

Kija Blue Sinkhole, Kimberley, Western Australia

Western Australia's, and one of Australia's deepest sinkhole has been re-discovered by ASF cavers after four years of searching.

by Paul Hosie



Paul Boler, Paul Hosie & Ken Smith about to take off.

The re-discovery of Kija Blue is a separate story that is sure be told in the coming issues of Caves Australia, but this story is about the diving. The result of this re-discovery was the partial exploration and mapping of the site by ASF cave divers Ken Smith (CEGSA), Paul Boler (NHVSS) and Paul Hosie (WASG) during June 2005. The divers achieved depths of 65m and could clearly see at least another 10 to 20m below into an as-yet unexplored void. Plans are already underway to return with mixed gas and closed circuit rebreathers to continue exploration, mapping and other research in this magnificent site during 2006.

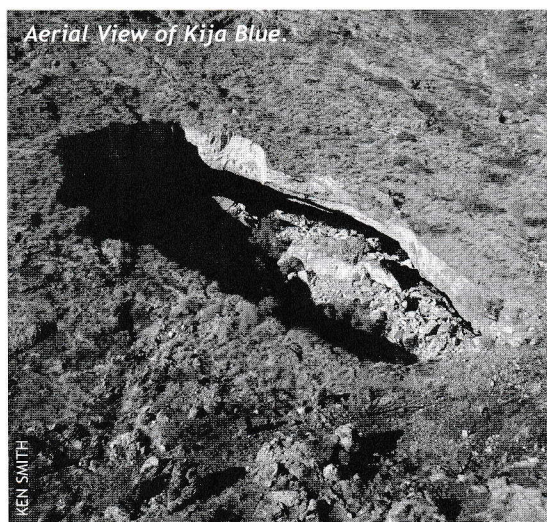
After positively identifying and locating the sinkhole from a fixed wing aircraft, the three divers and over 350kg of diving and camping equipment were choppered into the site on Monday morning 20th June 2005 in two flights. As the sinkhole is on the side of a hill, the helo could only safely land 500m from the sinkhole which is where camp and the compressor were set up. The landscape around the sinkhole is spectacular Kimberley sandstone — red

rocks and Spinifex grass. The sinkhole is in fact part of a double doline feature with the second (blind) doline further up the hill to the north. Initial research shows that they have formed in a layer of ancient stromatolitic dolomite beneath the sandstone.

A tape ladder was set up and we climbed down to check out the inside of the sinkhole and the access to the water. As can be seen from the photos, the sinkhole is very big. The long axis is 100m, oriented N-S and the narrow E-W axis is 70m wide. There are five lakes distributed around the inside of the sinkhole under enormous overhangs. The two main, deep lakes are on the West (First Lake) and South (Second Lake) sides of the sinkhole. The water level is 35m below the surface on the SW side and 50m below the NE side of the sinkhole and is believed to be a perched water table.

The lakes are stunningly clear, yet distinctly blue coloured fresh water. In the shallows along the edges of the main lakes the rocks are covered in red and green algae and large aquatic plants which give a beautiful green colour. The rocks on the roof are coloured orange, pink and grey from the sandstone and dolomite and they reflect perfectly on the still water's surface. It really is a stunningly beautiful site and when the sun climbs through the sky during the day, it shines down into the main lakes creating a spectacular, silent light show. Underwater proved to be even better !

The equipment had to be lugged to the edge of the sinkhole above the main lake — vertical gear, rebreather, air and oxygen cylinders, dive gear, video equipment, lights and reels. The dive gear was then lowered down and set up at the water's edge. On the first day they only managed one dive before sunset, but it was an impressive beginning. Ken and Paul H dived around the southern end of the First Lake and down under the roof until they were on the Western side of the Second Lake. Having previously agreed to leave exploration of the Second Lake to Paul B, they followed the base of the wall at -20m back around to the First Lake.



Aerial View of Kija Blue.

KEN SMITH



Chopper over Kija Blue.

PAUL HOSIE

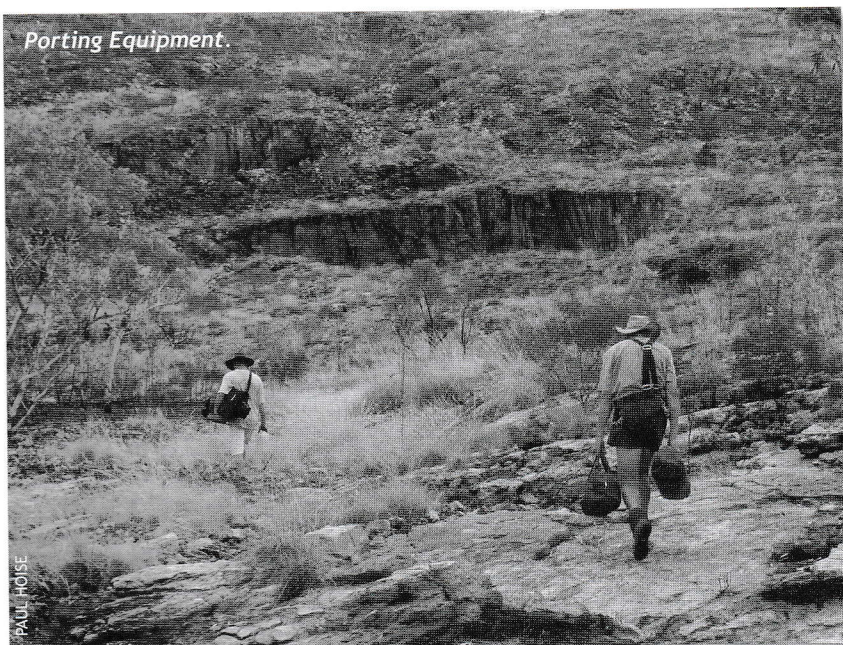
The light in the water was deep blue and crystal clear but the sun wasn't shining in as it was overcast. Back under the First Lake, the wall fell away from -20m down a steep slope into darkness. It beckoned and they followed, Ken first ensuring a good tie off while Paul H followed his progress with the video camera. At -30m a horizontal passage that was big enough to drive a truck along (formed between a large roof step and the sloping rubble floor) headed to the North, but below them it opened further and down they went. At -40m the wall on their left opened up and allowed Ken's 20W HID to spotlight down to depths in excess of 60m. Not wishing to shorten their dive by descending straight down, the divers continued Northwards across the talus slope with the roof generally 3-5m above their heads. A large rock at -50m provided a good point to tie the line off and turn the dive. The slope continued large and wide ahead of them with the bottom somewhere below them nowhere in sight all the way along for the 50m or so traversed at depth.

The ascent included several microbubble stops and when the deep blue light from the lake again became visible at about 35m, the stunning beauty of the site was truly appreciated. Paul B was sitting on the rocks patiently waiting, and clearly visible to the divers doing deco from -15m and up. The entrance of the sinkhole was also visible with rock features and trees easily seen some 50m above the water's surface. Amongst the boulders in the shallows, there was a hive of activity as freshwater snails, beetles and an insect larvae-looking critters were observed grazing on the algae and aquatic plants. Specimens were collected for the WA Museum to identify but they do not show the stygobitic (ie cave adapted) features seen in other WA cave diving sites. On surfacing from the dive, gear was prepared for the next day's diving and the team headed back to camp in the day's fading light.

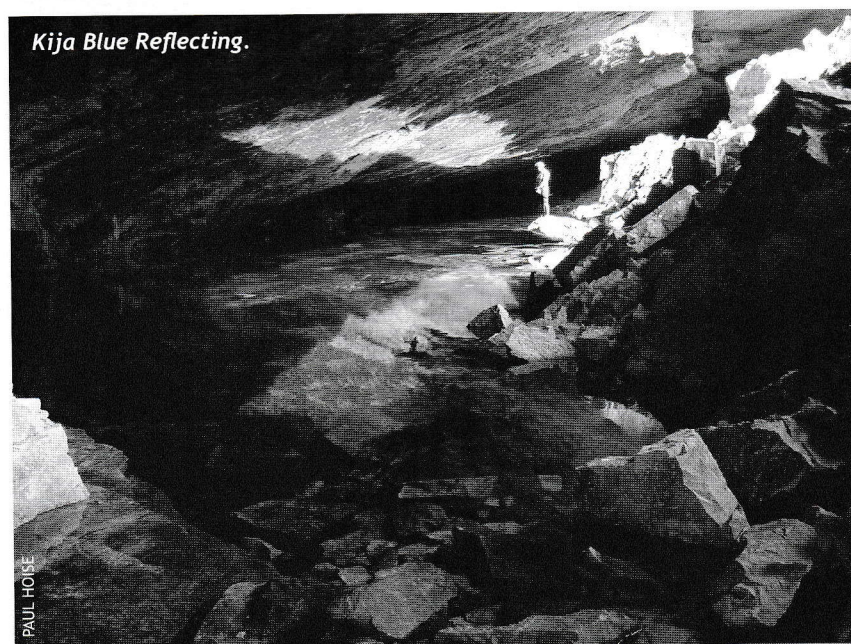
Tuesday morning began with refilling air cylinders and Paul B heading in to explore the Second Lake. While Paul dived, some breaks in the clouds permitted the sun to shine down into the water for a brief time and illuminate the water and rocks. It was a spectacular light show and the memory cards in the cameras were quickly filled! Paul returned from his dive after one and a half hours and had explored some floor holes along the wall at -20m before discovering a slot between two massive rocks in the floor at the very back of the Second Lake. The Slot dropped from -12m down to -18m where a steeply sloping, narrow passage headed down to the NE. Paul shortly achieved a depth of -40m where he tied off and exited, noting that the passage was getting bigger as it continued down and the right hand wall had opened up into deep darkness.

On the following dive that afternoon, Ken decided to extend Paul B's line while Paul H shot video footage around the Second Lake and extended the Western line down to -60m (and still going). Ken returned out of the Slot after 30mins or so and was very excited by what he'd seen. He had extended the line further to -50m depth and it was getting even bigger and deeper!! This was proving to be an impressive cave diving site — now WA's deepest cave dive with Weebubbie Cave on the Nullarbor a runner up at -45m. The weather started clearing later in the day and the cameras captured the beautiful scenery

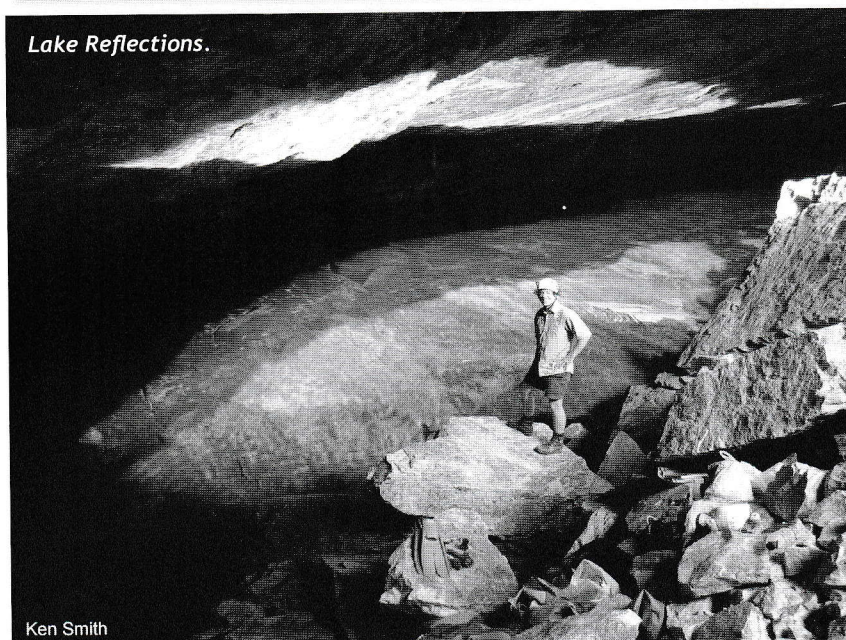
Porting Equipment.



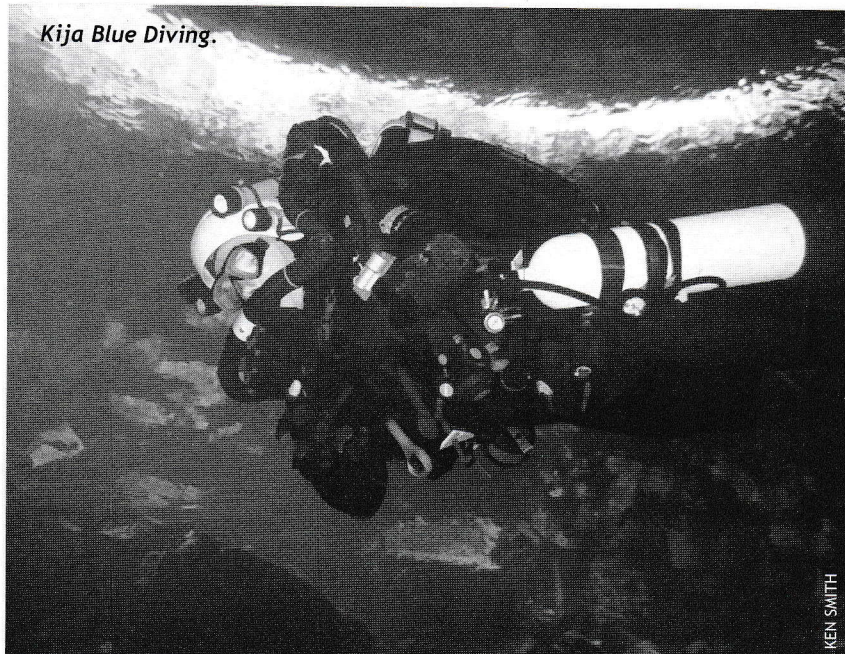
Kija Blue Reflecting.



Lake Reflections.

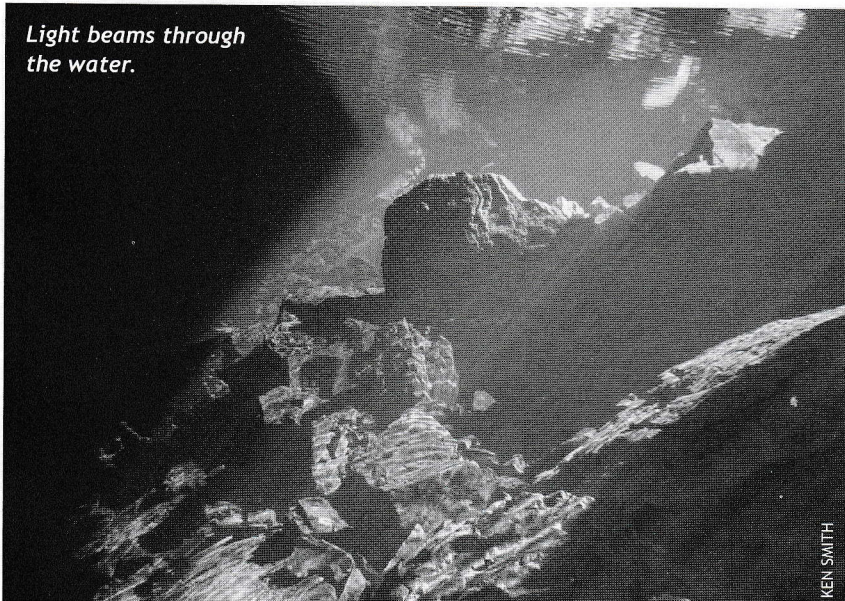


Kija Blue Diving.



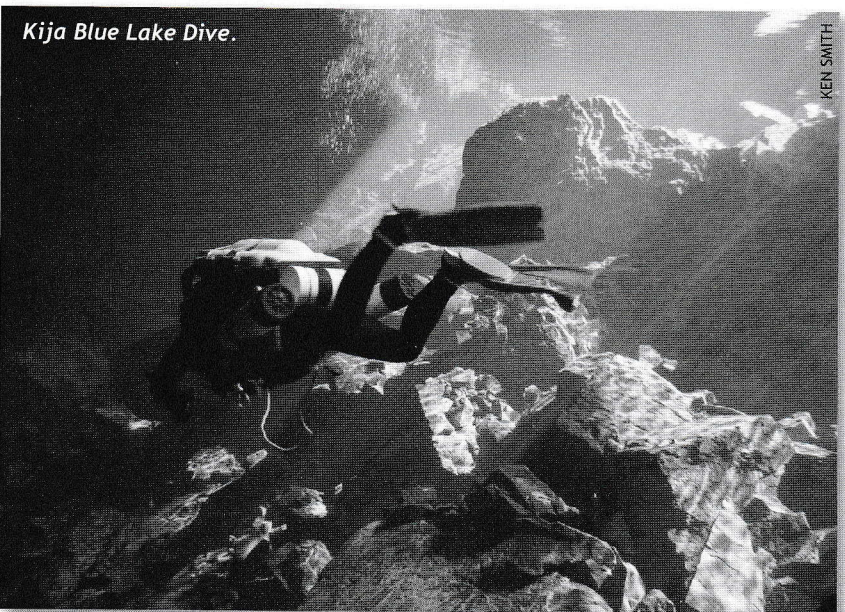
KEN SMITH

Light beams through the water.



KEN SMITH

Kija Blue Lake Dive.



KEN SMITH

Aquatic Plants and Algae

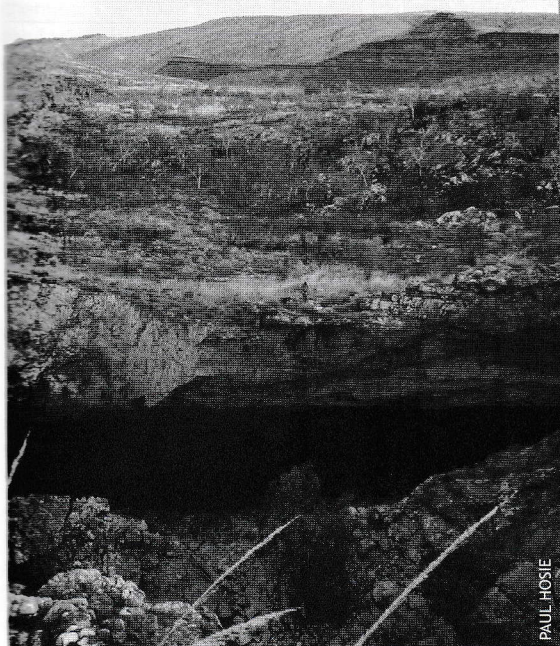


surrounding the sinkhole. Tanks were filled, oxygen decanted and gear prepared for the last day of diving for the trip. Paul H recalls: "It was a little sad but we had a full day in front of us and we slept soundly (some with more sound than others as it turned out!!!)

Wednesday morning dawned bright and clear — the sunrise was beautiful and everyone was excited about the day's diving with the chance to see and film the sun shining down through the clear blue water. Following a strip and temporary repair job to the rebreather's cracked handset (see Paul H's Article in Caves Australia No.166-7), Paul and Ken dived in the water of the First Lake while the sun shone through it. The sunbeams cutting through the water was indeed a mesmerising sight. The dive plan was to extend the line in the Second Lake to a maximum depth of -60m and survey it.

Paul H recalls the dive: "Once we had dropped down The Slot, Ken was straight into the task of exploring and surveying. The narrows passage follows the talus slope floor down to the North while the roof is never more than a few metres above. At -45m the floor on the right hand side dropped away steeply while the roof angles only slightly, creating a massive room. I'm excited, because this is like diving in a real cave, not just under a lake or a sinkhole. As we approached a depth of -60m (heading to the North East), the roof is now 10m above us and the boulders on the sloping floor are enormous — the size of caravans and houses. I shot video of the area and used the video light to look around the place, while Ken tied off at -60m and began his survey back up and out. The roof meets the floor at -62m and it is clear to see we have reached the bottom of the talus slope, out to the West is a vast, flat, plain of silt. The water is crystal clear and the room is Colossal — some 100m wide across the base of the talus slope, 10-15m high and at least 50m to the back wall across the silt plain. In the back corner of the room I discovered a 10m diameter, 2m deep pit in the floor where the silt is funneling down to deeper, as yet inaccessible levels — amazing !"

Kija Blue Landscape
(Ken Smith on Ledge).



"The ascent and many deco stops following this dive were the most enjoyable because when we eventually popped out of The Slot to complete our 12, 9 and 6m deco stops, the view up to the surface of the Second Lake and out of the sinkhole was breathtaking. The dappled light through the blue water, Ken's exhaust bubbles running up the roof to ripple out onto the water's surface, the vivid green plants in the lake's shallows and the white clouds passing in the blue sky far above was simply mesmerising. What a wonderful place to off-gas!"

The final dive was conducted by Paul B who took the remaining open circuit gas and did a 'deepy' down the First Lake where he extended the line a further 50m and visually confirmed that the deepest point on the Western side was at least 80m deep. After doing as much deco as possible, Paul B exited and rested while Paul H and Ken lifted all the gear out of the sinkhole to be carried back to the camp and organised into loads for the helicopter the following morning. The helicopter arrived at 8am sharp as pre-arranged and lifted us and all our gear back out of this amazing and remote place. After packing everything back into the car-trailer and making a few very excited phonecalls, they drove for the next two days straight to get back to Perth. Ken and Paul B flew back to Adelaide and Sydney the following day.

Author's Afterword:

Kija Blue, as we have named it (we are trying to find out if there is a traditional name for the site), is a remarkable and spectacular place. We are very privileged to have been able to dive and explore it and could not have done so without the help of Donna Cavlovic, David Woods and John Cugley of WASG in Kununurra. Detailed planning is already underway to return to Kija Blue with a team of trimix qualified, CCR cave divers in July 2006 to explore and survey the entire system as far and as deep as we safely can.

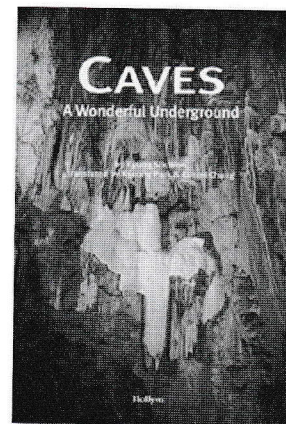
More information, maps, video footage and photos are at www.trimixdivers.com (look for Kija Blue under the Website Index).

BOOK REVIEWS

Caves: A Wonderful Underground

Woo Kyung-sik

Many people don't appreciate the geological environment that has been inherited from their ancestors. This book was written to encourage the readers to love and care for caves as part of the nation's geological heritage. The book explains what a cave is and gives detailed accounts of the formation and characters of caves, living organisms in caves, and the present status of natural caves in Korea and other countries. Through beautiful pictures and specific explanations, the readers will be able to learn more about caves and understand their importance and fascinating features. Woo Kyung-Sik, the author of this book, graduated from the Department of Oceanography at Seoul National University. He has been a professor at the Department of Geology, Gangwon National University, Korea, since 1986.



Softcover, 230 pp

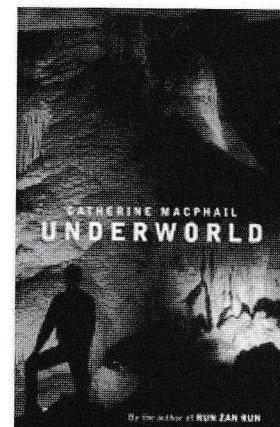
Underworld

Catherine MacPhail

A school trip goes disastrously wrong when five troubled high school students find themselves trapped in an underground cave. Their best chance of escape is to stay together. But when a member of the group disappears, their hope of finding a way out starts to fade. Does one of the remaining four know more than he or she is letting on, or is there something evil lurking in the caves?

Hardcover, 284 pp, RRP \$15.95

Age Range: 5 to 12



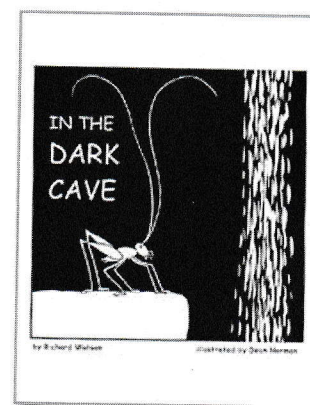
In the Dark Cave

Richard Watson

(From www.amazon.com)

A cave cricket, a rat and a bat live quite contentedly in the dark depths of their cave. Each one has a unique way of navigating in a world without light, and they have each other for company. But one day, a cave explorer arrives, and the beam from his helmet pierces the darkness. Just as suddenly as he appears, he climbs up and out of the cave, and the three friends are left wondering whether it was just a dream. Illustrated in black and white and written in simple verse, this book is both a perfect early reader and a great story to read aloud to younger children.

Buy from www.amazon.com



Illustrated by Dean Norman.
Softbound, 40 pp, RRP \$5.95.