CRS 610
Ventura County Flood Warning System Website

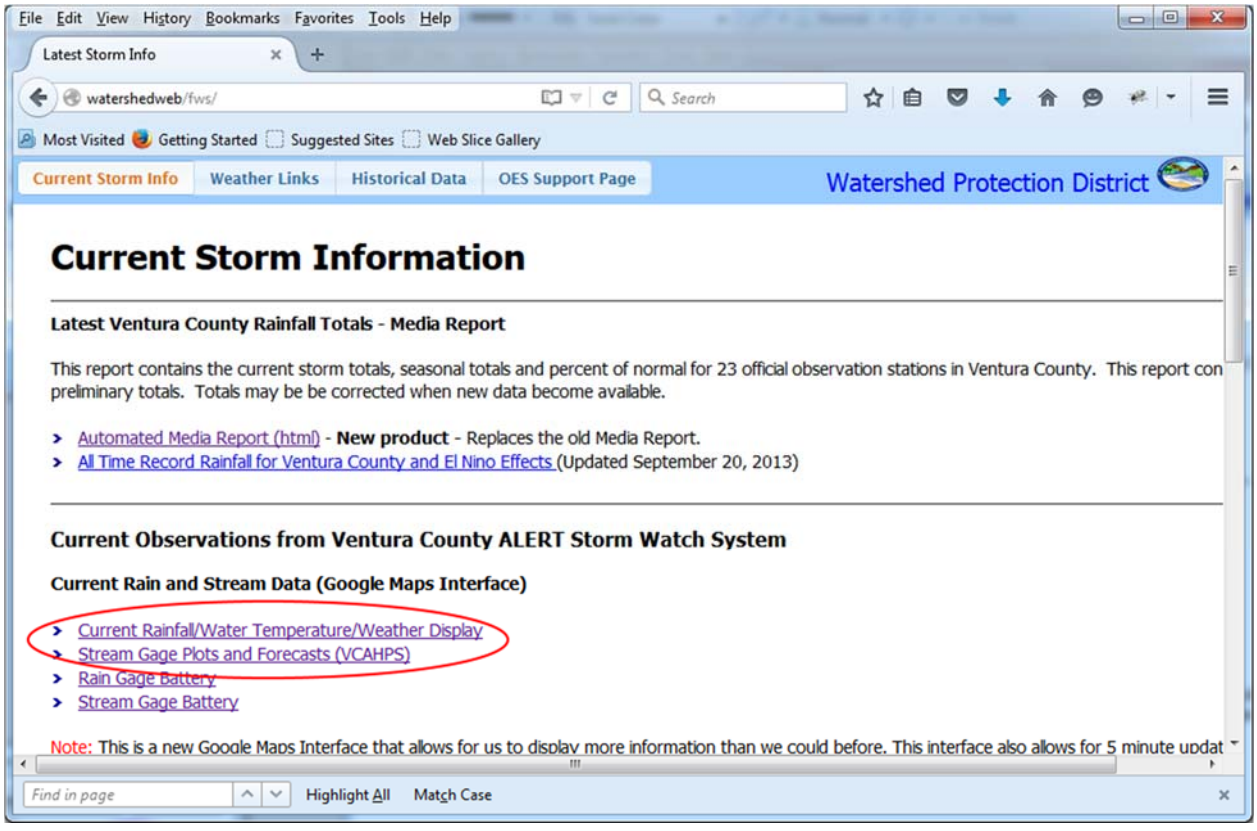
Purpose

This document gives instructions and a description of the information available via the Ventura County Watershed Protection District's (VCWPD) Flood Warning website. The information and links provided in this document are for evaluation of the Community Rating System (CRS) 610 – Flood Warning Activity. These pages have been tested and should work in all current and modern web browsers including Internet Explorer (version 11 and above), Firefox, Chrome, and Surfari. Some content may not work with older web browsers of Internet Explorer (version 6 – 9). The information is presented in four sections.

1) Server information and links to the web products.
2) Rainfall Map.
3) Streamflow and Inundation Map.
4) Inundation Coverage.

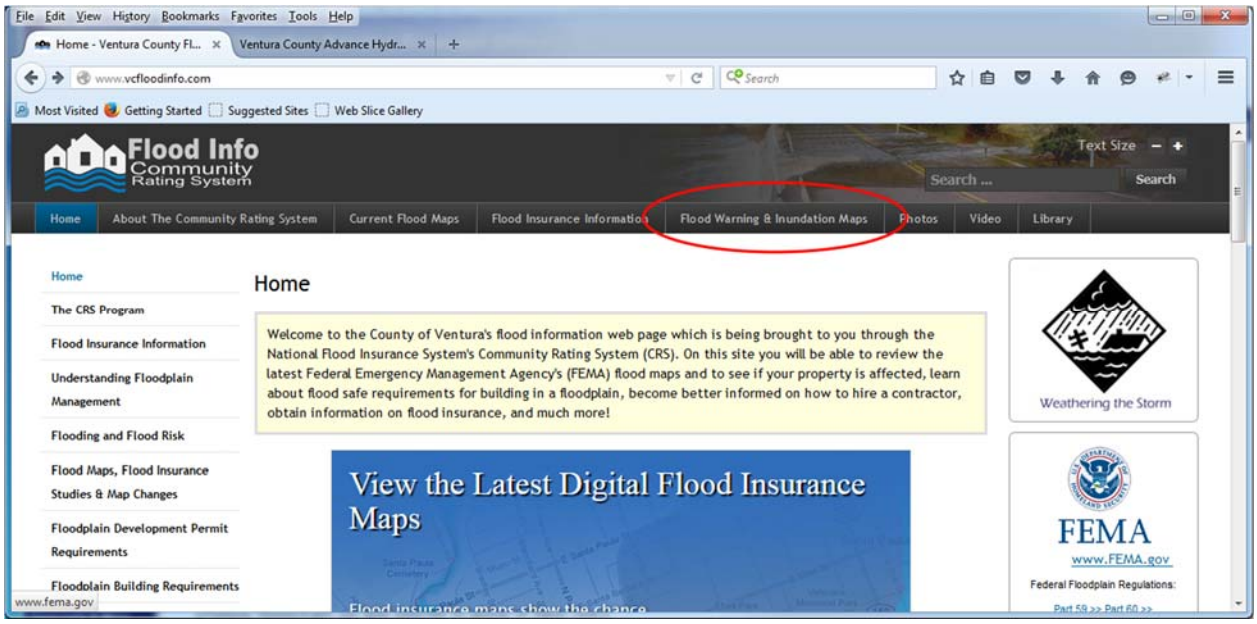
1) Server Information

The VCWPD server is located at: http://www.vcwatershed.net/fws/.



The two links on this page contain the material for evaluation in the CRS 610 – Flood Warning Activity.

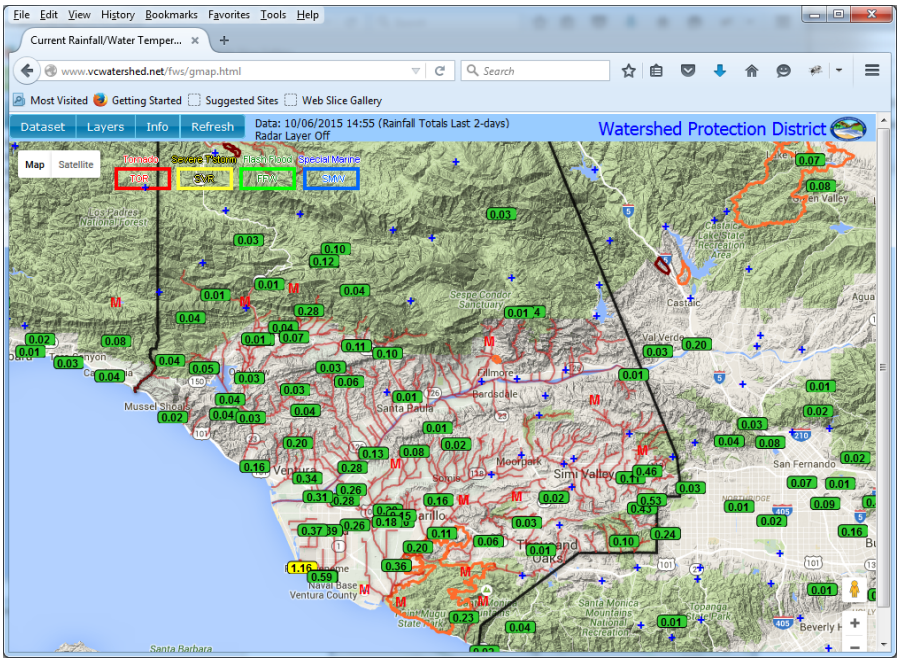
The main Ventura County CRS 350 Website at: http://vcfloodinfo.com has a link at the top that goes right to the Stream Gage Plots and Inundation maps. The link is shown below.



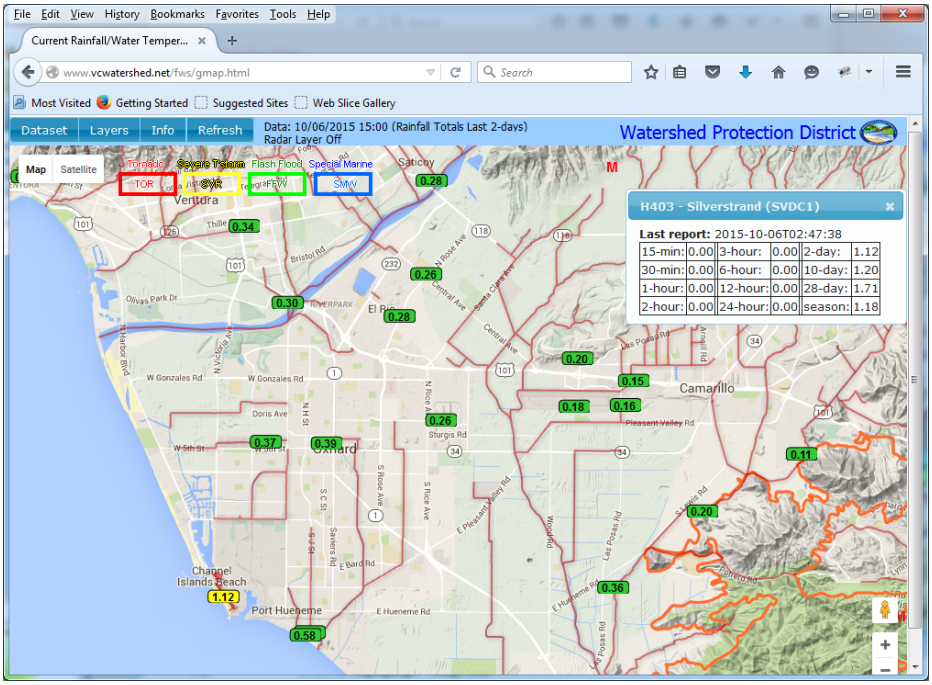
The VCFloodInfo page also has a link to the rainfall data in the latest news section.

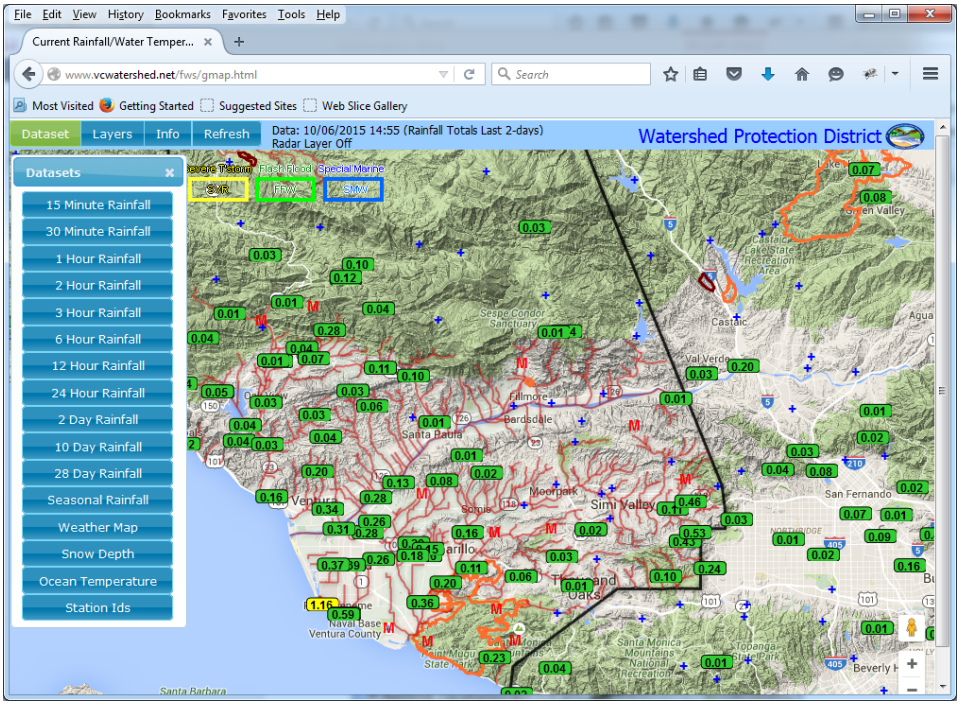
2) Rainfall Map

The first link “Current Rainfall/Water Temperature/Weather Display” displays rainfall totals, current weather conditions, and ocean temperatures. Clicking on the link will take you to this page:

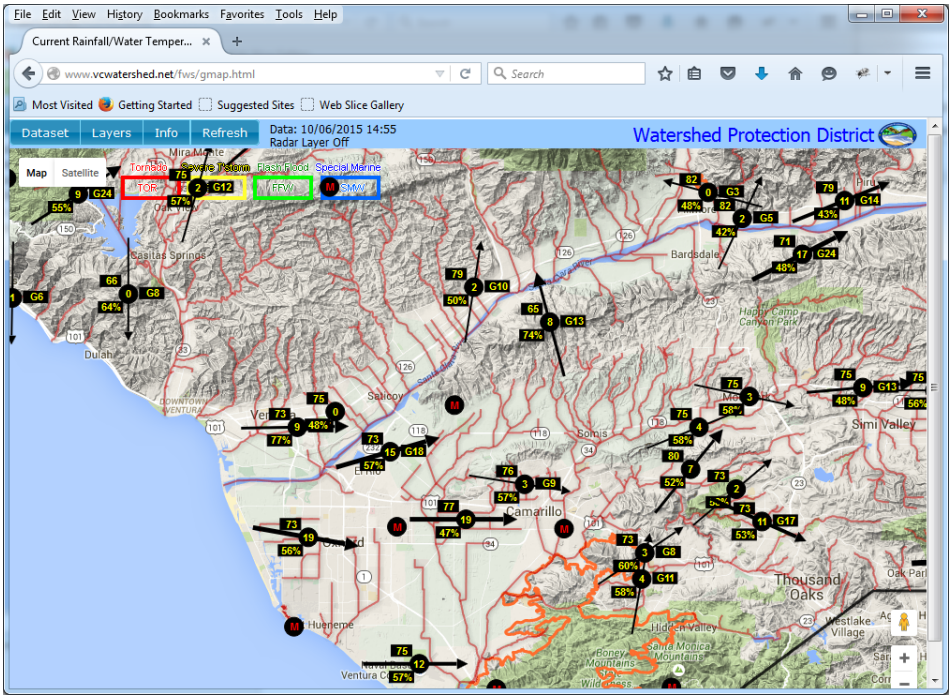


This page will show current rainfall for the last 24 hours. If no rain has fallen, then the blue crosses will be displayed. If the site is offline, it will display a red “M”. This way, County staff can check to make sure all stations are working correctly. If a station is not working correctly, maintenance will be performed to fix the issue. The display include sites from surrounding County agencies, along with State and Federal agencies to receive as much relevant data as possible. Clicking on a rainfall total will display a summary of rainfall over several additional periods including last hour, last 10-days and seasonal total.

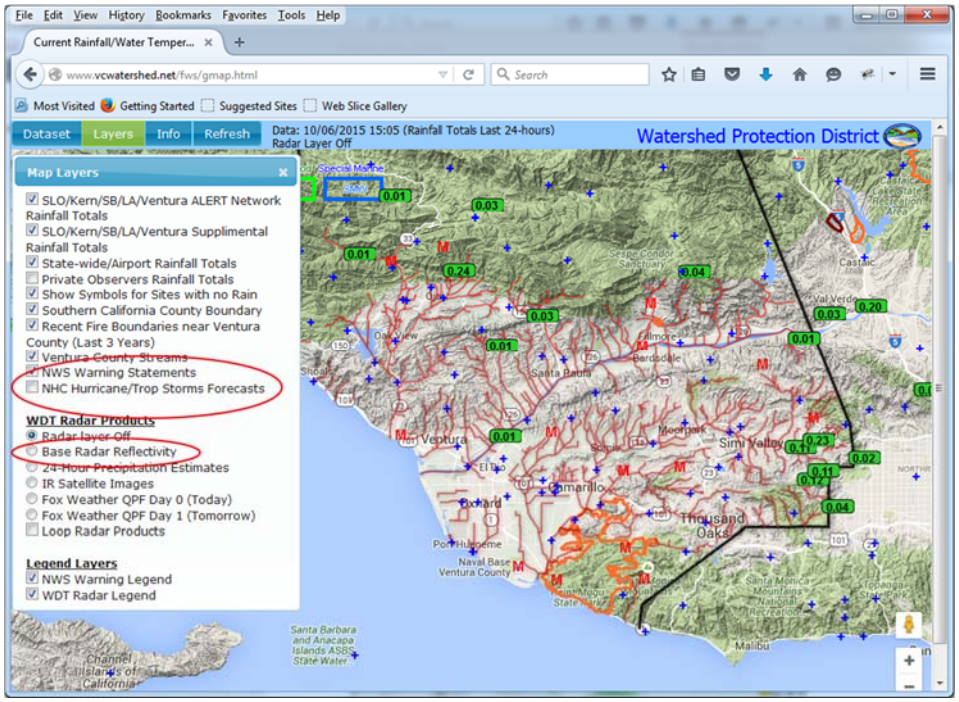




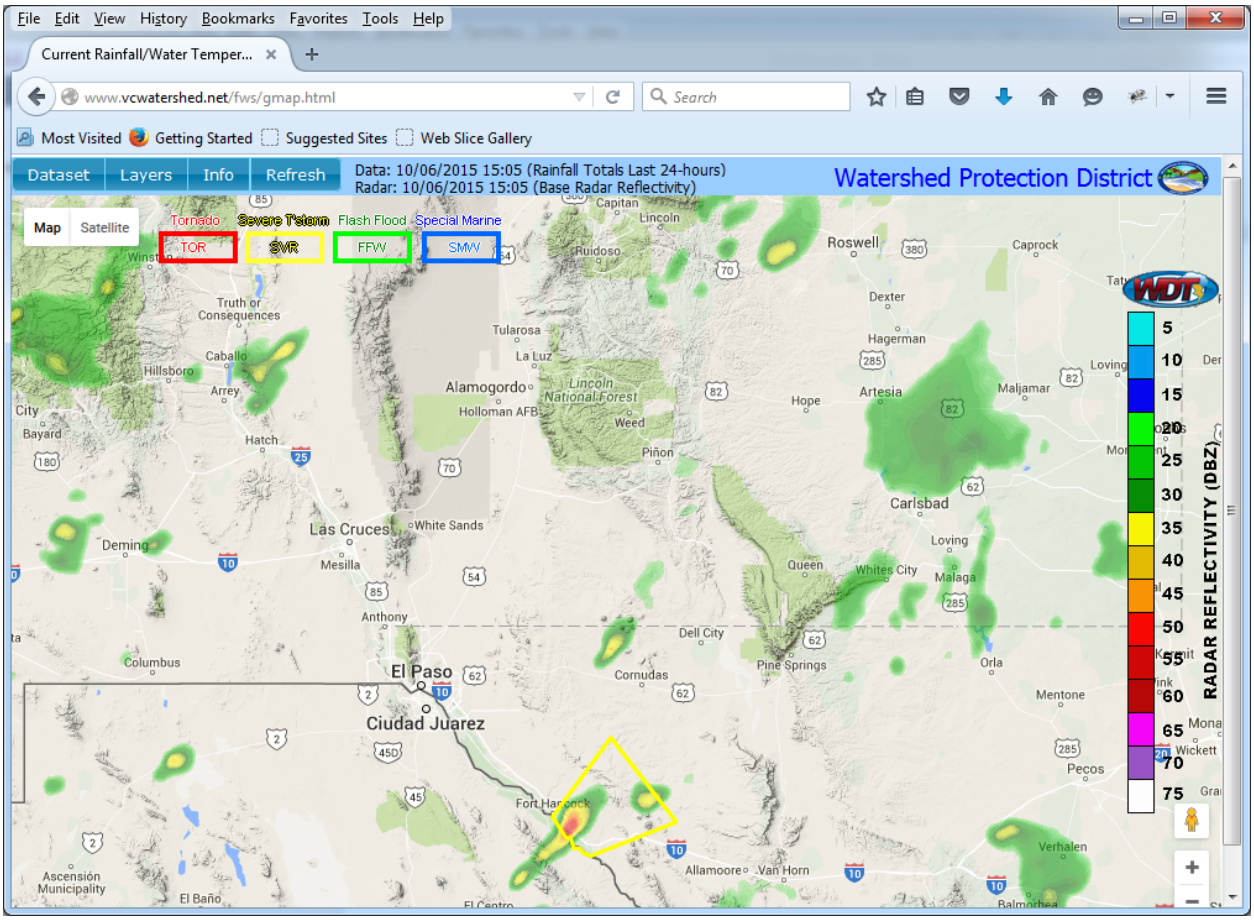
Clicking on the “Dataset” tab will allow you to change the rainfall period or select other overlays like weather and ocean temperature. Using the wheel mouse will zoom the display. This example shows the weather display.



The display also shows several important overlays. You can view the overlays by clicking on the "Layers" tab.



Several important layers available are the "NWS Warning Statements" which show the severe weather, tornado, and flooding warnings, the "NHC Hurricane/Trop Storms Forecasts" which shows the forecasted path of hurricanes and tropical storms, and the "Base Radar Reflectivity" overlay which shows the a national radar mosaic so users can see where heavy rain is occurring along with the recorded precipitation totals. This information can be displayed for all regions across the United States.



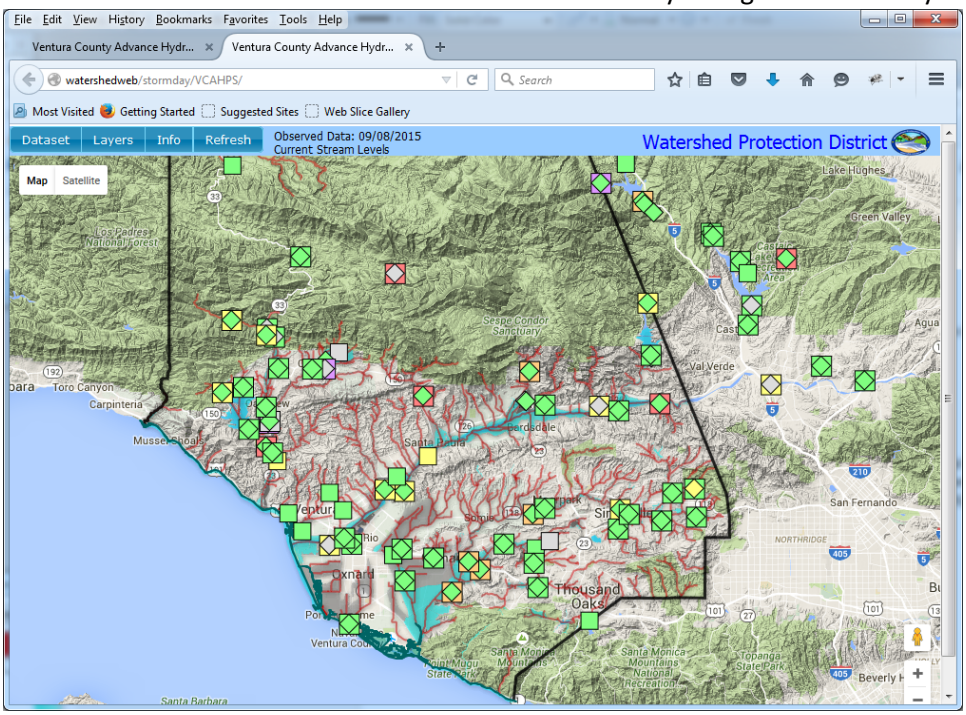
This example shows the radar/severe thunderstorms near El Paso, TX on October 6, 2015 using the Ventura County display but moving to another part of the United States.

To return back to the main page click the back arrow in the web browser.

3) Streamflow and Inundation Map

The streamflow and inundation map is available by clicking on the “Stream Gage Plots and Forecasts (VCAHPS)” link. VCAHPS stands for Ventura County Advanced Hydrologic Prediction System and is

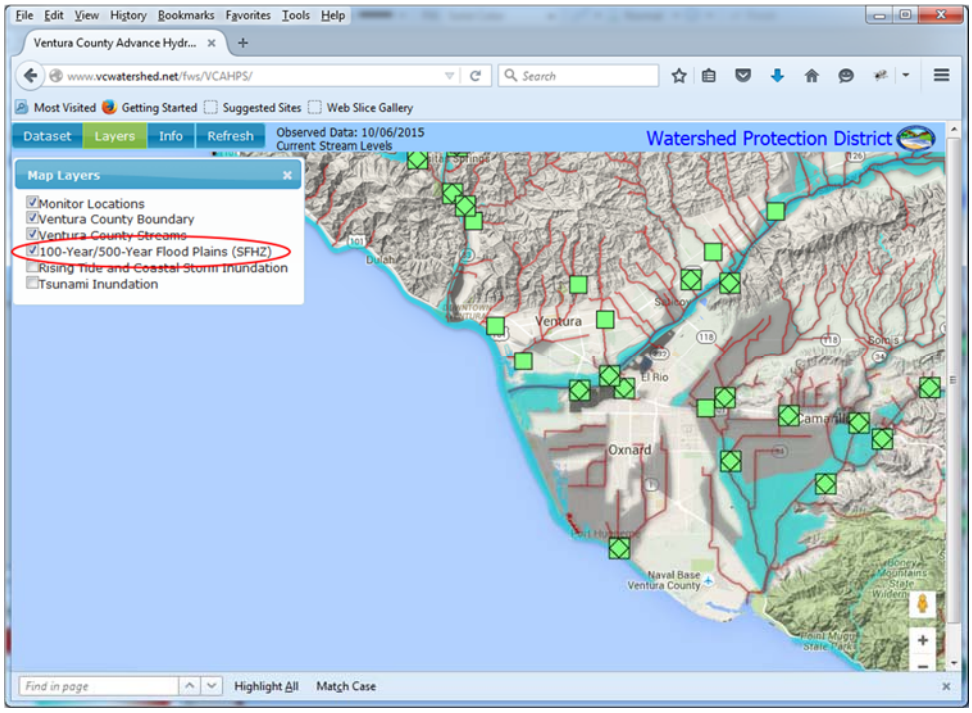
modeled after the National Weather Service Advance Hydrologic Prediction System (AHPS).



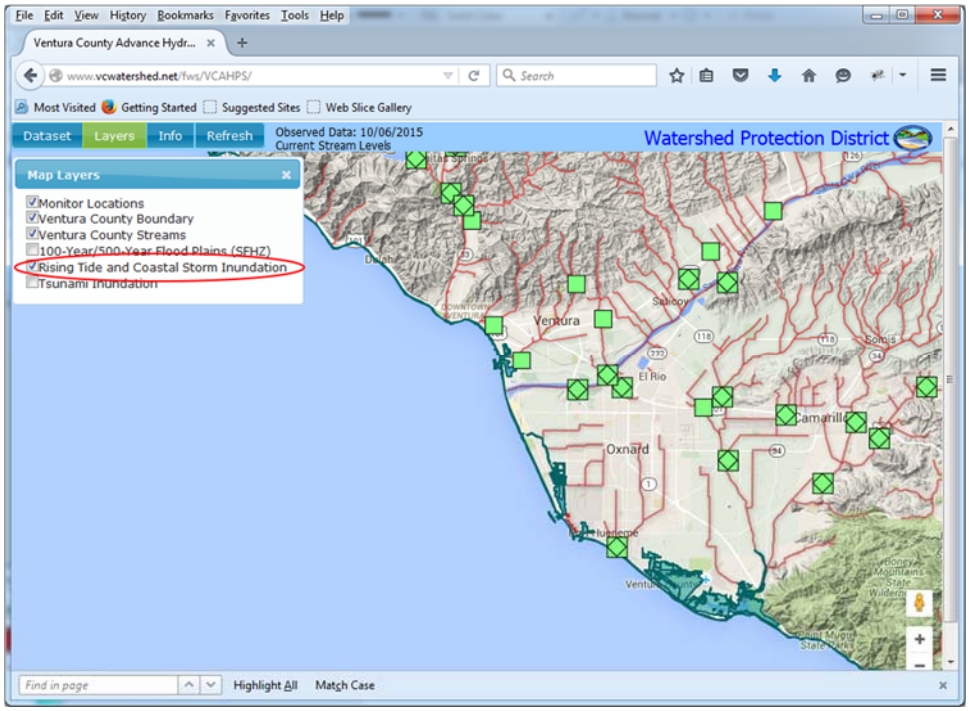
The above example was used for the County of Ventura's annual storm response exercise in September 2015 showing how the display can show predicted stream levels (squares): action (yellow), flood (orange), and moderate flood (red). The squares show forecasted levels, the diamonds show observed levels.

The main page also show several levels of coastal inundation and are available through the "Layers Tab"

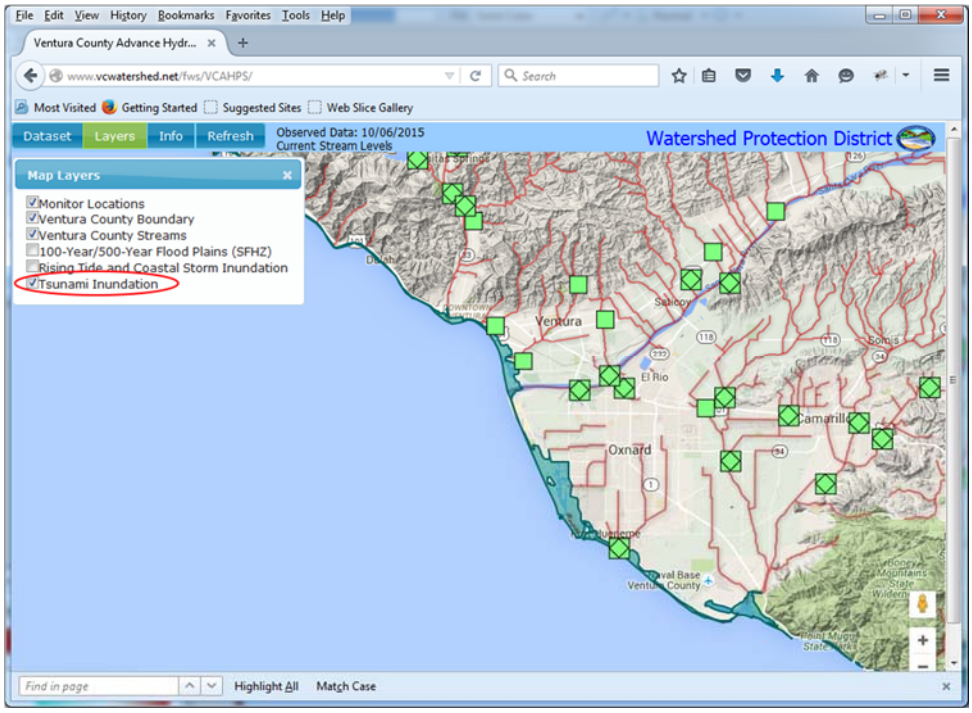
Note: All riverine (river inundation) are specific to each stream gage and thus shown on the stream gage map and not this County-wide map.



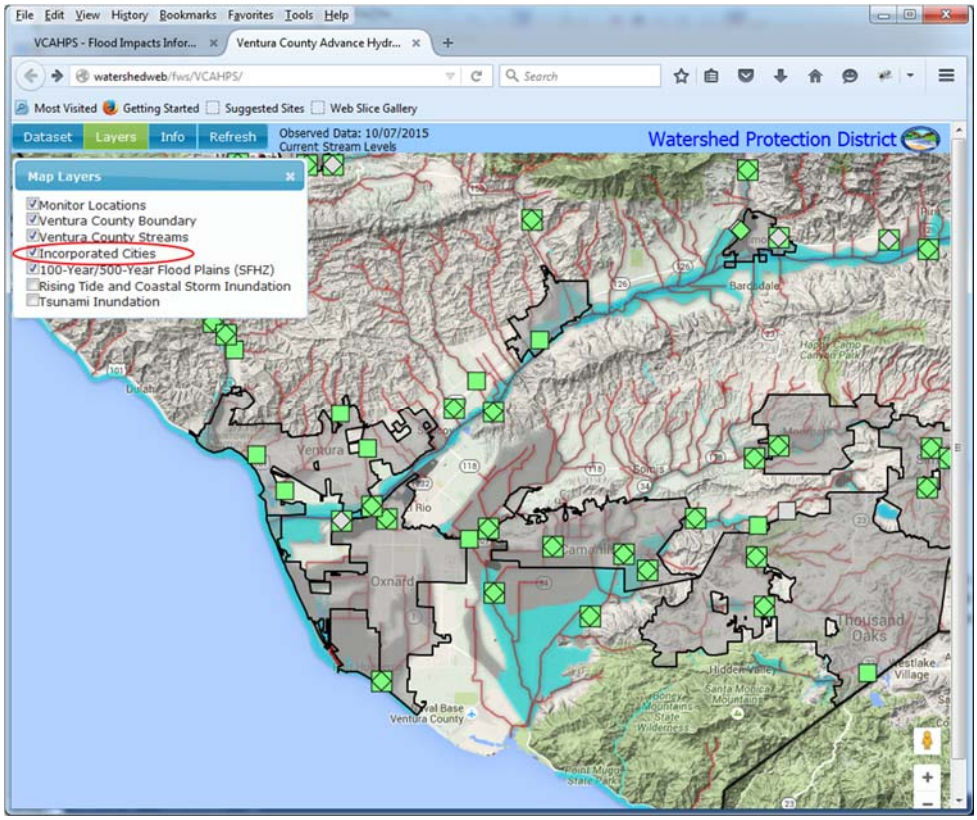
The first layer is the "100-Year/500-Year Flood Plains (SFHZ). This layer contains the official FEMA floodplain and Special Flood Hazard Zone (cyan) and the 500-year flood plain (grey). The Special Flood Hazard Zone includes the Coastal High Hazard zone (VE – Zone).



The next inundation is the Rising Tide and Coastal Storm Inundation layer. This is shown in dark cyan area on the map and was developed for the 2015 Ventura County Multi-Hazard Mitigation Plan (CRS 510: Floodplain Management Planning – FMP).

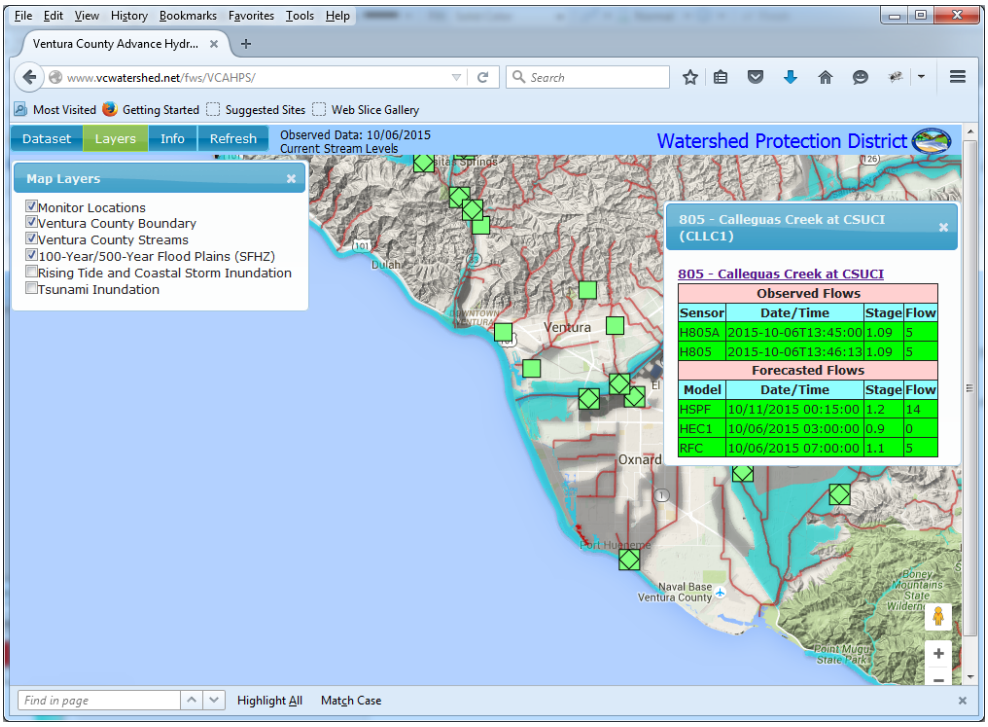


The final coastal inundation layer is the Tsunami inundation layer developed for the 2011 Tsunami Evacuation Plan. This area is also shown as dark cyan area.

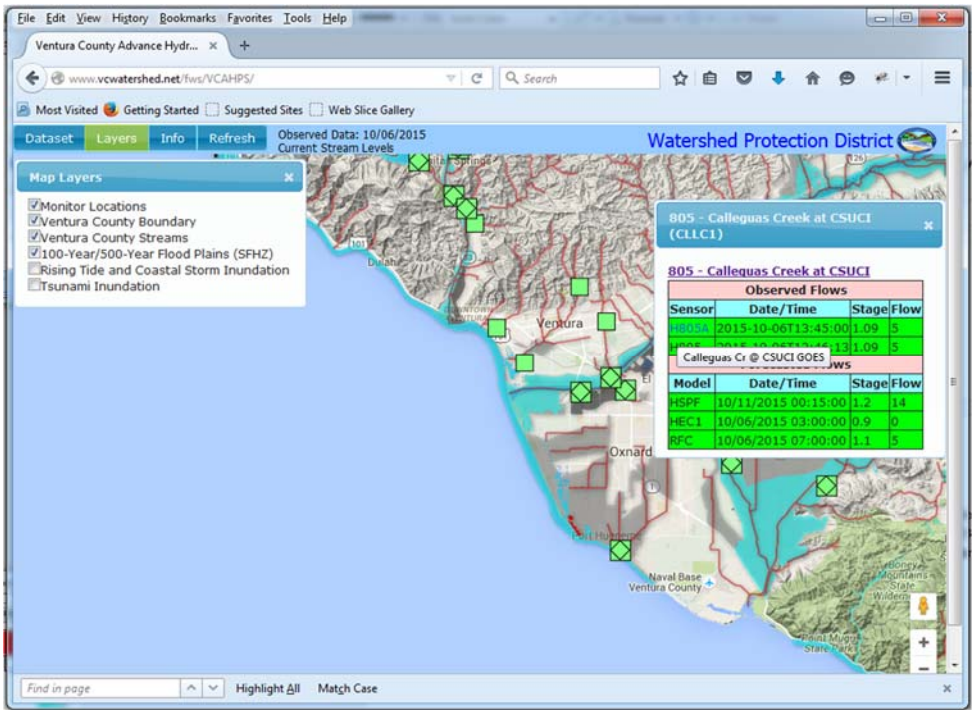


One final option turns on the Incorporated Cities in Ventura County. The Unincorporated Areas of Ventura County area are represented by the non-grey area outside the black outline (see above).

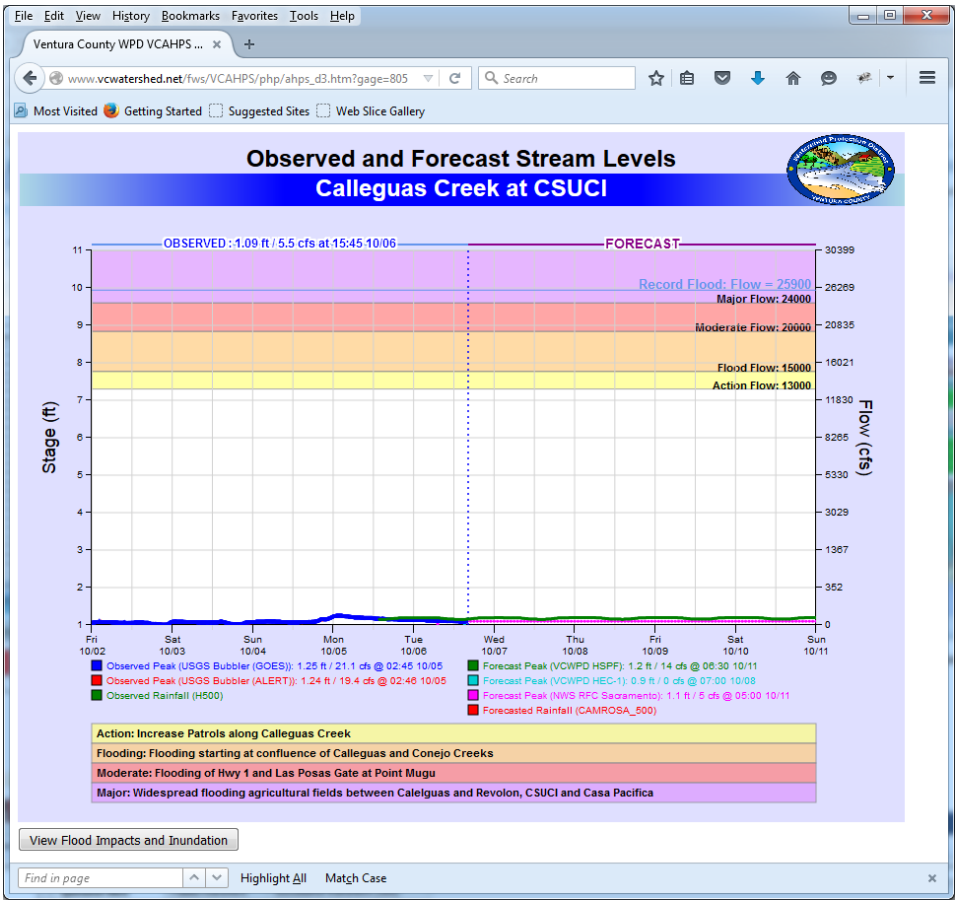
For river and stream flooding and forecasts, click on one of the stream gage locations (i.e. colored squares and diamonds).



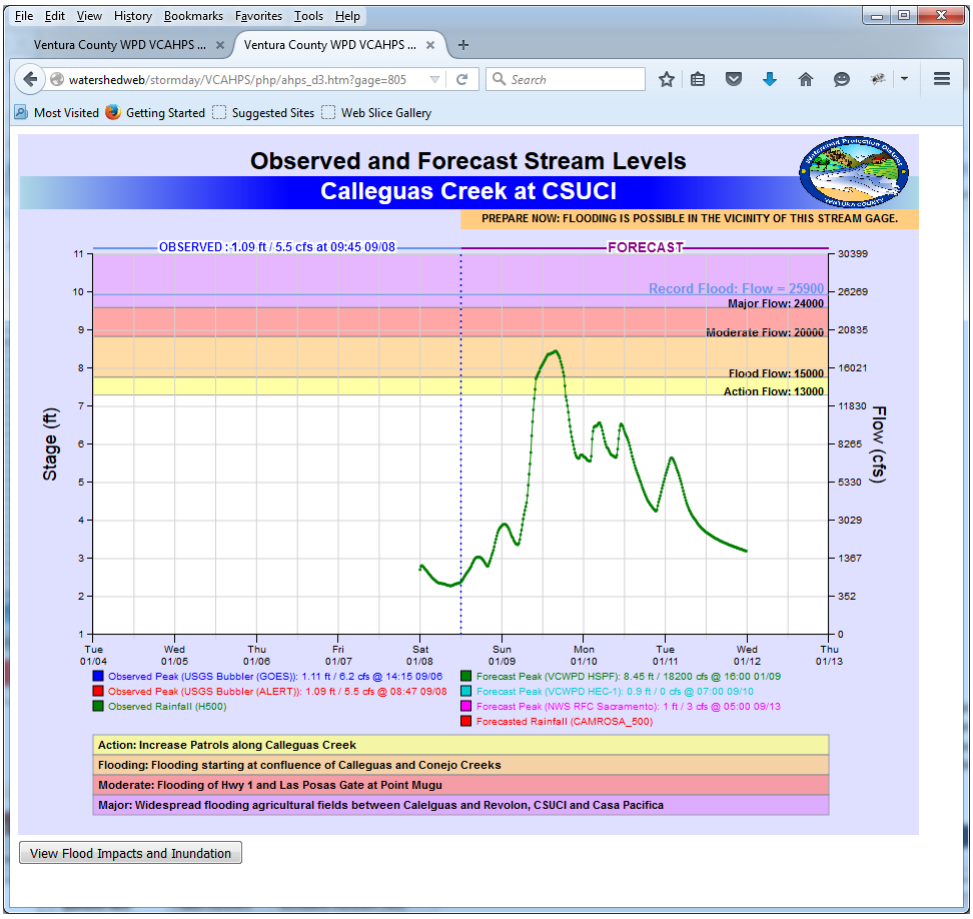
This will bring up a window showing all observed sensors and all forecast models for that location. In the above location (805 – Calleguas Creek at California State University, Channel Islands: CSUCI), there are two observed sensors, and 3 forecast models. Hovering the mouse over the sensor or model will give a pop-up of the specific sensor or model.



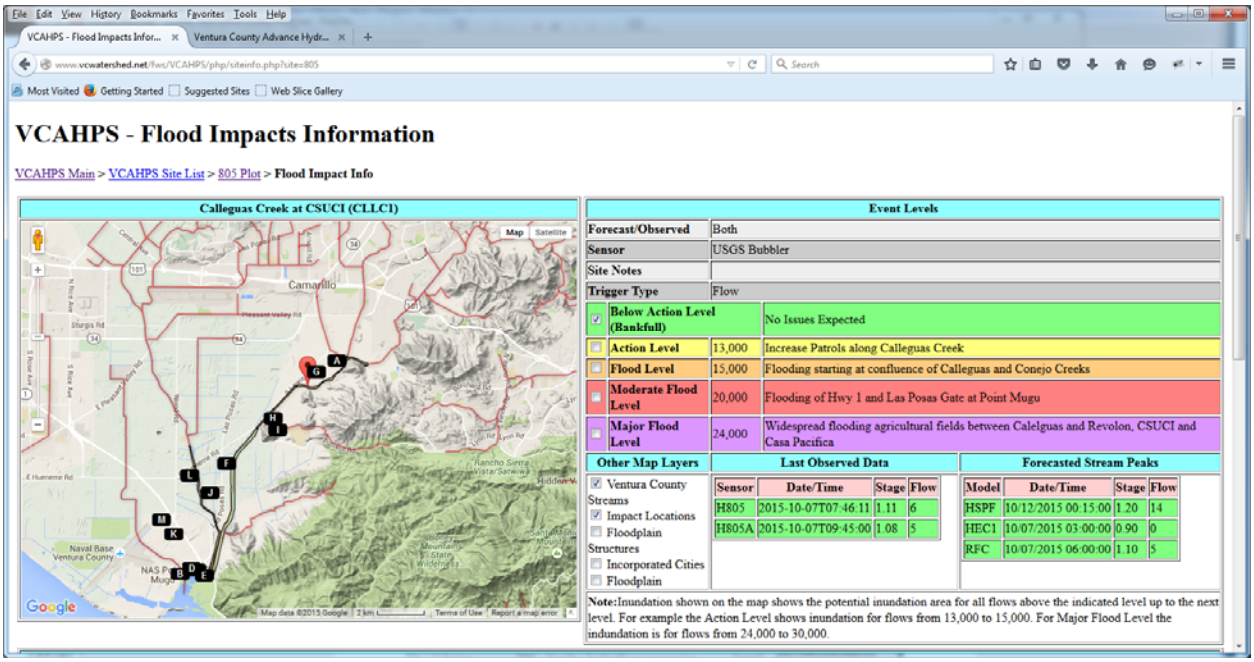
Clicking on the link just above the “Observed Flows” table will take you to the stream gage plot.



The previous plot shows a graph of the observed stream and rain along with the forecasted stream for all three models. Also shown are the different levels, Action, Flood, Moderate Flood, and Major Flood. All area in white is considered "Below Bankfull." The plot below is from the 2015 County of Ventura's storm exercise showing a peak that is above flood stage. The exercise did not have any observed flows available and only one forecast.



Clicking on the "Flood Impacts and Inundation" button will take you to the Flood Response Plan impacts and inundation page.



VCAHPS - Flood Impacts Information

VCAHPS Main > VCAHPS Site List > 805 Plot > **Flood Impact Info**

Calleguas Creek at CSUCI (CLLC1)

Event Levels		
Forecast/Observed	Both	
Sensor	USGS Bubbler	
Site Notes		
Trigger Type	Flow	
Below Action Level (Bankfull)		No Issues Expected
Action Level	13,000	Increase Patrols along Calleguas Creek
Flood Level	15,000	Flooding starting at confluence of Calleguas and Conejo Creeks
Moderate Flood Level	20,000	Flooding of Hwy 1 and Las Posas Gate at Point Mugu
Major Flood Level	24,000	Widespread flooding agricultural fields between Calelguas and Revolon, CSUCI and Casa Pacifica

Other Map Layers

- Ventura County Streams
- Impact Locations
- Floodplain

Structures

- Incorporated Cities
- Floodplain

Last Observed Data

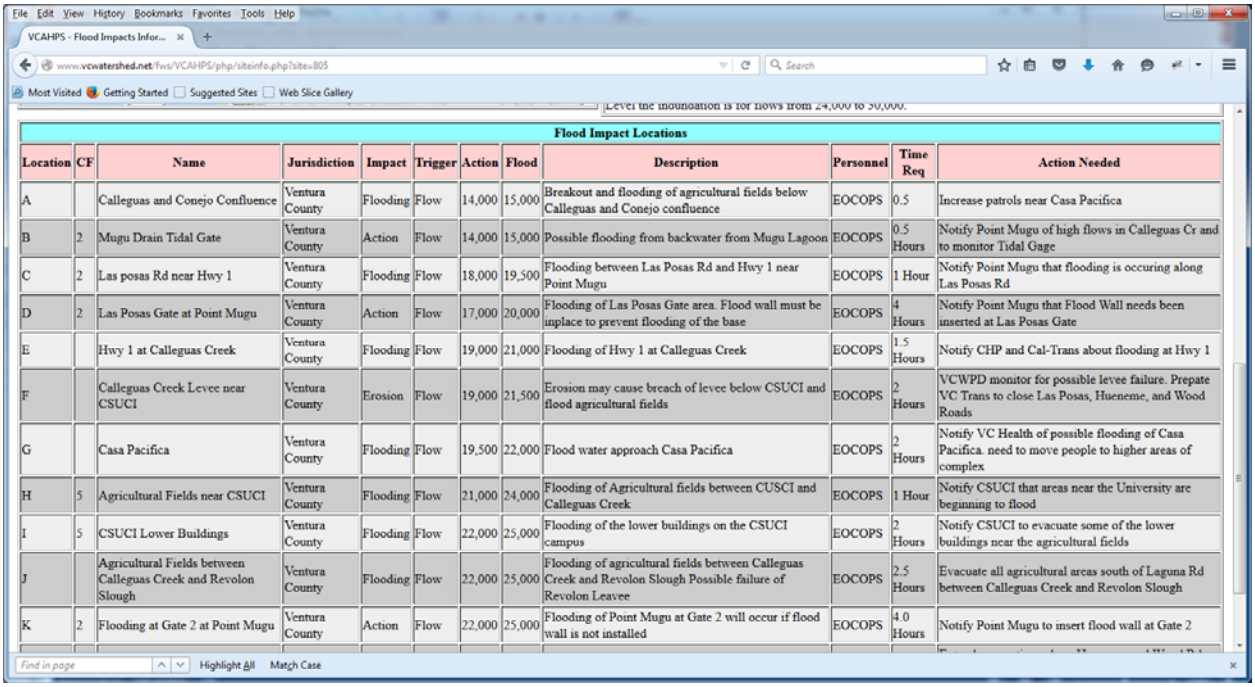
Sensor	Date/Time	Stage	Flow
H805	2015-10-07T07:46:11	1.11	6
H805A	2015-10-07T09:45:00	1.08	5

Forecasted Stream Peaks

Model	Date/Time	Stage	Flow
HSPF	10/12/2015 00:15:00	1.20	14
HEC1	10/07/2015 03:00:00	0.90	0
RFC	10/07/2015 06:00:00	1.10	5

Note: Inundation shown on the map shows the potential inundation area for all flows above the indicated level up to the next level. For example the Action Level shows inundation for flows from 13,000 to 15,000. For Major Flood Level the indundation is for flows from 24,000 to 30,000.

The top part includes the inundation map, the level criteria and impact, observed and forecasted flows.



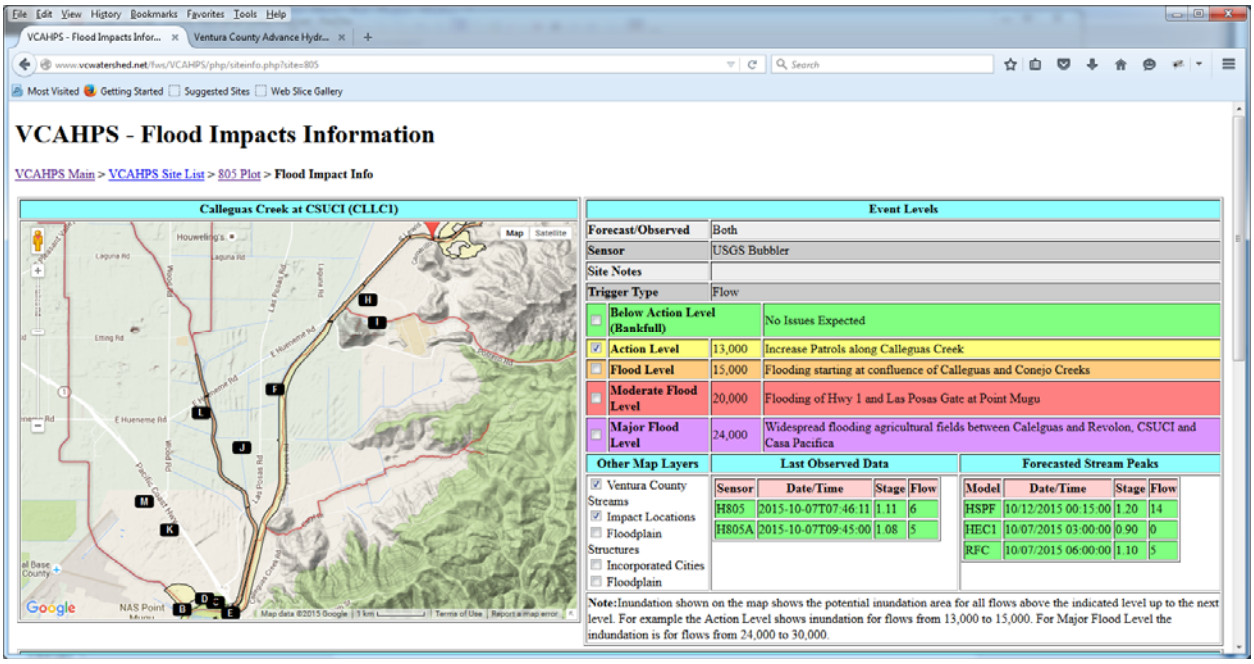
Flood Impact Locations

Location	CF	Name	Jurisdiction	Impact	Trigger	Action	Flood	Description	Personnel	Time Req	Action Needed
A		Calleguas and Conejo Confluence	Ventura County	Flooding	Flow	14,000	15,000	Breakout and flooding of agricultural fields below Calleguas and Conejo confluence	EOCOPS	0.5	Increase patrols near Casa Pacifica
B	2	Mugu Drain Tidal Gate	Ventura County	Action	Flow	14,000	15,000	Possible flooding from backwater from Mugu Lagoon	EOCOPS	0.5 Hours	Notify Point Mugu of high flows in Calleguas Cr and to monitor Tidal Gage
C	2	Las posas Rd near Hwy 1	Ventura County	Flooding	Flow	18,000	19,500	Flooding between Las Posas Rd and Hwy 1 near Point Mugu	EOCOPS	1 Hour	Notify Point Mugu that flooding is occuring along Las Posas Rd
D	2	Las Posas Gate at Point Mugu	Ventura County	Action	Flow	17,000	20,000	Flooding of Las Posas Gate area. Flood wall must be inplace to prevent flooding of the base	EOCOPS	4 Hours	Notify Point Mugu that Flood Wall needs been inserted at Las Posas Gate
E		Hwy 1 at Calleguas Creek	Ventura County	Flooding	Flow	19,000	21,000	Flooding of Hwy 1 at Calleguas Creek	EOCOPS	1.5 Hours	Notify CHP and Cal-Trans about flooding at Hwy 1
F		Calleguas Creek Levee near CSUCI	Ventura County	Erosion	Flow	19,000	21,500	Erosion may cause breach of levee below CSUCI and flood agricultural fields	EOCOPS	2 Hours	VCWPD monitor for possible levee failure. Prepate VC Trans to close Las Posas, Hueneme, and Wood Roads
G		Casa Pacifica	Ventura County	Flooding	Flow	19,500	22,000	Flood water approach Casa Pacifica	EOCOPS	2 Hours	Notify VC Health of possible flooding of Casa Pacifica. need to move people to higher areas of complex
H	5	Agricultural Fields near CSUCI	Ventura County	Flooding	Flow	21,000	24,000	Flooding of Agricultural fields between CUSCI and Calleguas Creek	EOCOPS	1 Hour	Notify CSUCI that areas near the University are beginning to flood
I	5	CSUCI Lower Buildings	Ventura County	Flooding	Flow	22,000	25,000	Flooding of the lower buildings on the CSUCI campus	EOCOPS	2 Hours	Notify CSUCI to evacuate some of the lower buildings near the agricultural fields
J		Agricultural Fields between Calleguas Creek and Revolon Slough	Ventura County	Flooding	Flow	22,000	25,000	Flooding of agricultural fields between Calleguas Creek and Revolon Slough Possible failure of Revolon Leavee	EOCOPS	2.5 Hours	Evacuate all agricultural areas south of Laguna Rd between Calleguas Creek and Revolon Slough
K	2	Flooding at Gate 2 at Point Mugu	Ventura County	Action	Flow	22,000	25,000	Flooding of Point Mugu at Gate 2 will occur if flood wall is not installed	EOCOPS	4.0 Hours	Notify Point Mugu to insert flood wall at Gate 2

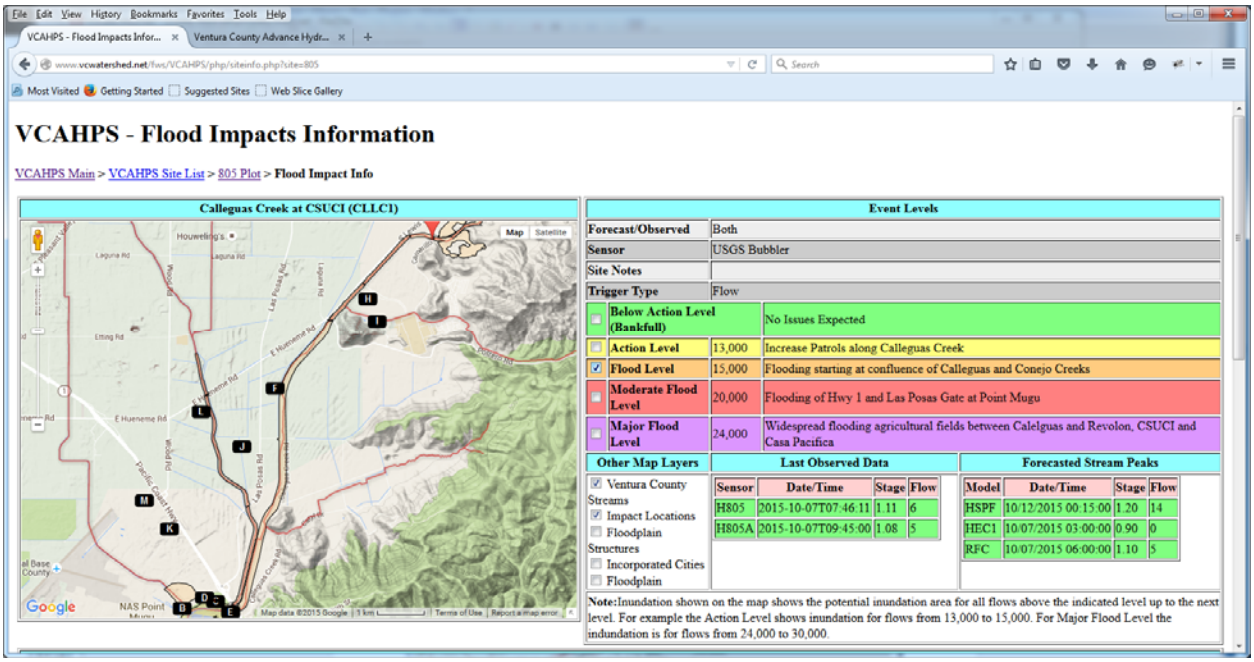
The bottom part (scroll the web page down) shows the impacts, responsible party, action, and time required information. This is the exact same information contained in the FWS Flood Response Plan. The Flood Response plan is derived from the information contained in the database that drives the VCAHPS displays. This ensures that the information contained in the plan and online remains the same. It also allows for criteria to be changed if needed such as a new fire causing increased debris and thus lowering thresholds for flood levels.

As illustrated below, by default the corresponding inundation level to the maximum value of either the observed or forecasted data is shown on the map. For the above level, it is “Below Bankfull” (green). Each impact will be highlighted if an observed or forecasted flow reaches the impact criteria. The location corresponds to the letters that are on the inundation map.

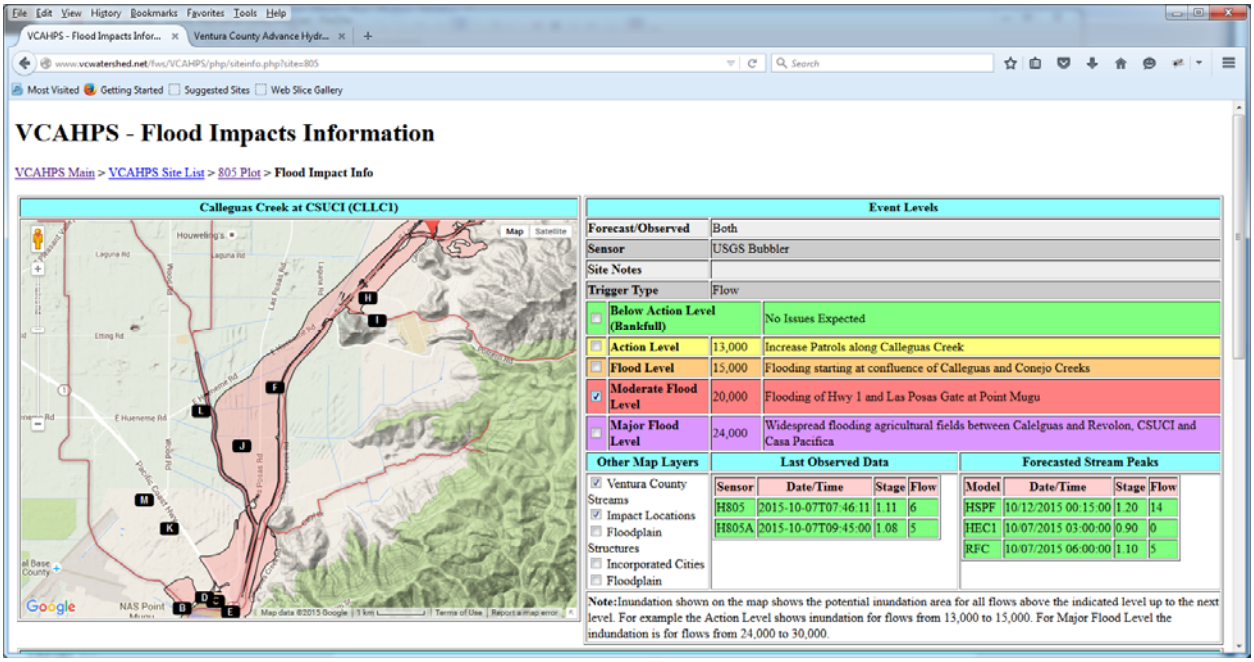
You can zoom the map to see impact location, view using the aerial photo (Google maps “Satellite” button), and other levels of inundation including the 100-Year SFHZ and 500-year FEMA flood zones. The inundation levels (Action, Flood, Moderate, and Major) for 805 – Calleguas Creek at CSUCI is shown below. The inundation for “Below Bankfull” is shown above.



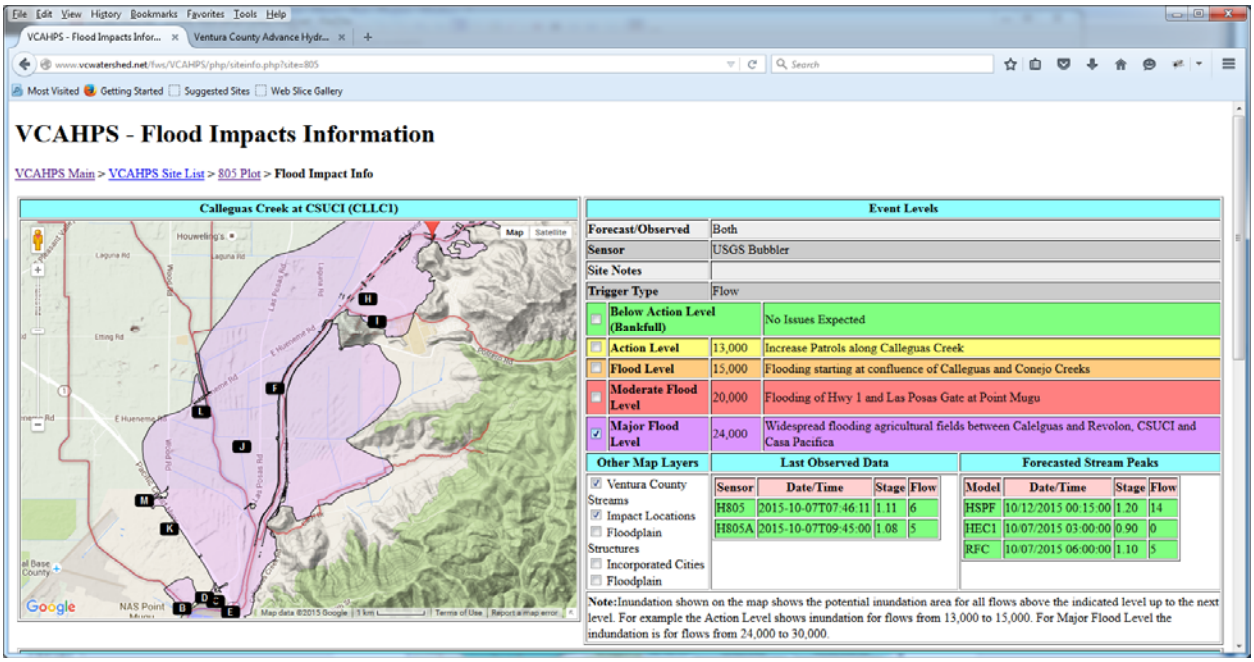
Action Level.



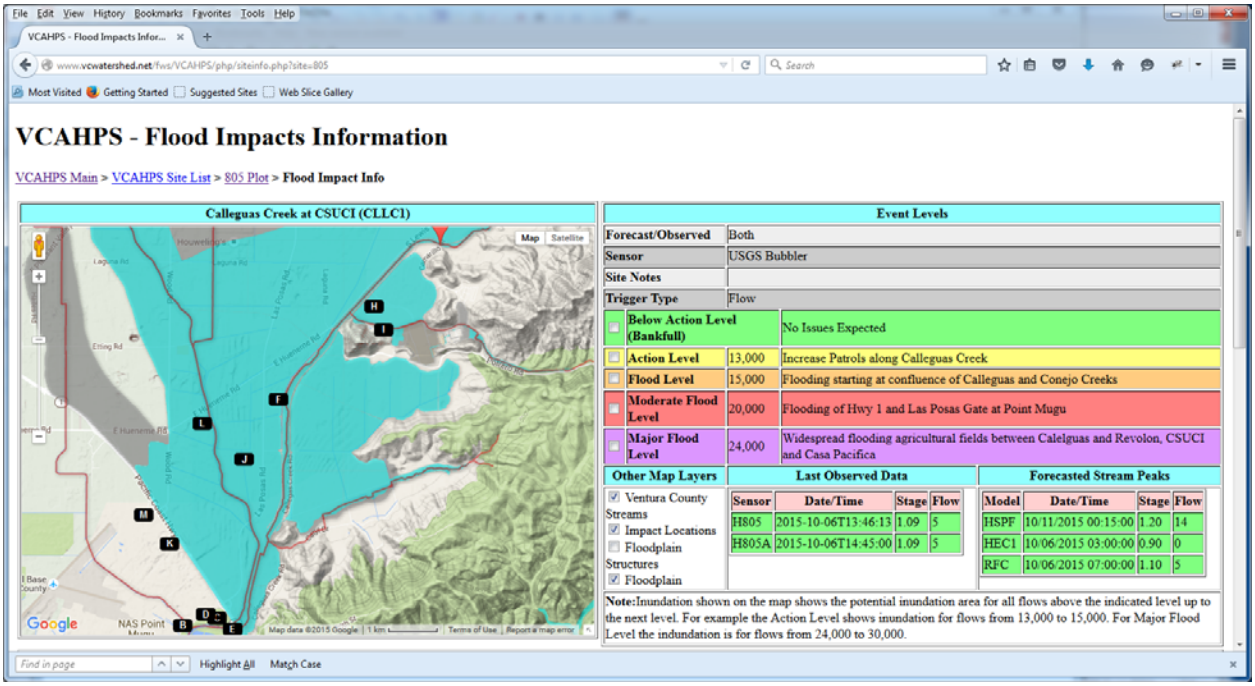
Flood Level



Moderate Flood Level

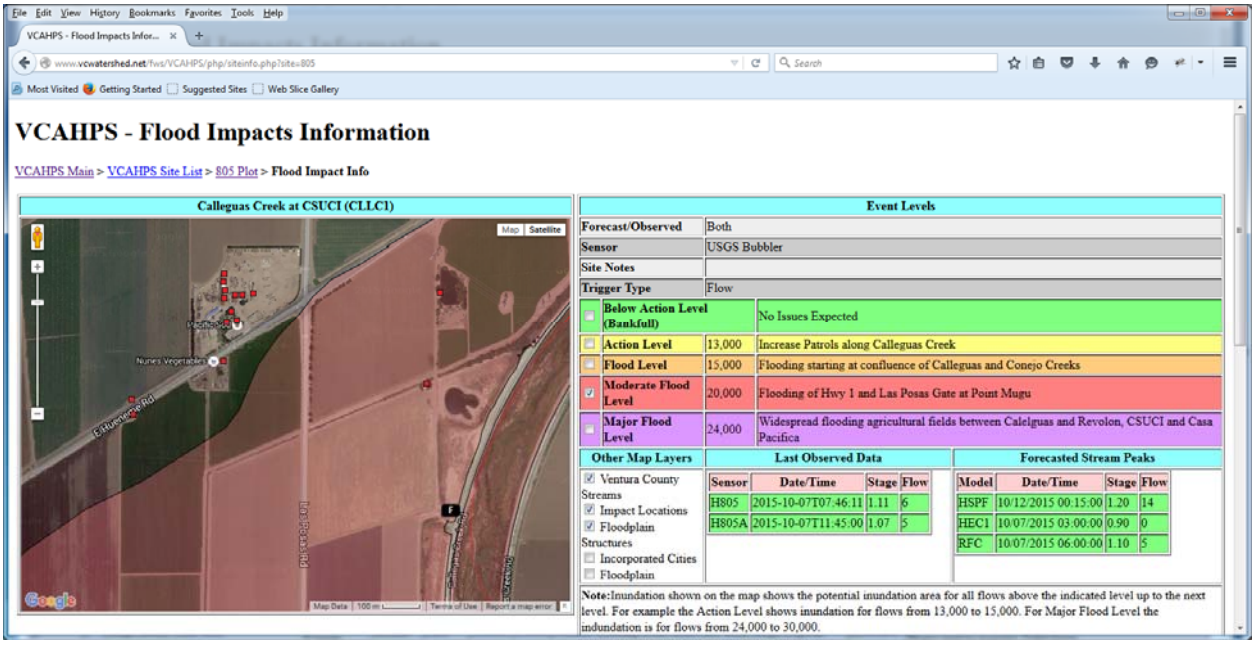


Major Flood Level



Showing the official FEMA 100-Year Special Flood Hazard Zone (cyan), and 500-year Floodplan.

When zooming in you can turn on other layers including “Floodplain Structures” where were identified as structures in Unincorporated Ventura County that are in the Special Flood Hazard Zone. The example below is using the Satellite (Aerial) View for an area downstream of the Calleguas at CSUCI gage.



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Model	Date/Time	Stage	Flow
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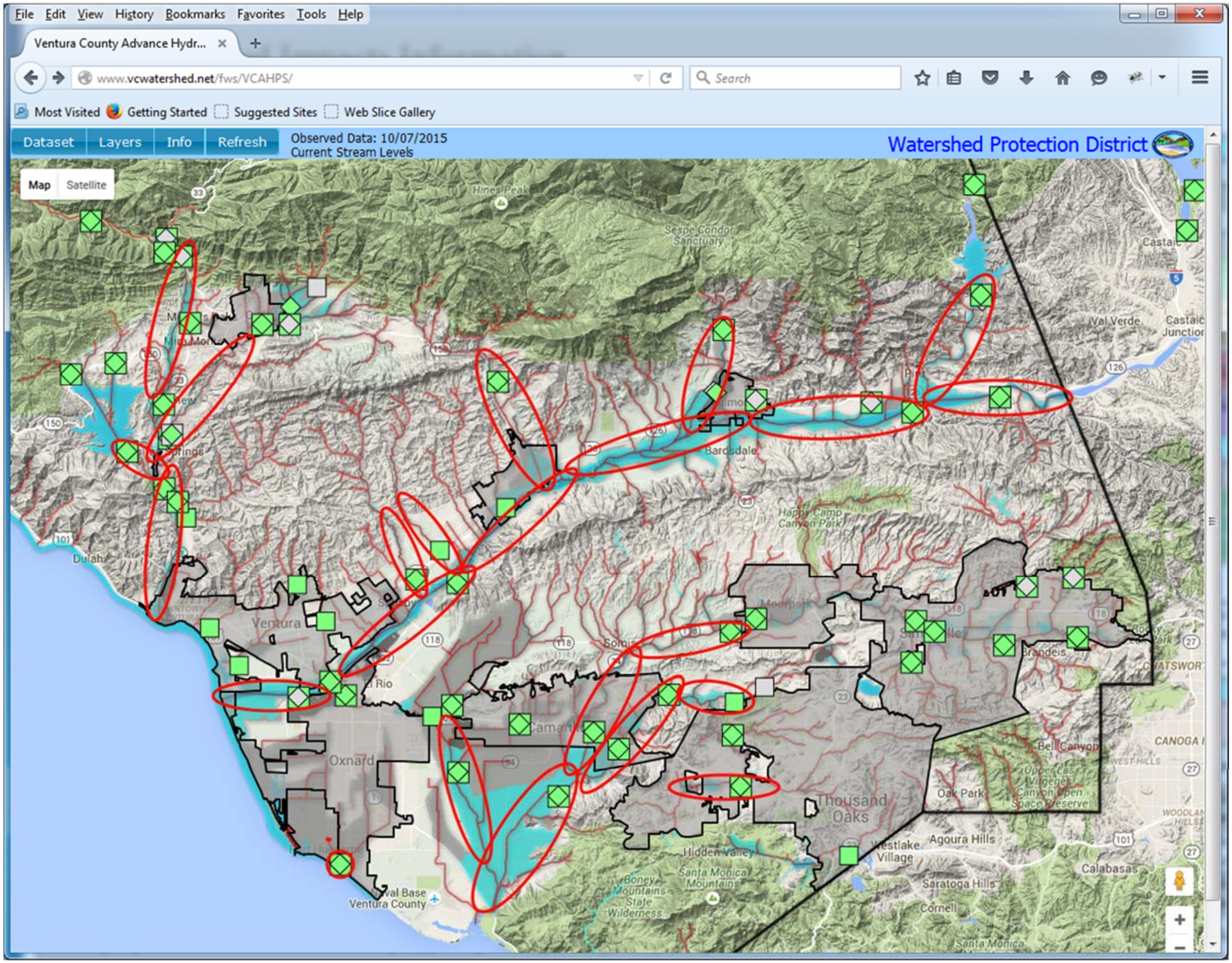
Note: Floodplain structures may not show in Google Chrome browser. Additional work is on going to determine the cause of this issue.

The structures were digitized in a Geographic Information System (GIS) with aerial photo from 2014 and the latest FEMA Special Flood Hazard Area (SFHZ) overlay. Any structure in the Unincorporated Area of Ventura County that appears to be habitable or contains improvements like water or power that the property owner would insure with flood insurance were digitized. A summary table in the Flood Warning Program and Response Annex (FWRA), (part of the County of Ventura's 2015 Multi-Hazard Mitigation Plan), for each watershed, which is broken down into individual streams, and lists the number of structures that met the criteria. These identified structures are the red squares available in the "Floodplain Structures" overlay.

4) Inundation Coverage

The following map shows the areas that currently have mapped inundation areas. The inundation covers all major rivers and streams where riverine flooding occurs within the Unincorporated Areas of Ventura County. A few Incorporated City areas are covered where the major rivers (Ventura River, Santa Clara River, and Calleguas Creek) pass through the Incorporated City areas. The areas and gages that contain inundation mapping are marked on the map below as thick red ellipses. Unincorporated Areas of Ventura County that do not contain Special Flood Hazard Areas are not mapped. These areas includes the Los Padres National Forest and Santa Monica Mountains State and Federal areas. The Special Flood Hazard Areas are mapped as the cyan area on the map below. The Incorporated Cities are marked by the grey area within the thick black line.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Ventura County Advance Hydr...
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Search
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Getting Started
Suggested Sites
Web Slice Gallery
Dataset
Layers
Info
Refresh
Observed Data: 10/07/2015
Current Stream Levels
Watershed Protection District
Map
Satellite
Hines Peak
Sespe Condor Sanctuary
Castaic
Val Verde
Castaic Junction
Bardsdale
Happy Camp Canyon Park
Ventura
Oxnard
Thousand Oaks
Westlake Village
Agoura Hills
Calabasas
Oak Park
Saratoga Hills
Cornell
Hidden Valley
Santa Monica Mountains
Boney Mountains State Wilderness
Bell Canyon
CANOGA
CHATSWORTH
Brandeis
Ventura County