Addressing Eutrophication in Loma Alta Slough

City of Oceanside - Clean Water Program

Presentation Outline

- Introduction and Background
- Proposed Alternative
- Implementation
- Conclusions

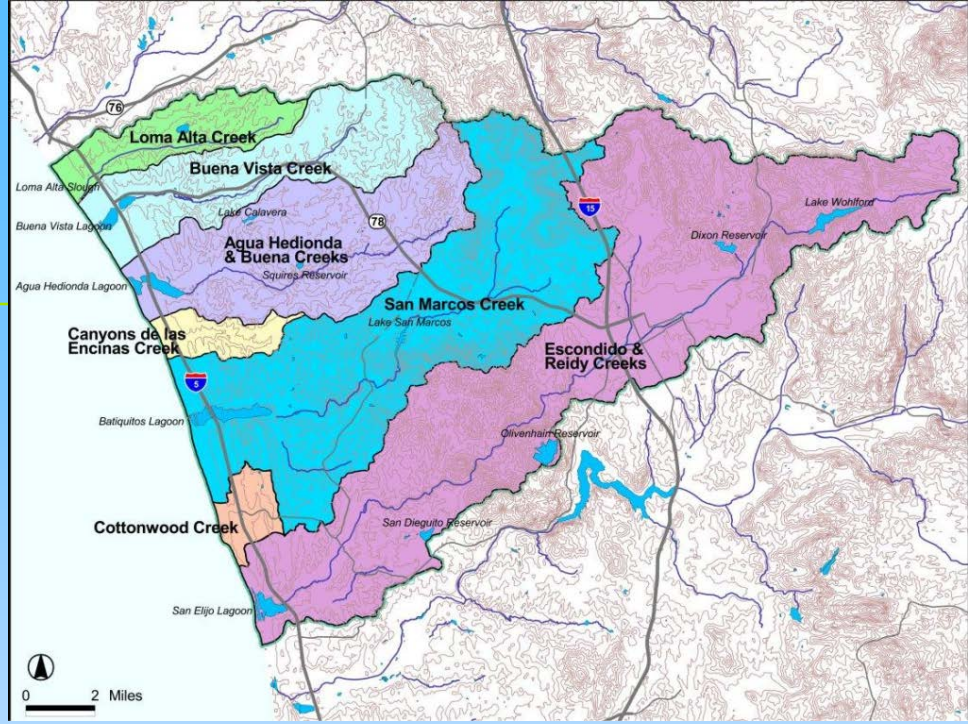
Presentation Outline

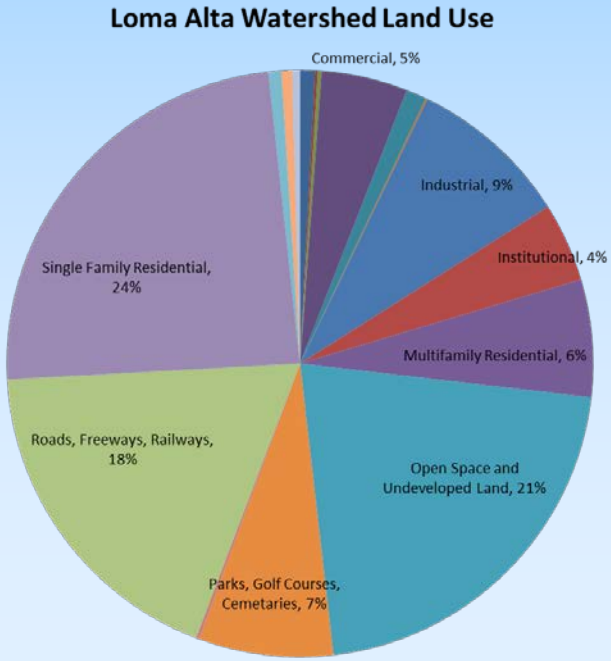
- **Introduction and Background**
- Proposed Alternative
- Implementation
- Conclusions

Mo Lahsaie, Ph.D.
Environmental Officer
City of Oceanside

Loma Alta Watershed

- 9.8 square miles
- 5% of the Carlsbad HU
- Cities of Oceanside, Vista, County of SD
- Historical Land Uses
  - Agricultural, Open Space
  - Wastewater Treatment
- Current Land Uses
  - Residential – 31%
  - Ind/Comm – 23%
  - Open Space – 21%
  - Transportation – 18%





Loma Alta Slough

Bar Built Estuary

- Sand Berm
- Sub tidal Wetland

303(d) Impairments

- Eutrophication
- Indicator Bacteria

Looking West to Beach/Sand Berm

Looking East towards Railroad Trestle

Eutrophication in Loma Alta Slough

- Critical Period during Summer Months
- Mouth is Closed – no tidal exchange
- Algal Mats
- Point Sources –
  - Controllable non-stormwater discharges (e.g., irrigation runoff, pumped groundwater)
- Non Point Sources –
  - Natural groundwater seepage containing nutrients

Process to Date

- Lagoon Investigative Order R9-2006-0076
- Monitoring Plan Developed – 2007
- MS4 Permit R9-2007-0001 – Watershed Planning
- Investigative Order Monitoring 2008 – 2009
- TMDL Development Initiated in Loma Alta – 2010
- MS4 Permit R9-2013-0001
  - Water Quality Improvement Plans (WQIP)
  - Effective Prohibition of Non-stormwater Discharges

Presentation Outline

- Introduction and Background
- **Proposed Alternative**
- Implementation
- Conclusions

Ashli Desai

Larry Walker Associates

City of Oceanside Goals

- Continue Discussions about Preferred Alternative to Address Eutrophication
  - Includes numeric goals, schedules, and actions
  - Best use of Federal, State, and City resources to address the impairment
  - Consistent with Clean Water Act, Practical Vision, and Long Term Vision for 303(d) Program

- Obtain feedback during workshop to help shape our proposal

Proposed Alternative

- "Clean" Investigative Order
  - Numeric Goals, Defined Process, Schedule with Milestones
  - Monitoring to Assess Effectiveness
  - Reporting aligned with Water Quality Improvement Plan Annual Report
- Implementation through MS4 Permit Programs
  - Water Quality Improvement Plan (WQIP) - Strategies
  - Jurisdictional Runoff Management Programs (JRMP) - Programs
  - Effective Prohibition
  - Monitoring and Source Investigations
  - Adaptive Management (goals, strategies, progress)

Investigative Order - Goals

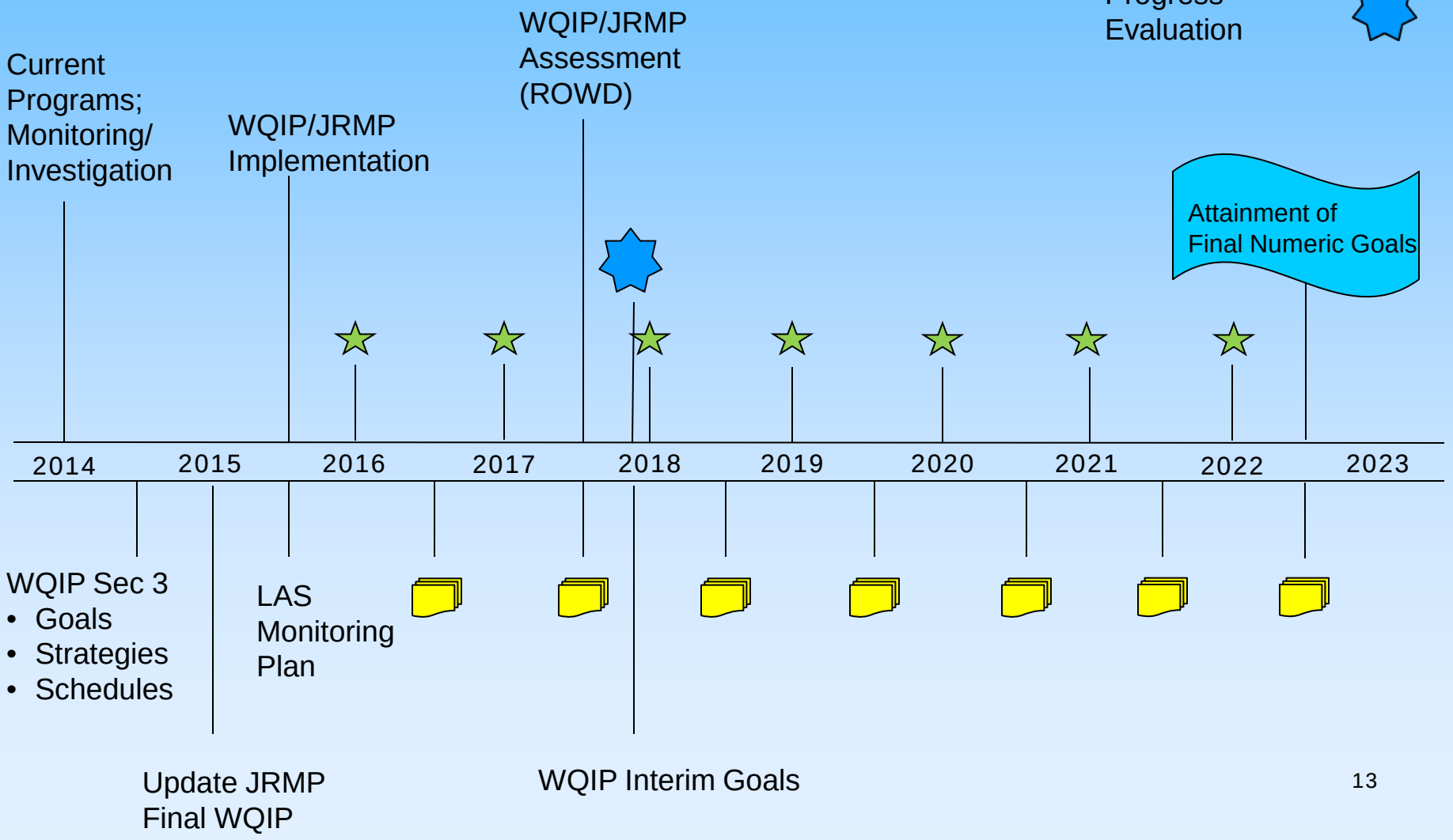
- Numeric Goals
  - Percent Cover and Algal Biomass
  - Consistent with Proposed Goals in Tentative Order
  - Potential for Refinement through WQIP Process

Metric	Goal	Season
Macroalgal Biomass	< 90 grams per cubic meter	May – October
Macroalgal Cover	< 50%	May – October

Investigative Order - Monitoring

- Monitoring of Surface Water – Critical Period
  - Macroalgal Percent Cover
  - Macroalgal Biomass
  - Dissolved Oxygen
- Annual Assessment
  - Measure Progress towards Numeric Goals
- Reporting to Summarize Progress
  - Aligned with WQIP Annual Reporting

Investigative Order Schedule



Key Elements of MS4 Permit to Support Implementation

Water Quality Improvement Plan

- Incorporate Numeric Goals into Water Quality Improvement Plan (B.3.a)
- Develop Jurisdictional and Watershed Strategies to Address Goals (B.3.b)
- Develop Schedules for Implementing Strategies and Meeting Goals (B.3.a,b)
- Monitoring and Assessment (B.4)
- Adaptive Management (B.5)

Jurisdictional Runoff Management Program

- Programs to Support WQIP Strategies
- Effective Prohibition
- Source Assessments - PS and NPS
- Monitoring and Special Investigations
- Program Effectiveness Assessment

Presentation Outline

- Introduction and Background
- Proposed Alternative
- **Implementation**
- Conclusions

Mo Lahsaie, Ph.D.
Environmental Officer
City of Oceanside

Implementation Planning

Milestone	Details	Date
Draft WQIP Section 3 (goals, strategies, schedules)	• Include % Cover/MAB • Strategies to Effectively Prohibit • Detailed Schedules	December 2014
Update JRMP Programs	• Ordinance Updates • Source Investigations • Water Conservation • Focused Inspections	Concurrent with WQIP
Full WQIP	• Receiving Waters and MS4 Outfall Monitoring • Special Study • Ad Mgmt Process • Final Schedules	June 2015

Implementation Activities

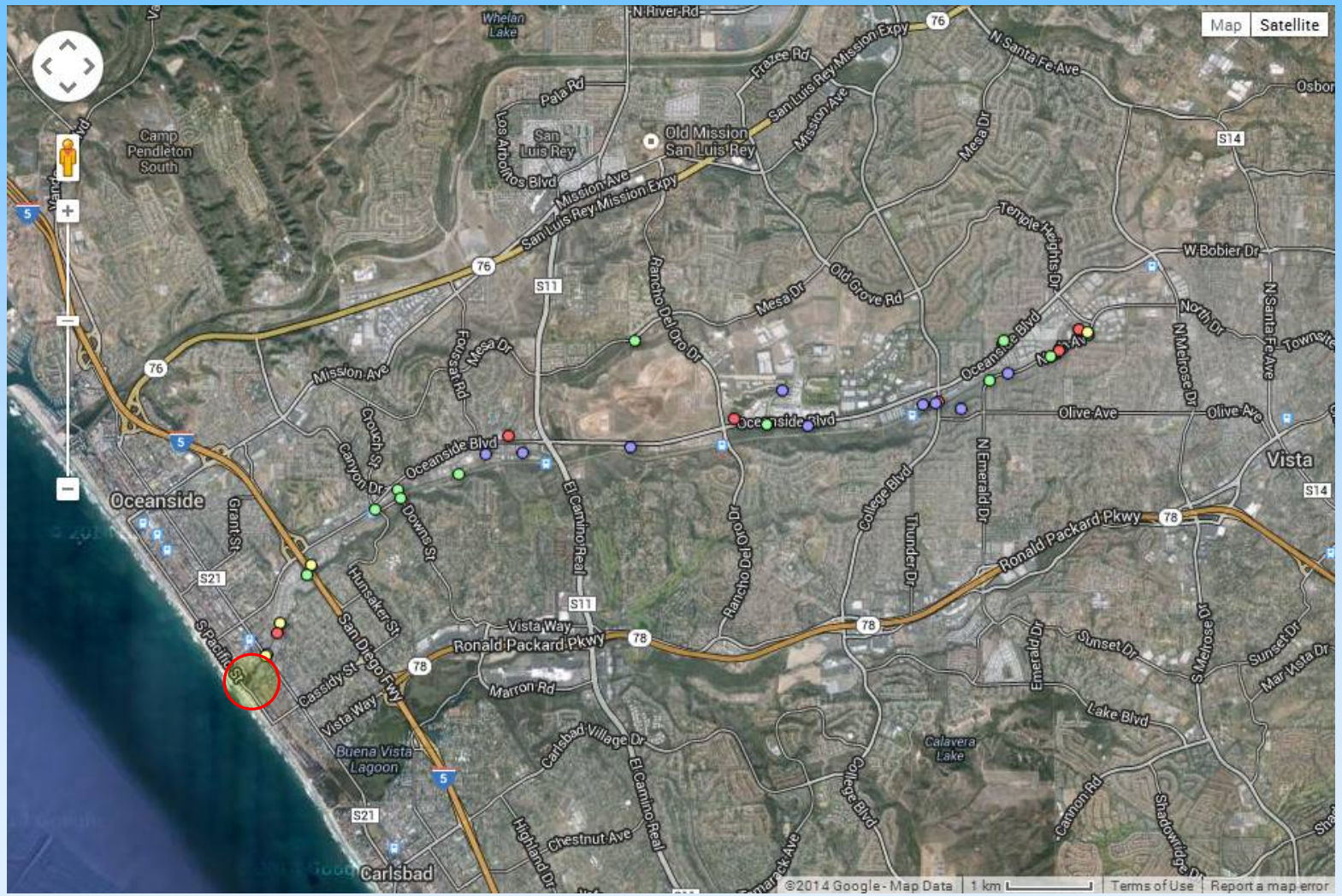
Milestone	Details	Date
Outfall Monitoring and Investigation	• Persistent vs. Transient Flows • Source Investigations	In Process
Loma Alta Slough Monitoring	• Receiving Waters Monitoring • Adaptive Management	Summer 2016 - 2023
Strategy Implementation via JRMP Programs	• Source Investigations • Water Conservation • Focused Inspections • Targeted Outreach	Fall 2015 – TBD
WQIP/JRMP Assessments (ROWD)	• Full Process – goals, strategies, schedules, MAP	December 2017

Monitoring Updates

Item	Old Program (R9-2007-0001)	New Program (R9-2013-0001)
MS4 Outfall Monitoring	22 Sites	44 Sites
Upstream Investigations	Based on Action Level Exceedances	Persistent Flows (PS/NPS)
Analytical Samples at High Priority Outfalls	N/A	Test for Nutrients at Outfalls with Persistent Flows

Preliminary Findings
Non-stormwater Flow*

Red: >10 gpm
Yellow: 2 to 10 gpm
Purple: up to 2 gpm
Green: dry or ponded



*Based on Dry Weather Monitoring Program Data 2008 - 2013

Inspection Modifications

Item	Old Program (R9-2007-0001)	New Program (R9-2013-0001)
Residential Area Inspections	N/A	Field Evaluations Enforcement
Industrial, Commercial, and Municipal Inspections	Minimal Emphasis on Irrigation Runoff	Revise Procedures to Target Nutrients and Irrigation Runoff
Mobile Business Inspection Program	N/A	Inspections upon Business License Issuance/Renewal

Ordinance Updates

Item	Old Program (R9-2007-0001)	New Program (R9-2013-0001)
Irrigation Runoff	Allowable Discharge	Prohibited Discharge
Groundwater Pumps and Drains	Allowable Discharge	Prohibited or Conditionally Approved

Additional Strategies: Water Conservation Partnership

- Awareness is high due to drought
- Leverage City's status as water utility
- Meter readers report irrigation runoff
- Identify priority over-irrigation areas based on monitoring, inspections, meter reader reports
- Targeted rebate/incentive programs
- Residential runoff study
- Outreach to Spanish speaking landscapers in partnership with Agri-service

Presentation Outline

- Introduction and Background
- Proposed Alternative
- Implementation
- **Conclusions**

Ashli Desai

Larry Walker Associates

Conclusions

- We’re on the right track!
- Consistent with the Regional Board Practical Vision
- Consistent with EPA’s Long Term Vision for the 303(d) Program
- Leverage Existing Programs and Regulations
- Implement Monitoring, Assessments, and Adaptive Management
- Quicker Implementation Leading to Improvements in Water Quality

Contacts

Mo Lahsaie, Ph.D.
Environmental Officer
City of Oceanside
mlahsaie@ci.oceanside.ca.us
(760) 435-5803

Ashli Desai
Larry Walker Associates
ashlid@lwa.com
(310) 394-1036