NPS LAKE 2016
Bacteriological monitoring
*Streptococcus* spp., *Enterococci* spp., *Escherichia coli*, and *Fecal streptococci*. Photo Credit: CDC.GOV.
## Lake Mead National Recreation Area
### Recreation Suitability Guidelines

<table>
<thead>
<tr>
<th>Management Status – Alert Level</th>
<th>E. coli levels</th>
<th>Fecal coliform levels</th>
<th>Monitoring Needs</th>
<th>Recommended Management Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Routine Conditions</strong></td>
<td>126 MF/100 ml All samples</td>
<td>&lt; 200 MF/100 ml All samples</td>
<td>Standard Monitoring Protocol utilized between May through September for high use areas see Appendix 1</td>
<td>No actions beyond routine monitoring</td>
</tr>
<tr>
<td><strong>Alert Level</strong></td>
<td>&gt; 255 MF/100 ml Single Sample</td>
<td>&gt; 400 MF/100 ml Sample</td>
<td>Re-sample area as soon as feasible, in no case in more than one week</td>
<td>Alert LAKE Mgmt Team; Prioritize Re-sampling</td>
</tr>
<tr>
<td><strong>Tier I – Caution Response</strong></td>
<td>255 MF/100 ml In Second or Follow Up Sample</td>
<td>400 MF/100 ml Sample</td>
<td>Initiate Extended Monitoring Protocol ; Coordinate with SNWA, NDEP and NPS WRD. Extended Monitoring Protocol calls for five samples in broad geographic context over 30 days</td>
<td>Press release on initial findings and follow up monitoring; Alert NDEP and ADEQ; Visitor Notification</td>
</tr>
<tr>
<td><strong>Tier II – Warning Response</strong></td>
<td>50 day log mean &gt; 126 MF/100 ml</td>
<td>50 day log mean &gt; 200 MF/100 ml</td>
<td>Coordinate with NDEP, SNWA, NPS WRD, NPS Public Health on Results; Adjust Protocol to Investigate Causes</td>
<td>Public Info Campaign; Public Advisory to Avoid Area; Possible Closures</td>
</tr>
<tr>
<td><strong>Tier III – Hazard Response</strong></td>
<td>Extended period &gt; 126 MF/100 ml</td>
<td>Extended period &gt; 200 MF/100 ml</td>
<td>Continue Monitoring Until Results Return Below Advisory Action Levels</td>
<td>Temporary Closures; Advisory Info Campaign</td>
</tr>
</tbody>
</table>

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1. From published NDEP Lake Mead and Lake Mohave water quality standards. Standard for E. coli is: Single Value NTE 235 MF/100 ml; or log mean 30 days NTE 126 MF/100 ml
2. From published NDEP Lake Mead and Lake Mohave water quality standards. Standard for fecal coliform is: Based on a minimum of not less than five samples taken over a 30-day period, the fecal coliform bacterial level must not exceed a log mean of 200 per 100ml nor must more than 10 percent of the total samples taken during any 30-day period exceed 400 per 100ml.
Figure 1: Three-Tiered approach to managing potential Lake Mead NRA Elevated Pathogen Indicators

Any E. coli sample or Fecal coliform samples exceed the mean sample standard of 126 or 200 MP/100 mL? If yes, re-sample. Do two consecutive samples exceed mean standard?

NO

Continue Routine Monitoring
No Management Response

YES

Tier I:
Two consecutive samples of either E. coli or fecal coliform exceed the mean value standard of 126 MP of E. coli or 200 MP of fecal coliform/100 mL
Initiate CAUTION Response
Begin 30 day enhanced monitoring protocol to determine log mean to evaluate standard
Coordinate findings with NDEP, SNWA, BOR, FAQs, Park Staff and Web
Talking Points/Hand-Outs at nearby Contact Station
Enhanced Visitor Education on Sanitation

Tier II:
Do any two consecutive samples at one location exceed the single value of E. coli or fecal coliform of 235 MP/400 MP?

NO

YES

30 day enhanced monitoring shows log mean meets NDEP standard of 126 MP of E. coli or 200 MP fecal coliform

One 30 day enhanced monitoring period shows log mean meets NDEP standard of 126 E. coli or 200 fecal coliform – Return to Routine Monitoring
Should no more than two samples E. coli or fecal coliform exceed respective standards for single values – 235 MP of E. coli or 400 MP for fecal coliform, and two follow up samples are below the single value standard – Return to Tier I

 Tier III
Initiate HAZARD Response
Consider Temporary Closures
Enhanced Presence at Site
Enhanced Warning Messaging
Investigate Causes and Coordinate NDEP
Enhanced Shoreline Sanitation

First 30 day monitoring period shows E. coli and/or fecal coliforms exceed standard for 30 day log mean – Initiate second 30 day sample period and go to Tier III
NOAA/NPS Weather Buoys
Lake Mead & Lake Mohave
Lake Mead National Recreation Area

Weather Buoy System

- **North Boulder Basin**  NBAA3  (WMT00530)
- **South Boulder Basin**  SBBN2  (WMT00540)
- **Virgin Basin**  VBAA3  (WMT00560)
- **North Mohave Basin**  NLMA3  (WMT00570)
- **South Mohave Basin**  SLMN2  (WMT00600)

Login to [SmartWeb](http://smartweb.axys-aps.com/sites/1836/) to view and graph historical data.
### Average Water Temperature

**Significant Wave Height**

**Maximum Wave Height**

**Average Wave Direction**

**Average Wind Speed**

**Average Wind Direction**

**Wind Gust Speed**

**Average Air Temperature**

**Barometric Pressure**

**Average Humidity**

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**North Boulder Basin Buoy NBAA3 (WMT00530)**

Status as of: 2016-12-29 16:40 UTC

<table>
<thead>
<tr>
<th>Watch Circle</th>
<th>System Voltage</th>
<th>Average Water Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>On Position</td>
<td>13.7 V</td>
<td>14.8 °C</td>
</tr>
</tbody>
</table>

Waves as of: 2016-12-29 16:25 UTC

<table>
<thead>
<tr>
<th>Significant Height (ft)</th>
<th>Maximum Height</th>
<th>Average Direction From</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0 ft</td>
<td>0.4 ft</td>
<td>SW (243°)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Peak Period (T1)</th>
<th>Average Period (T2)</th>
<th>Average Spread</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.6 s</td>
<td>1.6 s</td>
<td>51.2 °</td>
</tr>
</tbody>
</table>

Meteorological as of: 2016-12-29 16:40 UTC

<table>
<thead>
<tr>
<th>Average Wind Speed</th>
<th>Average Wind Direction From</th>
<th>Wind Gust Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 mph</td>
<td>NE (32°)</td>
<td>6.3 mph</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Average Air Temperature</th>
<th>Barometric Pressure</th>
<th>Average Humidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.1 °C</td>
<td>990 mb</td>
<td>65.2 %</td>
</tr>
</tbody>
</table>

Login to [SeaDrawer](https://seadrawer.com) to view and graph historical data. 

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Download SBBN2 Data

MesoWest & SynopticLabs offer a number of ways to access environmental data. This download page is intended to provide small amounts of data in a convenient CSV format. You can download data from one station for a day at a time immediately or create a MesoWest account to download a year of data at a time. For larger volumes of data, visit the SynopticLabs Data API Services. Please use the SynopticLabs API services for automated downloading of data.

You can read more about the changes to our download pages on our blog.

Station Details

Station ID SBBN2 | Change station

Units in English

Download By Date

End Date 3 | January | 2017 | Local
End Hour 13

Need more than 1 day? Log in to My MesoWest

Available Variables

Several measurement variables are available for SBBN2. To download all variables available, keep the "All Variables" box checked below.

All Variables

Otherwise, uncheck the "All Variables" box and select only the variables you wish to download for SBBN2.

Make sure to select "Change Station" above if you wish to update to a different station.

Temperature
Dew Point
Relative Humidity
Wind Speed
Wind Direction
Wind Gust
Altimeter
Pressure
Sea level pressure
Water Temperature
Wind cardinal direction

Retrieve Data