

## Chapter 13: How To Perform A Quick Spatial Data Screen

One of the earliest decision tools you can apply to your data is a simple data screen. In this tool, SADA uses a decision criteria to spatially identify those point values that are exceeding a screening criteria. There are different ways to arrive at a screening value. You could simply provide one just before the screen. Screening values can be imported into SADA using the Custom Analysis feature. Screening values in the form of preliminary remediation goals or PRGs can be calculated by SADA for you based on your calibration of the human health risk model. Finally, screening values in the form of ecological benchmarks can be used after you've setup the ecological risk assessment. In this chapter, we will deal with the simplest of all these. In this scenario, you will simply provide the value to SADA as the screening tool is initiated. The other methods have chapters dedicated to them later on in the guide.

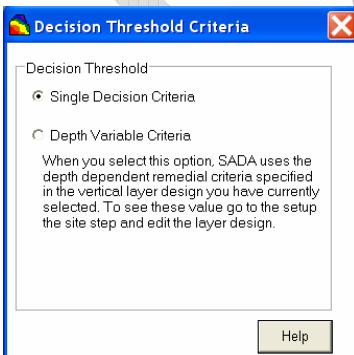
Open ThreeDimensional.sda (File→Open).

Regardless of how you arrive at a screening value, you will access the screening tool by choosing the interview *Draw A Data Screen Map*. Select this interview now.

Anytime, your selected analysis is General, you will be prompted for a screening value each time your run a screen. Make sure General is selected now.



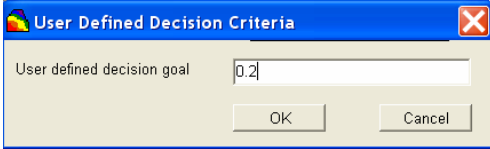
The steps for this interview are very straightforward. The first three steps deal with querying the data, setting up the site, and using GIS layers. These have been covered in previous chapters. What we are interested in here is the step *Set Decision Threshold Type*. Click on this step now.



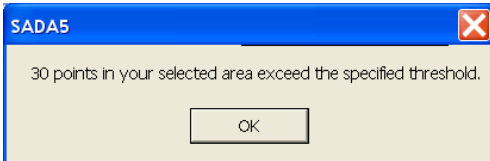
This step or option is available only for the General Analysis. If you look at the parameter window you can see that you can screen your Chlordane data set against a single value or against screening criteria that vary as a function of depth.

**Single Decision Criteria**

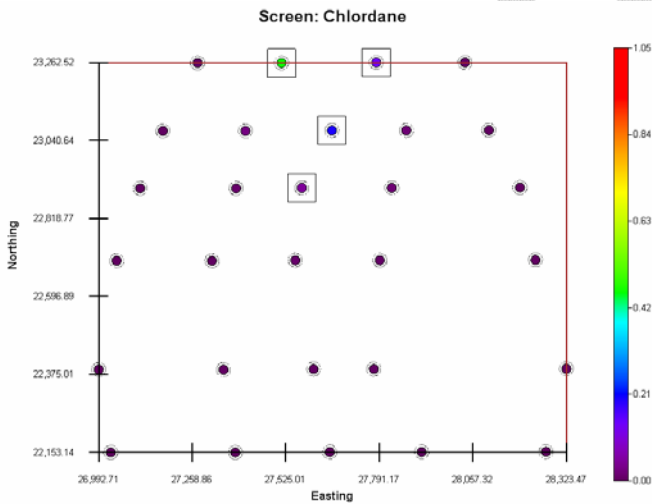
Let's choose *Single Decision Criteria*. Press Show The Results button and you will be prompted to enter a single screening value for Chlordane.



Enter a value of 0.2 and press OK. SADA informs you that you have 30 points exceeding this screening value.



Press Ok. SADA draws square boxes around each value that exceeds 0.2.



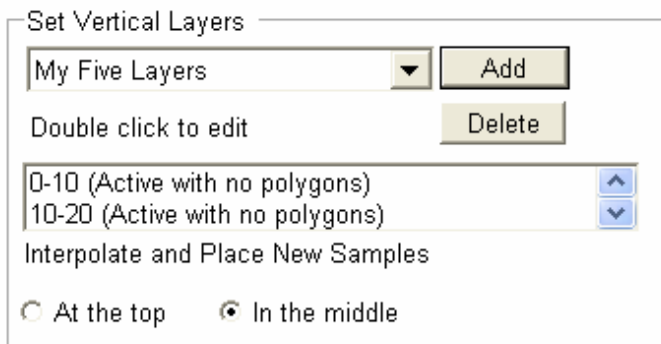
Sometimes its difficult to see the boxes particularly with a photograph located directly behind them. This is easy to change. From the main menu choose Graphics→Set Various Colors→Screening Box. You'll be presented with a color palette. Select bright red and press OK. You should be able to see red squares now.

**Depth Variable Criteria**

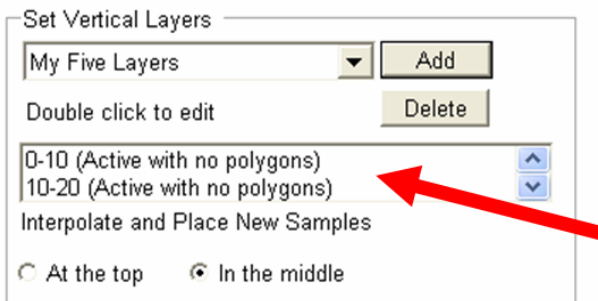
In some situations, the screening criteria may vary with depth, becoming perhaps more relaxed the further from the surface they become. This can be handled by choosing the Depth Variable Criteria option. It is important to know that currently SADA assigns

screening/decision criteria of this nature directly to the layering designs. So you'll need to enter the screening criteria in at the vertical layering editor.

First select Depth Variable Criteria. Then click on the step *Setup the site*. Make sure you have the vertical layer design My Five Layers selected.



Double click the listing of individual layers to open the layer design window.

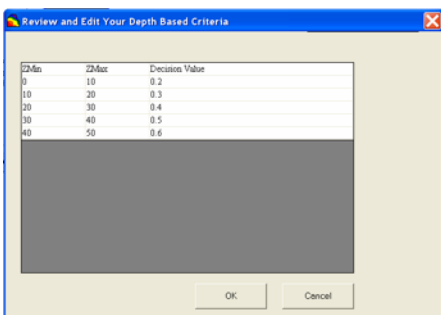


In the layer design window enter the depth variable screening criteria in the remedial threshold column exactly as you see it in the following picture.

Current Layering Design

From	To	Polygon	Active	Remedial Threshold
0	10	None	Yes	0.2
10	20	None	Yes	0.3
20	30	None	Yes	0.4
30	40	None	Yes	0.5
40	50	None	Yes	0.6

Press Ok. Now press the Show The Results button and SADA will allow you to look at and edit your depth variable screening criteria one more time before the screen is performed.



Press the OK button and SADA reports now that 20 points are exceeding the screening criteria. This is less than 30 because the screening criteria increased above 0.2 as you increase depth so fewer samples in the subsurface exceeded the criteria assigned to their layer. Switch between the different layers to see which points exceeded their layer specific criteria.

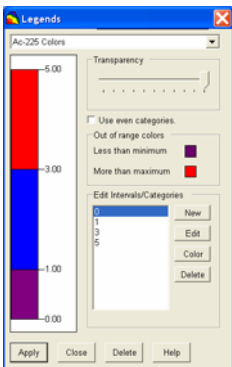
### What about multiple contaminants?

Of course, if you have multiple contaminants all with depth variable criteria, this can be a bit cumbersome but certainly doable. In future versions of SADA we will improve this feature to work with multiple sets of depth variable criteria as well as with human health, custom analysis, and so forth. In the mean time, suppose you had two contaminants with depth dependent criteria. For example, Arsenic and Ac-225. You would first create a layer design for Arsenic and fill in the depth variable criteria. Then you could create a second layer design named for example Ac-225 layers (perhaps based on Arsenic layers) and then fill in the depth dependent criteria for the Ac-225. This isn't too bad except you have to remember to switch the vertical layers when you switch the contaminants.

### Using the Legend Manager as a Screening Tool

The legend manager is covered in greater detail in the graphics chapter. Here we'll focus on how one can use the legend manager to color ranges of numbers different colors. This is essentially like a data screen tool itself.

Open TwoDimensional.sda. From the main menu select Graphics→Legend Manager. From the drop down list of legends select (new interval) and name the legend Ac-225 Colors. Say OK. Select Ac-225 from the list of legends. Modify the legend so that it looks like the image below. If you don't know how to do this, look at the chapter on graphics under the section on the legend manager.



You can see that what we have here is really a 2 part screen. All values above 3 will be assigned a red color. All values between 1 and 3 will be assigned blue. Purple for the lowest value. Press the apply button and you can easily see where your exceedances are found.



So entering by hand is the simplest ground floor method of screening your data against set criteria. In the next chapter, we'll look at importing screening criteria from outside SADA. You can now close your TwoDimensional.sda without saving it.