### Geological Society of Jamaica March 11, 2006

# Flooding at Moneague

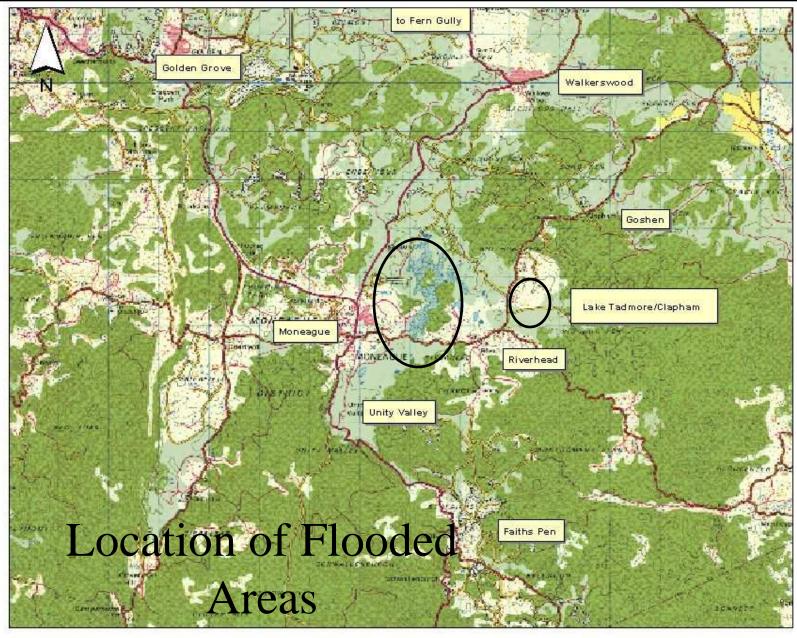
**Basil Fernandez Managing Director** 



**Water Resources Authority** 

## Content

- Site Location and Description
- History of Flooding in Moneague
- Factors Abetting Flooding
- Present status and projections
- Recommendations
- Summary



0 3 6 Kilometers

## **History of Flooding**

Year of Rise	Annual Rainfall (mm)	Lake Life (years)	Impact
1810			>4 mi <sup>2</sup> covered
1863			>1 mi <sup>2</sup> covered
1874			<1863 Lake
1886	2794		
1916	3,205	3	>0.7 mi <sup>2</sup> , 8 houses covered, 2 lives lost
1933	3,582	>3	0.8 mi <sup>2</sup> (500 acres), 18 houses covered, 1 life lost
1963			
1970			
1974		>3	
1988			
2002			
2005-	3,398 (in 2005)	Still rising	0.70 mi <sup>2</sup> , 12 houses covered 2 lives lost





# The Daily Glean

#### THE NEW LAKE: MONEAGUE'S BIG ATTRACTION. FO

- A Body of Fresh Water Set Amid Beautiful Surroundings.

#### D. A TRIP OVER THE LAKE.

er Visitors to Moneague Can get Accommodation at the Hotel.

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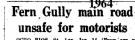
Officers November Links.

The sea article for the sea of the sea o

THE MONEAGUE LAKE: RIVER HEAD ROAD.



THE MONEAGUE LAKE: UNITY VALLEY.



OCHO RIOS, St. Ann, Jan. 14 (From our correspondent): The Ferm Gully main road leading into Ocho Rios from Moneague has been unaafe for motorists since II a.m. today, when the road became Rooded and

п

Road is source of new springs

OCHO RIOS, St. Ann. Jan J (From our correspondent

Rough seas hamper loading of bananas



1984: After 27 years as principal of the Hampton Girls School in St. Elizabeth, Gloria Wesleygammon is succeeded by Ivy Mitchell.

#### Today's Memory Gem:

You" made by the Jamaica Film Unit.

"De meek shall inherit the eart' an' de fullness thereof but look what she inherit? six months pregnant, an' five mout' fi feed!"76 From: I An I Alone by Michael Smith

> Hartley Neita 1997



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LAKE SPILE RISING

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MONEAGOR

OCTOBER 24, \* 1916.

#### DAY", LAKES FORMED

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NEWS FROM MONEAGUE

ct sales Corn is in Great Demand At Markets and Price Is Advancing.

(From our Correspondent).

played he Yie.

Moneague, Oct. 23.—The local indeficiency of the Yie.

Moneague, Oct. 23.—The local indeficiency of the Yield School of Yield School o

eague, the pleasant scene takes the ope, and presents itself a Torm of nature blessed to behold.

Water ducks, coots and other birds dot the surface, and makes flue game for the guinner. It is all water, cool, fresh, and beautiful.

The run continues day and night. Bridges for pedestrians are fluindated. The lacohala Boat last day.

A. Da-doncur-content der for make the people set out to for G. G. Mc. David of the people set out to for G. Mc. David of the people set out to for G. Mc. David of the people set out to for G. Mc. David of the people set out to for G. Mc. David of the for the people set out to for G. Mc. David of the for the people set out to for G. Mc. David of the for the people set of the for the for the people set of the for the for the people set of the for the for the people set of the people set of the for the people set of the people set of

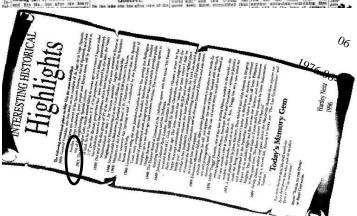


(From our Correspondent.)

The late of sold of local lates of the lates MONEACUE April 24-The Moneague and Tadmore lakes continue to rise and with rainy season approaching, may probably extend its bounds.

The Covernmen: bas cent a boat up to the Tadmore lake to convey people across. They have also sent a new one to expedite travelling on the Moneague lake. Both lakes have joined together.

Shar the contact of the state o The waters are seeking new levels and will make another block on the River Hend road below Wat sonville at Andrew Wright's gate from thence there is likelihood of its turning through Dalrymple Park to join the river.



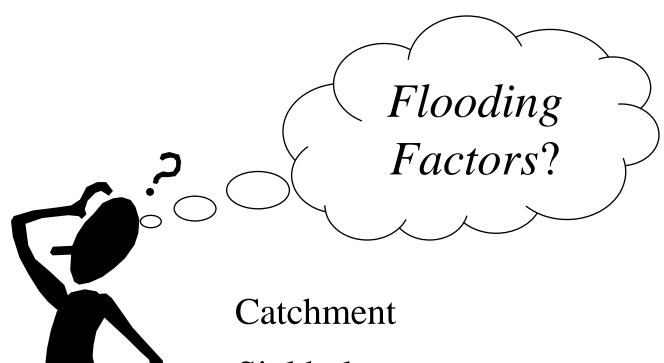
# **Extracts**

1811: The Moneague Lake, which started falling six weeks ago now covers 3 square miles of land. So far it has fallen 2' 3" of its perspective, and is falling approximately 1/2" per day. Because properties have been destroyed by the lake, the Vestry has withdrawn taxes for the properties which have been inundated.

dialect tradition of Dunbar.

1934: Acting Governor. Sir Arthur Jeff, and other senior officials visit the Moneague Lake in St. Ann to assess its potential as a tourist attraction. They find hundreds of acres, roads and 18 houses in the area under water. Motor boats and canoes are being used for transport and recreation, especially at weekends when visitors and Jamaicans from Kingston and other parts of the island visit the site for picnics, swimming and sailing. The Lake started rising on August 15 last year, and a quick search of historical records reveals that the lake appeared in May 1811, and on other occasions.

1938: The first issue of the Jamaica Labour Weekly, a single sheet newspaper printed on both sides is published as an organ for the Jamaica Workers and



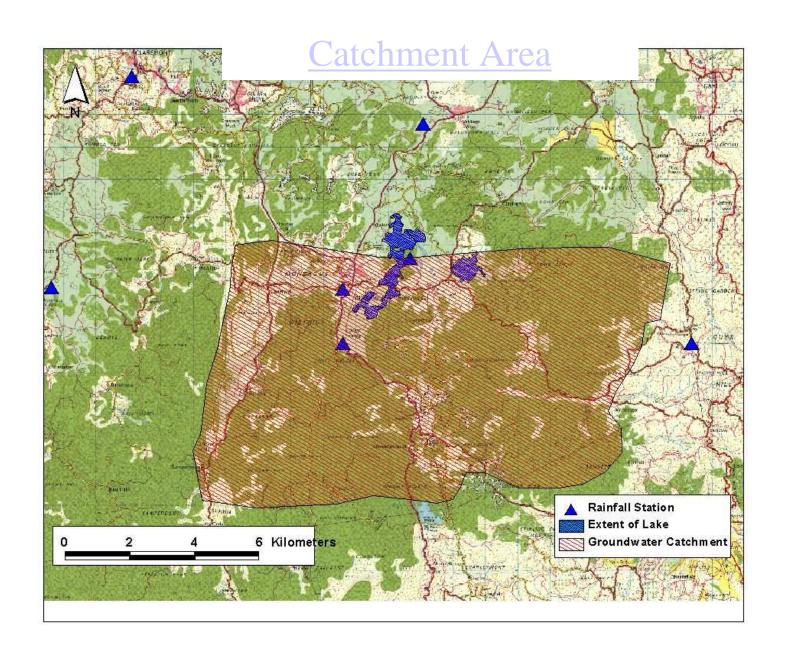
Sinkholes

Geology

Rainfall

**Antecedent Conditions** 

**Groundwater Levels** 

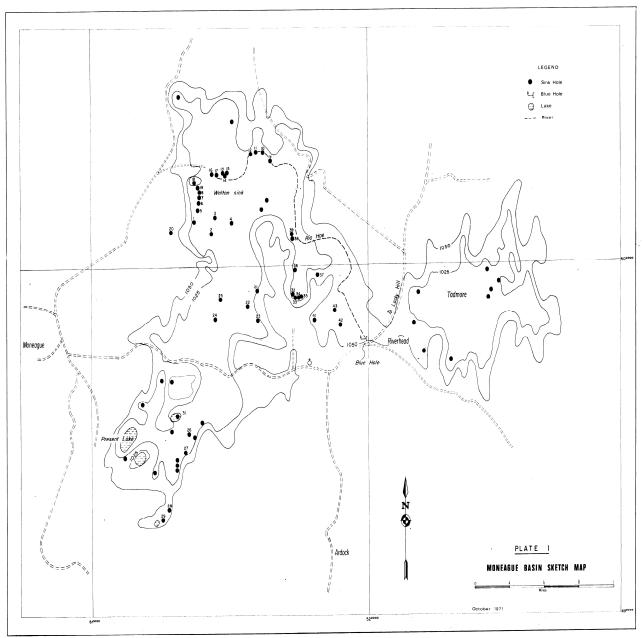


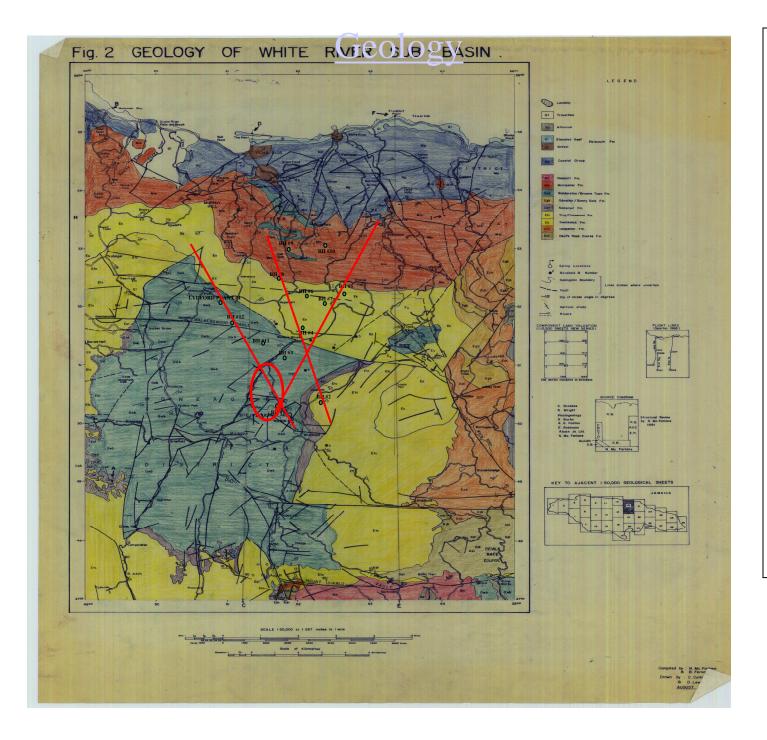






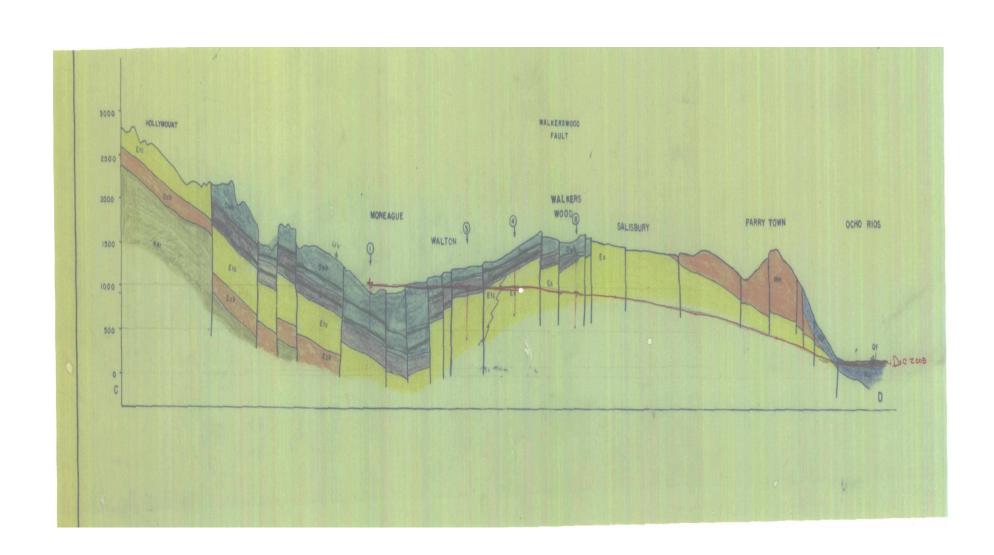
# Sinkhole map



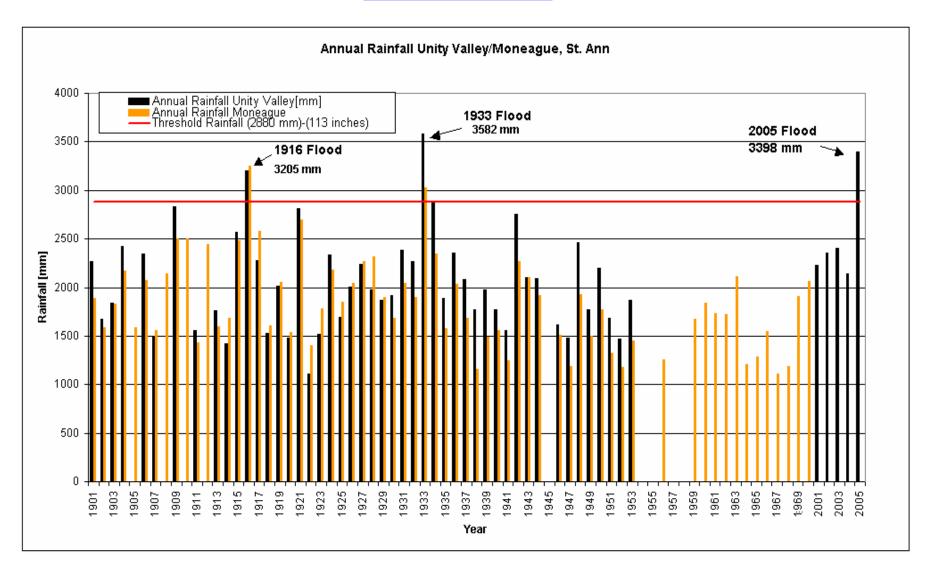


#### Geologic Factors

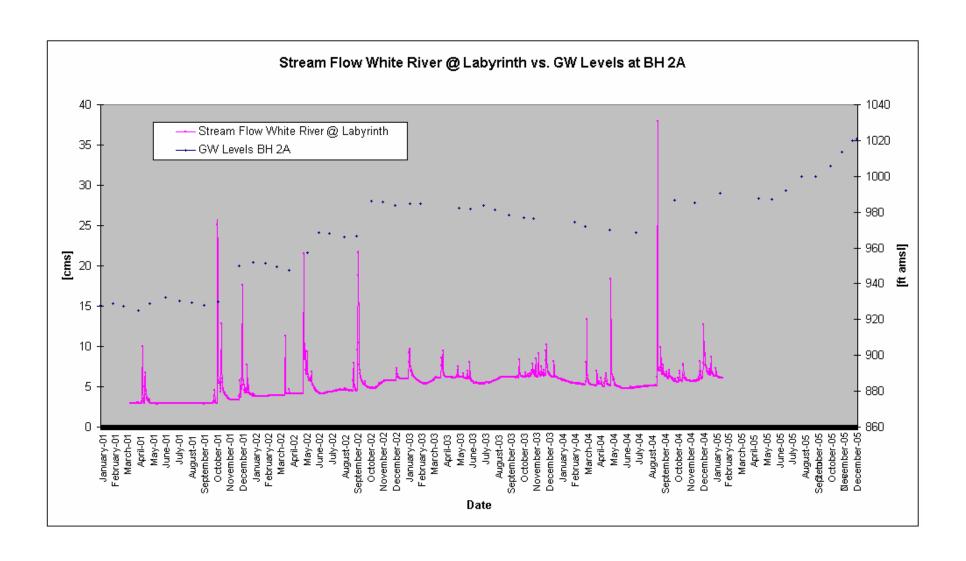
- •Volcanics runoff from which is recharge to the Limestone Formation
- •Basin underlain by White Limestone Formation
- -Features; faults, fractures and sinkholes
- -Water ponded by low permeable formation to the north.



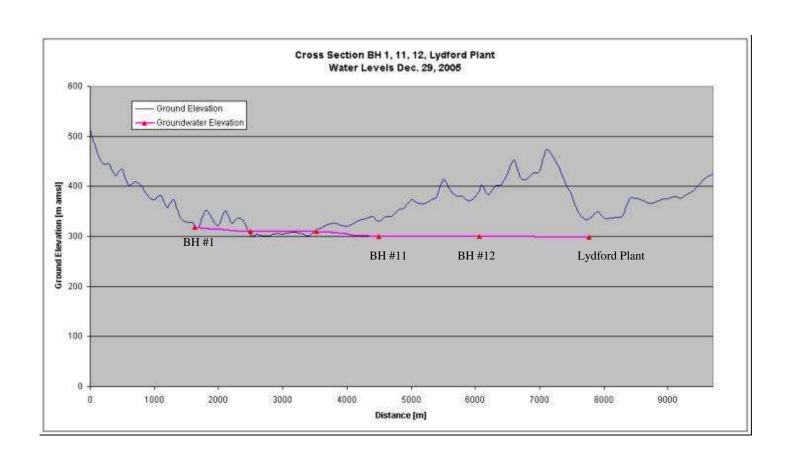
# Rainfall



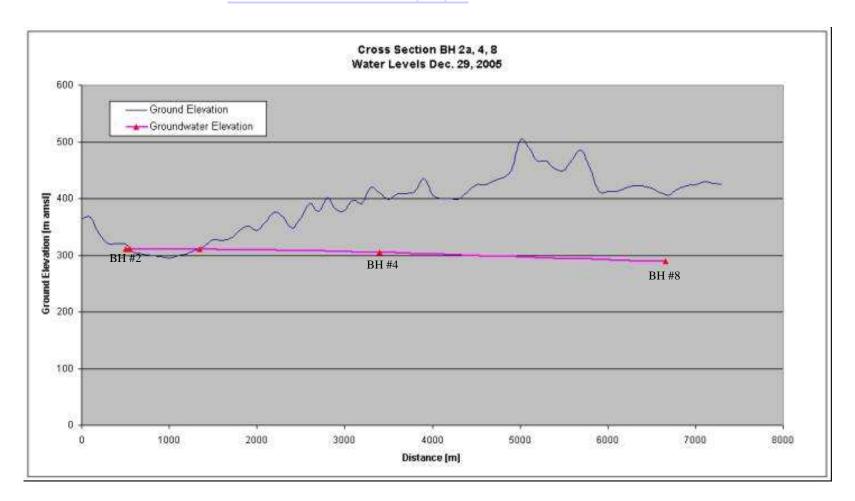
### **Antecedent Conditions**



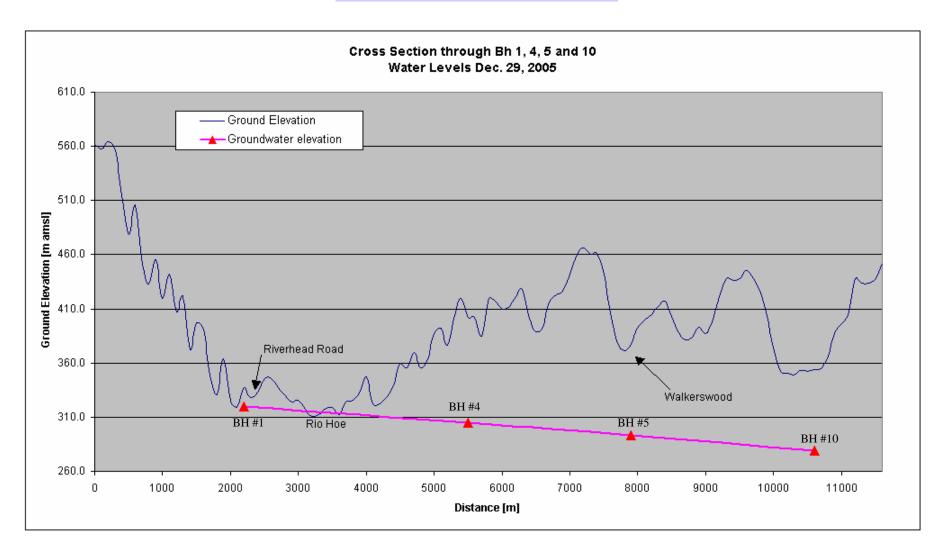
## X-sec BH 1,11,12, Lydford Plant

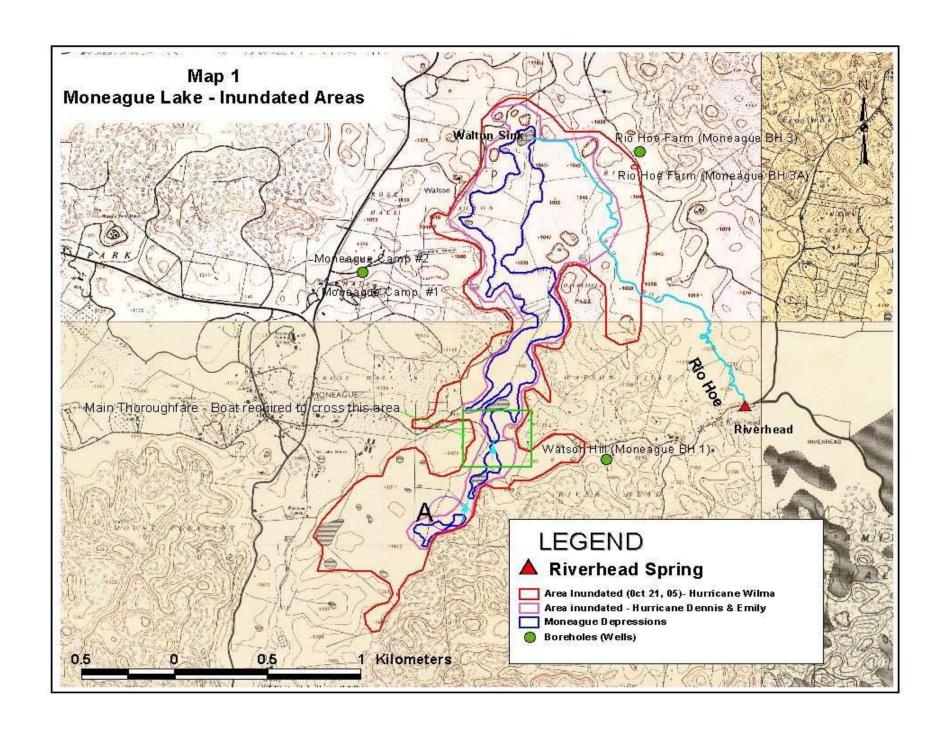


## X-Sex BH 2,4,8

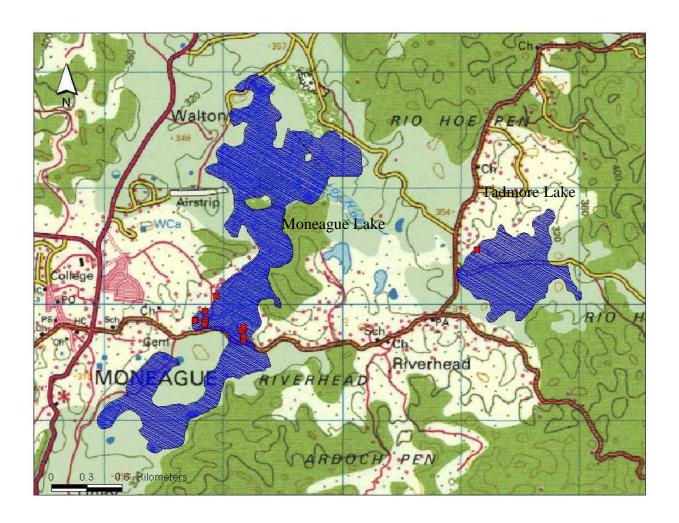


## X Sec BH 1,4,5,10





## Present Flooding



#### Moneague Lake

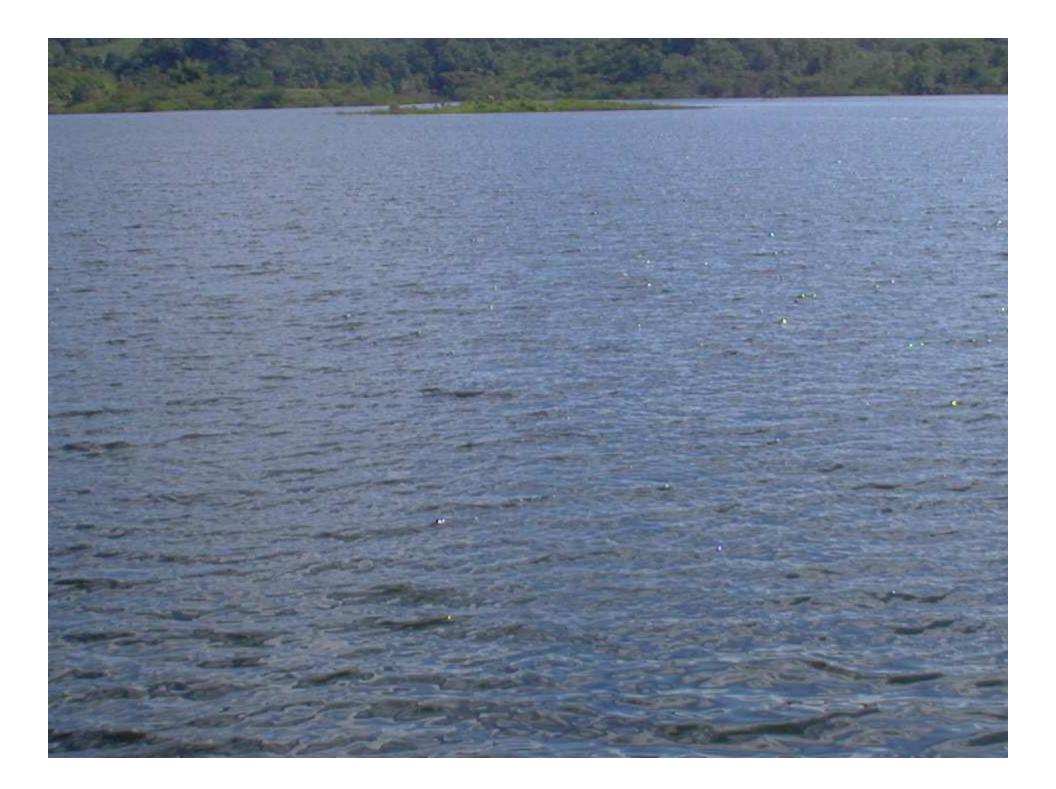
- •Area covered 1,680,859 m<sup>2</sup> (415 acres)
- •Max depth 12.5 m (41ft)
- •Storage 20 Mm<sup>3</sup>
- •12 house inundated
- •Road flooded limited access to communities
- •Riverhead road depth 7.5 m
- •Rate of rise .01 ft /day
- •Rate of decline-0.01 ft/day

#### Tadmore (Clapham) Lake

- •Area covered 491468 sq. m (121 acres)
- ■2 houses inundated
- •Goshen road threatened
- •Road in Village inundated
- •Mining Pits open-risk to life
- •Lives severely affected
- •High social cost



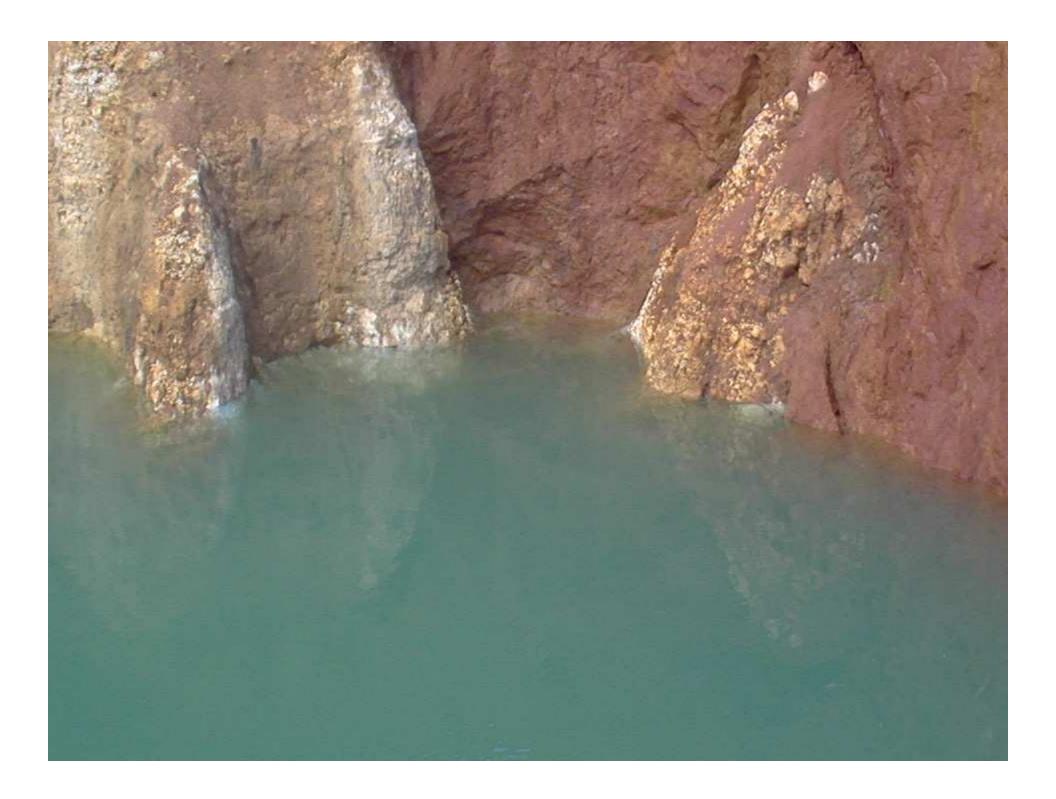




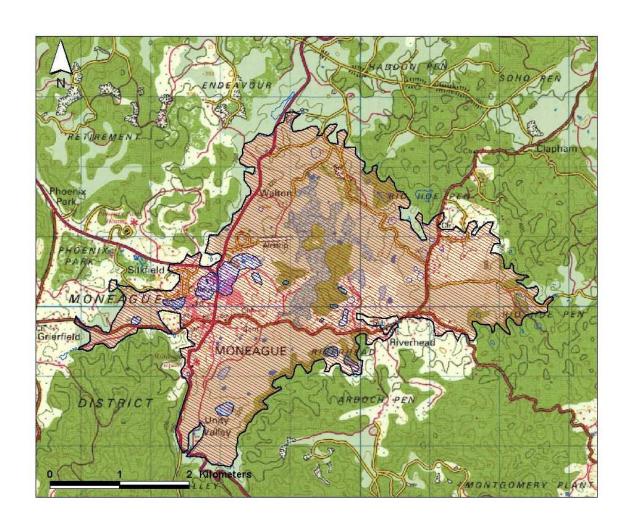








## Moneague Lake approx. 3000 acres



## Recommendations

- Investigate the feasibility of dyking or raising the level of the threatened Riverhead to Goshen Road and implement the appropriate action.
- Regular monitoring of the water quality and dissemination information to the community with the collaboration of the Ministry of Health
- Assess the suitability of the lake for recreational enterprises and provide support for safe implementation.
- Demarcate based on 1933 flood levels, the zones for appropriate landuse. (Restrict the flood zones to agriculture)
- Relocate houses from within the flood zones
- Clean sinkholes once water has withdrawn and keep them open to assist with drainage.
- Record data, implement monitoring programme and use information to give early warning of future flooding

The citizens of Moneague venerate the lakes because it stands almost unparalleled in our island where forces of nature have destroyed our cultivations, submerged our homes and at the same time counter-balanced their evil by giving us the opportunity to construct our hamboo rafts and other crafts to earn a daily bread on the bosom of the lakes. It gives pleasure to see how the visitors smile as they stand on its shores day after day. There is a sad feature also which is that reports say outsiders are contemplating to bring boats here to compete or take away the little pittance that the rafts and boats belonging to those whose fields and lands are submerged are earning.

LUCIUS A. RICHARDS. Moneague, January 15, 1924.