Special Meeting
Big Sand Lake Water Levels

September 30, 2020

Panelists

- OC Environmental Protection Division (EPD): Liz Johnson, Tim Hull, Melissa Lavigne, David Hansen, and Nidia Volpe
- OC Public Works (PW): Mike Drozeck, PE; Jeff Charles; Grace Chua Corn; and Daniel Negron, PE
- South Florida Water Management District (SFWMD): Bill Graf and Debra Lasure, PE
- Valencia Water Control District (VWCD): David Mahler, PE and George Flint
- Florida Department of Transportation (FDOT): Su Hao, PE; Dustin Perkins, PE; Ferrell Hickson, PE; and Efren Rivera, PE
- Geosyntec Consultants: Mark Ellard, PE
Agenda

- Big Sand Lake Overview
- Big Sand Lake MSTU & Advisory Board
- Lake Water Levels & Long Term Trends
- Lake Water Level Drainage Projects
- Resident Concerns
- Potential Actions
- Panelist Remarks
- Open Discussion

Big Sand Lake Overview

- Surface Area - 1,041 acres
- Mean Depth - 23 feet
- Approximate Volume - 8 billion gallons
Big Sand Lake Overview

- Watershed size:
  - Approximately 5,410 acres (8.5 square miles) in size
  - 9 lakes: Big Sand Lake being the largest
- Shingle Creek Basin
- Lake Okeechobee Basin Management Action Plan

Source: Big Sand Lake Watershed Management Plan, Watershed Existing Conditions Assessment Technical Memorandum prepared by Geosyntec Consultants, Inc. dated April 2017

Big Sand Lake MSTU & Advisory Board

- The Board of County Commissioners established the MSTU and Advisory Board on December 19, 1995 for general lake cleaning, maintenance & aquatic plant control.

- 2,818 parcels
- 43% of basin area w/in MSTU
- Millage Rate: 0.1378
- Annual Revenue: ~ $200K
- Annual Expenditures ~ $50K (2019)
Amendments:

- October 9, 2001 - Resolution to Amend the Advisory Board Membership from 5 to 9 members.
- December 5, 2006 - 1st Amendment to include platted lots within the Sand Lake Point Unit 5 Subdivision.
- October 4, 2011 - 2nd Amendment established to allow MSTU funds for navigational purposes.
- December 16, 2014 - 3rd Amendment established to include platted lots within the Shores at Big Sand Lake Subdivision.
- December 17, 2019 - 4th Amendment established to include platted lots within the Granada Loop, Sand Lake Sound, and Sand Lake Vista Subdivisions.

9 member Advisory Board, two vacancies reserved for business within the MSTU.

Role of Advisory Board is to “advise the administration and operation of MSTU.”

- John Jennings - Chair
- Rick Barry – Vice Chair
- Phil Morrill
- Victor Jaworski
- Alan Charron
- Christopher Scott
- Vacancies (1 resident, 2 business)
Expenditures include:
- Aquatic plant management services (plant surveys and treatment)
- Shoreline restoration projects
- Data buoy
- Proposed lake water quality assessment

Lake Water Levels & Long Term Trends

**1960:**
- Historical high lake elevation: 99.46’

**1981:**
- Historical low lake elevation: 78.39’

**1985:**
- Normal High Water Elevation lowered from 94.62’ to 89.03’ (difference of 5.59’)

**2004:**
- Hurricanes Charley, Frances & Jeanne. Cumulative rainfall= 17.97”. Lake elevation 97.40’

*All lake elevations in 88 NAVD (feet)*
Lake Water Level Drainage Projects

2003:
- From June 2002-Aug 2003 BSL water level rose 8.03’ (86.20’ – 94.23’).
- On Aug 9, 2003 the berm separating Little Sand Lake (LSL) from BSL washed out. Prior to that event, the elevation in LSL was 5.74’ higher than BSL.
- An outfall pipe under the jurisdiction of FDOT was clogged. Pipe was cleaned by FDOT.

- Pumping lowered lake levels from 96.80’ to 94.61’

Lake Water Level Drainage Projects

2005:
- High lake water levels due rainfalls from hurricanes in 2004, impacted the completion drainwells.
- Pumping lowered lake levels from 96.06’ to 94.00’
  SFWMD Permit No. 48-01525-P issued February 2005
- Drainwell 1 constructed (Elevation 91.73’)

2015:
- Drainwell 2 constructed (Elevation 91.7’
Lake Water Level Drainage Projects

I-4 Beyond the Ultimate Outfall project

2 Drainwells

Lake Water Level Drainage Projects
Resident Concerns

- Unusable docks and navigation concerns
- Unusable community boat ramp
- Swales being compromised
- Septic tanks drain field performance being compromised
- Potential for homes being flooded

### Dock Surveys

<table>
<thead>
<tr>
<th>Dock Surveys</th>
<th>Sept 25, 2019</th>
<th>Feb 19, 2020</th>
<th>Sept 1, 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completely or Partially Submerged</td>
<td>67%</td>
<td>23%</td>
<td>55%</td>
</tr>
<tr>
<td>Not Submerged</td>
<td>33%</td>
<td>77%</td>
<td>45%</td>
</tr>
</tbody>
</table>

### Lake Elevation

<table>
<thead>
<tr>
<th>Lake Elevation</th>
<th>Sept 24, 2019</th>
<th>Feb 18, 2020</th>
<th>Aug 11, 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>94.79’</td>
<td>93.69’</td>
<td>94.35’</td>
</tr>
</tbody>
</table>

### February 19, 2020

- 77% Not submerged
- 23% Completely or Partially submerged

### September 1, 2020

- 55% Not submerged
- 45% Completely or Partially submerged

Total Number of Docks ~ 180
Resident Concerns

- Approximately 690 septic tank drain fields within the MSTU
- Estimated lowest elevation of drain field: 99.0’
- Minimum finished floor elevation of homes: 101.50’

Potential Actions

- Encourage residents to take precautionary measures and identify submerged docks with flagging
- Encourage residents to build floating docks
- I-4 Beyond the Ultimate project to lower lake outfall
Panelist Remarks

- Orange County Public Works
- South Florida Water Management District
- Valencia Water Control District
- Florida Department of Transportation
- Geosyntec Consultants
- Orange County Environmental Protection Division

Open Discussion