TMDLs for Sediment Toxicity and Pyrethroid Pesticides in Sediment in the Lower Salinas River Watershed

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Peter Meertens - Environmental Scientist
Jennifer Epp, P.E. – TMDL Program Manager
Review
- Project Area
- Impairments (Sediment and Pyrethroids in Sediment)
- Source analysis

New
- Targets
- TMDLs
- Allocations
- Implementation

Monitoring
- Timeline and Milestones
- Project Schedule
TMDL Basics

Water quality planning project to address impaired waters on the Clean Water Act 303(d) list

Impaired Water: A waterbody not meeting water quality standards or may be threatened in the future...

TMDL Project Documents (Staff report and attachments: resolution, basin plan amendment, technical report, CEQA)

Approval Process: Regional Board, State Board, Office of Adm. Law, EPA
Project Area
Impaired Waters
Sediment Toxicity Impaired Waters

- Alisal Creek* (2/3)
- Alisal Slough (3/9)
- Blanco Drain* (2/9)
- Chualar Creek* (5/9)
- Espinosa Slough (8/8)
- Gabilan Creek (6/7)
- Merrit Ditch (7/8)
- Natividad Creek (11/11)
- Old Salinas River (10/11)
- Quail Creek (11/11)
- Reclamation Canal (23/25)
- Salinas River (Lower)* (3/26)
- Tembladero Slough (20/22)
- Total (111/159)

Note: * not on the 303(d) list but identified as impaired
Pyrethroid Impaired Waters

- Alisal Creek/Reclamation Canal
- Natividad Creek
- Salinas River (lower)
- Tembladero Slough.
Sources of Pyrethroids
**Pyrethroid TUs (5/24/2010)**

Monitoring site 312ALG

- **Bifenthrin** (1.79 TUs) - Strawberry

- **Cypermethrin** (1.84 TUs) - Lettuce

- **Esfenvalerate/Fenvalerate** (1.84 TUs) – Broccoli, cauliflower, lettuce

- **Lambda-Cyhalothrin** (2.22 TUs), Lettuce
Bifenthrin Applied 2009-2010 (309ALG)

![Graph showing Bifenthrin application from January 2009 to December 2010. The graph indicates a significant increase in application in August 2009, with lower quantities in other months.](image-url)
Targets

- TMDL water quality numeric targets were developed to ascertain when and where the narrative water quality objectives are achieved, and hence, when beneficial uses are protected.

- Targets for sediment toxicity and pyrethroids
Sediment Toxicity Target

- All waters shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in, human, plant, animal, or aquatic life.

- Sediment toxicity test - Hyalella azteca, % survival after 10 days
No individual pesticide or combination of pesticides shall reach concentrations that adversely affect beneficial uses. There shall be no increase in pesticide concentrations found in bottom sediments or aquatic life.

- Numeric targets for concentrations of pyrethroids in water
- Pyrethroid sediment concentration toxicity unit numeric target
## Pyrethroid Water Conc. Targets

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<th>Chemical</th>
<th>Acute Criteria ug/L (ppb)</th>
<th>Chronic Criteria ug/L (ppb)</th>
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<td>Cyfluthrin</td>
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<td>Lambda-cyhalothrin</td>
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Pyrethroid Sediment Target

Pyrethroid TUs = \frac{\text{actual concentration (OC)}}{\text{known LC50 concentration values (OC)}}

\text{Sum Pyrethroid TUs} = \text{Pyrethroid TU (1)} + \text{Pyrethroid TU (2)}

Note: TU is Toxicity Unit and OC is organic carbon normalized
TMDLs

- Sediment Toxicity = Sediment Toxicity Numeric Target
- Pyrethroid in Sediment = Pyrethroid Sediment Target (TUs)
Allocations

- Waste Load Allocations
- Load Allocations
TMDL Implementation

- Interagency approach with DPR
- Municipal stormwater permits
- Ag Order
Interagency Implementation with DPR

- Management Agency Agreement
- California Pesticide Management Plan for Water Quality
- Four-stage approach
- Response process
Municipal Stormwater Implementation

- City of Salinas and County
- DPR urban regulations
- Wasteload Allocation Attainment Plan (WAAP)
Irrigated Agricultural Implementation

- USEPA pyrethroid label requirements
  - Conservation buffers
- Ag Order
  - Farm Plan
  - Implement management practices
- TMDL Recommendations
TMDL Recommendations for Ag

- 1) Pyrethroid Pesticide Worksheets/Plans,
- 2) Farm Sediment Control and Monitoring,
- 3) Subwatershed Regional Treatment Systems, and
- 4) Subwatershed Verification
Monitoring

- MS4 Monitoring
- Ag Order
- SPoT
- CCAMP
- DPR
- City of Salinas stormwater
Estimated Timeline and Milestones

- Current – implementation of DPR urban regulations
- 3 years – development of Ag pyrethroid implementation program
- 5 years – urban TMDLs achieved
- 8 to 10 years – agricultural TMDLs achieved
- 12 to 15 years – targets achieved in receiving waters
Project Schedule

- Documents for public review – by end of the month
- 45 day public comment period – mid February
- Public meeting -
- Regional Board hearing – May 2016
Questions?

Peter Meertens – Environmental Scientist

Peter.Meertens@waterBoards.ca.gov

Phone: (805) 549-3869
Extra Slides
<table>
<thead>
<tr>
<th>Waterbody Name</th>
<th>303(d) List</th>
<th>Additional Monitoring</th>
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