

# Rum Jungle Lake

by David Cowan

## Introduction

Rum Jungle Lake is a popular diving site which is located about 65 km south of Darwin and about 3.5 km west-northwest of the township of Batchelor. The distance by road from Darwin is approximately 140 km. The site is a freshwater flooded open-cut uranium mine which was known as Rum Jungle Creek South. Its popularity as a dive site is due to its availability as an alternative site for recreational diving during spring tides in Darwin harbour and its suitability as a site for deep diving using air, nitrox and trimix.

## Site History

This site was one of seven mines developed principally for the extraction of uranium ores by Territory Enterprises Pty Ltd (TEP) in the Rum Jungle area for the Commonwealth Government's Australian Atomic Energy Commission (AAEC).

The Rum Jungle Creek South ore body which is located about 7 km south of the treatment plant, was discovered by TEP either in 1959 or 1960. The Rum Jungle Creek South mine developed into an open cut mine with a maximum depth somewhere between 68 and 73 metres. Between March 1961 and August 1963, the mine yielded approximately 670,000 tonnes of ore of an average grade 0.37% Uranium (ie approximately 285% tonnes of  $U_3O_8$ ).

The open cut flooded after the completion of mining and subsequently became a popular picnic and camping area. It is not known when the site became popular as a diving destination. The NT Archives Services holds an oral account by the now-deceased Carl Atkinson who is well-known as the pioneer of wreck diving in Darwin harbour, regarding early diving experiences at this site.

The site was rehabilitated as the second stage of a 3 stage Commonwealth -funded program to rehabilitate abandoned uranium mines in the Northern Territory. This program followed the completion of the rehabilitation of other mines at Rum Jungle (known as the Rum Jungle Rehabilitation Project).

The Rum Jungle Creek South Rehabilitation Project was managed by the Mines Environment Directorate of the Department of Mines and Energy on behalf of the Northern Territory Government.

The principal objective of the project was to reduce the annual maximum radiation levels to the members of the public to below one millisievert per annum. The normal background dose is reportedly two millisieverts per annum.

The project also included the improvement of recreational facilities. These works included the creation of a small beach, construction of two sealed parking areas (one for buses and one for cars), sealing of part of the access road and the development of two sports ovals. The works commenced in October 1990 for the sum of 1.8 million dollars. Toilet facilities were subsequently provided during the early 1990s.

## The Diving Environment

### Underwater Profile

The site consists of an excavation pit and a 'beach'. The pit is approximately 375 metres x 250 metres (at the surface) with a maximum depth in the range of 58 to 61 metres (depending on the water level).

With exception to the southern end, the sides of the pit fall at a slope of about 60 degrees (to the horizontal) slope to about depth about 30 metres where the slope flattens to 45 degrees for the remainder of the fall to the bottom. The slope of the southern end of the excavation falls at a slope of about 16 degrees to a depth of 30 due to the collapse of this side of the pit during excavation.

The 'beach' which was constructed during the rehabilitation works, slopes gently from the surface to a maximum depth of 9 metres where it meets the western wall of the pit. The 'beach' is the preferred entry point for diving activities.

### Water Clarity

Water clarity is influenced by several factors:

- the existence of a thermocline (between 8 and 10 metres below the surface) which reduces light penetration into the lake,
- surface run-off during the Wet Season (November to April) which adds suspended matter and,
- The very dark colour of the walls and the bottom which absorbs light and prevents reflection of light.

Water clarity is summarised as follows. At or near the surface, visibility in the range of 0.5 to 1.5 metres is available with a murky green hue. Immediately above the thermocline, the visibility is practically zero. Below the thermocline, while the soft green glow of daylight can be seen above, the range of visibility depends mainly on the power of your primary light. Accordingly, visibility in the range from 3 to 20 metres has been observed in the blackness. Observations indicate that the water clears quickly after diving activities with the observed time range being from 20 to 60 minutes.

### **Temperature Gradient**

The temperature gradient is summarised as follows. Above the thermocline, the water temperature is usually 30°C or 31°C. However, it has been reported as being as high as 36°C during the Wet Season. Below the thermocline, temperatures are usually in the range from 18°C to 25°C. A constant temperature of 24°C has been observed on one occasion during the Dry Season (April to November) when there was a total absence of a thermocline.

## **Some Diving Hazards**

### **Darkness**

Probably the most memorable feature of this site is the pitch-blackness of the water below the thermocline. In addition to being a significant stressor, this characteristic of the site is the major contribution to diver disorientation. In circumstances where care is not taken, collisions with the wall of the lake are possible! The use of artificial lighting is considered to be an absolute requirement while the use of reels and compass is highly recommended.

### **Silt**

The presence of black silt on the walls and especially the bottom of the lake will assist with diver disorientation if disturbed.

### **Depth**

The presence of maximum depths in the range of 58 to 61 metres will expose air and nitrox divers to risks such as Nitrogen Narcosis and CNS Oxygen Toxicity.

### **Water Temperature**

The change of temperature at the thermocline is a significant stressor particularly for locally bred divers, especially in conjunction with the onset of blackness (refer above). The use of suitable thermal protection is recommended - the use of 3 mm wetsuits is popular for dives at this site.

### **Hydrogen Sulphide Gas (H<sub>2</sub>S) Gas**

The presence of H<sub>2</sub>S (ie. "rotten egg gas") can be smelt below the thermocline. The H<sub>2</sub>S gas is believed to be produced by the decay of vegetation lying on the bottom of the lake. Some divers do not like this experience.

### **Altitude**

The water level of the site's surface appears to be in the range between 80 and 100 metres above sea level. The appropriate adjustments may need to be made to one's decompression calculations depending on the decompression schedule being used.

### **Submerged Trees**

Trees submerged in shallow water at the edge of the lake have been known to be a hazard to divers swimming underwater directly to and from the shore.

### **Remote Location**

The remoteness of the site requires to be considered in all aspects of dive planning ranging from the availability of basic needs to specialised medical services. Local expertise should be sought by those who have not dived here before.

### **Access Arrangements**

The site is located on property currently owned by the Coomalie Community Government Council.

Access to the site for diving appears to be unrestricted. Local divers do not know of any restrictions on recreational users of the site placed by the Council apart from the requirements on an old and battered sign located on the access road to the site. This sign which was probably installed by a previous owner or tenant (identified as the 'Trustee'), advises of the total prohibition of water skiing and shooting.

## Local Contacts

The following organisations regularly dive at Rum Jungle Lake and will be pleased to assist divers with their first dive at this site.

- **Coral Divers**  
NAUI/IANTD Facility (Nitrox available)  
Shop 3, 42 Stuart Highway  
STUART PARK NT 0820  
Telephone: (08) 8981 2686, Facsimile: (08) 8981 2171  
E-mail: [cdiver@topend.com.au](mailto:cdiver@topend.com.au)  
Homepage: <http://www.topend.com.au/~cdiver>
- **Cullen Bay Diving & Fishing Services**  
PADI/IANTD/TDI Facility (Nitrox/Trimix available)  
66 Marina Boulevard  
LARRAKEYAH NT 0820  
Telephone (08) 8981 3049, Facsimile (08) 8981 4913  
E-mail: [rick@divedarwin.com](mailto:rick@divedarwin.com)  
Homepage: <http://divedarwin.com>
- **The Darwin Sub-Aqua Club Inc.**  
Sports House, Waratah Crescent  
FANNIE BAY NT 0820  
(GPO Box 1850 DARWIN NT 0801)  
Telephone: (08) 8941 1850  
*(answering machine operates at all times except on Thursdays between 5.30pm and 6.30pm when the clubrooms are open)*

## Acknowledgments

The following individuals and organisations assisted with the provision of information used to prepare the application for CDAA recognition of this site (November 1998), the article for Guidelines No. 68 (March 1999) and the above information:

- Sasha Muller and Suzie Lack, Proprietors, Coral Divers
- David (Digby) Hart, Department of Mines & Energy, NT Government
- David Van Halen, Manager, Cullen Bay Diving & Fishing Services
- Andrew Pitt, Northern Territory Archives Services, NT Government
- Jim Davidson
- John Hubbard, Scuba Officer, Darwin Sub-Aqua Club Inc, and
- Uranium Information Centre Ltd.

[\[Top\]](#)