Jamaica’s Water Quality Atlas:
An Approach To Water Quality Classification
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Water Quality Classification

A DEFINITION

A Simple, Visibly Illustrative, Spatial Method Of Depicting differences in water quality
THE CHALLENGE

To Synthesize Data and Present Information which Provides An Overview on the Status Of Jamaica’s Freshwater Quality.
THE PRIMARY COMPONENTS

A
COLOUR CODED MAP

B
USE RESTRICTION TABLE
THE THREE STATE COLOUR CODE

- **HIGH QUALITY**
- **EARLY DETERIORATION**
- **POOR QUALITY**
CRITERIA FOR COLOUR DESIGNATION

WATER SUITABILITY ASSESSMENT

• DRINKING
• RECREATION
• IRRIGATION
• AMBIENT WQ

SYMBOLS OF BENEFICIAL USES

Drinking
Irrigation
Recreation
Ambient
### Beneficial Use

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Acceptable Limit</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrate</td>
<td>&lt; 40 mg/L</td>
<td>World Health Organization Drinking Water Guidelines, 1984</td>
</tr>
<tr>
<td>Chloride</td>
<td>&lt; 250 mg/L</td>
<td></td>
</tr>
<tr>
<td>Sodium</td>
<td>&lt; 200 mg/L</td>
<td></td>
</tr>
<tr>
<td>Sulphate</td>
<td>&lt; 400 mg/L</td>
<td></td>
</tr>
<tr>
<td>Total Dissolved Solids</td>
<td>&lt; 1000 mg/L</td>
<td></td>
</tr>
<tr>
<td>Total Coliform</td>
<td>Monthly Avg &lt; 1000MPN/110mL</td>
<td>Based on USEPA Standard for Bathing Waters</td>
</tr>
<tr>
<td></td>
<td>All Times &lt; 24000 MPN/100mL</td>
<td></td>
</tr>
<tr>
<td>Conductivity</td>
<td>&lt;3000 S/cm</td>
<td>National Irrigation Commission Jamaica Recommended Limit</td>
</tr>
</tbody>
</table>
COLOUR CLASSIFICATION
OF
GROUNDWATER

Cabarita River Basin
COLOUR CLASSIFICATION
OF
SURFACEWATER

Cabarita River Basin
## The USE RESTRICTION TABLE

<table>
<thead>
<tr>
<th>Sample Location</th>
<th>Ambient</th>
<th>Recreation</th>
<th>Drinking</th>
<th>Irrigation</th>
<th>Water Quality Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sparkle River @ Trout Hall</td>
<td>![X]</td>
<td>![X]</td>
<td>![✓]</td>
<td>![✓]</td>
<td>![Yellow]</td>
</tr>
<tr>
<td>2. Mammee River @ Victoria</td>
<td>![✓]</td>
<td>![X]</td>
<td>![✓]</td>
<td>![✓]</td>
<td>![Blue]</td>
</tr>
<tr>
<td>3. Sparkle River @ Sutton</td>
<td>![✓]</td>
<td>![X]</td>
<td>![✓]</td>
<td>![✓]</td>
<td>![Yellow]</td>
</tr>
<tr>
<td>4. Sparkle River @ Bottom Ground</td>
<td>![X]</td>
<td>![X]</td>
<td>![X]</td>
<td>![✓]</td>
<td>![Red]</td>
</tr>
</tbody>
</table>
THE PRIMARY COMPONENTS

A

COLOUR CODED MAP

B

USE RESTRICTION TABLE
Excellent/High Quality Water (meets Ambient Water Quality and Recreational Standard)

Early Deterioration (exceeds Ambient Water Quality and/or Recreational Standard)

Poor Quality (exceeds Drinking and/or Irrigational Standard)

Not Analysed for this Use

Above Standard Met

Above Standard Not Met

- Not Analysed for this Use

Legend

Excellent/High Quality Water (meets Ambient Water Quality and Recreational Standard)
Early Deterioration (exceeds Ambient Water Quality and/or Recreational Standard)
Poor Quality (exceeds Drinking and/or Irrigational Standard)
Coast Line
Inland Boundary
Sampling Point
GROUNDWATER QUALITY STATUS MAP
CABARITA RIVER BASIN

USE RESTRICTION TABLE
CABARITA RIVER BASIN

<table>
<thead>
<tr>
<th>Well Location</th>
<th>Ambient Standard</th>
<th>Drinking</th>
<th>Irrigation</th>
<th>Water Quality Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Negril Spots</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Old Hope</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Whithorn</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Blue</td>
</tr>
<tr>
<td>4 Petersville</td>
<td>x</td>
<td></td>
<td>✓</td>
<td>Green</td>
</tr>
<tr>
<td>5 New Market</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Yellow</td>
</tr>
<tr>
<td>6 Dalintober</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>Red</td>
</tr>
<tr>
<td>7 Llawara</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>Black</td>
</tr>
</tbody>
</table>

✓ - Above Standard Met
x - Above Standard Not Met

Legend:
- Limestone Well
- Coastline
- Basin Boundary

Water Quality Class:
- Blue: Excellent/High Quality Water (meets Ambient Water Quality Standard)
- Green: Early Deterioration
- Yellow: Meets Ambient Water Quality Standard
- Red: Poor Quality (exceeds Drinking and/or Irrigation Standard)
ASSUMPTIONS

AVAILABILITY OF WATER QUALITY DATA
- Parameters
- Frequency

ADEQUATE NETWORK COVERAGE
A Water Quality Classification System

SIMPLE

VISIBLY ILLUSTRATIVE

SUFFICIENTLY INFORMATIVE

SPATIAL

Dipicting Differences In Water Quality
Surfacewater Quality Status
Jamaica
Groundwater Quality Status Map
Jamaica

- Excellent/High Quality Water
- Early Deterioration
- Poor Quality Water

Thank You