



## **FAIRFIELD-SUISUN SEWER DISTRICT**

1010 CHADBOURNE ROAD • FAIRFIELD, CALIFORNIA 94534 • (707) 429-8930 • WWW.FSSD.COM  
GREGORY G. BAATRUP, GENERAL MANAGER

September 15, 2012

Mr. Bruce Wolfe, Executive Officer  
San Francisco Bay Regional Water Quality Control Board  
1515 Clay Street, Suite 1400  
Oakland, CA 94612

Attention: Ms. Jolanta Uchman, Water Resources Control Engineer

Reference: Fairfield-Suisun Urban Runoff Management Program - FY 2011-2012 Annual Report

Dear Mr. Wolfe:

The attached FY 2011-2012 Annual Report represents the Fairfield-Suisun Urban Runoff Management Program's responses to the items requested per Provision C.16 of NPDES Permit No. CA S612008 (Permit) as adopted on October 14, 2009 via Order No. R2-2009-0074. This letter also transmits by reference the BASMAA Regional Supplements to the Annual Report for FY 2011-2011.

I certify under penalty of law that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Kevin A. Cullen, P.E.  
Senior Environmental Engineer

Attachment

**Are ATTACHMENT B**

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Permittee Name: Fairfield-Suisun Urban Runoff Management Program

Section 1 – Permittee Information

Background Information				
<b>Permittee Name:</b>	Fairfield-Suisun Urban Runoff Management Program			
<b>Population:</b>	131,000 (combined)			
<b>NPDES Permit No.:</b>	CAS612008			
<b>Order Number:</b>	R2-2009-0074R			
<b>Reporting Time Period (month/year):</b>	July 1, 2011 through June 30, 2012			
<b>Name of the Responsible Authority:</b>	Fairfield-Suisun Urban Runoff Management Program	<b>Title:</b>	Program Manager	
<b>Mailing Address:</b>	1010 Chadbourne Road			
<b>City:</b>	Fairfield	<b>Zip Code:</b>	94534	<b>County:</b> Solano
<b>Telephone Number:</b>	707-428-9129	<b>Fax Number:</b>	707-429-1280	
<b>E-mail Address:</b>				
<b>Name of the Designated Stormwater Management Program Contact (if different from above):</b>	Kevin Cullen	<b>Title:</b>	Fairfield Suisun Urban Runoff Program Manager	
<b>Department:</b>	Fairfield-Suisun Sewer District			
<b>Mailing Address:</b>	1010 Chadbourne Road			
<b>City:</b>	Fairfield	<b>Zip Code:</b>	94534	<b>County:</b> Solano
<b>Telephone Number:</b>	707-428-9129	<b>Fax Number:</b>	707-429-1280	
<b>E-mail Address:</b>	KCullen@fssd.com			

Permittee Name: Fairfield-Suisun Urban Runoff Management Program

**Section 2 - Provision C.2 Reporting Municipal Operations**

**Program Highlights and Evaluation**

Highlight/summarize activities for reporting year:

Summary:

Program members participated in monthly Program Management meetings. Program Manager participated regularly in BASMAA’s monthly committee meetings for Trash and Municipal Maintenance.

Please see individual city reports, as these activities are primarily implemented at the city level.

**C.2.a. ► Street and Road Repair and Maintenance**

Place an **X** in the boxes next to implemented BMPs to indicate that these BMPs were implemented in applicable instances. If not applicable, type **NA** in the box. If one or more of these BMPs were not adequately implemented during the reporting fiscal year then indicate so and provide explanation in the comments section below:

<b>NA</b>	Control of debris and waste materials during road and parking lot installation, repaving or repair maintenance activities from polluting stormwater
<b>NA</b>	Control of concrete slurry and wastewater, asphalt, pavement cutting, and other street and road maintenance materials and wastewater from discharging to storm drains from work sites.
<b>NA</b>	Sweeping and/or vacuuming and other dry methods to remove debris, concrete, or sediment residues from work sites upon completion of work.

Comments:

Please see individual city reports, as these activities are implemented at the city level.

Permittee Name: Fairfield-Suisun Urban Runoff Management Program

**C.2.b. ► Sidewalk/Plaza Maintenance and Pavement Washing**

Place an **X** in the boxes next to implemented BMPs to indicate that these BMPs were implemented in applicable instances. If not applicable, type **NA** in the box. If one or more of these BMPs were not adequately implemented during the reporting fiscal year then indicate so and explain in the comments section below:

<b>NA</b>	Control of wash water from pavement washing, mobile cleaning, pressure wash operations at parking lots, garages, trash areas, gas station fueling areas, and sidewalk and plaza cleaning activities from polluting stormwater
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<b>NA</b>	Implementation of the BASMAA Mobile Surface Cleaner Program BMPs
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Comments:

Please see individual city reports as these activities are implemented at the city level.

**C.2.c. ► Bridge and Structure Maintenance and Graffiti Removal**

Place an **X** in the boxes next to implemented BMPs to indicate that these BMPs were implemented in applicable instances. If not applicable, type **NA** in the box. If one or more of these BMPs were not adequately implemented during the reporting fiscal year then indicate so and explain in the comments section below:

<b>NA</b>	Control of discharges from bridge and structural maintenance activities directly over water or into storm drains
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<b>NA</b>	Control of discharges from graffiti removal activities
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<b>NA</b>	Proper disposal for wastes generated from bridge and structure maintenance and graffiti removal activities
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<b>NA</b>	Implementation of the BASMAA Mobile Surface Cleaner Program BMPs for graffiti removal
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<b>NA</b>	Employee training on proper capture and disposal methods for wastes generated from bridge and structural maintenance and graffiti removal activities.
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<b>NA</b>	Contract specifications requiring proper capture and disposal methods for wastes generated from bridge and structural maintenance and graffiti removal activities.
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Comments:

Please see individual city reports as these activities are implemented at the city level.

Permittee Name: Fairfield-Suisun Urban Runoff Management Program

**C.2.d. ► Stormwater Pump Stations**

Does your municipality own stormwater pump stations:  **Yes**  **No** (See explanation under summary)

If your answer is **No** then skip to **C.2.e.**

Complete the following table for dry weather DO monitoring and inspection data for pump stations<sup>1</sup> (add more rows for additional pump stations). If a pump station is exempt from DO monitoring, explain why it is exempt.

Pump Station Name and Location	First inspection Dry Weather DO Data		Second inspection Dry Weather DO Data	
	Date	mg/L	Date	mg/L
Kellogg Street Pump Station, 1155 Kellogg St., Suisun City, CA	9/7/11	4.97	9/30/11	5.26
Mulberry Pump Station, 650 Marina Cir., Suisun City, CA	9/7/11	7.96	9/30/11	8.33
Chipman Lane Pump Station, 79 1/2 Chipman Lane, Suisun City, CA	9/7/11	6.46	9/30/11	7.60
Main Street Pump Station, 550 Sacramento St., Suisun City, CA	9/7/11	4.62	9/30/11	4.29
State Street Pump Station, 358 State Street, Fairfield CA	NA	NA	NA	NA
Air Base Parkway Pump Station, 2398 N. Texas St., Fairfield, CA	NA	NA	NA	NA
James Street Pump Station, 1433 James St., Fairfield, CA	NA	NA	NA	NA

Summarize corrective actions as needed for DO monitoring at or below 3 mg/L. Attach inspection records of additional DO monitoring for corrective actions:

Air Base Parkway Pump Station discharges into the storm drain system; this pump station is therefore exempt from DO monitoring.

James Street Pump Station discharges into a dry channel which then flows into the storm drain system; this pump station is therefore exempt from DO monitoring.

State street was found to have low DO, this pump station was turned off in June of 2011 in anticipation of these findings. The water in the wet well was pumped out and deposited at the Fairfield-Suisun Sewer District Regional Wastewater Treatment Plant. The pump station was turned back on in late September of 2011. This pump station is also part of the C.11.f and C.12.f stormwater diversion project.

Summary:

Stormwater pump stations are owned by the cities of Fairfield and Suisun City and are operated, maintained and monitored by the Fairfield-Suisun Sewer District.

<sup>1</sup> DO monitoring is exempted where all discharge from a pump station remains in a stormwater collection system or infiltrates into a dry creek immediately downstream.

Permittee Name: Fairfield-Suisun Urban Runoff Management Program

Attachments: (none)

Complete the following table for wet weather inspection data for pump stations (add more rows for additional pump stations):

Pump Station Name and Location	Date (2x/year required)	Presence of Trash (Cubic Yards)	Presence of Odor (Yes or No)	Presence of Color (Yes or No)	Presence of Turbidity (Yes or No)	Presence of Floating Hydrocarbons (Yes or No)
Kellogg Street Pump Station, 1155 Kellogg St., Suisun City, CA	10/14/11 & 1/25/12	No & No	No & No	No & Yes	Yes & Yes	No & No
Mulberry Pump Station, 650 Marina Cir., Suisun City, CA	10/14/11 & 1/25/12	No & 1	No & No	Yes & Yes	Yes & Yes	Yes & No
Chipman Lane Pump Station, 79 1/2 Chipman Lane, Suisun City, CA	10/14/11 & 1/25/12	.5 & .2	No & No	No & No	Yes & No	No & No
Main Street Pump Station, 550 Sacramento St., Suisun City, CA	10/14/11 & 1/25/12	.04 & .02	No & No	No & No	No & No	No & Yes
State Street Pump Station, 358 State Street, Fairfield CA	10/14/11 & 1/25/12	No & .04	No & No	No & No	No & No	No & Yes
Air Base Parkway Pump Station, 2398 N. Texas St., Fairfield, CA	10/14/11 & 1/25/12	No & .02	No & No	No & Yes	No & No	No & Yes
James Street Pump Station, 1433 James St., Fairfield, CA	10/14/11 & 1/25/12	No & .07	No & No	Yes & No	No & No	Yes & Yes

Permittee Name: Fairfield-Suisun Urban Runoff Management Program

C.2.e. ► Rural Public Works Construction and Maintenance			
Does your municipality own/maintain rural <sup>2</sup> roads:		<input type="checkbox"/>	<input checked="" type="checkbox"/> <b>No</b>
If your answer is <b>No</b> then skip to <b>C.2.f.</b>			
Place an <b>X</b> in the boxes next to implemented BMPs to indicate that these BMPs were implemented in applicable instances. If one or more of the BMPs were not adequately implemented during the reporting fiscal year then indicate so and explain in the comments section below:			
<b>NA</b>	Control of road-related erosion and sediment transport from road design, construction, maintenance, and repairs in rural areas		
<b>NA</b>	Identification and prioritization of rural road maintenance based on soil erosion potential, slope steepness, and stream habitat resources		
<b>NA</b>	No impact to creek functions including migratory fish passage during construction of roads and culverts		
<b>NA</b>	Inspection of rural roads for structural integrity and prevention of impact on water quality		
<b>NA</b>	Maintenance of rural roads adjacent to streams and riparian habitat to reduce erosion, replace damaging shotgun culverts and excessive erosion		
<b>NA</b>	Re-grading of unpaved rural roads to slope outward where consistent with road engineering safety standards, and installation of water bars as appropriate		
<b>NA</b>	Inclusion of measures to reduce erosion, provide fish passage, and maintain natural stream geomorphology when replacing culverts or design of new culverts or bridge crossings		
Comments including listing increased maintenance in priority areas:			

<sup>2</sup> Rural means any watershed or portion thereof that is developed with large lot home-sites, such as one acre or larger, or with primarily agricultural, grazing or open space uses.

Permittee Name: **Fairfield-Suisun Urban Runoff Management Program**

<b>C.2.f. ► Corporation Yard BMP Implementation</b>			
Place an <b>X</b> in the boxes below that apply to your corporations yard(s):			
<input checked="" type="checkbox"/>	We do not have a corporation yard		
<input type="checkbox"/>	Our corporation yard is a filed NOI facility and regulated by the California State Industrial Stormwater NPDES General Permit		
<input type="checkbox"/>	We have a current <b>Stormwater Pollution Prevention Plan (SWPPP)</b> for the Corporation Yard(s)		
Place an <b>X</b> in the boxes below next to implemented SWPPP BMPs to indicate that these BMPs were implemented in applicable instances. If not applicable, type <b>NA</b> in the box. If one or more of the BMPs were not adequately implemented during the reporting fiscal year then indicate so and explain in the comments section below:			
<input type="checkbox"/>	Control of pollutant discharges to storm drains such as wash waters from cleaning vehicles and equipment		
<input type="checkbox"/>	Routine inspection prior to the rainy seasons of corporation yard(s) to ensure non-stormwater discharges have not entered the storm drain system		
<input type="checkbox"/>	Containment of all vehicle and equipment wash areas through plumbing to sanitary or another collection method		
<input type="checkbox"/>	Use of dry cleanup methods when cleaning debris and spills from corporation yard(s) or collection of all wash water and disposing of wash water to sanitary or other location where it does not impact surface or groundwater when wet cleanup methods are used		
<input type="checkbox"/>	Cover and/or berm outdoor storage areas containing waste pollutants		
Comments:			
Please see individual city reports as these activities are implemented at the city level.			
If you have a corporation yard(s) that is not an NOI facility , complete the following table for inspection results for your corporation yard(s) or attach a summary including the following information:			
Corporation Yard Name	Inspection Date (1x/year required)	Inspection Findings/Results	Follow-up Actions
NA	NA	NA	NA

**Section 3 - Provision C.3 Reporting New Development and Redevelopment**

**C.3.b. ► Green Streets Status Report**  
 (All projects to be completed by December 1, 2014)

On an annual basis (if applicable), report on the status of any pilot green street projects within your jurisdiction. For each completed project, report the capital costs, operation and maintenance costs, legal and procedural arrangements in place to address operation and maintenance and its associated costs, and the sustainable landscape measures incorporated in the project including, if relevant, the score from the Bay-Friendly Landscape Scorecard.

Summary:

Program representatives regularly participated in BASMAA’s New and Redevelopment subcommittee meetings. Green Streets projects are discussed at that monthly meeting. The opportunity for Green Streets projects is also discussed at the Program’s monthly Management meetings. The cities continue to explore opportunities to incorporate Green Streets into rehabilitation projects.

**C.3.b.v.(1) ► Regulated Projects Reporting Table**

Fill in attached table **C.3.b.v.(1)** or attach your own table including the same information.

Please see individual city reports as these activities are implemented at the city level.

**C.3.iii(3) Low Impact Development Reporting**

*(For FY 11-12 Annual Report only)* Report the method(s) of implementation of Provision C.3.c.i in the 2012 Annual Report. For specific tasks listed in Provision C.3.c.i. that are reported using the reporting tables required for Provision C.3.b.v, a reference to those tables is adequate.

Please see individual city reports as these activities are implemented at the city level. The Program has recreated its New Development Guidance Document to include the regionally developed LID Infeasibility/Feasibility Worksheets, Biotreatment Soil Specifications and Green Roof Specifications. The Program utilized Contra Costa Clean Water Programs C3 Guidance Document as a model for the Fairfield Suisun Urban Runoff Program New Development Guidance Document.

Please see each cities’ table C.3.b.v. (1) for specific information on regulated projects approved during FY 11-12.

Permittee Name: Fairfield-Suisun Urban Runoff Management Program

<b>C.3.e.v. ► Alternative or In-Lieu Compliance with Provision C.3.c.</b>			
<i>(For FY 11-12 Annual Report only)</i> Did your agency make any ordinance/legal authority and procedural changes to implement Provision C.3.e.?	<input type="checkbox"/>	<b>Yes.</b>	<input checked="" type="checkbox"/> <b>No</b>
If yes, attach a copy of the ordinance/legal authority changes or provide a link to the document(s). Discuss any procedural changes made.			
<i>(For FY 11-12 Annual Report and each Annual Report thereafter)</i> Is your agency choosing to require 100% LID treatment onsite for all Regulated Projects and not allow alternative compliance under Provision C.3.e.?	<input checked="" type="checkbox"/>	<b>Yes</b>	<input type="checkbox"/> <b>No</b>
Comments (optional):  Please see individual city reports as these activities are implemented at the city level. The Program has modified its New Development Guidance Document to include the regionally developed LID Infeasibility/Feasibility Worksheets, Biotreatment Soil Specifications and Green Roof Specifications. The Program utilized Contra Costa Clean Water Programs C3 Guidance Document as a model for the Fairfield Suisun Urban Runoff Program New Development Guidance Document.			

<b>C.3.e.vi ► Special Projects Reporting</b>			
1. Has your agency received, but not yet granted final discretionary approval of, a development permit application for a project that has been identified as a potential Special Project based on criteria listed in MRP Provision C.3.e.ii(2) for any of the three categories of Special Projects (Categories A, B or C)?	<input type="checkbox"/>	<b>Yes</b>	<input checked="" type="checkbox"/> <b>No</b>
2. Has your agency granted final discretionary approval of a project identified as a Special Project in the March 15, 2012 report? If yes, include the project in both the C.3.b.v.(1) Table, and the C.3.e.vi. Table.	<input type="checkbox"/>	<b>Yes</b>	<input checked="" type="checkbox"/> <b>No</b>
If you answered "Yes" to either question, 1) Complete Table C.3.e.vi . below. Attach narrative discussion of 100% LID Feasibility or Infeasibility for each project. <b>NA</b>			

**C.3.h.iv. ► Installed Stormwater Treatment Systems Operation and Maintenance Verification Inspection Program Reporting**

(1) Fill in attached table C.3.h.iv.(1) or attach your own table including the same information.

Please see individual city reports as these activities are implemented at the city level.

(2) On an annual basis, provide a discussion of the inspection findings for the year and any common problems encountered with various types of treatment systems and/or HM controls. This discussion should include a general comparison to the inspection findings from the previous year.

Summary:

Please see individual city reports as these activities are implemented at the city level.

(3) On an annual basis, provide a discussion of the effectiveness of the O&M Program and any proposed changes to improve the O&M Program (e.g., changes in prioritization plan or frequency of O&M inspections, other changes to improve effectiveness program).

Summary:

Please see individual city reports as these activities are implemented at the city level.

(4) During the reporting year, did your agency:

• Inspect all newly installed stormwater treatment systems and HM controls within 45 days of installation?	<input type="checkbox"/>	<b>Yes</b>	<input type="checkbox"/>	<b>No</b>
• Inspect at least 20 percent of the total number of installed stormwater treatment systems or HM controls?	<input type="checkbox"/>	<b>Yes</b>	<input type="checkbox"/>	<b>No</b>
• Inspect at least 20 percent of the total number of installed vault-based systems?	<input type="checkbox"/>	<b>Yes</b>	<input type="checkbox"/>	<b>No</b>

If you answered “No” to any of the questions above, please explain:

NA

**C.3.b.v.(1) ► Regulated Projects Reporting Table (part 1) – Projects Approved During the Fiscal Year Reporting Period**

Project Name Project No.	Project Location <sup>9</sup> , Street Address	Name of Developer	Project Phase No. <sup>10</sup>	Project Type & Description <sup>11</sup>	Project Watershed <sup>12</sup>	Total Site Area (Acres)	Total Area of Land Disturbed (Acres)	Total New Impervious Surface Area (ft <sup>2</sup> ) <sup>13</sup>	Total Replaced Impervious Surface Area (ft <sup>2</sup> ) <sup>14</sup>	Total Pre- Project Impervious Surface Area <sup>15</sup> (ft <sup>2</sup> )	Total Post- Project Impervious Surface Area <sup>16</sup> (ft <sup>2</sup> )
<b>Private Projects</b>											
Please see individual city reports as these activities are implemented at the city level.											
<b>Public Projects</b>											
Please see individual city reports as these activities are implemented at the city level.											
Comments:											
Please see individual city reports as these activities are implemented at the city level.											

<sup>9</sup> Include cross streets

<sup>10</sup> If a project is being constructed in phases, indicate the phase number and use a separate row entry for each phase. If not, enter "NA".

<sup>11</sup> Project Type is the type of development (i.e., new and/or redevelopment). Example descriptions of development are: 5-story office building, residential with 160 single-family homes with five 4-story buildings to contain 200 condominiums, 100 unit 2-story shopping mall, mixed use retail and residential development (apartments), industrial warehouse.

<sup>12</sup> State the watershed(s) in which the Regulated Project is located. Optional but recommended: Also state the downstream watershed(s).

<sup>13</sup> All impervious surfaces added to any area of the site that was previously existing pervious surface.

<sup>14</sup> All impervious surfaces added to any area of the site that was previously existing impervious surface.

<sup>15</sup> For redevelopment projects, state the pre-project impervious surface area.

<sup>16</sup> For redevelopment projects, state the post-project impervious surface area.

**C.3.b.v.(1) ► Regulated Projects Reporting Table (part 2) – Projects Approved During the Fiscal Year Reporting Period**

Project Name Project No.	Application Deemed Complete Date <sup>17</sup>	Application Final Approval Date <sup>17</sup>	Source Control Measures <sup>18</sup>	Site Design Measures <sup>19</sup>	Treatment Systems Approved <sup>20</sup>	Operation & Maintenance Responsibility Mechanism <sup>21</sup>	Hydraulic Sizing Criteria <sup>22</sup>	Alternative Compliance Measures <sup>23/24</sup>	Alternative Certification <sup>25</sup>	HM Controls <sup>26/27</sup>
<b>Private Projects</b>										

Comments:

Please see individual city reports as these activities are implemented at the city level.

<sup>17</sup> For private projects, state project application deemed complete date and final discretionary approval date. If the project did not go through discretionary review, report the building permit issuance date.

<sup>18</sup> List source control measures approved for the project. Examples include: properly designed trash storage areas; storm drain stenciling or signage; efficient landscape irrigation systems; etc.

<sup>19</sup> List site design measures approved for the project. Examples include: minimize impervious surfaces; conserve natural areas, including existing trees or other vegetation, and soils; construct sidewalks, walkways, and/or patios with permeable surfaces, etc.

<sup>20</sup> List all approved stormwater treatment system(s) to be installed onsite or at a joint stormwater treatment facility (e.g., flow through planter, bioretention facility, infiltration basin, etc.).

<sup>21</sup> List the legal mechanism(s) (e.g., O&M agreement with private landowner; O&M agreement with homeowners' association; O&M by public entity, etc...) that have been or will be used to assign responsibility for the maintenance of the post-construction stormwater treatment systems.

<sup>22</sup> See Provision C.3.d.i. "Numeric Sizing Criteria for Stormwater Treatment Systems" for list of hydraulic sizing design criteria. Enter the corresponding provision number of the appropriate criterion (i.e., 1.a., 1.b., 2.a., 2.b., 2.c., or 3).

<sup>23</sup> For Alternative Compliance at an offsite location in accordance with Provision C.3.e.i.(1), on a separate page, give a discussion of the alternative compliance site including the information specified in Provision C.3.b.v.(1)(m)(i) for the offsite project.

<sup>24</sup> For Alternative Compliance by paying in-lieu fees in accordance with Provision C.3.e.i.(2), on a separate page, provide the information specified in Provision C.3.b.v.(1)(m)(ii) for the Regional Project.

<sup>25</sup> Note whether a third party was used to certify the project design complies with Provision C.3.d.

<sup>26</sup> If HM control is not required, state why not.

<sup>27</sup> If HM control is required, state control method used (e.g., method to design and size device(s) or method(s) used to meet the HM Standard, and description of device(s) or method(s) used, such as detention basin(s), bioretention unit(s), regional detention basin, or in-stream control).

**C.3.b.v.(1) ► Regulated Projects Reporting Table (part 2) – Projects Approved During the Fiscal Year Reporting Period**

Project Name Project No.	Approval Date <sup>28</sup>	Date Construction Scheduled to Begin	Source Control Measures <sup>29</sup>	Site Design Measures <sup>30</sup>	Treatment Systems Approved <sup>31</sup>	Operation & Maintenance Responsibility Mechanism <sup>32</sup>	Hydraulic Sizing Criteria <sup>33</sup>	Alternative Compliance Measures <sup>34/35</sup>	Alternative Certification <sup>36</sup>	HM Controls <sup>37/38</sup>
<b>Public Projects</b>										

Comments:

Please see individual city reports as these activities are implemented at the city level.

<sup>28</sup> For public projects, enter the plans and specifications approval date.

<sup>29</sup> List source control measures approved for the project. Examples include: properly designed trash storage areas; storm drain stenciling or signage; efficient landscape irrigation systems; etc.

<sup>30</sup> List site design measures approved for the project. Examples include: minimize impervious surfaces; conserve natural areas, including existing trees or other vegetation, and soils; construct sidewalks, walkways, and/or patios with permeable surfaces, etc.

<sup>31</sup> List all approved stormwater treatment system(s) to be installed onsite or at a joint stormwater treatment facility (e.g., flow through planter, bioretention facility, infiltration basin, etc.).

<sup>32</sup> List the legal mechanism(s) (e.g., O&M agreement with private landowner; O&M agreement with homeowners' association; O&M by public entity, etc...) that have been or will be used to assign responsibility for the maintenance of the post-construction stormwater treatment systems.

<sup>33</sup> See Provision C.3.d.i. "Numeric Sizing Criteria for Stormwater Treatment Systems" for list of hydraulic sizing design criteria. Enter the corresponding provision number of the appropriate criterion (i.e., 1.a., 1.b., 2.a., 2.b., 2.c., or 3).

<sup>34</sup> For Alternative Compliance at an offsite location in accordance with Provision C.3.e.i.(1), on a separate page, give a discussion of the alternative compliance site including the information specified in Provision C.3.b.v.(1)(m)(i) for the offsite project.

<sup>35</sup> For Alternative Compliance by paying in-lieu fees in accordance with Provision C.3.e.i.(2), on a separate page, provide the information specified in Provision C.3.b.v.(1)(m)(ii) for the Regional Project.

<sup>36</sup> Note whether a third party was used to certify the project design complies with Provision C.3.d.

<sup>37</sup> If HM control is not required, state why not.

<sup>38</sup> If HM control is required, state control method used (e.g., method to design and size device(s) or method(s) used to meet the HM Standard, and description of device(s) or method(s) used, such as detention basin(s), bioretention unit(s), regional detention basin, or in-stream control).

**C.3.h.iv. ► Installed Stormwater Treatment Systems Operation and Maintenance Verification Inspection Program Reporting**

Fill in table below or attach your own table including the same information:

Name of Facility/Site Inspected	Address of Facility/Site Inspected	Newly Installed? (YES/NO) <sup>39</sup>	Party Responsible <sup>40</sup> For Maintenance	Date of Inspection	Type of Inspection <sup>41</sup>	Type of Treatment/HM Control(s) Inspected <sup>42</sup>	Inspection Findings or Results <sup>43</sup>	Enforcement Action Taken <sup>44</sup>	Comments/Follow-up
Please see individual city reports as these activities are implemented at the city level.									

<sup>39</sup> Indicate "YES" if the facility was installed within the reporting period, or "NO" if installed during a previous fiscal year.

<sup>40</sup> State the responsible operator for installed stormwater treatment systems and HM controls.

<sup>41</sup> State the type of inspection (e.g., 45-day, routine or scheduled, follow-up, etc.).

<sup>42</sup> State the type(s) of treatment systems inspected (e.g., bioretention facility, flow-through planter, infiltration basin, etc...) and the type(s) of HM controls inspected, and indicate whether the treatment system is an onsite, joint, or offsite system.

<sup>43</sup> State the inspection findings or results (e.g., proper installation, improper installation, proper O&M, immediate maintenance needed, etc.).

<sup>44</sup> State the enforcement action(s) taken, if any, as appropriate and consistent with your municipality's Enforcement Response Plan.

**C.3.e.vi.Special Projects Reporting Table**

Reporting Period – December 1, 2011 – June 30, 2012

Project Name & No.	Permittee	Address	Application Submittal Date <sup>45</sup>	Status <sup>46</sup>	Description <sup>47</sup>	Site Total Acreage	Density DU/Acre	Density FAR	Special Project Category <sup>48</sup>	LID Treatment Reduction Credit Available <sup>49</sup>	List of LID Stormwater Treatment Systems <sup>50</sup>	List of Non-LID Stormwater Treatment Systems <sup>51</sup>
		Please see individual city reports as these activities are implemented at the city level.										

<sup>45</sup> Date that a planning application for the Special Project was submitted. If a planning application has not been submitted, include a projected application date.

<sup>46</sup> Indicate whether final discretionary approval is still pending or has been granted, and provide the date or version of the project plans upon which reporting is based.

<sup>47</sup> Type of project (commercial, mixed-use, residential), number of floors, number of units, type of parking, and other relevant information.

<sup>48</sup> For each applicable Special Project Category, list the specific criteria applied to determine applicability. For each non-applicable Special Project Category, indicate n/a.

<sup>49</sup> For each applicable Special Project Category, state the maximum total LID Treatment Reduction Credit available. For Category C Special Projects also list the individual Location, Density, and Minimized Surface Parking Credits available.

<sup>50</sup> List all LID stormwater treatment systems proposed. For each type, indicate the percentage of the total amount of runoff identified in Provision C.3.d. for the Special Project's drainage area.

<sup>51</sup> List all non-LID stormwater treatment systems proposed. For each type of non-LID treatment system, indicate: (1) the percentage of the total amount of runoff identified in Provision C.3.d. for the Special Project's drainage area, and (2) whether the treatment system either meets minimum design criteria published by a government agency or received certification issued by a government agency, and reference the applicable criteria or certification.

**Section 4 – Provision C.4 Industrial and Commercial Site Controls**

**Program Highlights**

Provide background information, highlights, trends, etc.

The Program contracts with the Solano County Department of Resource Management to conduct stormwater inspections of industrial, commercial and food handling businesses within the Program area. The Program updates the Business Inspection Plan as necessary to keep the document current. Changes are made to facilities lists upon observations of facilities closing or a change in compliance status resulting in a reduction or increase in inspection frequency. Specific information on the number of facilities inspected, types of violations incurred and resolution of violations within reasonable time periods is included in each city’s 2011-2012 Annual Report as required by the Water Board.

Training of Health Inspectors was performed on March 19, 2012. The focus of the training was consistency in enforcement levels, enforcement authority; city stormwater ordinances; high-priority facilities needed to be inspected during the fiscal year and enforcement levels associated with illegal discharges. All facilities on the Facilities to be Inspected list were inspected during FY 2011- 2012.

The Program Management team meets on a monthly basis to discuss important Program issues including commercial, industrial and restaurant inspections. The Program also participates in the Municipal Operations Committee meeting on a regional level.

**C.4.b.i. ► Business Inspection Plan**

Do you have a Business Inspection Plan?  **Yes**  **No**

If No, explain:  
NA

**C.4.b.iii.(1) ► Potential Facilities List**

List below or attach your list of industrial and commercial facilities in your Inspection Plan to inspect that could reasonably be considered to cause or contribute to pollution of stormwater runoff.

The Potential Facilities List was generated at the Program level and distributed to the cities for submittal in their Annual Report. See individual city reports for this list.

Permittee Name: Fairfield-Suisun Urban Runoff Management Program

**C.4.b.iii.(2) ► Facilities Scheduled for Inspection**

List below or attach your list of facilities scheduled for inspection during the current fiscal year.

The Facilities Scheduled for Inspection was generated at the Program level and distributed to the cities for submittal in their Annual Report. See individual city reports for this list.

**C.4.c.iii.(1) ► Facility Inspections**

Fill out the following table or attach a summary of the following information. Indicate your violation reporting methodology below.

<input type="checkbox"/>	Permittee reports multiple discrete violations on a site as one violation.
<input checked="" type="checkbox"/>	Permittee reports the total number of discrete violations on each site.

	Number	Percent
Number of businesses inspected		
Total number of inspections conducted		
Number of violations (excluding verbal warnings)		
Sites inspected in violation		
Violations resolved within 10 working days or otherwise deemed resolved in a longer but still timely manner		
Comments:  See individual city reports for this information.		

**C.4.c.iii.(2) ► Frequency and Types/Categories of Violations Observed**

Fill out the following table or attach a summary of the following information.

Type/Category of Violations Observed	Number of Violations
Actual discharge (e.g. active non-stormwater discharge or clear evidence of a recent discharge)	
Potential discharge and other	
Comments:  See individual city reports for this information.	

Permittee Name: Fairfield-Suisun Urban Runoff Management Program

**C.4.c.iii.(2) ► Frequency and Type of Enforcement Conducted**

Fill out the following table or attach a summary of the following information.

	<b>Enforcement Action</b> (as listed in ERP) <sup>46</sup>	<b>Number of Enforcement Actions Taken</b>	<b>% of Enforcement Actions Taken<sup>47</sup></b>
Level 1			
Level 2			
Level 3			
Level 4			
<b>Total</b>	See individual city reports for this information.		

**C.4.c.iii.(3) ► Types of Violations Noted by Business Category**

Fill out the following table or attach a summary of the following information.

<b>Business Category<sup>48</sup></b>	<b>Number of Actual Discharge Violations</b>	<b>Number of Potential/Other Discharge Violations</b>

See individual city reports for this information.

**C.4.c.iii.(4) ► Non-Fileers**

List below or attach a list of the facilities required to have coverage under the Industrial General Permit but have not filed for coverage:

See individual city reports for this information.

<sup>46</sup> Agencies to list specific enforcement actions as defined in their ERPs.

<sup>47</sup> Percentage calculated as number of each type of enforcement action divided by the total number of enforcement actions.

<sup>48</sup> List your Program's standard business categories.

Permittee Name: Fairfield-Suisun Urban Runoff Management Program

<b>C.4.d.iii ▶ Staff Training Summary</b>				
<b>Training Name</b>	<b>Training Dates</b>	<b>Topics Covered</b>	<b>No. of Inspectors in Attendance</b>	<b>Percent of Inspectors in Attendance</b>
Fairfield Suisun Urban Runoff Program Commercial, Industrial, and Food Handling Annual Refresher Training	March 19, 2012	Enforcement authority; city stormwater ordinances; high-priority facilities needed to be inspected this fiscal year; enforcement levels associated with illegal discharges.	8	87%

**Section 5 – Provision C.5 Illicit Discharge Detection and Elimination**

**Program Highlights**

Provide background information, highlights, trends, etc.

The Program Manager participates in BASMAA’s monthly Municipal Maintenance and Commercial/ Industrial Controls meeting. Additionally, monthly Stormwater Management meetings are held at the Program level to discuss illicit discharge detection and elimination and screening protocol. Both cities utilize the Program’s Illicit Discharge Detection and Elimination Program Manual to assist them in identification, detection and elimination of illicit discharges throughout both cities.

**C.5.c.iii ► Complaint and Spill Response Phone Number and Spill Contact List**

List below or attach your complaint and spill response phone number and spill contact list.

Contact	Description	Phone Number
Gary Sponsler	Public Works Supervisor, City of Fairfield	(707) 428-7405
Mike Gray	Public Works Manager, City of Fairfield	(707) 428-7404
Dan Kasperson	Building and Public Works Director	(707) 421-7340
Jeff Penrod	Public Works Superintendent	(707) 421-7349

**C.5.d.iii ► Evaluation of Mobile Business Program**

Describe implementation of minimum standards and BMPs for mobile businesses and your enforcement strategy. This may include participation in the BASMAA Mobile Surface Cleaners regional program or local activities.

Description:

The Program participated in BASMAA’s monthly Municipal Maintenance and Commercial Industrial Controls meeting. Additionally, monthly meetings are held at the Program level to discuss illicit discharge detection and elimination. Also, in FY 2010/2011, BASMAA and its Permittees scoped and budgeted for a new project to enhance the existing Surface Cleaner Training and Recognition program in several ways. See BASMAA’s FY 2011/2012 MRP Regional Supplement for Training and Outreach Annual Report on mobile surface cleaners updates.

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**C.5.e.iii ► Evaluation of Collection System Screening Program**

Provide a summary or attach a summary of your collection screening program, a summary of problems found during collection system screening and any changes to the screening program this FY.

Description:

This provision is handled at the city level. Please see individual city reports for this information.

**C.5.f.iii.(1), (2), (3) ► Spill and Discharge Complaint Tracking**

Spill and Discharge Complaint Tracking (fill out the following table or include an attachment of the following information)

	Number	Percentage
Discharges reported (C.5.f.iii.(1))	NA	
Discharges reaching storm drains and/or receiving waters (C.5.f.iii.(2))	NA	NA
Discharges resolved in a timely manner (C.5.f.iii.(3))	NA	NA

Comments:

This provision is handled at the city level. Please see individual city reports for this information.

**C.5.f.iii.(4) ► Summary of major types of discharges and complaints**

Provide a narrative or attach a table and/or graph.

This provision is handled at the city level. Please see individual city reports for this information.

**Section 6 – Provision C.6 Construction Site Controls**

<b>C.6.e.iii.1.a, b, c ▶ Site/Inspection Totals</b>		
<b>Number of sites disturbing &lt; 1 acre of soil requiring storm water runoff quality inspection (i.e. High Priority) (C.6.e.iii.1.a)</b>	<b>Number of sites disturbing ≥ 1 acre of soil (C.6.e.iii.1.b)</b>	<b>Total number of storm water runoff quality inspections conducted (C.6.e.iii.1.c)</b>
#	#	#
NA	NA	NA
<p>Comments:</p> <p>This provision is handled at the city level. Please see individual city reports for this information.</p>		

<b>C.6.e.iii.1.d ▶ Construction Activities Storm Water Violations</b>		
<p>This provision is handled at the city level. Please see individual city reports for this information.</p>		
<b>BMP Category</b>	<b>Number of Violations<sup>49</sup></b>	<b>% of Total Violations<sup>50</sup></b>
Erosion Control	NA	NA
Run-on and Run-off Control	NA	NA
Sediment Control	NA	NA
Active Treatment Systems	NA	NA
Good Site Management	NA	NA
Non Stormwater Management	NA	NA
<b>Total</b>	NA	<b>100%</b>

<sup>49</sup> Count one violation in a category for each site and inspection regardless of how many violations/problems occurred in the BMP category.

<sup>50</sup> Percentage calculated as number of violations in each category divided by total number of violations in all six categories.

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**C.6.e.iii.1.e ► Construction Related Storm Water Enforcement Actions**

This provision is handled at the city level. Please see individual city reports for this information.

	<b>Enforcement Action</b> (as listed in ERP) <sup>51</sup>	<b>Number Enforcement Actions Taken</b>	<b>% Enforcement Actions Taken</b> <sup>52</sup>
Level 1	NA	NA	NA
Level 2	NA	NA	NA
Level 3	NA	NA	NA
Level 4	NA	NA	NA
<b>Total</b>	NA	NA	<b>100%</b>

**C.6.e.iii.1.f, g ► Illicit Discharges**

This provision is handled at the city level. Please see individual city reports for this information.

	<b>Number</b>
Number of illicit discharges, actual and those inferred through evidence (C.6.e.iii.1.f)	NA
Number of sites with discharges, actual and those inferred through evidence (C.6.e.iii.1.g)	NA

<sup>51</sup> Agencies should list the specific enforcement actions as defined in their ERPs.

<sup>52</sup> Percentage calculated as number of each type of enforcement action divided by the total number of enforcement actions.

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**C.6.e.iii.1.h, i ► Violation Correction Times**

	Number	Percent
Violations fully corrected within 10 business days after violations are discovered or otherwise considered corrected in a timely period (C.6.e.iii.1.h)	NA	% <sup>53</sup>
Violations not fully corrected within 30 days after violations are discovered (C.6.e.iii.1.i)	NA	% <sup>54</sup>
Total number of violations for the reporting year <sup>55</sup>	NA	100%
<p><b>Comments:</b></p> <p>This provision is handled and reported at the city level. Please see individual city reports for this information.</p>		

**C.6.e.iii.(2) ► Evaluation of Inspection Data**

Describe your evaluation of the tracking data and data summaries and provide information on the evaluation results (e.g., data trends, typical BMP performance issues, comparisons to previous years, etc.).
<p>Description:</p> <p>This provision is handled and reported at the city level. Please see individual city reports for this information.</p>

**C.6.e.iii.(2) ► Evaluation of Inspection Program Effectiveness**

Describe what appear to be your program’s strengths and weaknesses, and identify needed improvements, including education and outreach.
<p>Description:</p> <p>The Program revised its inspection forms to correlate with the data collection requirements in the MRP. Inspections are made and data is collected in the field and brought back to the office for compilation into an Excel database. Training has been provided to inspectors at both cities. In addition, several inspectors and engineers from both cities have been trained and/or certified by the State as QSP or QSDs depending on their background and experience level.</p> <p>Program members participate monthly on the Program’s Stormwater Management Meetings. Information is distributed to the cities through city</p>

<sup>53</sup> Calculated as number of violations fully corrected in a timely period after the violations are discovered divided by the total number of violations for the reporting year.

<sup>54</sup> Calculated as number of violations not fully corrected within 30 days after the violations are discovered divided by the total number of violations for the reporting year.

<sup>55</sup> Total number of violations equals the number of initial enforcement actions (i.e. one violation issued for several problems during an inspection at a site). It does not equal the total number of enforcement actions because one violation issued at a site may have a second enforcement action for the same violation at the next inspection if it is not corrected.

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representatives at those meetings. The Program also participates in BASMAA's new development subcommittee meetings.

**C.6.f ▶ Staff Training Summary**

Training Name	Training Dates	Topics Covered	No. of Inspectors in Attendance	Percent of Inspectors in Attendance
See individual city annual reports				

**Section 7 – Provision C.7. Public Information and Outreach**

**C.7.b.ii.1 ▶ Advertising Campaign**

Summarize advertising efforts. Include details such as messages, creative developed, and outreach media used. The detailed advertising report may be included as an attachment. If advertising is being done by participation in a countywide or regional program, refer to the separate countywide or regional Annual Report.

Summary:

The Program is participating in the BASMAA Regional Litter Ad Campaign. BASMAA is also working with a consultant on a Five-Year Strategic Advertising Plan "Our Water, Our World" Pesticides Program. Please see BASMAA FY 2011/2012 MRP Regional Supplement for Training and Outreach Annual Report for more details relating to these outreach efforts.

**C.7.b.iii.1 ▶ Pre-Campaign Survey**

*(For the Annual Report following the precampaign survey)* Summarize survey information such as sample size, type of survey (telephone survey, interviews etc.). Attach a survey report that includes the following information. If survey was done regionally, refer to a regional submittal that contains the following information:

The following separate report developed by BASMAA summarizes the pre-campaign survey conducted in FY 11-12:

- BASMAA Youth Litter Campaign Report

Place an **X** in the appropriate box below:

<input type="checkbox"/>	Survey report attached
<input checked="" type="checkbox"/>	Reference to regional submittal:

**C.7.c ▶ Media Relations**

Summarize the media relations effort. Include the following details for each media pitch in the space below, AND/OR refer to a regional report that includes these details:

- Topic and content of pitch
- Medium (TV, radio, print, online)
- Date of publication/broadcast

Summary:

The following separate report developed by BASMAA summarizes media relations efforts conducted during FY 11-12:

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- BASMAA Media Relations Final Report FY 11-12

Please see BASMAA FY 2011/2012 MRP Regional Supplement for Training and Outreach, Annual Report for more details relating to these outreach efforts conducted during FY 2011/2012.

In FY 11-12 the Program has also participated in the 95.3 KUIC Hometown Green Environmental Campaign. Program members on a regular basis have recorded segments which are played daily on KUIC and focus on environmental messages. Messages include: the connectedness of our streets to our local creeks; recycling mercury containing products; trash; proper car washing; recycling; and the reduction of waste by using reusable items.

**C.7.d ► Stormwater Point of Contact**

Summary of any changes made during FY 11-12:

The Program promoted its Point of Contacts through the distribution of outreach materials: *You Are the Solution to Water Pollution / Creek and Marsh Watch*. This catchy trifold piece provides contact information to report illegal discharges and spills. These materials are given out at nearly every public event that the Program participates in. Contact information is also provided on each of the cities websites.

No other changes.

**C.7.e ► Public Outreach Events**

Describe general approach to event selection. Provide a list of outreach materials and giveaways distributed.

Use the following table for reporting and evaluating public outreach events

Event Details	Description (messages, audience)	Evaluation of Effectiveness
Provide event name, date, and location. Indicate if event is local, countywide or regional.	Identify type of event (e.g., school fair, farmers market etc.), type of audience (school children, gardeners, homeowners etc.) and outreach messages (e.g., Enviroscape presentation, pesticides, stormwater awareness)	Provide general staff feedback on the event (e.g., success at reaching a broad spectrum of the community, well attended, good opportunity to talk to gardeners etc.). Provide other details such as: <ul style="list-style-type: none"> <li>• Estimated overall attendance at the event.</li> <li>• Number of people that visited the booth, comparison with previous years</li> </ul>

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**C.7 – Public Information and Outreach**

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		<ul style="list-style-type: none"> <li>• Number of brochures and giveaways distributed</li> <li>• Results of any spot surveys conducted</li> </ul>
The Leaven Event; July 20, 2011; Fairfield-Suisun Regional Wastewater Treatment Plant; this is a Program event	Leaven’s mission is to increase academic achievement, self-esteem, and life opportunities for children living in low-income, urban communities. Together over 50 Leaven children with city Council Members and Mayors of both Fairfield and Suisun City, learned about what happens to water when it runs off of the street to our local creeks or goes down the drain inside our homes, through the sewers, and to the wastewater treatment plant.	39 children and 9 adults from The Leaven visited the FSSD treatment plant to learn about what happens to water when it runs off of the street to our local creeks or goes down the drain, through the sewers, and to the wastewater treatment plant. Founded in 2005 through collaboration with the City of Fairfield, Fairfield-Suisun Unified School District, and the church community, The Leaven’s mission is to increase academic achievement, self-esteem, and life opportunities for children living in low-income, urban communities.
Coast and Creek Cleanup; September 17, 2011; 12 cleanup sites throughout Fairfield and Suisun City; this is a Program event.	The Program lead volunteer cleanup of local creeks, marsh and open space areas.	625 volunteers picked up 6,291 pounds of trash and recyclables along 23.8 miles of waterway. This was an increase of 300 people from the previous year. It is thought that the increase is due to the fact that the previous year had several events occurring on the same day including two Boy Scout jamboree’s and a large event at Travis Air Force Base. It is also thought that the increase is due to additional effort expended toward reaching out to local high schools.
Armijo Super Band, Kohl’s and Program Cleanup of upper Laurel Creek; April 14, 2012; Manual Campos Boulevard Cement Hill Road on Laurel Creek; this is a Program event.	The Program lead volunteer cleanup of Laurel Creek and adjacent open space areas.	49 Participants, 345 pounds or gallons of trash and 1.1 miles of creek cleaned. An extremely encouraging survey showed 100% of participants knew the difference between the destination of wastewater and stormwater.
Operation Green Tomato, Fairfield- Suisun Farmers Market; Thursdays from May 3 through	The Program contracts with Fairfield Main St. Association to attend the weekly farmers	Starting on May 3 and ending October 4, an average of 80 visitors per week (640 visitors in FY

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**C.7 – Public Information and Outreach**

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<p>October 4; the event is held in downtown Fairfield at the intersection of W. Texas St. and Jefferson Street; this is a Program event.</p>	<p>market and man the Operation Green Tomato booth. Messages include the connectedness of our streets to our local creeks; and only clean stormwater should be flowing to our local storm drain system. The booth also features information about pesticide free pest control, reporting illegal discharges and free grease scrapers to avoid sanitary sewer overflows.</p>	<p>11/12) stop at the Operation Green Tomato booth. Green Tomato crewmembers also quiz guests and give out prizes went questions are answered correctly.</p>
<p>Earth Day - April 21, 2012; The Program assisted Mission Solano during this event in downtown Suisun city and Fairfield. The event included a cleanup and 10 sites in the city, a tree planting ceremony and earth friendly vendors. this is a Program event.</p>	<p>The Program assisted in volunteer cleanup of local creeks, marsh and open space areas.</p>	<p>Approximately 100 adults and 60 children participated in the cleanup of 10 sites in Suisun city and the city of Fairfield. Proper disposal of household wastes was emphasized through a beanbag toss game at the Program booth, 42 boxes of crayons, 17 filled reusable bags, 53 folded bags, 75 bookmarks, 75 Earth care, 75 Control It Guides and 100 drug take back announcements were distributed.</p>
<p>Fairfield Suisun Pesticide Applicators Outreach; April 4, 2012; approximately 19 flyers were sent throughout the Fairfield Suisun jurisdictional area; this is a Program event.</p>	<p>The Program contacted all pest control operators, through a mailer, in the Fairfield and Suisun city area to promote the Professional Association of Pesticide Applicators (PAPA).</p>	<p>As directed by Jan O'Hara (Water Board) approximately 19 flyers were distributed throughout the Fairfield Suisun area; several calls were received back from the pest control operators with the majority of the callers needing clarification as to why the Program was supporting the Association; one caller was adamantly opposed to the Program supporting what he felt was a private association.</p>
<p>Back to School Event; Saturday August 13, 2011; event was held at St. Mark's Lutheran Church in Fairfield; this is a Program event.</p>	<p>Twenty-eight organizations hosted the event that featured the distribution of 1,000 backpacks containing school supplies to students from lower-income families. The primary messages from the Program booth were keeping our streets clear of trash and F.O.G.. Program personnel emphasized that the Suisun Marsh is Ours to Protect</p>	<p>There were 1000 backpacks containing school supplies and other outreach materials distributed to students from lower income families, with over 500 citizens visiting the Program booth. Over 350 children received Grow up Green bookmarks and over 100 adults receiving plate scrapers. A large percentage of those who visited the booth were new to the community and did not speak English. The Program provided a Spanish-speaker. Many visitors indicated that the information provided was new and that they were grateful for the</p>

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		advice. Approximately 10 visitors stopped by the booth to say that they appreciated the plate scrapers they received at previous community outreach events provided by the Program.
Farm to Families; Saturday, October 23, 2011; event was held at Dover Park in Fairfield; this was a Program event.	The Farm to Families event focused primarily on health awareness for lower income families. The Program participated by sponsoring a table and sharing environmental messages. Program personnel emphasized that the Suisun Marsh is Ours to Protect.	Over 190 visitors visited the Program booth. Pollution prevention and stormwater messages were conveyed to attendees. A large percentage of those who visited the Program booth were new to the community and did not speak English. The Program provided a Spanish speaker. Many visitors indicated that the information provided was new and that they were grateful for the advice.
Solano Community College Environmental Science treatment plant tour and lecture; March 1, 2012; this event was held at the Fairfield Suisun Wastewater Treatment Plant; this was a Program event.	The Program provided a tour to college students At the Fairfield Suisun Wastewater Treatment Plant. Messages delivered to students included the connectedness of our streets to our local creeks and the importance of eliminating litter from our environment.	31 people were in attendance including teachers. Students indicated that they were very interested in the subject matter and were potentially going to become treatment plant operators and environmental stewards of some kind.
Solano County Master Gardener Training; January 27, 2012; 501 Texas Street , Fairfield, CA; this is a Program activity.	IPM Consultant Annie Joseph along with Program manager, provided IPM training for Solano County Master Gardeners, who in turn instruct the general public on safe gardening practices at local farmers' markets and events throughout the county. Program representative on hand to describe connectivity of the streets to our local creeks; the difference between storm water and wastewater; the wastewater treatment process; how pesticides can impact the process.	38 Master Gardeners were in attendance, based on the interaction between the presenters and speakers, the audience was highly engaged. Initial understanding of the direct connection between the streets and creeks appeared to be low. Upon completion of the event the understanding of the direct connection was very near to 100%.
Northern California Home Depot Garden Workshop; Home Depot in Fairfield; this is a Program activity	IPM Consultant Annie Joseph along with Program manager, provided IPM training for Northern California Home Depot employees, who in turn instruct the general public on safe gardening practices at their	Approximately 67 Home Depot employees from throughout Northern California attended the event. The employees were very interested in utilizing less toxic alternatives to pesticides. The

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	<p>local Home Depot store and events throughout the Northern California. Program representative on hand to describe connectivity of the streets to our local creeks; the difference between storm water and wastewater; the wastewater treatment process; how pesticides can impact the process.</p>	<p>regional manager for Northern California Home Depots was encouraging employees to push less toxic alternatives when appropriate. This was an excellent opportunity to meet local employees and sell the concepts included in Our Water Our World.</p>
<p>North Bay Engineers Club Presentation; October 10, 2012; this was a Program event.</p>	<p>The Program presented The North Bay Engineers Club information on the requirements for construction site management in the Fairfield Suisun area. With the main theme focusing on only clean water is allowed to go down the storm drain and that illegal discharges will not be tolerated in the communities of Fairfield and Suisun city.</p>	<p>21 participants were in the audience. Many questions were raised and answered. Based on the engagement of the participants in the audience, the presentation was well received and understood.</p>
<p>Fairfield-Suisun Sewer District Plant Tours; ongoing throughout the fiscal year; Fairfield Suisun Sewer District Wastewater Treatment Plant; this is a Program event.</p>	<p>District staff, acting on behalf of the Program provided tours and environmental outreach to diverse groups ranging from career counselors and politicians to third-grade children. Along with describing the treatment process, emphasis is placed on stormwater awareness and the direct connection from our streets to our creeks.</p>	<p>More than 250 people were brought through the District treatment plant and engaged with both wastewater and stormwater messages. Repetitive message deliveries ensured an audience which fully understands the difference between stormwater and wastewater.</p>

**C.7.f. ► Watershed Stewardship Collaborative Efforts**

Summarize watershed stewardship collaborative efforts and/or refer to a regional report that provides details. Describe the level of effort and support given (e.g., funding only, active participation etc.). State efforts undertaken and the results of these efforts. If this activity is done regionally refer to a regional report.

Evaluate effectiveness by describing the following:

- Efforts undertaken
- Major accomplishments

Summary:

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The Program conducts an array of activities which qualify for watershed stewardship collaborative efforts. These efforts are also mentioned in other portions of this Annual Report. Efforts directed toward Coast and Creek Cleanup result in watershed stewardship collaboration. Presentations were made to schools and clubs in the Fairfield Suisun Unified School District which resulted increased number of participants in our creek cleanup events. Creek Captains meetings are also used to encourage public involvement in watershed volunteer efforts. Increasing numbers of our coast and Creek cleanup event indicate an increase in collaborative activities.

**C.7.g. ► Citizen Involvement Events**

List the types of events conducted (e.g., creek clean up, storm drain inlet marking, native gardening etc.). Use the following table for reporting and evaluating citizen involvement events.

Event Details	Description	Evaluation of effectiveness
Provide event name, date, and location. Indicate if event is local, countywide or regional	Describe activity (e.g., creek clean-up, storm drain marking etc.)	Provide general staff feedback on the event. Provide other evaluation details such as: <ul style="list-style-type: none"> <li>• Number of participants. Any change in participation from previous years.</li> <li>• Distance of creek or water body cleaned</li> <li>• Quantity of trash/recyclables collected (weight or volume).</li> <li>• Number of inlets marked.</li> <li>• Data trends</li> </ul>
Coast and Creek Cleanup; September 17, 2011; 12 cleanup sites throughout Fairfield and Suisun City; this is a Program event.	The Program lead volunteer cleanup of local creeks, marsh and open space areas.	625 volunteers picked up 6,291 pounds of trash and recyclables along 23.8 miles of waterway. This was an increase of 300 people from the previous year. It is thought that the increase is due to the fact that the previous year had several events occurring on the same day including two Boy Scout jamboree's and a large event at Travis Air Force Base. It is also thought that the increase is due to additional effort expended toward reaching out to local high schools.
Armijo Super Band, Kohl's and Program Cleanup of upper Laurel Creek; April 14, 2012; Manual Campos Boulevard to Cement Hill Road on Laurel Creek; this is a Program event.	The Program lead volunteer cleanup of Laurel Creek and adjacent open space areas.	49 Participants, 345 pounds or gallons of trash and 1.1 miles of creek cleaned. An extremely encouraging survey showed 100% of participants knew the difference between the

Permittee Name: Fairfield-Suisun Urban Runoff Management Program

		final destination of wastewater and stormwater. This was a reduction in participants this year in part due to a declining enrollment in the Armijo Super Band. There is also a significant reduction in the number of pounds removed which can be seen as an improvement in the local creek conditions.
Earth Day - April 21, 2012; The Program assisted Mission Solano during this event in downtown Suisun city and Fairfield. The event included a cleanup of 10 sites throughout the cities, a tree planting and earth friendly vendors.	The Program assisted in volunteer cleanup of local creeks, marsh and open space areas.	Approximately 100 adults and 60 children participated in the cleanup of 10 sites in Suisun city and the city of Fairfield. Proper disposal of household wastes was emphasized through a beanbag toss game at the Program booth, 42 boxes of crayons, 17 filled reusable bags, 53 folded bags, 75 bookmarks, 75 Earth care, 75 control it guides and 100 drug take back announcements were distributed.

**C.7.h. ► School-Age Children Outreach**

Summarize school-age children outreach Programs implemented. A detailed report may be included as an attachment. Use the following table for reporting school-age children outreach efforts.

<b>Program Details</b>	<b>Focus &amp; Short Description</b>	<b>Number of Students/Teachers reached</b>	<b>Evaluation of Effectiveness</b>
School Water Education Program (SWEP); this program is available for Kindergarten through 12 <sup>th</sup> grade, and is a Program element.	SWEP provides free water education resources to teach water awareness and conservation to students, teachers and parents in our service areas of Dixon, Vacaville, Fairfield, Suisun City and Travis Air Force Base. The in-class education programs as well as the resource materials and assembly programs are multi-discipline and aligned to the content standards for California public schools. The programs encourage students and adults to develop a healthy attitude of personal responsibility towards our environment and develop skills	5,372 students and 184 teachers were reached throughout the County of Solano.	See attached Annual Summary Report from SWEP.

**FY 2011-2012 Annual Report**

**C.7 – Public Information and Outreach**

**Permittee Name: Fairfield-Suisun Urban Runoff Management Program**

	needed to contribute meaningfully to decision-making process on issues involving our resources and particularly conserving our most precious resource, water.		
The Watershed Explorers Program; Solano County third-graders. This is a Program element.	This program is held at Lynch Canyon open space and Hanns Park. The program utilizes science and placed base learning to build awareness and understanding of local creeks and watersheds, their unique ecosystems and ways in which we care for them. In the field discussions and activities teach children about the fragile habitats of birds and other wildlife. Students learn the importance of water quality in a watershed and discover that can be negatively impacted by urban runoff and its complements: trash, oil, household chemicals and other human and domestic animal waste and discards. Please go to : <a href="http://www.solanorcd.org/">http://www.solanorcd.org/</a> for videos of the program.	1,198 people and approximately 40 teachers in every city in the county participated in the 2011/12 program.	See attached Annual Summary Report from The Watershed Explorers Program.
Clean Water Outreach Program; secondary school age youth in the Fairfield and Suisun school district area. This is a Program element.	This program is a CWEA 2011 Public Outreach and Education Award winner for Large Agencies. It consists of three distinct elements: <u>Sewer Science High School Program</u> introduces students to how Fairfield and Suisun City collect, treat and release wastewater. The unit revolves around a straightforward lab that simulates the wastewater treatment process, accompanied by water quality testing. <u>Curb2Creek High School Program</u> is a high school environmental science curriculum	450 students participated in the clean water outreach program for a total of 2,995 student hours.	See attached Clean Water Outreach Program 2011 - 2012 Year End Report

Permittee Name: Fairfield-Suisun Urban Runoff Management Program

	<p>focused on studying urban runoff from school sites to local streams, followed by a student designed action projects. The goals of the program are to help young adults understand the consequences of stormwater pollution and to support behavior changes in those students and their peers.  <u>Wastewater Science Middle School Program</u> features an engaging explanation of local water systems and includes modified versions of activities from the high school curricula to introduce middle schoolers to the biology and physics of wastewater treatment and stormwater systems engineering.</p>		
<p>Suisun Marsh Watershed and Wetland Education Program; the classes available to middle schools throughout Solano County.</p>	<p>The program provides place-based environmental education for underserved middle school students in Solano County. The central program themes include: watersheds, wetlands, marsh functions, native and non-native plants, storm runoff, endangered and threatened species, and watershed connections between their residential communities, Suisun marsh, the San Francisco Bay, and the Pacific Ocean.</p>	<p>33 classes of approximately 1,129 students from the Crystal Middle school in Suisun city, Grange Middle school in Fairfield, Vac Pena and Orchard elementary schools in Vacaville and Solano middle school in Vallejo participated in the program. 29 classes of sixth grade level and four were seventh grade level</p>	<p>See attached Suisun Marsh Watershed and Wetland Education Program 2011 - 2012 Year End Report</p>

**School Water Education Program  
(SWEP)  
2011-2012 Annual Summary Report  
July 1, 2011 to June 12, 2012**

The School Water Education Program (SWEP) started the new fiscal year July 1, 2011 through June 30, 2012 with the distribution to the Vacaville, Dixon, Fairfield-Suisun, Rio Vista and Travis school districts ~2500 revised SWEP brochures highlighting:

- Two separate brochures: one for Kindergarten-6<sup>th</sup> grades and the other for 6<sup>th</sup>-12<sup>th</sup> grade incorporating the 2011-12 Bookmark Art Contest winners' art throughout
- New in-class presentations based on exploring water industry career opportunities for students in middle through high school grades
- H2O Yeah! Rock Steady Juggling Assembly offering
- SCWA High School Water Conservation Video Contest

Additionally, the Fairfield-Suisun Sewer District (FSSD) provided the "Discover Storm Water" student activity booklets. SCWA and the Urban Water Committee provided "Our Water for Solano County" posters, erasers, pencils, and rulers. SCWA underwrote the successful ZunZun and Rock Steady Juggling assemblies, and the Video Contest. ZunZun reached 9,174 students and Rock Steady Juggling reached, 13,768 students. See attached tables.

Kevin Cullen and Rita Arwine of FSSD are continuing to provide the opportunity for teachers to bring their students to the FSSD facility for fieldtrips, with pre- and post-fieldtrip in-class presentations, which has been well received by teachers and students.

Over the past few years, Solano County Office of Education facilitated the free distribution of the SWEP brochures to the various school districts which has a substantial savings to the SWEP budget. Other materials like fliers for Project WET workshops are being distributed through SCOE's delivery system once again.

The WaterWays outdoor watershed program at Lake Solano (Megan Harns), the High School Biomonitoring Program, Watershed Explorers Program and the Suisun Marsh Watershed & Wetland Education Program (Marianne Butler) were once again offered in the SWEP brochure. Please see the attached spreadsheets for totals of each program.

Ursula Heffernon had a Project WET teacher's workshop scheduled for November 12, 2011 but had only 4 registrants - so it was rescheduled for February 11, 2012 in hopes that we can reach our usual 20-30 participant level. We were overwhelmed with 35 teachers/educators attending, which provides us with a potential for them reaching 2,765 students. The workshop was co-hosted with the City of Vallejo helping SWEP to underwrite the cost of the workshop with the additional teaching assistance and support by Roger Judy.

SWEP did not participate in the annual 'Suisun Valley Fun Family Farm Days' event. We may consider participating once again in 2013 fall.

At least 184 out of ~2500 teachers who received the SWEP brochure have requested resource materials. Of these teachers, 120 had scheduled in-class presentations. Please see chart below to reference the distribution amongst the various school districts.

As of June 12, 2012:

School Districts	Delivered Resources Only		Presentations with Delivered Resources		Annual Total Summary of Deliveries + Presentations	
	# of Students	# of Classes	# of Students	# of Presentations	# of Students	# of Classes Involved
Dixon	26	1	150	6		
Vacaville	307	9	1015	43		
Fairfield	914	26	597	19		
Suisun	104	4	491	16		
Travis	359	14	528	18		
Rio Vista	169	10	229	4		
Vallejo	0	0	483	14		
<b>TOTALS</b>	<b>1879</b>	<b>64</b>	<b>3493</b>	<b>120</b>	<b>5372</b>	<b>184</b>

I had taken additional steps to meet directly with school district curricula administrators/directors, SCOE administrators, After School program directors, etc. in hopes that they would support and promote SWEP to their principals and teachers. Refer to the attached MISCELLANEOUS spreadsheet. Each was left with several additional copies to distribute at their next principals' meetings. Since their agendas were already impacted, I was not able to speak directly to the principals at upcoming monthly principal meetings this entire year.

I had also met with several SCOE and Solano Community College administrators during several meetings over several 2011 months to promote SWEP and to move forward with possibly coordinating the various water conservation and environmental education programs such that educators can understand who we are and what we have to offer, since there is insufficient and inadequate information about each program reaching them. The major outcomes of these meetings were:

a.) an independent contract to teach middle school students about water industry career opportunities along with water conservation curriculum. 26 classes of 826 students were reached. Of this total, 483 students (14 classes) were reached in the City of Vallejo which is normally out of the SWEP service area.

b.) the 'Water Industry Career Opportunities' in-class presentation forum has opened up the doors to several classrooms at other middle and high schools where our general water conservation in-class presentation offerings have been ignored. These schools were: Golden West MS (TUSD), Dixon HS (DUSD), Delta HS (RVUSD), and Willis & Vaca Pena MS (VUSD).

c.) to give 6 presentations to two Dixon elementary school afterschool programs in spring, 2012 to supplement the low Dixon student annual numbers reached. I actually instructed in 3 (90 students) of the intended 6 classes. This is an opportunity to expand for the 2012-13 school year.

In October, I had the pleasure of presenting to the Urban Water Committee meeting to promote both the SWEP brochure offerings and the High School Water Conservation Video Contest. I focused many more hours to this once the SCOE/SCC WIP grant contract had ended in December.

Thanks to SCWA we now have the SWEP Brochure and the High School Water Conservation Video Contest on their web site [www.solanosaveswater.org](http://www.solanosaveswater.org). I plan to include the Water Conservation Bookmark Art Contest on their web site as well.

#### Additional Challenges and Accomplishments:

- Due to ever tightening school budgets and constraints, most teachers are experiencing significant increases in the number of students per class and the rigid administration of the curricula such that they have nearly no time or support for additional activities or the privilege of enriching their students' education. Also, school districts are now in the process of adopting and adapting to National Standards rather than adhering to the California State Standards which have been in place for the last 15 years. Even if our programs/presentations are aligned with either the CA or National Standards, the focus is on the correlation of time needed for the teacher to the number of questions on the annual STAR testing. For example, if there is only one out of fifty questions on the test about water, than the teacher will not teach about water. **The water industry career in-class presentations opened up the door to many middle and high school classrooms to our program which would not have happened through our usual water conservation presentations with teachers realizing how we can meet their academic standards and provide valuable insight to their students.**
- New educational BMP measures have been implemented. How will this affect our SWEP program long term? **I would need input from the SWEP Committee on this.**
- To sustain what SWEP offers, we need to look for a larger budget or a restructuring of what we provide. Can we incorporate more financial support from SCWA or other sources like the cities of Vallejo, Rio Vista, and Benicia?
  - a. **With hand deliveries to the Rio Vista USD and some of their schools, I was able to provide at least resource materials to 2 elementary classes, 4 middle schools, and presented in 4 high school classes. This is finally a successful in road to the RVUSD.**

b. SCWA agreed to financially and contractually handle the annual Bookmark Art Contest along with the continuation of the High School Water Conservation Video Contest.

c. SWEP needs to have a discussion with the City of Rio Vista and its School superintendent to see if they would/could contribute at least a minimal amount finally to support our efforts in their community.

d. Fairfield Adult High School was very interested in our resource materials and the principal Beth Harrington and teacher Katie Hartley would like SWEP to present next year to their students.

- Is there some way to combine and better align the SWEP program with the Vallejo and Benicia programs to more effectively cover ALL of Solano County under one consistent offering and financial umbrella inclusive of SCWA? Fortunately, the cities of Vallejo and Benicia have now joined the SWEP Committee effective July 1, 2012, the start of the new school contract year. SCWA will continue to support SWEP in some areas but each will remain independent in running programs.
- I have always had trouble with getting information about SWEP programs and contests into the various local newspapers. However, I have been successful with submitting two articles with photos about our contest winners in the Vacaville Magazine to be published in their July-August 2012 issue.
- I regretfully submit my resignation of the SWEP contract effective June 31, 2012. I would propose that I could make myself available to work with the new hire after July 1 for a defined sum if and when my personal schedule allows such that there will be a more effective transition of the SWEP program. It has been an outstanding time working with each and every SWEP Committee member since 2004. Thank you immensely for the opportunity and I wish each individual the best in life.
- I will continue to coordinate the bookmark and video contests under a contract with SCWA for the 2012-13 school year.

Respectively submitted,

Ursula Heffernon  
SWEP Education Consultant  
June 12, 2012

# The Watershed Explorers Program

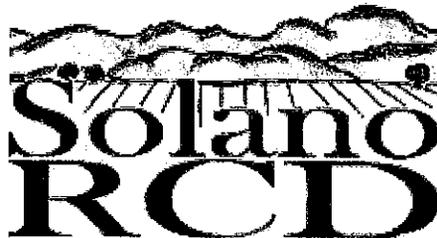
## 2012 Program Summary

Solano RCD is very grateful of its current local funders, which include:

Solano County & all City Jurisdictions  
Vallejo Water Conservation Program  
Fairfield Suisun Sewer District  
Suisun Resource Conservation District  
City of Suisun City  
Vallejo Sanitation and Flood Control District  
Potrero Hills Landfill

In conjunction with all school districts in Solano County

Written and Administered by  
Solano Resource Conservation District



1170 N. Lincoln Street, Suite 110  
Dixon, CA 95620  
Tel (707) 678-1655x3

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JUL 20 2012

FAIRFIELD-SUISUN  
SEWER DISTRICT

## The Watershed Explorers Program 2012 Program Summary

### Overview

The Watershed Explorers Program utilizes science and place-based learning to build awareness and understanding of local creeks and watersheds, their unique ecosystems, and ways in which we care for them. In-the-field discussions and activities teach children about the fragile habitats of birds and other wildlife. Students learn the importance of water quality in their watershed and discover the impacts of urban runoff and its components: trash, oil, household chemicals and other human and domestic animal waste and discards. Concepts are directly linked to the California State Standards and the program offers local children, many of whom have little or no experience being in open space settings, a concrete, experiential introduction to their watershed and creatures that inhabit it.

### Audience

The Watershed Explorers Program was located in Lynch Canyon Open Space in 2007 and 2008. Four classes participated (~120 students) in 2007. Eighteen classes participated (~ 427 students) in 2008. Four classes participated in an abridged program in Hanns Park along the Blue Rock Springs Corridor (~ 80 students) in 2009. In 2010, we expanded the program to encompass both locations and 807 students and 214 adults participated.

1,181 students from 54 classes in every city in the county participated in the 2011 program. In Hanns Park, Benicia and Vallejo students participated along the Blue Rock Springs Corridor. The Lynch Canyon location was moved to Rockville Hills Park in Fairfield. Students from Rio Vista, Fairfield, Suisun City, Vacaville and Dixon were involved in the program.

There were 923 students from 39 classes involved in the program this year. Six field trips took place at Hanns Park with a total of 11 classes of students. Nine field trips were held at Rockville Park with 28 classes participating. The program totals are show below. 1,198 students and parents attended at one of the two locations from February through June 2012 (about 300 less than 2011).

Unfortunately, in 2013 the program is projected to lose more funding due to the exhaustion of one of our funders resources. It is never the less our hope to expand locations and add on locations at Lagoon Lake in Vacaville and Sandy Beach Park in Rio Vista.

### Total Participants

Date	City	School	Total Students	Total Adults	Total People
<b>Watershed Explorers at Hanns Park 2012</b>					
February 9, 2012	Vallejo	Cooper	35	8	43
February 16, 2012	Vallejo	Wardlaw	49	17	66
February 21, 2012	Vallejo	Beverly Hills	52	18	70
February 23, 2012	Vallejo	Cooper	51	11	62
February 28, 2012	Vallejo	Wardlaw	56	10	66
March 6, 2012	Benicia	Henderson	36	6	42

**The Watershed Explorers Program  
2012 Program Summary**

Watershed Explorers at Rockville Hills Park 2012					
May 4, 2012	Vacaville	Alamo	78	39	117
May 10, 2012	Rio Vista	DH White	70	24	94
May 17, 2012	Vacaville	Orchard	43	15	58
May 24, 2012	Fairfield	David A Weir	99	17	116
May 25, 2012	Dixon	Dixon Montessori	67	25	92
May 30, 2012	Fairfield	Cordelia Hills	76	30	106
May 31, 2012	SC Unincorporated	Tolenas	58	9	67
June 1, 2012	Suisun City	Suisun Elementary	73	23	96
June 7, 2012	Fairfield	Cleo Gordon	80	23	103
<b>PROGRAM TOTALS (Includes both locations)</b>			<b>923</b>	<b>275</b>	<b>1198</b>

**Goals and Objectives**

The primary program goal is to help students develop an awareness of the outdoor, natural world. Participants leave the program:

- understanding the impact of storm water on their watershed, particularly the impacts of oil, chemicals and human debris in that storm water;
- learning individual stewardship practices in their watershed, i.e., how they can mitigate or eliminate the impacts of their own and their family's behaviors around storm water protection and water quality;
- understanding the difference between native and non-native, invasive plants;
- knowing about at least one pollinator species.

Prior to the field trip, teachers are provided with manuals to prepare students for their experience. Students are given journals and participate in various activities including:

- making their own paper watershed model to observe what happens when oil or other contaminants are improperly disposed of somewhere in the watershed;
- learning how water flows;
- counting the number of gallons of water they use each day and discussing ways to lessen their consumption;
- drawing the life cycle of a plant, reading about pollinators and discussing phenology and its relevance to the interconnectedness of humans, animals, weather and our environment.

**Method**

When students arrive for the field trip, they are greeted with an introduction to the Watershed Explorers Program. As young scientists, students are informed of their tasks and are equipped with instruments to assist them with data collection: their journal, clipboard, magnifying lens, and binoculars.

In the natural environment, students, teachers and parents engage in an interactive learning experience about the relationship between human behaviors in urban areas and the impact of those behaviors in wild or open space. An Enviroscape presentation demonstrates the dynamics of a watershed and how it is affected by pollution. This hands-on activity provides students with a three-dimensional visual of the watershed and allows them to see how urban runoff enters

## **The Watershed Explorers Program 2012 Program Summary**

nearby storm drains and ends up in the Sacramento River, Suisun Marsh, or San Pablo Bay (depending on the students' residence). Students are instructed to think about the runoff on the topographies of their study watershed and their constructed watershed. Following the demonstration, students receive a used oil collection brochure, which is intended for the use of their parents/guardians.

As students look for traces of birds, insects and mammals, they hike through open spaces only miles from their home. Students use their journals and identify popular plant species, learn how some plants are pollinated and learn how seed dispersal works for different plants. While engaged in these activities, students are asked to continually keep in mind how everything in nature fits together.

During the field trip, usually for the first time, students have the opportunity to plant plugs or propagate plants. Students attending the Rockville Park field trip site had the chance to propagate California poppy's. Students were provided with a 'cow pot' or a small pot made from cow dung. It was a hit with students especially since the pots are biodegradable and can be placed directly into the ground. This was the first year students took the plants home with them. We plan to continue this method next year at the Rockville site.

At the Hanns Park site along Blue Rock Springs Creek students planted 1000 grass plugs of Creeping wild rye, Santa Barbara sedge, and Idaho fescue. The hands-on restoration component of our field trips is a valuable experience for the students. Nearly all students have never had the opportunity to get their hands in the soil and plant plugs. Additionally, students get to be a part of the installation of a major restoration project in their own town whose progress they are able to observe over a number of years.

At the end of the field trip the majority of students exclaim that the planting and seeing wildlife was their favorite components of the program. Many also note their enjoyment with the watershed model. They gain a more comprehensive understanding of the watershed by observing the course litter/oil/dog waste takes from the storm drain to the creek as they rain down with spray bottles on the enviroscape.

### **2012 Watershed Explorers Evaluation Narrative**

A four-hour field trip cannot fill in the gaps in applied learning created by a curriculum that teaches only to test results, but we believe that our program allows participating children to develop a beginning experiential understanding of their local watershed systems and a curiosity to learn more about the natural world. We expect the students we work with to take away a heightened sense of stewardship, and some practical means of demonstrating good stewardship in their daily lives when they finish the Watershed Explorers program.

To measure the outcome of the program and our expectations, we administer a 6-question pre and post assessment to each participating student. Questions designed to measure students' understanding of two watershed systems (the water cycle, focusing on storm water runoff and native plant and pollinator systems), and to assess students' grasp of concrete ways they can interact with those systems to protect and enhance their watershed.

## The Watershed Explorers Program 2012 Program Summary

We collected 860 pre-assessments from participating students who took part in the class at one of two different sites, followed by 827 post-assessments from the same students. Data tables providing of these results can be found at the end of this report.

In the pre-assessment, 21% of respondents were able to answer all questions with correct/partially correct answers. By the post assessment, 77% of the respondents were able to respond to all questions with correct/partially correct answers. This represents a performance increase of 55%, and represents a "grade" movement from an "F" to a high "C." Students who participated at the Blue Rock Springs Creek site demonstrated an increase of 57% in their overall assessment score: in the post-assessment 74% of respondents were able to provide correct or partially correct answers; while students who participated at the Rockville Park site increased their overall post-assessment score by 60% (79% of respondents providing correct or partially correct answers).

The orange columns in each of the data tables provide information about the total number of correct and partially correct answers for each question. The delta columns in the post assessment section demonstrate the percent change in correct answers from the pre-assessment to the post assessment. At the Blue Rock Springs Creek site, 97% of respondents responded with correct/partially correct answers to question 6 (the question that asked for students to demonstrate real-life applications to what they learned) in the post assessment. In the pre-assessment, only 36% of those same students gave correct/partially correct answers for that question, an improvement in performance of 61%. At the Blue Rock Springs Creek site the numbers were very similar: 96% of respondents responded with correct/partially correct answers to question 6 in the post assessment, compared to 46% of students able to provide correct/partially correct answers for that question in the pre-assessment, a 50% improvement in performance.

Improvement of this sort was generally consistent with all questions, though as is shown in the tables, some concepts were more difficult for the students than others. The differences between native and non-native/invasive organisms proved most difficult (59% of all respondents could correctly or partially correctly explain the difference). This represents a 9% increase in understanding of this concept from last year.

The post-assessment response improvements are better than the early years of the program and consistent with or slightly improved from last year's scores. We begin with a fresh audience each year, so we cannot compare results across program years, but it is interesting to look at the trends. They do suggest improvements in large societal understanding of watershed functions and importance. Additionally, we can attribute at least part of this improvement in post assessment performance with our continual fine tuning of the program and our teaching strategy, as well as with our growing number of established relationships with many of the teachers of participating classes, whom we assume – and in some cases know – incorporate the Watershed Explorers program into their curriculum.

The current budget reality has retarded one of Solano RCD's big picture program goals to expand watershed education efforts throughout the county to provide three outdoor watershed experiences during each child's K-12 school experience. We would like to have the opportunity to work with Watershed Explorer program alumni again in middle school and then again in high

## The Watershed Explorers Program 2012 Program Summary

school. When that happens, we will have sufficient program depth to make some more sophisticated measurements of long-term retention of concepts and concrete use of the knowledge students take away from their Watershed Explorers experience.

### Teacher Quotes

We had a fabulous time! Yes, it was a bit trying at the end with the delay from the bus, but we won't let that discolor our experiences. We had wonderful teachers (field trip educators) and all of the kids thoroughly enjoyed the day and learned very important information! We all appreciate everything you do!!! Janet Bennett, Beverly Hills, Vallejo

I just wanted to tell you what an outstanding field trip that was! The kids truly enjoyed it and learned a lot! The kids in my class say it is the best fieldtrip of their life and I thought the length and projects that the kids got to do were very valuable and just right. I appreciate letting the kids use the binoculars, as so much of science is taken away from kids these days that it makes this very organized fieldtrip even more valuable. I also heard from the parents that they really loved it. I look forward to the next one!

Carole Hartley, Wardlaw Elementary, Vallejo

This program is invaluable to the students of Fairfield. The students need to be out in nature to learn about the world we live in. And they need to be out in nature just to enjoy it as well. I grew up in the country, and I completely took for granted what a gift that was. As a kid, it was great fun just to be outside and observe the plants, trees, and wildlife. As an adult it is fun to watch the wonder of the children as they explore their world. All kids need that. I was blessed to share this experience with them, and I hope to return next year.

Lisa Drake, David A.Weir Elementary, Fairfield



# Clean Water Outreach Program 2011-2012 Year End Report



Rodriguez High School students conduct water quality tests and sample macroinvertebrate life in lower American Canyon Creek as part of their Curb2Creek stormwater investigation unit.

Prepared June 2012 by Megan Harns  
UC Davis John Muir Institute of the Environment  
For more information, contact Joyce Gutstein at [jjgutstein@ucdavis.edu](mailto:jjgutstein@ucdavis.edu)

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## Summary

Fairfield-Suisun Sewer District (FSSD) personnel and educators from the UC Davis John Muir Institute of the Environment (UCD) have completed the fourth phase of a partnership to develop and implement a Clean Water Outreach Program (CWOP) for secondary school-aged youth in the FSSD service area. Major goals in 2011-2012 were to retain participating high school teachers, to recruit additional middle or high school teachers, and to promote CWOP more widely in Solano County. Outcomes for these initiatives are reported here.

### Sewer Science High School Program

FSSD's Sewer Science is a high school curriculum that introduces students to how Fairfield and Suisun collect, treat, and release wastewater. The unit revolves around a straightforward lab that simulates the wastewater treatment process, accompanied by water quality testing.

### Curb2Creek High School Program

The Curb2Creek program is a high school environmental science curriculum focused on studying urban runoff from school sites to local streams, followed by student-designed action projects. The goals of the program are to help young adults understand the consequences of stormwater pollution and to support behavior changes in those students and their peers.

### Middle School Program

This curriculum features an explanation of local water systems and includes modified versions of the high school activities that teach about life science (for 7<sup>th</sup>) or physical science (for 8<sup>th</sup>).

### “At a Glance” Facts about the 2011-2012 Clean Water Outreach Program

- ≈ 100% of FSUSD high school environmental science classes participated in CWOP (Sewer Science, Curb2Creek, or both)
- ≈ Golden West Middle School in Travis pilot tested the 8<sup>th</sup> grade Sewer Science lab
- ≈ Work with partners continued to explore expansion and sustainability options
  
- ≈ About 270 high school and 180 middle school students participated in the CWOP
- ≈ 150 high school students experienced both Sewer Science and Curb2Creek
- ≈ Approximately 2,995 student-hours were achieved across programs



**Curb2Creek: Program Background**

“Curb to Creek: An Urban Stormwater Research and Action Program” was originally developed by UC Davis educators in 2004-2005 to provide an environmental science class at Rodriguez High School with a comprehensive study of urban runoff. In 2008-2009, the original curriculum was modified, pilot tested, and evaluated by FSSD and JMIE educators. This was further refined and evaluated from 2009-2011 by the JMIE educator, now the CWOP lead educator. In January 2011, the Director of Secondary Education approved the 12 part “Clean Water Curriculum” for use in FSUSD high school environmental science classes. The “Clean Water Curriculum” contains two class sessions for introduction, four sessions for the Sewer Science lab, and six sessions for Curb2Creek. Teachers are provided with a CD-ROM of the FSUSD curriculum as well the full Curb2Creek curriculum if they wish to enrich their unit with additional activities.

**Curb2Creek: 2011-2012 Implementation Report**

In 2011-2012, all participating teachers used the introductory PowerPoint and documentary DVD, and all students had the opportunity to conduct water quality testing at least once. All classes did the Field Investigation enrichment unit with the support of the CWOP educator. Below, Table 1 summarizes this year’s participation, as well as time spent on the program.

Table 1. 2011-2012 Curb2Creek participation summary

<b>High School</b>	<b># teachers</b>	<b># classes</b>	<b>approx. # students total</b>	<b>approx. # hours/class</b>	<b>approx. student hours total</b>
Fairfield HS	1	5	150	6	900
Rodriguez HS	1	1	30	7.5	225
Rodriguez HS	1	3	90	4.5	540
<b>Totals</b>	<b>3</b>	<b>9</b>	<b>270</b>	<b>--</b>	<b>1,665</b>

The following sections provide information on implementation with each participating teacher:

*Fairfield HS*

In 2011-2012, FHS environmental science teacher Jill Bolduc expanded her involvement in the C2C program, leading more activities from the curriculum with more classes, and making stronger connections between C2C and other units. For example, Mrs. Bolduc’s students first did water testing with simulated wastewater in the Sewer Science lab, then applied those skills to test school runoff during their C2C school investigation, on other field trips, and lastly on their C2C field trip to Laurel Creek. Through repeated exposure to concepts and skills, Mrs. Bolduc engaged her students in a year-long, in-depth exploration of water quality.

The CWOP educator co-taught three college prep class periods with Mrs. Bolduc to prepare them for the Laurel Creek field trip, and on the field trip itself circulated assisting all three groups of students. Mrs. Bolduc’s other two classes were AP Environmental Science; their advanced skills made a pre-trip class visit unnecessary, and on the field trip itself, these classes were broken up among the three college prep classes to assist their peers. These AP classes also participated in the Biomonitoring program run by the Solano Resource Conservation District, making these students especially knowledgeable about stormwater and its affect on habitat.

During these class visits and field trips, the CWOP educator observed not only students' competence at conducting and interpreting water tests, but was also impressed by their above-average understanding of how pollutants reach waterways and what impacts they have. Students were also very knowledgeable about the connection between their community and the Pacific Garbage Patch that stormwater runoff contributed to. Some students appeared to be very emotionally invested in the plight of creek and marine wildlife that are negatively affected by stormwater, commenting to the CWOP educator that they now "yell at their friends about trash" at lunchtime, and that they felt bad for the fish and crayfish "that have to live in the nasty water from [their] school."

Because of her expert implementation of CWOP curricula, Mrs. Bolduc's classes were filmed and photographed (with permission) for use in future training and promotional materials.

#### *Rodriguez High School*

In 2011-2012, Curb2Creek was used in all RHS environmental science classes to different degrees. Continuing teacher Matt Love fully integrated C2C into his water unit with his one class, adding more activities to the School Investigation, and adding the Field Investigation at American Canyon Creek. His students had studied American Canyon Creek's headwaters with Solano Land Trust earlier in the year and made good connections. Mr. Love appeared more confident this year in implementing the unit with minimal assistance, and his students appeared to be more engaged and knowledgeable than in past years.

Mr. Love also recommended the program to recently returned RHS teacher John Salerno-White, who was a key member of the UC Davis-led team that originally designed Curb2Creek in 2004-2005. Mr. Salerno-White had very limited time this year and decided to use only the introductory and field trip units. To ensure good student learning outcomes, the CWOP educator conducted a pre-field trip class session with each of Mr. Salerno-White's three classes and co-led the field trips. Mr. Salerno-White supports continued participation in Curb2Creek.

#### *Armijo High School*

Environmental Science was discontinued at AHS at the end of the 2010-2011 school year. Alternate attempts to serve AHS are described in the section "Solano County Partnerships."

#### **Curb2Creek: Program Evaluation**

Email, phone, and in-person communication with teachers and students revealed the following:

- ≈ Students understand that stormwater is not cleaned; therefore we should not act in ways that cause pollution (don't litter, fix oil leaks, don't dump chemicals, etc.)
- ≈ The "Synthetic Seas" DVD leads students to care about stormwater's impacts on wildlife
- ≈ Teachers value the Field Investigation unit even more than the School Investigation for its ability to make pollution a "real" problem and to showcase "green" careers
- ≈ Students enjoy the campus and field investigations; they're outdoors doing new activities
- ≈ Students perceive water quality testing as "doing real science" and enjoy it

#### **Curb2Creek: Looking Forward**

FHS and RHS teachers will continue implementing Curb2Creek with FSSD support next year.

### **Trend Analysis: Curb2Creek**

In 2008-2009, different models of Curb2Creek were piloted at the three different high schools in FSUSD: Armijo, Fairfield, and Rodriguez. From 2008-2011, when the environmental science program was cancelled at AHS, Curb2Creek was implemented with 100% of eligible students. After the 2008-2009 pilot, participation at FHS has remained at 100%-- the fluctuation in numbers has been due to the addition or subtraction of class periods when ES is offered. In 2009-2010, RHS did not participate in Curb2Creek because the environmental science teacher did not have time to add a unit at the end of the year; however, by 2010-2011, RHS had integrated Curb2Creek into its ES curriculum and participation has remained at 100% since. It is expected that Curb2Creek will continue to be used in 100% of eligible FSUSD classes and that any fluctuation in student numbers will be from the addition or loss of class periods.

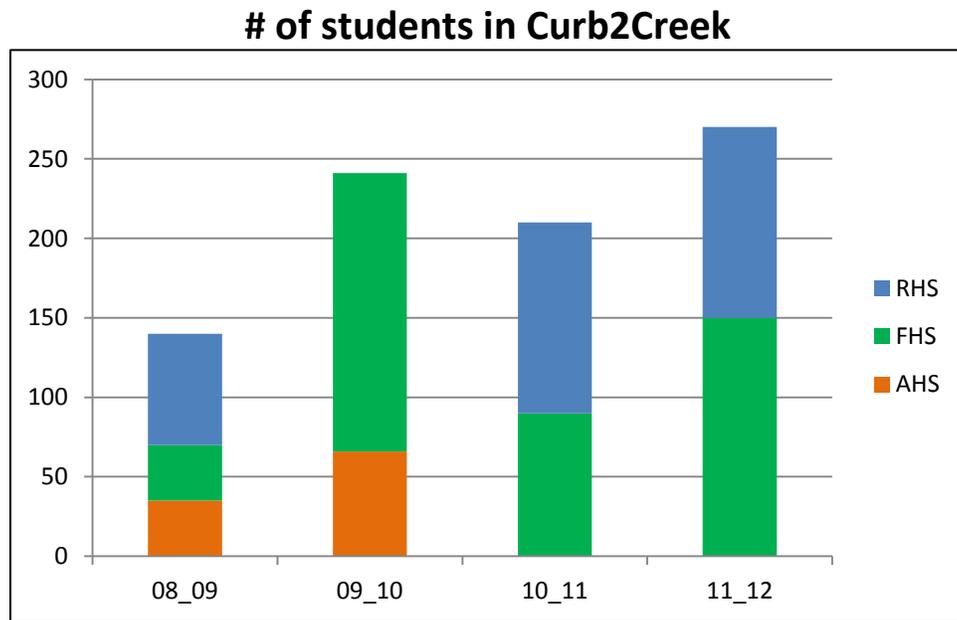


Figure 1: Curb2Creek student participation by academic year

### **Sewer Science: Program Background**

From 2008-2010, the Bay Area’s original Sewer Science program was modified for use with high school classes in FSSD’s service area. A more straight-forward four day lab resulted with guiding PowerPoints, safer water quality tests, and strong correlations to science standards.

Fairfield Suisun Unified School District approved the “Clean Water Curriculum” in January 2011 for use in high school environmental science classes. This 12 session curriculum includes two introductory lessons, six class periods for Curb2Creek, and four class periods for Sewer Science. The only school eligible to participate in Sewer Science in 2010-2011 was Fairfield High; RHS students has already done the lab as Biology students, and Armijo High School’s environmental science program had been cancelled. FHS teacher Jill Bolduc received training and co-teaching support when she taught Sewer Science for the first time in spring 2011.

### **Sewer Science: 2011-2012 Implementation Report**

In 2011-2012, Mrs. Bolduc confidently conducted Sewer Science herself with all five of her classes, which are all the CWOP-eligible classes at FHS (see Table 2). By also teaching Curb2Creek and other regionally sponsored programs, Mrs. Bolduc ensured that her students received a comprehensive, local, and “real-life” water education program. Because of her expert implementation of the CWOP curriculum, Mrs. Bolduc’s classes were filmed and photographed (with parental permission) for use in future training and promotional materials.

Table 2. 2011-2012 Sewer Science participation summary

<b>High School</b>	<b># teachers</b>	<b># classes</b>	<b># hours/ class</b>	<b># students total</b>	<b>total student hours</b>
Fairfield HS	1	5	5	150	750

At RHS, Mr. Love again postponed teaching Sewer Science, as a majority of his single class of students had done the lab two years ago as freshman Biology students. Returning RHS teacher John Salerno-White was not in communication with the CWOP educator until May 2012 and so missed the opportunity to implement Sewer Science with his classes. Therefore, no RHS students participated in Sewer Science in 2011-2012, though not for a lack of teacher interest.

Finally, based on the CWOP educator’s participation in the SCC/SCOE WIP curriculum project in 2010-2011, a partnership with Vanden High in 2011-2012 to conduct Sewer Science with incoming 9<sup>th</sup> grade students seemed imminent. Ultimately, the science department declined. However, Travis students were served with educational tours at FSSD’s treatment plant; please see the section “Solano County Outreach and Partnerships” for more information.

### **Sewer Science: Looking Forward**

It is expected that FSSD will attain 100% saturation in eligible classes in FSUSD in 2012-13. Jill Bolduc will continue Sewer Science at FHS. At RHS, Matt Love will definitely resume teaching Sewer Science, and John Salerno-White is considering Sewer Science as well. Vanden High in Travis might join in future, pending resources, but will not be approached in 2012-2013.

### **Trend Analysis: Sewer Science**

In the 2008-2009 academic year, Sewer Science was first piloted with the majority of 9<sup>th</sup> and 10<sup>th</sup> grade students at Rodriguez High School in Biology. In 2009-2010, several teachers were unable to participate, for a variety of reasons, and student numbers dropped by about 20%. RHS participation is represented in blue in Figure 1. During 2008-2010, Sewer Science was not conducted at any other high school, so it reached about 1/3<sup>rd</sup> of Biology students in FSUSD.

The summer of 2010 saw FSUSD's decision to limit Sewer Science to Environmental Science classes instead of Biology; this dramatically shrunk the pool of classes eligible to participate in any given year. Additionally, at RHS, environmental science students had already experienced Sewer Science as either freshmen or sophomore biology students, prompting RHS instructors to postpone implementation for the next two years. This combination of factors had the potential to drop Sewer Science participation to zero; however, a new teacher was brought on-board at Fairfield High School in 2010-2011. The following year, 66% growth was achieved through an increase in the number of ES classes taught at FHS. FHS data is shown in green in Figure 1.

It is expected that all environmental science classes at RHS and FHS will participate in Sewer Science in the 2012-2013 academic year, resulting in 100% saturation of eligible classes.

At no time was Armijo High School involved in Sewer Science, and with the cancellation of environmental science at that school in 2011, by FSUSD's decision, it is no longer eligible.

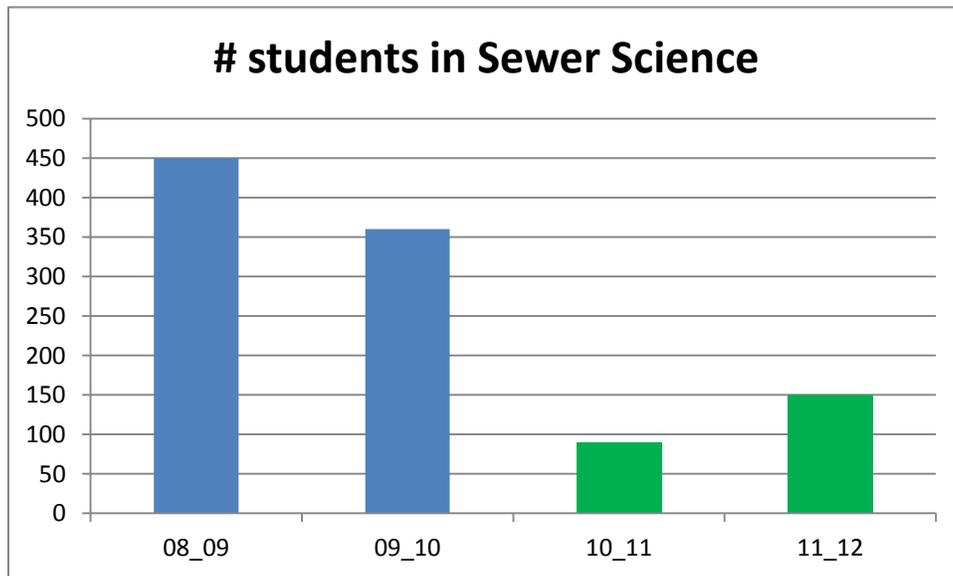


Figure 2: Sewer Science participation by academic year

### **Middle School Program: Program Background**

During 2009-2010, a draft middle school curriculum was developed by the CWOP educator with sequences for 7<sup>th</sup> and 8<sup>th</sup> grade, corresponding to the respective science standards. In 2010-2011, with FSUSD's decision to limit Sewer Science and Curb2Creek to environmental science high school classes only, interest in developing a middle school program was renewed, as it might then be the only time that all students in the district would have access to information about wastewater systems and water quality protection.

Through the CWOP educator's participation in the SCC/SCOE WIP curriculum project in 2010-2011, an enthusiastic and water-savvy middle school teacher from Golden West Middle School in the Travis school district, Karin vanKlaveren, was recruited to pilot part of the program during 2011-12 as part of FSSD's efforts to promote CWOP more widely in Solano County.

### **Middle School Program: 2011-2012 Implementation Report**

In 2011-2012, Ms. vanKlaveren pilot tested the 8<sup>th</sup> grade sewer system activity (based on Day 1 of the high school Sewer Science lab) with her 6 classes. The lab was focused on calculating the density of different waste materials and observing their behavior in simulated wastewater in the model sedimentation tank. Ms. vanKlaveren met with the CWOP educator after school to receive training in how to conduct the lab, and later, to provide feedback and suggestions for improvement. Her assistance was invaluable in refining the lesson plans and supplemental materials, as well as fine-tuning the lab procedures and instructions for students.

Table 3, below, summarizes participation in the middle school pilot program.

Table 3. 2011-2012 middle school pilot participation summary

<b>Middle School</b>	<b># teachers</b>	<b># classes</b>	<b>approx. # students total</b>	<b>approx. # hours/ class</b>	<b>approx. student hours total</b>
Golden West	1	6	180	3	540

### **Middle School: Looking Forward**

Ms. vanKlaveren hopes to use the 8<sup>th</sup> grade lab in 2012-13, and has encouraged her colleagues teaching 7<sup>th</sup> grade to join the program as well. However, the main focus of the middle school program in 2012-2013 will be gaining FSUSD approval of a refined middle school curriculum as soon as possible, so that teachers from at least two FSUSD middle schools can be recruited and trained to implement the 7<sup>th</sup> or 8<sup>th</sup> grade curricula this next year. The overall goal is to involve every FSUSD middle school in the program within one to two school years. Golden West Middle School in Travis will remain an important, if secondary, audience pending the outcome of FSUSD approval, the availability of funding, and the degree to which the objective of spreading the CWOP curriculum more widely in Solano County can be met.

## **Solano County Outreach and Partnerships**

In addition to maintaining contact with past-participating teachers, FSSD staff and the CWOP educator worked to raise the profile of the Sewer Science and Curb2Creek curricula in Solano County in 2011-2012. This was accomplished through presentations, developing web content, and partnerships with education and industry partners. This section summarizes those efforts.

### **Outreach Presentations and Web Content**

FSSD has created a webpage about the CWOP curricula, hosted on its own website, at <http://www.fssd.com/CleanWaterOutreachProgram.html>. It includes a three minute video about Sewer Science, filmed with FHS teacher Jill Bolduc, and edited by the CWOP educator. FSSD representatives have shared information about CWOP curricula at other meetings in Solano County, in the Bay Area, and across California, providing leadership and guidance to educators and industry leaders alike in the growing area of water and wastewater education.

On January 24, 2012, a meeting was held with representatives of Solano County's drinking water, wastewater, and stormwater industries, as well as a SCOE representative, and local water educators. The purpose of the meeting was to share with each other about current outreach programs, best practices, and areas for cooperation and growth. FSSD's Rita Arwine contacted each industry segment to identify participants, created a contact list, and hosted the meeting at FSSD. The CWOP educator facilitated the meeting and took notes. Together, they made a presentation about the CWOP curricula and unveiled the Sewer Science promotional video to participants. Meeting notes and the contact list were later sent to participants for the purpose of fostering better communication and future partnerships across the county.

The Solano Environmental Educator network (SEE) is an association of environmental education providers in Solano County. In 2011-2012, SEE invited members to make presentations about their programs, and began building a website at [www.outdoorsolano.info](http://www.outdoorsolano.info). The CWOP educator and FSSD's Rita Arwine presented about Sewer Science and Curb2Creek at a SEE meeting on February 9, 2012. FSSD submitted information and photos to the website builder in spring 2012.

### **Solano County Partnerships**

Solano Community College (SCC) received a series of large grants to establish a Workforce Improvement Partnership (WIP) to foster formal relationships in Solano County that promote student preparedness for careers in water/wastewater industries. SCC contracts with the Solano County Office of Education (SCOE) for major sections of the grant.

#### ***WIP: Curriculum Sub-Committee***

In 2010-2011, FSSD provided critical leadership and resources to several WIP sub-committees, particularly on career outreach and secondary school curricula. FSSD's Sewer Science and Curb2Creek curriculum were used as the foundation of the Water & Wastewater Education Curriculum (WVEC). The WVEC was released to committee teachers in late 2011 with the objective of county-wide release in the 2011-2012 school year. The CWOP educator was ready to conduct teacher trainings in 2011-2012 to support the WVEC Curriculum but was not contacted by SCOE to contract for this task. It is unclear at the time of this report how widely the WVEC was distributed or if teacher training is planned for 2012-13.

*WIP: Project-Based Grants: Armijo Academy*

In fall 2011, SCOE sought proposals from local contract educators to fund short-term projects that would use activities from the WWEC with secondary students at new or existing sites in Solano County. The CWOP educator worked with FSSD, UC Davis JMIE, SCOE, and SCC representatives to draft a proposal for an after-school “academy” for students at Armijo High School that would mitigate the loss of that school’s classroom environmental science program while also helping the district’s most under-served school population to begin a college career. While the idea was well-received, a “freeze” on new CTE pathways at the state level prevented SCC/SCOE from creating a mechanism for providing college credit for participants. Inquires with SCOE/FSUSD about offering high school science credit met with similar accreditation problems. Without high school or college credit motivation, all partners agreed that it was unlikely that students would participate, and the proposal for AHS was withdrawn.

*WIP: Project-Based Grants: Middle School Tech*

With the dissolution of the Armijo Academy proposal, SCOE Assistant Superintendant Janet Harden and CTE Program Manager Gillie Miller then met with FSSD and JMIE representatives to discuss alternate opportunities to partner in 2011-2012. A middle school after-school tech program was forming, and FSSD was invited to guest-present selected activities that related to how wastewater systems are engineered. However, pilot sites took longer to assemble than anticipated, and CTE determined that there was not time for CWOP activities in the program.

*WIP: Project-Based Grants: Vanden High School Wastewater Treatment Plant Tours*

Tours of the FSSD Treatment Plant were another idea presented at the SCOE/FSSD/JMIE meeting. This program was implemented successfully: SCOE provided bus money and FSSD staff provided tours that emphasized education and career opportunities. Every 9<sup>th</sup> grader at Vanden High School in the Travis school district was able to attend. Travis and/or FSUSD high schools may attend tours in the future, pending bus funds from SCOE/CTE or other sources.

# Suisun Marsh Watershed & Wetland Education Program

## *2011 Final Report*

January 2012

### **Program Funding** Solano County Water Agency

Support for 12 additional classes  
Solano Community College in partnership with Solano  
County Office of Education

Additional support for buses and printing  
Fairfield Suisun Sewer District

In conjunction with  
Fairfield-Suisun Unified School District, Travis Unified  
School District, Vacaville Unified School District &  
Vallejo City Unified School District

*Report written by*  
*Solano Resource Conservation District*



1170 N Lincoln, Ste 110 Dixon, CA 95620  
Office 707.678.1655  
Fax 707.678.5001

Suisun Marsh Watershed & Wetland Education Program  
Final Report 2011

Solano County Water Agency (SCWA) is in the fourth year contracting the Solano Resource Conservation District (Solano RCD) to implement the Suisun Marsh Watershed & Wetland Education Program. Through SCWA funding, 21 classes enrolled in the program. Additionally, we were awarded funding through a SB70 grant - Community Collaborative and Workforce Innovation Partnerships, funded by the California Community Colleges Chancellors Office to Solano Community College. This grant allowed us to include an additional 12 classes.

The curriculum was written in August of 2008 and has been revised each year. It includes three pre-field trip classroom lessons, one poster session, a five hour field trip at Rush Ranch, and a post-field trip lesson. The classes worked with Marianne Butler with Solano RCD, Martha Rocha with Suisun Resource Conservation District (Suisun RCD), and Solano RCD's three program educators – Don Broderson, Carla Murphy and Wendy Glenn.

### **Students**

In 2008, 140 students participated from 4 classes in Crystal Middle School of Suisun City.

In 2009 approximately 600 students from 18 classes attended from Crystal Middle School in Suisun City, Grange Middle School in Fairfield, Sullivan Middle School in Fairfield, Cambridge Elementary in the Travis Unified School District.

In 2010 approximately 626 students participated from 18 total classes Crystal Middle School in Suisun City and Grange Middle School in Fairfield. An abridged program was provided for several eighth grade classes from Crystal Middle.

In 2011, 33 classes of approximately 1,129 students from Crystal Middle School in Suisun City, Grange and Sullivan Middle Schools in Fairfield, Vaca Peña and Orchard Elementary in Vacaville, Center Elementary in the Travis District and Solano Middle in Vallejo participated in the program. 29 classes were 6<sup>th</sup> grade level and 4 were 7<sup>th</sup> grade level.

**Since 2008, 2,495 students in 73 classes have participated in the program.**

### **Methods**

Beginning in late August, three classroom sessions are held. Each class then participates in a poster session at their school followed by the all-day field trip to Rush Ranch Open Space. Field trips are followed with a classroom session where students solidify what they've learned and talk about the ramifications of human behaviors on marine and marsh health. Martha Rocha with Suisun RCD presented the lessons separately to each class.

The student field manual is included with this report. The California science standards are aligned with each lesson. The standards are incorporated in Appendix A. Descriptions of the lessons are as follows:

The first lesson addresses the characteristics of a watershed and demonstrates how storm water pollution affects our creeks, marsh, and ocean. An enviroscape model is presented to visually show students how litter and debris runs off the pavement, flows into the storm drain, to the nearest creek, enters the Suisun Marsh and eventually makes its way to the ocean. Following, students work together to create a wetland model, which demonstrates the buffering and filtering effects of the marsh. The lesson works to bring home the concept that the Suisun Marsh is part of the students' watershed, while demonstrating the important features of a marsh.

In the second lesson, students look at the geography of Solano County as it relates to the Suisun Marsh Watershed through various types of maps. Students travel around the classroom in small

groups, visiting different mapping stations and work together in groups to answer questions about each map. Maps for this session include a local area road map, Solano County topographic map, Suisun Marsh watershed map, a nautical chart of Suisun Bay, and an aerial map of Lake Berryessa and Suisun Bay.

The third lesson consists of two central concepts. The first provides background on native and non-native plants. The second reveals the significance of plants and animals on the endangered, threatened, and species of concern lists that reside within the Suisun Marsh. Classes participate in a discussion on how human actions can decide whether a species is tipped over the edge to extinction, or brought back to increase in numbers for future generations. This lesson also provides instruction for the poster session. Students are broken into eight groups and assigned a species to research. The list of species included: Suisun Shrew, Chinook Salmon, Soft Birds Beak, Giant Garter Snake, Delta Smelt, Salt Marsh Harvest Mouse, Suisun Thistle, and the California Clapper Rail. Each group is provided with a packet of information on their species.

The poster sessions are primarily held prior to each class's field trip. Students research their species and present their findings to the class.

The all-day outdoor excursions at Rush Ranch are held September - December. Each field trip begins with a rotation through three stations centered on the topics of soil, water, and plants. At the soil station, students use a color chart to identify soil composition and use their hands to experience the different textures of soil in the marsh and grassland. At the water station, students test the water from First Mallard Slough for dissolved oxygen, temperature, phosphate, pH, and turbidity. As a small group, they discuss the data from the experiments and theorize how various types of pollution may affect Suisun Marsh and other wetlands. At the plant station, students taste pickle weed and set up a plant sampling quadrant by using a hula-hoop to randomly select a site. Students analyze the percent cover of plant species (native or non-native) within the site using plant guides created by Suisun RCD. Following the stations, students enjoy lunch at the picnic tables in the Eucalyptus grove.

Next, students explore the Rush Ranch property by taking a nature walk through the different habitats, which include a eucalyptus grove, grassland and marsh. While on the walk, students look for scat, tracks, plants and wildlife. Each student is equipped with a pair of binoculars to look for birds and they have the opportunity to view several barn owls. An olive tree outside of the barn provides evidence of owls as students observe owl pellets. As students venture into the marsh they taste wild blackberry, which is a very exciting experience for them.

Following the interpretive walk, students sit quietly on top of Overlook Hill and write poetry about their experiences and impressions of the wetland. Teachers submit the poems to River of Words. River of Words is a California-based non-profit organization that connects kids to the watersheds they live in through art and poetry. The organization runs an annual Art and Poetry Contest in conjunction with the Library of Congress. All program participants receive a Watershed Explorers Certificate. In 2010 a student from Grange Middle School was a finalist in the One Block Contest.

After the field trip teachers are asked to play "Our Synthetic Sea," which explains the harmful effects of marine debris, especially plastic, in an easy to understand scientific study by the Algalita Marine Research Foundation. The video prepares students for the final lesson on marine debris. The presentation discusses how birds and other marine life are affected by marine debris. A display box of an albatross bolus (consisting of squid beaks and plastic) is past around the class. We want students to feel within them that the land, the plants and the animals are all part of the same system we are and that their survival and health is not only as important as ours, but that the two are linked. Following the lesson, students take the post-assessment.

Suisun Marsh Watershed & Wetland Education Program  
Final Report 2011

**Deliverables and Results**

Listed below are the tasks that were involved in initiating and completing the program.

<b>Task</b>	<b>Completion</b>
<b>Planning and Administration</b>	
Contact teacher participants to establish their willingness to participate and schedule for classroom and field visits	Teachers were recruited through teacher meetings, phone calls to principals, and email fliers. Coordinated schedules with teachers.
Program Administration	Worked to ensure the program ran smoothly, purchased supplies, student journals, and nature center rental. Worked with the programs staff on their availability etc.
Budget tracking of program	Tracked all expenditures.
Invoicing, creation of final report w/ assessment results and photo documentation	Provided invoicing in the middle and end of the program. Final report with photos provided in January.
Program development and funding for future continuation and expansion	Funding discussions were held with the City of Vacaville, Office of Education, Solano County Department of Resource Management, Fairfield Suisun Sewer District, Solano Environmental Educators group, Solano County Board of Supervisors and other agencies to promote the program. Partnerships are continuously being created.
SCC meetings	Worked with Polly and Berta for a minimum of ten hours throughout the duration of the grant.
Program Manager attends one of each lesson and two field trips (2hrs/5 lessons & 8hrs/2 fieldtrips)	Attended lessons and field trips to ensure all material was provided accordingly.
<b>Project Curriculum, Support Documents and Outreach</b>	
Refine curriculum, update lessons	The program was edited and revised by Solano RCD. Flyers, teacher emails, teacher packets were updated.
Design and layout of student manual	Kathleen Robins, contractor for our Department of Conservation grant, updated the material for the student journals. *Final year of DOC grant
Preparation of supplies for program lessons and field trips	All materials were purchased and prepared for each lesson.
Evaluate assessment results	Kathleen Robins, DOC contractor evaluated and analyzed the program assessments. *Final year of DOC grant
Create press release for program and follow-up	A press release was sent to all Solano County papers.
<b>Project Implementation</b>	
Suisun RCD training time	SRCD Coordinator received training
Program Assistant 1 training time and first aid	Field educator attended program training & first aid training
Program Assistant 2 training time and first aid	Field educator attended program training & first aid training
Solano RCD Educator trains program staff	Marianne Butler trained Martha Rocha, Carla Murphy, Don Broderson and Wendy Glenn for program.
Suisun RCD instruct pre and post-field trip classroom sessions (4 lessons/class @ 2.5 hr)	Environmental educator from Suisun RCD instructed most lessons.
Solano RCD prepare for & manage field trips (8 hrs/fieldtrip)	Field trips were prepared and instructed by Solano RCD.
Suisun RCD prepare for & manage field trips (8 hrs/fieldtrip)	Field trips were prepared and instructed by Suisun RCD.
Program Assistant 1 (7 hrs/ field trip) + end of program organization, supply assessment and packaging for next year	Program assistant attend field trips and assisted with program needs. This was rotated with all three program educators.

Suisun Marsh Watershed & Wetland Education Program  
Final Report 2011

Program Assistant 2 (7 hrs/field trip)	Program assistant attend field trips. This was rotated with all three program educators.
Program Assistant 1 oversees poster session in class (1 hr per session)	Program assistant attend poster sessions. This was rotated with all three program educators.
<b>Materials and Non Personnel Expenses</b>	
Printing costs for student manuals	Total printing came to \$2,980.
Solano RCD educator mileage	Total miles came to \$831.11
Suisun RCD educator mileage	Total miles came to \$981.80
Nature Center Expense	The nature center was utilized on nineteen occasions for \$1,900.
Costs for bus transportation (\$250 for Fairfield & \$430 for Vallejo and Vacaville)	21 bus invoices will be paid through Solano RCD with SCWA funding. Not all invoices have been received. The other 12 invoices are paid directly through Office of Ed.
Field trip materials *(including first aid training and program video)	Total supply budget came to \$1,752.13.

We have met the specific objectives outlined in the grant proposal. The program provides place-based environmental education for underserved middle school students in Solano County. Strict volunteer requirements from the school districts resulted in very few parent volunteers per class: the Fairfield Suisun School District requires that all parent volunteers be fingerprinted and parents are generally reluctant to participate due to fingerprinting costs. Parent volunteers were higher for Vacaville.

The central program themes include; watersheds, wetlands, marsh functions, native and non-native plants, storm run-off, endangered and threatened species, and watershed connections between their residential communities, the Suisun Marsh, the San Francisco Bay, and the Pacific Ocean. Sections of the curriculum were adapted from the California Coastal Commission's *Waves, Wetlands and Watersheds* and *Our Wetlands, Our World* and the teaching objectives are directly linked to California science standards. Pre and post knowledge assessments were distributed and a summary of the evaluation analysis is listed in Appendix B.

### Curriculum Evaluation, Challenges, and Solutions

The curriculum is revised each year from previous year's suggestions and assessment results.

In an attempt to increase our numbers, we decided to withhold the use of the Nature Center saving us \$3,300. Unfortunately, about two weeks into the field trips at Rush Ranch it was determined that the yellow jackets were too vicious to continue eating lunch outdoors. Thus, we were able to pull enough funding to remain indoors for lunch for 19 classes (\$1,900). This made lunch much more enjoyable for all. The yellow jackets seemed to be worse this year than in past years -- several students were stung.

It was very beneficial rotating through three program assistants. All have a background in teaching and are assets to the success of the program. They were able to rotate and not have to work on each and every trip which kept them fresh and interested in providing the lessons. Martha Rocha and Marianne Butler took turns this year as the program lead for the field trips.

Due to the time crunch to get all classes on their field trip by Christmas break, we combined three trips. Two classes attended on one day. Upon arrival the classes were immediately separated -- essentially two programs were happening at once. One class embarked on the typical schedule while the other class began with the nature walk and then after lunch participated in the program stations. This worked so well that we plan to use this method in future years.

We will continue to work with our partners to contribute hands-on, outdoor experiences and education about wetlands and watersheds to underserved and disadvantaged students, providing them with

opportunities to explore and value the role of the Suisun Marsh, a valuable resource in their own backyard.

### **Teacher Quotes**

The Suisun Marsh Watershed Education Program is one of the most valuable and rich experiences students have had in my 23 years of teaching. Here is an opportunity for students to do meaningful, solid science in impeccably organized lessons that correspond perfectly with district and state science standards. To me, this is a "must do" program! Jim Bastian, Grange Middle School, Fairfield, CA

I wanted to thank you and all of the individuals that have put in so much effort into making the Suisun Marsh Watershed Education Program such an amazing learning experience for students. I feel like everyone involved with your program has really done their "homework." The activities and lessons fit perfectly within the California State Standards for 6<sup>th</sup> grade. The lessons are hands-on and student friendly. They use several modes of learning in order to reach all students and help them learn to the best of their abilities. Having such skilled presenters visit the classrooms (and teach lessons) and at the marsh had a direct impact on how much my students learned and thus directly benefited each child which helps to prepare them to be better citizens and knowledgeable of the importance of helping to keep the Earth in the best state that it can be in for all of the plants and animals on it. I sincerely hope that my sixth grade students for years to come will have the opportunity to grow, learn and explore with your wonderful program. Michelle McGilvary, Orchard Elementary, Vacaville, CA

I'd like to thank you for being so accommodating to our schedules here at Sullivan. We all had a very enjoyable time and hope that you contact us with information for the project as soon as it is available for next year. Your amazing program made it possible for students to experience the marsh first-hand, and despite being so close to their homes, many would never have known it existed. I have some poems to send to you from the River of Words competition, so that you can see how much the project touched their lives. Again, we had a fantastic time and gained a tremendous amount of knowledge. And we look forward to the experience for next year. Elizabeth Allen, Sullivan Middle School, Fairfield CA

### **Student Quotes from Sullivan Middle School**

I liked the field trip because you got to actually work with the land and learn about water, plants and soil."-Aiden Hicks

"I liked doing all of the things we did in our lessons, our field trip, essay and the poster session because it was fun to learn about water, soil and plants. It was also helpful because we can help make the ocean, rivers, land and the Suisun Marsh a cleaner place for animals not to die and eat plastic. It was also helpful because it can help us in life one day and we can save the species that are dying all around us." - Oscar

"My favorite part of the program was the field trip because you got to feel and taste instead of just looking at pictures; we got to do experiments on water."-Many Durden

### **Student Quotes from Grange Middle School in Jim Bastian's class**

"My favorite part of this program was doing the nature walk because we saw lots of interesting animals, but I wish it was longer because it was peaceful." - Welmer Cabugwas

"My favorite part of the program was finding out what not to put down the storm drains because I do not want to ruin the ocean." - Caleb Webb

"My favorite part of the program was raising awareness because people need to know what they're doing to our wildlife." - Nicholas Turner

"My favorite part of the program was that I learned more about my watershed because at first I had no clue what a watershed was and now I know what it is." - Naomi Navarro

"My favorite part of the program was that we learned there is lots of trash that hurts animals because now I know that I should pick up garbage if I don't want animals to get hurt." -Yanely Pimienta

"My favorite part of this program was learning that animals can die from pollution because I can take charge and clean up." - Mabel Parna

#### **Student Quotes from Vaca Peña Middle School in Karen Olson's class**

"My favorite part was learning about the endangered animals and plants because I didn't know about that and now I do. I don't litter anymore. I don't litter because I want them to be safe."- Daniel Rocha

" My favorite part of this program was the field trip because 1) We learnt a lot more on what is happening because of us 2) the hands on experience taught us more 3) We missed school and got to see more and learn more than a regular classroom would teach us." - Avi Vadlamuchi

" My favorite part of this program was when we were on the field trip, on top of the hill writing our poems. I liked that part the most because I don't really sit in quiet and just look at all the nature around me often. It was very peaceful and relaxing. I would definitely go again." - Jewelia Patzer

"My favorite part was the field trip because I got to see all the stuff you were teaching us but now we got to see it in real life." -Anthony Nunez

"My favorite part in the Suisun Marsh lesson was the field trip. The field trip was my favorite because I enjoyed seeing nature itself. Seeing nature relaxes me. The marsh inspired me to write the poem "Just relax and go with the Flow". - Matt Untal

"I liked the part when we tested the water because it felt like I was a real scientist."-Chloe McBlair

#### **Student Poems from Solano Middle School in Heather Fry's class**

The Suisun Marsh is not so bitter,  
but it is salty,  
and there are lots of critters.  
A bunch of native  
and non-native plants,  
this is not a place  
for can and can'ts.  
It is our special marsh,  
cleaning our water,  
but the pollution  
makes the process harder.  
The oil from the cars  
are one of the pollutions.  
Let's help and make a better solution.

**-Anela Spears**

Beautiful water flows  
as the plants grow.  
Loud wind is felt  
as the large sun glows.  
Land animals hide  
from the low and high tide.  
The sound of birds  
and the rustle of leaves  
all help you come to believe  
what this unique world can achieve.

**-Brionna Stuart**

## **Appendix A**

### **Sixth Grade Standards**

#### *The Suisun Marsh Watershed & Wetland Education Program*

#### **Lesson One - The Watershed and Wetlands of Suisun Marsh**

##### *Science Content Standards*

- 2.a. Students know water running downhill is the dominant process in shaping the landscape, including California's landscape.
- 2.b. Students know rivers and streams are dynamic systems that erode, transport sediment, change-course and flood their banks in natural and recurring patterns.
- 2.d. Students know earthquakes, volcanic eruptions, landslides, and floods change human and wildlife habitats.
- 6.b. Students know different natural energy and material resources, including air, soil, rocks, minerals, petroleum, fresh water, wildlife, and forests, and know how to classify them as renewable or nonrenewable.
- 7.a. Develop a hypothesis.
- 7.d. Communicate the steps and results from an investigation in written reports and oral presentations.
- 7.e. Recognize whether evidence is consistent with a proposed explanation.
- 7.h. Identify changes in natural phenomena over time without manipulating the phenomena (e.g., a tree limb, a grove of trees, a stream, a hillslope).

#### **Lesson Two - Mapping Suisun Marsh**

##### *Science Content Standards*

- 7.a. Develop a hypothesis.
- 7.f. Read a topographic map and a geologic map for evidence provided on the maps and construct and interpret a simple scale map.

##### *Investigation & Experimentation*

- 1h. Students will read and interpret topographic and geologic maps.

##### *History-Social Science*

- 3.1.1. Identify geographical features in their local region (e.g., deserts, mountains, valleys, hills, coastal areas, oceans, lakes).

#### **Lesson Three – Species of Suisun Marsh**

##### *Science Content Standards*

- 5.c. Students know populations of organisms can be categorized by the functions they serve in an ecosystem.
- 5.d. Students know different kinds of organisms may play similar ecological roles in similar biomes.
- 5.e. Students know the number and types of organisms an ecosystem can support depends on the resources available and on abiotic factors, such as quantities of light and water, a range of temperatures, and soil composition.

#### **Field Trip - Rush Ranch**

##### *Science Content Standards*

- 2.a. Students know water running downhill is the dominant process in shaping the landscape, including California's landscape.

- 2.b. Students know rivers and streams are dynamic systems that erode, transport sediment, change-course and flood their banks in natural and recurring patterns.
- 2.d. Students know earthquakes, volcanic eruptions, landslides, and floods change human and wildlife habitats.
- 5.a. Students know energy entering ecosystems as sunlight is transferred by producers into chemical energy through photosynthesis and then from organism to organism through food webs.
- 5.b. Students know matter is transferred over time from one organism to others in the food web and between organisms and the physical environment.
- 5.c. Students know populations of organisms can be categorized by the functions they serve in an ecosystem.
- 5.d. Students know different kinds of organisms may play similar ecological roles in similar biomes.
- 5.e. Students know the number and types of organisms and ecosystem can support depends on the resources available and on abiotic factors, such as quantities of light and water, a range of temperatures, and soil composition.
- 6.b. Students know different natural energy and material resources, including air, soil, rocks, minerals, petroleum, fresh water, wildlife, and forests, and know how to classify them as renewable or nonrenewable.
- 7.a. Develop a hypothesis.
- 7.b. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.
- 7.d. Communicate the steps and results from an investigation in written reports and oral presentations.
- 7.e. Recognize whether evidence is consistent with a proposed explanation.
- 7.h. Identify changes in natural phenomena over time without manipulating the phenomena (e.g., a tree limb, a grove of trees, a stream, a hillslope).

#### *English Content Standards*

- 3.4 Define how tone or meaning is conveyed in poetry through word choice, figurative language, sentence structure, line length, punctuation, rhythm, repetition, and rhyme.

#### *Math Content Standards*

- Number Sense 1.2. Interpret and use ratios in different contexts (e.g. batting averages, miles per hour) to show the relative sizes of two quantities, using appropriate notations.
- Algebra and Functions 2.2. Demonstrate an understanding that rate is a measure of one quantity per unit value of another quantity.
- Algebra and Functions 2.3. Solve problems involving rates, average speed, distance and time.

### **Poster Session**

#### *English Content Standards*

- 2.1 Identify the structural features of popular media (e.g., newspapers, magazines, online information) and use the features to obtain information.
- 2.4 Clarify an understanding of texts by creating outlines, logical notes, summaries, or reports.

#### *Writing Content Standards*

- 1.4 Use organizational features of electronic text (e.g., bulletin boards, databases, keyword searches, e-mail addresses) to locate information.
- 1.6 Revise writing to improve the organization and consistency of ideas within and between paragraphs.
- 2.3 b. Support the main idea or ideas with facts, details, examples, and explanations from multiple authoritative sources (e.g., speakers, periodicals, online information searches).

*Written Oral and English Conventions*

- 1.1 Use simple, compound, and compound-complex sentences; use effective coordination and subordination of ideas to express complete thoughts.
- 1.2 Identify and properly use indefinite pronouns and present perfect, past perfect, and future perfect verb tenses; ensure that verbs agree with compound subjects.
- 1.3 Use colons after the salutation in business letters, semicolons to connect independent clauses, and commas when linking two clauses with a conjunction in compound sentences.
- 1.4 Use correct capitalization.
- 1.5 Spell frequently misspelled words correctly (e.g., *their, they're, there*).

*Listening and Speaking*

- 1.1 Relate the speaker's verbal communication (e.g., word choice, pitch, feeling, tone) to the nonverbal message (e.g., posture, gesture).
- 1.2 Identify the tone, mood, and emotion conveyed in the oral communication. 1.3 Restate and execute multiple-step oral instructions and directions.
- 1.4 Select a focus, an organizational structure, and a point of view, matching the purpose, message, occasion, and vocal modulation to the audience.
- 1.5 Emphasize salient points to assist the listener in following the main ideas and concepts.
- 1.6 Support opinions with detailed evidence and with visual or media displays that use appropriate technology.
- 1.7 Use effective rate, volume, pitch, and tone and align nonverbal elements to sustain audience interest and attention.

*Speaking Applications*

- 2.2 Deliver informative presentations:
  - a. Pose relevant questions sufficiently limited in scope to be completely and thoroughly answered.
  - b. Develop the topic with facts, details, examples, and explanations from multiple authoritative sources (e.g., speakers, periodicals, online information).

**Lesson Four – Tracking their Travels and Tracking Plastic Trash**

*Science Content Standards*

- 5e. Students know the number and types of organisms an ecosystem can support depends on the resources available and on abiotic factors, such as quantities of light and water, a range of temperatures, and soil composition.

## Appendix B

### Program Evaluation

This program took place over a sixteen-week period during August through December 2011. Participating in the program were 33 classes from 7 schools in Fairfield, Suisun City, Vacaville, and Vallejo. Students completed a pre-assessment quiz prior to any program instruction. After participating in the program's in-class lessons and the Rush Ranch fieldtrip, students completed a post-assessment quiz composed of the same questions. Both sets of responses were randomized (to remove correlation to class or field trip date) and a 10% sample of each set of responses was chosen for analysis.

Directly below each question is a representative answer from the post assessment.

1. *What is a watershed?*  
A watershed is the area of land where water runs off the highest points to the lowest points, collecting in larger and larger creeks and sloughs and eventually draining into the ocean.
2. *What watershed do you live in?*  
Suisun Marsh Watershed
3. *Where does storm (rain) water go after it hits the pavement?*  
Water runs off the roads and paved surfaces, enters the storm drains, flows into creeks, into the Suisun Marsh and eventually drains into the Pacific Ocean.
- 4.a. *What are the main threats to the Suisun Marsh?*  
Non-native invasive plants and pollution (which includes pesticides, fertilizers, oil, litter, pet waste, etc.)
- 4.b. *Write the name of one species that is in danger now in the Suisun Marsh.*  
Soft Bird's Beak      Giant Garter Snake      California Clapper Rail      Chinook Salmon  
Suisun Shrew      Suisun Thistle      Salt Marsh Harvest Mouse      Delta Smelt
5. *Write down two ways you can help protect the Suisun Watershed.*  
\* Throw litter into the garbage can and not on the ground  
\* Clean up after your dog  
\* Educate your friends and family on where litter goes  
\* Fix your car if its leaking oil  
\* Attend California Coastal Cleanup
6. *How can non-native, invasive plants hurt the Suisun Marsh?*  
Non-native plants come from somewhere else, and may not provide habitat for wildlife. Non-native plants can out-compete the native plants, and disrupt the natural balance of the watershed

### Evaluation Overview

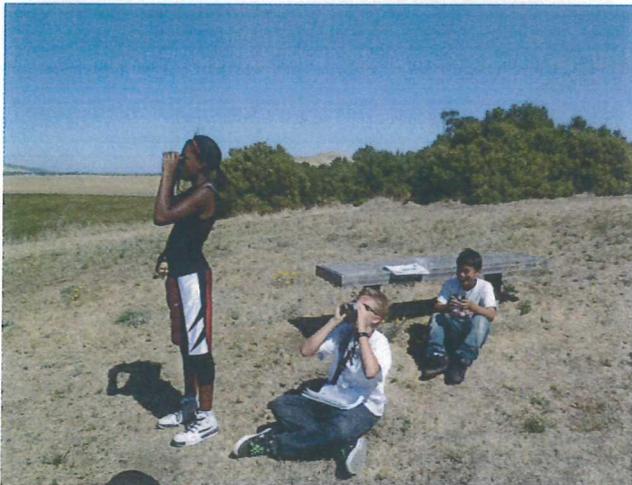
#### Pre and Post Assessment Quizzes

Student answers on the pre-assessment instruments in the 10% sample reflected very low knowledge about the concepts examined in the quiz. The greatest number of correct answers were made by just 42% of students were able to correct or partially correctly name two things they could do to protect the health of the Marsh, while 58% of students could not. As in years past, and similar to every K-12 watershed education program Solano RCD manages, mastery of the definition of a watershed continues to be a struggle. In the pre-assessment 11% of the sample were able to provide a correct or partially correct answer to the question "What is a watershed?" This number improved by 48%, with 59% of students correctly answering the question in the post assessment. Overall, student answers in the 10% sample of post-assessment quizzes showed an average improvement of 68%.

Suisun Marsh Watershed & Wetland Education Program  
Final Report 2011

95% percent of students in the sample were able to correctly or partially correctly name their watershed, and the same number could identify major threats to the Suisun Marsh. Overall, 85% of respondents gave correct or partially correct answers to all questions, compared to the 17% able to do so in the pre-assessment. Moreover, students improved dramatically in their ability to answer every question, indicating an overall gain in understanding of our central concepts.

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2011 Solano County Environmental Education  
Suisun Marsh Watershed Program  
Pre and Post Class Assessment Data

#	Assessment Questions	Pre-Assessment								Post-Assessment															
		correct	%	part correct	%	correct & part. correct	%	wrong/ no answer	%	correct	%	change from pre test		part correct	%	change from pre test		correct & part. correct	%	change from pre test		wrong/ no answer	%	change from pre test	
1	What is a Watershed?	4	7%	2	4%	6	11%	49	89%	51	49%	+	42%	10	10%	+	6%	61	59%	+	48%	43	41%	-	48%
2	What watershed do you live in?	11	20%	0	0%	11	20%	44	80%	99	95%	+	75%	0	0%	+	0%	99	95%	+	75%	5	5%	-	75%
3	Where does storm (rain) water go after it hits the pavement?	1	2%	10	18%	11	20%	44	80%	13	13%	+	11%	79	76%	+	58%	92	88%	+	68%	12	12%	-	68%
4a.	What are the main threats to Suisun Marsh?	0	0%	9	16%	9	16%	46	84%	62	60%	+	60%	37	36%	+	19%	99	95%	+	79%	5	5%	-	79%
4b.	Write the name of one species that is in danger now in the Suisun Marsh.	0	0%	0	0%	0	0%	55	100%	84	81%	+	81%	0	0%		0%	84	81%	+	81%	20	19%	-	81%
5	Write down two ways you can help protect the Suisun Watershed.	6	11%	17	31%	23	42%	32	58%	35	34%	+	23%	66	63%	+	33%	101	97%	+	55%	3	3%	-	55%
6	How can non-native, invasive plants hurt the Suisun Marsh?	1	2%	4	7%	5	9%	50	91%	11	11%	+	9%	70	67%	+	60%	81	78%	+	69%	23	22%	-	69%
	Total percentage per category	6%		11%		17%		83%		49%		+ 43%		4%		- 7%		85%		+ 68%		15%		- 68%	

The 2011 program consisted of 33 classes (≈1,129 students) from Crystal Middle School in Suisun City, Grange and Sullivan Middle Schools in Fairfield, Vaca Pena and Orchard Elementary in Vacaville, Center Elementary in the Travis District and Solano Middle School in Vallejo. 29 of the participating classes were 6th grade and 4 were 7th grade.

**Section 8 - Provision C.8 Water Quality Monitoring**

**C.8 ► Water Quality Monitoring**

State below if information is reported in a separate regional report. Municipalities can also describe below any Water Quality Monitoring activities in which they participate directly, e.g. participation in RMP workgroups, fieldwork within their jurisdictions, etc.

Summary

During FY 11-12, the Program contributed to the BASMAA Regional Monitoring Coalition (RMC). In addition, the Program contributed financially to the Regional Monitoring Program for Water Quality in the San Francisco Estuary (RMP) and were represented at RMP committees and work groups. For additional information on monitoring activities conducted by the Program, BASMAA RMC and the RMP, see BASMAA's FY 11-12 Annual Report for Regional Pollutants of Concern Report and Monitoring Status Report for FY 2011-2012.

The Program is currently under contract with Solano Resource Conservation District to provide monitoring and data management services in compliance with C.8 of the MRP for FY 2012 2013. The Program has also begun monitoring of the State Street stormwater pump station diversion project. Samples were drawn in June of 2012 with a final report to be submitted to the Water Board in December of 2012.

**Section 9 – Provision C.9 Pesticides Toxicity Controls**

<b>C.9.b ► Implement IPM Policy or Ordinance</b>					
Report implementation of IPM BMPs by showing trends in quantities and types of pesticides used, and suggest reasons for increases in use of pesticides that threaten water quality, specifically organophosphates, pyrethroids, carbaryl, and fipronil. A separate report can be attached as evidence of your implementation.					
<b>Trends in Quantities and Types of Pesticides Used<sup>56</sup></b>					
Both Program cities have adopted IPM policies. This provision is handled at the city level. Please see individual city reports for this information.					
Pesticide Category and Specific Pesticide Used	Amount <sup>57</sup>				
	FY 09-10	FY 10-11	FY 11-12	FY 12-13	FY 13-14
<b>Organophosphates</b>					
Product or Pesticide Type A	NA	NA	NA		
Product or Pesticide Type B	NA	NA	NA		
<b>Pyrethroids</b>	NA	NA	NA		
Product or Pesticide Type X	NA	NA	NA		
Product or Pesticide Type Y	NA	NA	NA		
<b>Carbaryl</b>	NA	NA	NA		
<b>Fipronil</b>	NA	NA	NA		

<b>C.9.c ► Train Municipal Employees</b>	
Enter the number of employees that applied or used pesticides (including herbicides) within the scope of their duties this reporting year.	NA
Enter the number of these employees who received training on your IPM policy and IPM standard operating procedures within the last 3 years.	NA
Enter the percentage of municipal employees who apply pesticides who have received training in the IPM policy and IPM standard operating procedures within the last three years.	NA

<sup>56</sup> Includes all municipal structural and landscape pesticide usage by employees and contractors.

<sup>57</sup> Weight or volume of the product or preferably its active ingredient, using same units for the product each year.

Permittee Name: Fairfield-Suisun Urban Runoff Management Program

<b>C.9.d ▶ Require Contractors to Implement IPM</b>			
Did your municipality contract with any pesticide service provider in the reporting year?	<input type="checkbox"/>	Yes	<input type="checkbox"/> No
If yes, attach one of the following:			
<input type="checkbox"/>	Contract specifications that require adherence to your IPM policy and standard operating procedures, OR		
<input type="checkbox"/>	Copy(ies) of the contractors' IPM certification(s) or equivalent, OR		
<input type="checkbox"/>	Equivalent documentation.		
If <b>Not attached</b> , explain:			
This provision is handled at the city level. Please see individual city reports for this information.			

<b>C.9.e ▶ Track and Participate in Relevant Regulatory Processes</b>	
Summarize participation efforts, information submitted, and how regulatory actions were affected <b>OR</b> reference a regional report that summarizes regional participation efforts, information submitted, and how regulatory actions were affected.	
Summary:	
During FY 11-12, the Program participated in regulatory processes related to pesticides through contributions to BASMAA and CASQA. For additional information, see the Regional Pollutants of Concern Report submitted by BASMAA on behalf of all MRP Permittees.	

<b>C.9.f ▶ Interface with County Agricultural Commissioners</b>			
Did your municipal staff observe any improper pesticide usage or evidence of improper usage (e.g., pesticides in storm drain systems, along street curbs, or in receiving waters) during this fiscal year?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/> No
If yes, provide a summary of improper pesticide usage reported to the County Agricultural Commissioner and follow-up actions taken to correct any violations. A separate report can be attached as your summary.			

<b>C.9.h.ii ▶ Public Outreach: Point of Purchase</b>	
Provide a summary of public outreach at point of purchase, and any measurable awareness and behavior changes resulting from outreach (here or in a separate report); <b>OR</b> reference a report of a regional effort for public outreach in which your agency participates.	
Summary:	

Permittee Name: Fairfield-Suisun Urban Runoff Management Program

Point-of-purchase outreach occurred at the following stores in the Fairfield-Suisun area:

Orchard Supply Hardware  
 1500 Oliver Road  
 Fairfield Ca. 94534  
 707-427-8665

Home Depot Fairfield  
 2121 Cadenasso Drive  
 Fairfield, Ca. 94533  
 707-426-9600

Ace Hardware Suisun  
 252 Sunset Ave.  
 Suisun City Ca 94585  
 707-428-4223

See attached Program report from consultant Annie Joseph regarding Our Water Our World, including other outreach efforts regarding pesticide reduction or the use of less toxic products to pesticides. For additional information on regional efforts, see the Regional Pollutants of Concern Report for FY2011-2012 submitted by BASMAA on behalf of all MRP Permittees.

**C.9.h.vi ► Public Outreach: Pest Control Operators**

Provide a summary of public outreach to pest control operators and landscapers and reduced pesticide use (here or in a separate report); **OR** reference a report of a regional effort for outreach to pest control operators and landscapers in which your agency participates.

Summary:

See the C.9 Pesticides Toxicity Control section of BASMAA's FY 11-12 Regional Pollutants of Concern Report for a summary of the Program's participation in and contributions towards regional public outreach to pest control operators and landscapers to reduce pesticide use. The Program works closely with Annie Joseph to better understand the real issues associated with pesticide applications. It is through this relationship that the Program understands that a concerted effort should be directed toward the PCOs.

Fairfield Suisun Pesticide Applicators Outreach; April 4, 2012; approximately 19 flyers were sent throughout the Fairfield Suisun jurisdictional area; this was a Program event to promote the Professional Association of Pesticide Applicators (PAPA). Several calls were received back from the pest control operators with the majority of the callers needing clarification as to why the Program was supporting the Association.

## **Of Fairfield Suisun Sewer District OWOW Report 2011/2012**

**Annie Joseph**

**Ann Joseph Consulting**

**On August 17<sup>th</sup> OSH manager Steve Wilkin requested I come for their Ladies night out event.** I actually helped Steve come up with an idea to attract his women shoppers and to let them know OSH carries less toxic products. I set up a table in the patio furniture area and contacted 20 customers most of whom had preregistered for the event. I helped people with fungal problems on their roses and vegetables and talked to them about disposing of their old pesticides and fertilizers at the HHW facilities. The store gave the attendees additional discounts on less toxic products that night and we also served refreshments. One attendee was so inspired she signed up for the Master Gardener Program the following spring. Photos were sent to Kevin.

### **Osh Fairfield:**

Teresa our IPM Advocate trainee this year helped me conduct a training of the store staff that works in garden on **November 30, 2011**. Seven staff members were trained and were very excited to be a part of the Advocates grant. Many are part time as the store is trying to conserve on labor costs. As with last year I was able to get a power point presentation set up in the conference room so we had no interruptions. The new store manager, Ed Mittleman, is very supportive of OWOW and made sure we had time to be thorough. He did the UCIPM online training modules after our class and also encouraged other staff members. Photos were taken and sent to Kevin.

Teresa is mentoring their store this year through June under my supervision. She did two tabling events also to support the store. They were conducted on and she contacted about 30 customers at each event. She also built two end cap displays of less toxic products and photos were sent to Kevin.

Teresa did her two outreach events March 11, 2012 and May 12, 2012.

OSH has had increases in the products that were showcased on the endcaps to about 15% increase in those products.

**Solano County Master Gardener Outreach:** I trained the new class of Master Gardeners on Water Quality and Pesticides on **January 27, 2012**. There were 20 new class members and I concentrated on the runoff from pyrethroid pesticides and the residues that can end up in wastewater in addition to Suisun Marsh. I also discussed proper disposal of pesticides.

I also discussed the concerns with nutrient runoff from customers fertilizing lawns with synthetic fertilizers. Kevin Cullen joined up and made a presentation on the work he does with FFSSD.

These Master Gardeners will carry this message to tablings they do at OSH and the local Farmers Markets in the area.

**I conducted two outreach events at Home Depot. On February 5<sup>th</sup>, Sunday** I contacted 58 customers and handed out fact sheets, free samples of Sluggo, Pests Bugging You guides.

**March 22,** I did an additional event per the store manager Cre's request for a Ladies Night Out. I brought my large bug charts and gave away 10 Most Wanted Bug Brochures, Pests Bugging You Guides, I contacted about 20 folks.

I sent photos to Kevin.

I also conducted **two trainings**. One was **2/12/12** which was a regional meeting with eight stores held at the Fairfield Home Depot. Kevin and Teresa joined up for the event. This was the first time OWOW has been invited to a regional event. I contacted about **75 employees** that day and also participated in the prep meeting in January. The District Manager Gregg Kenney invited me to join up and I was also able to briefly address the group as a whole. This was groundbreaking. Photos were taken and sent to Kevin

The next training was held on **6/7/12** and **12 employees** came to a power point presentation in the training room. I really wanted to have them experience the training off the floor so we would not be interrupted. I

trained the group in two groups of six so that some staff could remain on the floor while I trained the others. Response has been very good for those employees I trained.

**Solano/ Napa Bay Friendly 5/10/12 training for landscapers.** I worked very hard to convince the Bay Friendly program folks including their director Anne Cook to try to get funds to come to do training that would also cover Solano County landscapers last fall. I was happy to learn they got funding to include Solano County. I was asked to help with the IPM piece and on 5/10/12. I taught 30 landscapers about OWOW and what products are available to use that are less toxic at their training in Jaimison Canyon with Napa and Solano County landscape professionals.

With Teresa, my IPM Advocate caring for OSH under my supervision this season, I focused on Home Depot and really made an effort to keep our materials looking good and to build a rapport with the management.

The Ace in Suisun has had a struggle this year. I have been going in to call on them and keep their materials up to date but they have been hit hard by the recession and have just a skeleton crew with Becky and Wayne running the store plus one cashier.

**Response to Water Board Staff Comments on Section 9, Provision C.9, of FY 10-11 Annual Report**

Use this area to respond to any Water Board staff comments on Section 9 of your FY 10-11 Annual Report, and refer to any required submittals that are attached.

Please see individual city reports for this information.

**Section 10 - Provision C.10 Trash Load Reduction**

**C.10.a.i ▶ Short-Term Trash Loading Reduction Plan**

*(For FY 10-11 Annual Report only)* Provide description of actions/tasks initiated/conducted/completed in developing a Short-Term Trash Loading Reduction Plan (due February 1, 2012).

Description:

Both cities' Short-Term Trash Loading Reduction Plans were submitted to the Water Board on February 1, 2012 due date.

**C.10.a.ii ▶ Baseline Trash Load and Trash Load Reduction Tracking Method**

*(For FY 10-11 Annual Report only)* Provide description of actions/tasks initiated/conducted/completed to gather trash loading data and in developing a Baseline Trash Load and Trash Load Reduction Tracking Method (due February 1, 2012).

Description:

Both cities' Baseline Trash Load and the regional Trash Load Reduction Tracking Method were submitted to the Water Board on February 1, 2012. See section C.10 of BASMAA's Regional POCs report for FY 2011-12 in the Trash Load Reduction section for further information on Program wide and regional activities conducted on behalf of co-permittees.

**C.10.a.iii ▶ Minimum Full Trash Capture**

*(For FY 10-11 Annual Report and Each Annual Report Thereafter)* Provide description of actions/tasks initiated/conducted/completed in implementing Minimum Full Trash Capture Devices (due July 1, 2014) within individual jurisdictions. Include information on Full Trash Capture Devices installed under the Bay-area Wide Trash Capture Demonstration Project administered by San Francisco Estuary Partnership and an estimate of the total land area that is planned for treatment by July 1, 2014.

Description:

The Program cities have successfully installed a jointly owned large full trash capture device (CDS). The device has been approved by the Water Board and is placed in a location that captures 270 acres of a combined land use of commercial and residential properties. A contributing area of 270 acres is approximately 102 acres larger than is required for both cities in attachment J of the MRP. Attachment J of the MRP requires that 30% of each cities' retail /wholesale commercial acres be captured by a Water Board certified, full trash capture device. The minimum trash capture area for the city of Fairfield is 146 acres while the minimum trash capture area for the city of Suisun city is 22 acres, resulting in a total combined required trash capture area of 168 acres. The newly installed unit exceeds the required area as delineated in Attachment J by 102 acres for both

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cities or by 61%. The responsibility for maintenance of the full capture device will be shared by both cities as well as the credit for installation. The maintenance and credit will be distributed on a population basis, at a rate of 4 to 1 (Fairfield to Suisun city).

The device is located in the city of Suisun City just upstream from their hotspot area, Suisun City Marina, while the contributing area is all within the city of Fairfield. The parcel is owned by the city of Fairfield but located in Suisun City. Based on the above explanation Fairfield has treated 216 acres for full trash capture while Suisun city has treated 54 acres.

**C.10.b.iii ► Trash Hot Spot Assessment**

*(For FY 10-11 Annual Report and Each Annual Report Thereafter)* Provide volume of material removed from each Trash Hot Spot cleanup, and the dominant types of trash (e.g., glass, plastics, paper) removed and their sources to the extent possible.

Fill out the following table or attach a summary of the following information.

Trash Hot Spot	Cleanup Date	Volume of Material Removed	Dominant Type of Trash	Trash Sources (where possible)
This provision is handled at the city level. Please see individual city reports for this information.				

**C.10.d ► Summary of Trash Reduction Actions and Loads Reduced**

Provide a summary of trash load reduction actions (i.e., control measures and best management practices) implemented within your jurisdictional boundaries during the reporting period to achieve a 40% trash load reduction goal by July 1, 2014. For those actions implemented in FY 2011-12, include brief descriptions of levels of implementation and the total trash loads and dominant types of trash removed from each action.

New or Enhanced Trash Load Reduction Action	Description of new or Enhanced Action Implemented in FY 11-12	Estimated Trash Load Removed in FY 11-12 (Gallons) <sup>58</sup>	Estimated Percent Reduction as of FY 11-12 <sup>58</sup>	Estimated Dominant Types of Trash Removed in FY 11-12
Public Education and Outreach Programs	<p><b>Advertising Campaign: <i>Be the Street</i>:</b> In FY 2011-12, BASMAA began implementing the “Be the Street” anti-litter Youth Outreach Campaign. Be the Street takes a Community Based Social Marketing approach to encourage youth to keep their community clean. The intent of the campaign is to make “no-littering” the norm among the target audience (youth between the ages of 14 and 24). The campaign is using online social marketing tools to conduct outreach. Activities in FY 11-12 included launching a website, Facebook page and a quarterly e-newsletter. An “anti-littering” video contest was also announced and the winning entry will be promoted on television.</p> <p>Please see BASMAA FY 2011/2012 Regional Supplement for Training and Outreach, Annual Report for details relating to these outreach efforts conducted during FY 2011/2012.</p> <p>Public Information and Participation: Please see section C.7 above for more</p>			

<sup>58</sup>The estimated load removed and percent reduction in FY 11-12 is consistent with assumptions described in the Trash Load Reduction Tracking Method Technical Report (version 1.0) submitted to the Water Board on February 1, 2012. In the future, load reductions reported in Annual Reports may be adjusted based on revisions to the tracking methodology.

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**C.10.d ► Summary of Trash Reduction Actions and Loads Reduced**

Provide a summary of trash load reduction actions (i.e., control measures and best management practices) implemented within your jurisdictional boundaries during the reporting period to achieve a 40% trash load reduction goal by July 1, 2014. For those actions implemented in FY 2011-12, include brief descriptions of levels of implementation and the total trash loads and dominant types of trash removed from each action.

New or Enhanced Trash Load Reduction Action	Description of new or Enhanced Action Implemented in FY 11-12	Estimated Trash Load Removed in FY 11-12 (Gallons) <sup>58</sup>	Estimated Percent Reduction as of FY 11-12 <sup>58</sup>	Estimated Dominant Types of Trash Removed in FY 11-12
	detailed information on Program efforts to reduce trash through Public Education and Outreach. Future efforts will have a much higher emphasis on Trash reduction.			
Activities to Reduce Trash from Uncovered Loads	This activity is handled at the city level. Please see individual city reports for this information.			
Anti-littering and Illegal Dumping Enforcement Activities	This activity is handled at the city level. Please see individual city reports for this information.			
On-land Trash Cleanups	This activity is handled at the city level. Please see individual city reports for this information.			
Full-Capture Treatment Devices	This activity is handled at the city level. Please see individual city reports for this information.			
Creek/Channel/Shoreline Cleanups	This activity is coordinated at the Program level with cleanup sites being located within the Program cities and unincorporated Solano County. Loads reduced are credited to the cities in which the cleanup even occurs.			
<b>Preliminary Estimate of Trash Load Removed (Gallons) in FY 2011-12</b>		See cities Reports		
<b>Preliminary Baseline Trash Load Estimate (Gallons)</b>		See cities Reports		
<b>Total Percentage Reduction in FY 2011-12 (Compared to Baseline Trash Load)</b>		See cities Reports		

**Section 11 - Provision C.11 Mercury Controls**

**C.11.a.i ► Mercury Recycling Efforts**

List below or attach lists of efforts to promote, facilitate, and/or participate in collection and recycling of mercury containing devices and equipment at the consumer level (e.g., thermometers, thermostats, switches, bulbs).

- 1) Promotion (i.e., media advertising, providing information on your agency's website, etc.) of:
  - a) Household Hazardous Waste (HHW) programs, including promotion of HHW drop-off events and local businesses that provide residents and small businesses the opportunity to drop-off mercury-containing devices and equipment (e.g., bulbs, thermostats, thermometers and/or switches). Solano Garbage Company (Republic Services) at 2901 Industrial Court runs the household hazardous waste collection facility that serves the City of Fairfield, Suisun City and Solano County unincorporated areas. They operate twice monthly on the second and fourth Saturday from 9 AM to 12 noon. Household hazardous waste drop-off is offered free to residents for a small fee and to Fairfield businesses that qualify as small quantity generators. Other items can be dropped off at local businesses such as: Home Depot, Lowe's, and Orchard Supply Hardware, DND Plumbing, Slinky Brothers Fairfield, and Solano Garbage Company.

Promotional events include websites information on cities of Fairfield, Suisun City and Solano County and Solano garbage company's website; printed/published materials include countywide recycling guide household hazardous waste/used oil brochures, flyers and handouts; mailers included in billing by Solano garbage company; community events such as weekly farmers market, Earth Day, tomato Festival, coast and Creek cleanup and radio ads on the local station, KUIC.

- b) The Thermostat Recycling Corporation, is an organization developed on behalf of the thermostat manufacturers, that recycles mercury-containing thermostats and switches generated by residents and small businesses. The HVAC industry is the largest generator of these waste streams and is the targeted audience to inform of this recycling option.
- 2) Facilitation/Organization : Solano Garbage Company (Republic Services) at 2901 Industrial Court runs the household hazardous waste collection facility that serves the City of Fairfield, Suisun City and Solano County unincorporated areas. They operate twice monthly on the second and fourth Saturday from 9 AM to 12 noon. Household hazardous waste drop-off is offered free to residents for a small fee and to Fairfield businesses that qualify as small quantity generators. Other items can be dropped off at local businesses such as: Home Depot, Lowe's, and Orchard Supply Hardware, DND Plumbing, Slinky Brothers Fairfield, and Solano Garbage Company.
- 3) Collection of:
  - a) Mercury-containing devices and equipment at designated drop-off points or HHW drop-off events is organized and conducted by Solano garbage company. Twice a month on the second and fourth Saturdays from 9 to 12 noon. Household hazardous waste drop-off events are offered to residents and small businesses within the Fairfield and Suisun city area
  - b) Currently, there are no curbside programs offered in the City of Fairfield and City of Suisun City.

**C.11.a.ii ► Mercury Collection**

Provide an estimate of the mass of mercury collected through these efforts, or provide a reference to a report containing this estimate.

The estimated mass of mercury collected through recycling efforts conducted by the cities of Fairfield and Suisun City’s designated HHW Program, are included in each city’s 2011-12 Annual Report. The Program has only counted mercury-containing devices and equipment collected from residents and businesses in our jurisdiction. We have used the Supplemental Excel Spreadsheet and Guidance developed by BASMAA to estimate the mass of mercury collected through our efforts, and have only counted those items indicated herein as restricted in the footnotes.

Mercury Containing Device/Equipment	Total Amount of Devices Collected	Estimated Mass of Mercury Collected
Fluorescent Lamps <sup>59</sup> (linear feet)		
CFLs <sup>60</sup> (each)		
Thermostats <sup>61</sup> (each)		
Thermostats (lbs)		
Thermometers (each)		
Switches (lbs)		
<b>Total Mass of Mercury Collected During FY 2011-2012:</b>		See individual City reports.

<sup>59</sup> Only linear fluorescent lamps should be included

<sup>60</sup> Only compact fluorescent lamps should be included

<sup>61</sup> Thermostats can be reported by quantity or by pounds. Whichever unit is used, please avoid double-counting.

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- C.11.b ▶ Monitor Methylmercury**
- C.11.c ▶ Pilot Projects to Investigate and Abate Mercury Sources in Drainages**
- C.11.d ▶ Pilot Projects to Evaluate and Enhance Municipal Sediment Removal and Management Practices**
- C.11.e ▶ Conduct Pilot Projects to Evaluate On-Site Stormwater Treatment via Retrofit**
- C.11.f ▶ Diversion of Dry Weather and First Flush Flows to POTWs**
- C.11.g ▶ Monitor Stormwater Mercury Pollutant Loads and Loads Reduced**
- C.11.h ▶ Fate and Transport Study of Mercury In Urban Runoff**
- C.11.i ▶ Development of a Risk Reduction Program Implemented Throughout the Region**
- C.11.j ▶ Develop Allocation Sharing Scheme with Caltrans**

State below if information is reported in a separate regional report. Municipalities that participate directly in regional activities to can provide descriptions below.

Summary

A summary of Program and regional accomplishments for these sub-provisions are included within the C.11 the BASMAA Regional POC Report for FY 11-12.

Highlights from the Program include:

- April 30, 2012 submittal of a Project Work Plan for the State Street Stormwater Pump Station Diversion Project;
- Operational changes and water quality monitoring of the State Street Stormwater Pump Station.

**Section 12 - Provision C.12 PCBs Controls**

**C.12.a.ii,iii ▶ Ongoing Training**

*(For FY 10-11 Annual Report and Each Annual Report Thereafter)* List below or attach description of ongoing training development and inspections for PCB identification, including documentation and referral to appropriate regulatory agencies (e.g. county health departments, Department of Toxic Substances Control, California Department of Public Health, and the Water Board) as necessary.

Description:

Inspector training materials have been developed by BASMAA and provided in the FY 09-10 BASMAA Regional POC Report. A description of efforts to train municipal industrial inspectors was provided in FY 09-10 Program Annual Reports. Training of Health Inspectors was performed again on March 19, 2012. The focus of the training was consistency in enforcement levels, enforcement authority; city stormwater ordinances; high-priority facilities needed to be inspected during the fiscal year and enforcement levels associated with illegal discharges.

**C.12.b ▶ Conduct Pilot Projects to Evaluate Managing PCB-Containing Materials and Wastes during Building Demolition and Renovation Activities**

**C.12.c ▶ Pilot Projects to Investigate and Abate On-land Locations with Elevated PCB Concentrations**

**C.12.d ▶ Conduct Pilot Projects to Evaluate and Enhance Municipal Sediment Removal and Management Practices**

**C.12.e ▶ Conduct Pilot Projects to Evaluate On-Site Stormwater Treatment via Retrofit**

**C.12.f ▶ Diversion of Dry Weather and First Flush Flows to POTWs**

**C.12.g ▶ Monitor Stormwater PCB Pollutant Loads and Loads Reduced**

**C.12.h ▶ Fate and Transport Study of PCBs In Urban Runoff**

**C.12.i ▶ Development of a Risk Reduction Program Implemented Throughout the Region**

State below if information is reported in a separate regional report. Municipalities that participate directly in regional activities to can provide descriptions below.

Summary

A summary of Program and regional accomplishments for these sub-provisions are included within the C.12 PCB Controls section of the BASMAA Regional POC Report. Highlights from the Program include:

- April 30, 2012 submittal of a Project Work Plan for the State Street Stormwater Pump Station Diversion Project;
- Operational changes and water quality monitoring of the State Street Stormwater Pump Station.

**Section 13 - Provision C.13 Copper Controls**

**C.13.a. iii.(1) ► Legal Authority: Architectural Copper**

<p><i>(For FY 10-11 Annual Report only)</i> Do you have adequate legal authority to prohibit discharge of wastewater to storm drains generated from the installation, cleaning, treating, and washing of the surface of copper architectural features, including copper roofs to storm drains?</p>	x	<b>Yes</b>		<b>No</b>
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If **No**, explain and provide schedule for obtaining authority within 1 year.

**C.13.a.iii.(2) ► Training, Permitting and Enforcement Activities**

*(FY 11-12 Annual Report and each Annual Report thereafter)* Provide summaries of activities implemented to manage waste generated from cleaning and treating of copper architectural features, including copper roofs, during construction and post-construction including. :

- Development of BMPs on how to manage the water during and post construction
- Requiring the use of appropriate BMPs when issuing building permits
- Educating installers and operators on appropriate BMPs
- Enforcement actions taken against noncompliance

Training of Health Inspectors was performed on March 19, 2012. The focus of the training was consistency in enforcement levels, enforcement authority; city stormwater ordinances (including Copper controls); high-priority facilities needed to be inspected during the fiscal year and enforcement levels associated with illegal discharges .

The Program has revised its C.3 New Development Guidance Document and BMPs to reduce the impact of architectural copper features, including copper roofs, during construction and post construction. Because architectural Copper is not a popular feature in the Fairfield Suisun area, discharge of copper laden water from these structures is not seen as a significant source of copper.

In addition, the Program has developed a flyer for the permit counter entitled: Requirements for Architectural Copper. The flyer is based on a similar version from the San Mateo County-wide Water Pollution Prevention Program. The flier describes how copper can harm aquatic life and best management practices which must be implemented to prevent prohibited discharges to the storm drain system.

**C.13.b. iii. ► Legal Authority: Pools, Spas, and Fountains**

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<p><i>(For FY10-11 Annual Report only)</i> Do you have adequate legal authority to prohibit discharges to storm drains from pools, spas, and fountains that contain copper-based chemicals?</p>	<input checked="" type="checkbox"/>	<b>Yes</b>	<input type="checkbox"/>	<b>No</b>
<p>If <b>No</b>, explain and provide schedule for obtaining authority within 1 year:</p>				

**C.13.c ▶ Vehicle Brake Pads**

Reported in a separate regional report.

A summary of the Program’s participation with the Brake Pad Partnership (BPP) is included within the C.13 Copper Controls section of the BASMAA Regional POC Report for Annual Report FY 11-12.

**C.13.d.iii ▶ Industrial Sources Copper Reduction Results**

Based upon inspection activities conducted under Provision C.4, highlight copper reduction results achieved among the facilities identified as potential users or sources of copper, facilities inspected, and BMPs addressed.

Summary

Training of Health Inspectors was performed on March 19, 2012. The focus of the training was consistency in enforcement levels, enforcement authority; city stormwater ordinances (including Copper controls); high-priority facilities needed to be inspected during the fiscal year and enforcement levels associated with illegal discharges .

No facilities were identified as potential sources of copper due to their industrial activities. The Program will continue to attempt to identify industrial facilities with a higher potential to discharge copper to the storm drain system.

**C.13.e ▶ Studies to Reduce Copper Pollutant Impact Uncertainties**

**FY 2011-2012 Annual Report**

**C.13 – Copper Controls**

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Report on progress of studies being conducted countywide or regionally to reduce copper pollutant impact uncertainties. State below if information is reported in a separate regional report.

Summary

A summary of the Program and regional efforts to develop regional studies to reduce copper pollutant impact uncertainties is included within the C.13 Copper Controls section of BASMAA Regional POC Report FY 11-12 Annual Report.

**Section 14 - Provision C.14 PBDE, Legacy Pesticides and Selenium Controls**

**C.14.a ► Control Programs for PBDEs, Legacy Pesticides and Selenium Controls**

Report on progress of studies being conducted countywide or regionally to characterize the distribution and pathways of PBDEs, legacy pesticides, and selenium. State below if information is reported in a separate regional report.

Summary

A summary of the Program and regional efforts related to the Control Program for PBDEs, Legacy Pesticides and Selenium is included within the C.14 PBDE, Legacy Pesticides and Selenium section of BASMAA Regional POC Report FY 11-12 Annual Report.

**Section 15 - Provision C.15 Exempted and Conditionally Exempted Discharges**

**C.15.b.iii.(1), C.15.b.iii.(2) ► Planned and Unplanned Discharges of Potable Water**

Is your agency a water purveyor?	<input type="checkbox"/>	<b>Yes</b>	<input checked="" type="checkbox"/>	<b>No</b>
If <b>No</b> , skip to C.15.b.vi.(2):				
If <b>Yes</b> , Complete the attached reporting tables or attach your own table with the same information. Provide any clarifying comments below.				
Comments:				

**C.15.b.vi.(2) ► Irrigation Water, Landscape Irrigation, and Lawn or Garden Watering**

Provide implementation summaries of the required BMPs to promote measures that minimize runoff and pollutant loading from excess irrigation. Generally the categories are:

- Promote conservation programs
- Promote outreach for less toxic pest control and landscape management
- Promote use of drought tolerant and native vegetation
- Promote outreach messages to encourage appropriate watering/irrigation practices
- Implement Illicit Discharge Enforcement Response Plan for ongoing, large volume landscape irrigation runoff.

Summary:

See Program’s annual report, section C.7. This portion of the annual report shows the Program’s efforts towards the promotion of the School Water Education Program (SWEP). One of the primary focuses of this program is water conservation. SWEP provides free water education resources to teach water awareness and conservation to students, teachers and parents in our service areas of Fairfield, Suisun City and Travis Air Force Base. The in-class education programs as well as the resource materials and assembly programs are multi-discipline and aligned to the content standards for California public schools. The programs encourage students and adults to develop a healthy attitude of personal responsibility towards our environment and develop skills needed to contribute meaningfully to decision-making process on issues involving our resources and particularly conserving our most precious resource, water.

See above section C.9 of the Program’s annual report. This portion of the annual report shows the Program’s efforts toward the promotion of less toxic pest control and landscape management. The Program contracts with consultant Annie Joseph regarding Our Water Our World, including outreach efforts regarding pesticide reduction or the use of less toxic products to pesticides. For additional information on regional efforts, see the Regional Pollutants of Concern Report for FY2011-2012 submitted by BASMAA on behalf of all MRP Permittees.

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Quarterly, Suisun City publishes their *Discovery* newsletter. This newsletter is mailed to all households in Suisun City, and informs residents about the proper methods for disposal of all Household Hazardous Waste, including items containing mercury

Suisun City Council has adopted a water efficient landscaping ordinance. The goal of this ordinance is to promote the conservation and efficient use of water and to prevent the waste of this valuable resource and use water efficiently without waste by setting a maximum applied water allowance as an upper limit for water use and reduce water use to the lowest practical amount. This ordinance, effective January 1, 2010 applied to all new construction and rehabilitated landscapes for public agency projects and private development projects with a landscape area equal to or greater than 2,500 square feet requiring a building or landscape permit, plan check or design review.

The City of Fairfield has also put the State Water Efficient Landscape Ordinance into effect. The ordinance focuses on new development design to be highly water efficient and minimize run-off. It applies to large developments and large re-landscaping in the city.

Fairfield also has an aggressive program to visit and correct high water use properties. Running a county-wide program to audit single family homes, we have marketed to the top water users in Solano County. Between 500 to 1500 audits occur a year. Annually approximately 45% of these visits were overwatering landscaping, resulting in run-off from the properties. Another approximately 20% have irrigation leaks. This program estimates a savings of 35,000 gallons per day in Fairfield and Suisun. County-wide efforts have saved 110,000 gallons per day, mostly from excessive irrigation and leaks that affect storm drain discharges.



