

NOAA's National Weather Service
Advanced Hydrologic Prediction Services
How to implement the regional map inline frame

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Introduction

NOAA's National Weather Service (NWS) provides a wide variety of hydrologic and hydrometeorologic forecasts and information through the web. These web-based resources originate at NWS field, national center, and headquarters offices and are designed to meet the needs of a wide range of users from someone who needs the five-day forecast for a river near his home to the technically advanced water manager who needs probabilistic information to make long-term decisions on allocation of flood mitigation resources or water supply. The NWS will continue to expand and refine all types of web products to keep pace with the demands of all types of users.

Hydrologic resources location

The NWS Hydrologic resources can be accessed at <https://water.weather.gov> or by clicking the "Rivers, Lakes, Rainfall" link from <https://www.weather.gov>.

Regional Map – River Observations and River Forecasts

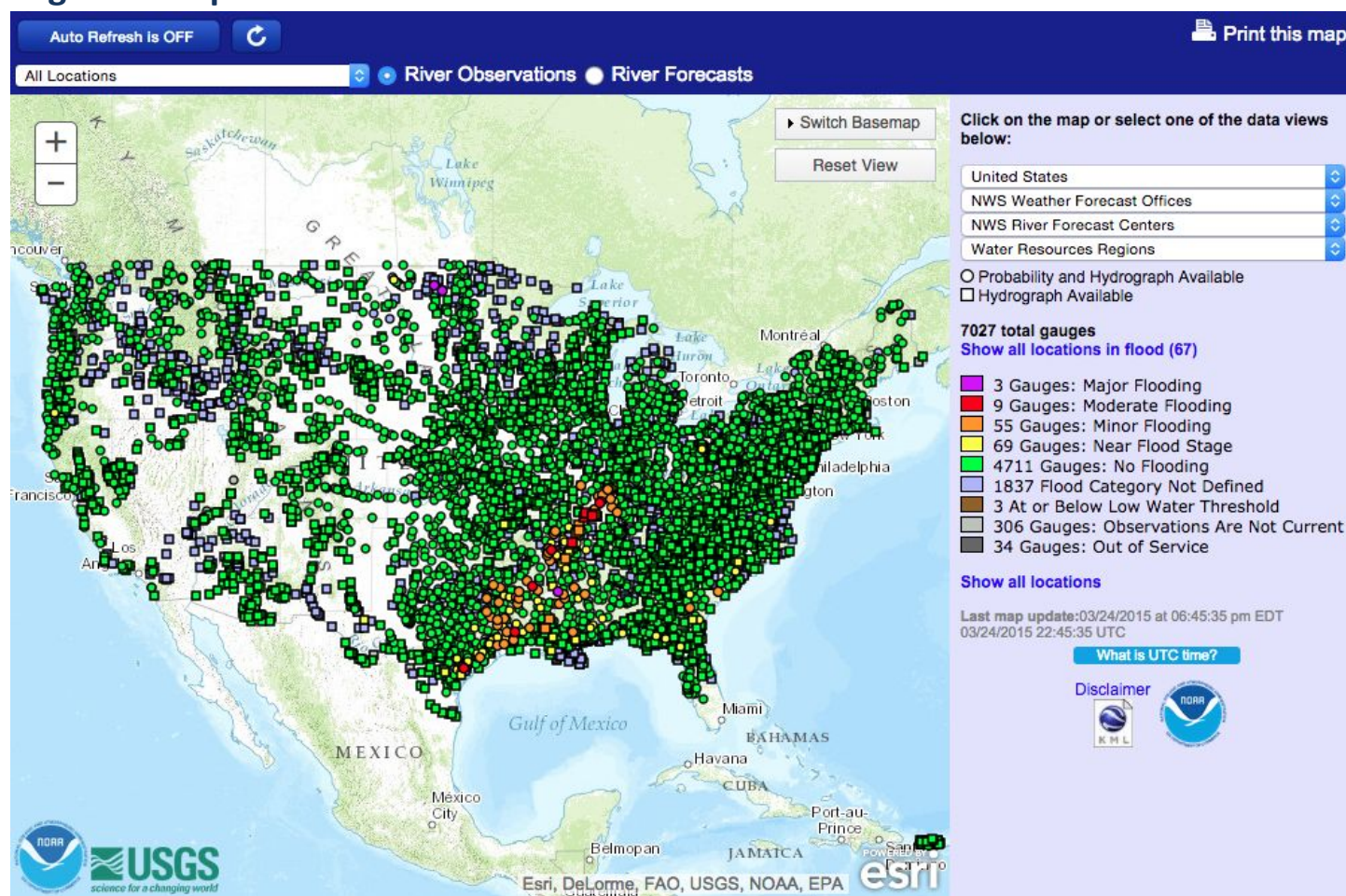


Figure 1: National View

The regional AHPS map inline frame (or iframe, as it will be referenced throughout the rest of this document), as seen in figure 1, consists of several components: toggles to change which gauge markers display on the map; ESRI map controls; flood status indicators and location-based data view selectors. The starting point, which is available outside of the iframe component, is a national map providing a brief summary to the river and stream location statuses within the continental United States. From this national overview, you can navigate to specific

regions – state, Weather Forecast Office (WFO), River Forecast Center (RFC) and Water Resource Region (WRR) – by selecting an option by neighboring drop down menus or clicking on marker images on the map. Figure 2 depicts a regional view for the WFO IND.

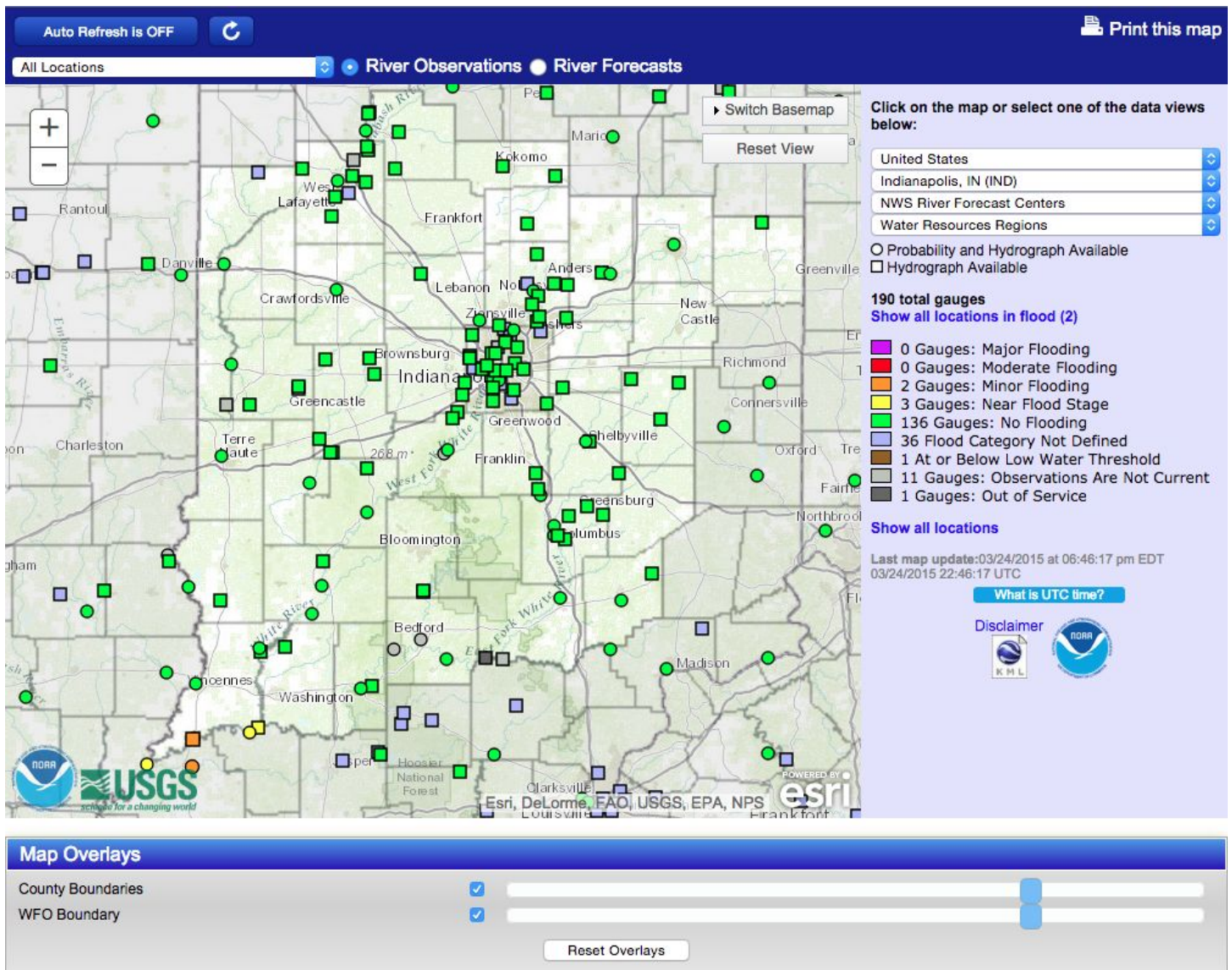


Figure 2: Regional View

In the narrow dark blue area immediately above the national map, a white pull-down menu can be used to change the display of river/stream locations from all locations (default) to:

- Hydrograph Only Locations – hydrographs for individual river/stream locations provide a graphical overview of observed conditions at a river/stream gage. Selecting this option causes the map to show only the locations for which hydrographs are available. Hydrograph-only locations are denoted by square-shaped icons.
- Hydrograph/Probability Forecast Locations – specialized products with information on the probability of future river levels/flows are also available for selected river/stream locations. Selecting this option causes the map to show only the locations for which observed and forecast data are available.

Hydrograph/probability forecast locations are denoted by circle-shaped icons.

- Inundation Mapping Locations – a small but increasing number of river/stream locations which, in addition to hydrographs, have specialized flood inundation mapping. Selecting this option causes the map to show only locations for which these inundation maps are available. Inundation mapping locations are denoted by square- or circle-shaped icons.
- Near or Above Flood Stage Locations - shows all locations that are exhibiting any of the following flood statuses: near/action, minor, moderate, or major.
- At or below low water threshold locations - shows all locations that have a low water threshold set and have water levels at or below their designated low water thresholds.

In the same dark blue bar above the map, you can toggle between River Observations and River Forecasts. Switching between observations and forecasts will load all gauge markers relevant to the selected region, regardless of the gauge display and location type displays selected prior to the switch.

In all browsers except for Internet Explorer, users can print the content of the iframe map as it appears on their monitor after toggling gauge location marker displays, zooming or panning the port view of the map window, or changing from Map view to Satellite view. In Internet Explorer, the “Print this map” link will be replaced with a link to a set of instructions for how to print the map. This link will open the printable document or the instructions for printing in a new window or tab, depending on how your browser is configured to open new links.

River/stream locations displayed within the iframe ESRI map are color-coded according to the flood status of their most recent observation or highest available forecast as follows:

- **Low Water (brown)** - river/stream at or below low water threshold
- **Flood Categories Not Defined (light blue)** - No flood categories are set, so no flood status can be determined
- **No Flooding (green)** – river/stream below level where flooding becomes a concern.
- **Near Flood Stage (yellow)** – flooding becomes a concern. River/stream is approaching or is forecast to approach the gage height – flood stage – where flooding is defined to begin. Flood stage is an established gage height for a given location at which a rise in water surface level begins to create a hazard to lives, property, or commerce.
- **Minor Flooding (orange)** – minimal or no property damage, but possibly some public threat.
- **Moderate Flooding (red)** – some inundation of structures and roads near stream. Some evacuations of people and/or transfer of property to higher elevations.
- **Major Flooding (violet)** – extensive inundation of structures and roads. Significant evacuations of people and/or transfer of property to higher elevations.

The last three of these levels constitute the flood categories used by the NWS.

In addition to these five colors, there are three colors that are used to show gauge locations that are not providing current information:

- **Observations are not current (light gray)** – In River Forecasts, “Forecasts are not current”. No

updated observations or forecasts have been issued from the station within the timeframe designated to the gauge.

- **Out of Service (dark gray)** – The station has been reported by the managing WFO as no longer in service. This may be due to a variety of reasons, such as technical malfunctions or natural causes like a build-up of ice.
- **No forecast within selected timeframe (medium gray)** – *River Forecasts only*. A forecast may be available, but the “good through” date provided by the station falls expires before the selected timeframe. By default, location markers on the River Forecast map are loaded to reference a period of 48 hours, but can be extended in the iframe settings to a period as great as 10 days (240 hours) in the future.

Color codes for river forecasts are the same as those for river observations, according to the maximum forecast stage during the next 48 hours. The forecast map generally shows fewer locations than the River Observations map, because river/stream forecasts (e.g., daily) are produced for fewer locations than where observations are available. When high water or flooding occurs or threatens to occur, “nonroutine” flood forecasts may be issued.

The display of river/stream location markers can be isolated according to color through the legend icons on the right side of the map. For example, if you wanted to see all locations in a state currently experiencing or forecast to experience Major Flooding, you would click on the violet rectangle next to the gauge count (“# Gauges:”) and category description (“Major Flooding”). This action shows only location markers that have a status of Major Flooding. If you wanted to see all locations experiencing any level of flooding – minor, moderate or major – you would click on the text that says “# locations in flood”, # representing an actual value. If no locations are experiencing any flooding, this text will instead say “No locations in flood,” as demonstrated in the illustrating image for this section. To display all icons once more, click on “Show all locations,” located just below the major legend content.

The option to download a .KML file, which can be viewed in Google Earth, is available through a link below the map marker color legend and “Last update” timestamp. Depending on the page you are viewing the map from – River Observations or River Forecasts – the KML file will display all river/stream gauge location markers for that region specific to the observation or forecast category.

Map controls are available inside of the map to refine the area displayed in the view port. Users can pan up, down, left and right; zoom in or out (within predefined limits specific to the region); view the area as a cartographic representation of the region or as satellite imagery; create a zoom box to control where and how far the zoom goes; and reset the viewport to its original settings.

Implementing the map

To implement the NWS AHPS Regional River Observation/Forecast map on your site, you will need to know the region type and its abbreviation and whether you want the Observation or Forecast map to be the default option on page load. If you are unsure of the identifier you need to use for the map, go to <https://water.weather.gov/ahps> and select your region from the dropdown menus on the right side of the page. The identifier will be in the URL after the region type (state, wfo, rfc or wrf). To implement the NWS AHPS National River Observation/Forecast map, simply omit the state, wfo, rfc, or wrf from the url.

You will also need access to the code structure for the page on which you wish to display the iframe map. If you do not have access to the code, you will need to send the following sample script to your website manager.

To best display the map, you will need an area of 1000 pixels wide by 830 pixels tall in which the map iframe will populate. You can also set the **scale** variable to 'true' to make the iframe fit into a 960 by 830 pixel area by narrowing the map from 700 pixels to 660. This can be used to make the iframe fit into the new weather.gov layout without corrupting the formatting of the page. You are also encouraged to leave the frameborder attribute at 0 and disable the scrolling attribute. If you choose to use the height without controls and do not disable scrolling, the width will be modified by the scrollbar and will not fit the desired dimensions. See minimum values for dimensions in the table below.

If the national map is being displayed, it is important to accommodate for the size constraints of the regional page. The national page is shorter than the regional page by about 130 pixels, but the drop down selection will pull the regional view into the same window. Not allowing enough room for the regional iframe will result in a mismatched window after a region has been selected.

Filename	Min Height With Controls	Min Height Without Controls	Width Without Scale Option	Width With Scale Option
region_iframe.php	815 pixels	670 pixels	1000 pixels	960 pixels
region_forecast_iframe.php	900 pixels	750 pixels	1000 pixels	960 pixels

The iframe code goes between the opening and closing **body** tags within the page's scripts.

The following snippets are for the National River Observations map.

1. Below provides the scaled National River Observations:

```
<iframe src="https://water.weather.gov/ahps/region_iframe.php?scale=true" height="830" width="960" frameborder="0" scrolling="no"></iframe>
```

2. Below provides the full National River Observations:

```
<iframe src="https://water.weather.gov/ahps/region_iframe.php" height="830" width="1000" frameborder="0" scrolling="no"></iframe>
```

The following snippets are for the National River Forecasts map.

3. Below provides the scaled National River Forecasts:

```
<iframe src="https://water.weather.gov/ahps/region_forecast_iframe.php?scale=true" height="830" width="960" frameborder="0" scrolling="no"></iframe>
```

4. Below provides the full National River Forecasts:

```
<iframe src="https://water.weather.gov/ahps/region_forecast_iframe.php" height="830" width="1000" frameborder="0" scrolling="no"></iframe>
```

The following snippets are for Regional River Observations maps.

- For state observations, where *MO* represents the two-letter abbreviation for the state you want to display (in this case, Missouri), and the *scale* variable makes sure that the output has width 960. :

```
<iframe src="https://water.weather.gov/ahps/region_iframe.php?state=MO&scale=true" height="830" width="960" frameborder="0" scrolling="no"></iframe>
```

- For Weather Forecast Office observations, where *BOX* represents the three- or four-letter WFO ID you want to display (in this case, Boston):

```
<iframe src="https://water.weather.gov/ahps/region_iframe.php?wfo=BOX" height="830" width="1000" frameborder="0" scrolling="no"></iframe>
```

- For River Forecast Office observations, where *ABRFC* represents with the five-letter abbreviation for the RFC you want to display (in this case, Arkansas Red-Basin River):

```
<iframe src="https://water.weather.gov/ahps/region_iframe.php?rfc=ABRFC" height="830" width="1000" frameborder="0" scrolling="no"></iframe>
```

- For Water Resource Region observations, where *17* represents the one- or two-digit WRR ID you want to display (in this case, Pacific Northwest):

```
<iframe src="https://water.weather.gov/ahps/region_iframe.php?wrr=17" height="830" width="1000" frameborder="0" scrolling="no"></iframe>
```

The following snippets are for Regional River Forecasts maps.

- For state forecasts, where *MO* represents the two-letter abbreviation for the state you want to display (in this case, Missouri):

```
<iframe src="https://water.weather.gov/ahps/region_forecast_iframe.php?state=MO" height="875" width="1000" frameborder="0" scrolling="no"></iframe>
```

- For Weather Forecast Office forecasts, where *BOX* represents the three- or four-letter WFO ID you want to display (in this case, Boston):

```
<iframe src="https://water.weather.gov/ahps/region_forecast_iframe.php?wfo=BOX" height="875" width="1000" frameborder="0" scrolling="no"></iframe>
```

- For River Forecast Office forecasts, where *ABRFC* represents with the five-letter abbreviation for the RFC you want to display (in this case, Arkansas Red-Basin River):

```
<iframe src="https://water.weather.gov/ahps/region_forecast_iframe.php?rfc=ABRFC" height="875" width="1000" frameborder="0" scrolling="no"></iframe>
```

- For Water Resource Region forecasts, where *17* represents the one- or two-digit WRR ID you want to display (in this case, Pacific Northwest):

```
<iframe src="https://water.weather.gov/ahps/region_forecast_iframe.php?wrr=17" height="875" width="1000" frameborder="0" scrolling="no"></iframe>
```