Lake Kamari Information Pack

The Problems at Lake Kamari

Lake Kamari is a very popular lake used for fishing, boating, bird watching, and water sports such as swimming and water skiing. Many people live around the lake and others visit the lake on weekends and holidays.

In the past year, there have been many problems at Lake Kamari. These problems are affecting the residents, the visitors, and some of the businesses around the lake. Swimmers are complaining of irritated skin. Fishermen complain that there are few fish in the lake. Bird watchers do not see as many birds as they have in previous years. Counselors at the nature camp say that there is not as much wildlife around the lake as in past years. In addition, several homes and businesses have found that some chalk stone structures in the lake are falling apart.

The Lake Kamari council has called you in to help solve these problems. You will need to find out what is wrong and present solutions.
Map of Lake Kamari
Lake Kamari Fact Sheet - see map on page 2

Location and Climate
Lake Kamari is located in a temperate climate on the eastern edge of the mountains. The winters are cold and snowy. The summers are warm and dry. To the north, west, and south of the lake are forests, towns, and some factories. To the east of the lake is farmland.

Water Sources
One main river, the Kamar River, feeds into Lake Kamari. In addition, four smaller rivers and nine creeks also feed into the lake.

Water Outlets
Most of the water in Lake Kamari leaves the lake through the lower part of the Kamar River. In summer months, a significant amount is also lost through evaporation.

Area
Lake Kamari has a surface area of 120 km². It is approximately 20 km (about 12.5 miles) long and 6 km (about 4 miles) across.

Depth
The average depth of Lake Kamari is 100 meters (about 330 feet). The deepest part of the lake is more than 300 meters (about 1000 feet).

Wildlife
Lake Kamari has traditionally been home to a variety of aquatic animals that live in the water and land animals that live along the shore. Wildlife have included many species of fish, amphibians, snakes, insects, water birds such as osprey and ducks, and mammals such as black bear, deer, otters, raccoons, squirrels, chipmunks, and bobcats.

Buildings
Many of the structures near the water in Lake Kamari are made of chalk, a type of soft limestone.

History
Lake Kamari has existed since the last ice age, roughly 10,000 years
ago. However, until 1960, it was much smaller. In 1960, a hydroelectric dam was built along the Kamar River. Water backed up against the dam, increasing the area and depth of the lake. Here are some key events in the history of Lake Kamari.

- **Before 1850**: Area is occupied mostly by Native Americans who rely on the lake for fish and other resources.
- **1850**: Gold miners settle in the area, build a few towns nearby. Gold is mined along streams that feed into the Lake.
- **1870**: Gold mining stops.
- **1900**: Farming begins to the east of Lake Kamari.
- **1920**: Logging (cutting down trees) begins in the forest surrounding Lake Kamari.
- **1960**: Kamari Dam is built.
- **1960s**: Small resort towns are built around the Lake.
- **1970**: Lake Kamari Society helps outlaw logging within 20 miles of Lake Kamari.
- **2010**: Kamari Forest Paper Mill opens to make paper.
- **2012**: Motor boats are banned on Lake Kamari.
- **2013**: Swimmers start complaining of itchy skin, fisherman catch fewer fish, wildlife counts decrease, and engineers notice that structures made of chalk are starting to fall apart.
Lake Kamari Water Quality Report
The water quality at Lake Kamari is tested regularly. This table is a comparison of the water quality in 2014 to the water quality in 2009. This comparison was made in an effort to determine the cause of the problems at Lake Kamari.

<table>
<thead>
<tr>
<th>Surface Water Conditions</th>
<th>2009 average</th>
<th>2014 average</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>8 °C</td>
<td>8 °C</td>
<td>A change in water temperature can kill or harm aquatic organisms.</td>
</tr>
<tr>
<td>Dissolved oxygen</td>
<td>10 mg/L</td>
<td>9 mg/L</td>
<td>Less than 6 mg/L of dissolved oxygen can result in the death of aquatic life.</td>
</tr>
<tr>
<td>Suspended sediment</td>
<td>Low (water clear)</td>
<td>Low (water clear)</td>
<td>Too much sediment can harm aquatic plants by blocking sunlight.</td>
</tr>
<tr>
<td>pH</td>
<td>6.8</td>
<td>5.2</td>
<td>pH above 8.5 or below 6.5 can be harmful to many forms of aquatic life. Most aquatic organisms cannot survive in water that has a pH lower than 4 or higher than 10.</td>
</tr>
<tr>
<td><strong>Water clarity</strong></td>
<td>30 meters (can see a white disc that is 30 meters deep)</td>
<td>28 meters (can see a white disc that is 28 meters deep)</td>
<td>Water clarity is related to the amount of algae and other small plants and animals in the water.</td>
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</tbody>
</table>

| **Ammonia**      | Not detected                                          | Not detected                                          | Ammonia, which is used in fertilizers on farms, can kill aquatic organisms.                     |

| **E. coli bacteria (average)** | 41 cfu/100 mL (cfu = colony forming unit) | 64 cfu/100 mL | The more cfu of E. coli there are, the more likely people are to get sick. More than 200 cfu/100 mL is considered unacceptable at Lake Kamari. |

| **Salt content** | Less than 1 g/L | Less than 1 g/L | A change in salt content can kill or harm aquatic life. |