

2023 Texas GIS Forum

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# MARINE DEBRIS AND PUBLIC OUTREACH: A DASHBOARD IS WORTH A THOUSAND WORDS

Speaker

Jess Lucas

# Speaker Background



— B.S. from Texas A & M University in Wildlife Biology  
Worked on many species of animals  
Began my GIS journey with ArcMap 8.1

— M.S. from Clemson University in Wildlife Biology  
Worked with a rare bat species, environmental surveys  
Habitat analysis using GIS

— GIS Certificate from Austin Community College  
Honed my GIS skills

— Currently working as a GIS analyst on primarily non-profit projects

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KISS, documentation, training

# Who is SPLASh

- Comprised of individuals from various non-profits and organizations
  - American Bird Conservancy
  - Gulf Coast Bird Observatory
  - Black Cat GIS
- Conduct outreach and education activities
- Work to develop best management practices for litter control/cleanup
- Host regular coastal cleanups where community volunteers collect, sort, and categorize trash
- Use data from these cleanups to inform better waste management practices.



# SPLASh

STOPPING PLASTICS AND  
LITTER ALONG SHORES

# Project Goals



**SPLASH**

STOPPING PLASTICS AND  
LITTER ALONG SHORELINES

## PRODUCT

Create online data visual  
for SPLASH

## GOALS

User friendly  
Easily updated  
No new techniques

## METHOD

Create dashboards  
housed on StoryMap



## COVID-19 Map

Coronavirus COVID-19 Global Cases by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University (JHU)

 Johns Hopkins Coronavirus Resource Center

# Dashboards as Outreach

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When data is online,  
make it visual

Visual representation  
can be easier to  
communicate with the  
general public

# Purpose-built Dashboard

Criteria for this EPA funded  
non-profit project

- **Innovative online platform** to collect data and engage the public
- **Ability to query** trash data entered by site or across sites by year or multiple years
- **Access and use by local stakeholders** to improve trash management and to target prevention of the most discarded items.
- **Identify trash peaks** that may coincide with nesting seasons, migration, and other natural, biological and environmental phenomena.
- Provide a detailed starting point to **track trash removal efforts**

# Project Process



**TOP Survey Datasheet**

any "hard" plastic that is not styrofoam or plastic film

Item	Tally	Total #
Aluminum Foil		
Aluminum/ Tin cans		
Aerosol cans		
Crab/ Fish traps		
Metal Bottle Caps		
Metal Fragments		
Other:		

Examples: any metal

Item	Tally
Beverage Bottles	
Jars	
Glass Fragments	
Other:	

Examples: any "hard" plastic that is not styrofoam or plastic film

Item	Tally
Flip flops/ Shoe soles	
Work (Thick) Gloves	
Rubber Fragments	
Tires	
Other:	

Examples: any wearable object used to protect the wearer from

Item	Tally
PPE Disposable Gloves	
PPE Face Masks	
Other:	

Examples: any MAN MADE products made from trees/ wood

Item	Tally
Cardboard cartons	
Lumber Products	
Paper/ Cardboard Scraps	
Paper Bags	
Other:	

Item	Tally
Clothing and shoe tops	
Fabric Pieces	
Gloves (non rubber)	
Rope/ nets NON NYLON	
Towels/ rags	
Other:	

Other/ Unclassifiable (write

Item	Tally

It's so easy to make a difference! Thank you for taking your time to provide Texas scientists th

Classification/Audit:

Count distance:

Hard Plastic:

Styrofoam:

Film:

PPE:

Paper/ Lumber:

Clothing/ Fabric:

Hazardous Items:

time	date	coordi	latitude	longitud	county	take2_b
City	9/30/2020	(29.39018,	29.39018	-94.88563	Galveston	
City	9/30/2020	(29.389516,	29.38952	-94.88308	Galveston	
City	9/30/2020	(29.389057,	29.38906	-94.88337	Galveston	
City	9/30/2020	(29.09172,	29.09172	-95.11239	Galveston	
City	9/30/2020	(29.086827,	29.08683	-95.11887	Galveston	
City	9/30/2020	(29.090394,	29.09039	-95.11921	Galveston	
City	9/30/2020	(29.092933,	29.09293	-95.11366	Galveston	
City	9/30/2020	(29.370776,	29.37078	-94.75032	Galveston	
City	9/30/2020	(29.370345,	29.37035	-94.75091	Galveston	
City	9/30/2020	(29.37075,	29.37075	-94.75035	Galveston	
City	9/30/2020	(29.39167,	29.39167	-94.88696	Galveston	
City	1/18/2021	(29.37954,	29.37954	-94.72459	Galveston	
City	3/6/2021	(29.76128,	29.76128	-95.07996	Harris	
City	3/6/2021	(29.760599,	29.7606	-95.07949	Harris	
City	7/16/2021	(29.33143,	29.33143	-94.73431	Galveston	
City	7/22/2021	(29.09172,	29.09172	-95.11239	Galveston	
City	7/22/2021	(29.09172,	29.09172	-95.11239	Galveston	
City	7/2021	(29.67674,	29.67674	-94.98205	Harris	
City	7/2021	(29.676987,	29.67699	-94.98139	Harris	
City	7/2021	(29.334137,	29.33414	-94.78029	Galveston	
City	7/2021	(29.33416,	29.33416	-94.78043	Galveston	
City	7/2021	(29.76128,	29.76128	-95.07996	Harris	
City	7/2021	(29.760466,	29.76047	-95.07849	Harris	
City	7/2021	(29.093137,	29.09314	-95.11366	Galveston	
City	7/2021	(29.092932,	29.09293	-95.11366	Galveston	
City	7/2021	(29.09172,	29.09172	-95.11239	Galveston	
City	7/2021	(29.93306,	28.93306	-95.30273	Brazoria	
City	7/2021	(29.73534,	29.73534	-95.3898	Harris	
City	7/2021	(29.78349,	29.78349	-95.37048	Harris	
City	7/2021	(29.09172,	29.09172	-95.11239	Galveston	
City	7/2021	(29.092934,	29.09293	-95.11368	Galveston	
City	7/2021	(29.78349,	29.78349	-95.37048	Harris	
City	7/2021	(29.39018,	29.39018	-94.88563	Galveston	
City	7/2021	(29.685967,	29.68597	-96.26541	Austin	
City	7/2021	(29.68577,	29.68577	-95.26498	Harris	
City	7/2021	(29.71283,	29.71283	-94.99344	Harris	
City	7/2021	(29.712809,	29.71281	-94.99333	Harris	
City	7/2021	(29.713901,	29.7139	-94.99216	Harris	
City	7/2021	(29.713228,	29.71323	-94.99219	Harris	
City	7/2021	(29.76128,	29.76128	-95.07996	Harris	
City	7/2021	(29.76132,	29.76132	-95.08	Harris	
City	10/6/2021	(29.389057,	29.38906	-94.88337	Galveston	
City	10/6/2021	(29.39018,	29.39018	-94.88563	Galveston	
City	10/6/2021	(29.30712,	29.30712	-94.76753	Galveston	
City	10/8/2021	(29.304522,	29.30452	-94.76949	Galveston	
City	10/8/2021	(29.30607,	29.30607	-94.7673	Galveston	
City	10/8/2021	(29.306969,	29.30697	-94.76555	Galveston	
City	10/9/2021	(29.33143,	29.33143	-94.73431	Galveston	
City	10/9/2021	(29.330314,	29.33031	-94.73008	Galveston	
City	10/9/2021	(29.33366,	29.33366	-94.7454	Galveston	
City	11/6/2021	(29.370776,	29.37078	-94.75032	Galveston	
City	11/6/2021	(29.370345,	29.37035	-94.75091	Galveston	
City	11/6/2021	(29.37075,	29.37075	-94.75035	Galveston	
City	11/6/2021	(29.76128,	29.76128	-95.07996	Harris	
City	12/5/2021	(29.283203,	29.2832	-94.89257	Galveston	
City	12/5/2021	(29.283761,	29.28376	-94.87856	Galveston	



Litter Cleanup

Field Data

Litter Database

Data Download

Dashboard



# Litter Cleanup - STOP

- Driving force behind Texas Litter Database
- Method:
  - track a line and note the distance (say 100 ft) and pick up every single piece of trash you see, the size of a cigarette butt or larger.
  - Once collected, record the number of individual items into the trash report page.



# STOP Field Data

## From field to database

- Field data is reported into the datasheet
- Diverse categories cover most items
- Specific breakdowns of 'type' of item within each category
- Totals - overall weight
- Transects - itemized count

**Hair**

Shampoo		
Soap		
Bar Soap		
Showerheads		
Lighters		
Lures and Line		
Food Containers		
Fragments		
Non-Food Containers		
Personal care products		
Plastic Cups/ Plates		
Plastic Rope/net pieces		
Plastic Toys		
Plastic Utensils		
Shotgun Shell Casings		
Straws		
Other:		

Examples: styrofoam cups, to-go boxes, egg cartons, insulation pieces

**Styrofoam**

Item	Tally	Total #
<b>Estimated Styrofoam Fragments</b>	Circle best estimate category 0- 100 101-1000 Over 1000	
Styrofoam Cups/ Plates		
Fishing Floats		
Food Wrappers		
Other Jugs/ Containers		
Personal care products		
Other:		

Examples: chip bags, clear wrappers, candy wrappers

Item	Tally	Total #
<b>Plastic</b>	Circle best estimate category 0- 100 101-1000 Over 1000	

**Glass**

Item	
Beverage Bottles	
Jars	
Glass Fragments	
Other:	

**Rubber**

Item	
Flip flops/ Shoe soles	
Work (Thick) Gloves	
Rubber Fragments	
Tires	
Other:	

**PPE**

Examples: any wearable o

Item	
PPE Disposable Gloves	
PPE Face Masks	
Other:	

**Paper/ Lumber**

Examples: any MAN MAD

Item	
Cardboard cartons	
Lumber Products	
Paper/ Cardboard Scraps	
Paper Bags	
Other:	

**Cloth/ Fabric**

Item	
Clothing and shoe tops	
Fabric Pieces	
Gloves (non rubber)	
Rope/ nets NON NYLON	
Towels/ rags	
Other:	

# Texas Litter Database

Centralized data repository

Organizes trash and marine debris data

Open to all users – maps, graphs, and data downloads

Data download available free with an account

CSV format

Currently managed by Houston Advanced Research Center (HARC)



Keep Texas Beautiful  
AMERICA BEAUTIFUL AFFILIATE

Sign In

## Welcome to Texas Litter Database

### STOP EVERY PIECE COUNTS!

- Create New Event
- Download Field Sheet
- Enter Data

Have 2 minutes? Help us count the number of plastic bottles littering Texas! **Take 2 For Texas**

FAQ:

- Definitions

Total Trash Count	139,656
Total Volunteers	95,984
Total Events	672
Total Reports	2,372
100+ Plastic Film Fragment Reports	36
100+ Hard Plastic Fragment Reports	56
Highest Weight (lb) in One Cleanup	710,000

### Data Download

The dataset was last updated on October 20, 2023 4:33 PM

**Data Use Disclaimer:**

The Texas Litter Database is intended to provide a central repository for litter and trash data for the state of Texas, making it available to the public for tracking, mapping, and research purposes.

This product is for informational purposes only and may not be suitable for legal, engineering, or surveying purposes. It does not represent an official survey and represents only the approximate relative location of features and boundaries. Mapping may not necessarily reflect on-the-ground conditions. This product and those involved in its production make no claims as to the accuracy or reliability of the data, and neither assumes, nor will accept liability for their use. We highly recommend reviewing metadata files prior to interpreting these data. The user Texas Litter Database is interested in hearing from you. If you've experienced or witnessed something that you feel we need to know about please use this form to report it.

I have read, understand, and agree to the data disclaimer.

Download

Texas Litter Database is interested in hearing from you. If you've experienced or witnessed something that you feel we need to know about please report it.

Total Trash Counts	147,574
Total Volunteers	97,060
Total Events	687
Total Reports	2,408
100+ Plastic Film Fragment Reports	38
100+ Hard Plastic	

# Data Download/Cleaning

## Manage Data quality

Similar quality to citizen science

Entry by numerous volunteers, untrained staff, etc.

Creates misspellings, duplications, inconsistency, etc.

Corrections by program staff

## Best use of pre-existing fields

Little/no flexibility in field name or availability

Not always ideal for Dashboards

Some post-download modifications

## Filter relevant data

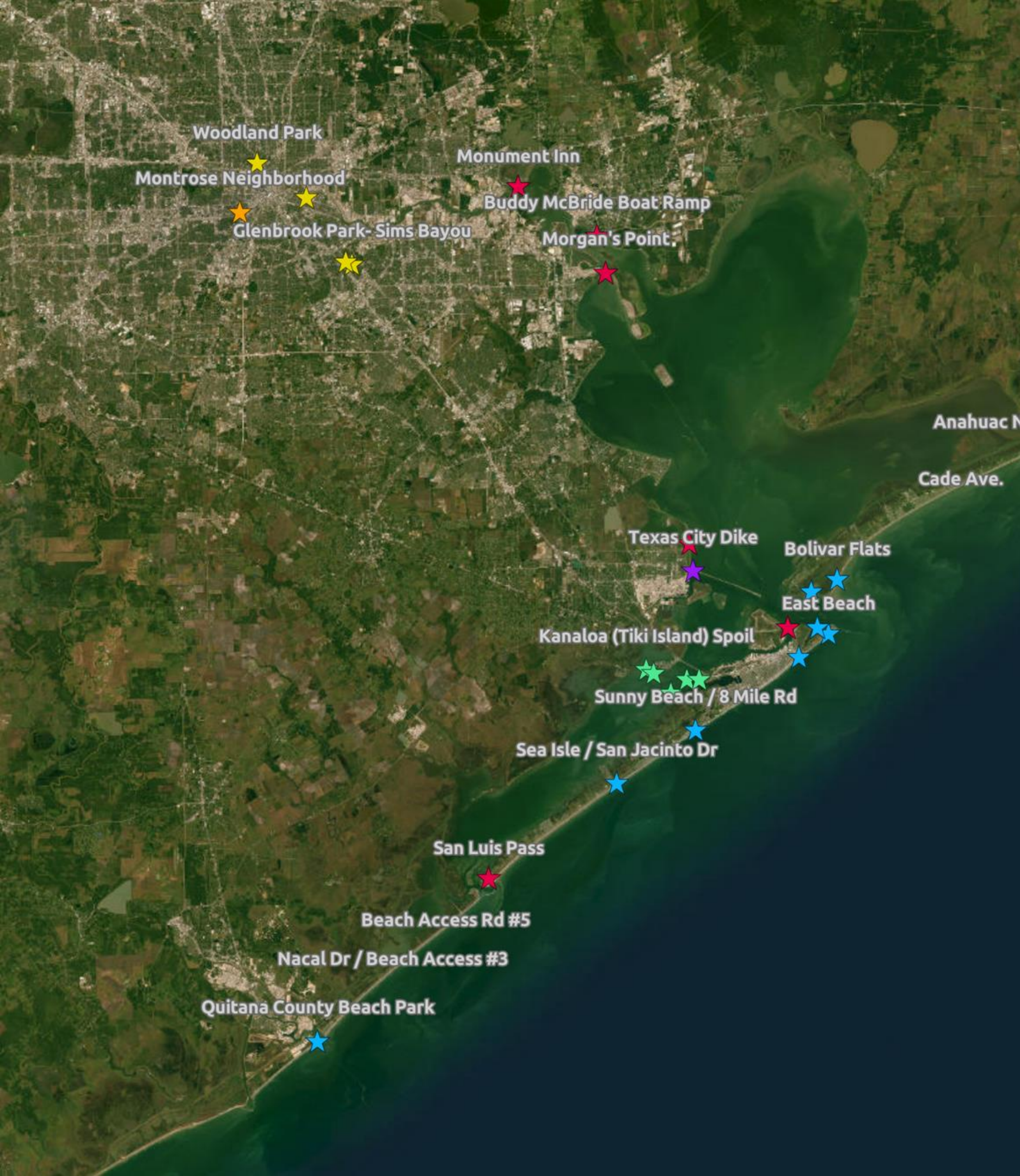
Sort only SPLASH events

Separate totals/transects at data entry



Staff	Event Name	Date	Latitude	Longitude	Location	Count	Total
SPLASH	Texas City				Trail/Path, Road, Park		
SPLASH	Bolivar Flat	1/18/2021	29.37954	-94.88696	Galveston Beach	16	41
SPLASH	Monumeni	3/6/2021	29.76128	-94.72459	Galveston Beach	3	
SPLASH	East Beach	3/6/2021	29.76128	-95.07996	Harris Beach	12	27.5
SPLASH	San Luis Pa	3/16/2021	29.760599	29.7606	-95.07949 Harris Beach, Park	9	36
SPLASH	San Luis Pa	4/22/2021	29.33143	29.33143	-94.73431 Galveston Beach, Park	7	
SPLASH	Morgan's F	4/22/2021	29.09172	29.09172	-95.11239 Galveston Beach	32	54.8
SPLASH	Morgan's F	5/22/2021	29.67674	29.67674	-95.11239 Galveston Beach	7	
SPLASH	Seawolf Pa	5/24/2021	29.67698	29.67699	-94.98205 Harris Beach	22	
SPLASH	Seawolf Pa	5/24/2021	29.334137	29.33414	-94.98139 Harris Beach	20	40
SPLASH	Monumeni	5/24/2021	29.33416	29.33416	-94.78029 Galveston Beach	19	40.5
SPLASH	Monumeni	6/19/2021	29.76128	29.76128	-94.78043 Galveston Beach, Park	1	
SPLASH	San Luis Pa	6/19/2021	29.760466	29.76047	-95.07996 Harris Beach, Park	36	
SPLASH	San Luis Pa	6/24/2021	29.093137	29.09314	-95.07849 Harris Beach	36	180
SPLASH	San Luis Pa	6/24/2021	29.092932	29.09293	-95.11366 Galveston Beach	11	2.8
SPLASH	San Luis Pa	6/24/2021	29.09172	29.09172	-95.11366 Galveston Beach	9	8.5
SPLASH	Quintana C	7/14/2021	28.93306	28.93306	-95.11239 Galveston Beach	24	42.5
SPLASH	Montrose	7/14/2021	28.93306	28.93306	-95.30273 Brazoria Beach	11	26.5
SPLASH	Woodland	7/21/2021	29.73534	29.73534	-95.3898 Harris Beach, Park	13	29.3
SPLASH	San Luis Pa	7/24/2021	29.78349	29.78349	-95.37048 Harris Beach, Park, Trail/Path	9	33
SPLASH	San Luis Pa	8/20/2021	29.09172	29.09172	-95.11239 Galveston Beach, Park, Trail/Path	1	
SPLASH	Woodland	8/20/2021	29.092934	29.09293	-95.11368 Galveston Beach	13	26.3
SPLASH	Texas City	8/27/2021	29.78349	29.78349	-95.37048 Harris Beach	36	153
SPLASH	Glenbrook	9/9/2021	29.39018	29.39018	-94.88563 Galveston Beach	11	2.8
SPLASH	Glenbrook	9/19/2021	29.685967	29.68597	-96.26541 Austin Beach, Road, Park	9	8.5
SPLASH	Buddy McE	9/19/2021	29.68577	29.68577	-95.26498 Harris Park, Trail/Path, Waterway	24	42.5
SPLASH	Buddy McE	9/28/2021	29.71283	29.71283	-94.99344 Harris Park, Trail/Path, Waterway	11	26.5
SPLASH	Buddy McE	9/28/2021	29.712809	29.71281	-94.99333 Harris Park, Beach, Trail/Path	3	
SPLASH	Buddy McE	9/28/2021	29.713901	29.7139	-94.99216 Harris Beach, Park, Trail/Path	9	33
SPLASH	Buddy McE	9/28/2021	29.713228	29.71323	-94.99219 Harris Beach, Park, Trail/Path	1	
SPLASH	Monumeni	10/5/2021	29.76128	29.76128	-95.07996 Harris Beach, Park, Trail/Path	13	26.3
SPLASH	Texas City	10/5/2021	29.76132	29.76132	-95.08 Harris Beach	36	153
SPLASH	Texas City	10/6/2021	29.389057	29.38906	-94.88337 Galveston Beach	13	
SPLASH	Stewart Be	10/6/2021	29.39018	29.39018	-94.88563 Galveston Beach, Road, Park	12	
SPLASH	Stewart Be	10/8/2021	29.30712	29.30712	-94.76753 Galveston Beach, Park, Road	10	
SPLASH	Stewart Be	10/8/2021	29.304522	29.30452	-94.76949 Galveston Beach, Park	42	
SPLASH	Stewart Be	10/8/2021	29.30607	29.30607	-94.76949 Galveston Beach, Park		
SPLASH	East Beach	10/8/2021					



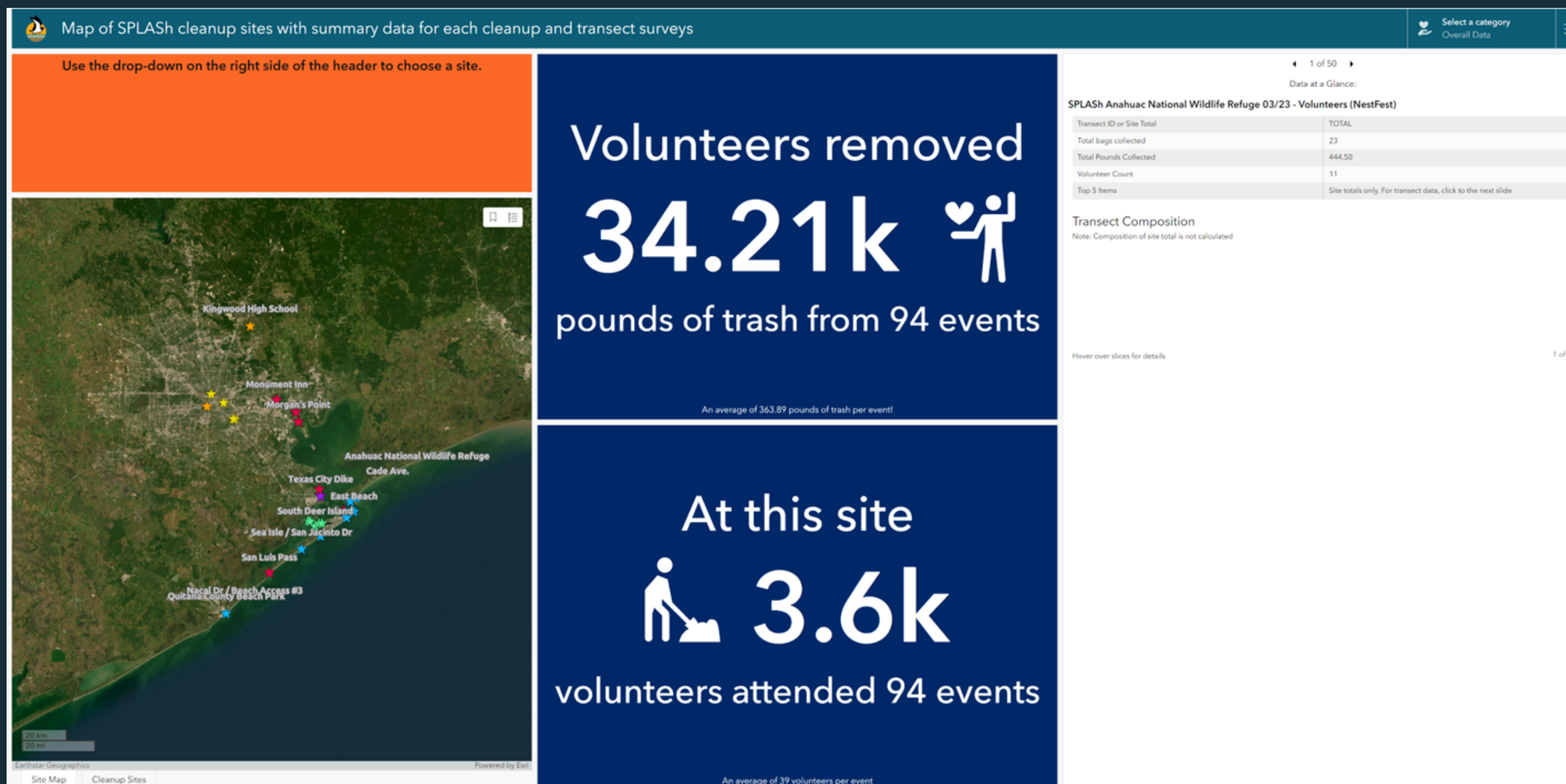


# Building the Dashboard

- Work with SPLASh to determine dashboard wish-list
  - Must-have categories
  - Metrics and desirable layout
  - Style sheet
    - colors, type, logos

# Dashboard - Maps and Metrics

Create a dashboard with overall metrics and site specific metrics.



## Components

- Maps
  - Site Map
  - Overall sites
- Data at a Glance
- Indicators
- Category selector
- Text box

# Category Selector

The dashboard features a header with a map of cleanup sites and a 'Select a category' dropdown menu. Two site detail cards are shown, each with a map, summary statistics, and a data table.

**Category Selector:**

- Select a category
- Overall Data
- Anahuac National Wildlife Refuge
- Beach Access #3
- Beach Access Road #5
- Bolivar Flats
- Bolivar Frenchtown Road
- Bolivar Jetty Beach
- Bolivar West Frenchtown Road
- Buddy McBride Boat Ramp
- Buddy McBride Boat Ramp Pavilion

**Site 1: SPLASH Rettilon Road 04/23 - School**

Use the drop-down on the right side of the header to choose a site.

Volunteers removed **25.81** pounds of trash from 1 events

An average of 25.81 pounds of trash per event!

Data at a Glance:	
Transect ID or Site Total	8
Total bags collected	1
Total Pounds Collected	0.55
Volunteer Count	9
Top 5 Items	Site totals only. For transect data, click to the next slide

Transect Composition

Note: Composition of site total is not calculated.

Hover over slices for details.

**Site 2: SPLASH Mor...**

Use the drop-down on the right side of the header to choose a site.

Volunteers removed **7.63k** pounds of trash from 12 events

An average of 635.81 pounds of trash per event!

At this site **608** volunteers attended 12 events

An average of 51 volunteers per event!



# Category Selector -Actions

Select actions for different layers and maps in the dashboard

## Filter

- Filters the data in the “data at a glance” to reflect only site data
- Filters the data in the indicators to reflect only site data

## Flash

- Can flash a point on the map

## Pan

- Can pan to a point on the map

## Zoom

- Zoom to the selected site in the main map

The screenshot displays the 'Category selector' interface. On the left, there are three rows: '99! Reference' with a toggle switch, '99! Value' with a toggle switch, and '99! Volunteers/Events'. Below these is a checkbox labeled 'Render only when filtered'. The main area is a table with columns 'Data', 'Selector', and 'Actions'. The 'Actions' column lists 'Filter' (7 active targets), 'Flash' (No active targets), and 'Pan' (No active targets). A blue button labeled 'Select a category Overall Data' is visible. On the right, a 'Zoom' panel shows '1 active target' and two map layers: 'Litter Cleanup Locations - SLP' (disabled) and 'Origin Map - SPLASH Cleanup Data' (enabled).

Data	Selector	Actions
		Filter 7 active targets
		Flash No active targets
		Pan No active targets

Zoom  
1 active target

- Litter Cleanup Locations - SLP
- Origin Map - SPLASH Cleanup Data

The image shows a screenshot of a web application interface, likely a data management tool. It is divided into two main sections: 'Data options' and 'Selector options'. The 'Data options' section includes a 'Categories from' dropdown with 'Grouped values' selected, a 'Layer: Cleanup Site Data' with a 'Change' button, a 'Filter' section with two rows of filters (site\_name is not null and site\_name is not empty) connected by 'AND' and 'OR' buttons, a 'Category field' dropdown set to 'site\_name', and a 'Sort by' dropdown with 'Add field' button. The 'Selector options' section includes a 'Settings' dropdown, a 'Label' field with 'Select a category', an 'Icon' field with a 'Change' button, 'Presentation mode' with 'Dropdown' selected, 'Selection' with 'Single' selected, 'Show search' and 'Show reset' toggle switches, 'Maximum height' with 'Extended' selected, 'Operator' with 'equal' selected, and 'None option' toggle switch. A teal button with a heart icon and the text 'Select a category Overall Data' is visible in the top right of both sections.

# Category Selector

## Data

- Choose Grouped Values
- Filter by site name (exclude null/empty)
- Select category field
  - Site Name

## Selector

- Label for selector – ‘Select a category’, ‘sites’, ‘hospitals’ etc.
- Choose icon
- Choose presentation mode
  - Dropdown with single selection
- None option
  - No selection shows ALL data (labelled overall data)

# Indicators

## Data:

- Apply relevant filters
  - external ID 'TOTAL' (not itemized)
  - event organization (SPLASh)
- Create statistic
  - sum of total pounds of trash
- Create reference point
  - statistic
  - event organization
  - count - distinct event name

## Indicator:

- Customize colors and text
- Insert the value/reference
- Choose/Import an appropriate icon

The screenshot shows the configuration interface for an indicator. It is divided into several sections:   
1. **Statistic**: A dropdown menu set to 'Statistic'.   
2. **Layer**: 'Cleanup Site Data' with a 'Change' button.   
3. **Filter**: A section with two filter rules. The first rule has 'event\_organization' as the field, 'abc' as the value, and 'equal' as the operator. The second rule has 'SPLASh' as the field and 'equal' as the operator. An 'AND' button is below the first rule, and an 'OR' button is below the second.   
4. **Statistic**: A dropdown menu set to 'Count'.   
5. **Field**: A dropdown menu set to 'event\_name'.   
6. **Distinct**: A toggle switch that is turned on.   
7. **Reference conversion**: A toggle switch that is turned off.

The screenshot shows the 'Indicator options' configuration interface. It includes:   
1. **Settings**: An 'Enable' button.   
2. **Accessibility**: A section for 'Conditional formatting' with fields for 'Top text', 'Middle text', and 'Bottom text', each with a color picker and font size selector.   
3. **Icon**: A 'Change' button and a trash icon.   
4. **Position**: 'Left' and 'Right' buttons.   
5. **Fill** and **Outline**: Checkboxes.   
6. **Value formatting**: A section with 'Style' (Decimal/Percent), 'Digit grouping' (toggle), and 'Minimum decimal places' (input field).   
7. **Data options**: A section with 'Settings' (Change button), 'Filter' (external\_ids, equal), 'Value type' (Statistic/Feature), 'Statistic' (Sum), 'Field' (summary\_total\_lbs), and 'Value conversion' (toggle).



Data options

Indicator

General

Accessibility

Field  
volunteer\_count int

Value conversion

Reference  
Reference type  
Statistic

Layer: Cleanup Site Data [Change](#)

Filter

event\_organization abc

equal

Value Field  
SPLASH


AND

OR

event\_organization abc

equal

Value Field



# Indicators

## Data:

- Choose the relevant data layer
  - Cleanup Site Data
- Apply necessary filters
  - Event/organization
- Determine the preferred statistic
  - Sum of Total volunteers
- Identify the reference points
  - Statistic
  - Event organization
  - Count - distinct event name

## Indicator:

- Customize colors and text
- Insert the value/reference
- Choose/Import an appropriate icon.

Data options

Settings

Layer: Cleanup Site Data [Change](#)

Filter [+ Filter](#)


Value type  
**Statistic** Feature

Statistic  
Sum

Field  
volunteer\_count int

Value conversion

Reference



# Data at a Glance

Created using pop-ups in ArcPro

- Select categories
- Correct aliases
- Transect/Totals
- Create chart of site items
  - composite groups

◀ 7 of 12 ▶

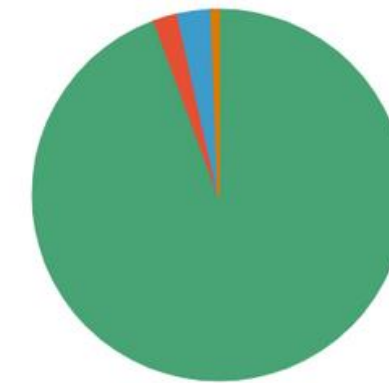
Data at a Glance:

## SPLASH Buddy McBride Boat Ramp 09/21 - School

Transect ID or Site Total	C
Total bags collected	5
Total Pounds Collected	38.53
Volunteer Count	10
Top 5 Items	Site totals only. For transect data, click to the next slide

## Transect Composition

Note: Composition of site total is not calculated

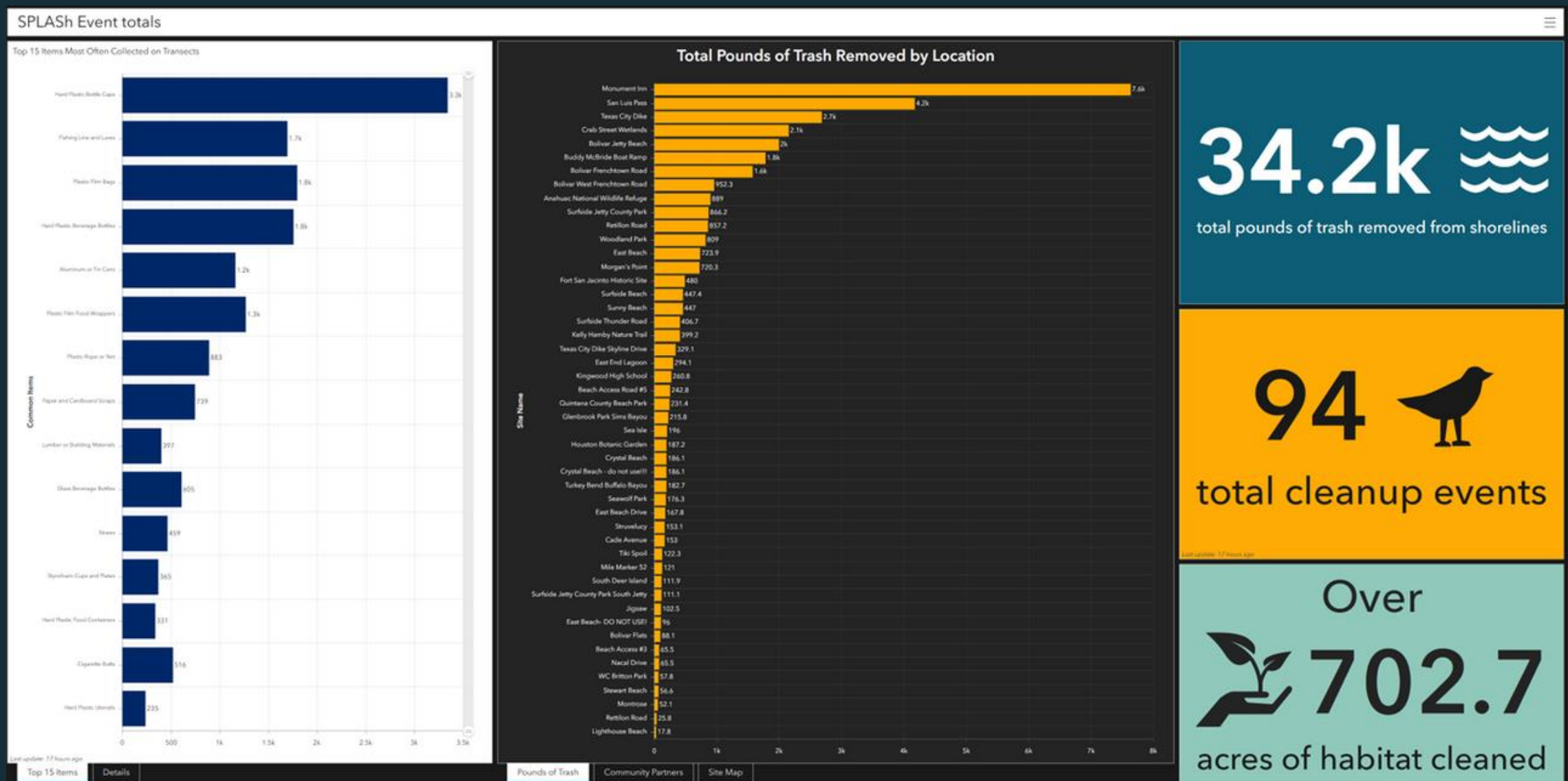


Hover over slices for details



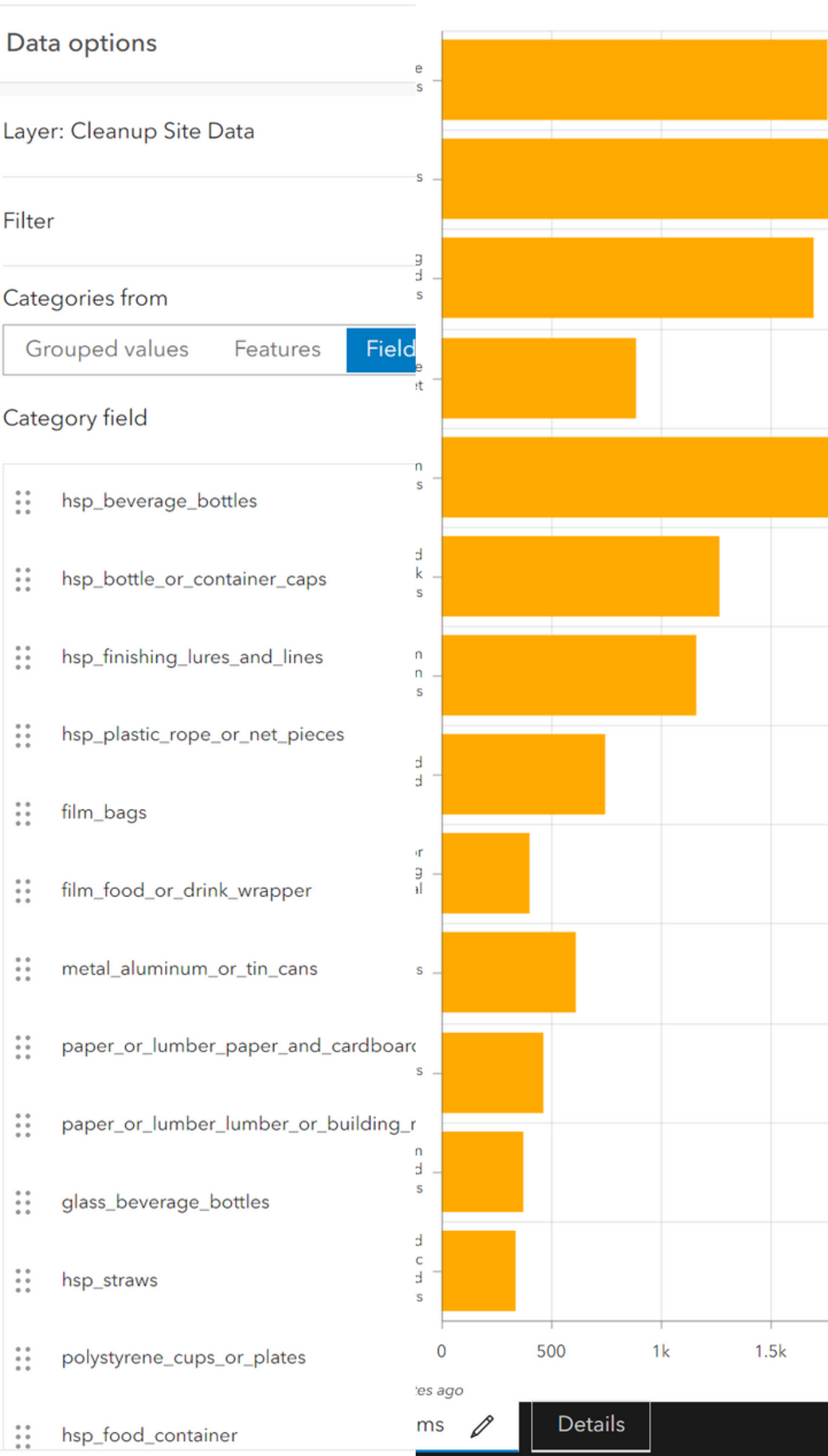
# Dashboard - Charts

Create a dynamic live dashboard that presents website and item data in easily digestible sections.



## Components

- Maps (stacked)
  - Community Partners
  - Site Map
- Data at a Glance (stacked)
- Indicators
- Serial Charts



# Serial Chart

Simple to create

- add categories
- label axis
- set orientation

Select the most common items

- Too many items to include Styrofoam pieces
- Chart ordered with most > least

# Total trash/site graph

## Data options

Layer: Cleanup Site Data

Change

### Filter

external\_ids abc 

equal 

Value	Field
TOTAL	

AND OR

Categories from

Grouped values Features Fields

Category field

site\_name 

Parse dates

Split by field



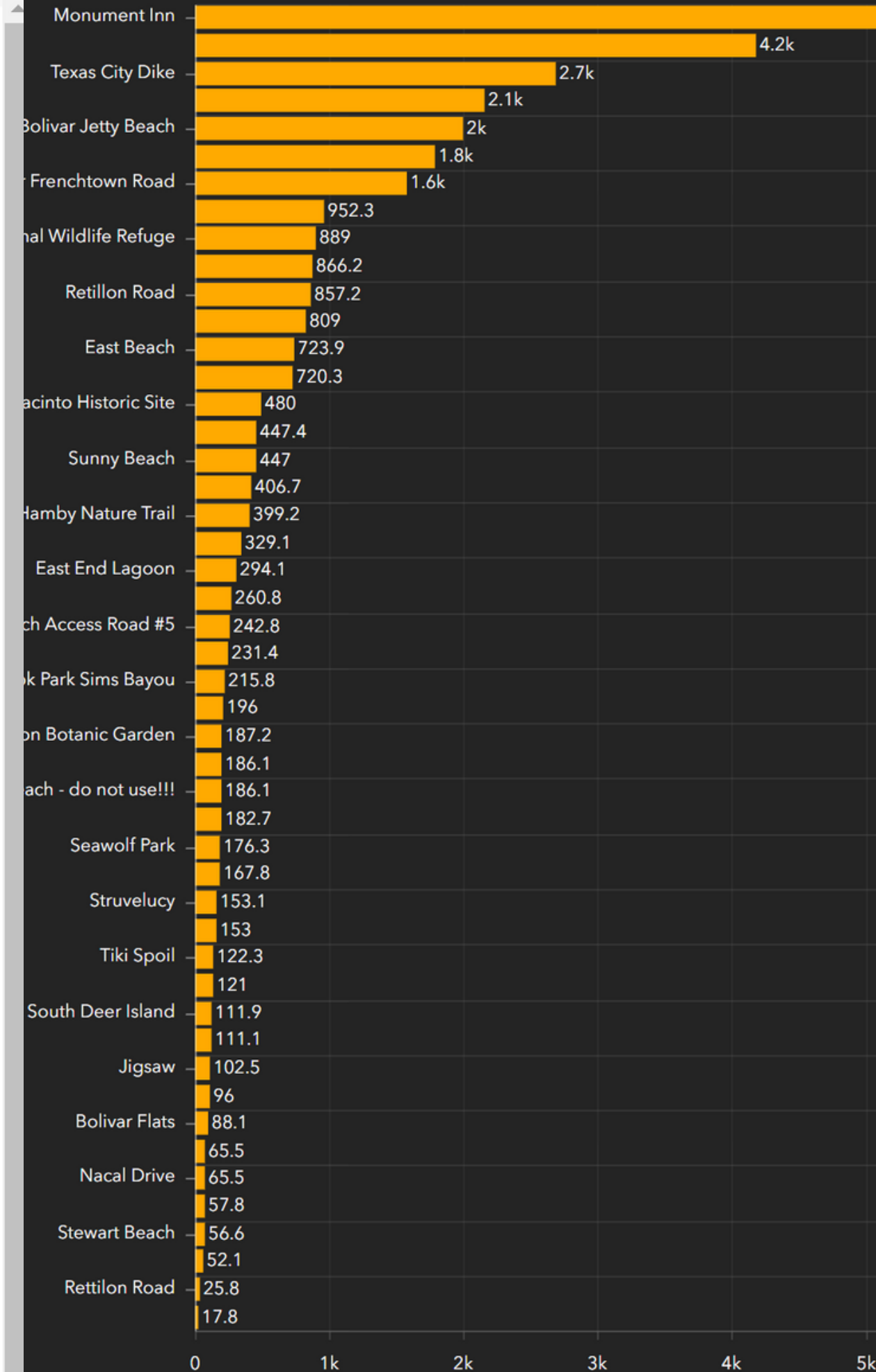
Statistic

Sum 

Field

summary\_total\_lbs 123 

## Total Pounds of Trash Removed by Location





# Maintenance

## Manual - for non-GIS users

- Include login process and information
- Data download information
- Modifications to CSV file
- Updating the file in ArcGIS Online
- Documenting updates in Credits (Attribution) because of multiple users

## Staff Training

- Available for any questions
- Walk-through with new staff

Open in Map Viewer	▼
Open in Scene Viewer	
Open in ArcGIS Desktop	▼
Publish	▼
Create View Layer	▼
Export Data	▼
Update Data	
Share	



# Ongoing updates

Texas Litter Database is switching to an ESRI based system in the future, which will dramatically change the way data can be used and displayed - check back in 2024!

# Thank you

Special thanks to those who make this work possible

