Getting More Out of Your Data with Analytics:
Turn Data into Stories

Robert Weller, Save The Bay

Tracy Warfield, Data Geeks Lab

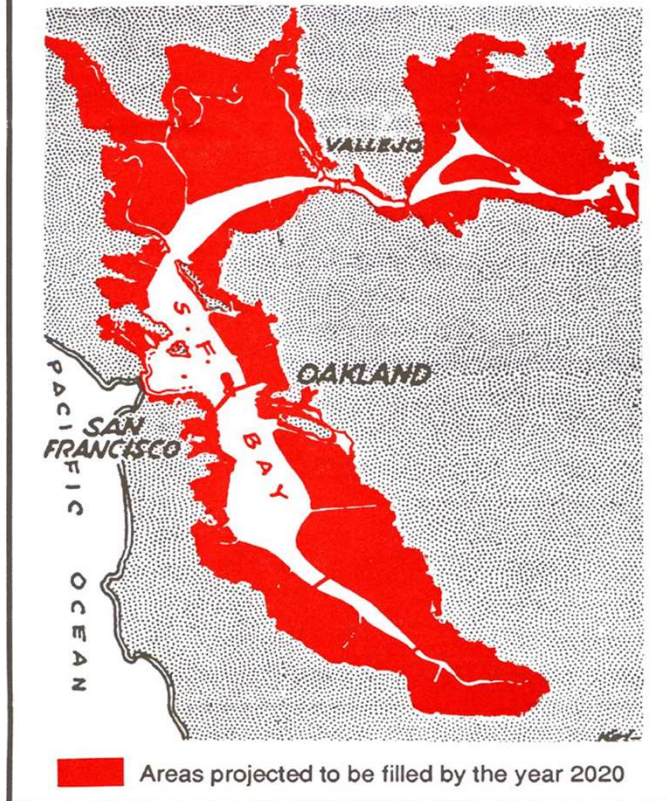# Robert Weller

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Bay or River?

Areas projected to be filled by the year 2020

Courtesy Oakland Tribune

Since 1961

SAVE THE BAY

- Save The Bay was founded because of a data visualization!

- This image ran in the Oakland Tribune newspaper in 1960 and sparked a conservation movement.

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TJ Warfield

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Service Cloud
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Community Cloud
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WE WILL HELP YOU LOVE YOUR DATA AGAIN

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What are data analytics?

- Data analytics can help tell the story of your organization and help your nonprofit make **data-driven decisions**.

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Types of Data Analysis

- **Descriptive**: what is happening?

- **Diagnostic:** why is it happening?

- **Predictive:** what will likely happen in the future?

- **Prescriptive:** what can I do to influence what will happen?

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Data Management Tools

Your CRM!

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Data Analytics and Visualization Tools

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The importance of clean data

- There's no point in performing analysis of data if the data is bad or doesn't make sense.

EVIDENCE-BASED DECISION MAKING IS IMPOSSIBLE WITHOUT CLEAN DATA
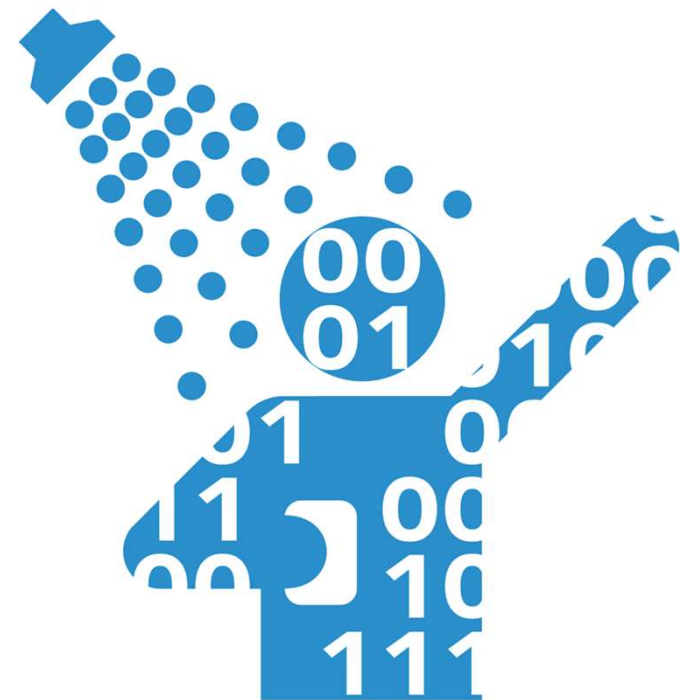
Keeping Your Data Clean

- Duplicate Prevention tools - deduping is no fun!

- Be smart about field types in forms and other data entry points.

- NCOA (National Change of Address)

- Phone & Email Verification & Append

- Address Verification Apps

Forecasting/Predictive & Prescriptive Modeling

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Machine Learning & AI Analytics

- Analyzes patterns in your data to do predictive modelling for you.

- Makes predictions on things like when to ask and how much to ask for.
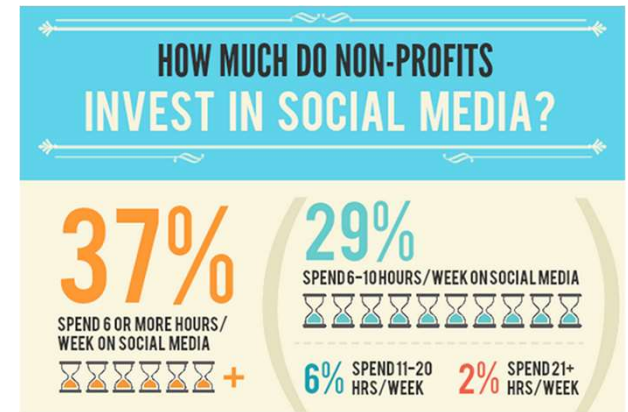
Azure Machine Learning

IBM Watson

Amazon Machine Learning

MACHINE LEARNING

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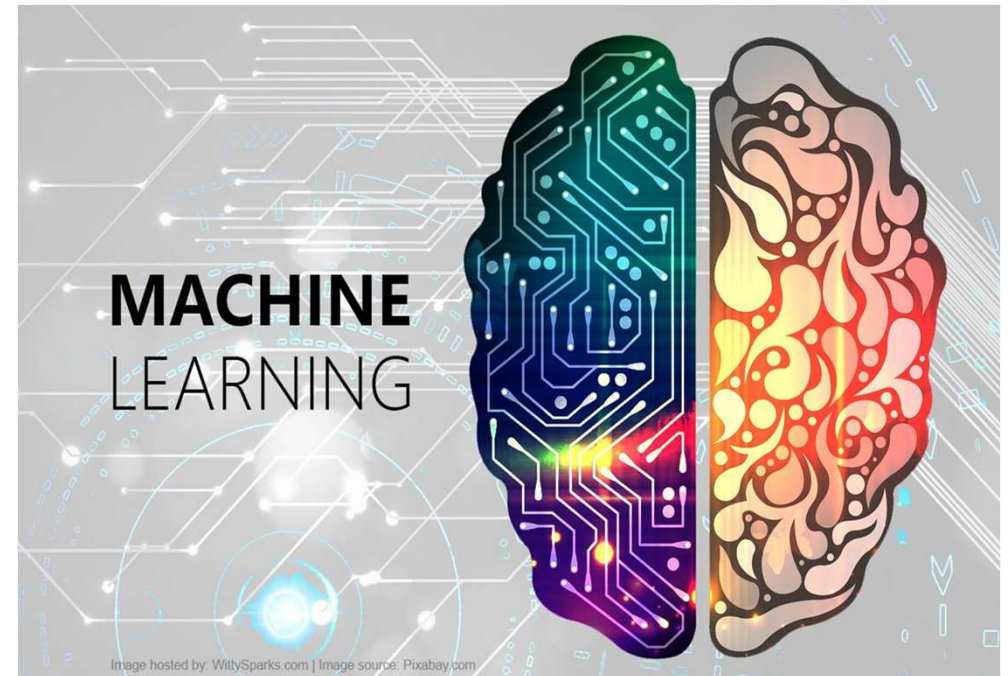
Turn Your Data into Stories

Data tells the real STORY
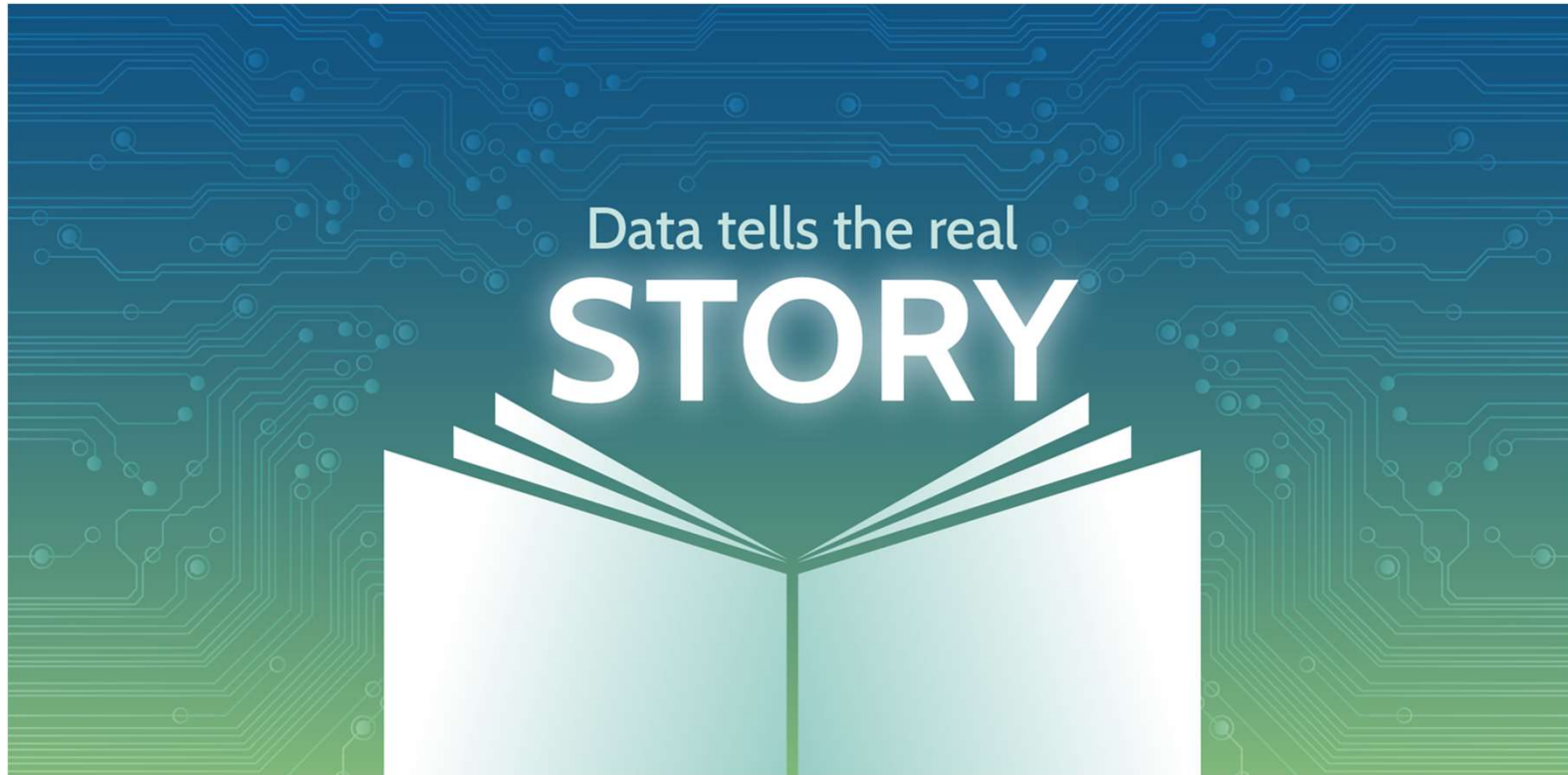
Ways to look at data

	A	B	C	D	E	F	G	H
					Q1: January to March <year>			
	All figures in USD							
	Code	Budget description	Annual Budget	Budget to date	Actual to date	Variance to date	Variance %	Utilization %
		EXPENDITURE						
	5050	Publicity	1,200	600	540	60	10%	45%
	6010	Staff training	850	850	893	(43)	(5%)	105%
	6020	Recruitment	250	250	250	0	0%	100%
	6030	Salaries & benefits	28,116	10,224	10,224	0	0%	36%
	6040	Travel & subsistence	3,847	847	305	542	64%	8%
	7010	Fuel	2,000	450	474	(24)	(5%)	24%
	7020	Vehicle Insurance/tax	3,580	3,580	3,651	(71)	(2%)	102%
	7030	Vehicle maintenance	7,200	1,800	940	860	48%	13%
	7510	Consultants fees	3,600	900	900	0	0%	25%
	7520	Food & accommodation	960	240	216	24	10%	23%
	7530	Training materials	35,600	8,600	7,400	1,200	14%	21%
		TOTAL EXPENDITURE	**87,203**	**28,341**	**25,793**	**2,548**	**9%**	**30%**

HOW MUCH DO NON-PROFITS INVEST IN SOCIAL MEDIA?

37% SPEND 6 OR MORE HOURS/ WEEK ON SOCIAL MEDIA

29% SPEND 6-10 HOURS/WEEK ON SOCIAL MEDIA

6% SPEND 11-20 HRS/WEEK

2% SPEND 21+ HRS/WEEK

Data Visualization Types: Reports

Row summary reports

Row and column summary
(matrix) reports

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Data Visualization Types: Dashboards

DASHBOARD
Donations Dashboard
As of Sep 28, 2016 8:43 PM · Viewing as Jeff Issenberg

Refresh | Edit | ▼

Donations by Program YTD
Pie Chart

57M

Program ● - ● Peace Promoter ● Schools for All

View Report

Donation Totals by Month
Vertical Bar Chart

Month	Value
January	2.2k
February	148k
March	275k
April	504k
May	92k
June	17k
July	21k
August	164k
September	1k
October	15k
November	25k
December	5.2k

Close Month

View Report

Donation Totals by Month
Table with Conditional Highlighting

CLOSE MONTH	SUM OF AMOUNT
December	$5K
November	$25K
October	$15K
September	$1K
August	$164K
July	$21K
June	$17K
May	$92K

View Report

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Data Visualization Types: Infographics and Maps

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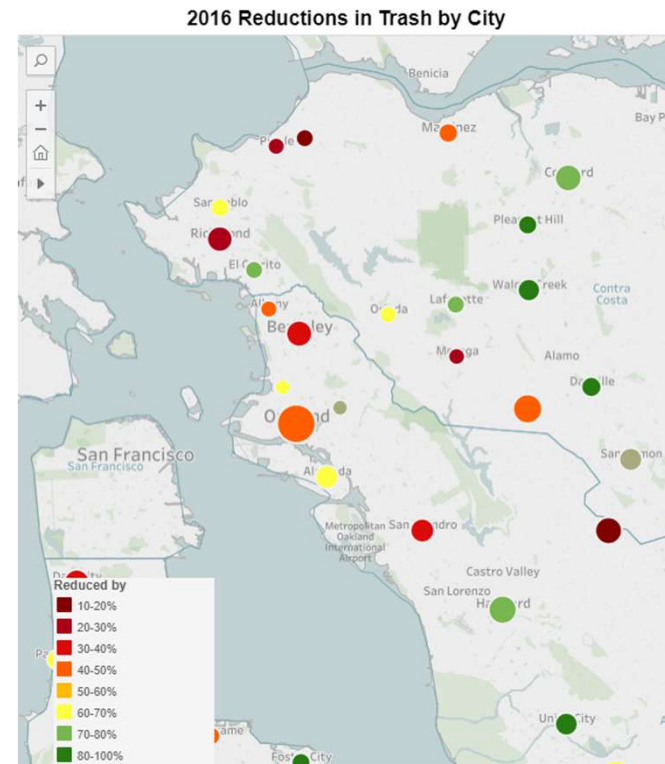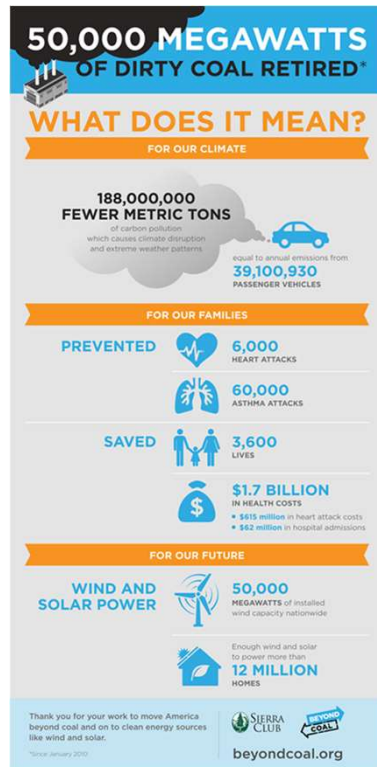
Donation Channel

- Online vs. Direct Mail
  - Amounts
  - Numbers
  - Average Gift Size

Offline vs Online Gifts

Donation: Close Date

Donation: Webgift
- False
- True

| | | | | | |
| FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 |

$685,381 Avg Gift: $60
$722,424 Avg Gift: $57
$718,928 Avg Gift: $60
$633,589 Avg Gift: $62
$545,794 Avg Gift: $78

$140,171 Avg Gift: $55
$175,689 Avg Gift: $41
$248,696 Avg Gift: $45
$207,990 Avg Gift: $39
$217,015 Avg Gift: $47

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How much do people give after their first year?

Webgifts by First Year

Year of Don..

FY 2012	FY 2012 $298,785 Avg Gift: $93
FY 2013	FY 2013 $119,011 Avg Gift: $37 | FY 2012 $208,595 Avg Gift: $132
FY 2014	FY 2014 $131,572 Avg Gift: $57 | FY 2013 $78,458 Avg Gift: $50 | FY 2012 $171,581 Avg Gift: $135
FY 2015	FY 2015 $96,124 Avg Gift: $89 | FY 2014 $78,326 Avg Gift: $87 | FY 2013 $67,410 Avg Gift: $59 | FY 2012 $169,526 Avg Gift: $172
FY 2016	FY 2016 $378,319 Avg Gift: $1,576 | FY 2014 $74,757 Avg Gift: $127 | FY 2013 $57,285 Avg Gift: $81

Year of Combined First Date
- FY 2012
- FY 2013
- FY 2014
- FY 2015
- FY 2016
- FY 2017

0K 50K 100K 150K 200K 250K 300K 350K 400K 450K 500K 550K 600K

Donation: Amount

Forecasting Attrition: Predictive Modeling

- If a set % of continued donors drop off the file every year,

- how many will be left after X number of years?

		Projections			
	2016	2017	2018	2019	2020
% of Donors Remaining	70.00%	70.00%	70.00%	70.00%	70.00%
Avg. Donation: Amount	$59.84	$62.84	$65.84	$68.84	$71.84
Count of Account Name	640	448	314	219	154
% remaining of Account Name over each year					
Donation: Amount	$38,283	$28,142	$20,640	$15,106	$11,035
% of Donors Remaining	70%	70%	70%	70%	70%
Avg. Donation: Amount	$53.69	$56.69	$59.69	$62.69	$65.69
Count of Account Name	753	527	369	258	181
% drop of Account Name					
Donation: Amount	$40,403	$29,863	$22,010	$16,181	$11,869
% of Donors Remaining	70%	70%	70%	70%	70%
Avg. Donation: Amount	$43.20	$46.20	$49.20	$52.20	$55.20
Count of Account Name	741	519	363	254	178
% drop of Account Name					
Donation: Amount	$32,024	$23,973	$17,871	$13,272	$9,825
% of Donors Remaining	70.00%	70.00%	70.00%	70.00%	70.00%
Avg. Donation: Amount	$42.92	$45.92	$48.92	$51.92	$54.92
Count of Account Name	506	354	248	174	122
% drop of Account Name					
Donation: Amount	$21,723	$16,269	$12,132	$9,013	$6,674

Predictive Modeling

- If we added X number of new donors at $Y dollar amounts,

- how much will they be giving us in Z number of years?

Variables		35%	70%	70%	70%	70%
First Year Retention	35%	$70.51	$73.51	$76.51	$79.51	$82.51
2+ Year Retention	70%	338	236	165	116	81
Acquisition +	0	$23,813	$17,379	$12,661	$9,211	$6,691
Avg Gift Increase	$3.00	$156,246	$115,625	$85,314	$62,784	$46,093

Variables		35%	70%	70%	70%	70%
First Year Retention	35%	$70.51	$73.51	$76.51	$79.51	$82.51
2+ Year Retention	70%	1338	936	655	459	321
Acquisition +	1000	$94,319	$68,833	$50,149	$36,481	$26,500
Avg Gift Increase	$3.00	$226,752	$167,079	$122,802	$90,054	$65,903

Program data - tracking your impact

Restoration Event Name	Public - 10/8/2014 -
Record Type	Public [Change]
Event Date	10/8/2014
Start Time	
Event Site	Palo Alto Baylands (Palo Alto)
Subsite	Native Plant Nursery
Event Partner	
Event Status	Attended
Staff	Bryan

▼ Program Statistics

Total # Volunteers Attended	22
# Adults Attended	22
# Youth Attended	
Total Hours	66
# Plants in Ground	
Species Planted	
Plots Planted	
# Plants Transplanted	643

- We track our wetland restoration work in daily project records.

- Summarizing this data into a line chart, we can summarize the work we've put into each site over the last few years.

Program data - tracking your impact

Volunteer Hours by Restoration Site

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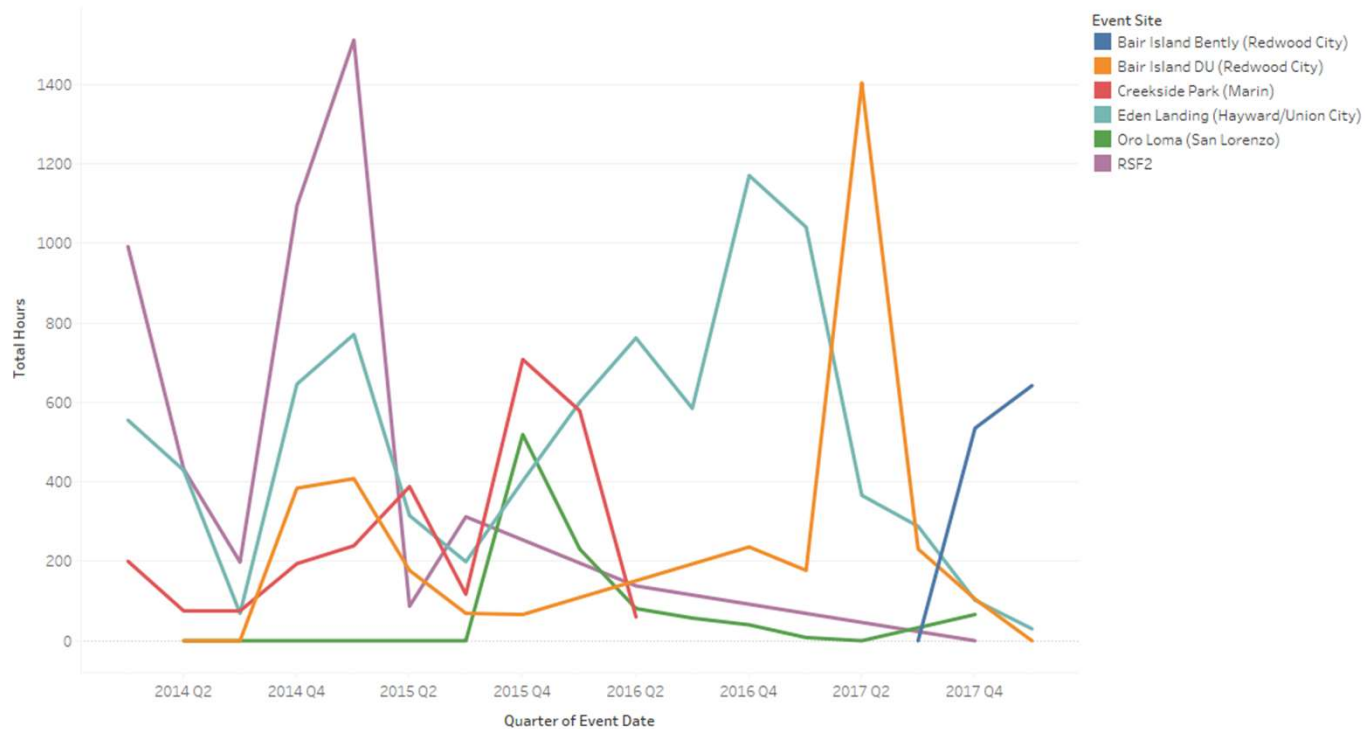
Using Data for Advocacy and Change

- Water from most stormwater drain systems in the Bay Area drains directly into San Francisco Bay.

- Trash flowing into the San Francisco Bay from stormwater systems is one of the most visible environmental issues in the Bay Area.

- In order to address this issue, in 2010 the San Francisco Bay Regional Water Quality Control Board ordered 78 Bay Area cities and agencies to eliminate trash from their stormwater systems by July 1, 2022.
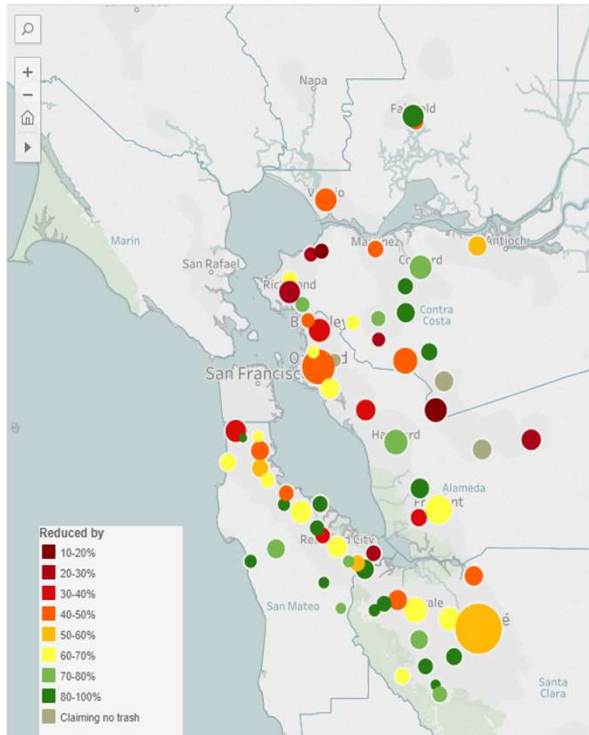
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Using Data for Advocacy and Change

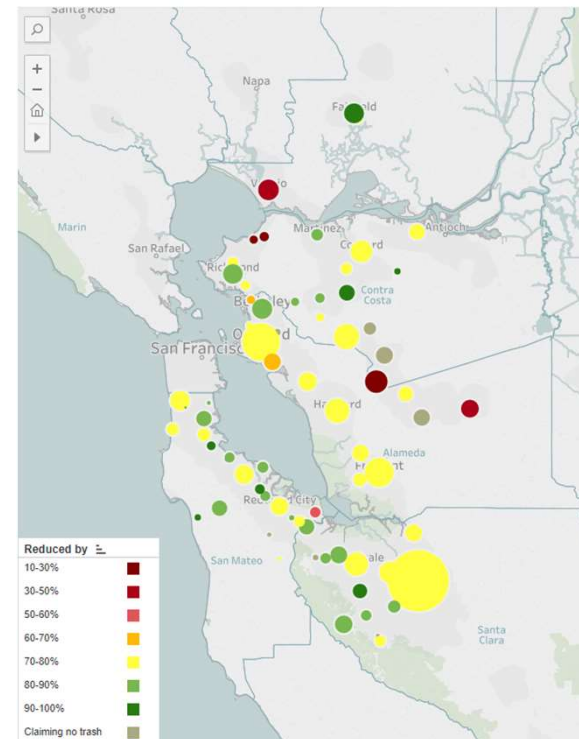## 2015-16 Annual Reports for the Municipal Regional Stormwater NPDES Permit

- Countywide Program – Alameda Countywide Clean Water Program
- Alameda County
- Alameda
- Albany
- Berkeley
- Dublin
- Emeryville
- Fremont
- Hayward
- Hayward_addendum
- Hayward C.10.3 Attachment_Baseline Trash Map
- Livermore
- Newark
- Oakland
- Piedmont
- Pleasanton
- Pleasanton Trash Capture Maps
- San Leandro
- Union City
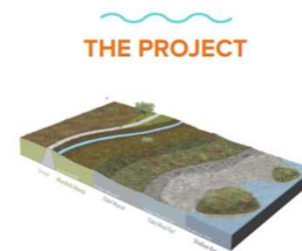
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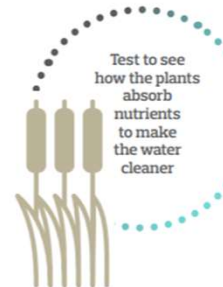

2016 Reductions in Trash by City

2017 Reductions in Trash by City

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The Power of Infographics

Thanks!

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