



Sanitary Sewer Overflow (SSO) Reduction Program Annual Update

Russell Norman, P.E. & Victor Lopez, E.I.T.

Division of Water Quality / WDR Unit
State Water Resources Control Board

August 16, 2011

Board Meeting, Item# 12

Overview

The Sanitary Sewer Systems Waste Discharge Requirements

- Applies to publicly owned sanitary sewer systems over 1 mile in pipe length
 - 1,081 currently enrolled
- Regulates Sanitary Sewer Overflows (SSOs)
 - Spills of untreated sewage from publicly owned portions of sanitary sewer systems upstream of a sewage treatment plant head-works
 - Treatment plant and permitted combined sewage overflow points not regulated
 - Private Lateral Sewage Discharges (PLSDs) not regulated, enrollees are encouraged to report them
- Requires all Sanitary Sewer Overflows be reported and enrollees to develop a Sewer System Management Plan (SSMP) for their sanitary sewer system
- San Francisco Bay and San Diego Regional Water Boards have additional requirements for sanitary sewer systems in addition to the statewide Waste Discharge Requirements

Overview

Spill Data and Trends

- As of February 2011:
 - 1081 enrolled public sanitary sewer systems
 - ~67% of enrolled sanitary sewer systems have reported one or more spills
 - ~33% of enrolled sanitary sewer systems have never reported a spill
- Between January 2007 and February 2011:
 - ~ 22,000 sanitary sewer overflows reported resulting in ~93 million gallons of raw sewage spilled
 - 80% reached surface water
- ~5% (54) enrollees are responsible for 90% volume spilled since program inception
- Trends in spill characteristics reported in prior years remain unchanged, specifically:
 - ~92% of spills are < 1,000 gallons
 - » Leading Causes are Roots, Fats\Oils\Grease (FOG), and Debris
 - » ~2% of total volume spilled resulted from these 92% of spill events
 - ~8% are > 1,000 gallons
 - » Leading Causes are Capacity & Pipe Structural Issues
 - » ~98% of volume spilled

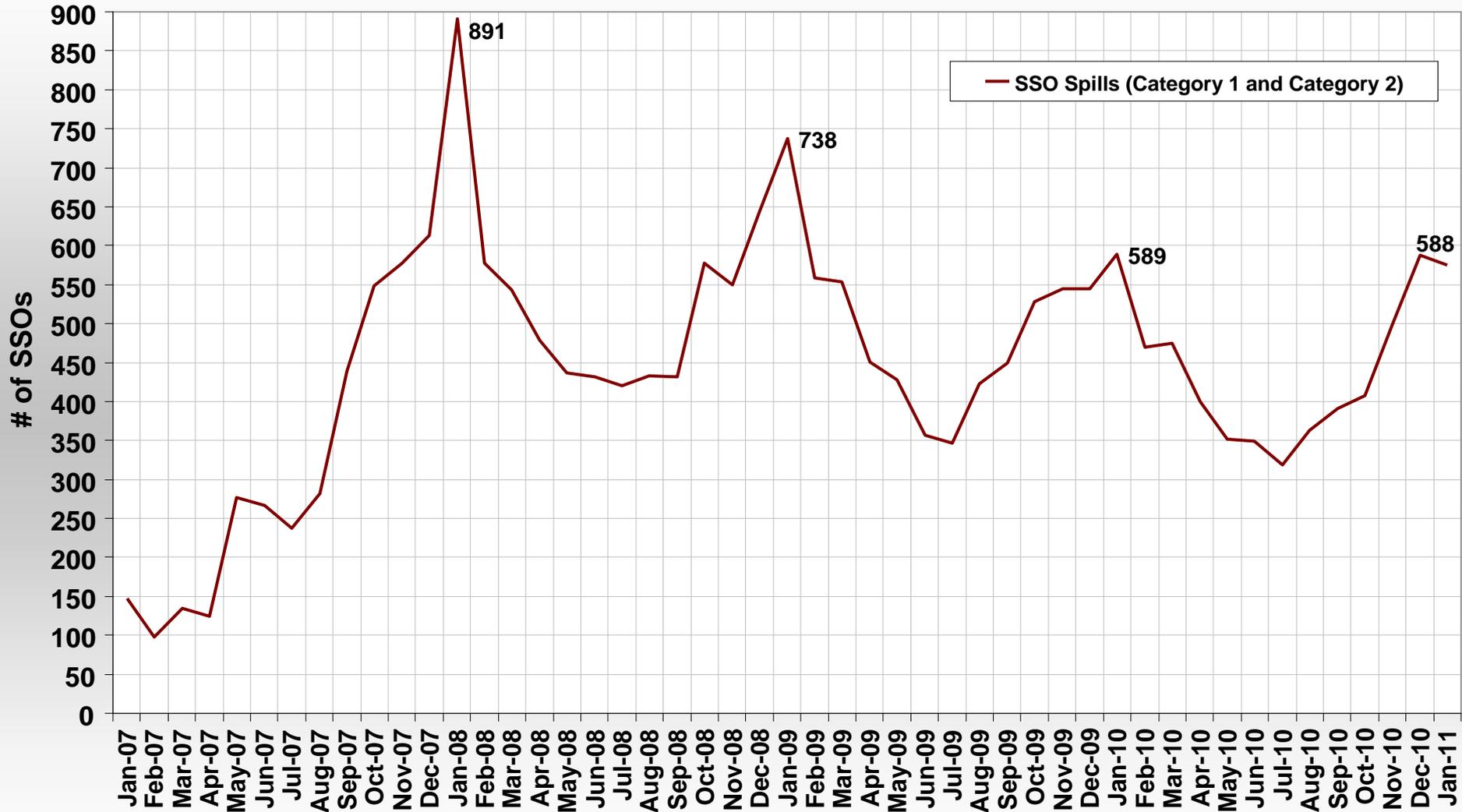
Is The Program Working?

1. Is the number of spills increasing or decreasing?
2. Is the volume of sewage spilled increasing or decreasing?
3. What additional trends have been identified in the sanitary sewer overflow data?
4. Are enrollees participating (i.e., reporting, etc.)?
5. Is reporting accurate?
6. Moving forward, how do we improve the Program, facilitate lower spill rates & the lowering of the volume of sewage spilled?

Is the number of spills increasing or decreasing?

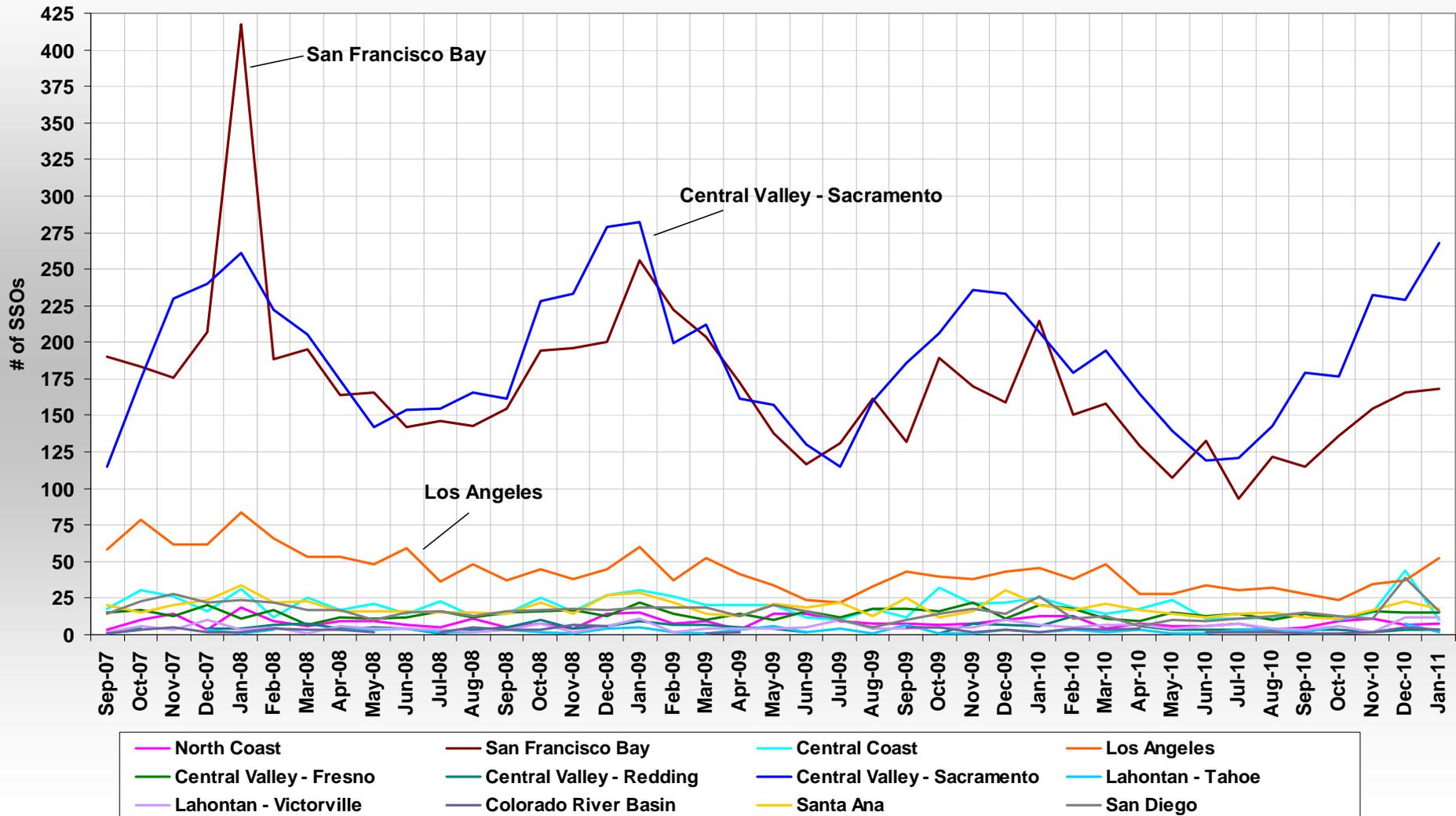
Monthly Trend in Number of SSOs

State of California Monthly Trend in Number of SSOs



Monthly Trend in Number of SSOs

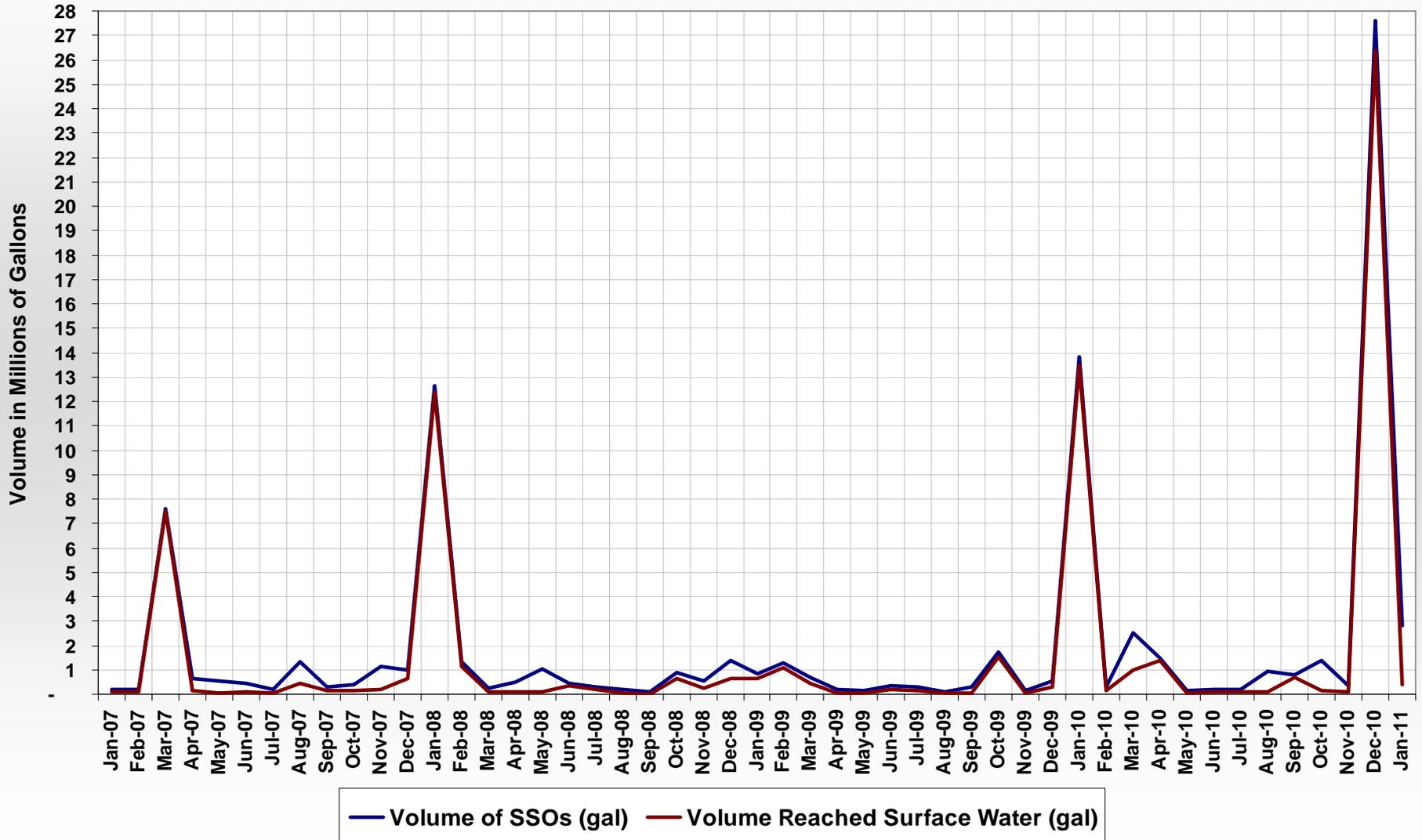
Regional Monthly Trend in Number of SSOs



**Is the volume of sewage spilled
increasing or decreasing?**

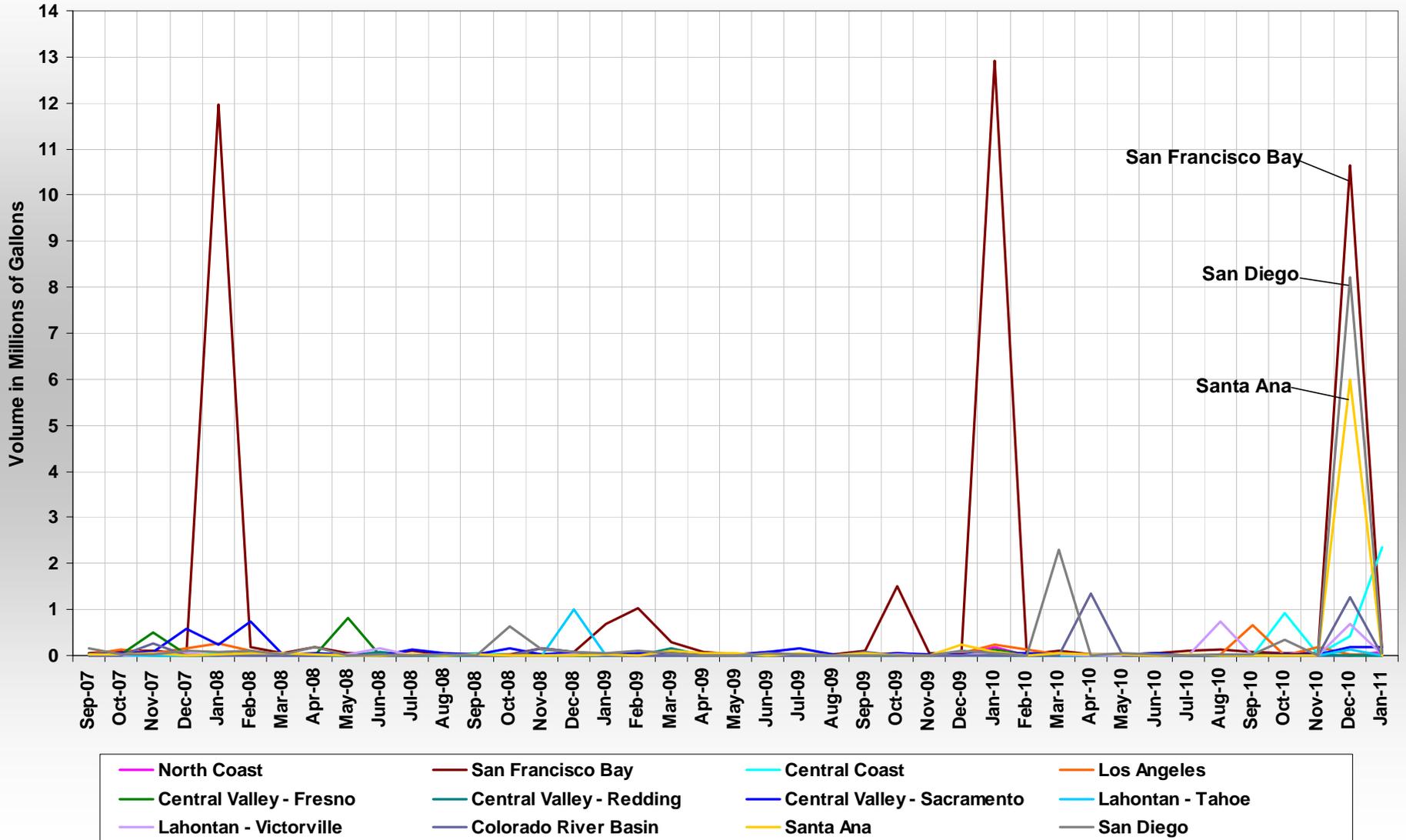
Monthly Trend in SSO Volume

State of California Monthly Trend in SSO Volume



Monthly Trend in SSO Volume

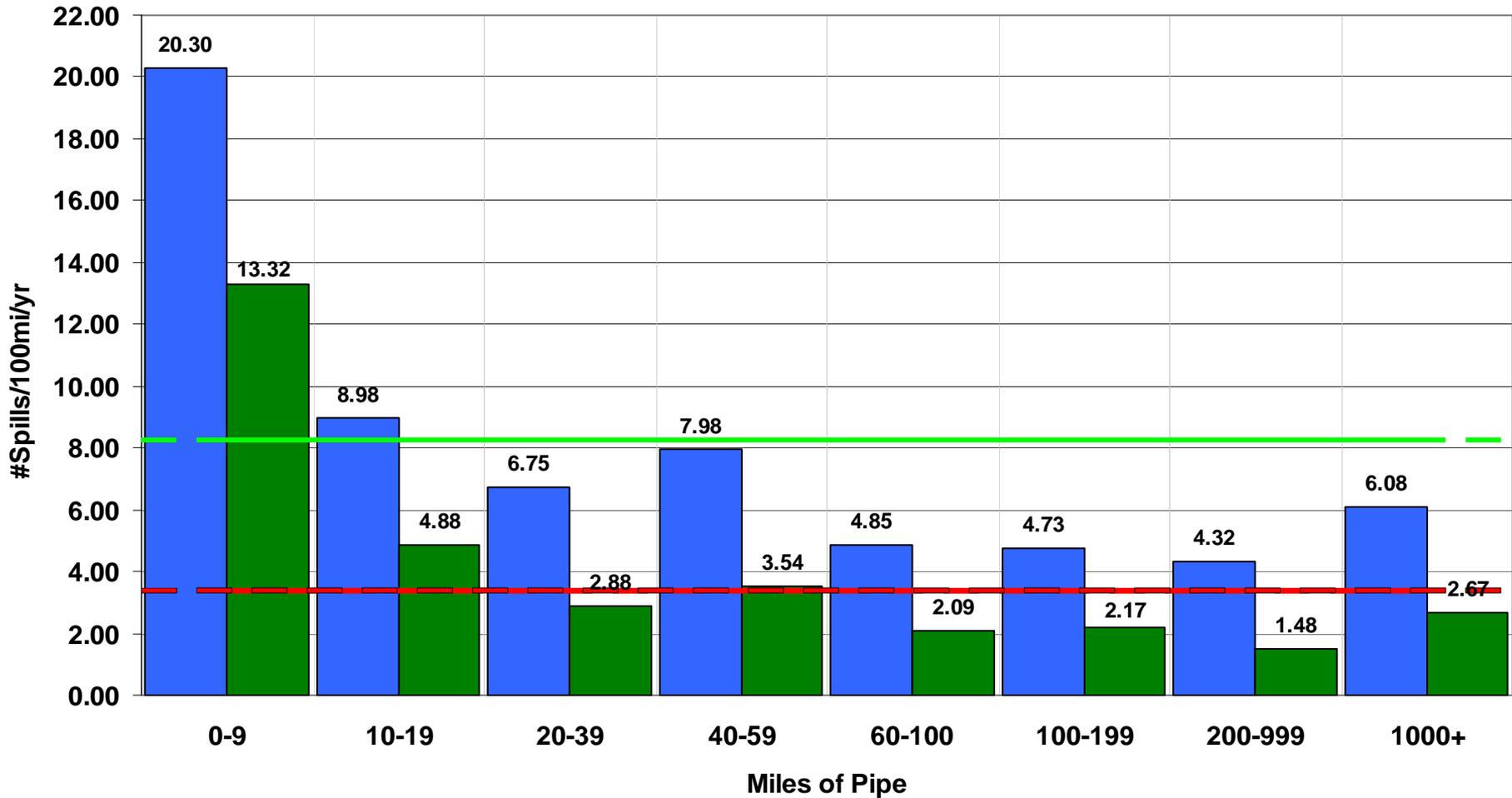
Regional Monthly Trend in Volume of SSOs



What additional trends have been identified in the sanitary sewer overflow data?

SSO Rates by System Size Class

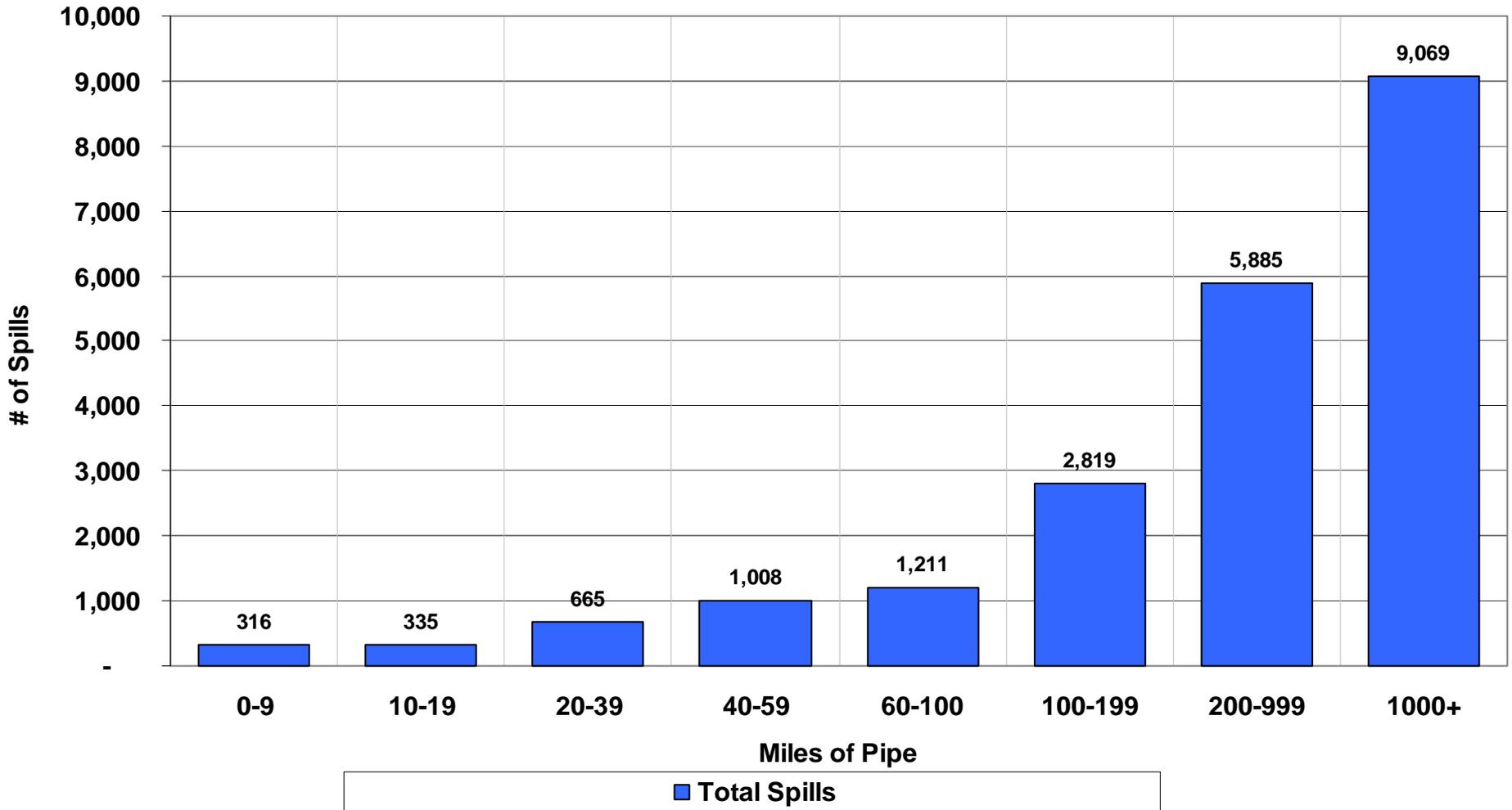
SSO Rates for Municipal Systems by System Size (Category 1 & 2)



Legend: Average Spill Rate (Blue Bar), Median Spill Rate (Green Bar), State Average (Solid Green Line), State Median (Dashed Red Line)

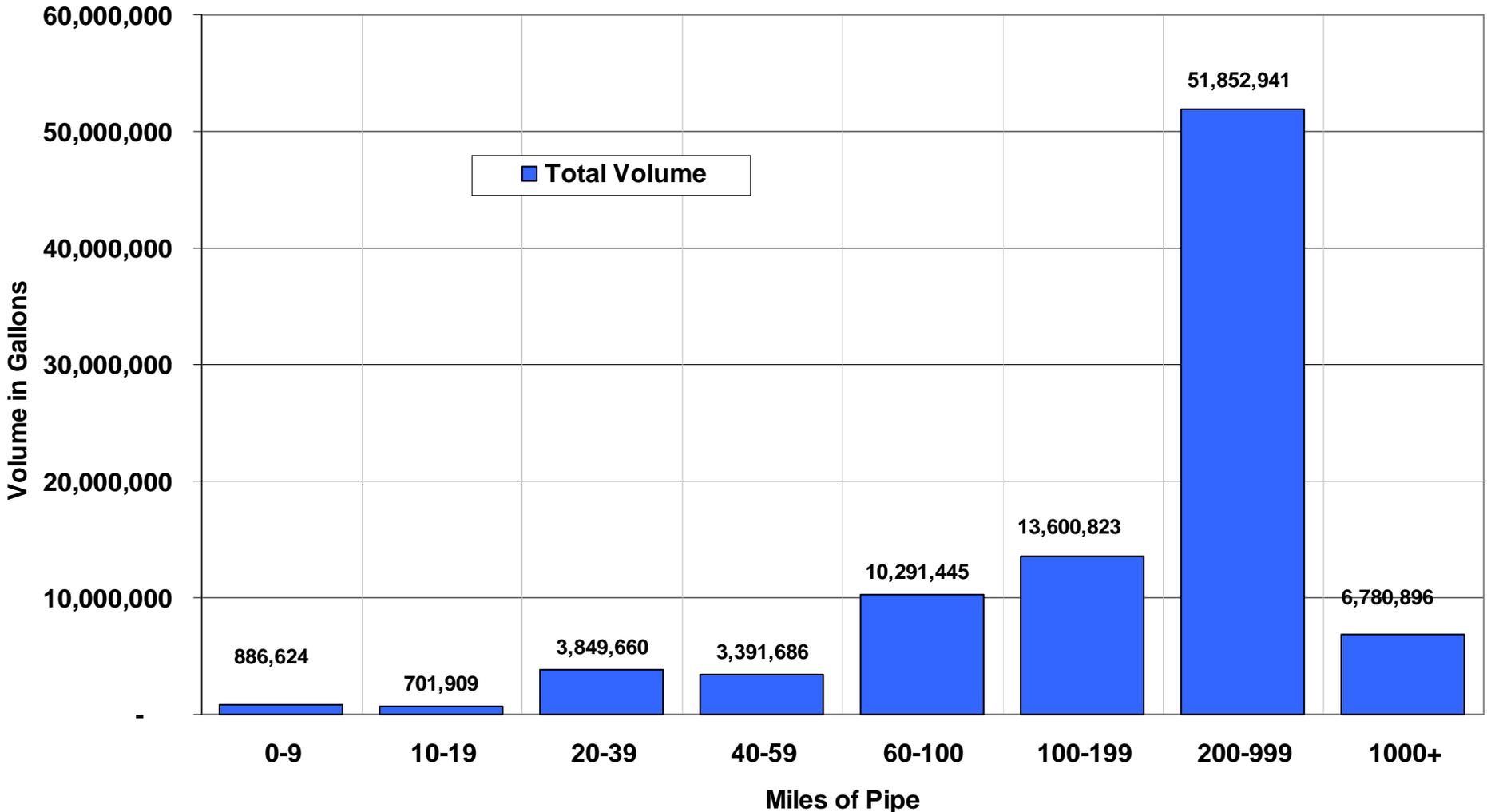
Number of SSOs by System Size Class

Number of SSOs for Municipal Systems by System Size (Category 1 & 2)



Volume of Sewage Spilled by System Size Class

Total SSO Volume by System Size (Category 1 & 2)

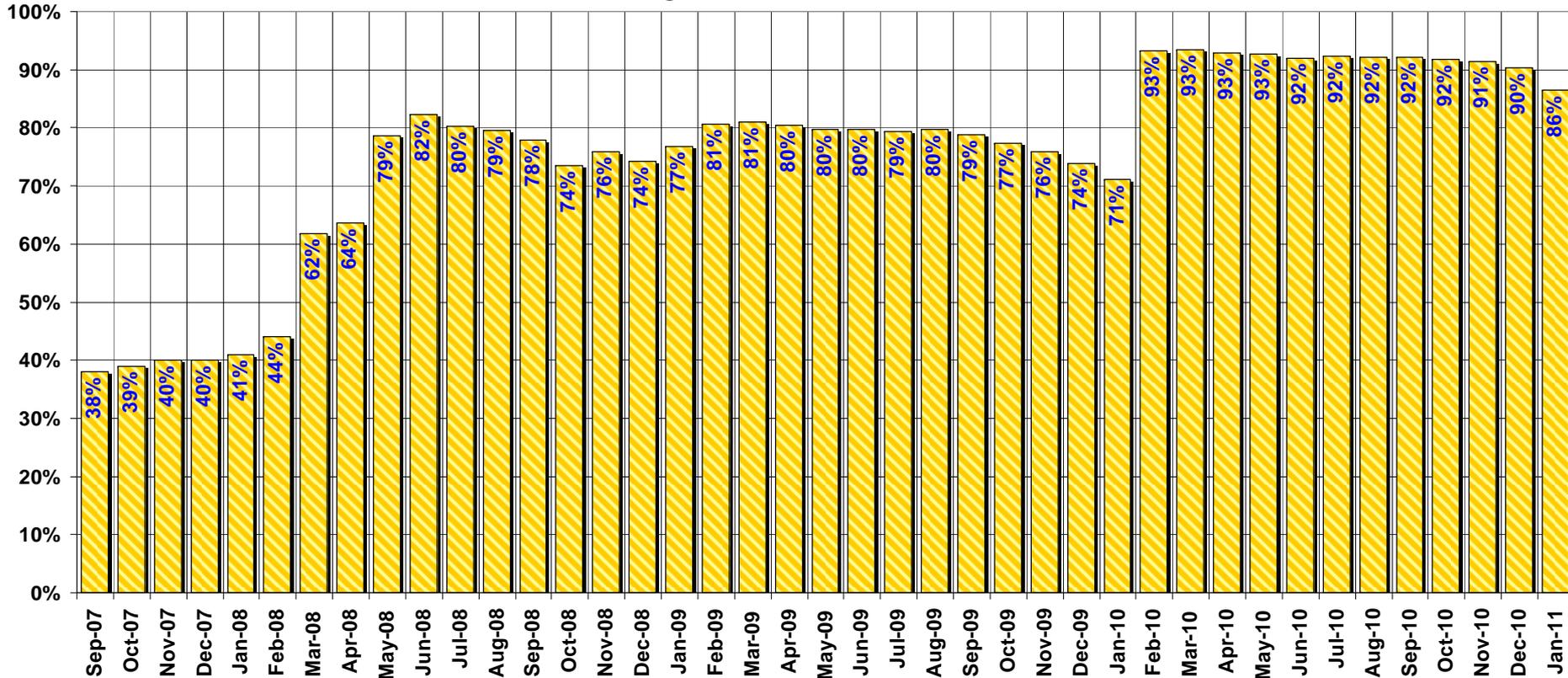


Are enrollees participating?

Current Compliance

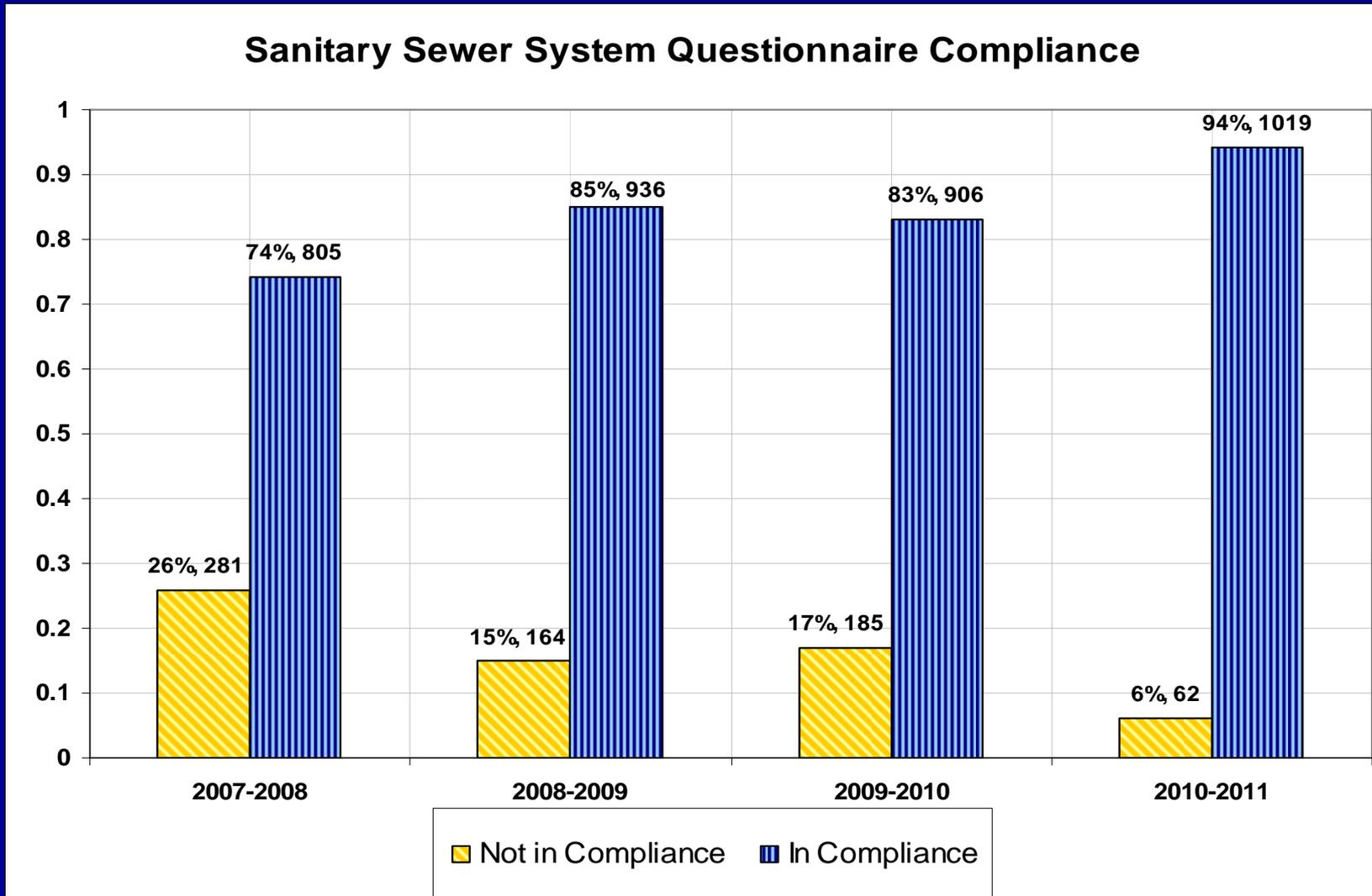
**Enrollee Month-to-Month Compliance with Spill and No-spill Reporting
(9/2/2007 to 1/31/2011)**

Overall Average = 76%, Feb 10' to Jan 11' 92%



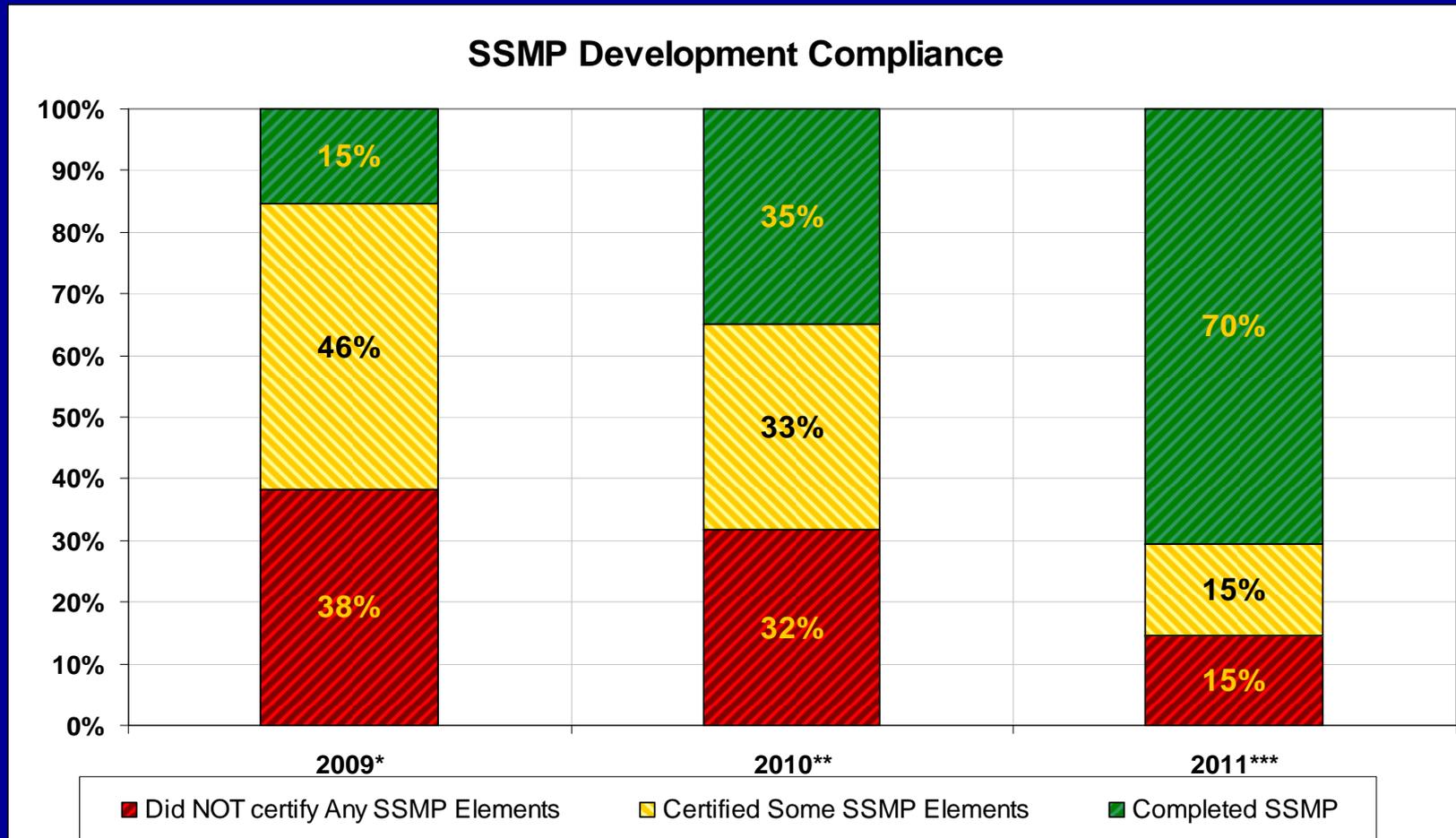
Current Compliance

Collection System Questionnaire Compliance



Current Compliance

Sewer System Management Plan (SSMP) Development



Notes: * Data used for 2009 - 91 % of enrolees had elements for which certification was not yet due.
** Data used for 2010 - 39% of enrolees had elements for which certification was not yet due.
*** Data used for 2011 - All enrolees required to have their SSMP fully developed as of August 2, 2010.

Current Compliance

- Improvements in program participation and compliance have been achieved through enforcement
 - 119 Notices of Violation (NOVs) sent to non-participating enrollees on July 20, 2011
 - Three compliance email reminders sent to 900+ enrollees with minor reporting deficiencies identified in CIWQS.
 - Regional Water Boards have taken 34 formal enforcement actions for violations
- Next enforcement step – Send NOVs to enrollees that have failed to complete and implement their Sewer System Management Plans

Is reporting accurate?

Sanitary Sewer System Inspections

- Sanitary Sewer system inspections and records audits are the only reliable way to verify
- Office of Enforcement staff conducted ten inspections in 2010
 - Significant issues identified related to spill reporting and Sewer System Management Plan implementation
- 24 inspections and 50 Records Audits planned for 2011
- Represents inspection and records audit rate of ~1-2% per year and 5% per year of total number of enrollees, respectively

Moving forward, how do we improve the Program, facilitate lower spill rates & the lowering of the volume of sewage spilled?

Recommendations & Priorities

- Allow more time for Sewer System Management Plan implementation
- Refine analyses of sanitary sewer overflow data to target enrollees with infrastructure issues that are contributing the majority of the volume of sewage spilled
- Conduct more On-site Inspections and Records Audits to verify reporting is thorough and accurate
- Finalize the WDR Review and Update process
- Continue enforcement for violations related to WDR participation (i.e., reporting, etc.) and providing compliance assistance and outreach

Conclusions

1. Is the number of spills increasing or decreasing?
 - ✓ **Decreasing** → Appears to reflect Sanitary Sewer Management Plan Implementation and addressing maintenance related issues
2. Is the volume of sewage spilled increasing or decreasing?
 - ✓ **Increasing** → Highly correlated with magnitude of precipitation indicating significant inflow and infiltration/infrastructure issues
3. What additional trends have been identified in the SSO data?
 - ✓ ~5% of enrollees are responsible for 90% of the volume of sewage spilled since January 2007
4. Are enrollees participating (i.e., reporting, etc.)?
 - ✓ Participation compliance continues to improve
 - ✓ Staff expect to bring remaining 5-10% of enrollees into full compliance in next year
5. Is reporting accurate?
 - ✓ More on-site inspections and records audits needed to validate

Questions?