FEMA'S FLOOD RISK ENDANGERED SPECIES HABITAT (FRESH)
Web-based Mapping Application User's Guide

FRESH Map tool:
https://fema.maps.arcgis.com/apps/webappviewer/index.html?id=c01581a28192417b90b7898ebc323c5c

This site is best viewed using Microsoft Edge, Google Chrome, or Mozilla Firefox. If using Internet Explorer, you may not experience the full effect when viewing the site. Screenshots captured in this User's Guide use Microsoft Edge.

The Flood Risk Endangered Species Habitat (FRESH) Web-based mapping application helps communities identify the potential presence of federally listed threatened and endangered species and their designated critical habitats within their community, and specifically, their regulatory floodplain. FRESH uses authoritative species data sources for evidence-based decision-making to promote the conservation of species and habitat, where possible. The Federal Emergency Management Agency (FEMA) worked collaboratively with the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) in the development of FRESH. The tool enables users to discover, understand, and communicate the unique environment of their NFIP-participating community to assist with the conservation of protected species and habitat, where possible. Data and results from FRESH can be used to assist with conservation actions, including for Community Rating System (CRS) credits. This User's Guide provides an overview of how to use FRESH; the Application section describes how to use FRESH to complete a Floodplain Species Assessment (FSA).

Disclaimer: This geospatial mapping tool is designed to help communities identify areas within their floodplains where threatened and endangered species and their designated critical habitat (if applicable) may occur. These maps do not guarantee a species will occur within an area, nor do they preclude the presence of an unexpected species; however, these maps are a good indicator of species (and critical habitat where applicable) that could be affected by activities within the area. If a specific development project or land use decision may affect Endangered Species Act (ESA) listed species or critical habitat within a community, FEMA recommends contacting the local National Marine Fisheries Service (for marine species) or U.S. Fish and Wildlife Service (USFWS) office with any questions regarding ESA compliance. Additionally, for USFWS species, utilize the Information for Planning and Consultation (IPaC) https://ecos.fws.gov/ipac/ project planning tool to assist in starting an environmental review.

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Home Page

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▤	**Legend** This widget displays labels and symbols for layers in the map and can be set to automatically update when the visibility of a layer or sublayer changes. Symbols appear in the legend as widgets are activated.
▧	**Layer List** This widget provides a list of operational layers and symbols and allows the user to turn individual layers on and off. Each layer has a check box that allows the user to control its visibility. To turn a layer on, click on the check box next to the layer. Other layers are detailed in the Additional Information section.
◁	The **Area of Interest** widget allows the user to select the location on the map to analyze information from feature layers within the specified area.
◯	The **My location** widget is a shortcut if the user is located within the area being mapped. This will initiate a pop-up requesting location access to the device being used. Click **Allow** to use this feature.
⌂	Clicking on the **Home** widget (or **Default extent**) will reset the view to the entire United States.

Using Area of Interest

◁ From the home screen, type the project address in the search bar and then click on this widget, referred to as the **Area of Interest**. Another option is to click on the **Area of Interest** widget and identify a location either by point, line, or polygon at the bottom of the screen, and then launch the **Area of Interest** widget.

To find a location, enter an address, city, or state in the search bar in the upper right-hand corner.

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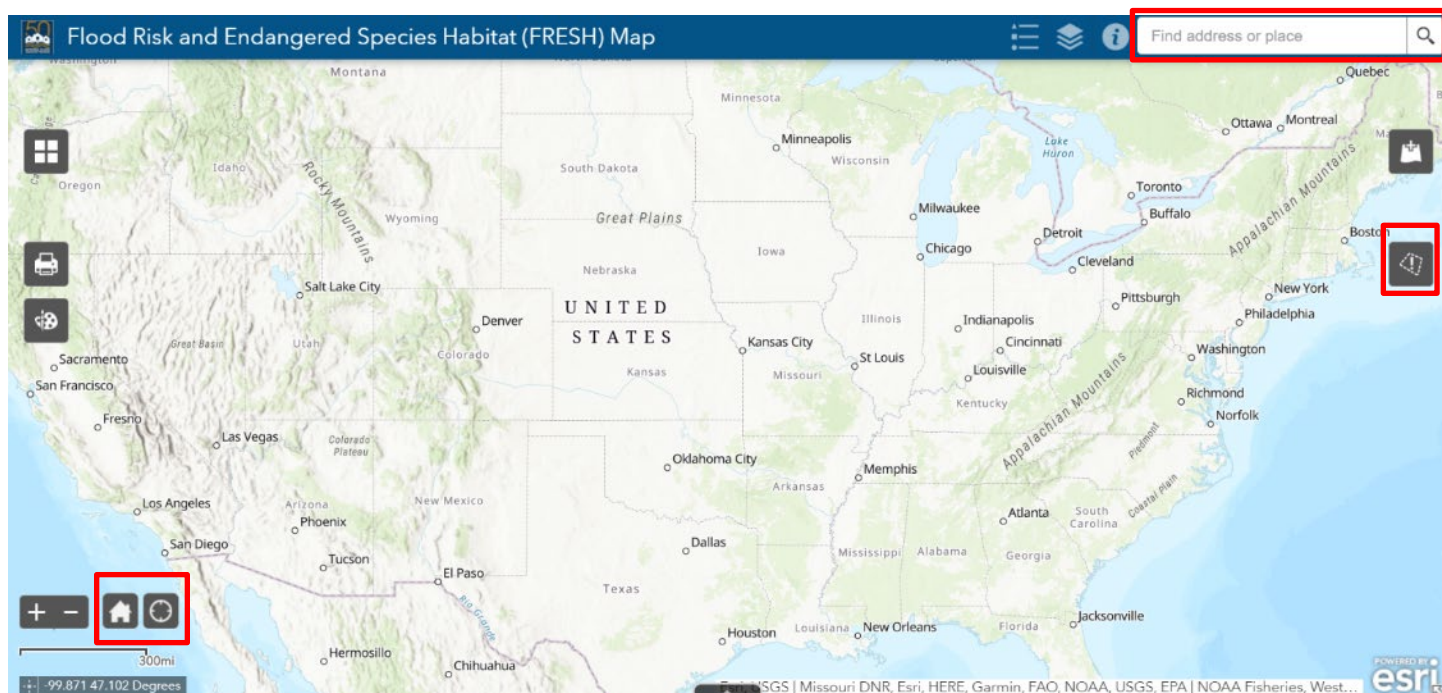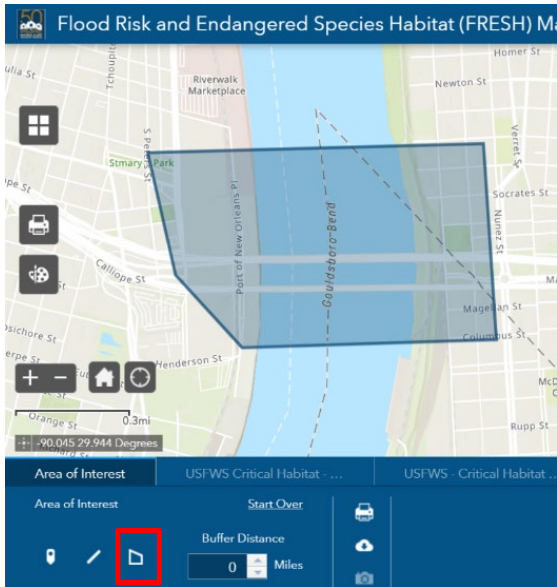
Select the **Polygon** icon and click desired starting point; continue shape by clicking points to draw desired shape and double-click to complete shape.

*Use the **plus (+)** and **minus (-) signs** to zoom to a level where the project area can be captured using the **Polygon** feature, clicking the desired shape around the perimeter of the project or community. Re-select layers including Critical Habitat once the Area of Interest is selected.*

*The **Polygon** is the recommended method for establishing the Area of Interest.*

Point Select the **Point** icon and click desired place on map.

Line Select the **Line** icon and click desired places on map to create a line.

Buffer Distance When using either **Point** or **Line**, a Buffer Distance must be entered in the drop-down to create an area around the point or line. The distance can be any number greater than zero and should be large enough to provide an understanding of the number and identity of species or critical habitat present in the area, thus allowing the user to consider conservation activities during project planning. The buffer should reflect the area outside of the immediate project area that may be affected by the project, such as construction noise or runoff. The buffer distance shown is an example only and not meant as guidance.
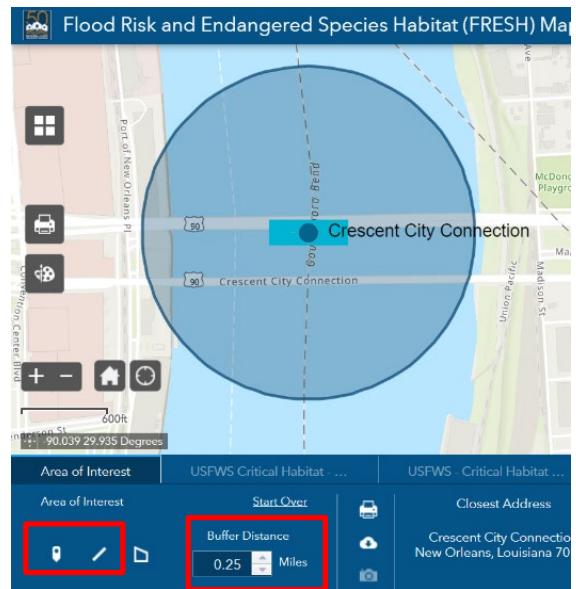

Contact the USFWS or NMFS offices in your area if a project may have impacts on listed species or critical habitat, or visit USFWS's [Information for Planning and Conservation website (IPaC)](#).

*If using **Point** or **Line**, a report cannot be created if the buffer distance is identified as 0.0.*

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Data within the map populates according to the chosen layers. Tabs along the banner at the bottom of the screen allow the user to view results for each layer (layers shown in red box below). Tabs identify individual species by critical habitat or range. Each tab should be reviewed to better understand the location for each species range or habitat in relation to the floodplain for the selected area.
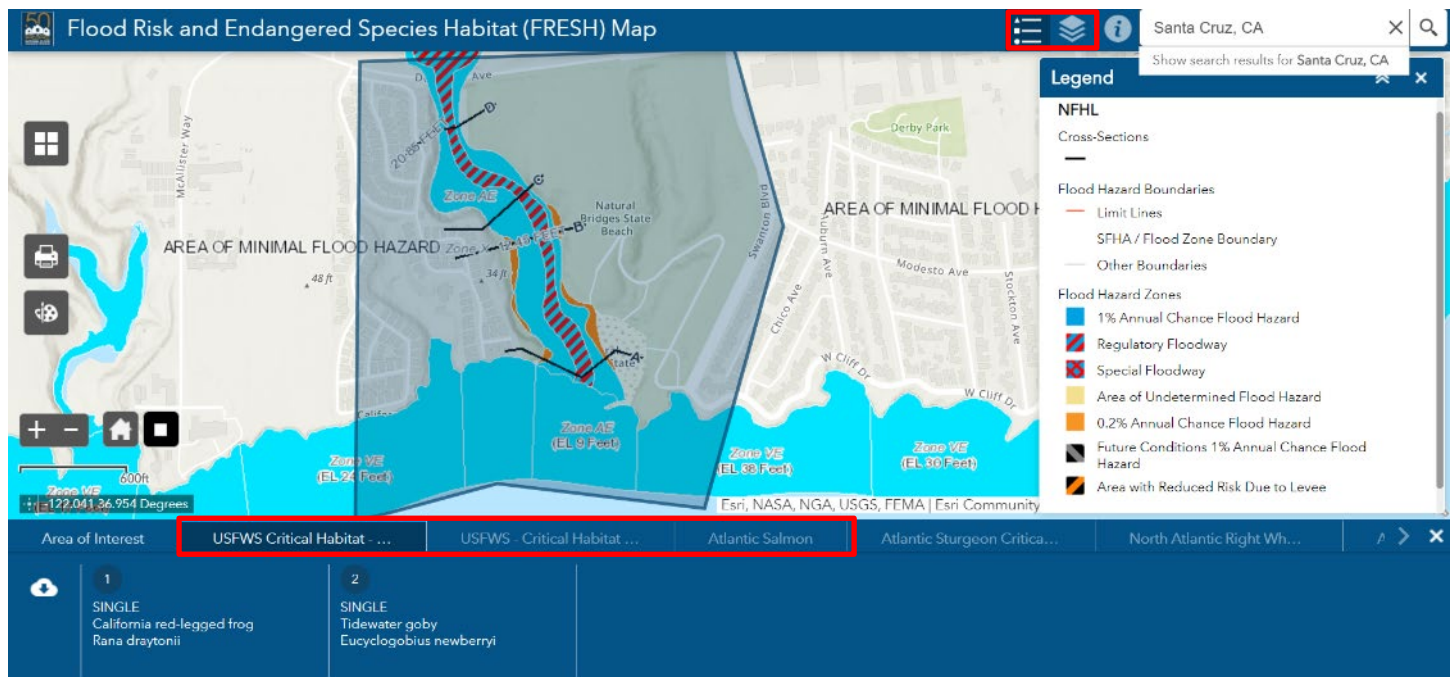
> *Special Flood Hazard Areas (SFHAs)* *are only depicted at a close range. Shaded blue depicts an Area of Interest polygon.*

Select the *Legend* widget to activate the drop-down legend for the National Flood Hazard Layer (NFHL).

Select the *Layer List* widget to turn on/off specific data layers. If ranges impact visibility on the map, increase the transparency by choosing the **three dots** following the layer title and toggle to the desired transparency.

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Other Icons and Tools under Area of Interest

Add Data The ***Add Data*** widget enables the user to add customized data to FRESH by searching for layers in ArcGIS Online or ArcGIS Enterprise content (only with an ArcGIS User Account), entering URLs, or uploading their own GIS data files. Click ***Add Data***; a small window will open with three options: Search, URL, and File.

- The ***Search*** function will search for available data layers to add from the ArcGIS Enterprise Library (with an ArcGIS User Account). Once a data layer is identified, the data can be reviewed by clicking on **Details**; to add the data layer, click **Add**.

- The user can incorporate data from a GIS Web Service using the ***URL*** function. Choose the Web Service from the drop-down menu under **Type**. Once the Web Service type is selected, copy and paste the GIS Web Service's URL and click **Add**.

- To add GIS data, the ***File*** Function allows the user to upload data files from the user's local drive. Click **Browse**, choose a zipped shapefile from your computer to upload, and select **Open** to add the data. If the data is for a specific location, the map will zoom to that area.
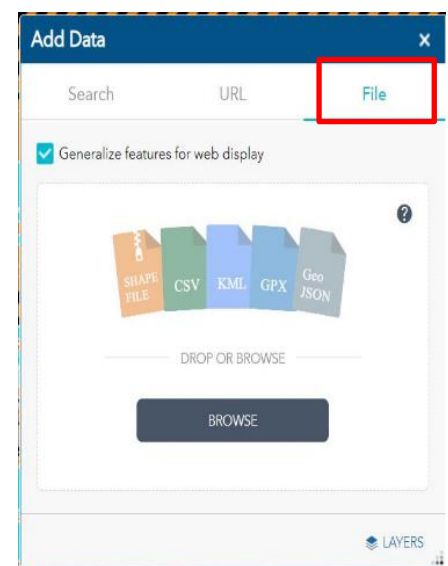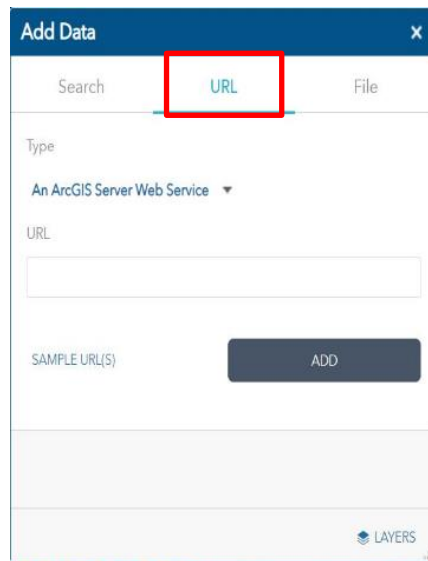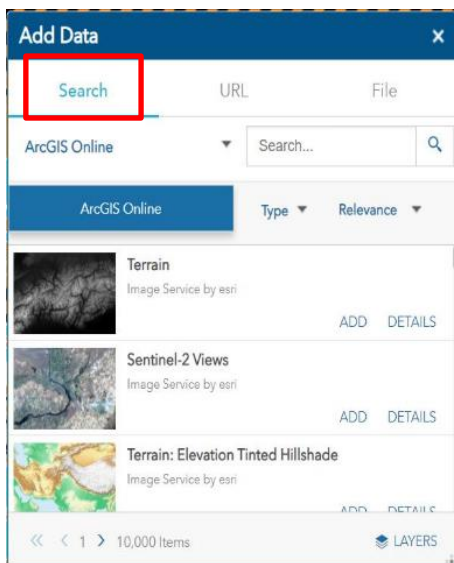
Using the Draw Tool

The ***Draw*** widget creates graphics to display on the map. Line distances and shaped areas may be added as text. Click the ***Draw*** icon, select **Draw Mode**, and adjust the graphics using **Color**, **Transparency**, **Outline Color**, and **Outline Width**. Click on the map to add a shape. To clear a shape, scroll down in ***Draw*** and click **Undo**.
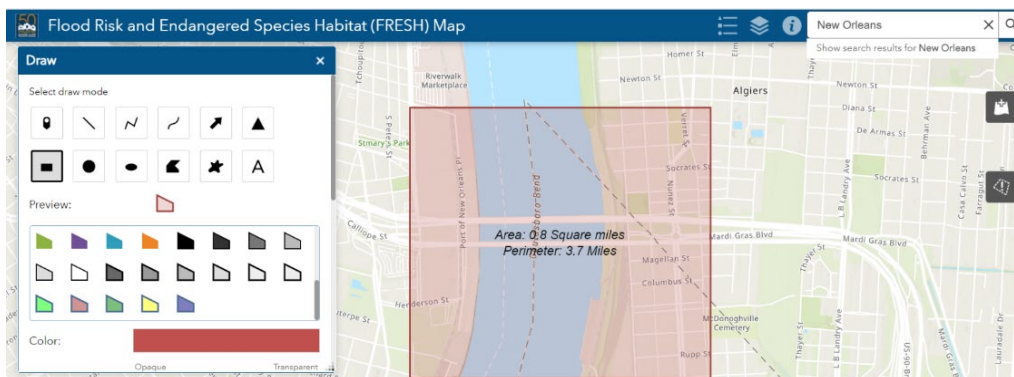

TIP *Area and perimeter measurements may be shown; slide the toggle to* ***On*** *before drawing the area to be measured.*

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Printing and Saving Area of Interest Data

After designating the Area of Interest and selecting the desired layer, a banner is shown across the bottom of the map. To view, generate, and print the results, select the **Printer** icon. To download results, select the **Cloud** icon.

Note: The **Camera** icon is a future feature and is currently unavailable.
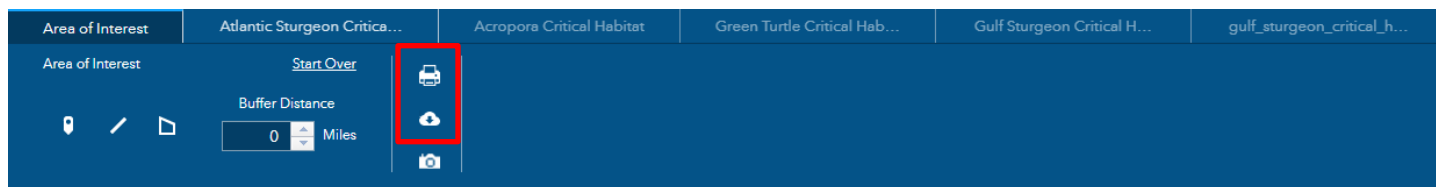
*The **Cloud** icon downloads all of the species and habitat reports to your computer in a .CSV file type.*

Generating a Report
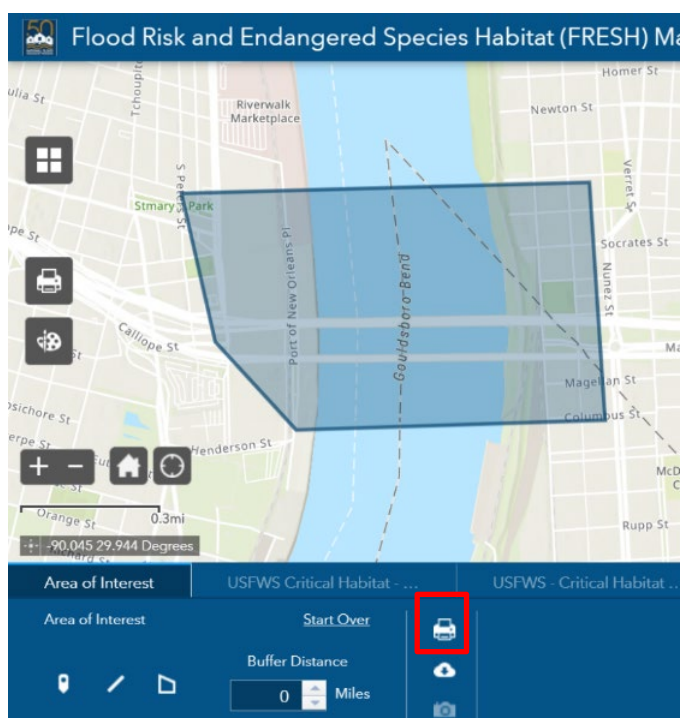
To generate a report, choose the **Printer** icon in the **Area of Interest** widget.

After choosing the **Printer** widget, a window opens allowing the user to set report properties for orientation and paper size. A3, A4, Portrait (shown), or tabloid may be selected. Comments may be entered in the text box. After setting the report properties, select **OK**.
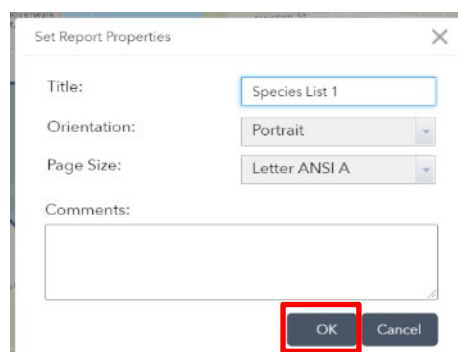
After clicking **OK**, a new tab opens in the browser to preview the report for printing. To print the report, select **Print**.

In the advanced settings, a user can set specific dimensions, choose the spatial reference, and add in metadata such as the author's name and any copyright information.

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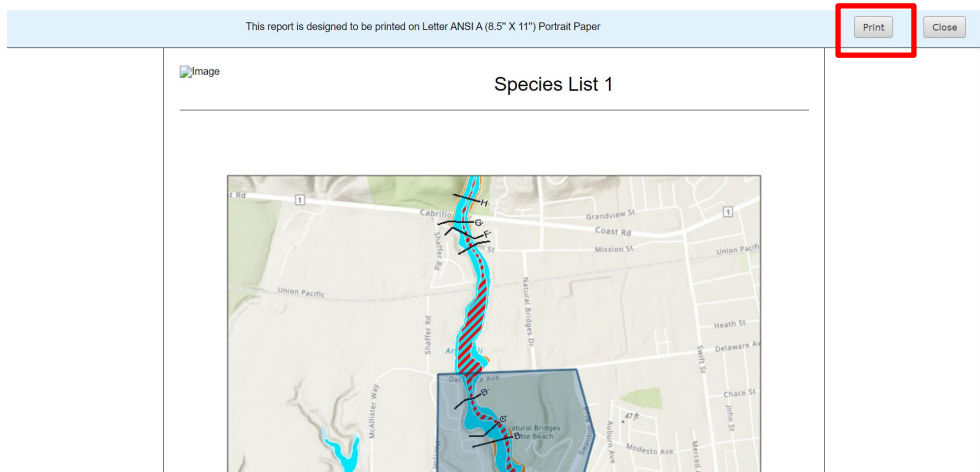
Within the report, the Threatened and Endangered Species Ranges table provides the Common Name (COMNAME) and Scientific name (SCINAME) for each species.

USFWS Critical Habitat – Polygon Features (Proximity)

singlmulti	comname	sciname	DISTANCE
SINGLE	California red-legged frog	Rana draytonii	53.04 Miles (approximate)
SINGLE	Tidewater goby	Eucyclogobius newberryi	83.9 Miles (approximate)

USFWS Critical Habitat – Polygon Features

comname	sciname	listing_st
California red-legged frog	Rana draytonii	Threatened
Tidewater goby	Eucyclogobius newberryi	Endangered

Proximity. The term "proximity" in the tables is a remnant title associated with the data layer and not necessarily an indicator that a particular habitat or species is within the Area of Interest. Note: The distance may be quite large depending on species, habitat, and migration patterns and is not relevant in the analysis.

Species Range Distance. The Distance Columns in the tables (shaded gray) refer to the distance from the Area of Interest to the centermost point of the species range distance. Note: The range distance may be quite large depending on species, habitat, and migration patterns and is not relevant in the analysis.

Species Notes:

Downstream or marine species. FRESH will show species with range in the Area of Interest. In addition, species outside of the Area of Interest (downstream) can benefit from conservation activities undertaken in upstream areas. For example, conservation actions improving river water quality at one location may positively impact habitat for species downstream. Conservation actions benefitting freshwater habitat of anadromous or catadromous species, such as salmon or eel, may positively impact marine species that prey on those species.

Migratory birds. Some migratory bird species have large species ranges and may use habitat for short-term stopover sites to rest or feed, or the habitat may be within the flyover path of a migratory route. Additional research may be necessary to determine if habitat within the Area of Interest is used by migratory birds.
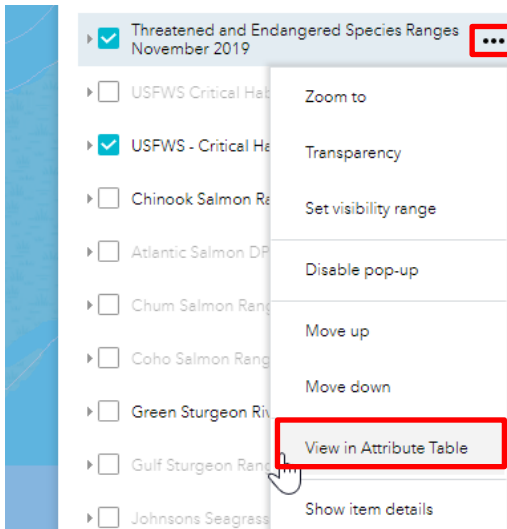
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The status of the species and any critical habitat within the Area of Interest is included below the Species Ranges table.

COMNAME	SCINAME	STATUS_ABB 2	DISTANCE
Zayante band-winged grasshopper	Trimerotropis infantilis	Endangered	5.8 Miles (approximate)
Ohlone tiger beetle	Cicindela ohlone	Endangered	6.03 Miles (approximate)
Scotts Valley spineflower	Chorizanthe robusta var. hartwegii	Endangered	11.54 Miles (approximate)
Scotts Valley Polygonum	Polygonum hickmanii	Endangered	11.54 Miles (approximate)
San Francisco garter snake	Thamnophis sirtalis tetrataenia	Endangered	24.32 Miles (approximate)
Santa Cruz tarplant	Holocarpha macradenia	Threatened	38.28 Miles (approximate)
Green sea turtle	Chelonia mydas	Endangered	73.32 Miles (approximate)
Tidewater goby	Eucyclogobius newberryi	Endangered	84.87 Miles (approximate)
California clapper rail	Rallus longirostris obsoletus	Endangered	89.56 Miles (approximate)
California red-legged frog	Rana draytonii	Threatened	94.92 Miles (approximate)
Southern sea otter	Enhydra lutris nereis	Threatened	112.48 Miles (approximate)
Kenwood Marsh checker-mallow	Sidalcea oregana ssp. valida	Endangered	113.01 Miles (approximate)
Franciscan manzanita	Arctostaphylos franciscana	Endangered	113.01 Miles (approximate)
Buena Vista Lake ornate Shrew	Sorex ornatus relictus	Endangered	113.01 Miles (approximate)
Oregon spotted frog	Rana pretiosa	Threatened	113.01 Miles (approximate)

*A**nother option to obtain a species list is by clicking the three dots next to the layer of interest for Threatened and Endangered Species Ranges and USFWS-Critical Habitat in the Layer List and choose "View in Attribute Table" from the drop-down menu.***

A species list will populate at the bottom of the screen with common name, scientific name, and listing status within the Area of Interest.

Additional Information on Functions

Layer List

Operational layers and symbols are turned on and off by clicking on the checkbox next to the layer. Information portrayed by the layers are detailed below.

Layer	Information Shown
USFWS Species Current Range	Species ranges by USFWS Region for endangered, threatened, proposed, and candidate species
CRC Community Layers	Participation in the CRS, Special Land Use Authority Areas, Tribal Land Use Authority Areas
Threatened and Endangered Species Ranges	Terrestrial species ranges
USFWS Critical Habitat	USFWS-designated areas essential to species conservation
NOAA NMFS Species Layers	Marine and salmon species ranges, or nearshore areas used at different life stages
NOAA NMFS Critical Habitat Layers	NMFS-designated areas essential to species conservation
NFHL	National Flood Hazard Layer

Basemap Gallery

Basemaps may be chosen to provide a realistic depiction of the Area of Interest from other authoritative reference sources. The ESRI Default Map is recommended for best use. Alternative basemaps are identified below.

Questions or Comments?

Send any questions, comments, or suggestions for the FRESH Web-based Mapping Application to:

FEMA-FRESHComments@fema.dhs.gov

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