Outfall Land Section and OOBS Piping Rehabilitation

Project No. J-112

Orange County Sanitation District
Presentation to SCCOOS BOG
December 1, 2011
OCSD Outfalls

78" outfall

120" outfall
OCSD Outfalls

Avg Daily Flow in MGD

78” outfall

120” outfall
Outfall System

Santa Ana River

Pump Station

Junction Box

Surge Tower 2

5-mile outfall

Surge Tower 1

Emergency 1-mile outfall

Beach Junction Box

ocean
Water Quality Issues

- Two components:
  - Optimize treatment processes
  - Collect sufficient oceanographic discharge data
Water Quality Issues

Two components:

- Optimize treatment processes
- Collect sufficient oceanographic discharge data

*To minimize the need for beach closures*
Work to Date

- EIR components
  - Currents
    - 20m ADCP data (SAIC)
    - HF Radar (SCCOOS/OCSD)
  - Receiving Water Quality (OCSD)
  - Modeling (Moffatt & Nichol)
    - Initial Dilution (CORMIX)
    - Plume transport (MIKE)
  - Phytoplankton (USC)
## Expected Changes @ 36:1

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Effluent Mean</th>
<th>Natural Mean</th>
<th>Expected Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>25.1</td>
<td>17.4</td>
<td>Increase to 0.21</td>
</tr>
<tr>
<td>Salinity</td>
<td>2.25</td>
<td>33.42</td>
<td>Decrease to -0.84</td>
</tr>
<tr>
<td>DO</td>
<td>1.52</td>
<td>8.39</td>
<td>Decrease to -0.19</td>
</tr>
<tr>
<td>pH</td>
<td>7.2</td>
<td>8.14</td>
<td>Decrease to -0.03</td>
</tr>
<tr>
<td>Ammonia</td>
<td>30</td>
<td>0.01</td>
<td>Increase to 0.82</td>
</tr>
<tr>
<td>Total Coliform</td>
<td>34,500</td>
<td>10</td>
<td>Increase to 942</td>
</tr>
<tr>
<td>TC(_{opt})</td>
<td>632</td>
<td>10</td>
<td>Increase to 27</td>
</tr>
<tr>
<td>Fecal Coliform</td>
<td>3,400</td>
<td>10</td>
<td>Increase to 102</td>
</tr>
<tr>
<td>Fc(_{opt})</td>
<td>153</td>
<td>10</td>
<td>Increase to 14</td>
</tr>
<tr>
<td>Enterococcus</td>
<td>705</td>
<td>10</td>
<td>Increase to 29</td>
</tr>
<tr>
<td>ENT(_{opt})</td>
<td>20</td>
<td>10</td>
<td>No change</td>
</tr>
</tbody>
</table>
Proposed Ocean Monitoring

- **Objectives:**
  - Monitor plume before, during and after discharge
  - Provide info to regulators and the public

- **3 Monitoring Elements**
  - Public Health Monitoring
  - Environmental Protection Monitoring
  - Predictive Modeling
Proposed Ocean Monitoring

- Monitor plume before, during and after discharge
  - “Realtime” Field Sampling
    - WQ monitoring moorings
    - AUVs
    - HF Radar
      - Plume trajectory
  - Modeling
    - ROMS – Nowcast & forecasts
    - CDIP surfzone transport

(con’t)
Proposed Ocean Monitoring

- Monitor plume before, during and after discharge
  - Weekly Pier Sampling @ HB & NB
    - Nutrients & Phytoplankton
  - Daily SZ bacti sampling
    - Temp & Salinity
- Vessel Sampling
  - CTD, Nutrients, Phyto, Bacti
- Satellite/Other Remote Sensing
Proposed Ocean Monitoring

- Provide info to regulators and the public
- SCCOOS Project Page Website
Public Access

SOUTHERN CALIFORNIA COASTAL OCEAN OBSERVING SYSTEM

2008 OCSD OUTFALL REPAIR & DIVERSION

ENVIRONMENTAL SUPPORT DATA

FOR THE OCSD OUTFALL REPAIR
In preparation for the outfall repairs to be made on May 7, 2008
For more information on the Orange County Sanitation District, please visit the OCSD website.

Geography of the OCSD Diversion

SOUTH COAST WINDFARM

Local Environmental Information
- Surfzone Waves and Currents
- Meteorological Observations
- HFRADAR Surface Currents
- Forecasts
  - Winds
  - Precipitation
  - CDIP Surfzone Forecasts
  - NWS Weather Forecast
## Sampling Strategy Based on SCCOOS data/model

<table>
<thead>
<tr>
<th>Transport Direction</th>
<th>Sampling Strategy</th>
<th>Recommended Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upcoast/Offshore</td>
<td>No enhanced sampling</td>
<td>No posting</td>
</tr>
<tr>
<td>Upcoast/Onshore</td>
<td>Enhanced sampling in Huntington Beach</td>
<td>Post beaches; Close if warranted by monitoring data</td>
</tr>
<tr>
<td>Downcoast/Offshore</td>
<td>No enhanced sampling</td>
<td>No posting</td>
</tr>
<tr>
<td>Downcoast/Onshore</td>
<td>Enhanced sampling in Newport Beach</td>
<td>Post beaches; Close if warranted by monitoring data</td>
</tr>
</tbody>
</table>
QUESTIONS?
Surface currents and plume tracking showing age of plume (0-3 days) over 2 week period (January 5–13, 2005), South Bay Ocean Outfall, Imperial Beach, Ca.
QUESTIONS?
Santa Ana River

Beach Junction Box

5-mile outfall

1-mile outfall

ocean

Santa Ana River