

CASE STUDY: The History of Water Supply on the Central Coast

7. Hydrological context of Upper Mangrove Creek Catchment

Thirty year ago, in the mid 1970s, after a detailed study of possible alternative schemes for ensuring the future water supply of an expanding Central Coast population, a decision was taken to build a large storage dam on the upper reaches of Mangrove Creek about 25 kilometres west of the town of Wyong. In the lead up to this decision, a thorough survey of the existing data regarding catchment areas, rainfall patterns and stream flow data was undertaken. In order to obtain a comprehensive picture of alternative water supply sources, streamflow data of varying quality and duration were considered from as many as 71 gauging stations ranging from beyond the Hunter in the north to as far south as the Shoalhaven River.

ACTIVITY:

Examine the Table of data below together with the information in Appendix 4, both taken from “Hydrology” Volume 2 of Report 1 of “Report on Investigations for Water Supply to the Gosford-Wyong Region”, January 1975, Department of Public Works N.S.W., pp. 3-8. After reading this material, answer the questions following the table.

Table1: Physical and hydrological characteristics of streams in the Central Coast region of NSW, based on data available in 1975.

Stream	Location of gauging station	Catchment area at gauge (km ²)	Approximate average annual rainfall (mm)	Estimated average annual streamflow (10 ⁶ cubic metres)	Start of record
Ourimbah Creek	Tuggerah	150	1270	35.6	1965
Wyong River	Wyong Creek	246	1156	48.2	1959
Mangrove Creek	Mangrove Mountain	202	1194	36.3	1970
Mooney Mooney Creek	Mooney Dam	39	1270	14.2	1965
MacDonald River	St. Albans	1735	890	150.1	1954
Wollombi Brook	Warkworth	1735	890	239.3	1908
Colo River	Upper Colo	4338	850	520.4	1909

QUESTIONS:

1. Which of the streams listed receives the lowest average rainfall based on this data presented in 1975?
2. Based on this data presented in 1975, do you think it is reasonable to describe Mangrove Creek as being located in a “rainshadow”? Explain your answer?
3. Based on this data available in 1975, Ourimbah Creek has a higher yearly rainfall than Colo River, yet the estimated average annual streamflow at the Upper Colo gauging station is considerably greater than at the Ourimbah Creek gauging station. Can you give an explanation for this?
4. Quickly look through the information in Appendix 4 and then list three factors which you consider might have reduced the reliability of the data for “Estimated Average Annual Streamflow” listed in the above Table.