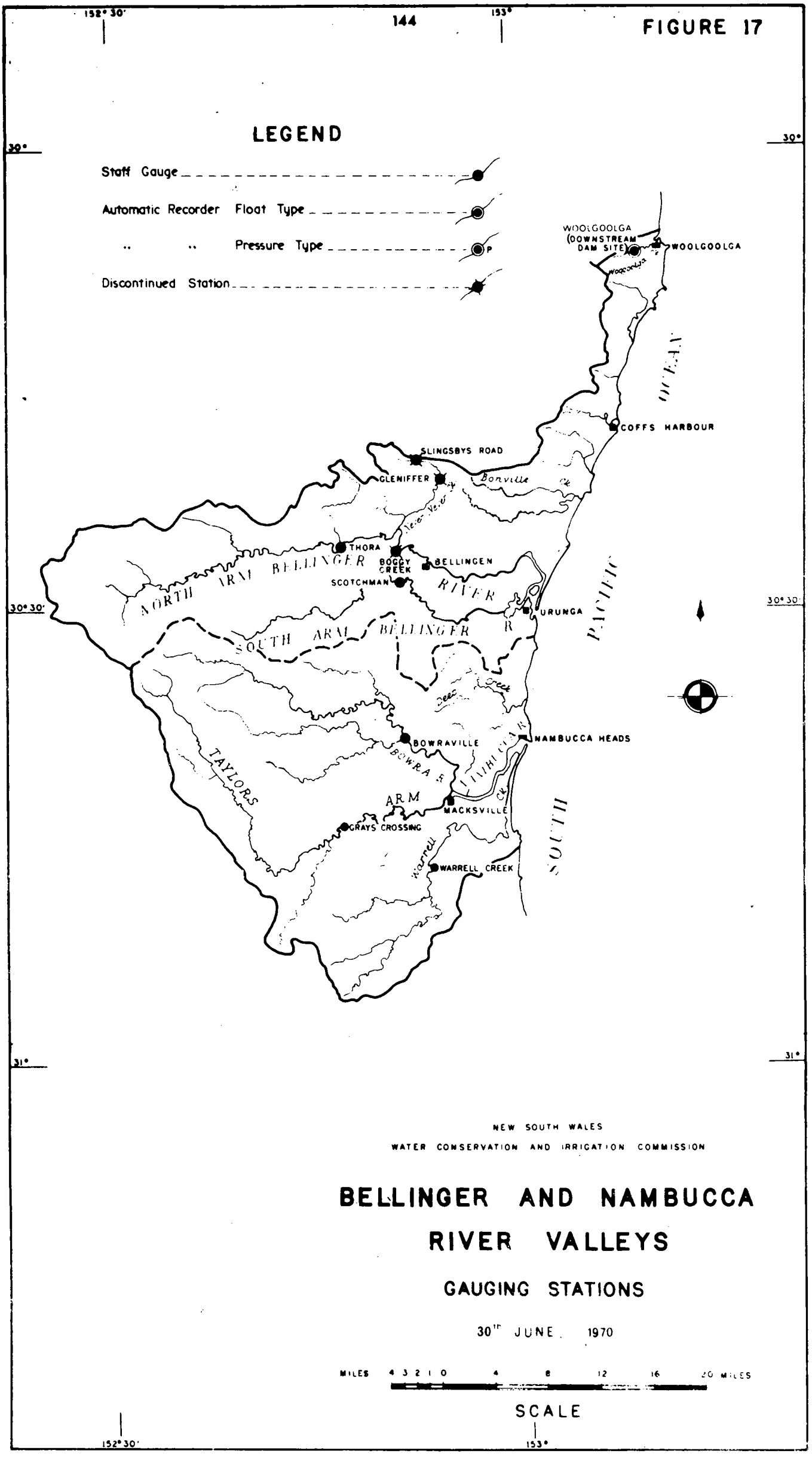
NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION

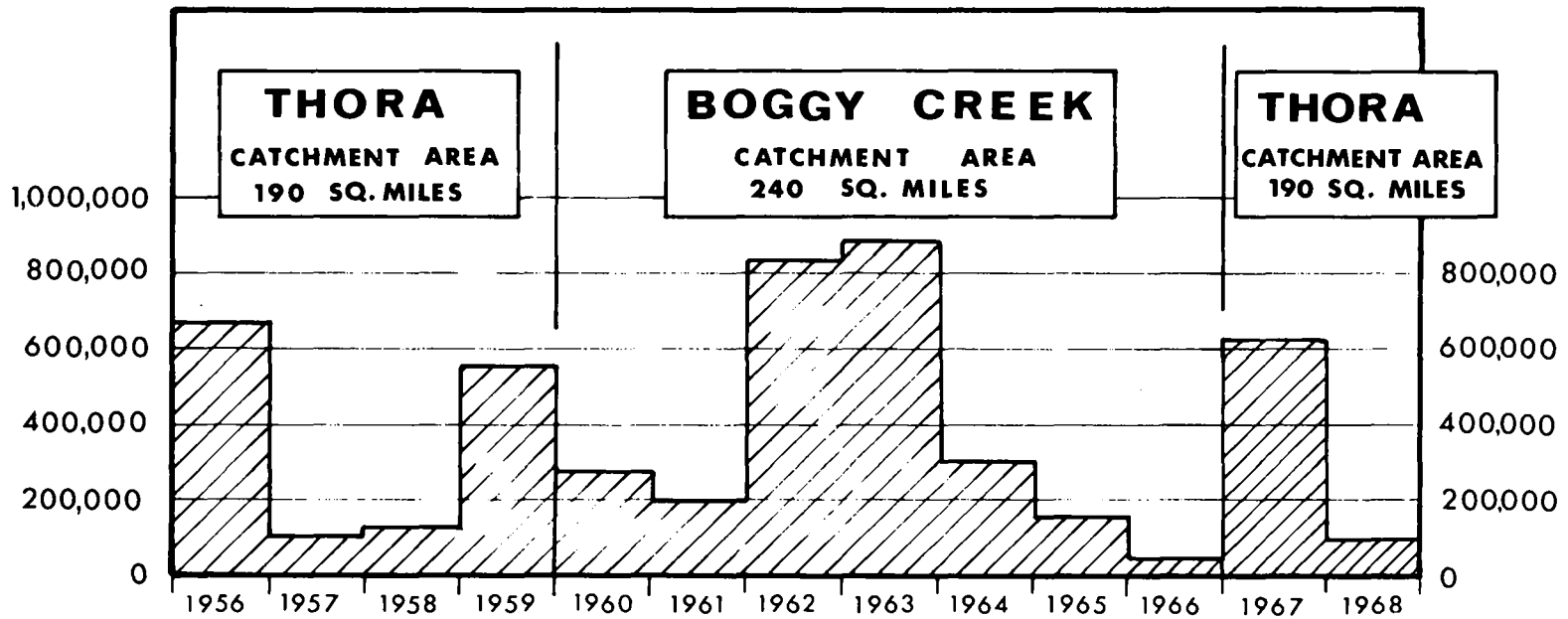
# BELLINGER AND NAMBUCCA RIVER VALLEYS GEOLOGICAL FORMATIONS

SCALE

MILES 4 2 0 4 8 12 16 20 MILES

FIGURE 17


152° 30'
153°
30°
30° 30'
31°
LEGEND
Staff Gauge
Automatic Recorder Float Type
" " Pressure Type
P
Discontinued Station
WOOLGOOLGA (DOWNSTREAM DAM SITE)
WOOLGOOLGA
COFFS HARBOUR
SLINGSBYS ROAD
GLENIFFER
Bonville Ck
THORA
BOGGY CREEK
BELLINGEN
SCOTCHMAN
NORTH ARM BELLINGER RIVER
SOUTH ARM BELLINGER R
URUNGA
PACIFIC OCEAN
Deer Creek
BOWRAVILLE
NAMBUCCA HEADS
TAYLORS ARM
BOWRA R
MACKSVILLE
GRAYS CROSSING
Warrell Ck
WARRELL CREEK
SOUTH
NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION
BELLINGER AND NAMBUCCA
RIVER VALLEYS
GAUGING STATIONS
30TH JUNE 1970
MILES 4 3 2 1 0 4 8 12 16 20 MILES
SCALE



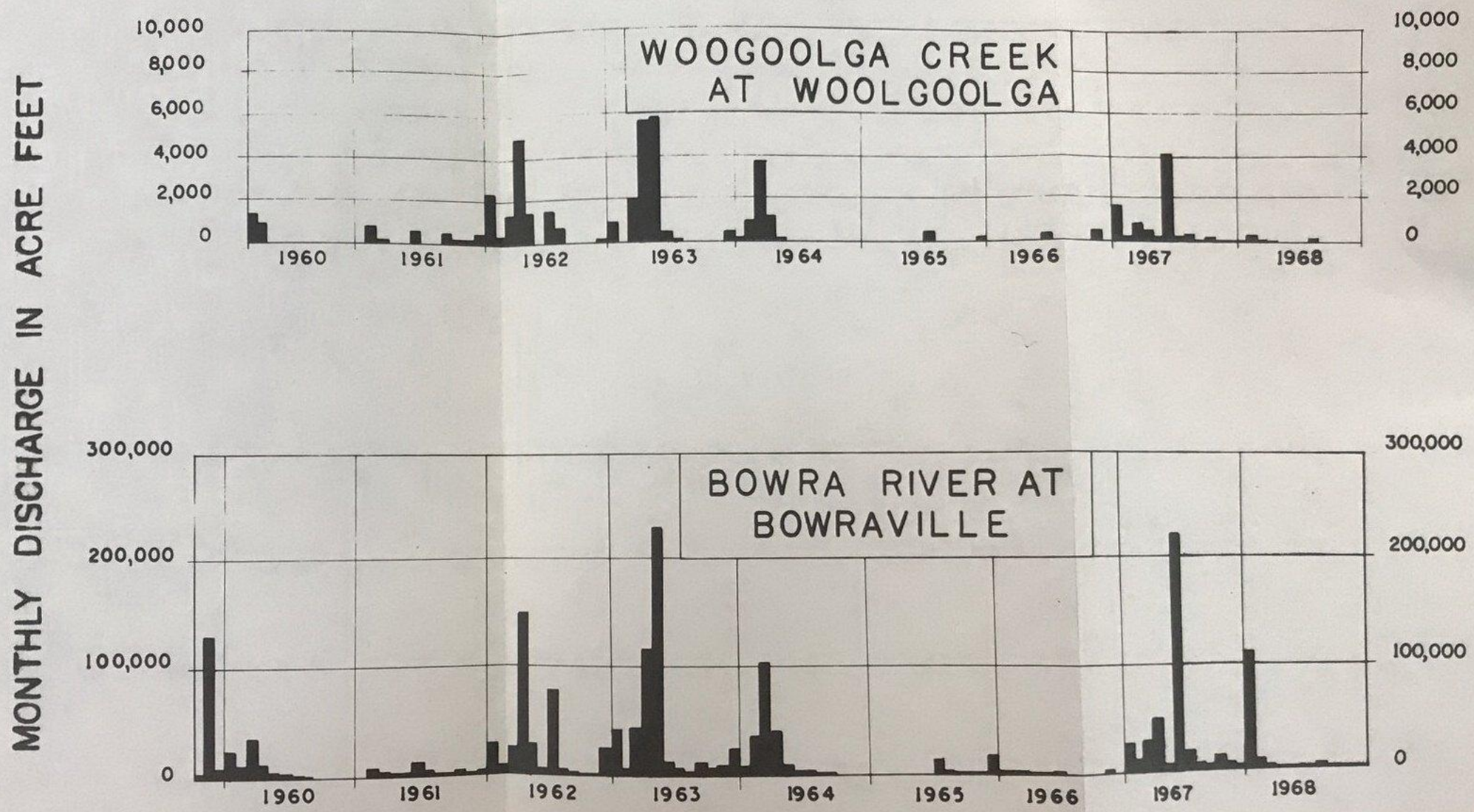

ANNUAL DISCHARGE IN ACRE FEET

# ANNUAL DISCHARGES OF NORTH ARM — BELLINGER RIVER



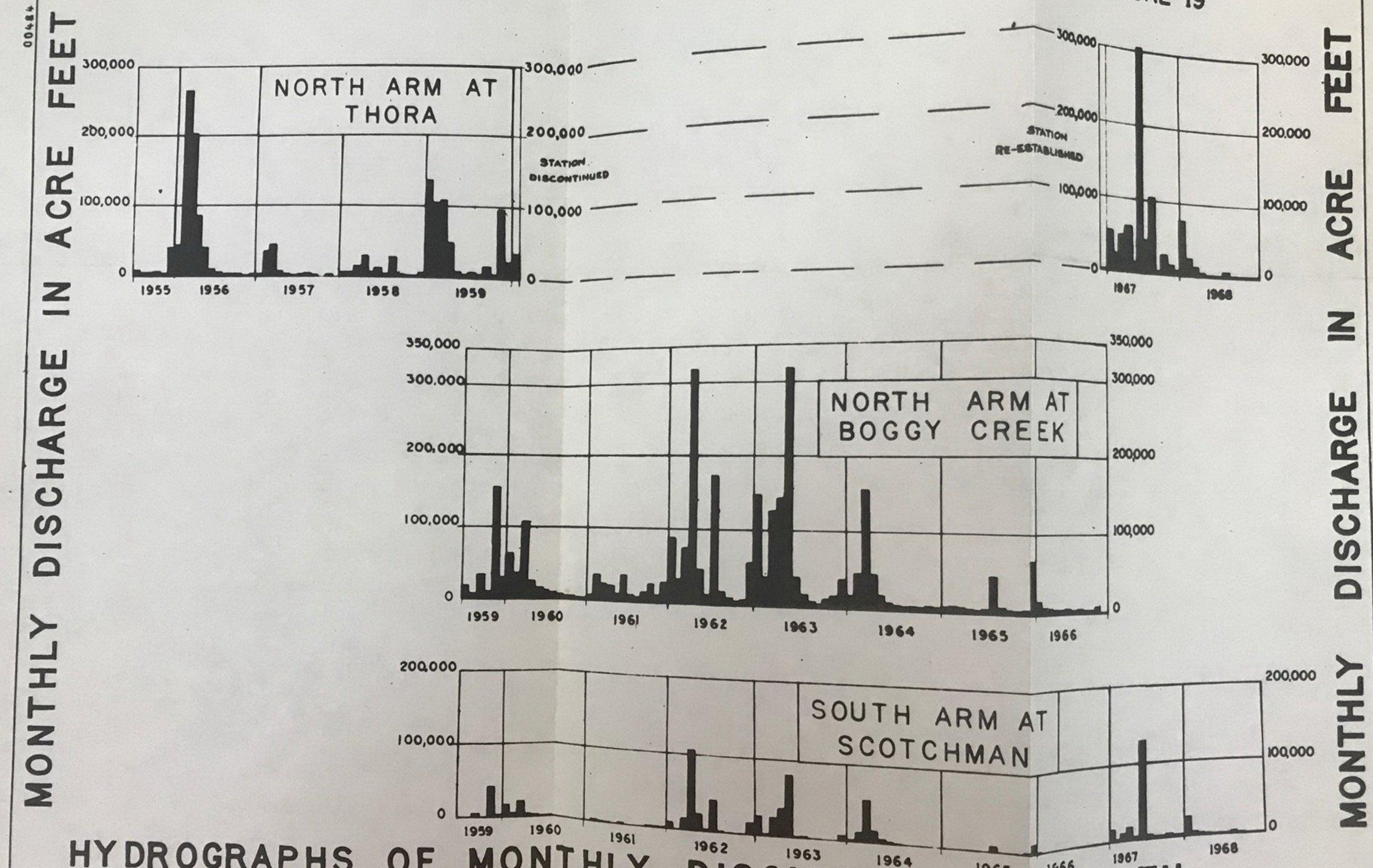
FIGURE 18

FIGURE 20



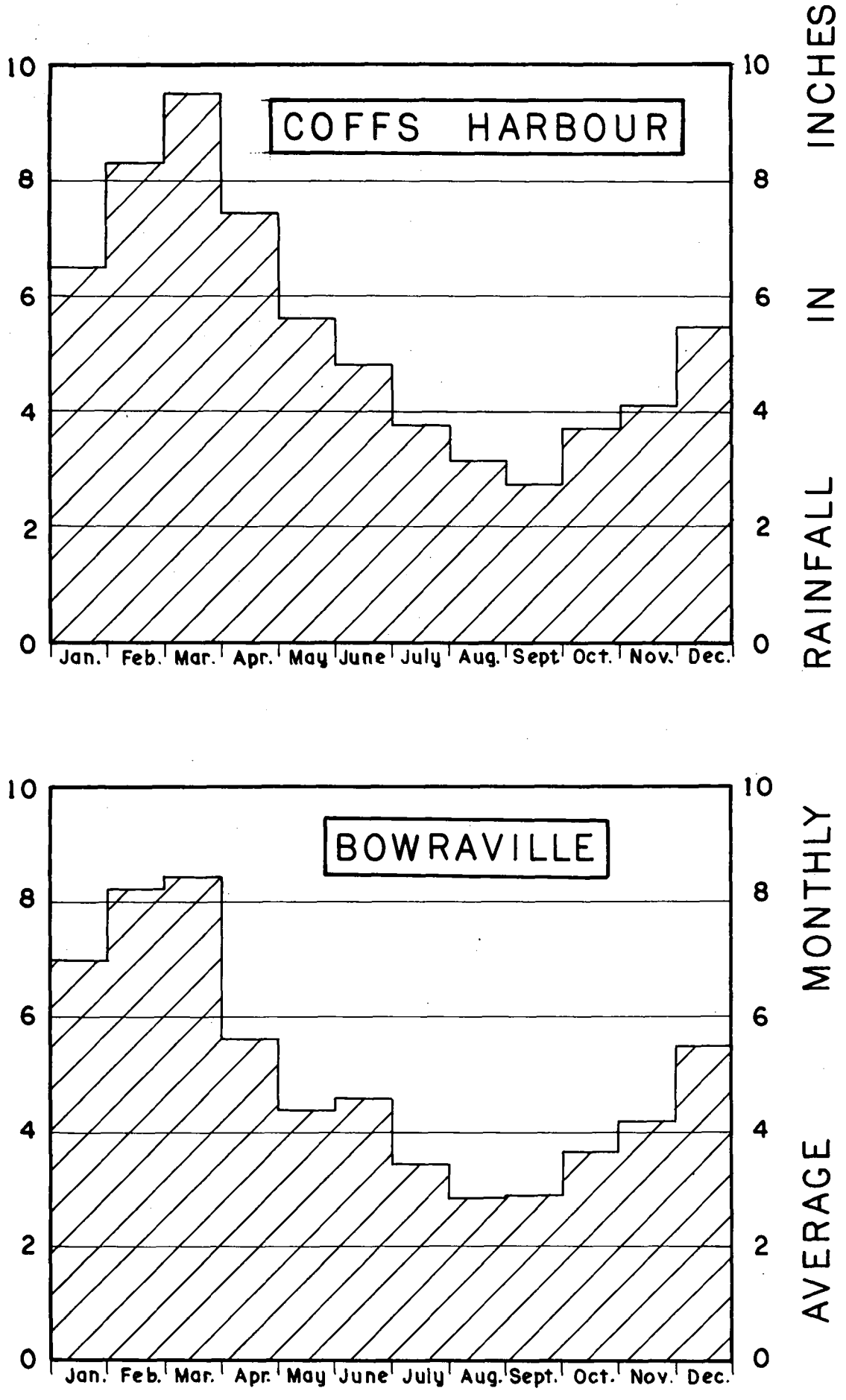

HYDROGRAPHS OF MONTHLY DISCHARGE FOR WOOGOOLGA CREEK AT WOOLGOOLGA AND BOWRA RIVER AT BOWRAVILLE

FIGURE 19



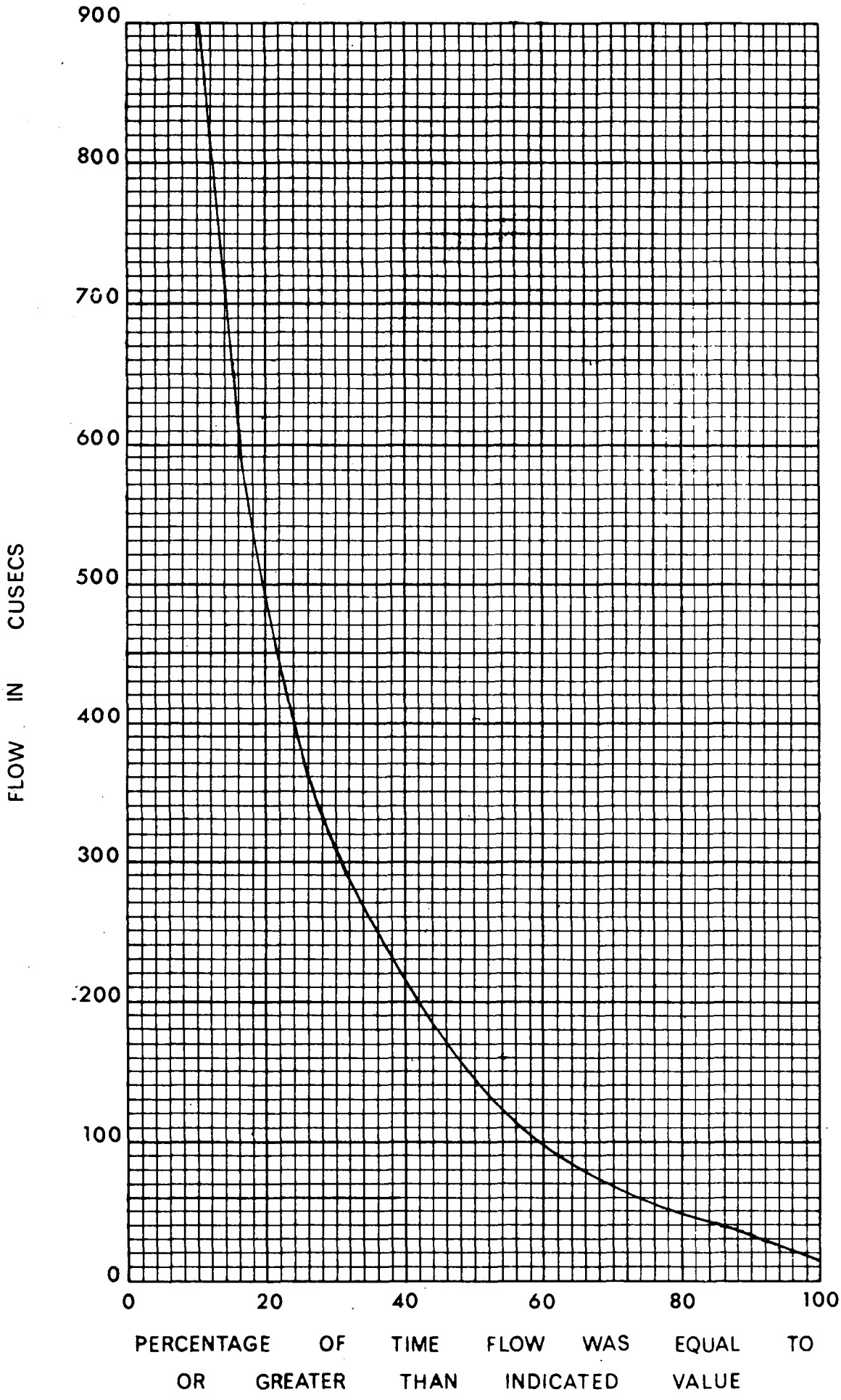

HYDROGRAPHS OF MONTHLY DISCHARGE FOR NORTH AND SOUTH ARMS OF BELLINGER RIVER

FIGURE 21



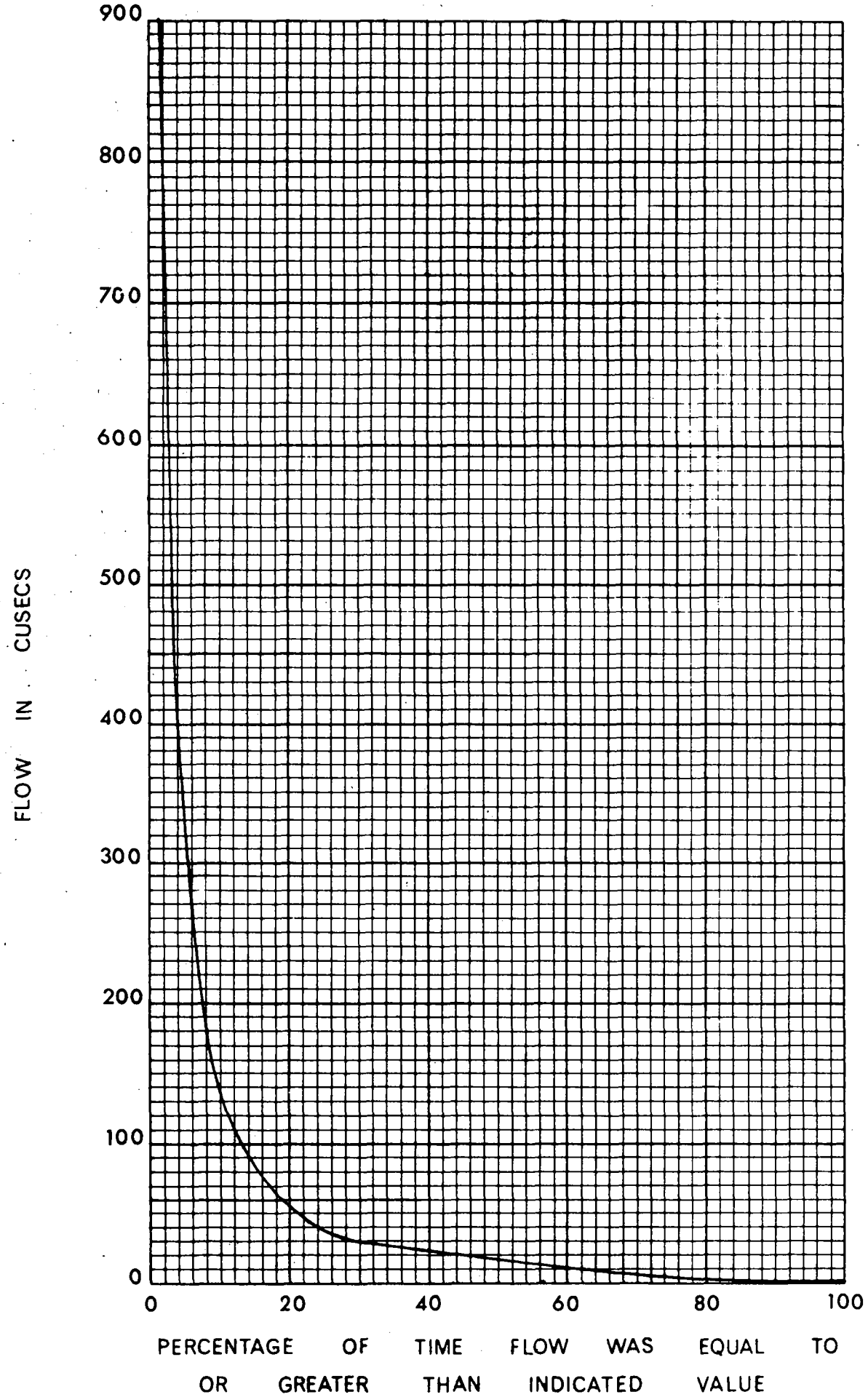

AVERAGE MONTHLY RAINFALLS
COFFS HARBOUR
AND BOWRAVILLE

FIGURE 22



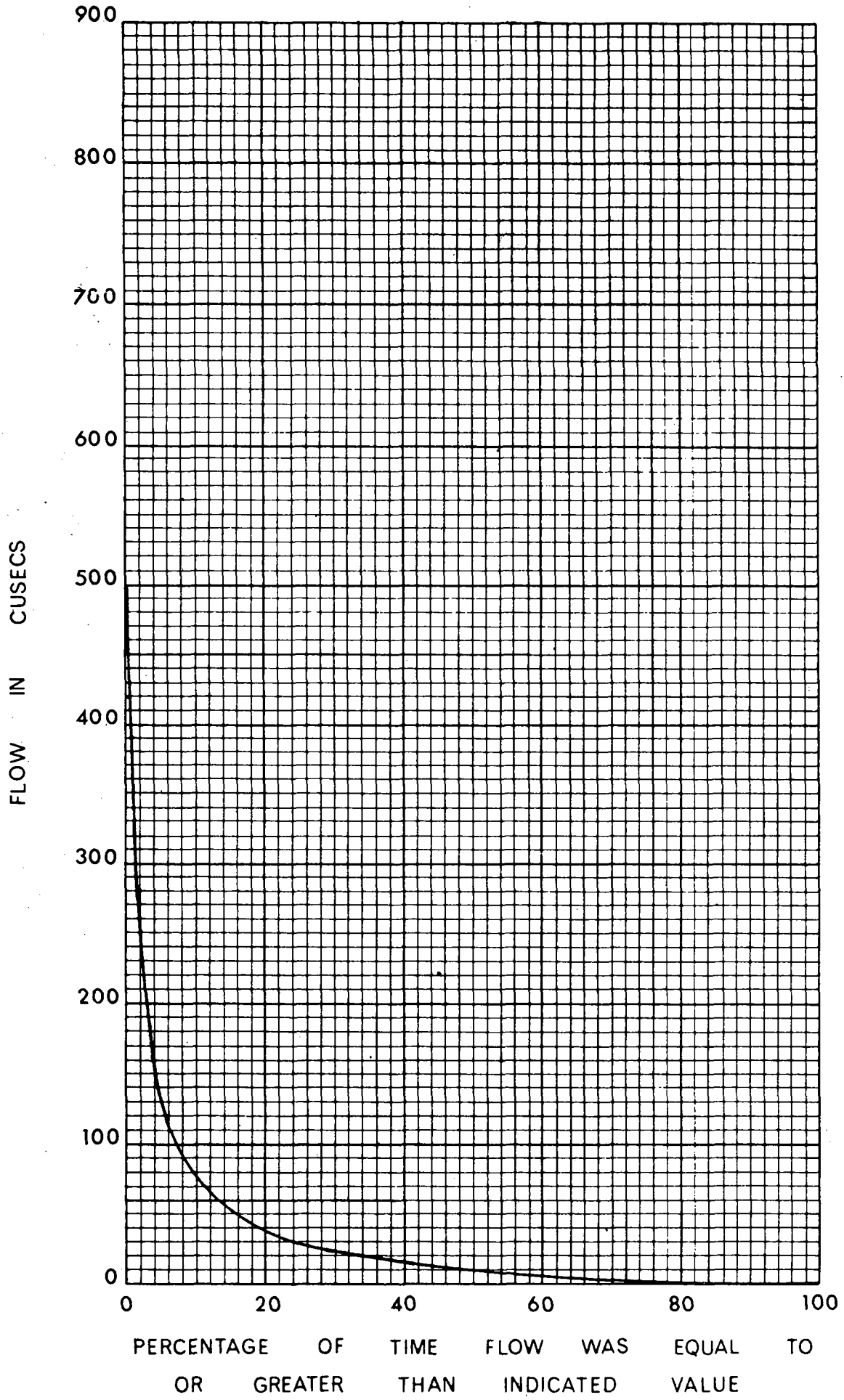

# FLOW DURATION CURVE FOR NORTH ARM BELLINGER RIVER AT BOGGY CREEK

FIGURE 23



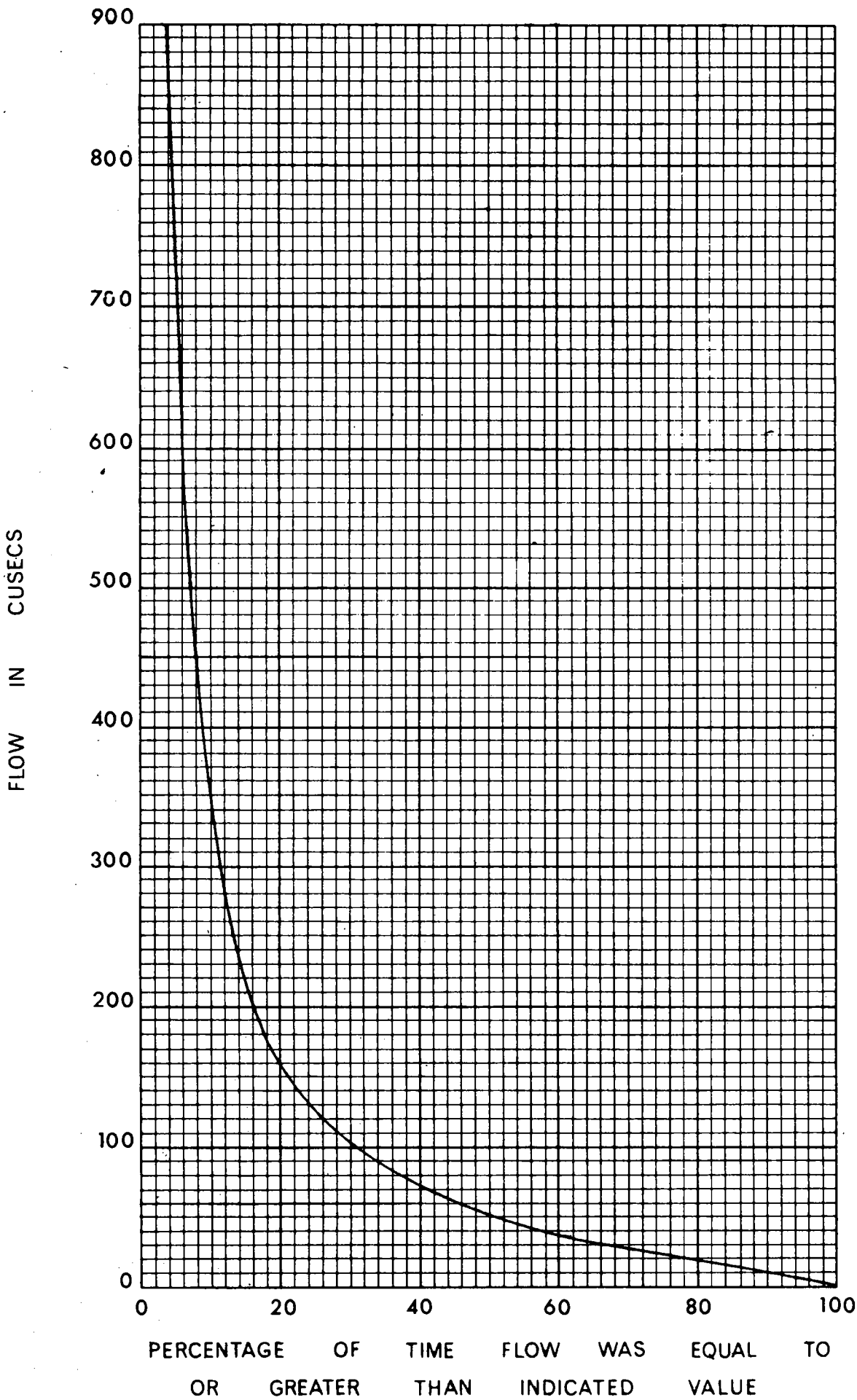

# FLOW DURATION CURVE FOR SOUTH ARM BELLINGER RIVER AT SCOTCHMAN

FIGURE 24



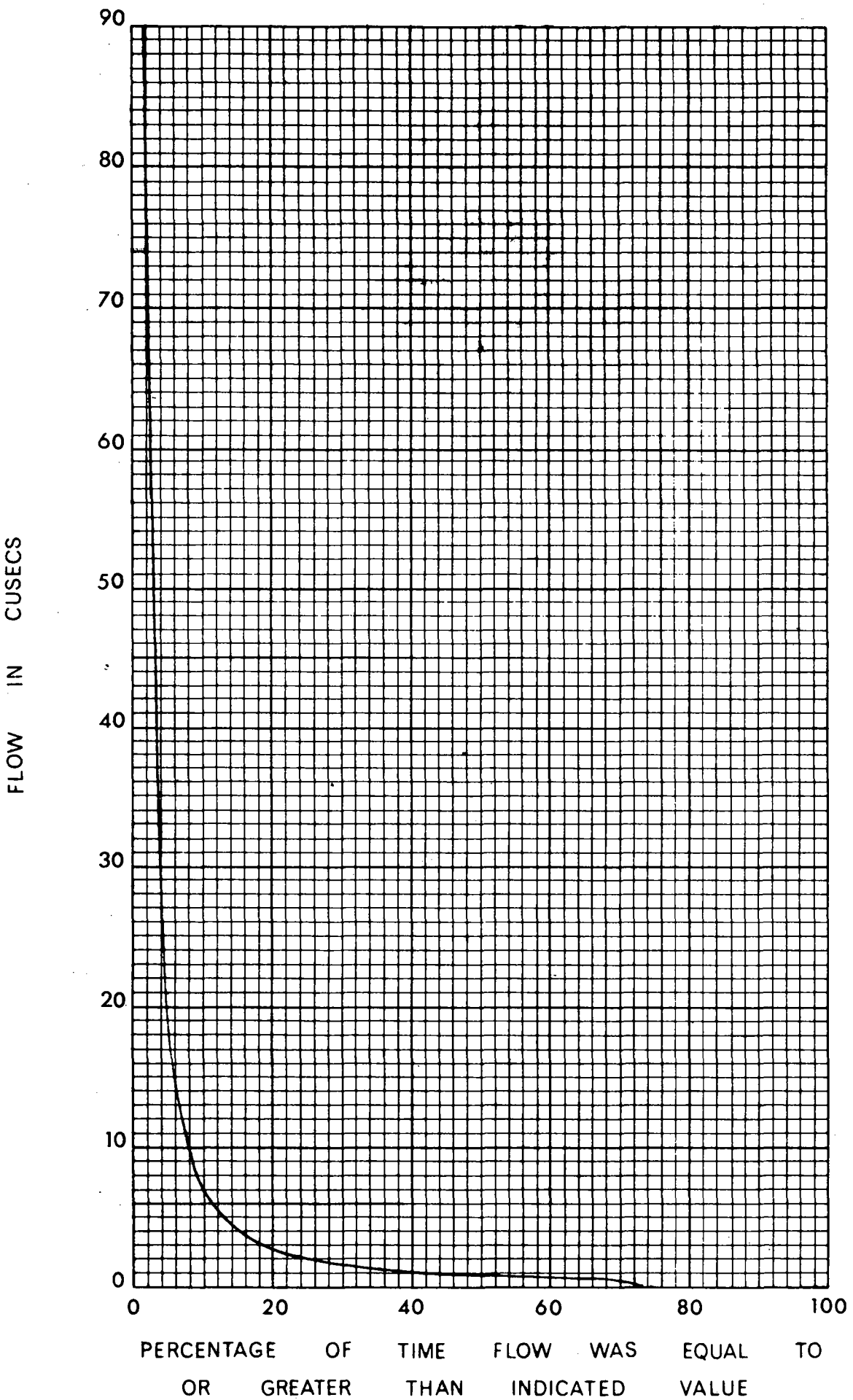

# FLOW DURATION CURVE FOR NEVER NEVER CREEK AT SLINGSBYS ROAD

FIGURE 25



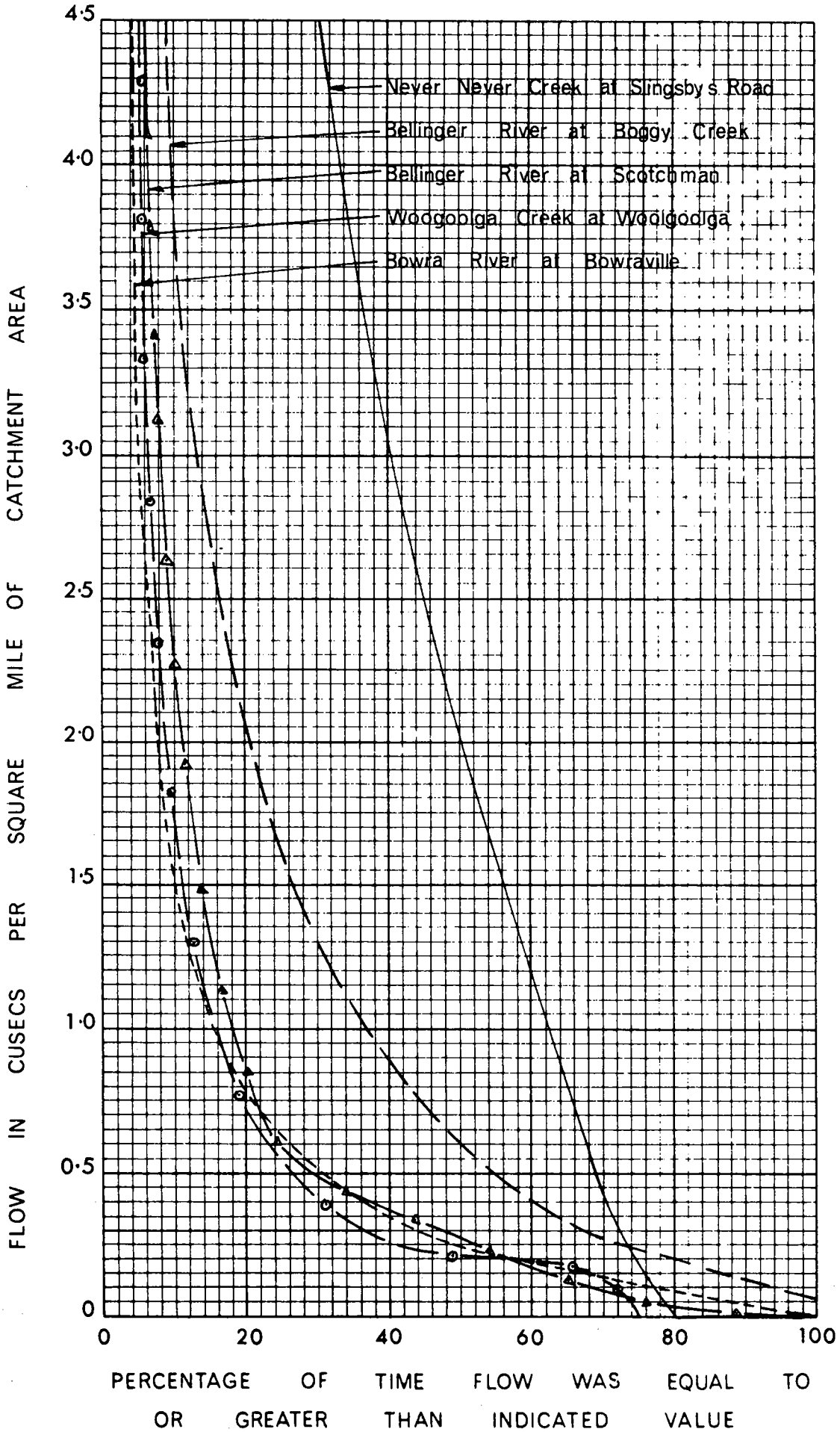

# FLOW DURATION CURVE FOR BOWRA RIVER AT BOWRAVILLE

FIGURE 26



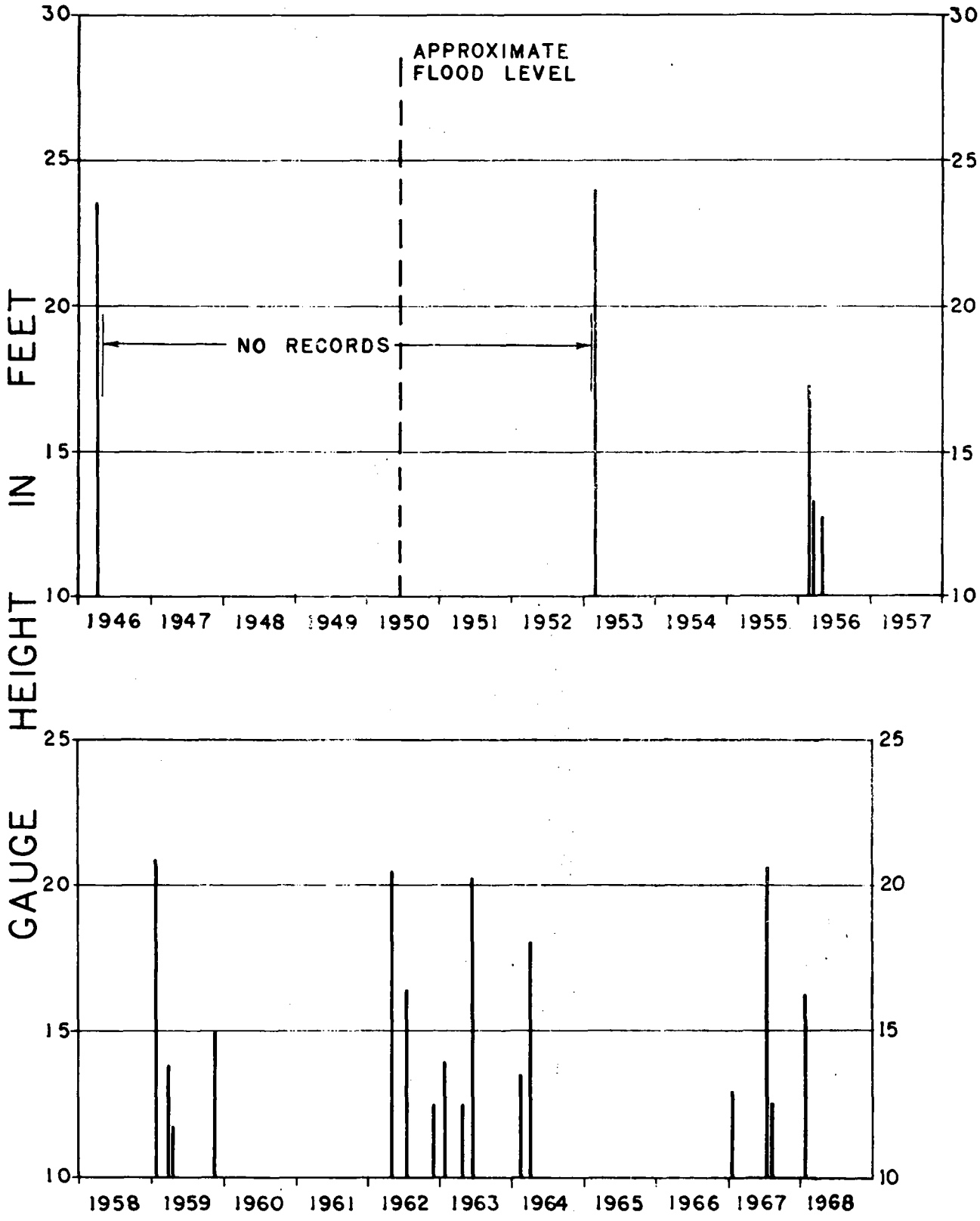

# FLOW DURATION CURVE FOR WOOGOOLGA CREEK AT WOOLGOOLGA

FIGURE 27

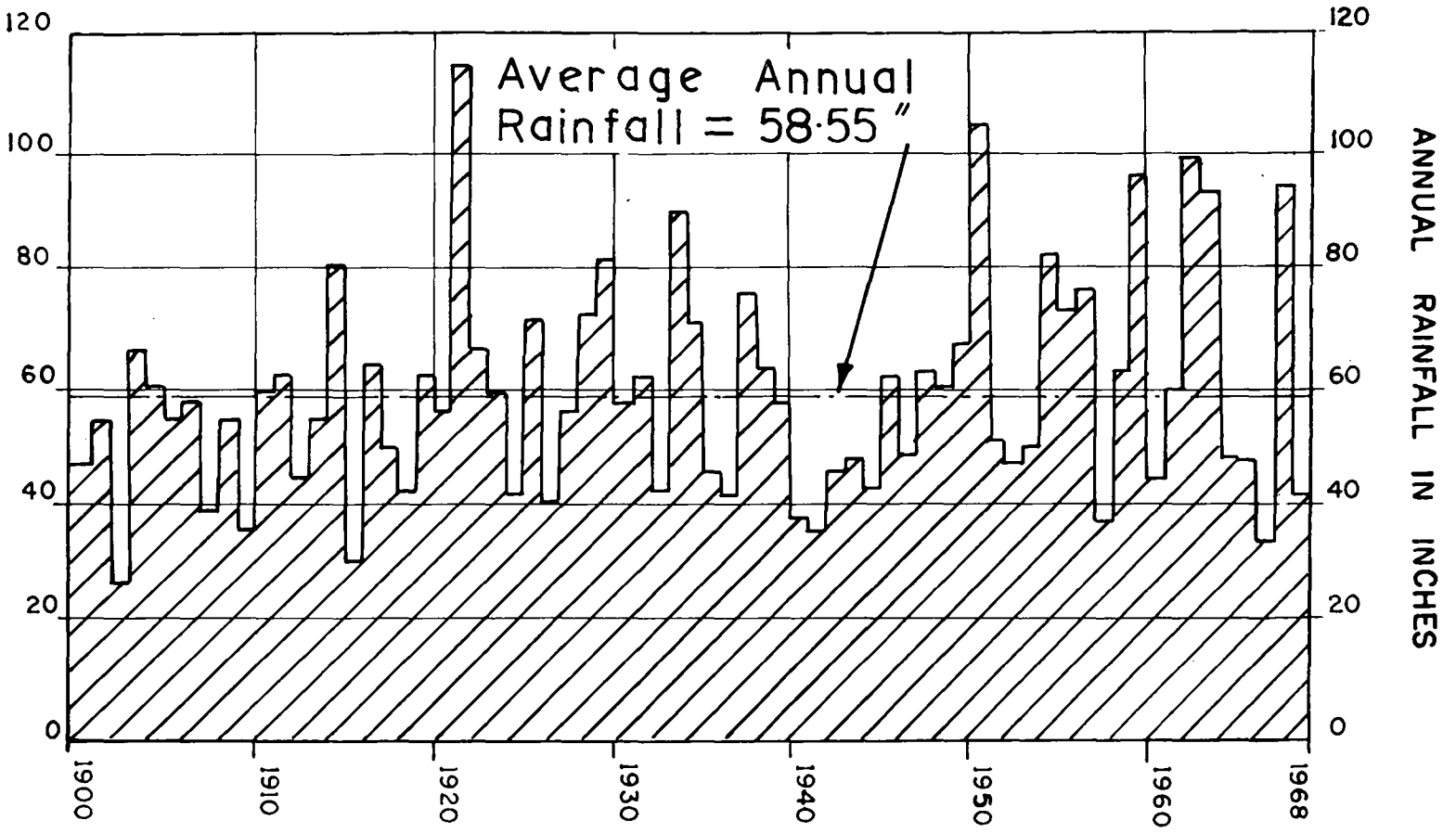



# FLOW DURATION CURVES FOR NAMBUCCA AND BELLINGER VALLEY INCLUDING WOOGOOLGA CREEK

FIGURE 28



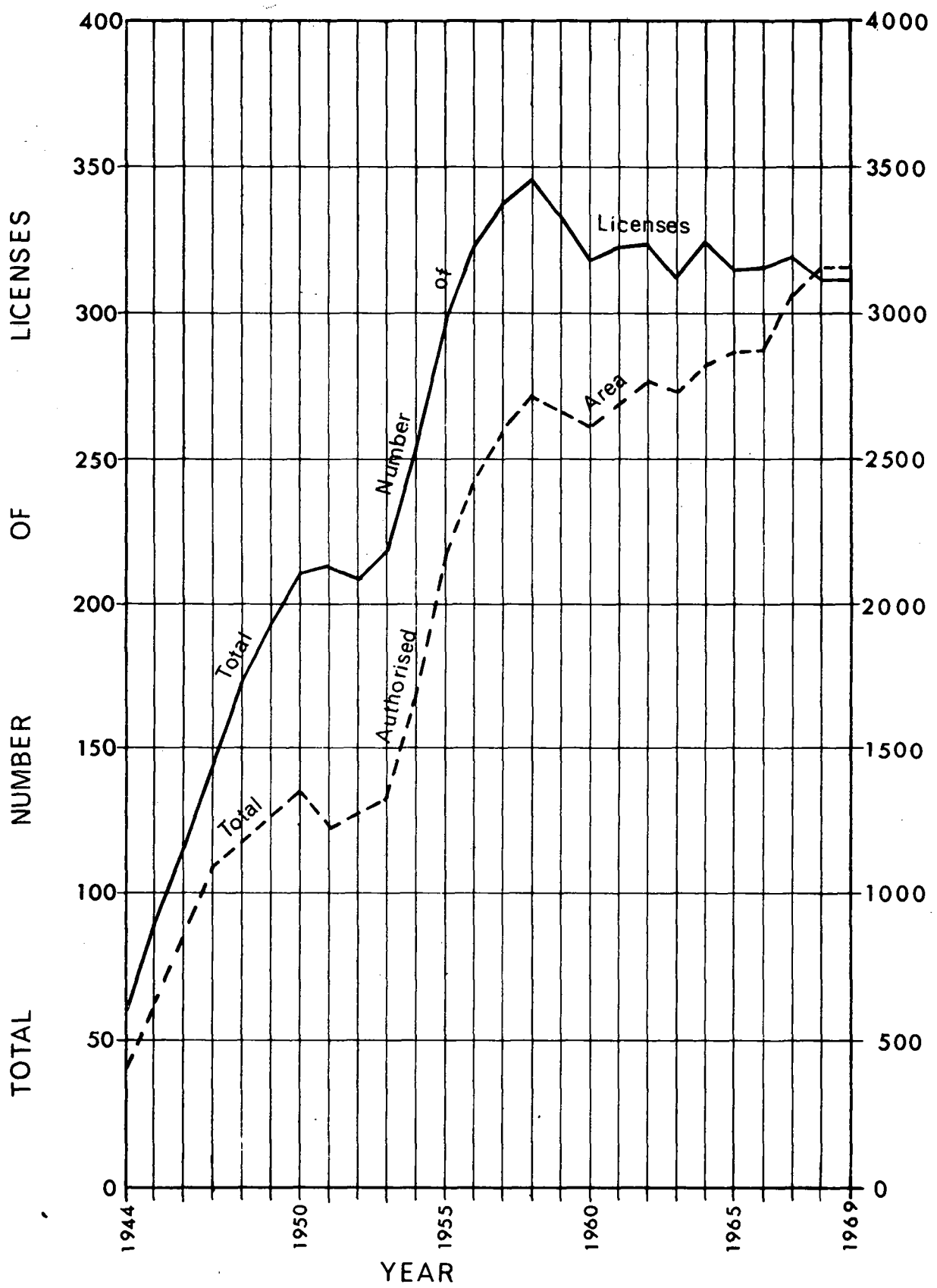

# FLOOD PEAKS EXCEEDING 10 FEET FOR THE BELLINGER RIVER AT THORA




ANNUAL RAINFALLS AT BELLINGEN

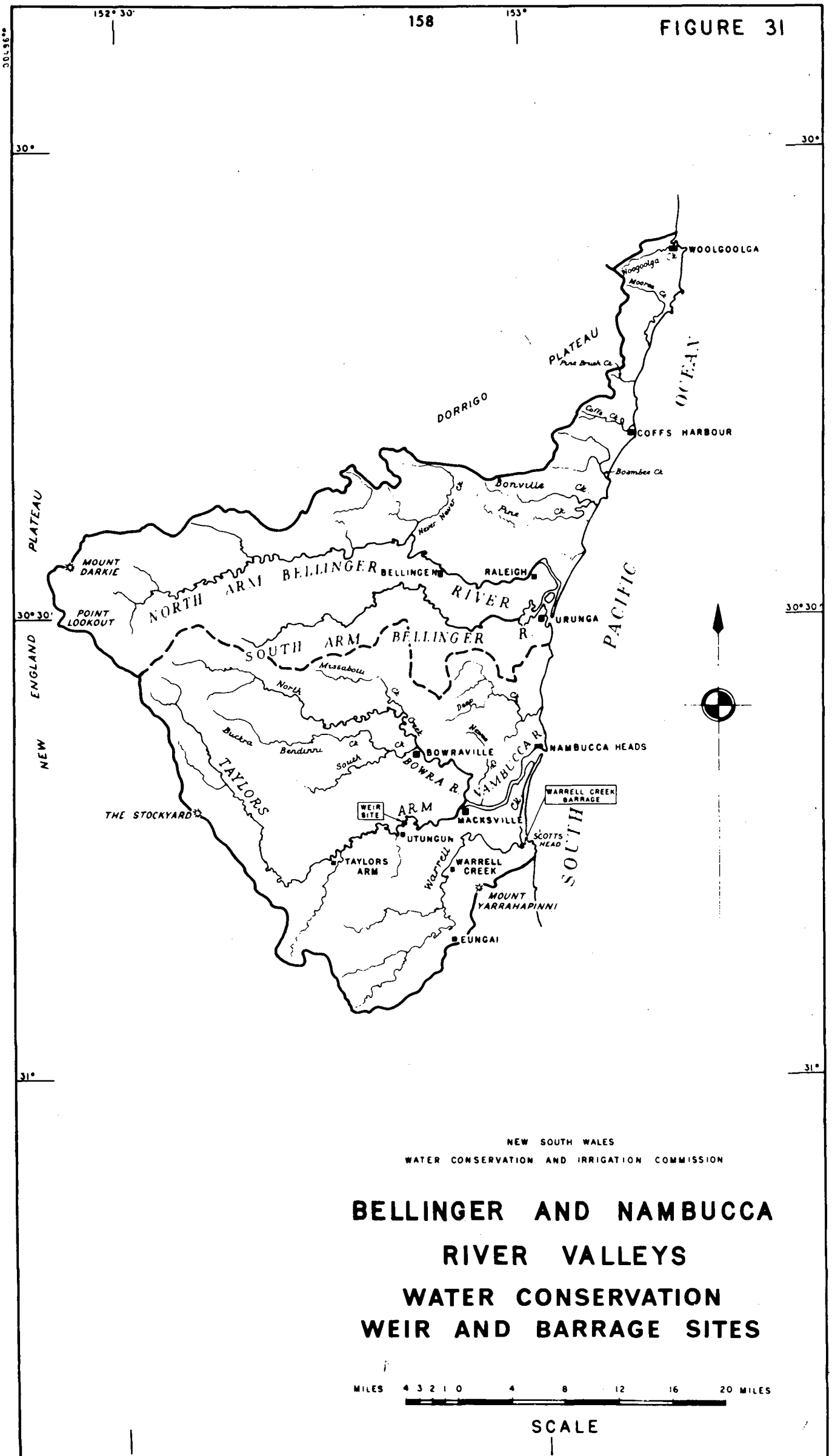
FIGURE 29

FIGURE 30




BELLINGER AND NAMBUCCA RIVER VALLEYS
AREA AUTHORISED FOR IRRIGATION AND
TOTAL NUMBER OF LICENSES AT 30th
JUNE FOR EACH YEAR INDICATED

FIGURE 31




NEW SOUTH WALES
WATER CONSERVATION AND IRRIGATION COMMISSION

# BELLINGER AND NAMBUCCA RIVER VALLEYS

## WATER CONSERVATION WEIR AND BARRAGE SITES