BACWA Group Annual Report

BACWA Permits Committee
EBMUD
9 September 2015
Outline

- Upcoming Milestones
- Group Annual Report Update
  - Data gaps
  - Compiled data/trends
  - Statistical approach
  - Sample dataset
- Next Steps
Upcoming Key Milestones

- Sept 8 - 11, 2015: Send Compiled Data to Plants for Review
- Sept 14 - 16, 2015: Receive BACWA Plant Input
- Oct 1, 2015: Submit Participants Support Letter to Regional Board
- Nov 12, 2015: Submit Group Annual Report to Regional Board
Background
37 Participating Plants

- **SUI** – Suisun Bay
- **SPB** – San Pablo Bay
- **CEN** – Central Bay
- **SOU** – South Bay
- **LSB** – Lower South Bay
Group Annual Report – Due November XX, 2015

- Data Collection/Review
  - 13267 Letter Data (2011-2014)

- Data Analysis and Reporting
  - Data trending by plant type and sub-embayment
## Incomplete Dataset

**Legend:**
- **Green** = Complete Dataset
- **Red** = Missing Data
- **Yellow** Data = Incomplete Dataset

<table>
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<th>Jul-12</th>
<th>Aug-12</th>
<th>Sep-12</th>
<th>Oct-12</th>
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<th>Jan-13</th>
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<td>West County/Richmond</td>
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Data Issues

- Data cleaned up since 8/14 BACWA meeting (CIWQS training)
- 13267 Letter data gaps are attributed to no discharge
- Ortho-P issue
  - Different forms (dissolved P, ortho-P, dissolved ortho-P, etc.)
  - Inconsistencies
  - Resolving with a few plants
- July 2014 – June 2015 data gaps/issues:
  - Multiple outfalls
  - Recycled water (0 discharge)
  - Emailed plants with missing data gaps
## Preliminary Analysis by Subembayment (Suisun Bay)

<table>
<thead>
<tr>
<th>Year</th>
<th>Flow</th>
<th>Ammonia (kg N/d)</th>
<th>TKN (kg N/d)</th>
<th>NO5 (kg N/d)</th>
<th>Total N (kg N/d)</th>
<th>Ortho-P (kg P/d)</th>
<th>Total P (kg P/d)</th>
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<tr>
<td>2012 – 2013</td>
<td>59.3</td>
<td>4,300</td>
<td>4,800</td>
<td>2,600</td>
<td>7,300</td>
<td>310</td>
<td>390</td>
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<tr>
<td>2013 – 2014</td>
<td>56.1</td>
<td>4,300</td>
<td>4,600</td>
<td>2,600</td>
<td>7,100</td>
<td>300</td>
<td>340</td>
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<tr>
<td>2014 – 2015</td>
<td>54.6</td>
<td>4,500</td>
<td>4,700</td>
<td>2,200</td>
<td>6,800</td>
<td>280</td>
<td>380</td>
</tr>
</tbody>
</table>

| % Decrease per Year | 4.2% | -2.3% | 1.1% | 8.1% | 3.5% | 5.1% | 1.4% |

**Trend**

- Down
- Up
- Down
- Down
- Down
- Down
- Down
- Down
Preliminary Suisun Bay Results

Suisun Bay

Flow, mgd

Load (kg/day)

Flow
Ammonia
Total N
Total P

Jul-12 Jan-13 Jul-13 Jan-14 Jul-14 Jan-15 Jul-15

0 10 20 30 40 50 60 70 80 90

0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 8,000 9,000
Preliminary Suisun Bay Results

Ammonia, Total (as N) (kg/day)

Suisun Bay

- CCCSD
- Delta Diablo
- Fairfield-Suisun
- Mt View
## Preliminary Analysis by Subembayment (San Pablo Bay)

<table>
<thead>
<tr>
<th>Year</th>
<th>Flow</th>
<th>Ammonia (kg N/d)</th>
<th>TKN (kg N/d)</th>
<th>NO3 (kg N/d)</th>
<th>Total N (kg N/d)</th>
<th>Ortho-P (kg P/d)</th>
<th>Total P (kg P/d)</th>
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<td>2012 – 2013</td>
<td>32.6</td>
<td>900</td>
<td>1,100</td>
<td>1,000</td>
<td>2,100</td>
<td>310</td>
<td>320</td>
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<td>2013 – 2014</td>
<td>32.4</td>
<td>1,000</td>
<td>1,200</td>
<td>1,000</td>
<td>2,200</td>
<td>280</td>
<td>310</td>
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<tr>
<td>2014 – 2015</td>
<td>32.1</td>
<td>1,400</td>
<td>1,300</td>
<td>800</td>
<td>2,500</td>
<td>230</td>
<td>250</td>
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<tr>
<td>% Decrease per Year</td>
<td>0.7%</td>
<td>-22.7%</td>
<td>-19.2%</td>
<td>10.7%</td>
<td>-8.8%</td>
<td>14.6%</td>
<td>11.9%</td>
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Preliminary San Pablo Bay Results

San Pablo Bay

Flow, mgd

Load (kg/day)

Jul-12  Jan-13  Jul-13  Jan-14  Jul-14  Jan-15  Jul-15

Flow  Ammonia  Total N  Total P

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Preliminary San Pablo Bay Results

San Pablo Bay

Ammonia, Total (as N) (kg/day)

- American Canyon
- Benicia
- Pinole
- Las Gallinas
- Napa
- Novato
- Petaluma
- Rodeo
- Sonoma Valley
- Vallejo

Time periods:
- Jul-12 to May-15
# Preliminary Analysis by Subembayment (Central Bay)

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<th>Ammonia (kg N/d)</th>
<th>TKN (kg N/d)</th>
<th>NO5 (kg N/d)</th>
<th>Total N (kg N/d)</th>
<th>Ortho-P (kg P/d)</th>
<th>Total P (kg P/d)</th>
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<tr>
<td>2012 – 2013</td>
<td>79.1</td>
<td>9,400</td>
<td>10,800</td>
<td>1,700</td>
<td>12,500</td>
<td>1,030</td>
<td>1,140</td>
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<td>2013 – 2014</td>
<td>75.7</td>
<td>9,900</td>
<td>11,500</td>
<td>1,600</td>
<td>13,100</td>
<td>840</td>
<td>1,020</td>
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<tr>
<td>2014 – 2015</td>
<td>70.4</td>
<td>9,900</td>
<td>11,300</td>
<td>1,200</td>
<td>12,500</td>
<td>670</td>
<td>960</td>
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</tbody>
</table>

% Decrease per Year

- Flow: 5.8%
- Ammonia: -2.6%
- TKN: -2.2%
- NO5: 16.7%
- Total N: 0.0%
- Ortho-P: 21.3%
- Total P: 8.7%

Trend:
- Down
- Up
- Up
- Down
- Down
- Down
Preliminary Central Bay Results
Preliminary Central Bay Results

Central Bay

Ammonia, Total (as N) (kg/day)


CMSA EBMUD SASM SMCSD Treasure Island West County
## Preliminary Analysis by Subembayment (South Bay)

<table>
<thead>
<tr>
<th>Year</th>
<th>Flow</th>
<th>Ammonia (kg N/d)</th>
<th>TKN (kg N/d)</th>
<th>NO5 (kg N/d)</th>
<th>Total N (kg N/d)</th>
<th>Ortho-P (kg P/d)</th>
<th>Total P (kg P/d)</th>
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<tbody>
<tr>
<td>2012 – 2013</td>
<td>157.8</td>
<td>18,500</td>
<td>20,400</td>
<td>2,100</td>
<td>22,500</td>
<td>1,020</td>
<td>1,200</td>
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<td>2013 – 2014</td>
<td>156.1</td>
<td>21,100</td>
<td>22,500</td>
<td>2,200</td>
<td>24,600</td>
<td>1,090</td>
<td>1,310</td>
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<td>2014 – 2015</td>
<td>168.2</td>
<td>21,300</td>
<td>23,200</td>
<td>2,200</td>
<td>25,500</td>
<td>1,610</td>
<td>1,220</td>
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| % Decrease per Year | -3.2% | -6.9% | -6.4% | -2.3% | -6.2% | -23.8% | -0.8% |

| Trend         | 🚸     | 🚸     | 🚸     | 🚸     | 🚸     | 🚸     | 🚸     |
Preliminary South Bay Results

South Bay

Load (kg/day)

Flow, mgd

Flow
Ammonia
Total N
Total P

Jul-12 | Jan-13 | Jul-13 | Jan-14 | Jul-14 | Jan-15 | Jul-15

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Preliminary South Bay Results

Ammonia, Total (as N) (kg/day)

South Bay

- Burlingame
- EBDA
- Millbrae
- San Mateo
- SFO Airport
- SFPUC Southeast Plant
- South SF
- SVCW
# Preliminary Analysis by Subembayment (Lower South Bay)

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<thead>
<tr>
<th>Year</th>
<th>Flow</th>
<th>Ammonia (kg N/d)</th>
<th>TKN (kg N/d)</th>
<th>NO₅ (kg N/d)</th>
<th>Total N (kg N/d)</th>
<th>Ortho-P (kg P/d)</th>
<th>Total P (kg P/d)</th>
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<tr>
<td>2012 – 2013</td>
<td>124.1</td>
<td>600</td>
<td>1,100</td>
<td>7,500</td>
<td>8,600</td>
<td>850</td>
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<td>2013 – 2014</td>
<td>115.5</td>
<td>300</td>
<td>700</td>
<td>7,200</td>
<td>7,900</td>
<td>760</td>
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<td>2014 – 2015</td>
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<td>400</td>
<td>300</td>
<td>6,900</td>
<td>7,800</td>
<td>660</td>
<td>700</td>
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% Decrease per Year:
- 5.0%
- 23.1%
- 17.3%
- 4.2%
- 4.9%
- 12.6%
- 11.3%

Trend: <svg width="50" height="50" viewBox="0 0 100 100" fill="#008080"><path d="M0 0L100 100"/></svg>
Preliminary Lower South Bay Results

Lower South Bay

Flow, mgd

Load (kg/day)

Jul-12  Jan-13  Jul-13  Jan-14  Jul-14  Jan-15  Jul-15

- Flow
- Ammonia
- Total N
- Total P
Preliminary Lower South Bay Results

Ammonia, Total (as N) (kg/day)

Lower South Bay

- Palo Alto
- San Jose/Santa Clara
- Sunnyvale
## Preliminary Analysis (Total)

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<th>Year</th>
<th>Flow</th>
<th>Ammonia (kg N/d)</th>
<th>TKN (kg N/d)</th>
<th>NO5 (kg N/d)</th>
<th>Total N (kg N/d)</th>
<th>Ortho-P (kg P/d)</th>
<th>Total P (kg P/d)</th>
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<td>2012 – 2013</td>
<td>452.9</td>
<td>33,700</td>
<td>38,200</td>
<td>14,900</td>
<td>53,000</td>
<td>3,520</td>
<td>3,930</td>
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<td>2013 – 2014</td>
<td>435.8</td>
<td>36,600</td>
<td>40,500</td>
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<td>55,000</td>
<td>3,260</td>
<td>3,780</td>
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<td>437.7</td>
<td>37,300</td>
<td>41,500</td>
<td>13,200</td>
<td>55,000</td>
<td>3,450</td>
<td>3,520</td>
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<td>-35</td>
<td>-205</td>
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<td>% Decrease per Year</td>
<td>1.7%</td>
<td>-5.0%</td>
<td>-4.1%</td>
<td>6.0%</td>
<td>-1.8%</td>
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Next Steps
Next Steps

- Sept 8 - 11, 2015: Send Compiled Data to Plants for Review
- Sept 14 - 16, 2015: Receive BACWA Plant Input
- Oct 1, 2015: Submit Participants Support Letter to Regional Board
- Nov 12, 2015: Submit Group Annual Report to Regional Board