



Florida Keys National Marine Sanctuary

Water Quality Protection Program

Data Integration System

- *Corals (CREMP)*
- *Seagrasses*
- *Water Quality*
- *Special Projects*



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Presentation Summary

- STORET Update
- Website status
- Future Plans



STORET

- **STO**rage and **RET**rieval (epa.gov)
- FWRI is putting the finishing touches on a 'technical' User Manual to explain complexities regarding raw data received from field offices and the processes needed to prepare data for STORET input. This is intended to supplement the user manuals that accompany the FDEP STORET system. Considered 90% complete.

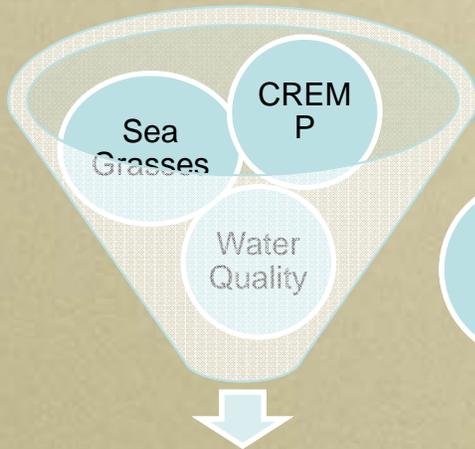


STORET

- FWRI continues to upload monitoring programs' data to Florida DEP and STORET National Warehouse.
- FWRI works with Florida DEP as needed to edit/reformat WQPP data so they may be used to calculate Total Maximum Daily Loads (TMDLs).



STORET Workflow



Raw Data



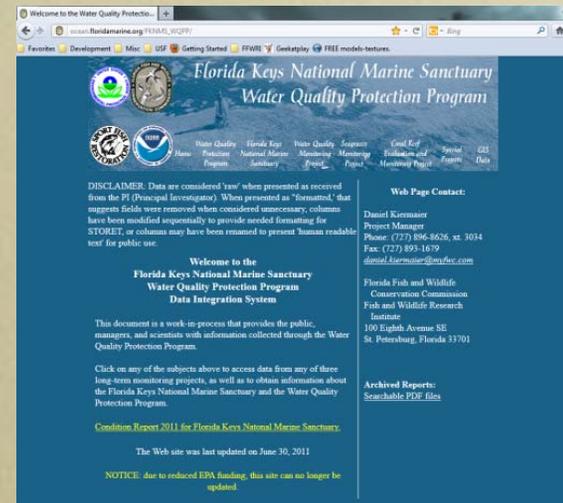
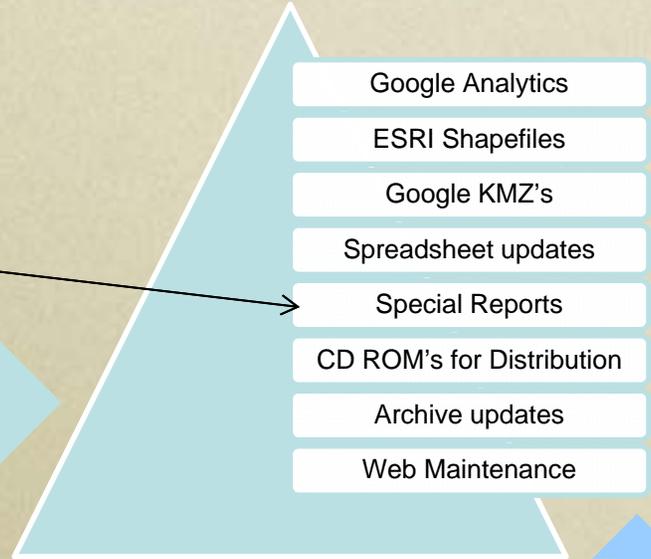
- Field Reorder

- Validate order; Missing Fields
- Create STORET Input Files

- Validate Data
- Update STORET Database



- Upload to Florida DEP / Federal DEP



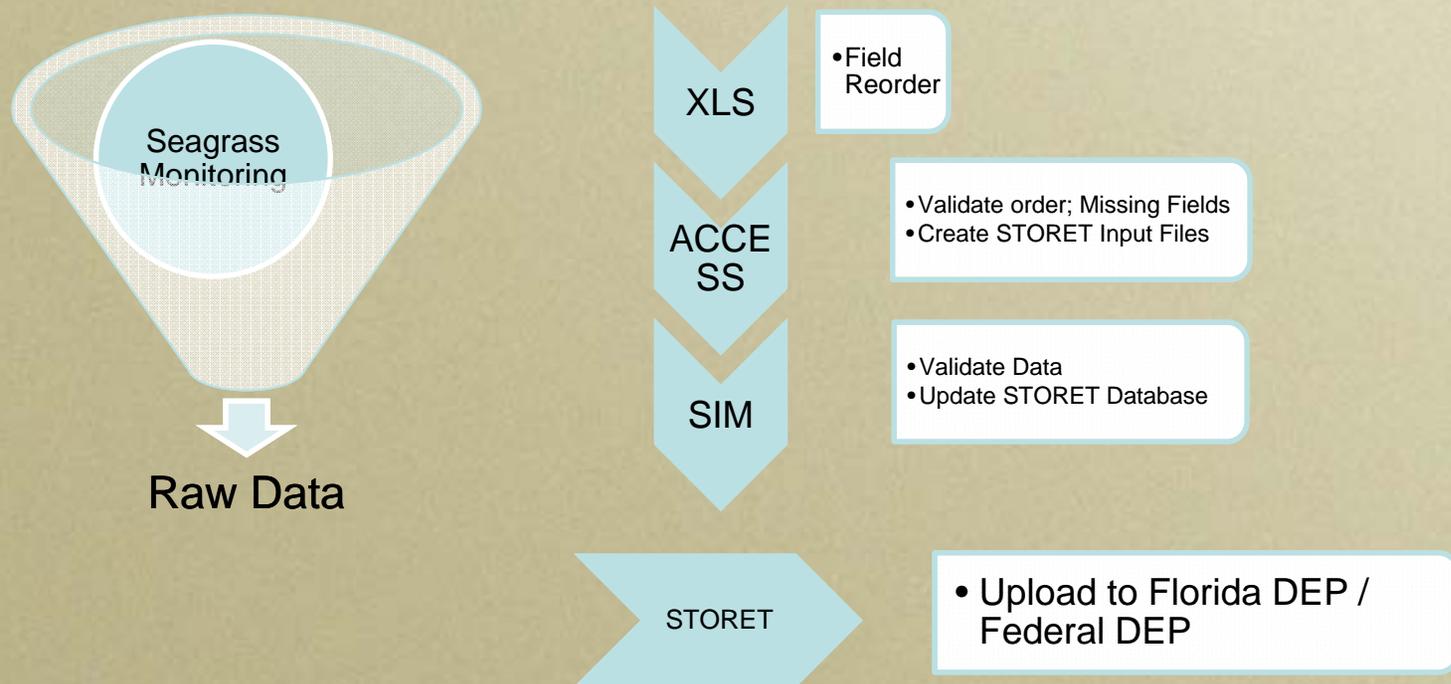
STORET

- CREMP data (corals):
 - **Coral Reef Evaluation and Monitoring Project**
 - *2011 through 2012* CREMP data were entered into STORET and uploaded to the National STORET Database and Florida STORET.
 - *CREMP and SECREMP Metadata updated and uploaded to website.*
- CREMP archives:
 - Updated through 2012
 - Usually a year in arrears



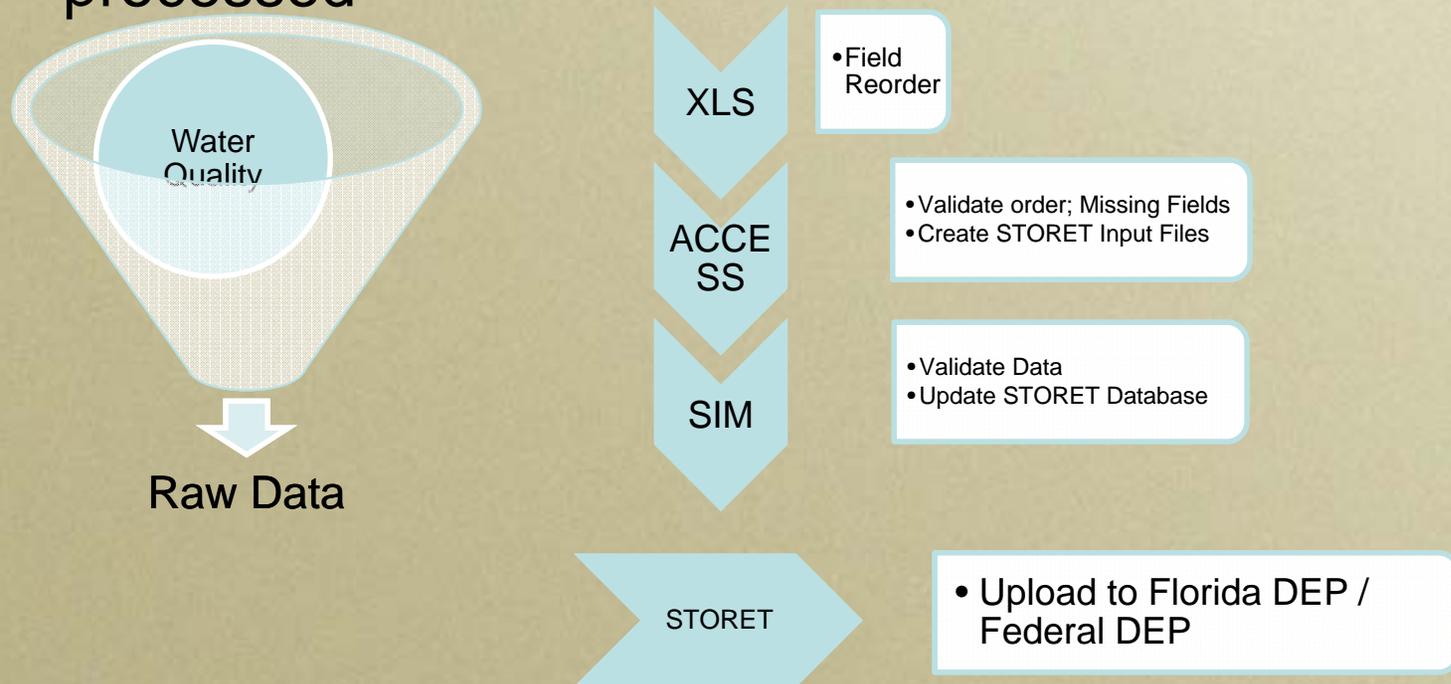
STORET

- Seagrass Monitoring:
 - Data for remainder of 2012 and some of 2013 received from field lab and processed



STORET

- Water Quality Monitoring:
 - Surveys 69 through 73 (February, 2013 through December, 2013) received from field lab and processed



NASA Data

- Through an agreement between FWRI and the EPA, the FKNMS website is privileged to host new and upcoming NASA data related to the Florida Keys and the National Marine Sanctuary.
- Our first data is from the ROSES project, dealing with water clarity, and can be located under “Special Projects” at this time. There were 24 visits to this area for 2013 with an average stay of 01:50.



Special Projects

2013 Special Reports:

Hu and Barnes from the University of South Florida modified the Lee et al. (2005) algorithm to derive 'true' K_d (without bottom effect), or the diffuse light attenuation coefficient, from MODIS data. In situ samples from April 2011 to August 2012 validated the algorithm with an R^2 of 0.68. All data from stations 5 m. or shallower were excluded from this analysis, thus 5 m represents the minimum depth range that this algorithm should be applied. Amplitude (1/2 wave height) of the seasonal cycle was derived from MODIS data for 2002 to 2011 and represents the seasonal variation for all MODIS data for this time period in m^{-1} .

Purpose:

This dataset was created under the objectives of a NASA ROSES grant to Luke McEachron (co-PI), FWC grant # 2839, titled "Satellite Earth Image Products Applied to Development of Regulatory Water Quality Standards."

[Metadata - Diffuse Light Attenuation Coefficient \(PDF, 71 KB\)](#)

[Kd Mean shapefile \(ZIP, 747 KB\)](#)

[Kd Amplitude shapefile \(ZIP, 2.23 MB\)](#)



Data Archives

- Storage of raw and synthesized data collected by the monitoring programs and special projects
 - Back-up if data are lost (e.g. hurricanes)
- Stored in waterproof fire safe at FWRI; copy kept offsite as well.
- Latest additions
 - Monitoring program data (CREMP, SGMP, WQMP) for last 4 quarters (since January, 2013)
 - Special studies reports – NASA ROSES grant



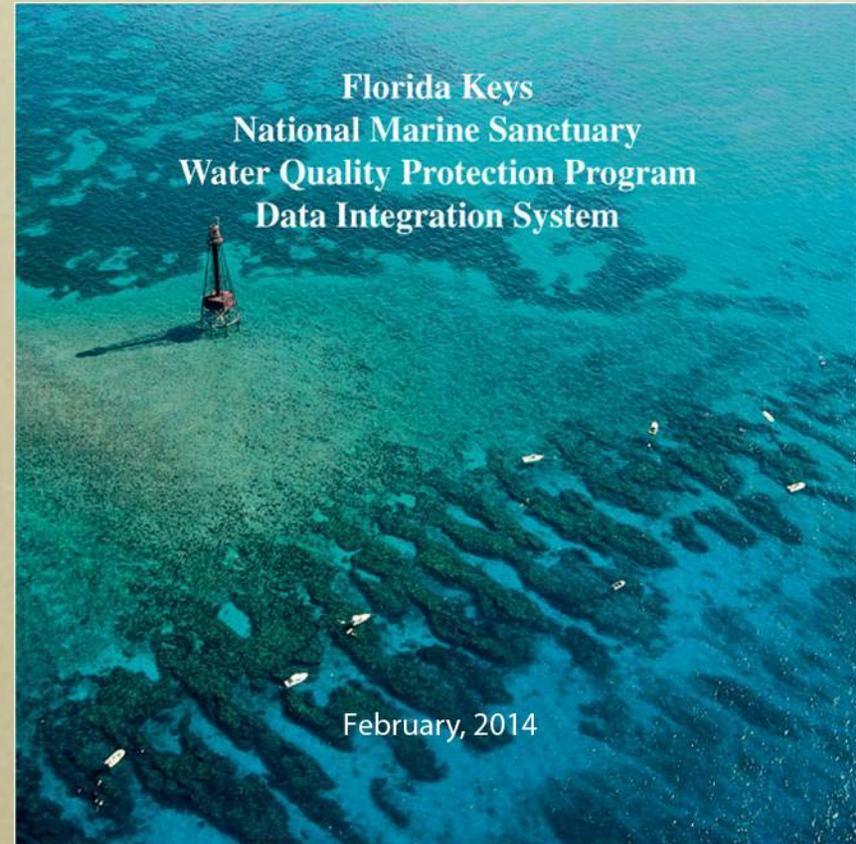
Web Site and CD-ROM

- Contains raw data, metadata, reports, movies, and links to the monitoring program's web sites
- Also contains links to Monitoring Program data (text files, shapefiles, metadata)
- Google Earth .KMZ files were created for current Monitoring Project data and are available on Web site and CD-ROM.



Web Site and CD-ROM

- Users without access to the Web could still query data on the CD-ROM when available
- New version is created each time the Web site is updated. Current version is February 2014.



Web Site

http://ocean.floridamarine.org/FKNMS_wqpp



Welcome to the Florida Keys National Marine Sanctuary Water Quality Protection Program Data Integration System

This document is a work in process that provides the public, managers, and scientists with information collected through the Water Quality Protection Program.

Click on any of the subjects above to access data from any of three long-term monitoring projects, as well as to obtain information about the Florida Keys National Marine Sanctuary and the Water Quality Protection Program.

'Value added' materials (ESRI Shapefiles and and Google KMZ's), as well as reformatted 'User Friendly' data will be in the GIS Data section - top right tab.

DISCLAIMER: Data are considered 'raw' when presented as received from the field PI (Principal Investigator). When presented as "formatted," that suggests fields were removed when considered unnecessary, columns have been modified sequentially to provide needed formatting for STORET, or columns may have been renamed to present 'human readable text' for public use.

The Web site was last updated on January 22, 2014

Web Page Contact:

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Archived Reports:
[Searchable PDF files](#)



Percent Distribution of Selections



Period: *Jan. 1, 2013 to Dec. 31, 2013 (total: 5,679 visits)*

<u>8 of 25 areas</u>	<u>Visits</u>	<u>Percent</u>
Home:	1,020	19.4%
Water Quality PGM:	514	10.0%
FKNMS:	814	15.5%
Water Quality Mon:	461	08.8%
Seagrass:	265	05.0%
Corals:	1,045	19.9%
Special Projects:	174	03.3%
GIS data:	969	18.4%



Annual Visits – A Brief History



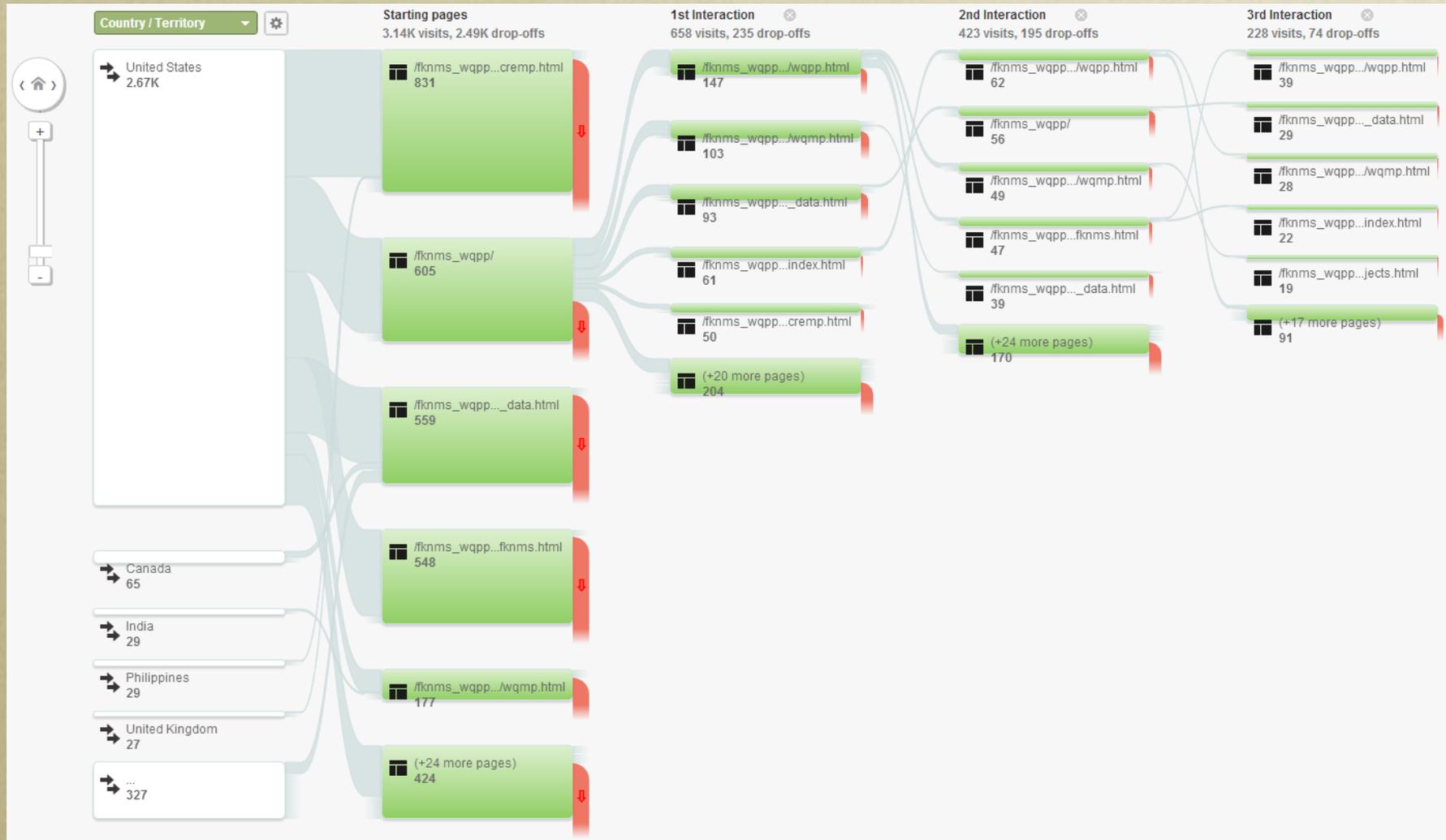
*Jan. 1, 2013 to Dec. 31, 2013 (total: **5,679** visits)*

*Jan. 1, 2012 to Dec. 31, 2012 (total: **3,230** visits)*

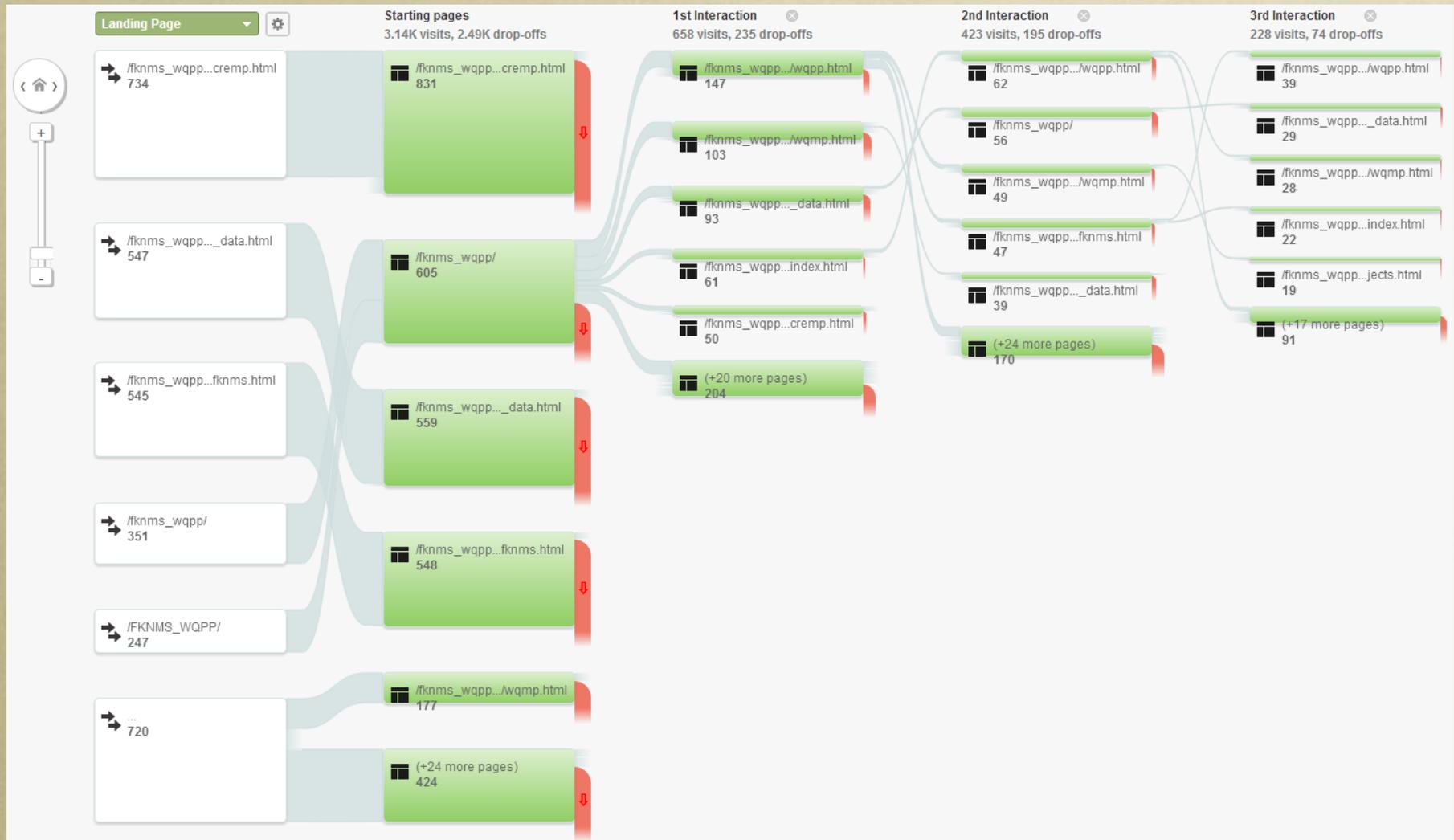
*Jan. 1, 2011 to Dec. 31, 2011 (total: **2,003** visits)*



Visitor Flow



Behavior Flow



Google Analytics

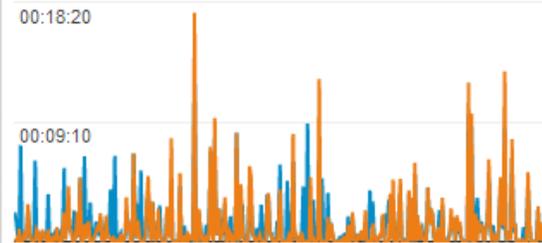
Site usage has increased slightly since last January, 2013

Site Usage (Jan-Dec, 2013):

- Visits – 3,144
- Unique Visitors – 1,942
- Page views – 5,679
- Average time on site – 00:08:20
- Average Daily Visits - 40

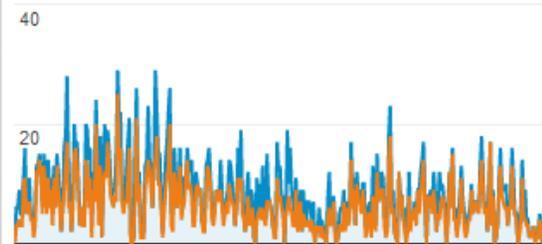
Avg. Time on Site

- Avg. Visit Duration (All Visits)
- Avg. Visit Duration (Search Traffic)



Daily Visits

- Visits (All Visits)
- Visits (Search Traffic)



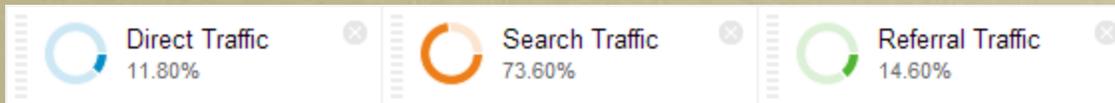
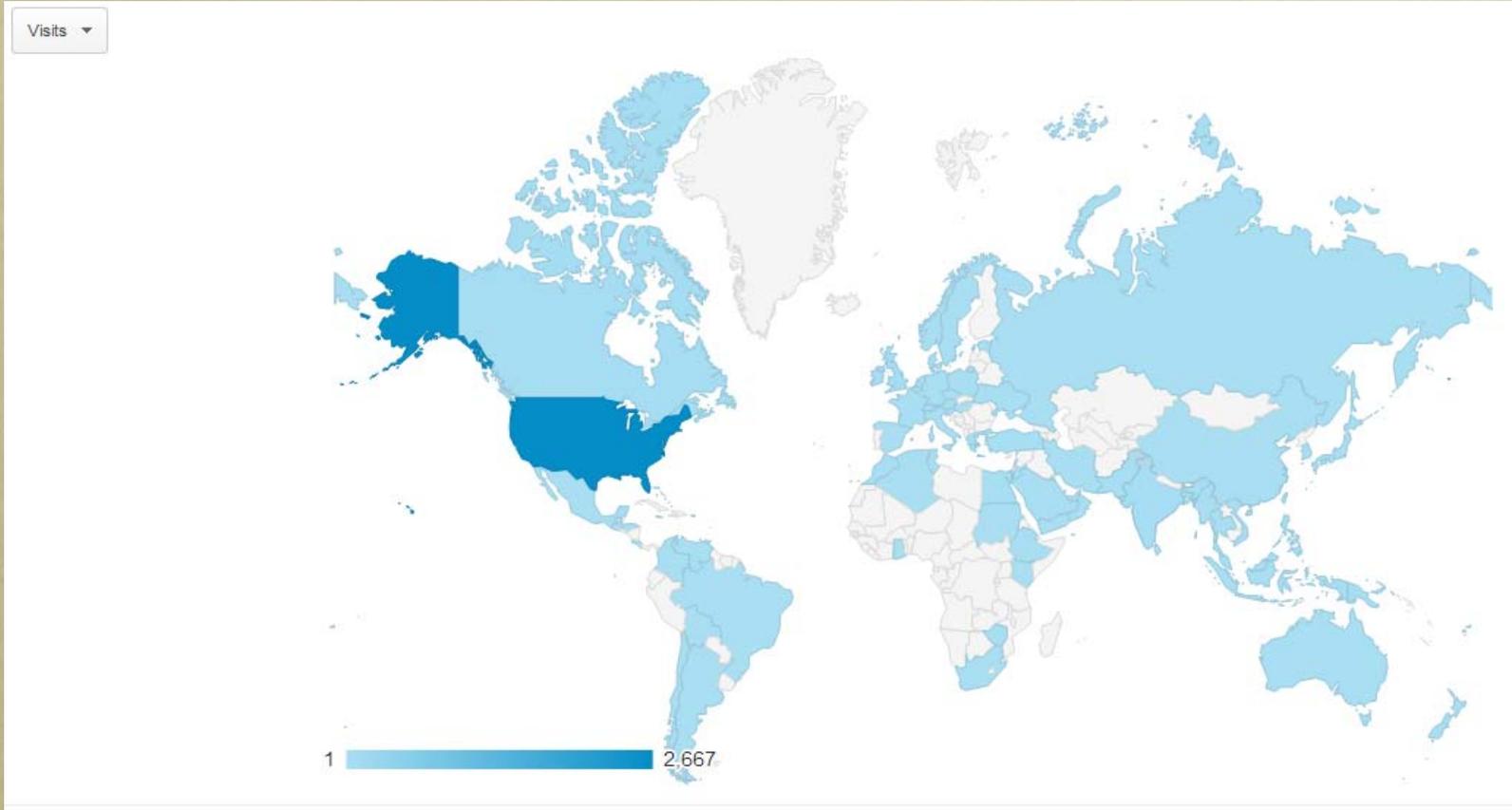
Traffic Sources

Visits and Pages / Visit by Source / Medium

Source / Medium	Visits	Pages / Visit
google / organic	2,124	1.51
(direct) / (none)	371	1.84
floridakeys.noaa.gov / referral	216	3.26
bing / organic	100	2.56
myfwc.com / referral	80	2.50
yahoo / organic	62	2.74
daniel-kiermaier.net / referral	33	4.48
google.com / referral	26	1.23
dep.state.fl.us / referral	23	2.52
search.dnsassist.verizon.net / referral	13	2.69



International Distribution



International Distribution

(top 15 of 50)

	3,144 % of Total: 100.00% (3,144)	60.62% Site Avg: 60.62% (0.00%)	1,906 % of Total: 100.00% (1,906)	72.42% Site Avg: 72.42% (0.00%)	1.81 Site Avg: 1.81 (0.00%)	00:01:24 Site Avg: 00:01:24 (0.00%)
1.  United States	2,667	56.81%	1,515	71.47%	1.85	00:01:24
2.  Canada	65	72.31%	47	70.77%	1.51	00:01:53
3.  India	29	96.55%	28	86.21%	1.21	00:00:56
4.  Philippines	29	96.55%	28	86.21%	1.41	00:01:19
5.  United Kingdom	27	81.48%	22	66.67%	1.59	00:01:28
6. (not set)	24	79.17%	19	70.83%	1.42	00:00:24
7.  Australia	22	63.64%	14	72.73%	1.45	00:00:46
8.  Egypt	16	68.75%	11	87.50%	1.38	00:00:18
9.  Turkey	16	81.25%	13	100.00%	1.00	00:00:00
10.  Germany	15	86.67%	13	73.33%	1.40	00:00:10
11.  Malaysia	14	85.71%	12	85.71%	1.36	00:00:32
12.  France	12	91.67%	11	83.33%	1.42	00:00:05
13.  Puerto Rico	12	25.00%	3	83.33%	1.58	00:00:29
14.  Indonesia	11	72.73%	8	63.64%	1.64	00:03:41
15.  Netherlands	11	63.64%	7	9.09%	5.64	00:11:50



Future Efforts

- Continue to develop online GIS tools for viewing, querying, and analyzing Monitoring Project data.
 - ESRI's ArcServer (Shapefiles for Professional use)
 - Google KMZ files (for Public without ArcGIS)
 - Data can be displayed in many formats
 - Raw data
 - Synthesized data
 - Charts and graphs
 - Pivot Tables
 - CD's are available to anyone who requests one.



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