Case Study — Pine Log Export Yard

A foreign forest products company wishes to buy some land to establish a new log export yard in South Carolina. The company has offices in India and a record of southern yellow pine log (SYP) purchases from several states in the US southern region. As their demand for logs is expected to increase from 50K to 200K metric tons per year over the next five years, the company wants to begin operations next year near Charleston or one of the state's inland ports (i.e., Dillon or Greer). In order to minimize transportation costs, the new facility should be located within a 75-mile radius of either port location. Your job is to help the company identify the best possible location to establish its new facility, using timber supply availability as the primary consideration.

The Timber Supply Analysis Approach

Previously, addressing this issue took a variety of different approaches and varied from state to state. Through funding by the USDA Forest Service and Southern Group of State Foresters (SGSF), an online analysis tool was developed that both simplified and standardized a process to generate basic forest inventory and harvest information for a given location. The following example illustrates the process to utilize this tool to answer the question posed by this case study.

Exercise I: Identify the components needed for the analysis

The Southern Timber Supply Analysis Tool (http://southerntimbersupply.com) is an online data analysis package that is simple to operate and requires few inputs from the user. These are:

- *Supply Area (Step 1: Choose Distance By):* Area can be defined as either:

    o   Radial distance (50, 75, or 100 miles)

        Drive time distance (1, 1.5, or 2 hours)

- *Location (Step 2: Define Area of Interest.* This information can be provided in several ways:

    o   State (or U.S. South)

    o   Address (city name and state will suffice)

- o   X/Y Coordinates

- *State (Step 3: Filter State):* After the above selections are made, this value is pre-filled for the states included in the analysis area. However, there is an option to include only the state(s) of interest.

- Ownership (Step 4: Choose Ownership)

  - o   All

  - o   Public

  - o   Private

- Statistic (volume or weight)

  - o   Volume

  - o   Weight

Case Study Values

For our given case study, we can identify the locations required as the address or X/Y coordinates for both inland ports, and a general location point for Charleston.

- Dillon Port: -79.39676, 34.3903

- Greer Port: 100 International Commerce Blvd, Greer, SC 29651
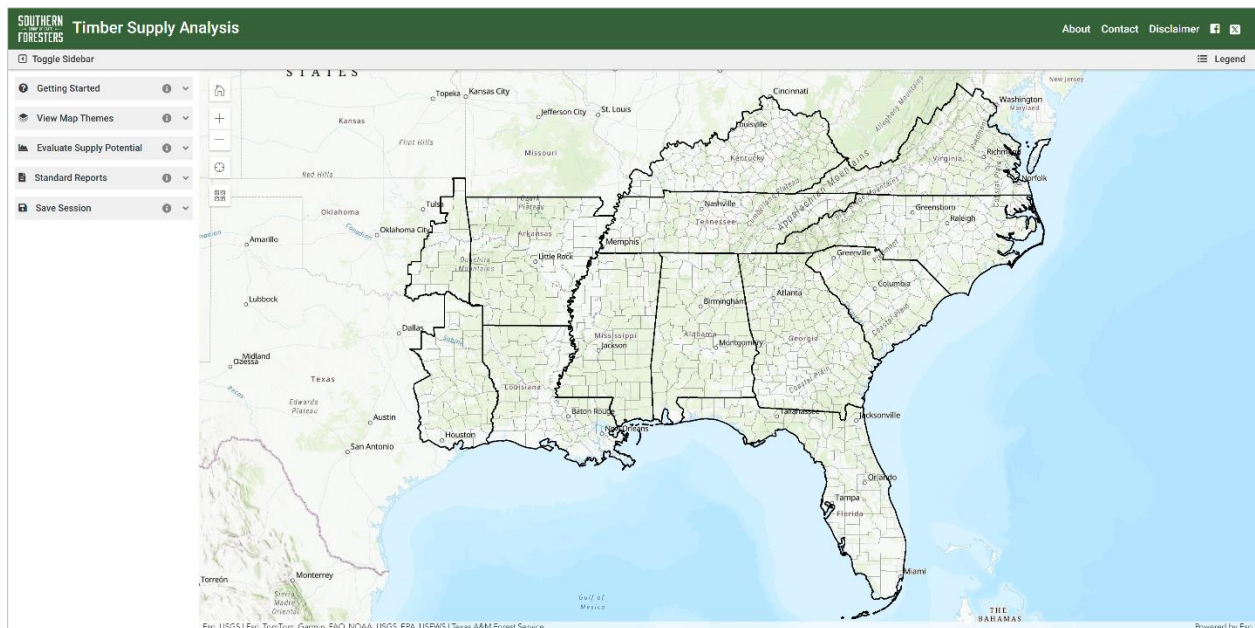
- Charleston, SC

The supply area has been provided as **75** miles. For Charleston, this is appropriate as the location of the yard is more variable. Since the inland port locations are fixed, we will substitute the 1.5 hour driving metric.

No limits were placed on the supplying state or ownership, so **All** ownerships and **states** will be included in the analyis.

The request was in metric tons, so **weight** should be selected (this report provides short tons not metric tons, and should be noted or converted for this inquiry).

# Exercise II: Generate results using the Timber Supply Analysis Tool

The Timber Supply Analysis tool can be accessed at http://southerntimbersupply.com. The interface display includes a control panel on the left and mapping window on the right.

Charleston

To produce a supply analysis report for the Charleston area:

1. Click **Evaluate Supply Potential** in the left panel.

2. Keep **Radius (miles)** selected and choose **75 miles** (**Step 1**) from the drop down menu.

3. Click in the **Find address or place** box and type "*Charleston, SC, USA*" (**Step 2**). Select Charleston, SC, USA from the list that appears or hit enter to complete the search. The application will automatically use the result to define your point of interest.

4. Leave **GA, SC** selected in the Filter State(s) box (**Step 3**) since the 75-mile supply area falls within these states.

5. Choose **All** from the drop down menu in the Choose Ownership box (**Step 4**).

6. Select **Weight** in the Statistics & Report box and then click **Report** (**Step 5**).
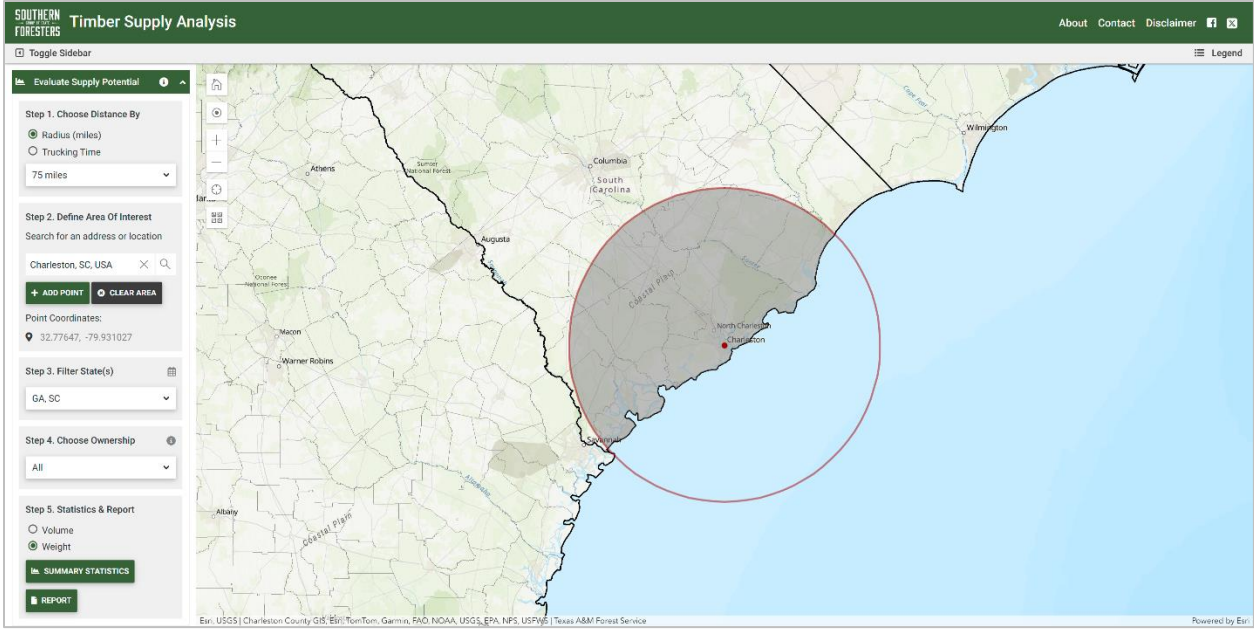
The report will open in a new tab in your browser. If you do not see it appear after the wheel stops spinning, check that your browser did not block the pop-up. Use your browser tools to save the PDF as a file on your device.
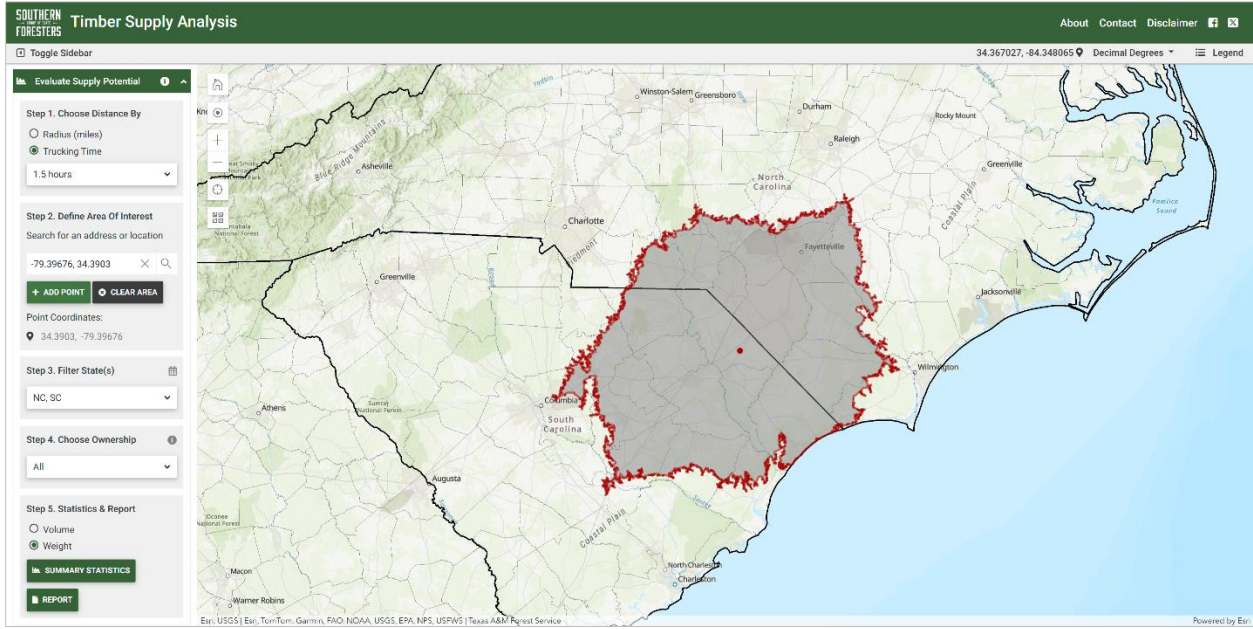
Weight of softwood sawtimber by size on all timberland in the supply analysis area

Year	Small Softwood	Large Softwood	All
2017	14.1	78.1	92.2
2018	14.1	81.9	96.0
2019	13.9	85.9	99.8
2020	13.9	91.1	105.0
2021	14.1	97.1	111.3
2022	14.1	100.5	114.6

Weight in million green short tons.

This process was replicated for the other two locations, except a 1.5-hour drive time was substituted for the 75-mile radius.
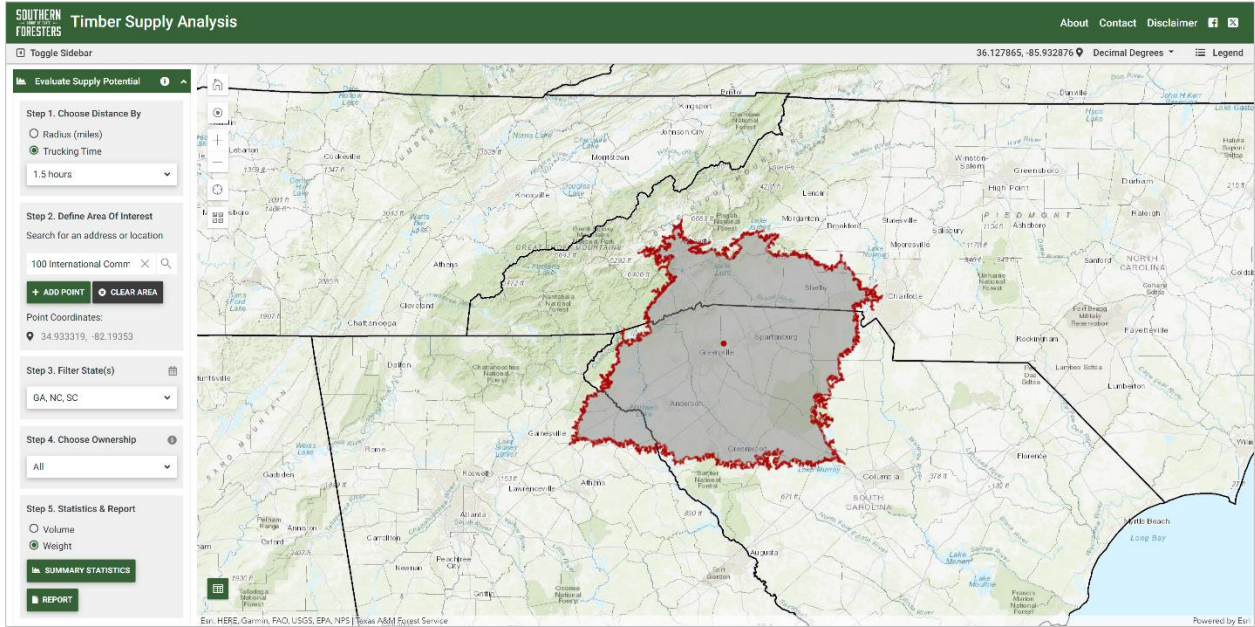
Dillon

Weight of softwood sawtimber by size on all timberland in the supply analysis area

Year	Small Softwood	Large Softwood	All
2017	18.8	94.1	112.9
2018	18.6	96.2	114.8
2019	19.2	101.2	120.4
2020	19.8	104.5	124.3
2021	19.8	105.4	125.2
2022	19.7	105.7	125.5

Weight in million green short tons.

Greer

Weight of softwood sawtimber by size on all timberland in the supply analysis area

Year	Small Softwood	Large Softwood	All
2017	10.7	41.8	52.5
2018	10.8	43.2	54.0
2019	10.5	44.5	55.0
2020	10.7	46.6	57.3
2021	11.2	47.9	59.2
2022	11.5	50.6	62.1

Weight in million green short tons.

Exercise III: Identify key metrics provided

Each report contains 16 pages of data results derived for the area of interest, and include area measurements, volume of standing timber by major species group (and hardwood grade), and growth and removals estimates. For this case study, softwood sawtimber and sawtimber growth and removals are most relevant.

Volume

Estimates provided show the volumes for the most recent six inventory cycles, 2013 to 2018, as well as the relative proportion of small to large softwood classes. Definitions provided within the report classify small softwood as 9.0 to 10.9 inches at breast height (chip-n-saw), and large softwood as all trees 11.0 inch at breast height.

For all three supply areas, small softwood is relatively stable, while volumes for large softwood have continued to increase. The Dillon and Charleston locations both have current standing volume over 80 million green short tons, however Greer has shown the largest percentage increase over the time period.

Growth and Removals

In addition to volume estimates, data are provided for growth and drain for all live, pulpwood, and sawtimber product categories. Sawtimber growth (shown right), is defined as the average annual net growth of softwoods 9.0 inches or greater in diameter at breast height. Removals are defined as average annual removals of live trees for the same size class.

Comparison of the two measures can be used to examine the sustainability of harvesting at current levels for a given forest product. Values of 1.0 and greater are desirable, and generally indicate more volume is being added on a yearly basis than is being removed.

For all three locations, there are positive growth/removals ratios, with the area of interest around Greer the highest. Removals in the Charleston and Dillon areas are both more than twice that of the Greer area, however this value should be taken into consideration with the larger standing volume previously established for these areas.

Charleston

Growth and removals of sawtimber on all timberland in the supply analysis area			
	Softwood	Hardwood	All
Net Growth	9.1	1.9	11.0
Removals	4.5	0.7	5.2
Ratio (G:R)	2.03	2.56	2.11

Weight in million green short tons per year.

Dillon

Growth and removals of sawtimber on all timberland in the supply analysis area			
	Softwood	Hardwood	All
Net Growth	9.4	3.2	12.6
Removals	6.7	1.4	8.1
Ratio (G:R)	1.40	2.28	1.55

Weight in million green short tons per year.

Greer

Growth and removals of sawtimber on all timberland in the supply analysis area			
	Softwood	Hardwood	All
Net Growth	4.4	4.2	8.7
Removals	2.3	1.2	3.5
Ratio (G:R)	1.90	3.51	2.45

Weight in million green short tons per year.

Conclusions

These figures, along with associated travel and shipping costs, can provide insight into the best location for a pine log export yard. While further analysis may be required to fine-tune a solution, the *Southern Timber Supply Analysis* tool was able to provide valuable information for three separate locations in a short period of time. Based on the information generated, we rank the three possible locations based on volume and proximity to the Charleston port as following:

1. *Charleston area* – almost equal in volume with Dillon, but within greater proximity to the port. Also, has a higher growth/removal ratio than Dillon.

2. *Dillon* – largest wood basket in total volume. Also, small sawtimber shows a slightly better trendline than the Charleston wood basket, although both may be considered stable.

3. *Greer* – furthest inland, and has lowest total standing volume of softwood sawtimber. Still has potential, with decreased harvesting activity, which may indicate decreased competition within this wood basket.

Saved sessions for this case study are available at:
- Charleston: texasforestinfo.tamu.edu/tsa/?session=casestudy4-charleston
- Dillon: texasforestinfo.tamu.edu/tsa/?session=casestudy4-dillon
- Greer: texasforestinfo.tamu.edu/tsa/?session=casestudy4-greer