

User Guide

ESA Section 7 Mapper

Southeast Region

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Regional Office
St. Petersburg, FL



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Purpose of the Section 7 Mapper

We (NOAA Fisheries Southeast Regional Office (SERO) Protected Resources Division) are providing this endangered species mapping application (Section 7 Mapper) to aid Federal Action Agencies in their Section 7 consultation responsibilities under the Endangered Species Act (ESA). Using these Consultation Areas (data layers), Action Agencies can better determine whether the activities they plan to authorize, fund, or carry out may affect listed species or critical habitat within our jurisdiction (North Carolina through Florida, the Gulf of Mexico, and the U.S. Caribbean). Within the Section 7 Mapper, Consultation Areas represent locations where Section 7 consultations are recommended due to the spatial and temporal occurrence of listed species' life stages, behaviors, and/or critical habitat in our Region. Consultation Areas are within the species range, but may not include areas of extralimital occurrence. We developed these layers using the best available scientific and commercial information and our professional judgment. We plan to update the Consultation Areas regularly as new data from peer-reviewed literature, research reports, and field observations become available. Version 2 of the Mapper is available at: <https://www.fisheries.noaa.gov/resource/map/southeast-region-esa-section-7-mapper>

Limitations

Action Agencies must use discretion and expertise to determine if the proposed activity may affect listed species. If an Action Agency determines that the proposed activity will not have any effect on a listed species and/or critical habitat, then no further consultation is necessary. However, if an Action Agency determines the proposed activity may affect a listed species or critical habitat in any capacity, they must initiate either a [formal or an informal consultation](#)¹.

The Section 7 Mapper is a Tool, Not a Replacement

We are providing the Section 7 Mapper as technical assistance; however, it does not replace the Section 7 consultation process. Use the Mapper as a first step in determining if a proposed federal action area overlaps with listed species or critical habitat presence. In cases where neither the direct nor the indirect effects of an action will extend into an area of species presence or critical habitat, and thus listed species and critical habitat will not be exposed to any effects of the action, the Action Agency may conclude the consultation process with a No Effect determination (see our [Guidance on Effects Determinations](#)²). The Section 7 Mapper indicates locations where species and/or critical habitat may be present, and thus a Section 7 consultation is likely recommended. Consider various factors such as habitat type, sighting information, and project details when determining whether to consult. For projects of larger scale and longer duration, we may consider effects to all of our listed species, including extralimital occurrences, during consultation. However, based on the nature and extent of direct and indirect effects of the proposed action, it

¹ <https://www.fisheries.noaa.gov/content/how-submit-consultation-request-southeast>

² <https://www.fisheries.noaa.gov/southeast/consultations/section-7-consultation-guidance>

does not necessarily mean all activities within the indicated Section 7 Service Area or Consultation Area(s) need consultation. For example, a proposed action may be so minor or limited due to minimization measures, and/or of such a brief duration, and/or occur when species are not present, that the Action Agency determines there are no effects of the proposed project on listed species.

Data Limitations

Due to data limitations, if your project is outside of a major waterway (e.g., in a very small tributary, or shallow area near a marsh), the polygons representing our listed species' distribution may lack the spatial resolution to capture your action area. If you follow the steps below and no listed species or critical habitat are shown to overlap with your action area, you may want to extend the action area into the nearest major waterway (e.g., main channel of a river) to be certain that we do not expect any listed species or critical habitat to be in your action area. You are welcome to ask for technical assistance to verify your findings in the Section 7 Mapper. If you know of more recent information that is not reflected in our data, please [Contact Us](#)³ so that we can make the appropriate updates.

Rendering Speed

We have attempted to optimize the underlying Section 7 Consultation Area data to render (display) efficiently and are continually working to improve program performance. Please be patient if the Mapper is running slow.



The bottom right corner of the screen features the Map Loading indicator. When visible, this symbol indicates the map is still loading data layers. Once the symbol disappears, all data layers have been drawn in the current map extent.

Various factors contribute to data rendering and analysis speeds, including but not limited to: the available memory your machine or web browser has for processing data; the size or complexity of action area shapes drawn; analysis in the vicinity of highly complex coastlines; analysis in the vicinity of many overlapping Consultation Area polygons. If you have any recommendations on how to improve this App, please [Contact Us](#)⁴.

Definitions

Action Area: According to the ESA, the action area is “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action” (50 CFR § 402.02). The full action area includes the project area and all surrounding areas that may be affected by the project.

³nmfs.ser.esa.consultations@noaa.gov

⁴nmfs.ser.esa.consultations@noaa.gov

Critical Habitat: According to the ESA, critical habitat is defined as “(i) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 4 of this Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 4 of this Act, upon a determination by the Secretary that such areas are essential for the conservation of the species.”

Critical Habitat Layers: The Section 7 Mapper uses critical habitat layers published by the NOAA Office of Protected Resources [National ESA Critical Habitat Mapper](#).⁵ For Atlantic and Gulf sturgeon, additional Consultation Area layers have been added to the Section 7 Mapper that approximate the extent of critical habitat. The critical habitat layers in the Section 7 Mapper are based upon regulatory boundaries. Where critical habitat is only defined as a linear feature, we must extrapolate the feature to a polygon to perform overlap analyses properly. The Atlantic sturgeon critical habitat designation (82 FR 39160) offers the following parameters to define the extent of critical habitat in designated river units: “Riverbanks are the lateral boundaries. The downriver boundary is the mouth of the river... The upriver boundary is the beginning of the named river, a manmade structure that is impassable by sturgeon, a natural feature that is impassable by sturgeon, or the upriver extent of tidal influence...” (p. 39179). We have approximated the spatial extent of each critical habitat river unit in the Mapper using double-bank river polygons found in the National Hydrography Dataset. We acknowledge the uncertainty of where the ordinary high water mark is found along the main stem river. A similar approach is used for rivers designated Gulf sturgeon freshwater critical habitat, although those waters are within the jurisdiction of the U.S. Fish and Wildlife Service.

Project Area: The immediate area where the project is occurring. ESA Section 7 consultations are necessary not only for the project area, but for the larger action area, defined as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action” (50 CFR § 402.02).

SERO River Kilometers (RKMs): A standardized river kilometer (RKM) measurement method developed by SERO for major rivers in our jurisdiction. We generated our own standard river kilometer measurements using the National Hydrography Dataset (NHD). See the Source/SERO RKM [FAQs](#) in the [Understanding the Data](#) section below for more information.

Section 7 Consultation Areas (S7CAs): The collection of polygons (areas) where SERO recommends Section 7 consultations based on the spatial and temporal occurrence of listed species’ life stages, behaviors, and/or critical habitat within SERO’s jurisdiction. Consultation Areas are

⁵ <https://www.fisheries.noaa.gov/resource/map/national-esa-critical-habitat-mapper>
Last Updated: 09/29/2023

within the species range, but may not include areas of extralimital occurrence.

Section 7 Service Area: A broad approximation of all the waterways where you may need to undergo a Section 7 consultation in the Southeast Region. The Section 7 Service Area is only displayed when the map is zoomed out too far to display details of individual Consultation Areas.

Source RKMs: River kilometer references used in various scientific literature. Note: there is no standardized method amongst researchers for measuring river kilometers, so the river kilometers featured in one paper might not be consistent with another paper. See the [Source/SERO RKM FAQs](#) in the [Understanding the Data](#) section below for more information.

Understanding the Data

The Section 7 Mapper features data layers specific to the animals we protect under the ESA, including Bony Fishes (grouper, sturgeons), Cartilaginous Fishes (sharks, rays, sawfish), Corals, Conch, Large Whales, and Sea Turtles. The Mapper also includes data layers depicting areas In Critical Habitat designations.

Additional detail on the species under NOAA Fisheries jurisdiction, listed as threatened or endangered, and designated critical habitat located in the Southeast Region (North Carolina through Florida, the Gulf of Mexico, and the U.S. Caribbean) is located on our [Species and Critical Habitat found in the Southeast Region](#)⁶ web page.

We created the Section 7 Consultation Areas using the best available scientific and commercial information (e.g., peer-reviewed journals, sightings data, trawling data, and personal communication with species experts).

Listed Species Groups

The following datasets include Section 7 Consultation Areas for the species listed.

Conch

The dataset includes recommended Consultation Areas for Queen conch (*Aliger gigas*).

Corals

The dataset includes recommended Consultation Areas for elkhorn (*Acropora palmata*), staghorn (*A. cervicornis*), lobed star (*Orbicella annularis*), mountainous star (*O. faveolata*), boulder star (*O. franksi*), pillar (*Dendrogyra cylindrus*), and rough cactus corals (*Mycetophyllia ferox*).

⁶ <https://www.fisheries.noaa.gov/southeast/consultations/threatened-and-endangered-species-and-critical-habitats>
Last Updated: 09/29/2023

Sea Turtles

The dataset includes recommended Consultation Areas for the North Atlantic and South Atlantic DPSs of green (*Chelonia mydas*), Kemp's ridley (*Lepidochelys kempii*), hawksbill (*Eretmochelys imbricata*), leatherback (*Dermochelys coriacea*), and the Northwest Atlantic Ocean DPS of loggerhead (*Caretta caretta*) sea turtles.

Sharks, Rays, and Sawfish (Elasmobranchs - Cartilaginous Fishes)

The dataset includes recommended Consultation Areas for oceanic whitetip shark (*Carcharhinus longimanus*), the Central and Southwest Atlantic DPS of scalloped hammerhead shark (*Sphyrna lewini*), giant manta ray (*Mobula birostris*), and the U.S. DPS of smalltooth sawfish (*Pristis pectinata*).

Grouper and Sturgeons (Osteichthyes - Bony Fishes)

The dataset includes recommended Consultation Areas for Nassau grouper (*Epinephelus striatus*), Gulf sturgeon (*Acipenser oxyrinchus desotoi*), shortnose sturgeon (*A. brevirostrum*), and the Carolina, South Atlantic, Chesapeake Bay, New York Bight, and Gulf of Maine DPSs of Atlantic sturgeon (*A. oxyrinchus oxyrinchus*). Sturgeon data detail individual water features due to increased data availability and resolution relative to spatial scale.

Whales (Cetaceans)

The dataset includes recommended Consultation Areas for North Atlantic right (*Eubalaena glacialis*), blue (*Balaenoptera musculus*), fin (*B. physalus*), sei (*B. borealis*), Rice's (*B. ricei*), and sperm (*Physeter macrocephalus*) whales.

Consultation Area Summary

This medium-resolution summary layer displays the full, overlapping spatial extents of Consultation Areas for each species group. The reduced-resolution data renders more quickly at small scales, allowing users to preview impacted species groups for larger project areas. Users must still zoom in to view full Consultation Area details (individual species, life stages, behaviors, etc.).

Critical Habitat (lines and polygons)

Action Agencies must consider critical habitat as part of the Section 7 consultation process. Critical habitat layers are based upon regulatory boundaries. The Section 7 Mapper uses critical habitat layers published by the NOAA Office of Protected Resources [National ESA Critical Habitat Mapper](#).⁷

Critical habitat is designated for North Atlantic right whale, Atlantic and Gulf sturgeons,

⁷ <https://www.fisheries.noaa.gov/resource/map/national-esa-critical-habitat-mapper>
Last Updated: 09/29/2023

smalltooth sawfish, green, hawksbill, loggerhead, and leatherback sea turtles, elkhorn, staghorn, boulder star, lobed star, mountainous star, pillar, and rough cactus corals. Critical habitat is proposed for Nassau grouper, green sea turtle, and Rice's whale.

[A Note on Jurisdictions](#)

Under Section 7(a)(2) federal agencies must consult with NOAA Fisheries or the U.S. Fish and Wildlife Service (the Services) when any project or action they take might affect an ESA-listed marine species or critical habitat. The consultation process can vary depending on the complexity of the project or action. The Services have split jurisdiction based on species and area; therefore, your project may require consultation with another office within NOAA Fisheries or the U.S. Fish and Wildlife Service.

For actions that are wholly within a specific region of NOAA Fisheries, the federal action agency should contact the appropriate Regional Office. For actions that span two or more regions and/or are national or global in scope, the federal action agency should contact the Office of Protected Resources ESA Interagency Cooperation Division. For more information see [NOAA Fisheries' ESA Consultation](#)⁸ webpage.

[NOAA Fisheries Greater Atlantic Regional Fisheries Office](#)

NOAA Fisheries Greater Atlantic Region (GARFO) in the Northwest Atlantic encompasses the large marine ecosystem from Maine through Virginia; the Great Lakes; and the rivers and estuaries within this range. Multiple ESA-listed species and certain critical habitats cross the regional boundary for SERO and GARFO and each office conducts separate consultations for their area of responsibility. If your action area potentially affects listed species in the Greater Atlantic Region (north of the North Carolina-Virginia coastal border), consult the [Greater Atlantic Region ESA Section 7 Mapper](#)⁹.

[U.S. Fish and Wildlife Service](#)

In the Southeast Region, the Services have split jurisdiction for sea turtles and Gulf sturgeon. We divide Section 7 consultation responsibility for these species and their critical habitat based on project location. Even if your project does not affect a species or critical habitat in an area under NOAA Fisheries jurisdiction, you may still need to consult with the U.S. Fish and Wildlife Service. Please see: [U.S. Fish and Wildlife Service Information and Planning for Consultation](#)¹⁰

[Frequently Asked Questions](#)

[What is the difference between S7 Consultation Areas and Critical Habitat?](#)

Section 7 Consultation Areas represent locations where consultations are recommended due to the

⁸ <https://www.fisheries.noaa.gov/topic/consultations#endangered-species-act-consultations>

⁹ <https://www.fisheries.noaa.gov/resource/map/greater-atlantic-region-esa-section-7-mapper>

¹⁰ <https://ecos.fws.gov/ipac/>

spatial and temporal occurrence of listed species' life stages, behaviors, and/or critical habitat in our Region. Consultation Areas are within the species range, but may not include areas of extralimital occurrence.

Critical habitat is defined as¹¹ “specific areas within the geographical area occupied by the species at the time of listing that contain physical or biological features essential to conservation of the species and that may require special management considerations or protection; and specific areas outside the geographical area occupied by the species if the agency determines that the area itself is essential for conservation.”

Section 7 Consultation Areas may include designated critical habitat for a listed species; however, they more broadly define where a listed species could be affected due to its seasonal or year-round presence at a given life stage, exhibiting a specific behavior (foraging, maturing, nesting, calving).

Critical Habitat in the Section 7 Mapper

Most critical habitat in the Section 7 Mapper is displayed using regulatory defined boundaries from the NOAA Office of Protected Resources National ESA Critical Habitat Mapper.¹² However, some critical habitat features are defined as a linear reach of a river. For the Mapper's overlay tools to work properly, these linear features were extrapolated to an area (polygon).

For example, the Atlantic sturgeon critical habitat designation (82 FR 39160) offers the following parameters to define the extent of critical habitat in designated river units: “Riverbanks are the lateral boundaries. The downriver boundary is the mouth of the river... The upriver boundary is the beginning of the named river, a manmade structure that is impassable by sturgeon, a natural feature that is impassable by sturgeon, or the upriver extent of tidal influence...” (p. 39179).

We have approximated the spatial extent of each critical habitat river unit in the Mapper using double-bank river polygons found in the National Hydrography Dataset. We acknowledge this can be near critical habitat in certain cases due to the uncertainty of where the ordinary high water mark is found along the main stem river. A similar approach is used for rivers designated Gulf sturgeon freshwater critical habitat, although those waters are within the jurisdiction of the U.S. Fish and Wildlife Service.

What are SERO RKMs? What are Source RKMs?

Presence, behavior, and habitat information for anadromous species, like sturgeons, are commonly described with River Kilometer (RKM) references, or linear distances measured upstream from the river's mouth or confluence with another major waterway. RKMs are used to define the typical upstream or downstream extent of a phenomenon.

¹¹ <https://www.fisheries.noaa.gov/national/endangered-species-conservation/critical-habitat>

¹² <https://www.fisheries.noaa.gov/resource/map/national-esa-critical-habitat-mapper>

Consultation Area data covering river zones includes two sets of River Kilometer measurements: SERO and Source. We initially collected RKM information on sturgeon by reviewing published research papers. These measurements are recorded as Source RKMs. While surveying the literature, we recognized that researchers use different methods for measuring RKMs or do not describe how RKM values were measured. Sometimes RKMs were measured along the same river using different origins. We found no standardized method for measuring river kilometers across the entire SERO region.

To unify measurements and account for these differences we developed the standardized SERO RKMs using the National Hydrography Dataset (NHD). We have included a description of our methods for creating the SERO RKMs in the metadata for the Section 7 Consultation Areas geodatabase. To convert from Source RKMs to SERO RKMs, we compared the location of the Source RKMs based on maps and descriptions of fixed features provided in the research papers to the same location as measured by SERO RKMs.

While we request that you use SERO RKMs in your Biological Assessment, we have made the Source RKMs available for reference.

How the Mapper Can Support Your Biological Assessment

The Section 7 Mapper is a tool designed to aid you in the Section 7 consultation process and does not take the place of a Section 7 consultation. If there are listed species or critical habitat potentially present in your action area, the Mapper helps you identify the species as well as a number of other characteristics necessary for your Biological Assessment, including the species' listing status and other location-specific information.

The Mapper can produce a report summarizing the information necessary for the “ESA-Listed Species and Critical Habitat in the Action Area” section of your Biological Assessment. We encourage you to use a table similar to the one included in [Appendix I](#) in your Biological Assessment to initiate your Section 7 consultation. The table details the information needed within the “ESA-Listed Species and Critical Habitat in the Action Area” section of the Biological Assessment. The subsequent sections explain how to access the data needed to complete this table.

Overview of the Mapper Interface

Home Screen

When you open the Section 7 Mapper, you will see a splash screen that briefly discusses the data limitations and how to find this User Guide. Read the splash screen. Click **OK** once you finish to dismiss the screen.

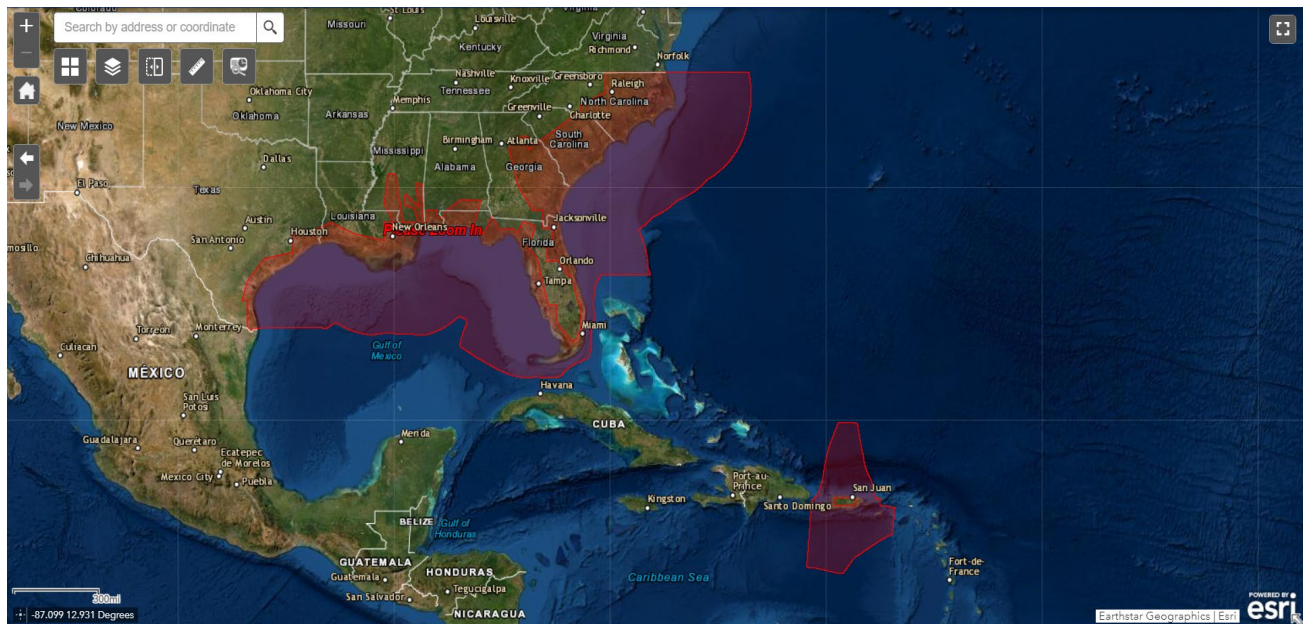


Figure 1. After reading and dismissing the splash screen, the Mapper will display the Southeast Region Section 7 Service Area

A red polygon (Figure 1) identifies the Southeast Region’s Section 7 Service Area. Actions affecting waterways within this Service Area are within the Southeast Region’s jurisdiction and may need to undergo a Section 7 consultation.

We do not have jurisdiction on land, so if your project is solely on land and has no direct/indirect effects on marine/riverine habitats where listed species and/or critical habitat are present, then you do not need to consult with us. See [A Note on Jurisdictions](#) in the [Understanding the Data](#) section above for more information.

As you zoom in, the transparent red Section 7 Service Area polygon will be replaced by the Consultation Area Summary layer. Zooming in further will reveal the fully detailed Consultation Area polygons.

Tool Functions

Tools for Getting Help



The top right corner of the screen features the More Information icon. Clicking this button reveals a panel with general Mapper information, a summary of this User Guide and links to the full version, contact information, and additional resources.

Map Loading Indicator








The bottom right corner of the screen features the Map Loading indicator. When visible, this symbol indicates the map is still loading data layers. Once the symbol disappears, all data layers have been drawn in the current map extent.

Tools for Navigating the Map

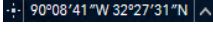



The top of the screen features several tools (Table 1) for interacting with the Mapper and changing the map view.

Table 1. Navigation tools located in the upper left corner of the screen

Tool	Name	Function
	Zoom (Top Left)	Zooms in or out on the map. The scroll wheel on your mouse will also zoom in or out.
	Home (Top Left)	Returns the map to its original view.
	Full Screen (Top Right)	Enables full-screen mode. Press Esc to exit.
	Previous Extent / Next Extent (Top Left)	As you change the view of the map, these buttons will return the map to the previous map extent or forward to the next map extent.
	Search Bar (Top Left)	Searches for a location based on the address, city, zip code, or latitude/longitude coordinate pair entered in the adjacent search bar. Clicking the X in the search bar clears the search results.

The bottom the screen features tools (Table 2) that provide spatial context for the current map view, including geographic coordinates, scale, and an overview window.

Table 2 Spatial context tools located along the bottom of the screen.






Tool	Name	Function
	Coordinate Identifier (Bottom Left)	Shows a running display of the longitude and latitude at location of the mouse pointer on the map. Click the ^ arrow to change between Decimal Degrees (DD), Degrees Decimal Minutes (DDM), or Degrees Minutes Seconds (DMS) format.
	Coordinate Marker (Bottom Left)	Enable this tool by clicking the icon to the left of the Coordinate Identifier. The Coordinate Marker will turn blue. Click any location on the map to place a marker; the Coordinate Identifier will display and hold the coordinates of the placed marker.
	Scale bar (Bottom Left)	Displays the current map scale, and updates dynamically as the map's scale changes.
	Overview (Bottom Right)	Reveals a small window placing the current map extent within the context of a larger area, and updates as the map view changes.

Tools for Exploring Section 7 Consultation Areas near your Action Area

The Southeast Region Mapper includes Section 7 Consultation Areas for 28 listed species and Distinct Population Segments, many of which also have designated critical habitat. Although the number of map layers is reduced by grouping information for related species, the amount of overlapping data is often visually complex.

Several tools (Table 3) at the upper left corner of the screen can assist with viewing and understanding the Section 7 Consultation Area data layers. They allow you to change the underlying basemap, turn layers on or off, reorganize the order in which map layers are drawn, or generate a report of Consultation Areas overlapping your action area.

Table 3. Data visualization and analysis tools located along the top left corner of the screen.

Tool	Name	Function
	Change Basemap (Top Left)	Reveals additional basemap options. Click once to reveal the basemap gallery. Click on an option to replace the current basemap. Basemaps provide contextual information drawn under the map data layers and are often designed to highlight a specific theme, such as road names, aerial imagery, elevation and depth, nautical charts, etc. Due to the variety in visual styles, some basemap options may make it easier or harder to view the Consultation Area data in an area. Note: The basemaps are for context only. They should not be used to infer any information about habitat or Submerged Aquatic Vegetation (SAV).
	Toggle S7 Consultation Areas (Top Left)	Reveals a list of map layers with their associated legend symbols. Checked layers are visible; unchecked layers are hidden. Data layers are listed in the order in which they are drawn on the map. Click the ellipses next to the layer name to adjust the display. Click “Transparency” to make the layer more or less transparent. Click “Move up” or “Move down” to change the drawing order of the data layers.
	Swipe (Top Left)	Allows you to compare different layers in the map. Click once to enable Swipe. Use the drop-down list to select which data layers to swipe. Slide the swipe tool across the map to clear the selected data layers from the display, revealing only the unselected layers (or basemap) underneath.
	Measure (Top Left)	Reveals options for estimating distance, area, and coordinates in various units.
	Draw Your Action Area Tool (Top Left)	This is the primary tool for reviewing S7 Consultation Areas overlapping your Action Area. Opens the Draw Your Action Area dialog, used for drawing your action area on the map and generating a report of overlapping S7 Consultation Areas.

Locating Features

To use the Section 7 Mapper to identify which listed species or critical habitat may be impacted by your project, first locate your project area.

Search Toolbar

The Search Toolbar is a dynamic tool which can be used to search for locations by longitude/latitude coordinate pairs, address, or geographic features.

Search by Coordinates

If you know the coordinates of your project area, enter them in the Search Toolbar. Enter longitude first, then latitude, separated by a comma. Remember, longitudes in the western hemisphere are negative values. When typing in the longitude and latitude, we recommend using decimal degrees, (e.g., -73.9450, 41.9830).

Search by Address

You can type an address into the Search Toolbar. Formatted address suggestions will pre-populate as you type. You can also search for broader geographies, like cities, counties, or states.

Search by Geographic Feature

You can use the Search Toolbar to search for major geographic features (e.g. Waccamaw River, Pamlico Sound).

Identifying the Geographic Coordinates of your Project Area

SERO requires that you include the geographic coordinates of your project area in your Section 7 consultation. To learn the longitude/latitude coordinate pair of your project area, first use the navigation tools to focus the map view on your project area: search by address or geographic feature; click and drag to pan; and/or use the Zoom tools or the scroll button on your mouse.

With the project area in the map view, click to enable the Coordinate Marker tool. The Coordinate Marker will turn blue. Click again at the center of your project area to place a marker. The Coordinate Identifier will display and hold the coordinates of the placed marker.

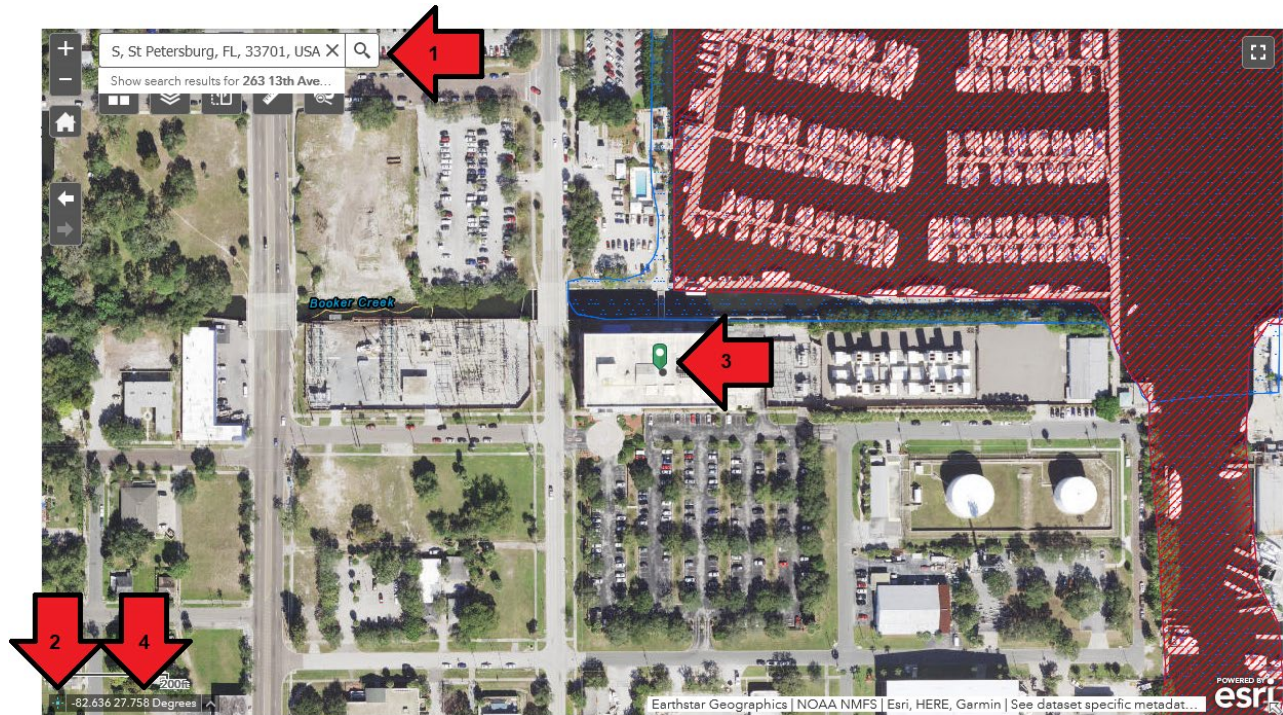


Figure 2. Using the Coordinate Marker tool to learn the coordinates of your project area.

Measuring Distance and Area

Estimate the size or length of your action area and surrounding waterways using the Measure tool. Click the Measure icon to reveal the Measure window. Drag the blue title bar to reposition this window for optimal viewing.

Measuring Distance

To measure the width of a waterway or distance between features, click on the Distance icon. If desired, use the drop-down menu to change the distance units. (We recommend meters.) Click the map to place corners of your measurement path. After placing 2 or more corners, the window will display the length of the drawn path. Double-click to place a final corner and complete the measurement.

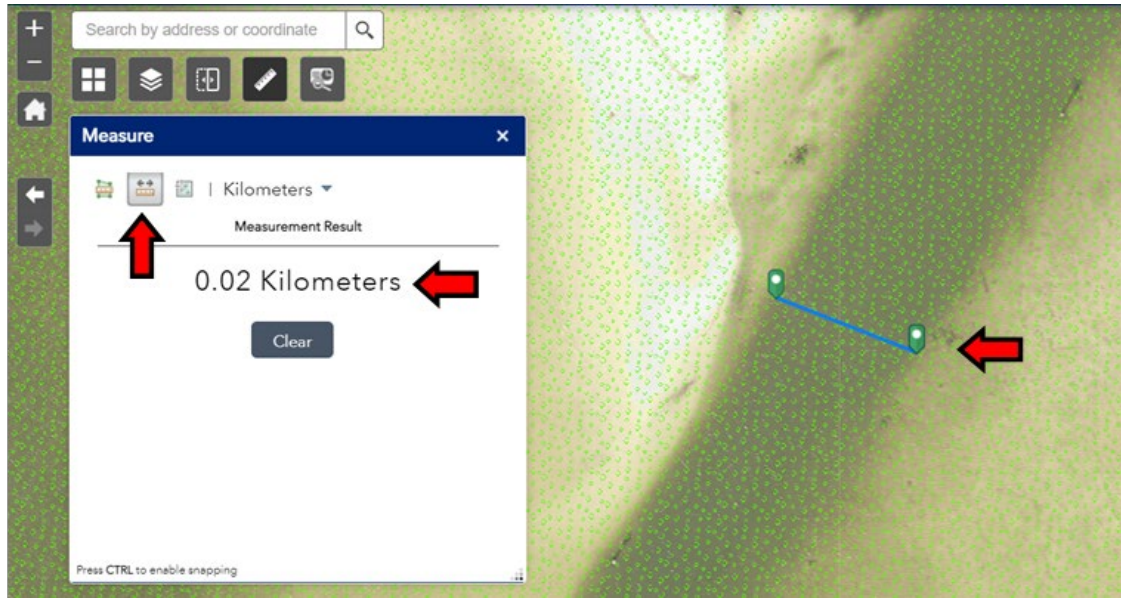


Figure 3. Measuring Distance

Measuring Area

To measure the size of your project area or other feature, click the Area icon. If desired, use the drop-down menu to change the area units. Click the map to place corners of your measurement shape. After placing 3 or more corners, the window will display the area of the drawn shape. Double-click to place a final corner and complete drawing the measurement shape.

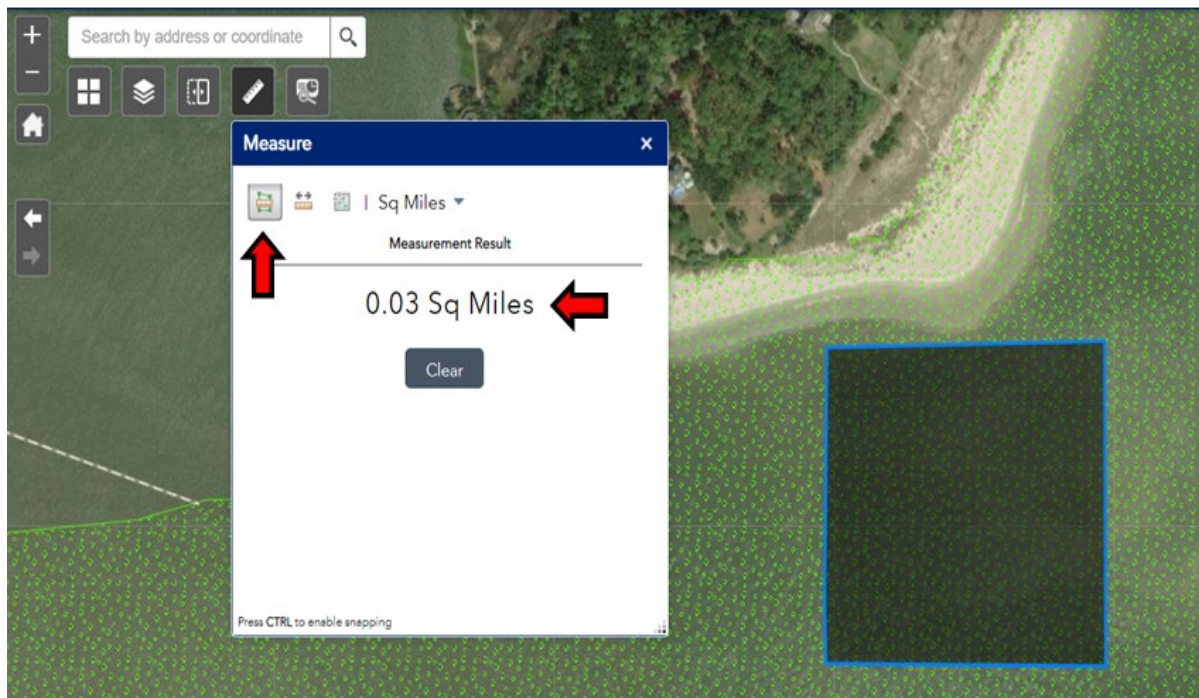


Figure 4. Measuring Area

Defining Your Action Area

The key function of the Section 7 Mapper is to identify all Consultation Areas that overlap a user-defined action area and generate a report of the ESA-listed species and critical habitat to be addressed in the Biological Assessment.

Before starting, ensure that a proposed action area has been identified for the project. The action area is defined as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action” (50 CFR § 402.02). Therefore, the full action area includes the immediate project area and all surrounding areas that may be affected by the project. For further guidance on establishing the parameters of an action area, refer to the [NOAA Fisheries SERO Section 7 Consultation Guidance](#)¹³ webpage.

The Draw Your Action Area tool offers three methods for entering your project area on the map: (1) using the Draw tools, (2) uploading a zipped shapefile, and (3) entering coordinates. An equal-distance buffer can then be set to expand the project area in every direction to include all areas that may be directly or indirectly affected by the proposed Action.

Considerations for Drawing Action Areas vs Project Areas

In the following examples, we assume the user will enter the immediate project area and use the Buffer tool to identify the action area (i.e. all areas directly or indirectly affected). An alternative approach would be to enter the fuller action area into the Mapper and use the Buffer tool to account for any spatial error or uncertainty about the extent of affected areas.

Draw Your Action Area

Click the Draw Your Action Area tool to enable it. Drag the blue header of the panel to relocate it for optimal viewing. To draw your project area on the map, select the Draw option (Figure 5).

Choose a draw mode (Table 4) to begin defining your project area. Draw the project area boundaries on the map.

After drawing your project area, specify the buffer distance necessary to include all areas directly or indirectly affected, representing the fuller action area. (See Figure 6.) Click “Preview Results.”

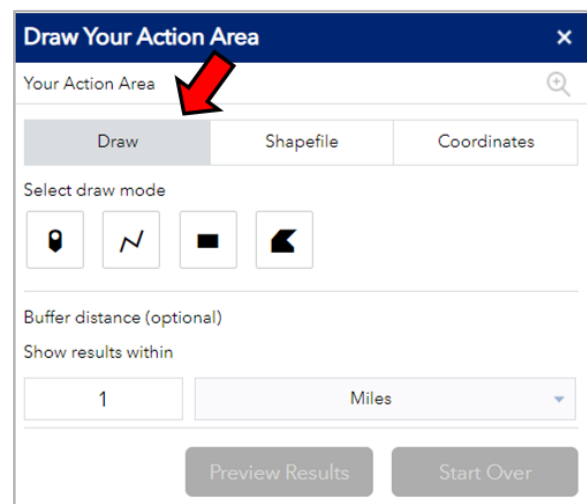






Figure 5. After choosing the Draw option, select the preferred draw mode to enter the project area boundaries on the map.

¹³ <https://www.fisheries.noaa.gov/southeast/consultations/section-7-consultation-guidance>

Table 4. Four draw modes are available when defining the project area.

Tool	Name	Function
	Point	Click once on the map to place a point at the central location of the project area.
	Polyline	Click once on the map to place the starting point of a path. Click elsewhere to add additional corners in sequence. Double-click to place the endpoint of the line.
	Extent	Click and hold to place the first corner of a rectangular project area. Drag to expand to the desired extent. Release the mouse to place the opposite corner of the rectangle.
	Polygon	Click a point on the map to place the first corner of the project area. Click elsewhere to place additional corners in sequence. Double-click to place the final corner and close the polygon.

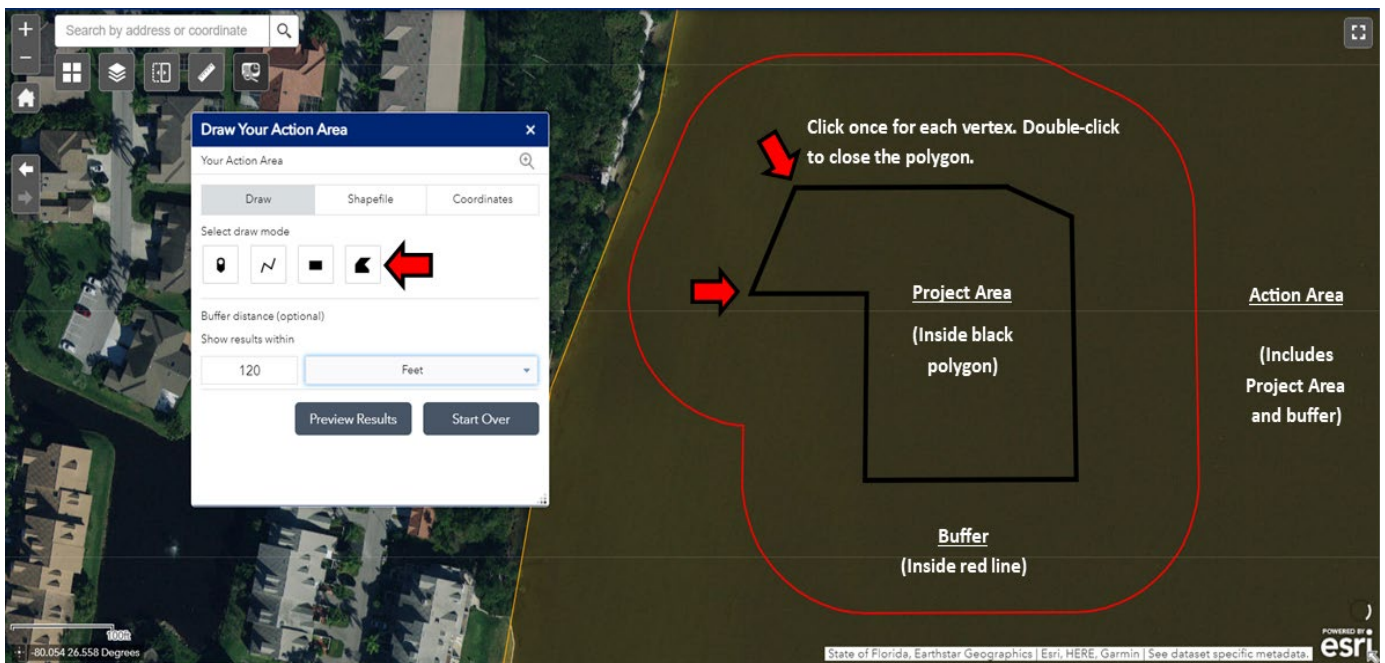


Figure 6. An example of a project area drawn using polygon mode with a 120 foot buffer.

Upload a Shapefile of Your Project Area

Click the Draw Your Action Area tool to enable it. Drag the blue header of the panel to relocate it for optimal viewing.

To upload a boundary shapefile of your project area to the map, select the Shapefile option (Figure 7). Click “Upload” and select the desired file from your computer. Click “OK” to begin uploading. All shapefile components must be included in a single, compressed .ZIP file. To reduce rendering and analysis speeds, we recommend the shapefile be simplified to include the outermost project boundaries only.

Specify the buffer distance necessary to include all areas directly or indirectly affected, representing the fuller action area. (See Figure 8.) Click “Preview Results.”

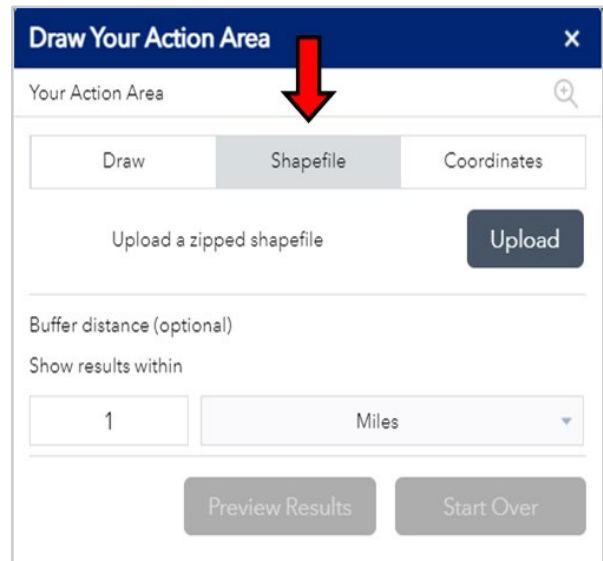


Figure 7. To upload a zipped shapefile of your project area boundary to the map, select Shapefile from the Draw Your Action Area panel

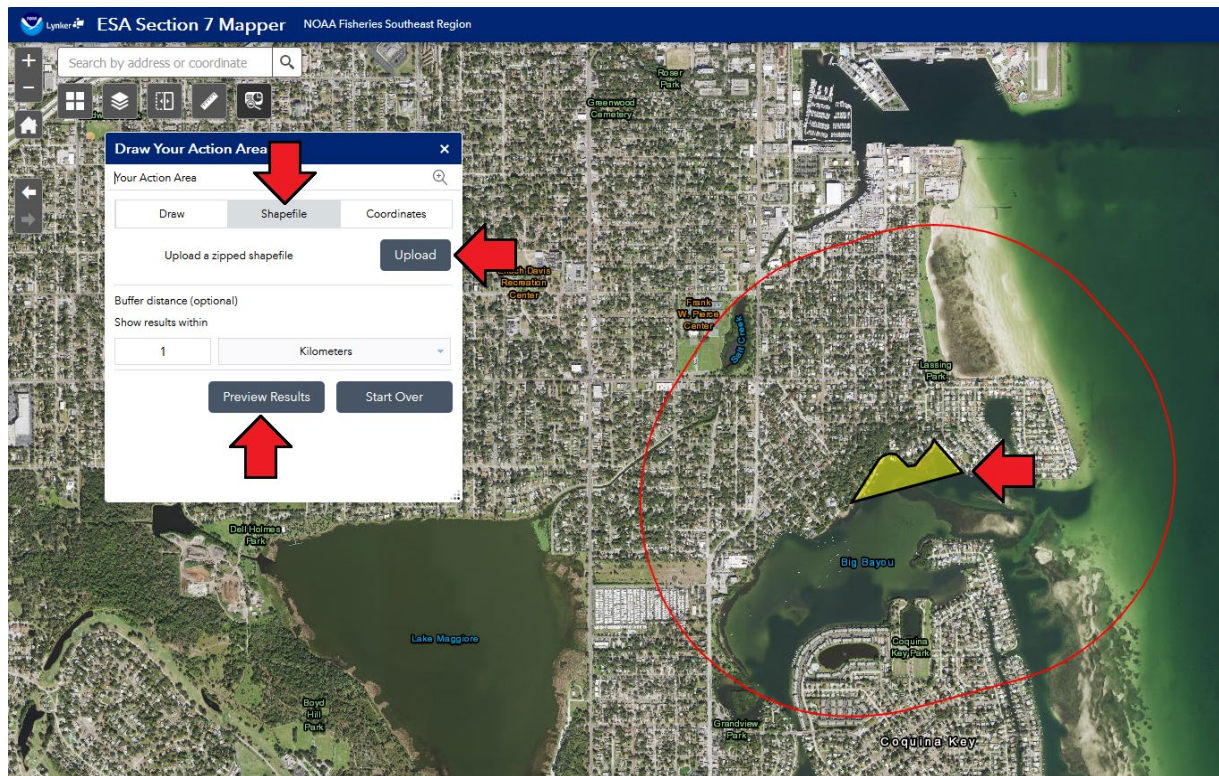


Figure 8. An example of a project area boundary shapefile uploaded to the Mapper.

Enter Your Project Area by Coordinate

Click the Draw Your Action Area tool to enable it. Drag the blue header of the panel to relocate it for optimal viewing.

To enter your project area using geographic coordinates, select the Coordinates option. Enter an address in the search bar to geocode the address, or enter Latitude and Longitude in the designated fields and click “Locate.” (We recommend Decimal Degrees format. Remember longitudes in the Western hemisphere have negative values.) Optional fields are available for adding subsequent points based on a bearing and distance from the starting location. (See Figure 9).

Specify the buffer distance necessary to include all areas directly or indirectly affected, representing the fuller action area. Click “Preview Results.”

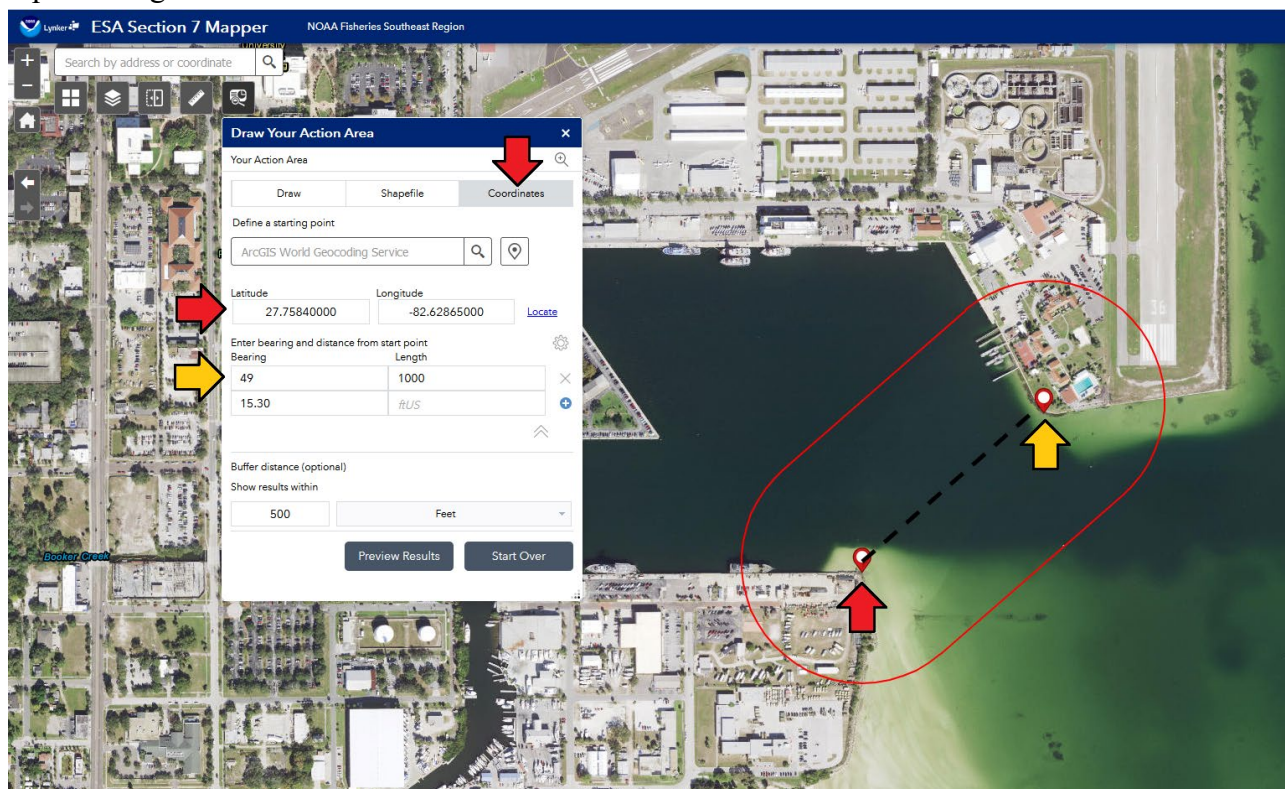


Figure 9. An example of a project area defined by bearing/distance from a starting coordinate.

Buffer Distance Feature

Each Draw Your Action Area method offers the ability to apply a buffer, extending the area you have drawn equally in all directions.

Regardless of which method is used to define the project area on the map, the action area **must** account for all effects of the proposed action and any uncertainty about the extent of the project (e.g., the planning stage of the project, the quality of project data, etc.). It is also possible that Consultation Areas lack the spatial resolution to capture the project area. The buffer distance

feature should be used to account for all effects of the proposed action, any project uncertainty, and the limited resolution of Consultation Areas.

The Draw tools can be used to approximate the footprint of the proposed action. The buffer distance should then be applied to expand the area to include the maximum extent of all effects of the proposed action, account for any uncertainty in the size/location of the project, and compensate for the spatial resolution of the underlying Consultation Areas. (An alternative approach would be to enter the fuller action area directly into the Mapper and use the Buffer tool to account for any spatial error or uncertainty about the extent of affected areas).

Once the project area and buffer distance is established in the Mapper, the buffer will appear as a solid red outline (see Figures 6, 8, or 9). The Mapper's overlay analyses are conducted on this buffered area.

Redrawing Your Action Area

If you find that you have made an error when entering your project area or action area into the Mapper, click the Start Over button. Any entered boundary will be removed, and you can redraw your area.

Identifying the ESA-Listed Species and Critical Habitat in Your Action Area

The main purpose of the Section 7 Mapper is to determine which protected species and critical habitat may be present in your action area. This information will be needed for your Biological Assessment. If you are looking for technical assistance to verify your findings from the Mapper, please [Contact Us](#)¹⁴.

Finding Listed Species within Your Action Area

Once you have entered your action area into the Mapper using the Draw Your Action Area tools, click "Preview Results" (Figure 10) to determine the species and critical habitat that may be present within the action area.

¹⁴ nmfs.ser.esa.consultations@noaa.gov
Last Updated: 09/29/2023

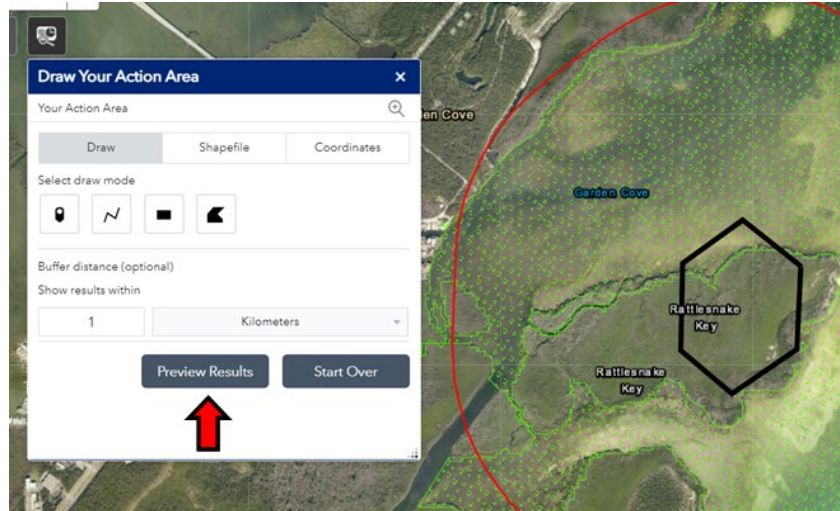


Figure 10. Click the *Preview Results* button to review the listed species and critical habitat potentially present in your action area.

The Mapper will begin analyzing overlapping Consultation Areas. The window will display a list of the listed species groups, as well as critical habitat, corresponding to the data layers available in the main map panel. A loading symbol appears next to each row as long as the Mapper is still analyzing that map layer. As the overlap analysis is completed on each layer, the loading icon will be replaced with a number representing the count of related Consultation Areas overlapping the action area (Figure 11).

Note: This number does *not* represent the number of listed species found in the action area. Consultation Areas are drawn for each unique combination of species, life stage, and behavior. Therefore, multiple Consultation Areas may exist for a single species in a given location (zone).

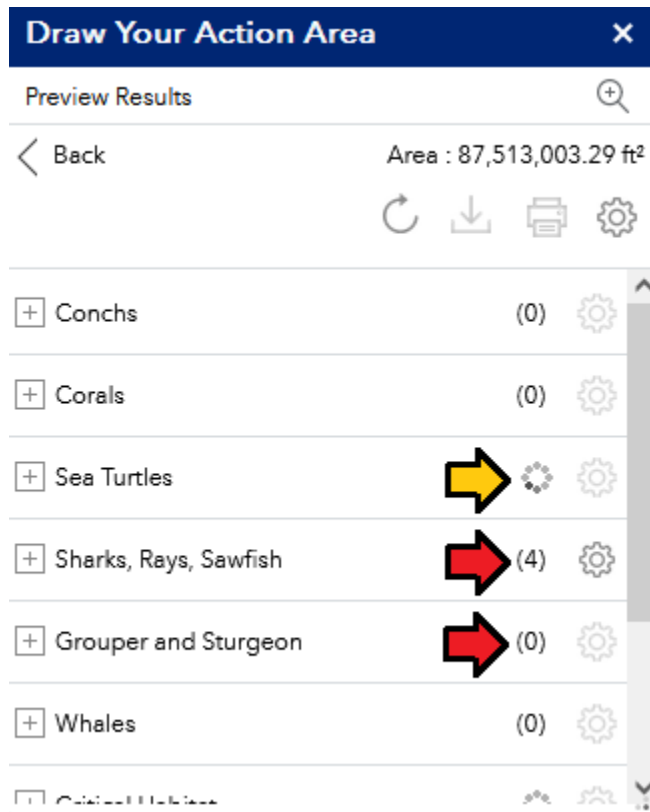


Figure 11. The Mapper identified 4 Consultation Areas related to Sharks, Rays, and Sawfish and 0 Consultation Areas for Grouper and Sturgeon (red arrows) in the action area. The Mapper is still analyzing the number of Consultation Areas related to Sea Turtles (yellow arrow).

Click and drag the bottom right corner of the results window to resize it, making its contents easier to view. Click the plus symbol next to a header to expand the table and reveal details on the life stages, behaviors, zones (waterbody), and seasonality for the overlapping Consultation Areas (Figure 12). There may be two sets of from/until dates for species that exhibit a behavior in two distinct seasons (e.g., Atlantic sturgeon spawning in the spring and the fall).

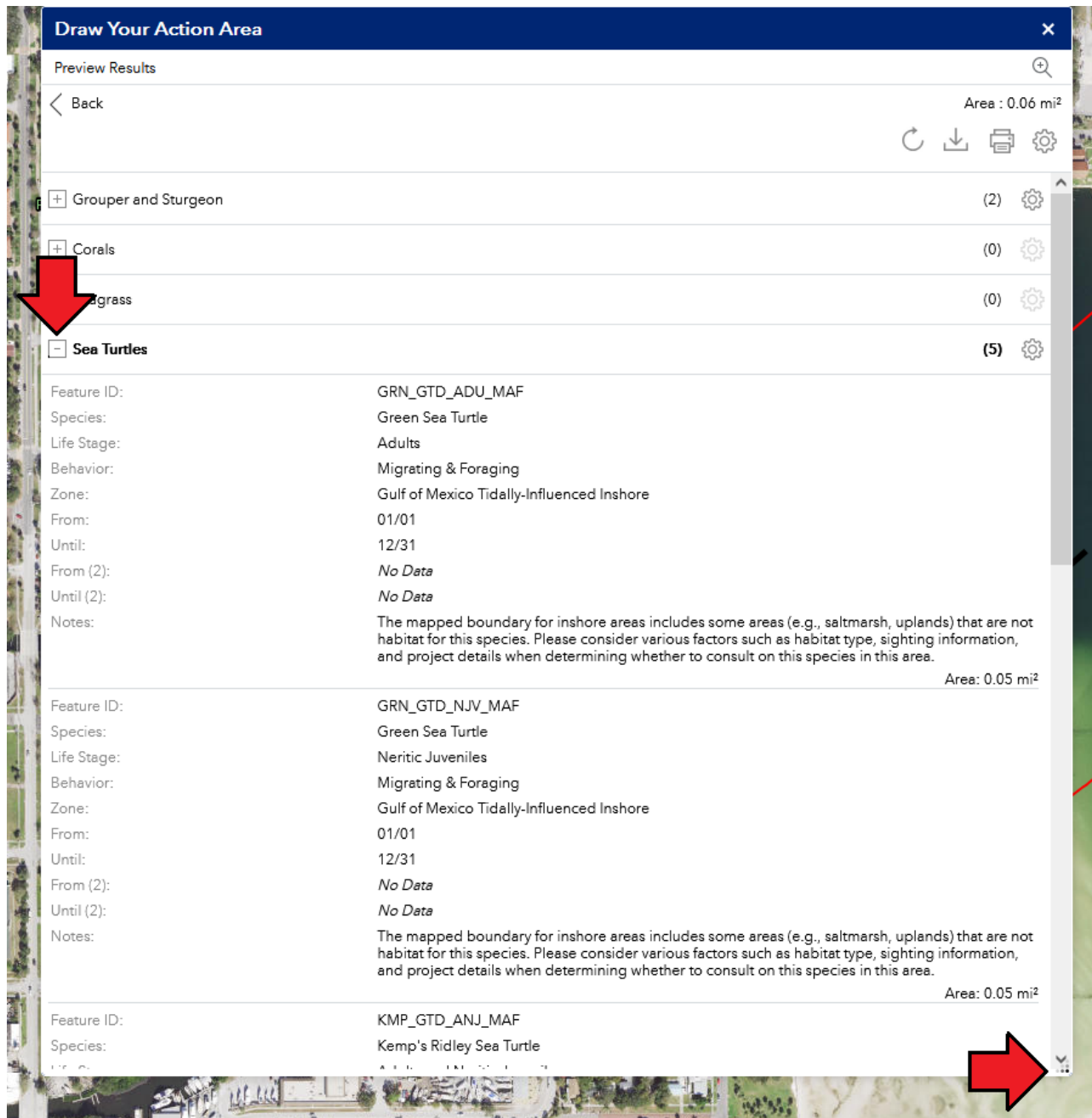


Figure 12. The bottom right corner re-sizes the results window. The plus symbol next to a data layer header expands the table to reveal details of Consultation Areas overlapping the action area. In this example the Sea Turtles header has been expanded.

Further Exploration of your Action Area (Optional)

You can explore which species and critical habitat units are in a portion of your action area by clicking directly on the map polygons, which display with symbology unique to each species group and may overlap (Figure 13).

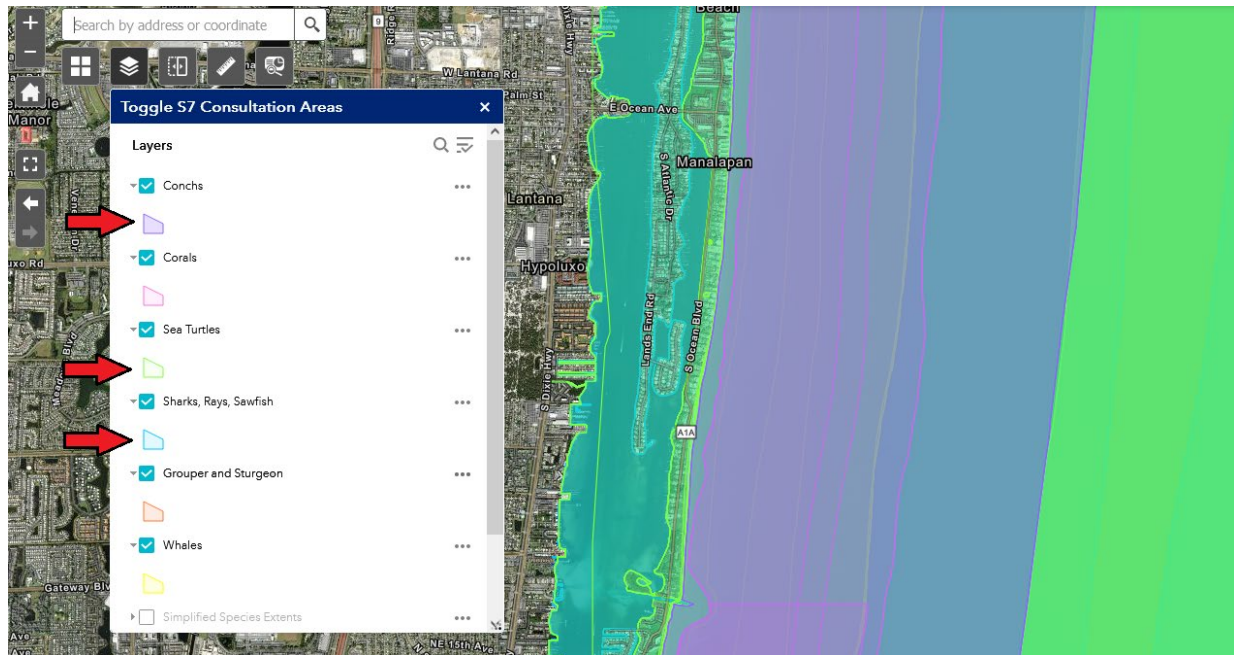


Figure 13. Arrows point to the symbology for each species group, which match the polygons displayed on the map. Uncheck the box next to a data layer to hide it from display. Click the ellipses next to the layer name to adjust its transparency or move it to draw above or below other layers. **Note: Transparency settings may cause overlapping polygon colors to blend or look different from the legend.**

After clicking a map polygon, a pop-up window (Figure 14) will display the:

- count of Consultation Areas at that location (green box);
- Consultation Area's species, life stage, behavior, and zone (blue box);
- Species scientific name, ESA listing status, and distinct population segment (DPS) (red box),
- Seasonality of the life stage and behavior in that zone (gold box),
- Federal Register and Recovery Plan citations (purple box),
- Applicable notes and sources (not pictured).

Click the right arrow (pink box) to see pop-ups for other Consultation Areas and critical habitat associated with the clicked location.



Figure 14. Details provided in the Consultation Area pop-up window. (See main text for details.)

Using this Information for Your Biological Assessment

After entering your action area in the Mapper and previewing your results, there are two options for exporting this information from the Section 7 Mapper for use in your Biological Assessment: generating a printable report and downloading a table. (See [Appendix I](#) for an example report and interpretation notes for a hypothetical action area off Cape Canaveral, FL.

Printable Report

To generate a report for your action area, click the Print icon (Figure 15, green box) within the preview results window. Select your desired page size and click Print. The resulting report can be saved as a PDF using your browser's Save as / Export / Print to PDF functions.

See [Appendix I](#) for notes on how to interpret the PDF Report.

Download Table

Click the Download icon (Figure 14, orange box), to download tables of the overlapping Consultation Area details. The table format is comma separated values (.CSV), which can be opened in Excel. Click Download again, which will download a separate table for each species group or critical habitat data layer with Consultation Areas overlapping your drawn action area.

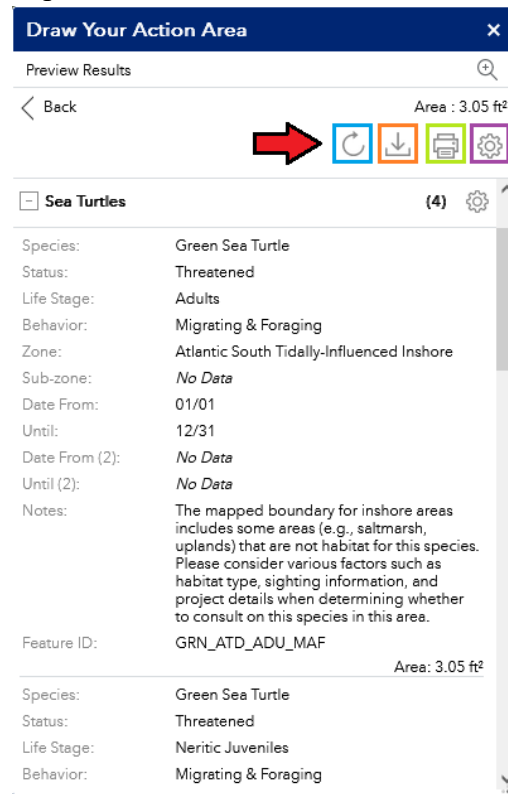


Figure 15. From the summary results window, you can refresh results (blue), download CSV tables (orange), print a report (green), and adjust settings (purple).

Note: Google Chrome may prompt you to allow the download of multiple files. If you have trouble downloading multiple CSV files (i.e., it appears that multiple ESA-listed species are in your action area, but only one CSV file downloads), you may have to adjust your pop-up settings. In Chrome:

1. Go to your Chrome Browser
2. Type in: `chrome://settings/`
3. Scroll to the bottom and click "Advanced"
4. Scroll down to the "Privacy and Settings" section
5. Click on "Content Settings"
6. Click on "Pop-ups"
7. And then Allow Pop-ups and/or add the following sites under "allowed":
 - <http://noaa.maps.arcgis.com>

Populating Your Biological Assessment

SERO requires summarizing all results in [SERO's Expedited Informal Consultation Template](#)¹⁵ and including a PDF of the printable report in the consultation package (titled report with S7 Mapper and the Project Name). The species and critical habitat information (found in Table 2 of the Expedited Informal Consultation Template) can be populated through the information in the report or CSV file.

Effects Analysis

When making an effects determination, consider all aspects of the proposed action by deconstructing each step and analyzing how each component of the action may affect each species (Life Stages, Behaviors) and critical habitat features in your action area. For technical assistance in preparing your effects analysis, visit the [Section 7 Consultation Guidance](#)¹⁶ page on our website. In addition, our Species and Critical Habitat Consultation Frameworks summarize the best available information on species life history, behavior, and distribution; critical habitat; activities and potential routes of effect; and recommendations for integrating recovery considerations into section 7 consultation practices.

Contact Us

For more information, please visit our website:

<https://www.fisheries.noaa.gov/southeast/endangered-species-conservation/esa-section-7-interagency-consultation-southeast-united-states>

If you have any further questions or recommendations on how to improve the Section 7 Mapper, please contact us.

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¹⁵ <https://www.fisheries.noaa.gov/southeast/consultations/expedited-informal-consultations>

¹⁶ <https://www.fisheries.noaa.gov/southeast/consultations/section-7-consultation-guidance>

Appendix I: ESA-Listed Species & Critical Habitat in a Sample Action Area

After drawing an action area, the results can be downloaded as a CSV file or printed report. The following example provides assistance in interpreting the results of the CSV and printed report for hypothetical action area off Cape Canaveral, FL. (Some layers are turned off to help illustrate example.)

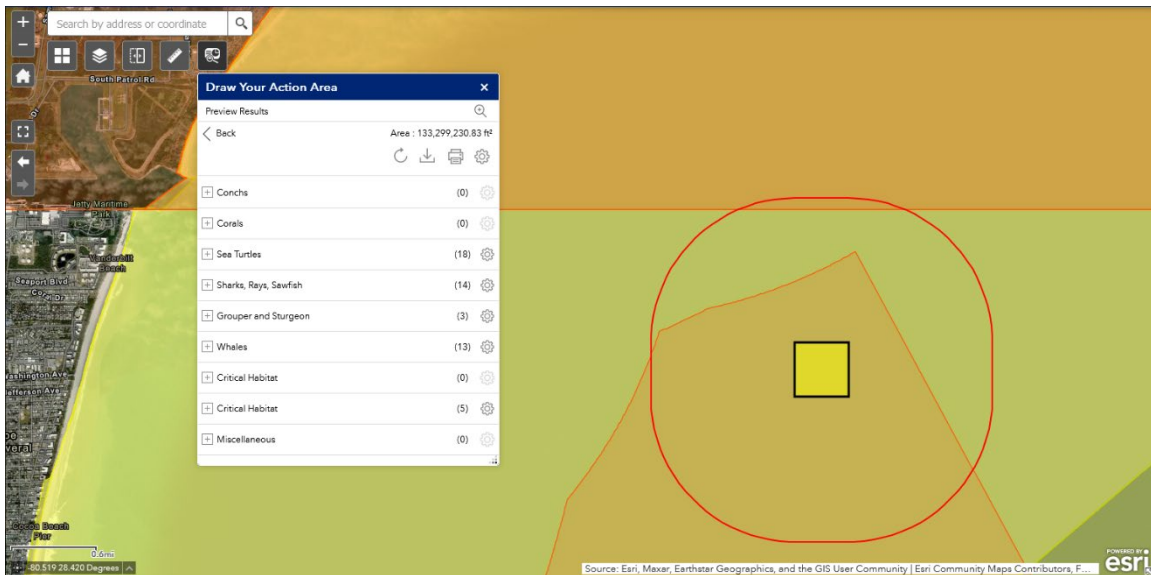


Figure 16. An example action area off Cape Canaveral Florida. Note the various results returned for each species group in parentheses next to the data layer header.

After clicking the download button, a CSV will automatically download for each of the species groups, critical habitat, and Seasonal Management Areas in the action area (Figure 17). Your browser may prompt you for permission to download multiple files.

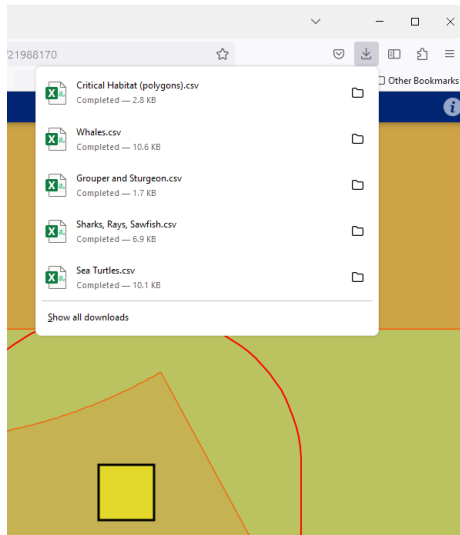


Figure 17. A separate CSV file will download for each species group in the action area.

Opening the CSV files in a spreadsheet program like Excel will display a table of Consultation Area details. Each column stores a specific set of information. Each row corresponds to a Consultation Area’s unique combination of species, zone, life stage and behavior. See Table 5 for information on each column.

Table 5. The column header and description from the downloadable CSV file.

Column Header	Description
UNIQUEID	Unique Species-Zone-LifeStage-Behavior Identifier
SPGROUP	High-level grouping of species
SPNAME	Common name of species affected within the feature
SPLATIN	Scientific (Latin) name of species affected within the feature
DPS	Distinct Population Segment (DPS) of species affected within the feature
ESASTATUS	Endangered Species Act listing status for identified species
FRCIT	Federal Register citation for species listing
RECPAN	Recovery Plan citation for species listing
LIFESTAGE	Species life stage affected within the feature
BEHAVIOR	Species behavior affected within the feature
WATERSHED	Major watershed name containing the feature
ZONE	Zone (river, estuary or marine waters) containing the feature
ZONEDIV	Subdivision description of the zone. Values may include upstream/downstream RKMs, coastal state or county names, or names of other subunits
SEASON1BEG	If the Consultation Area feature is only seasonally relevant, this field records the approximate start date of the relevant season
SEASON1END	If the Consultation Area feature is only seasonally relevant, this field records the approximate end date of the relevant season

Column Header	Description
SEASON2BEG	If the Consultation Area is only seasonally relevant, and there are multiple seasons (e.g., upstream migration, downstream migration), this field records the approximate start date of the relevant season occurring later in the year
SEASON2END	If the Consultation Area is only seasonally relevant, and there are multiple seasons (e.g., upstream migration, downstream migration), this field records the approximate end date of the relevant season occurring later in the year
RKMDNSER	The downstream river kilometer (RKM) of the Consultation Area feature, based on SERO's measurements of river distance
RKMUPSER	The upstream river kilometer (RKM) of the Consultation Area feature, based on SERO's measurements of river distance
RKMDNSRC	The downstream river kilometer (RKM) of the Consultation Area feature, based on the primary source's (not SERO) measurements of river distance
RKMUPSRC	The upstream river kilometer (RKM) of the Consultation Area feature, based on the primary source's (not SERO) measurements of river distance
RKMSRC	The primary source citation used for [RKMDNSRC] and [RKMUPSRC] fields
CITATION	Primary sources contributing to the delineation of consultation areas. For a full citation, see the associated species works cited document
NOTES	Additional details supporting or clarifying the Consultation Area boundaries or seasonality

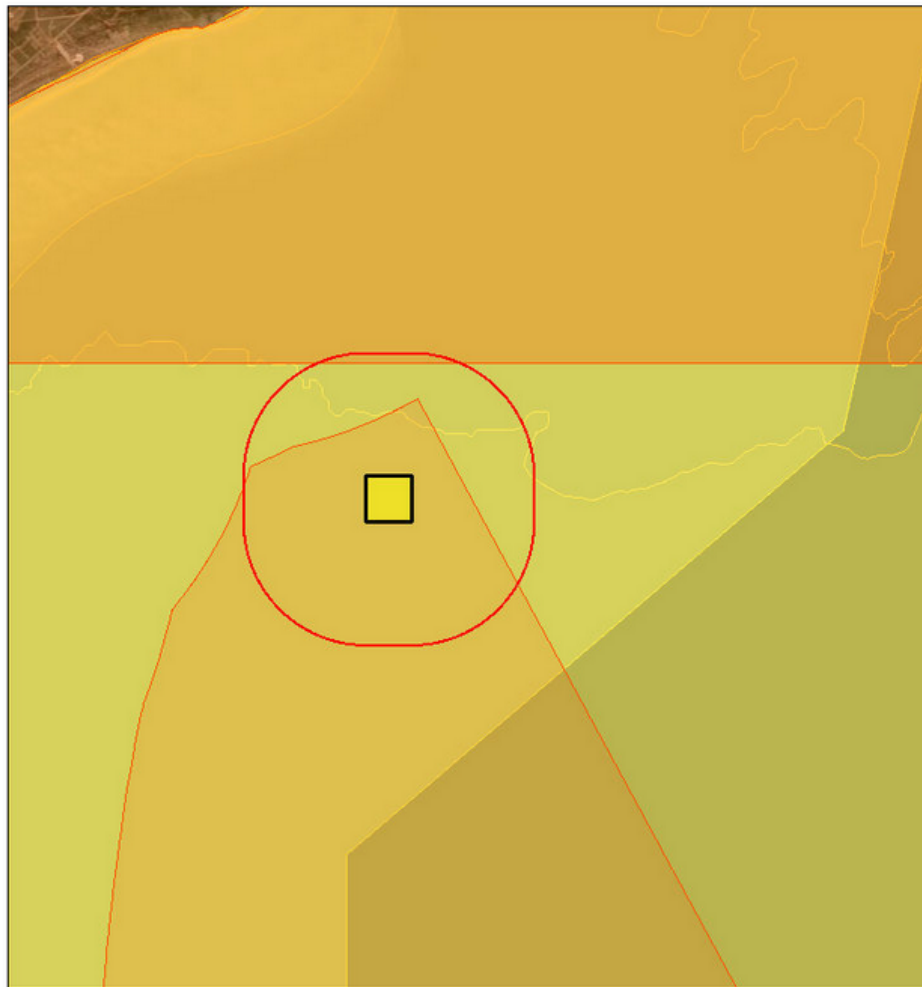
In addition to the downloadable CSV file(s), a printable report can also be generated. The report for the above example is displayed below in Figures 18 and 19. The report for this action area was 9 pages in total. Only the first two pages, which contain all pertinent demonstrative information have been displayed in this guide.



Area of Interest (AOI) Information

Area : 133,299,230.83 ft²

Sep 29 2023 16:56:32 Pacific Daylight Time



- Sea Turtles
- Whales
- Sharks, Rays, Sawfish
- Critical Habitat (polygons)
- Grouper and Sturgeon

Figure 18. Page 1 of the example report. The area value displayed at the top of the report indicates the area of the action area (the user-entered project area plus surrounding buffer). In this example, the action area is 133,299,230.82 square feet.

Summary

Name	Count	Area(ft ²)	Length(ft)
Conchs	0	0	N/A
Corals	0	0	N/A
Sea Turtles	18	2,311,729,751.33	N/A
Sharks, Rays, Sawfish	14	1,822,894,072.46	N/A
Grouper and Sturgeon	3	93,504,600.61	N/A
Whales	13	1,692,687,353.00	N/A
Critical Habitat	0	N/A	0
Critical Habitat	5	619,042,398.75	N/A
Miscellaneous	0	0	N/A

Sea Turtles

#	Species	Status	Life Stage	Behavior	Zone
1	Green Sea Turtle	Threatened	Oceanic Juveniles and Post-Hatchlings	Foraging/Resting	Sea Turtle, Green, Proposed Critical Habitat: Sargassum
2	Green Sea Turtle	Threatened	Adults	Migrating & Foraging	Atlantic South Neritic
3	Green Sea Turtle	Threatened	Adults	Mating	Atlantic South Neritic

#	Sub-zone	Date From	Until	Date From (2)	Until (2)
1	Unit NA01: Sargassum	1/1	12/31	No Data	No Data
2	No Data	01/01	12/31	No Data	No Data
3	No Data	01/01	12/31	No Data	No Data

Figure 19. Page 2 of the example report. The full report includes 18 Sea Turtle records followed by tables for other species groups, but is truncated in this figure. **Note:** Data tables overrun the page margins and continue in a second table. Refer to the “#” column to read the continued data for each row. For instance, data for Sea Turtle record #1 (green circle) continues in the second table (green square).

In the Summary table, “Area (mi²)” is a cumulative value, and can typically be ignored. It represents the sum of overlaps between the action area and all Consultation Areas for the species group. In this example, the action area at least partially overlaps 15 different Sea turtle Consultation Areas. Cumulatively, there are 61.81 square miles of overlap between these Sea turtle Consultation Areas and the 4.12 square mile action area.

The columns “From” and “Until” indicate the start (SEASON1BEG, SEASON2BEG) and end (SEASON1END, SEASON2END) of seasonality for the life stage and behavior. In this example, Nassau Grouper Adults are Foraging in the action area year-round (From Jan 1, Until Dec 31).