Dry Weather Monitoring Workgroup-DRAFT Meeting Summary
City of San Diego, 9370 Chesapeake Dr., San Diego, CA 92123
Wednesday, February 18, 2009
10:00 am-12:00 pm

1. **Introductions**

Attendees:

	Name	Organization
1.	Alison Witheridge	City of Oceanside
2.	Tim Murphy	City of Carlsbad
3.	Pavitra Rammohan	PBS&J
4.	Christa Zacharias	Nautilus Environmental
5.	Chris Stransky	Nautilus Environmental
6.	Roger Morrison	City of Poway
7.	Annie Hill	San Diego County Regional Airport Authority
8.	Marisa Fontanoz	City of Chula Vista
9.	Malik Tamimi	City of La Mesa
10.	Helen Perry	City of Santee
11.	Doug Coppi	City of Vista
12.	Vasana Vipatapat	City of Escondido
13.	Steve DiDonna	County of San Diego
14.	Damon La Casella	Port of San Diego
15.	Jeff Warner	EDAW
16.	Blake Behringer	City of El Cajon
17.	Arsalan Dadkhah	D-MAX Engineering representing: City of National City
18.	Ken St. Clair	City of San Marcos
19.	Courtenay White	City of San Diego
20.	Chris Helmer	City of Imperial Beach
21.	Jessica Erickson	City of San Diego
22.	Mayela Padilla	City of Encinitas

2. **Approval of previous minutes**

The Dry Weather Monitoring Workgroup Draft Meeting Summary from October14, 2008 was approved.

3. **Discussion of submission of Dry Weather Monitoring/ICID component of the JURMP late Fall 2008**

The Copermittees all submitted the IDDE and Dry Weather Monitoring reports by December 15, 2008. Many Copermittees referenced the storm water hotline complaint information in the Residential section and reported the results in the IDDE section of the JURMP Annual Report.

4. **Review of data sharing format for 2008 dry weather monitoring data and update on the 2008 Dry Weather Monitoring Data Submittal (refer to Handout #1)**

PBS&J developed the final data sharing format which Helen Perry emailed to all of the Copermittees in August 2008 and again on 2/19/09. Andrea Crumpacker from Weston Solutions has approved of the final data sharing format.

The Copermittees are responsible for completing QA/QC of all their own dry weather data before submitting it to Weston Solutions. Weston will not QA/QC data on behalf of the Copermittees, the data that is sent to Weston will be used as-is.

Action Item: Dry weather data submittals need to be submitted via email directly to Andrea Crumpacker at Weston Solution (andrea.crumpacker@westonsolutions.com) no later than **May 1, 2009**.

5. **Discuss review of action levels for dry weather monitoring**

The Copermittees have agreed that action levels for surfactants (MBAS) and ammonia will not be analyzed at this time. The action levels will remain the same as in previous years.

D-Max has been asked to submit a revised proposal for updating action levels of Total Coliform bacteria, Fecal Coliform bacteria and Enterococcus bacteria. Their scope of services will include three tasks; data collection, statistical analyses and report preparation.

1) Data Collection: D-Max will assess the dry weather data from all of the Copermittees for 2002 through 2007. D-Max currently has data for all the Copermittees from 2002 and needs to collect data from the following Copermittees for 2003. Weston Solutions will provide data for the period of 2004 through 2007 to D-Max.
2) Statistical Analyses: Organize data in a single format, conduct quality control to identify the outliers and eliminate them, conduct statistical analyses to calculate the 90 and 95 percent confidence intervals for each constituent.
3) Report Preparation will include a short report summarizing the findings of the statistical analyses.

Estimated cost for all three tasks is $9,420.00. The project will be completed within one month after receiving all of the Copermittees data.

Action Item: D-Max will let the Dry Weather Monitoring Workgroup know which Copermittees will need to submit their 2003 dry weather data to D-MAX Engineering.

6. **Discuss request from Regional Monitoring Group to develop more specific criteria on threat to human health and threat to aquatic health on trash assessment form (Handout #2)**
The Regional Monitoring Workgroup has asked the Dry Weather Monitoring Workgroup to consider adding more condition categories (i.e. high, medium and low) to the Copermittee's Trash Assessment Form when identifying a threat to human health or aquatic health. A copy of the Surface Water Ambient Monitoring Program's "A Rapid Trash Assessment Method Applied to Water of the San Francisco Bay Region: Trash Measurement in Streams" was provided to the group for reference. The last page of Appendix B contains a sample "Rapid Trash Assessment Worksheet" with varying categories.

The City of San Diego currently uses their own Trash Assessment form with condition categories that are similar to those referenced in the San Francisco Bay Region and they have agreed to share a copy of their form with the workgroup.

The Dry Weather Monitoring Workgroup will continue to reassess the options of developing more specific criteria on threats to human and aquatic health at the next Dry Weather Monitoring Meeting.

7. **Discuss development of workplan and budget for FY 2009-10**
The Dry Weather Monitoring Workgroup needs to establish a list of dry weather monitoring goals. Once the goals have been established, Helen Perry (City of Santee) will create a spreadsheet to estimate project costs for FY 2009-10.

8. **Other items**
1) MS4 Outfall Monitoring activities need to be completed by **August 1, 2009**. Further Dry Weather Monitoring Workgroup discussions will include developing field sheets, spreadsheets and how to report the information.

   Action Item: Helen Perry will follow-up with Jo Ann Weber (County of San Diego) for more direction on the MS4 Outfall Monitoring Program.

9. **Next Meeting** to be held at the City of Santee, Conference Room-Building 5, 10601 Magnolia Avenue, Santee, CA 92071 on Tuesday, March 17th, 2009 from 10am - 12pm.

Handout #1
2/18/09

Copermittee	StationType	Watershed	LandUse	LandUse_2	Conveyance Type	SampleEventType	Weather	Rainfall	Odor	Color	Clarity	Floatables	Deposit	Vegetation	Biology	WaterFlow
CA	CRW	Santa Margarita River	Agricultural	Agricultural	Catch Basin	Field Screening	Sunny	None	None	None	Clear	None	None	None	None	Flowing
CV	CSDO	San Luis Rey River	Commercial	Commercial	Concrete Channel	Confirmation	Partly cloudy	<0.1"	Musty	Yellow	Slightly Cloudy	Trash	Coarse particulate	Limited	Insects	Ponded
CO	LRW	Carlsbad	Industrial	Industrial	Curb Gutter	ICID	Overcast	>0.1"	Rotten eggs	Brown	Opaque	Bubbles/Foam	Fine particulate	Normal	Algae	Dry
CT	LSDO	San Dieguito River	Open	Open	Earthen Channel	Field Duplicate	Fog		Chemical	White		Algae	Stain	Excessive	Snails	
DM	DWM	Penasquitos	Parks	Parks	Manhole	Field Blank			Sewage	Gray		Trash & Bubbles/Foam	Oily deposit		Fish	
EC	ICID	San Diego River	Residential	Residential	Natural Creek	Field Standard			Other	Other		Trash & Algae	Coarse & Fine		Mussels/Barnacles	
EN	MLS	Pueblo San Diego	Rural Residential	Rural Residential	Outlet							Fecal matter			Insect & Algae	
ES	AMB	Sweetwater River		None								Sheen			Insect & Snail	
IB	IND	Otay River										Other			Insect & Fish	
LM	CON	Tijuana River													Insect & Snail & Fish	
LG		Mission Bay													Insect & Algae & Snail & Fish	
NC															Other	
OC																
PT																
PO																
SD																
SM																
SA																
AA																
SB																
VI																

Analyte	Qualifier		Unit	SampleMatrix	Analyte	Qualifier		Unit	StationDesignation	Amount/Extent of Trash	Trash Type	Ranking
pH	None	True Sampling Result	pH unit	Water	Total Coliform	None	True Sample Result	MPN/100 mL	Storm Drain	Optimal	Automotive	1
Turbidity	NA	Not Analyzed	NTU	Sediment	Fecal Coliform	NA	Not Analyzed	CFU/100 mL	Receiving Water	Suboptimal	Biohazard Waste	2
Conductivity	NS	Not Sampled	mS/cm	Tissue	Enterococcus	NS	Not Sampled	ug/L		Marginal	Business Related	3
Dissolved oxygen	AE	Analyst Error	mg/L		Oil & Grease	AE	Analyst Error	mg/L		Submarginal	Cigarette Butts	4
Temperature	>	Greater Than	oC		MBAS	>	Greater Than			Poor	Construction	5
Salinity	ND	Not Detected	%		Cadmium, Diss	ND	Not Detected				Fabric/Clothing	6
Ammonia (NH3-N)	E	Estimated			Copper, Diss	E	Estimated				Food Packaging	7
Nitrate (NO3-N)					Lead, Diss			Bacteria - MPN/100 mL			Food Waste	8
Orthophosphate (PO4-P)					Zinc, Diss			Diss metals - ug/L			Household	9
					Hardness, Total as CaCO3			Pesticides - ug/L			Shopping Carts	10
					Diazinon			Oil & Grease-mg/L			Toxic	11
					Chlorpyrifos			MBAS - mg/L			Yard Waste	12
					Cadmium, Total			Total hardness - mg/L				
					Copper, Total							
					Lead, Total							
					Zinc, Total							

Datasharing Format for Dry Weather Monitoring

1. Site Description

Copermittee	StationID	StationType	StationDesignation	Location	Watershed	HSA	Latitude	Longitude	TBPage	TBGrid	LandUse_1	LandUse_2	Convey_Type

Datasharing Format for Dry Weather Monitoring

2. Visual Observations

Copermittee	StationID	StationType	SampleEventType	Date	Time	Weather	Rainfall	Odor	Color	Clarity	Floatables	Deposit	Vegetation	Biology	Overland Flow	Comments

Datasharing Format for Dry Weather Monitoring

3. Field Measurements

Copermittee	StationID	StationType	SampleEventType	Date	Time	Width	Depth	Velocity	WaterFlow	FlowRate	Analyte	Method	Qualifier	Result	ReportingLimit	Unit

Datasharing Format for Dry Weather Monitoring

4. Analytical Results

Copermittee	StationID	StationType	SampleEventType	Date	Time	Lab	SampleMatrix	Analyte	Method	Qualifier	Result	ReportingLimit	Unit	%Solid

Copermittee	StationID	Date	Time	Previous Assessment Rating	Assessment Area Length (feet)	Assessment Area Width (feet)	Site Type	Threat to Human Health	Threat to Aquatic Health	Overall Rating (Amount and Extent)	Trash Type	Ranking	Potential Route #1	Potential Route #2	Potential Source #1	Potential Source #2
CO																

Handout #2
2/18/09

SWAMP
Surface Water Ambient Monitoring Program

Final Technical Report | 2007

A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region: Trash Measurement in Streams

April 2007

California Water Boards
www.waterboards.ca.gov/swamp

of broken glass or Styrofoam are picked up and counted. Special attention was paid to items that can affect human health such as diapers, fecal matter, and medical needles; these items can strongly affect the total score. The person tallying the trash indicates on the worksheet whether the trash was found above the high water line on the bank, or below the high water line either on the bank or in the stream (i.e., tally dots or circles (•) for above high water line, tally lines (|) for below). If it is evident that items have been littered, dumped, or accumulated via downstream transport, notes are made in the designated rows near the bottom of the tally sheet - this helps when assigning scores.

Clumps of leaf litter and yard waste from trash bags should be treated as trash in the water quality assessment, and not confused with natural inputs of leaves to streams. If there is a question in the field, check the type of leaf to confirm that it comes from a nearby riparian tree. In some instances, leaf litter may be trash if it originates from dense ornamental stands of nearby human planted trees that are overloading the stream's assimilative capacity for leaf inputs.

When considering the water quality effects of trash while conducting a trash assessment, remember to evaluate individual items and their buoyancy, degradability, size, potential health hazard, and potential hazards to fish and wildlife. Utilize the narratives in the worksheet, refer to the technical notes and trash parameter descriptions in the text as needed, and select your scores after careful consideration of actual conditions.

Once the team is finished collecting trash, the recorder indicates in the margins of the tally sheet the total number of items in each category found above and below the waterline. All worksheets are completed before leaving the site, while everything is still fresh in the memory. The team discusses each scoring parameter (described below under "Scoring") and agrees on a score for each of the condition categories, The team also discusses and records hypotheses of potential sources of trash, such as neighboring or upstream land uses.

Scoring

The rapid trash assessment includes six condition categories that capture the breadth of issues associated with trash and water quality. The first two parameters focus on qualitative and quantitative levels of trash, the second two parameters estimate actual threat to water quality, and the last two parameters represent how trash enters the water body at a site, either through on-site activities or downstream accumulation.

Within each trash parameter, narrative language is provided to assist with choosing a condition category. The worksheet provides a range of numbers within a given category, allowing for a range of conditions encountered in the field. For instance, trash located in the water results in lower scores than trash above the high water line. Not all specific trash conditions mentioned in the narratives need to be present to fit into a specific condition category (e.g., "site frequently used by people"), nor do the narratives describe all possible conditions. Scores of "0" should be reserved for the most extreme conditions. Once team members assigned the scores for the six categories in the field, the final scores were summed and specific notes about the site included at the end of the

sheet. Each site was assessed three or four times in a given year, during different seasons, to characterize the variability and persistence of trash occurrence for water quality assessment purposes.

The scoring categories include:

1. *Level of Trash.* This assessment parameter is intended to reflect a qualitative "first impression" of the site, after observing the entire length of the reach. Sites scoring in the "poor" range are those where trash is one of the first things noticeable about the water body. No trash should be obviously visible at sites that score in the "optimal" range.

2. *Actual Number of Trash Items Found.* Based on the tally of trash along the 100-foot stream reach, total the number of items both above and below the high water line, and choose a score within the appropriate condition category based on the number of tallied items. Where more than 100 items have been tallied, assign the following scores: 5: 101-200 items; 4: 201-300 items; 3: 301-400 items; 2: 401-500 items; 1: 501-600 items; 0: over 600 items. Use similar guidelines to assign scores in other condition categories. Sometimes items are broken into many pieces. Fragments with higher threat to aquatic life such as plastics should be individually counted, while paper and broken glass, with lower threat and/or mobility, should be counted based on the parent item(s). Broken glass that is scattered, with no recognizable original shape, should be counted individually. The judgment of whether to count all fragments or just one item also depends on the potential exposure to downstream fish and wildlife, and waders and swimmers at a given site. Concrete is trash when it is dumped, but not when it is placed. Consider tallying only those items that would be removed in a restoration or cleanup effort.

3. *Threat to Aquatic Life.* As indicated in the technical notes, below, certain characteristics of trash make it more harmful to aquatic life. If trash items are persistent in the environment, buoyant (floatable), and relatively small, they can be transported long distances and be mistaken by wildlife as food items. Larger items can cause entanglement. Some discarded debris may contain toxic substances. All of these factors are considered in the narrative descriptions in this assessment parameter.

4. *Threat to Human Health.* This category is concerned with items that are dangerous to people who wade or swim in the water, and with pollutants that could accumulate in fish in the downstream environment, such as mercury. The worst conditions have the potential for presence of dangerous bacteria or viruses, such as with medical waste, diapers, and human or pet waste.

5. *Illegal Dumping and Littering.* This assessment category relates to direct placement of trash items at a site, with "poor" conditions assigned to sites that

appear to be dumping or littering locations based on adjacent land use practices or site accessibility.

6. *Accumulation of Trash.* Trash that accumulates from upstream locations is distinguished from dumped trash by indications of age and transport. Faded colors, silt marks, trash wrapped around roots, and signs of decay suggest downstream transport, indicating that the local drainage system facilitates conveyance of trash to water bodies.

Quality Assurance

To address concerns about observer bias and differences in interpretation of narrative language, SWAMP and Alameda County stormwater staff performed a methods repeatability study in July 2002. Three teams of two members assessed and scored the same two sites in a blind comparison. A summary of the study is included as Appendix B, Rapid Trash Assessment Method Evaluation.

Results and Discussion

There are two major mechanisms responsible for trash in streams of the San Francisco Bay Region: ***direct littering or dumping***, and ***downstream transport and accumulation***. Littering and dumping were usually documented in dry weather conditions between sampling events, while downstream transport and accumulation of trash occurred extensively at the bottom of watersheds in wet weather conditions between sampling events. Results confirmed that these two phenomena occur at remarkable rates of deposition and levels of trash per 100-feet of stream in every watershed studied. In this section, the sites with the highest dry and wet weather deposition rates are described, sources of trash are identified, and potential management measures are discussed. In addition, two public access sites with high RTA scores and relatively low trash deposition rates are discussed to identify management efforts that appear to be working to keep trash out of the streams.

Regional Conditions

The 93 site visits conducted by Water Board staff and students over three years and multiple seasons confirmed that high levels of trash are present throughout urban streams in the San Francisco Bay Region. On average, across all sites and seasons, 288 pieces of trash were collected per 100 foot reach of stream, equaling 2.88 pieces per linear foot of stream (Figure 2). Over 50% of this total, or 1.56 pieces per linear foot of stream, was composed of plastic items. Glass (19%) and biodegradable items (10%) were also commonly found. Most sites contained less than 500 pieces of trash, while several sites contained many more pieces, up to a maximum of 1133 pieces, or 11.33 pieces per linear foot of stream (Figure 3). Overall, 72% of all trash items were found below the high-water line, while 28% of items were found above the high-water line. Certain types of

items were found almost exclusively below the high-water line, including toxic items (87%), construction debris (87%), and glass (82%). Forty-two percent of biodegradable items were found above the high water line, indicative of the frequency with which paper is transported by wind into stream channels. The average total Rapid Trash Assessment (RTA) score was 47, with a range from 8 to 112 (out of a possible 120) (Figure 4). Lower RTA scores reflect higher levels of trash. A high RTA score, overall or in a specific category, represents more desirable, less trashed conditions. Total RTA scores were strongly related to the number of plastic pieces found at sites (Figure 5).

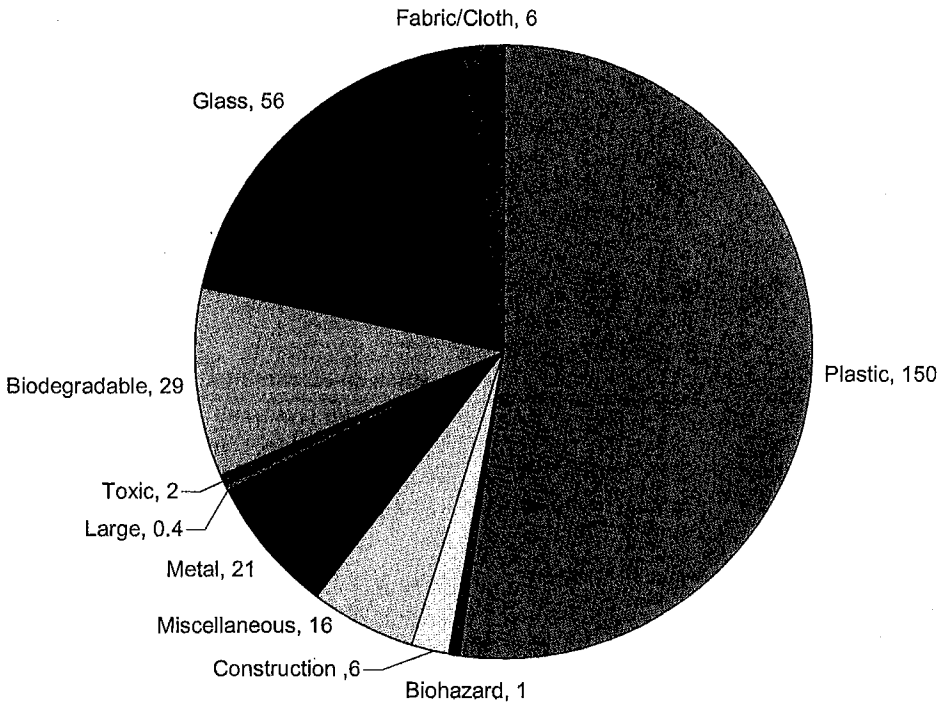

Figure 2: Average number of pieces of trash, by category, per 100 foot reach for all sites and all seasons.

APPENDIX B

RAPID TRASH ASSESSMENT METHOD EVALUATION OCTOBER 2002

Rapid Trash Assessment Worksheet

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

TRASH ITEM TALLY (Tally with (•) if found above high water line, and (|) if below)

PLASTIC # Above___ # Below___	**METAL** # Above___ # Below___
Plastic Bags	Aluminum Foil
Plastic Bottles	Aluminum or Steel Cans
Plastic Bottle Caps	Bottle Caps
Plastic Cup Lid/Straw	Metal Pipe Segments
Plastic Pipe Segments	Auto Parts (specify below)
Plastic Six-Pack Rings	Wire (barb, chicken wire etc.)
Plastic Wrapper	Metal Object
Soft Plastic Pieces	**LARGE (specify below)** # Above___ # Below___
Hard Plastic Pieces	Appliances
Styrofoam cups pieces	Furniture
Styrofoam Pellets	Garbage Bags of Trash
Fishing Line	Tires
Tarp	Shopping Carts
Other (write-in)	Other (write-in)
BIOHAZARD # Above___ # Below___	**TOXIC** # Above___ # Below___
Human Waste/Diapers	Chemical Containers
Pet Waste	Oil/Surfactant on Water
Syringes or Pipettes	Spray Paint Cans
Dead Animals	Lighters
Other (write-in)	Small Batteries
CONSTRUCTION DEBRIS#Above___#Below___	Vehicle Batteries
Concrete (not placed)	Other (write-in)
Rebar	**BIODEGRADABLE** # Above___ # Below___
Bricks	Paper
Wood Debris	Cardboard
Other (write-in)	Food Waste
MISCELLANEOUS # Above___ # Below___	Yard Waste (incl. trees)
Synthetic Rubber	Leaf Litter Piles
Foam Rubber	Other (write-in)
Balloons	**GLASS** # Above___ # Below___
Ceramic pots/shards	Glass bottles
Hose Pieces	Glass pieces
Cigarette Butts	**FABRIC AND CLOTH** # Above___ # Below___
Golf Balls	Synthetic Fabric
Tennis Balls	Natural Fabric (cotton, wool)
Other (write-in)	Other (write-in)
Total pieces Above:	**Below:** **Grand total:**
Tally all trash in above rows; make notes below as needed to facilitate scoring.	
Littered:	
Dumped:	
Downstream Accumulation:	

SPECIFIC DESCRIPTION OF ITEMS FOUND:_____

_____

Rapid Trash Assessment Worksheet

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
5. Illegal Dumping	D: No evidence of illegal dumping. No bags of trash, no yard waste, no household items placed at site to avoid proper disposal, no shopping carts.	D: Some evidence of illegal dumping. Limited vehicular access limits the amount of potential dumping, or material dumped is diffuse paper-based debris.	D: Presence of **one** of the following: furniture, appliances, shopping carts, bags of garbage or yard waste, coupled with vehicular access that facilitates in-and-out dumping of materials to avoid landfill costs.	D: Evidence of chronic dumping, with **more than one** of the following items: furniture, appliances, shopping carts, bags of garbage, or yard waste. Easy vehicular access for in-and-out dumping of materials to avoid landfill costs.
Illegal Littering	L: Any trash is incidental litter (< 5 pieces) or carried downstream from another location.	L: Some evidence of litter within creek and banks originating from adjacent land uses (<10 pieces).	L: Prevalent (10-50 pieces) in-stream or shoreline littering that appears to originate from adjacent land uses.	L: Large amount (>50 pieces) of litter within creek and on banks that appears to originate from adjacent land uses.
D-SCORE	10 9	8 7 6	5 4 3	2 1 0
L-SCORE	10 9	8 7 6	5 4 3	2 1 0
6. Accum-ulation of Trash	There does not appear to be a problem with trash accumulation from downstream transport. Trash, if any, appears to have been directly deposited at the stream location.	Some evidence (<10 pieces) that litter and debris have been transported from upstream areas to the location, based on evidence such as silt marks, faded colors or location near high water line.	Evidence that (10 to 50 pieces) trash is carried to the location from upstream, as evidenced by its location near high water line, siltation marks on the debris, or faded colors.	Trash appears to have accumulated in substantial quantities at the location based on delivery from upstream areas, and is in various states of degradation based on its persistence in the waterbody. Over 50 items of trash have been carried to the location from upstream.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Total Score _____

SITE DEFINITION:

UPPER/LOWER BOUNDARIES OF REACH: _____

HIGH WATER LINE: _____

UPPER EXTENT OF BANKS OR SHORE: _____

_____

NOTES:

_____

_____

_____

_____

_____

_____

Rapid Trash Assessment Worksheet

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

WATERSHED/STREAM: _____ DATE/TIME: _____

MONITORING GROUP, STAFF: _____ SAMPLE ID: _____

SITE DESCRIPTION (Station Name, Number, etc.): _____

	CONDITION CATEGORY			
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**
1. Level of Trash	On first glance, no trash visible. Little or no trash (<10 pieces) evident when streambed and stream banks are closely examined for litter and debris, for instance by looking under leaves.	On first glance, little or no trash visible. After close inspection small levels of trash (10-50 pieces) evident in stream bank and streambed.	Trash is evident in low to medium levels (51-100 pieces) on first glance. Stream, bank surfaces, and riparian zone contain litter and debris. Evidence of site being used by people: scattered cans, bottles, food wrappers, blankets, clothing.	Trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Actual Number of Trash Items Found	0 to 10 trash items found based on a trash assessment of a 100-foot stream reach.	11 to 50 trash items found based on a trash assessment of a 100-foot stream reach.	51 to 100 trash items found based on a trash assessment of a 100-foot stream reach.	Over 100 trash items found based on a trash assessment of a 100-foot stream reach.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Threat to Aquatic Life	Trash, if any, is mostly paper or wood products or other biodegradable materials. Note: A large amount of rapidly biodegradable material like food waste creates high oxygen demand, and should not be scored as optimal.	Little or no (<10 pieces) transportable, persistent, buoyant litter such as: hard or soft plastics, Styrofoam, balloons, cigarette butts. Presence of settleable, degradable, and non-toxic debris such as glass or metal.	Medium prevalence (10-50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, Styrofoam, balloons, cigarette butts Larger deposits (< 50 pieces) of settleable debris such as glass or metal. Any evidence of clumps of deposited yard waste or leaf litter.	Large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Threat to Human Health	Trash contains no evidence of bacteria or virus hazards such as medical waste, diapers, pet or human waste. No evidence of toxic substances such as chemical containers or batteries. No ponded water for mosquito production. No evidence of puncture and laceration hazards such as broken glass or metal debris.	No bacteria or virus hazards or sources of toxic substances, but small presence (<10 pieces) of puncture and laceration hazards such as broken glass and metal debris. No presence of ponded water in trash items such as tires or containers that could facilitate mosquito production.	Presence of **any one** of the following: hypodermic needles or other medical waste; used diaper, pet waste, or human feces; any toxic substance such as chemical containers, batteries, or fluorescent light bulbs (mercury). Medium prevalence (10-50 pieces) of puncture hazards.	Presence of **more than one** of the items described in the marginal condition category, or high prevalence of any one item (e.g. greater than 50 puncture or laceration hazards).
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

2008 City of San Diego Trash Assessment Worksheet

Site ID:_____ Date:_____ Observer(s):_____

Area Assessed Length (ft):_____ Width (ft):_____ Depth (ft)_____ Total (Cu Ft):_____

% Coverage_____ Total Volume:_____

Is trash readily visible to the public? *(circle one)* **Yes** **No**

CONDITION CATEGORY					
Trash Assessment Parameter	**Optimal**	**Sub optimal**	**Marginal**	**Poor**	**Very Poor**
1. Level of Trash	On first glance, no trash visible. Little or no trash (<10 pieces) evident when streambed and stream banks are closely examined for litter and debris, for instance by looking under leaves	On first glance, little or no trash visible. After close inspection small levels of trash (10-50 pieces) evident in stream bank and streambed.	Trash is evident in low to medium levels (51- 100 pieces) on first glance. Stream, bank surfaces, and riparian zone contain litter and debris. Evidence of site being used by people: scattered cans, bottles, food wrappers, blankets, and clothing.	Trash distracts the eye on first glance. Stream, bank surfaces, and riparian zone contain substantial levels of litter and debris (101-400 pieces). Site used frequently by people: blankets, many cans, bottles, and food wrappers, clothing.	Site is significantly impacted by trash. Evidence of trash accumulation behind a constriction point or evidence of excessive dumping. Evaluated area contains substantial levels of litter and debris (>400 pieces).
SCORE	**1**	**2**	**3**	**4**	**5**
2. # of Trash Items Found	0 to 10 trash items found in observed stream reach.	11 to 50 trash items found in observed stream reach.	51 to 100 trash items found in observed stream reach.	101-400 trash items found in observed stream reach.	>400 pieces found in observed stream reach.
SCORE	**1**	**2**	**3**	**4**	**5**
3. Threat to Aquatic Life	Trash, if any, is mostly paper or wood products or other biodegradable materials. Note: A large amount of rapidly biodegradable material like food waste creates high oxygen demand, and should not be scored as optimal.	Little or no (<10 pieces) persistent, buoyant litter such as: hard or soft plastics, Styrofoam, balloons, cigarette butts. Presence of settleable, degradable, and nontoxic debris such as glass or metal.	Medium prevalence (10-50 pieces) of persistent, buoyant litter such as: hard or soft plastics, Styrofoam, balloons, cigarette butts. Larger deposits (< 50 pieces) of settleable debris such as glass or metal. Any evidence of clumps of deposited yard waste or leaf litter.	Large amount (51-100 pieces) of persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (51-100 pieces) of settleable glass or metal.	>100 pieces of persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>100 pieces) of settleable glass or metal.
SCORE	**1**	**2**	**3**	**4**	**5**
4. Threat to Human Health	No evidence of bacteria or virus hazards such as medical waste, diapers, pet or human waste. No toxic substances such as chemical containers or batteries. No ponded water for mosquito production. No evidence of puncture and laceration hazards such as broken glass or metal debris.	No bacteria or virus hazards or sources of toxic substances, but small presence (<10 pieces) of puncture and laceration hazards such as broken glass and metal debris. No presence of ponded water in trash items such as tires or containers for mosquito production.	Presence of **any one** of the following: hypodermic needles or other medical waste; used diaper, pet waste, or human feces; any toxic substance such as chemical containers, batteries, or fluorescent light bulbs (mercury). Medium prevalence (10-50 pieces) of puncture hazards.	Presence of **more than one o**f the items described in the marginal condition category, or high prevalence of any one item (e.g. 51-100 items that present a puncture or laceration hazards).	Presence of **more than one o**f the items described in the marginal condition category, or extremely high prevalence of any one item (e.g. >100 items that present a puncture or laceration hazards).
SCORE	**1**	**2**	**3**	**4**	**5**
5. Illegal Dumping	No evidence of illegal dumping. No bags of trash, no yard waste, no household items placed at site to avoid proper disposal, no shopping carts.	Some evidence of illegal dumping. Limited vehicular access limits the amount of potential dumping, or material dumped is diffuse paper-based debris.	Presence of **one** of the following: furniture, appliances, shopping carts, bags of garbage or yard waste, coupled with vehicular access that facilitates in-and-out dumping of materials to avoid landfill costs.	Evidence of chronic dumping, with **more than one** of the following items: furniture, appliances, shopping carts, bags of garbage, or yard waste. Easy vehicular access for in- and-out dumping of materials to avoid landfill costs.	Evidence of excessive chronic dumping, with **several** of the following items: furniture, appliances, shopping carts, bags of garbage, or yard waste. Easy vehicular access for in- and-out dumping of materials to avoid landfill costs.
SCORE	**1**	**2**	**3**	**4**	**5**

2008 City of San Diego Trash Assessment Worksheet

Site ID:_____ Date:_____ Observer(s):_____

Trash Assessment Parameter	Optimal	Sub optimal	Marginal	Poor	Very Poor
6. Illegal Littering	Any trash is incidental litter (< 5 pieces) or carried downstream from another location.	Some evidence of litter within creek and banks originating from adjacent land uses (<10 pieces).	Prevalent (10-50 pieces) in-stream or shoreline littering that appears to originate from adjacent land uses.	Large amount (51-100 pieces) of litter within creek and on banks that appears to originate from adjacent land uses.	Excessive amount (>100 pieces) of litter within creek and on banks that appears to originate from adjacent land uses.
SCORE	**1**	**2**	**3**	**4**	**5**
7. Accumulation of Trash	Trash does not appear to have been washed down from an upstream location in the creek. Trash, if any, appears to have been directly deposited at the stream location either via the storm drain or other direct deposition.	Some evidence (<10 pieces) that litter and debris have been transported from upstream areas to the location, based on evidence such as silt marks, faded colors or location near high water line.	Evidence that (10 to 50 pieces) trash is carried to the location from upstream, as evidenced by its location near high water line, silt marks on the debris, or faded colors.	Trash appears to have accumulated in substantial quantities at the location based on delivery from upstream areas, and is in various states of degradation based on its persistence in the water body. 51-100 items of trash have been carried to the location from upstream.	Trash appears to have accumulated in substantial quantities at the location based on delivery from upstream areas, and is in various states of degradation based on its persistence in the water body. Over 100 items of trash have been carried to the location from upstream.
SCORE	**1**	**2**	**3**	**4**	**5**
ADD TOTAL OF COLUMN					

TOTAL OF ALL COLUMNS = OVERALL SCORE: _____

OVERALL SCORE	OVERALL CONDITION	ACTION TO BE TAKEN	
7	**Optimal**	□ Continue Scheduled Monitoring	□ Continue Public Outreach and Education
		□ Other	
8--14	**Sub-optimal**	□ Continue Scheduled Monitoring	□ Continue Public Outreach and Education
		□ Other	
15-21	**Marginal**	□ Increased Public Outreach and Education Efforts	□ Enforcement Action
		□ Install BMPS's/increase use of existing BMP's	□ Municipal Crew to collect trash
		□ Other	
22-28	**Poor**	□ Increased Public Outreach and Education Efforts	□ Enforcement Action
		□ Install BMPS's/increase use of existing BMP's	□ Municipal Crew to collect trash
		□ Other	
29-35	**Very Poor**	□ Increased Public Outreach and Education Efforts	□ Enforcement Action
		□ Install BMPS's/increase use of existing BMP's	□ Municipal Crew to collect trash
		□ Other	

Trash Category	% Volume (Nearest 5%)	Potential Trash Source				Potential Method of Disposal		Conveyance	
Choose from List	***(Of Total TrashVolume)***	**General Public**	**Business Related**	**School**	**Homeless Camp**	**Littering**	**Dumping**	**Storm Drain**	**Other**
		□	□	□	□	□	□	□	□
		□	□	□	□	□	□	□	□
		□	□	□	□	□	□	□	□
		□	□	□	□	□	□	□	□
		□	□	□	□	□	□	□	□
		□	□	□	□	□	□	□	□
		□	□	□	□	□	□	□	□
		□	□	□	□	□	□	□	□

Automotive	**Biohazard**	**Cigarette Butts**	**Construction**	**Fabrics/Clothing**	**Food Packaging**
Landscape	**Large Objects**	**Other Household**	**Toxic Waste**	**Other (specify)**	