



Physical Attribute Tool (PAT) User Guide

Overview

The Physical Attribute Tool is intended to provide a means of assessing and estimating costs of potential projects in the Atchafalaya Basin Floodway System when those projects require changing the inundation across an elevated barrier.

The tool allows the user to create a feature (line), which represents a cut, levee gap, new channel, or modified channel. The user then enters the bottom elevation, width, and side slopes of the channel. Using this information, the tool calculates the average change in annual inundation days within the new feature.

Additionally, given the estimated removal and mitigation costs of the proposed change, the tool calculates the total cost of the project.

The PAT has been optimized to work in Google Chrome web browser.

Getting Started

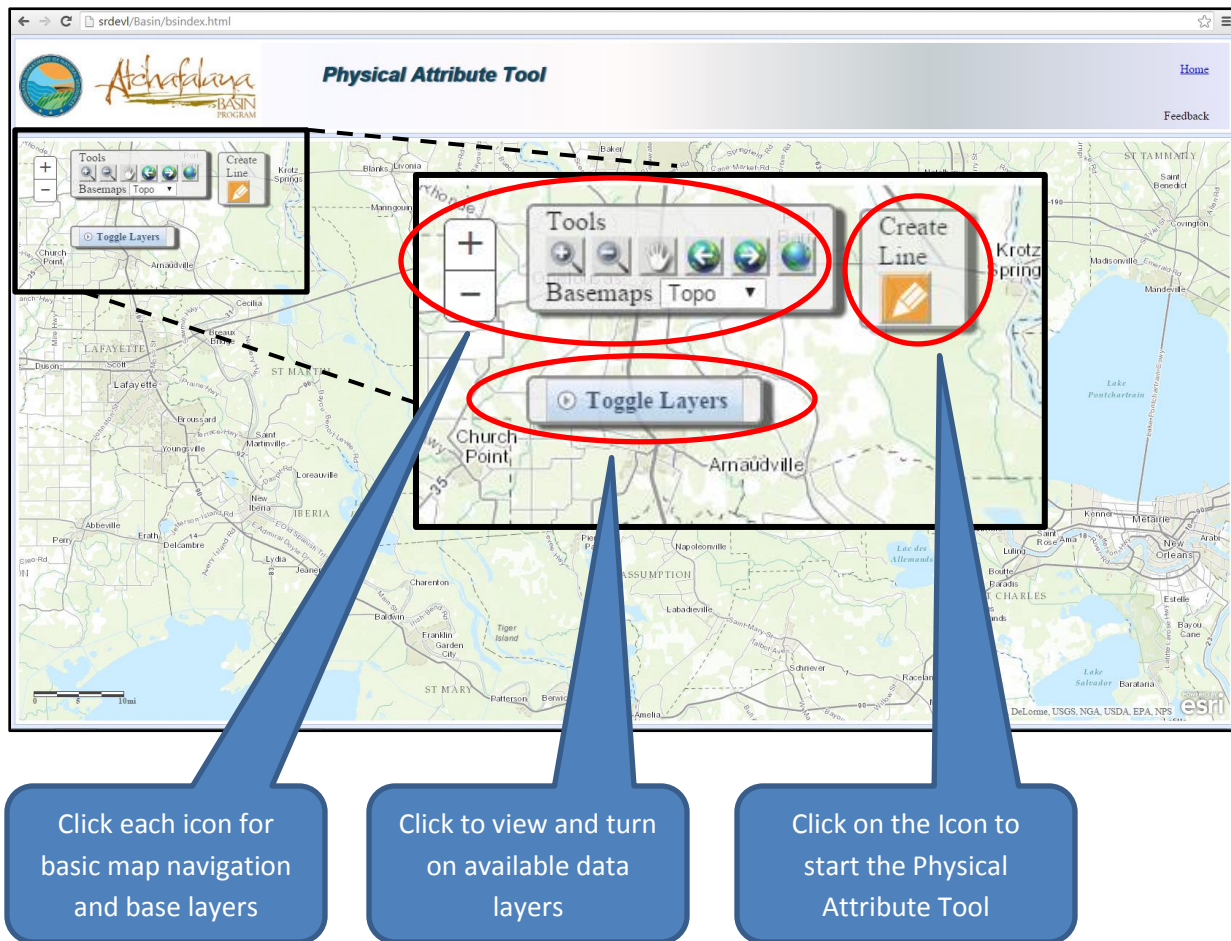
The tool may be accessed at the following web address:

<http://sonris-www.dnr.state.la.us/Basin/bsindex.html>.

Or you may navigate there by visiting the Data Portal on the Atchafalaya Basin Program's website at <http://basin.la.gov>.

Tools are located in the upper left-hand corner of the map. Hover over each one with the mouse for a description (Figure 1).

Figure 1



1. To begin a project, zoom in to an area of interest.
2. Click the "Toggle Layers" bar to see a list of data available to display. Check each box to display data. Available layers are as follows:

- **Water Management Units** - These identify areas that are hydrologically and ecologically unique from one another. Descriptions of individual units can be found in the Data Portal of the Atchafalaya Basin Program's website (click Home in the upper right-hand corner of the Physical Attribute Tool for a shortcut).
- **Assessment units** - These are boundaries that further divide water management units into smaller hydrologic units.
- **State Land** - This layer identifies the boundaries of properties owned by the State of Louisiana.
- **State Water** - This layer identifies the boundaries of water bottoms owned by the State of Louisiana.

- **2012 LiDAR** - This layer displays land elevation. Lighter colors indicate higher ground, and darker colors indicate lower ground.
- **Forestry** - This layer displays various types of land cover¹.
- **Inundation** – This layer indicates the extent of flooding at various water stages (per [Atchafalaya River at Butte LaRose gage](#)). For more information on this dataset, see the land-water classification discussion in the following document:
[http://data.dnr.louisiana.gov/ABP-GIS/Publications/Allen_OF_2008-1320\[1\]267.pdf](http://data.dnr.louisiana.gov/ABP-GIS/Publications/Allen_OF_2008-1320[1]267.pdf)

3. Draw a line by clicking the “Create Line” icon. The line represents a channel or cut, and its length is limited to 1 mile (5,280 ft.). The default parameters of the line (Figure 2) are as follows:

- **Bottom Width (ft): 1.** This is the width of the new channel at the channel bottom. This number must be between 1 - 5,280 ft.
- **Bottom Elevation (ft): 1.** This is the elevation of the bottom of the new channel. The elevation corresponds to the gage height at the Atchafalaya River at Butte LaRose gage. This number must be between 0 - 20 ft.
- **Side slope: 3.** This is the slope of the channel sides. It is in the format “run over rise” with an assumed denominator of 1. For example: The default value of “3” will generate a slope that is 3 units in the horizontal direction for every 1 unit in the vertical direction. A slope of “1” would generate a side slope that is 1 unit in the horizontal direction for every 1 unit in the vertical direction, or 45 degrees.
- **Removal cost per cubic yard (\$): 10.** This value will vary according to the method of spoil disposal. Ten dollars per cubic yard is a reasonable estimate for side casting of dredge spoil at the site. Beneficial use of spoil may increase the cost substantially.
- **Mitigation cost per acre (\$): 10000.** This value will vary according to what type of habitat is impacted and the type of mitigation chosen. For more information on wetland mitigation, see the Office of Coastal Management [FAQs](#).

Figure 2

The screenshot displays the Physical Attribute Tool (PAT) interface. At the top left is the logo for the *Atchafalaya BASIN PROGRAM*. The title "Physical Attribute Tool" is centered at the top, with "Home" and "Feedback" links to the right. The main interface includes a "Tools" panel with navigation icons, a "Basemaps" dropdown set to "Topo", and a "Create Line" button. A "Toggle Layers" panel on the left lists several layers: "Water Management Units", "Assessment Units", "State Land", "State Water", "2012 Lidar" (checked), "Forestry", and "Inundation 1.6 ft" (with a slider). The central map shows a grayscale topographic view with a red line drawn across it. A "Run Parameters" dialog box is open in the upper right, containing the following fields: "Length of Line (ft): 4,565.43", "Bottom Width (ft): 1", "Bottom Elevation (ft): 1", "Side Slope: 3", "Removal Cost per Cubic yard (\$): 10", and "Mitigation Cost per acre (\$): 10000". A "Submit" button is located at the bottom of this dialog. Three blue callout boxes provide instructions: one points to the red line, another points to the "Submit" button, and a third points to the "Run Parameters" dialog box.

Home

Feedback

Tools

Basemaps Topo

Create Line

Toggle Layers

- Water Management Units
- Assessment Units
- State Land
- State Water
- 2012 Lidar
- Forestry
- Inundation 1.6 ft

Run Parameters

Length of Line (ft):	4,565.43
Bottom Width (ft):	1
Bottom Elevation (ft):	1
Side Slope:	3
Removal Cost per Cubic yard (\$):	10
Mitigation Cost per acre (\$):	10000

Submit

Once parameters have been set, click "Submit."

The new line represents a new channel or cut.

Default parameters may be changed by the user.

- When all parameters have been set, click "Submit." The PAT will then calculate the footprint of your proposed project and output the following results (Figure 3):

- **Cubic yards** - This is the total amount of material that requires removal.
- **Removal cost** -This is the total cost of removing the dredge spoil.
- **Impacted acres** - This is the total number of acres that will be impacted by the project.
- **Mitigation cost** -This the estimated dollar amount of total mitigation costs.
- **Habitat** - This is the dominant land cover within the project footprint (Figure 4). If more than one type of land cover falls within the project footprint, this result will provide the land cover having the maximum acreage.
- **Max elevation** - This is the maximum elevation of you project according to the 2012 LiDAR data layer.

Figure 3

The screenshot displays the 'Physical Attribute Tool' interface. At the top, there is a header with the 'Achofakaya BASIN PROGRAM' logo and the title 'Physical Attribute Tool'. Below the header, there are navigation links for 'Home' and 'Feedback'. The main area features a map with a red footprint of a proposed project. To the left of the map are 'Tools' and 'Basemaps' (Topo) options. To the right is a 'Run Parameters' panel with input fields for Length of Line (ft), Bottom Width (ft), Bottom Elevation (ft), Side Slope, Removal Cost per Cubic yard (\$), and Mitigation Cost per acre (\$). Below this is a 'Submit' button. A 'Results' panel is also visible, containing the following data:

Results	
Cubic Yards:	51,297.15
Removal Cost:	\$512,971.50
Impacted Acres:	6.38
Mitigation Cost:	\$63,800.00
Habitat:	Palustrine Forested Wetland - Bottomland Ridges
Max. Elevation (ft):	13.26

At the bottom right of the map area is a 'Generate Report' button. Three blue callout boxes are overlaid on the image: one pointing to the red footprint, one pointing to the 'Results' panel, and one pointing to the 'Generate Report' button.

Footprint of proposed project

Results

Click to generate report

Figure 4: Forestry Layer Legend¹

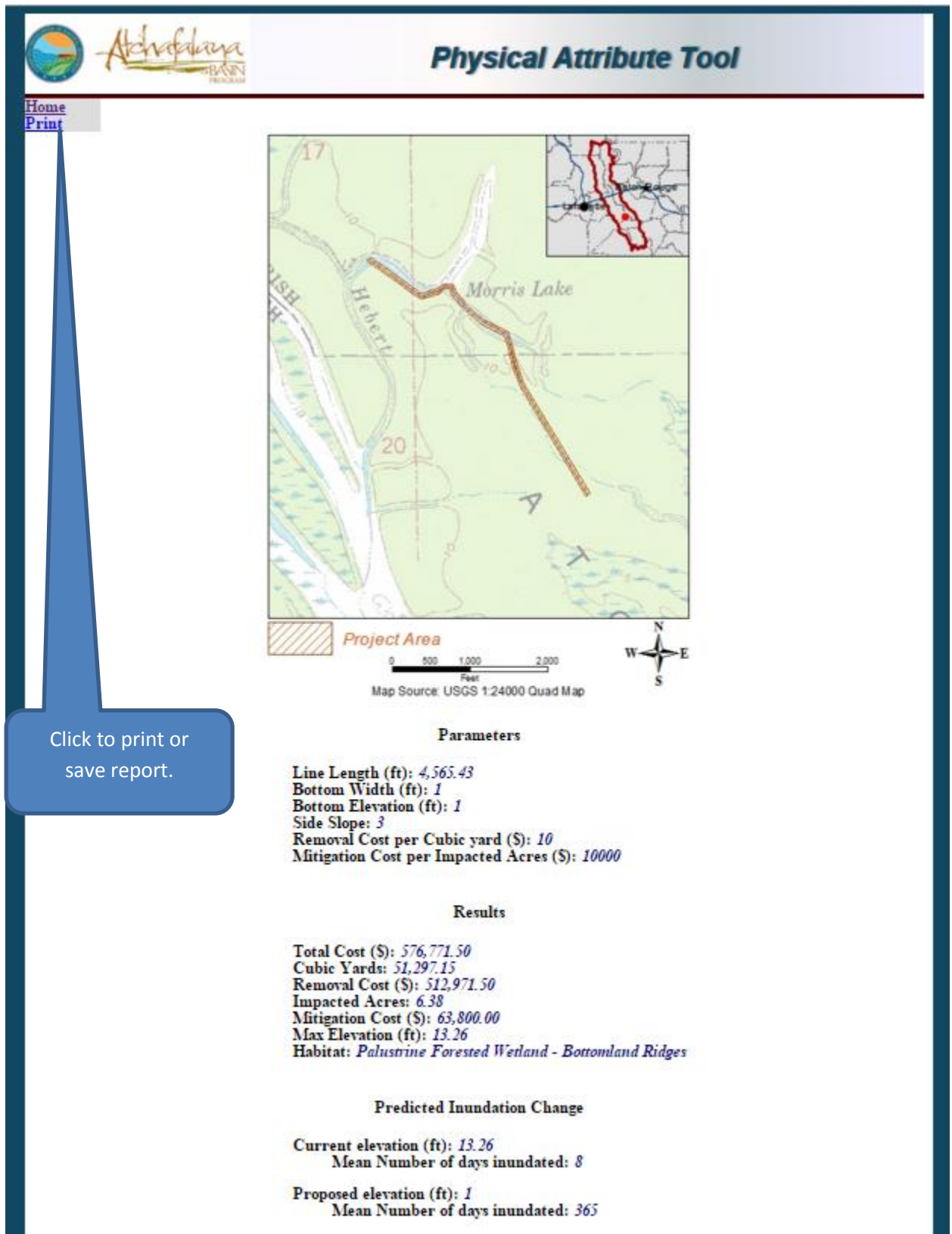
-  High Intensity Developed
-  Medium Intensity Developed
-  Low Intensity Developed
-  Developed Open Space
-  Cultivated
-  Pasture/Hay
-  Grassland
-  Bare Land
-  Aquatic Vegetation
-  Swamp - Baldcypress / Water Tupelo
-  Swamp - Swamp Red Maple / Tupelo sp.
-  Swamp - Black Willow / Sandbar Willow /Baldcypress
-  Swamp - Baldcypress
-  Swamp - American Sweetgum / Willow oak
-  Swamp - Baldcypress / Water Tupelo
-  Swamp - Black Willow/Sandbar Willow
-  Swamp - Swamp Red Maple / Tupelo sp.
-  Swamp - River Birch/ American Sycamore
-  Swamp-Bottomland Sloughs - Swamp Post Oak / Water Hickory (Bitter Pecan)
-  Range of sites - Black Willow/Sandbar Willow
-  Bottomland Ridges - Green Ash / Sugarberry
-  Bottomland Ridges - American Sycamore / American Elm
-  Bottomland Ridges - American Sweetgum / Willow Oak
-  Bottomland Ridges - Green Ash / Sugarberry
-  Bottomland Ridges - River Birch/ American Sycamore
-  Bottomland Sloughs - Swamp Post Oak / Water Hickory (Bitter Pecan)
-  Bottomland Sloughs-Ridges - Water Tupelo
-  Range of sites - Black Willow / Sandbar Willow
-  Bottomland Ridges - American Sycamore / American Elm
-  Bottomland Sloughs - Mixed bottomland hardwoods
-  Bottomland Ridges - Green Ash / Sugarberry
-  Bottomland Ridges - American Sweetgum / Willow oak
-  Bottomland Ridges - Mixed upland hardwoods
-  Bottomland Sloughs - Baldcypress / Water Tupelo
-  Range of sites - Black Willow/Sandbar Willow
-  Bottomland Ridges - Green Ash / Sugarberry
-  Upland Ridges - Mixed upland hardwoods
-  Upland and Bottomland Ridges - Mixed upland hardwoods
-  Water

5. To generate a report of the project proposal, click “generate report” in the results window (Figure 4). The report includes all of the parameters and results generated in previous steps as well as “Predicted Inundation Change,” which includes the following results (Figure 5):
 - **Current elevation (ft)** - This is the maximum elevation according to the 2012 LiDAR data.
Mean number of days inundated - This the number of days that the current elevation falls below the mean daily stage at the Atchafalaya River at Butte LaRose gage (Figure 6).
 - **Proposed elevation (ft)** - This parameter is the channel bottom elevation set by the user in step 3.
Mean number of days inundated - This is the number of days that the proposed elevation falls below the mean daily stage at the Atchafalaya River at Butte LaRose gage (Figure 6).
6. Save/print report. Click “print” in the upper left-hand corner of the report to print or save the project report. In the print dialog box, you may choose to send the document to a printer or to save it as a PDF or other document of your choice.
7. Submit your nomination. Your report may be included with your project nomination form. For more information on the Atchafalaya Basin Program’s annual plan process and to download the nomination form, see the ABP’s [Annual Plan](#) page.

Questions?

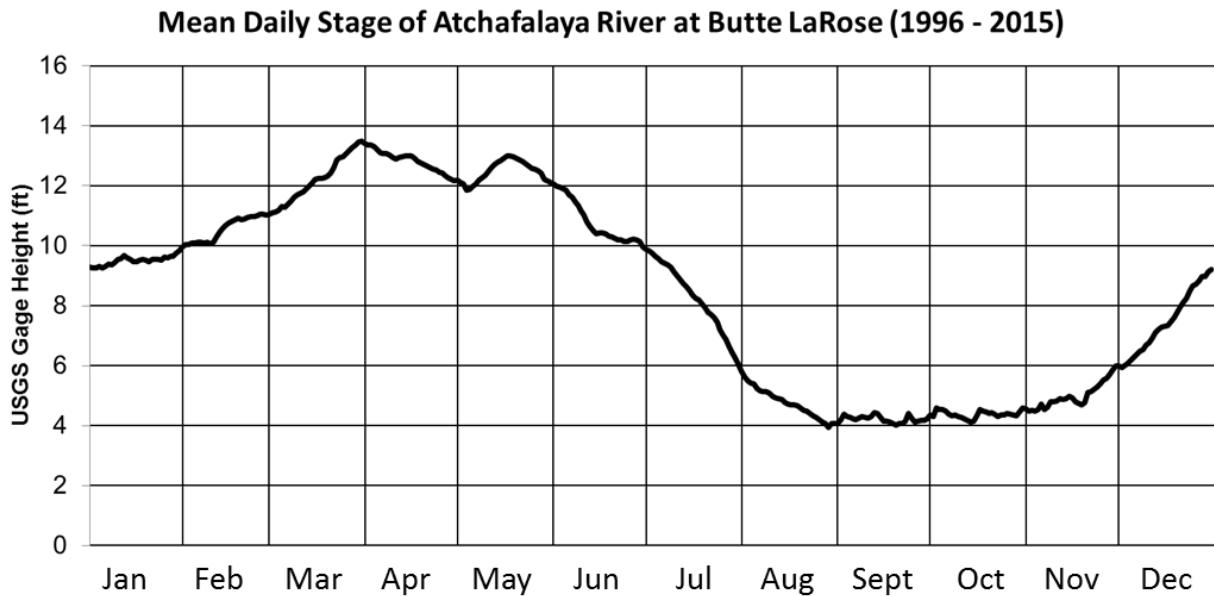
Contact april.newman@la.gov or call (225) 342-6437

Figure 5



Click to print or save report.

Figure 6



Disclaimer:

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¹The purpose of this project was to support temporal analyses of vegetation types in the Atchafalaya Basin. Acknowledgment of the U.S. Geological Survey, National Wetlands Research Center, as a data source would be appreciated in products developed from these data, and such acknowledgment as is standard for citation and legal practices for data source is expected. Sharing of new data layers developed directly from these data would also be appreciated by the U.S. Geological Survey staff. Users should be aware that comparisons with other datasets for the same area from other time periods may be inaccurate due to inconsistencies resulting from changes in photointerpretation, mapping conventions, and digital processes over time. These data are not legal documents and are not to be used as such. The U.S. Geological Survey requests to be acknowledged as originators of these data in future products or derivative research.