

# Chapter 5

## Customizing Plots

Plots are highly customizable and offer an array of information that will assist you with reviewing your data. Figure 5.1 shows a sample plot illustrating raw and revised data for stage and flow at a location called Beech Creek Station.

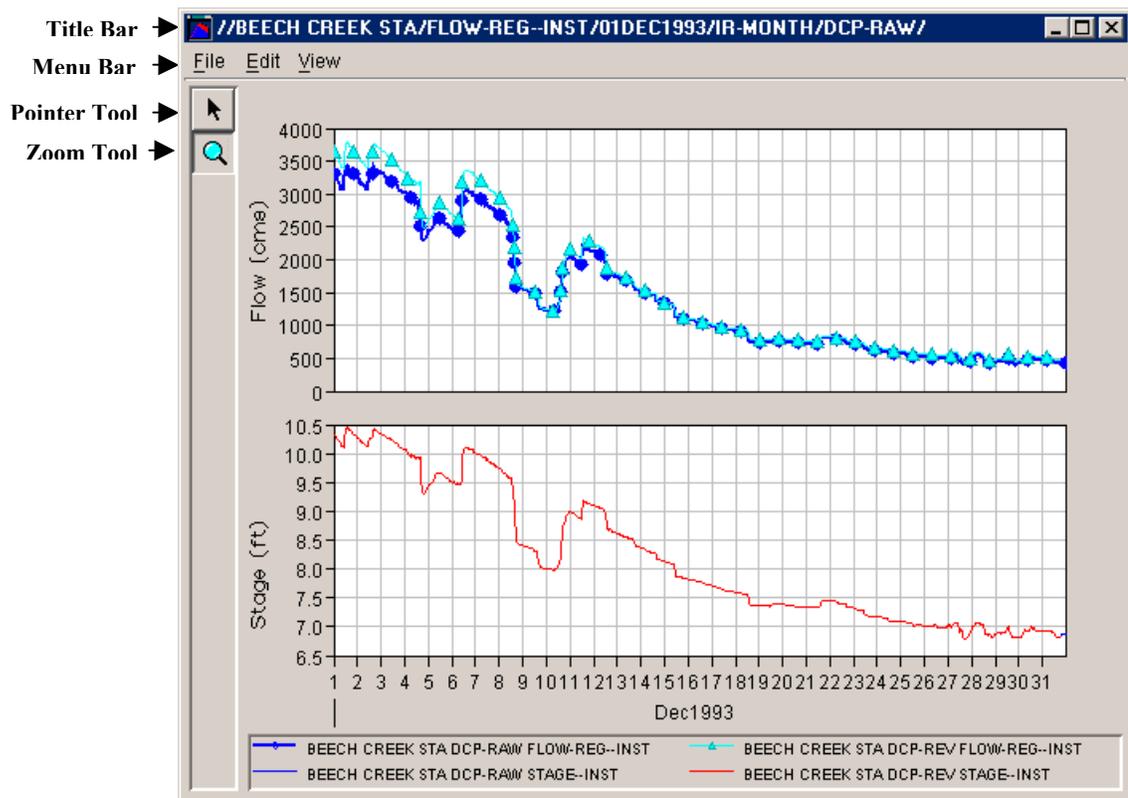


Figure 5.1 Plot Window

With the **Pointer Tool** , you can access shortcut menus that allow you to customize features of your plots using the plot window's editing tools. The following sections discuss these tools in detail.

The **Zoom Tool**  allows you to view data closely at a specific time. To zoom in, select the Zoom Tool then “draw” a rectangle around the section of the plot you wish to enlarge. To zoom out, right-click anywhere in the display area using the Zoom Tool.

If you wish to keep the plot window on top of your desktop so you can view it while working in other windows, you can select **Always on Top** from the **View** menu. A check mark indicates this option is active.

## 5.1 Customizing Plots: Overview

Plot properties editors allow you to configure default properties for plots as well as customize individual plots.

Figure 5.2 shows the features of plots you can configure.

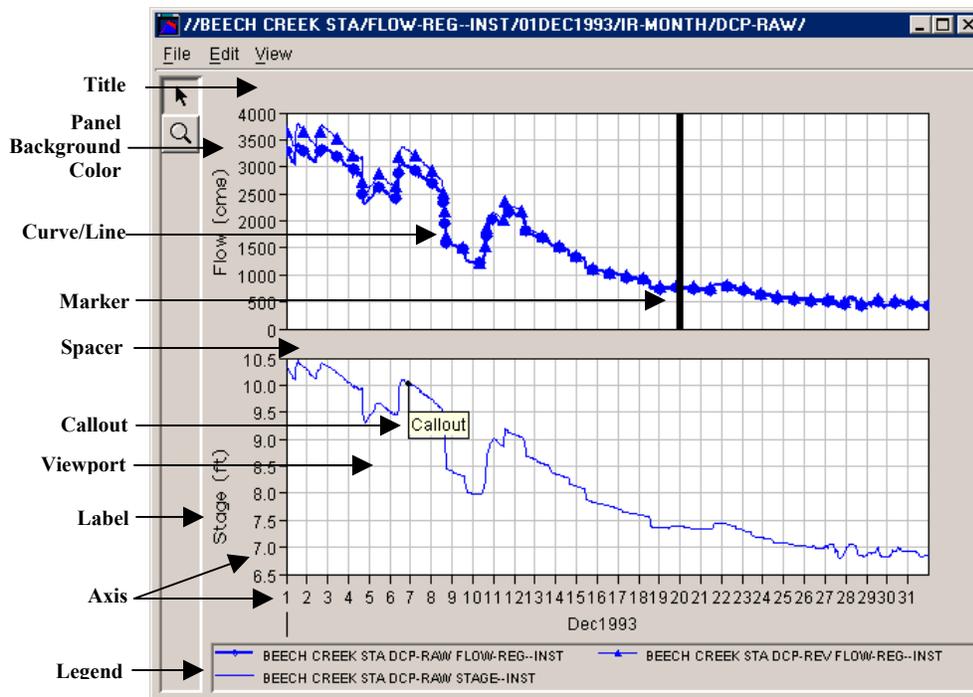


Figure 5.2 Configurable Features of Plots

- **Title:** Optionally, you can add a title to the plot display.
- **Panel Background Color:** You can specify the background color of the plot window (light grey is the default).
- **Curve/Line Properties:** You can choose the line and point styles, add labels, and specify symbols to indicate quality.
- **Marker:** You can add markers on the X and Y axes and customize the appearance of these markers.
- **Spacer:** You can specify the distance between viewports, between a viewport and the legend, and the width of side margins.
- **Callout:** You can add descriptive callouts at specific points along a line.
- **Viewport:** You can customize the border around the viewport, the background color and pattern, and the appearance of gridlines. You can also specify the number, size, and content of viewports.
- **Label:** You can add borders and backgrounds to axis and legend labels.
- **Axis:** You can specify either a linear or log axis type, specify the axis scale, and customize tic marks.

- **Legend:** You can add titles to the plot legend and specify whether the legend appears below or to the right of the plot.

## 5.2 Using Plot Editors

Several different editing interfaces allow you to either set defaults for all plots or specify properties of individual plots. Figure 5.3 shows three examples: the **Default Plot Properties Editor**, the **Plot Properties Editor**, and the **Viewport Properties Editor**.

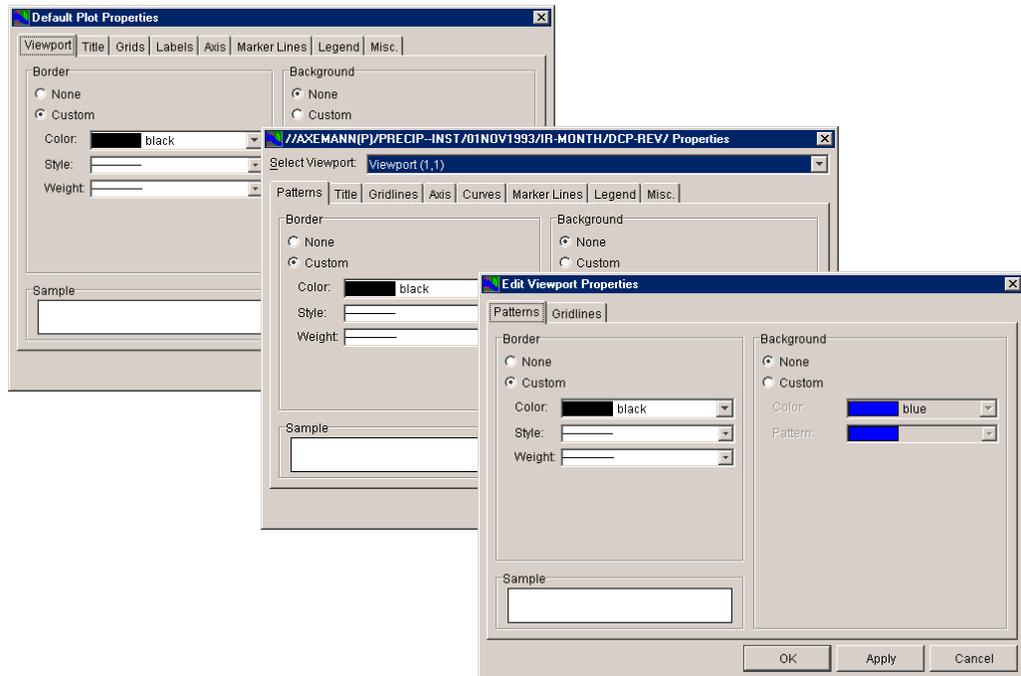


Figure 5.3 Examples of Plot Properties Editors

As Figure 5.3 illustrates, the editors can look almost identical to each other. Therefore, it is necessary for you to understand what the editors do and how to access the correct editor for your purpose.

### 5.2.1 Setting Defaults vs. Customizing Individual Plots

Plot editors and tools fall into two categories in terms of function: either they allow you to specify *defaults* for *all* plots you create, or they allow you to customize *individual* plots.

Across these two functional categories, the plot editors and tools either allow you to edit a variety of plot properties, or they can be specialized editors that allow you to edit a single property.

To configure the *default* appearance of *all* plots, you need to use the **Default Plot Properties Editor** and **Default Line Style Options Editor**. All settings

you specify in these editors will apply to all new plots you open. You can access these editors only from the **Edit** menu of plots.

To customize *individual* plots, you can use the **Plot Properties Editor** and the **Configure Plot Editor**, both accessed from the **Edit** menu of a plot window. Also, using right-click shortcut menus, you can access specialized editors for individual plot features. The **Viewport Properties Editor** is an example of a specialized editor.

Additionally, once you have customized an individual plot, you can export its settings as a **Template** that you can apply to other plots. To create a template based upon a plot, you will use the **Export Properties** option in the **File** menu of the plot window.

Likewise, you can import **Templates** to apply previously defined properties to an individual plot. To apply a template to a new plot, you will use the **Import Properties** option in the **File** menu of the new plot window.

## 5.2.2 Accessing Editors

You can access properties editors from **shortcut menus** (Figure 5.4) and from the **Edit** menu in the plot window (Figure 5.5).

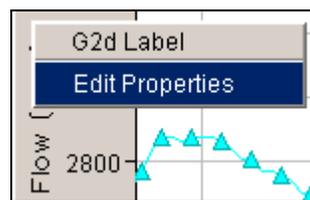


Figure 5.4 Shortcut Menu

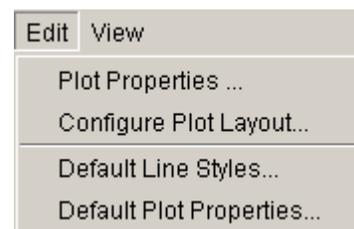


Figure 5.5 Edit Menu

You will use these menus according to whether you are defining properties for an individual plot or setting default properties for all plots you create.

Use **shortcut menus** to edit specific components of an individual plot. For example, if you want to edit axis label properties on a plot, right-click on the axis label to access the shortcut menu for the label (Figure 5.4), then select the **Edit Properties** command for the label.

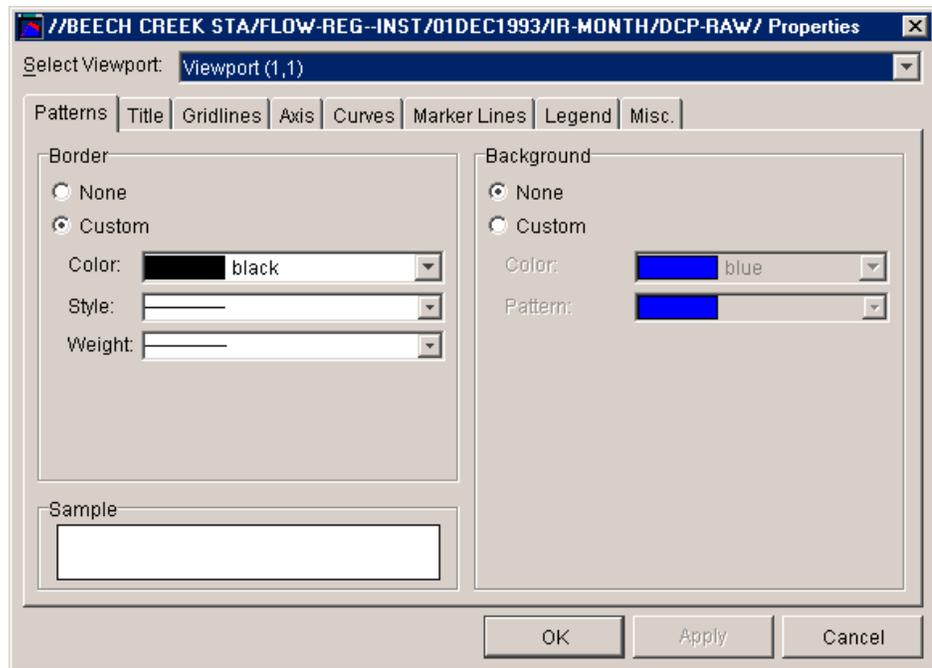
Use the **Edit** menu of a plot window to access the **Plot Properties Editor**, **Default Line Style Options Editor**, **Default Plot Properties Editor**, and **Configure Plot Editor**. These editors, discussed in Section 5.3, allow you to edit a variety of plot properties.

## 5.3 Recognizing Plot Editors and Tools

Following is an overview of the editing tools that allow you to customize plots. Later sections provide more detailed instructions on editing specific plot properties using these tools.

### 5.3.1 Plot Properties Editor

The **Plot Properties Editor** (Figure 5.6) is accessed from the **Edit** menu of a plot, and allows you to configure multiple display properties of an individual plot, including the border and background **Patterns** of the viewport, the plot **Title**, **Gridlines**, **Axis**, **Curves**, **Marker Lines**, **Legend**, and properties of the plot window panel.



**Figure 5.6 Plot Properties Editor**

When you customize properties of a plot using the Plot Properties Editor, your changes apply only to that individual plot unless you export the plot's properties (see Section 5.13).

To access the Plot Properties Editor, from the **Edit** menu, choose **Plot Properties**.

## 5.3.2 Individual Plot Property Editors

When you want to edit a specific property of a plot without launching the Plot Properties Editor (discussed in Section 5.3.1), you can use individual plot property editors instead. These individual plot property editors correspond to the tabs of the Plot Properties Editor.

To access an individual plot property editor, right-click on the element you want to edit, then select **Edit Properties** from the shortcut menu.

For example, if you right-click inside the gridded plot area, called the *viewport*, you will see the **Viewport shortcut menu** (Figure 5.7). When you choose **Edit Properties**, the **Viewport Properties Editor** will open (Figure 5.8).

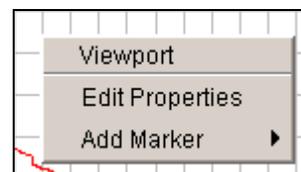


Figure 5.7 Viewport Shortcut Menu

The **Viewport Properties Editor** lets you edit only properties associated with the viewport, using the same **Patterns** and **Gridlines** tabs as appear in the Plot Properties Editor.

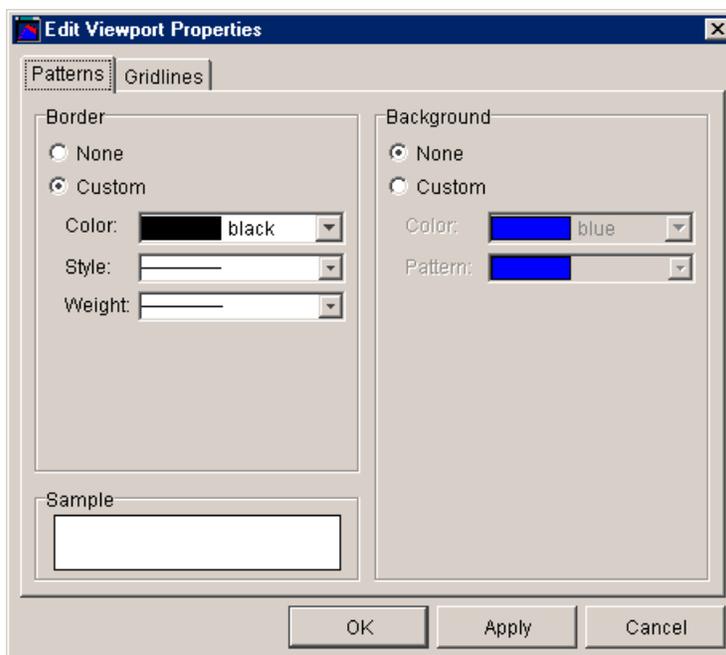


Figure 5.8 Viewport Properties Editor

Other individual properties editors are the **Title Properties Editor**, **Axis Properties Editor**, **Curve Properties Editor**, **Label Properties Editor**, **Marker Properties Editor**, **Legend Properties Editor**, and the **Spacer Properties Editor**.

The only plot property you cannot edit using an individual property editor is the color of the plot window panel. (See Section 5.11 for more information.)

### 5.3.3 Configure Plot Editor

The **Configure Plot Editor** (Figure 5.9) allows you to customize the layout of an individual plot. You can add and remove axes and add, remove, arrange the order of, and set the weight of viewports in the plot window.

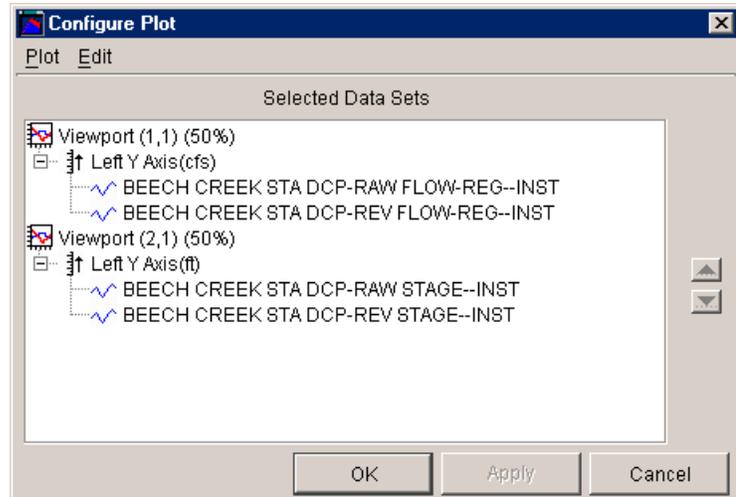


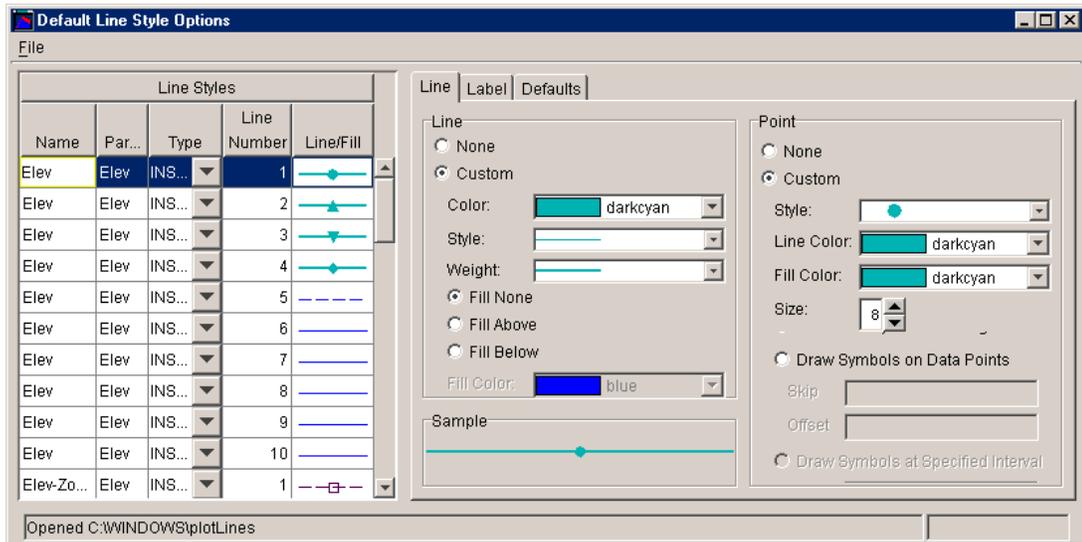
Figure 5.9 Configure Plot Editor

When you customize the layout of a plot using the Configure Plot Editor, your changes apply only to that individual plot unless you export the plot's properties (see Section 5.13).

To access the Configure Plot Editor, from the **Edit** menu, click **Configure Plot Layout**.

### 5.3.4 Default Line Style Options Editor

With the **Default Line Style Options Editor** (Figure 5.10), you can specify the default line and fill styles, as well as labels, used across all plots for specific parameters.



**Figure 5.10** Default Line Style Options Editor

To access the Default Line Style Options Editor, from the **Edit** menu, choose **Default Line Styles**.

Refer to Section 5.5 for more information on the Default Line Styles Options Editor.

### 5.3.5 Default Plot Properties Editor

The **Default Plot Properties Editor** (Figure 5.11) allows you to configure the default display properties of all plots you create. Properties you can configure include the border and background of the **Viewport**, the **Title**, **Grid lines**, **Labels**, **Axis**, **Marker Lines**, **Legend**, and miscellaneous properties of the plot window panel.

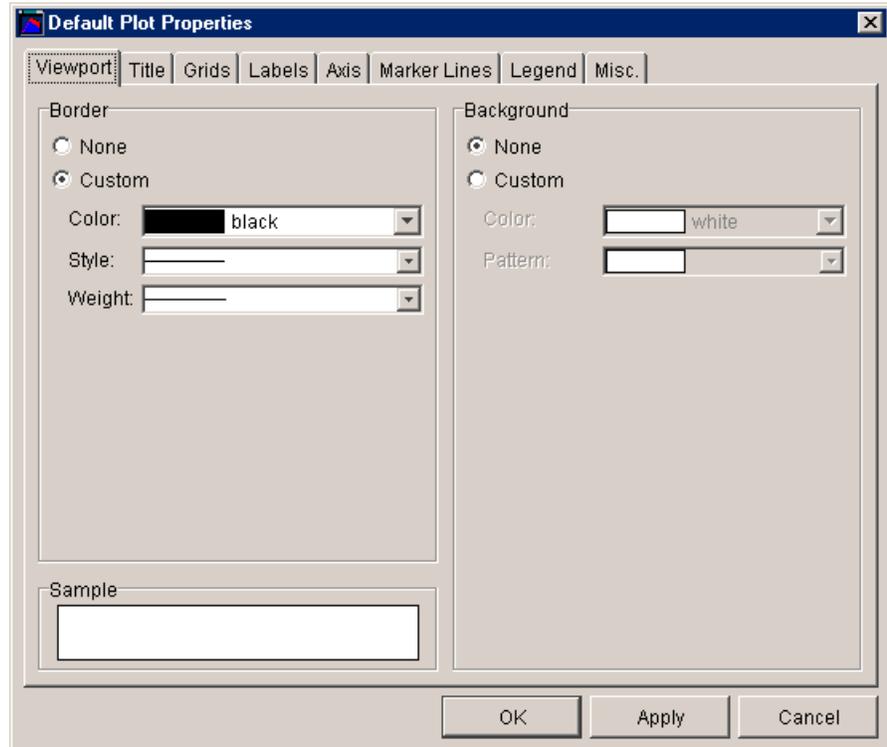


Figure 5.11 Default Plot Properties Editor

When you customize plot properties using the Default Plot Properties Editor, your changes apply to all plots you create.

To access the Default Plot Properties Editor, from the **Edit** menu, click **Default Plot Properties**.

## 5.4 Customizing Plot Titles

You can add titles to individual plots and configure default properties for all plot titles.

To add or edit a title on an *individual* plot, you can either:

- From the **Edit** menu, choose **Plot Properties**. When the **Plot Properties Editor** opens, select the **Title** tab.

*Or*

- Right-click in the blank area above the plot (below the menu bar) with the **Pointer Tool** , and then select **Edit Properties** from the shortcut menu (Figure 5.12). The **Title Properties Editor** will open.

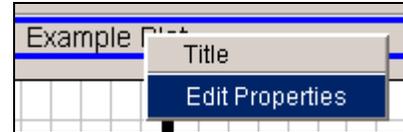


Figure 5.12 Shortcut Menu--Title Properties

To specify the appearance of titles for *all* of your plots, from the **Edit** menu, click **Default Plot Properties**, then select the **Title** tab of the **Default Plot Properties** editor.

Whether you are using the **Plot Properties Editor**, the specialized **Title Properties Editor**, or the **Default Plot Properties Editor**, the worksheet for editing plot title properties is the same.

Figure 5.13 shows the **Title Properties Editor**. This editor contains the same fields as the **Title** tab of the **Plot Properties Editor** and the **Default Plot Properties Editor**.

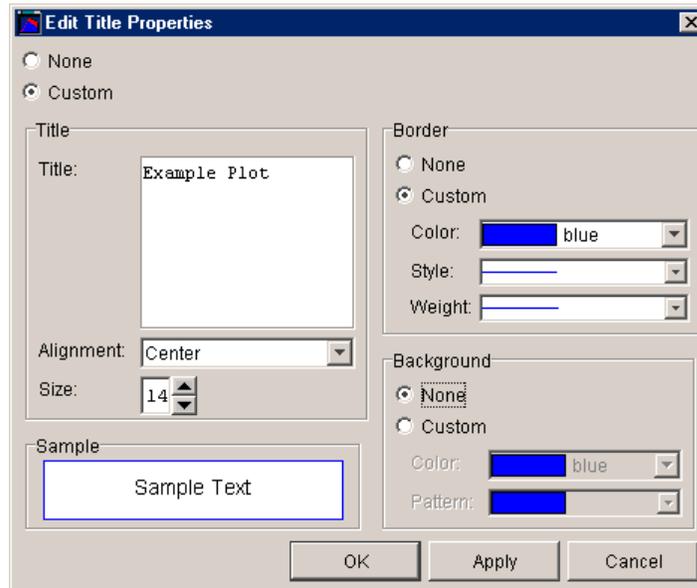


Figure 5.13 Edit Title Properties

1. To specify a title for the plot, select **Custom**.
2. In the **Title** panel, type the title you want in the **Title** box.
3. From the **Alignment** list, select the alignment for the plot title. Your choices are Center, Left, or Right.
4. From the **Size** list, select the text size for the title. The **Sample** box provides a preview of your plot title.
5. The **Border** group allows you to add a border around the title. You can specify the **Color**, line **Style**, and line **Weight**.
6. The **Background** group lets you add a background **Color** and/or **Pattern** behind your plot title.

Click **Apply** to save your changes and continue adjusting the appearance of the title. Click **OK** when you are finished.

## 5.5 Customizing Curves

You can customize line and point styles, add labels, and specify symbols to indicate data quality in your plots. Additionally, you can specify the parameter-based default curve styles used across all plots.

There are three different ways to edit plot curves, depending on whether you wish to customize one or more curves in an individual plot or specify defaults for all plots.

### 5.5.1 Customizing Curves in Individual Plots

To customize *all* curves in an *individual* plot, from the **Edit** menu, choose **Plot Properties**. When the **Plot Properties Editor** opens, select the **Curves** tab.

To customize a *specific* curve in an *individual* plot, right-click on the line or curve you wish to edit with the **Pointer**

**Tool** , then select **Edit Properties** from the shortcut menu (Figure 5.14). The **Edit Curve Properties Editor** will open.

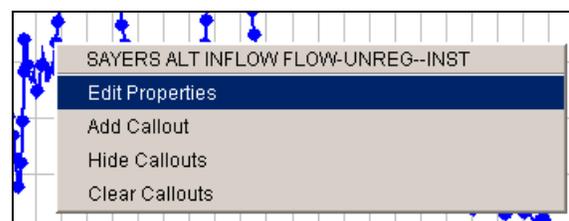


Figure 5.14 Shortcut Menu--Curve Properties

The **Curves** tab of the **Plot Properties Editor** and the **Edit Curve Properties Editor** are nearly identical with two exceptions:

- First, at the top of the **Curves** tab of the **Plot Properties Editor**, there is a list of all curves contained in the plot. In contrast, when you open the **Edit Curve Properties Editor**, it deals only with the curve you selected when you launched the editor; therefore, there is no list of curves.

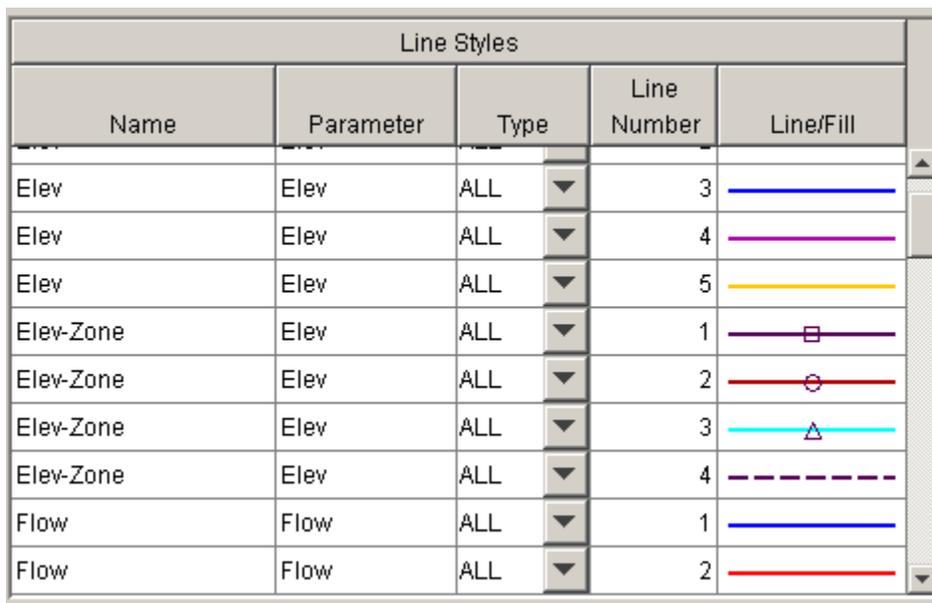
- Second, the **Curves** tab of the **Plot Properties Editor** has a **Remove Line** button, whereas the **Edit Curve Properties Editor** does not.

Despite these differences, both the **Edit Curve Properties Editor** and the **Curves** tab of the **Plot Properties Editor** allow you to edit **Style**, **Label**, and **Quality Symbols**. (You can edit Quality Symbols only if the plot has quality set for its data.)

## 5.5.2 Specifying Parameter-Based Default Curve Styles

To specify parameter-based default curve styles for *all* of your plots, from the **Edit** menu, click **Default Line Styles**. The **Default Line Styles Options Editor** will open (Figure 5.10).

The **Default Line Styles Options Editor** gives you a way to edit line styles from the **Line Styles** box (Figure 5.15). You can specify the default, parameter-based curve styles used for all plots.



Line Styles				
Name	Parameter	Type	Line Number	Line/Fill
Elev	Elev	ALL	3	
Elev	Elev	ALL	4	
Elev	Elev	ALL	5	
Elev-Zone	Elev	ALL	1	
Elev-Zone	Elev	ALL	2	
Elev-Zone	Elev	ALL	3	
Elev-Zone	Elev	ALL	4	
Flow	Flow	ALL	1	
Flow	Flow	ALL	2	

Figure 5.15 Default Line Style Options Editor: Detail of Line Styles Box

The Line Styles box displays typical data types with default line and fill styles predefined.

You can edit all of these fields, change default line and fill styles for existing types, and add new data types to the list. At this time, there is no delete option.

### Name and Parameter

To edit an existing name or parameter, highlight it, and then enter the new name or parameter. The name corresponds to the “C” part of HEC-DSS pathnames. The parameter associates data sets to be plotted in the same viewport. For example, FLOW-IN and FLOW-OUT are different “C” parts, but both are FLOW data sets and are to be plotted in the same viewport.

**Type**

To change the data type associated with a Name and Parameter, click the down-arrow and select from the list.

**Line Number**

The Line Number column indicates the number of lines associated with a data type. See **Adding New Data Styles** below.

**Line/Fill**

The Line/Fill property determines how curves associated with a particular name/parameter/type combination will appear in all plots. To specify the Line/Fill, select the row, and then customize the Line and Point properties as discussed in Section 5.5.3.

**Adding New Data Styles**

To add a new data type:

1. From the **File** menu of the **Default Line Style Options Editor**, choose **New**. The **New Data Type** dialog box will open (Figure 5.16).
2. Select a parameter from the **Parameter** list.
3. Enter a name in the **Name** box.
4. From the **Type** list, select the data type.
5. In the **Number of Lines** box, enter the number of curves you want to add for this new data type.
6. If you want to reverse the Y-axis, select **Y Axis Reversed**.
7. Click **OK** to close the dialog box.

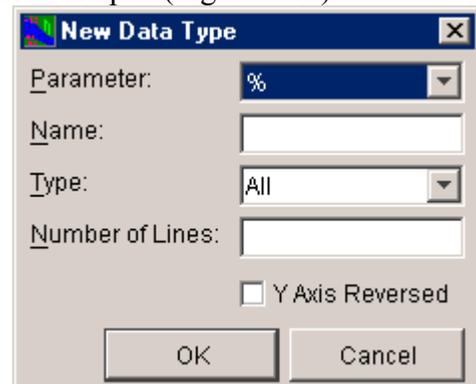


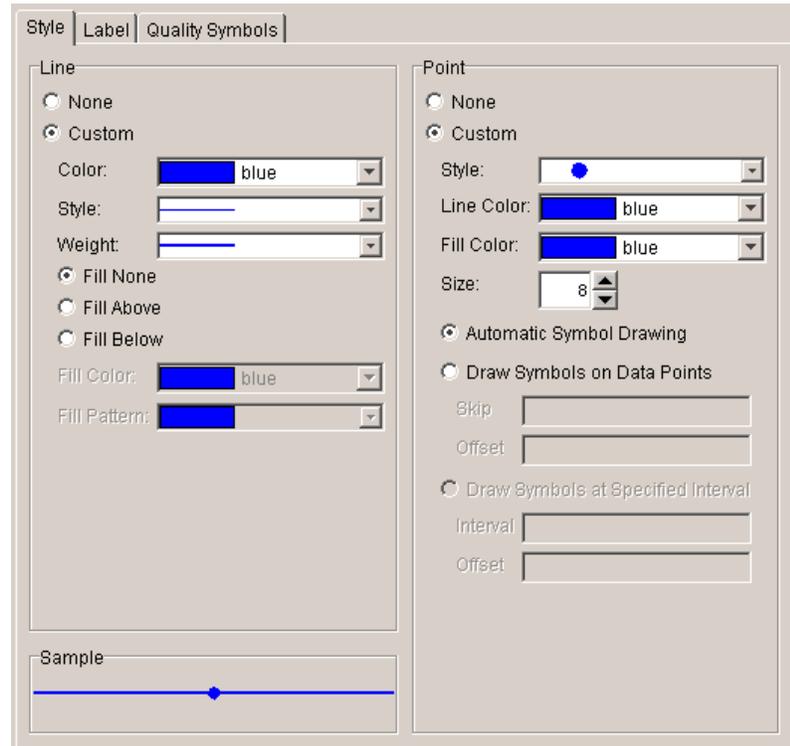
Figure 5.16 New Data Type Dialog Box

The Line Styles box will now display the new data type you have added, repeated as many times as you specified in the Number of Lines box (reflected in the **Line Number** column). You can customize the new data types as described above.

To save your changes, from the **File** menu, click **Save**. To close the Default Line Styles Options Editor, from the **File** menu, click **Close**.

### 5.5.3 Specifying Line and Point Styles of Curves

Figure 5.17 shows the curve **Line and Point Style** worksheet. This worksheet is available from the **Curves** tabs of the **Edit Curve Properties Editor**, the **Plot Properties Editor**, and the **Default Line Styles Options Editor** (Section 5.5.2).



**Figure 5.17 Curve Line and Point Style Editing Interface**

The Style tab has two main groups, **Line** and **Point**, which allow you to customize line and point styles, respectively. Beneath the Line group, the **Sample** box provides a preview of the way your line and point choices will look.

To define line styles for curves:

1. In the **Line** group, click **Custom**.
2. Select the color, style, and weight you want for the line.
3. You can display lines with fill above or below, or without fill. Figure 5.18 shows a plot with line fill below, whereas Figure 5.19 shows the same plot without line fill.

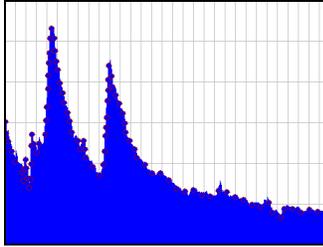


Figure 5.18 Plot with Line Fill

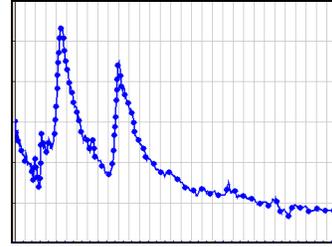


Figure 5.19 Plot without Line Fill

To define point styles for curves:

1. In the **Point** group, click **Custom**.
2. Choose the **Style**, **Line Color**, and **Fill Color** you want. The Line Color is the “border” around the point symbol, whereas the Fill Color is the color inside the point symbol. Figure 5.20 shows an example of a dark line color and a light fill color.
3. In the **Size** box, specify the size of the point (in pixels) either by selecting a size from the list or by typing in a number from 1-45.
4. **Automatic Symbol Drawing** allows the plot to compute how to draw the points so they do not overlap. As you zoom in the plot will draw more points because you are increasing the distance between points. This will continue until all points on the curve are drawn.
5. **Draw Symbols on Data Points** allows you to specify how to draw the points so they don't overlap. If you set the **Skip** box to one (1), then it will draw one point, skip the next, then draw the third, etc. The **Offset** box allows you to say how many points on the curve to initially skip before drawing points.

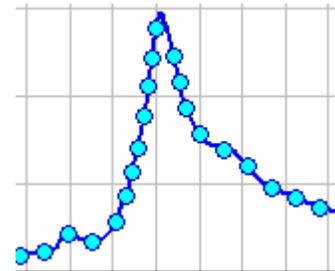
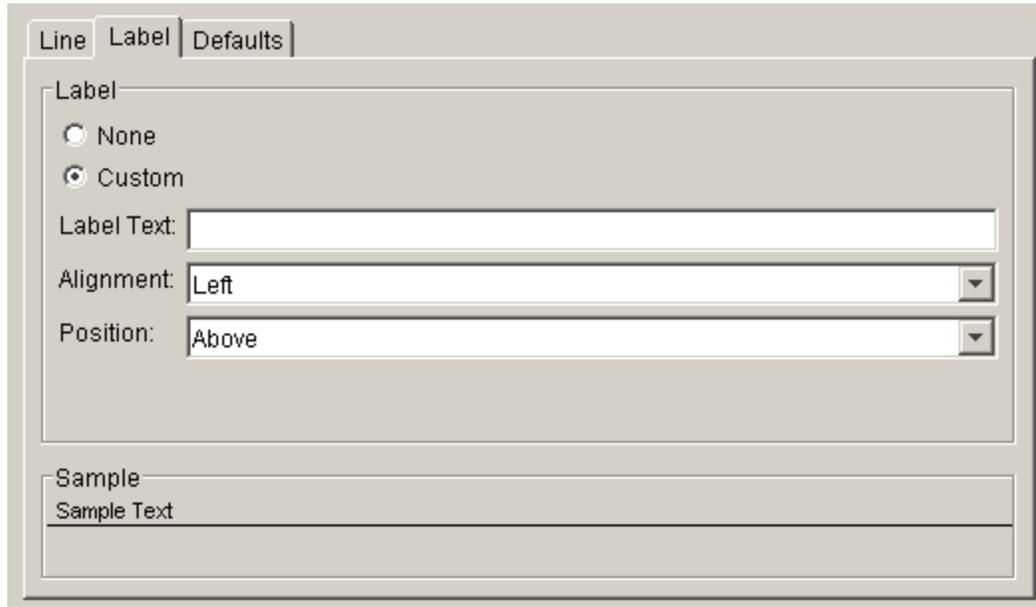


Figure 5.20 Example Line and Fill Colors

## 5.5.4 Customizing Curve Labels

Figure 5.21 shows the curve **Label** worksheet, available from the **Curves** tabs of the **Edit Curve Properties Editor**, the **Plot Properties Editor**, and the **Default Line Styles Options Editor** (Section 5.5.2). This worksheet allows you to customize curve labels.



**Figure 5.21** Curve Label Editing Interface

To customize curve labels:

1. Select **Custom**.
2. Enter the text you want to appear in the curve label in the **Label Text** box.
3. In the **Alignment** list, click Left, Center, or Right to select the alignment of the curve label.
4. To set the position of the label, from the **Position** list, click Above, Center, or Below.

The **Sample** box provides a preview of the way your labels will look.

### 5.5.5 Customizing Curve Quality Symbols

Figure 5.22 shows the curve **Quality Symbols** worksheet, available from the **Curves** tabs of the **Edit Curve Properties Editor**, the **Plot Properties Editor**, and the **Default Line Styles Options Editor** (Section 5.5.2). This worksheet allows you to customize curves for plots that have quality set for their data.

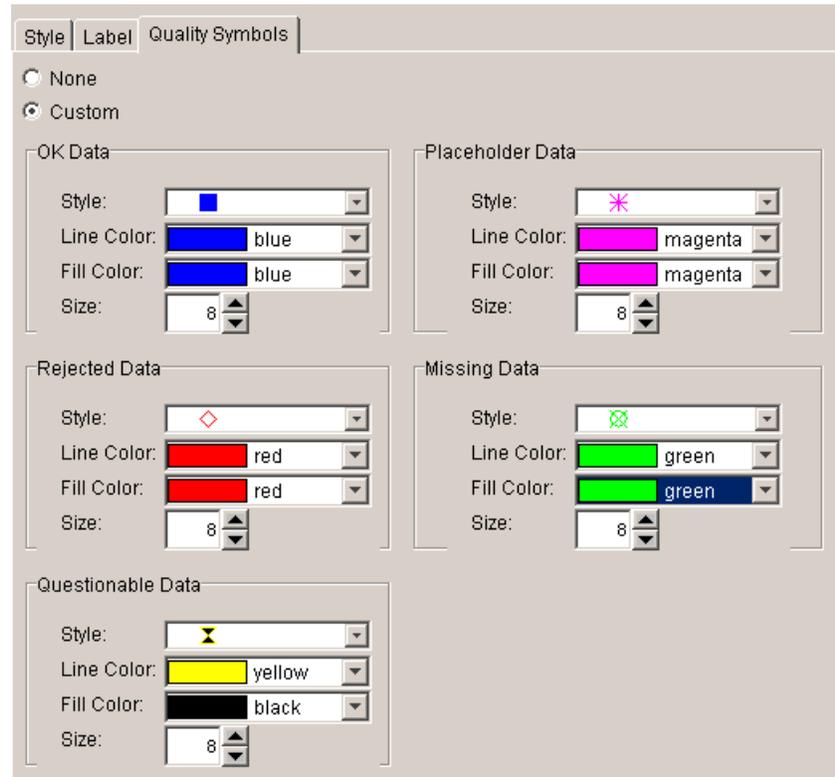


Figure 5.22 Curve Quality Symbols Editing Interface

To customize quality symbols:

1. Choose **Custom**.
2. Select a symbol **Style**, **Line Color**, **Fill Color**, and **Size** for each quality of data.

## 5.6 Customizing Viewport Properties

Viewports are the gridded areas in the plot window that contain plot curves. You can customize the border around the viewport, the background color and pattern, and the appearance of gridlines.

## 5.6.1 Customizing Viewport Borders and Background

To customize the borders and backgrounds of viewports in an *individual* plot, you can either:

- From the **Edit** menu, click **Plot Properties**. When the **Plot Properties Editor** opens, select the **Patterns** tab.
- Or*
- Right-click in a blank area inside the viewport with the **Pointer Tool** , and then select **Edit Properties** from the shortcut menu (Figure 5.23). When the **Viewport Properties Editor** opens, select the **Patterns** tab.



Figure 5.23 Shortcut Menu--Viewport Properties

To specify the default border and background of viewports for *all* of your plots, from the **Edit** menu, click **Default Plot Properties**. When the **Default Plot Properties Editor** opens, choose the **Viewport** tab.

Figure 5.24 shows the **Edit Viewport Properties Editor** with the **Patterns** tab selected. This worksheet, accessed from the shortcut menu, contains the same items as the **Patterns** tab of the **Plot Properties Editor** and the **Viewport** tab of the **Default Plot Properties Editor**.

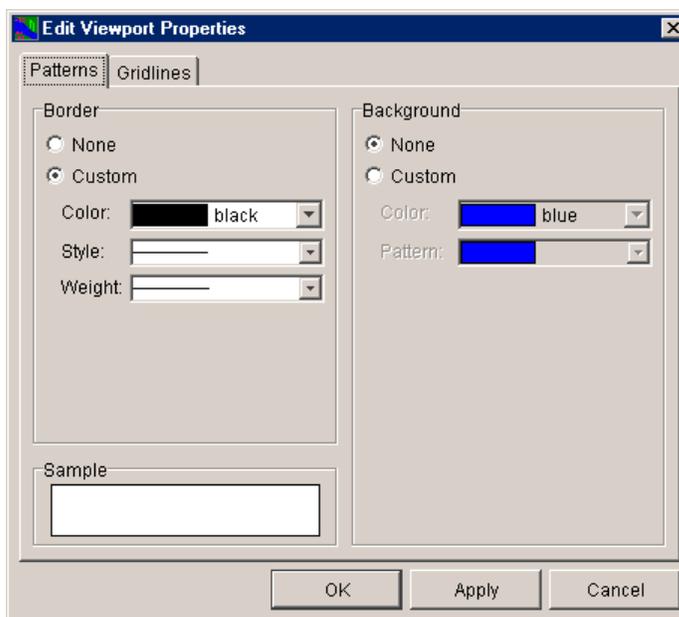


Figure 5.24 Viewport Properties Editor--Patterns Tab

The Patterns (or Viewport) tab has two main groups, **Border** and **Background**, which allow you to customize border and background of the viewport, respectively. Beneath the Border group, the **Sample** box provides a preview of the way the viewport border and background will look.

1. Select **Custom** in the **Border** group and choose the **Color**, **Style**, and **Weight** for the border you want to appear around the plot viewport.
2. Select **Custom** in the **Background** group and choose the **Color** and **Pattern** you want for the background.

Click **Apply** to save your changes and continue adjusting the appearance of the border and background. Click **OK** when you are finished.

## 5.6.2 Customizing Viewport Gridlines

To customize gridlines of viewports in an *individual* plot, you can either:

- From the **Edit** menu, click **Plot Properties**. When the **Plot Properties Editor** opens, select the **Gridlines** tab.

*Or*

- Right-click in a blank area inside the viewport with the **Pointer Tool** , and then select **Edit Properties** from the shortcut menu (Figure 5.25). When the **Viewport Properties Editor** opens, select the **Gridlines** tab.



Figure 5.25 Shortcut Menu--Viewport Properties

To specify viewport gridlines for *all* of your plots, from the **Edit** menu, select **Default Plot Properties**. When the **Default Plot Properties Editor** opens, choose the **Grids** tab.

Figure 5.26 shows the **Viewport Properties Editor** with the **Gridlines** tab selected. This worksheet, accessed from the shortcut menu, contains the same items as the **Gridlines** tab of the **Plot Properties Editor** and the **Grids** tab of the **Default Plot Properties Editor**.

By default, the plot viewport displays gridlines only for the **Major X Grid** and **Major Y Grid**. The default color is light gray. To change the appearance of Major X and Y gridlines, select **Custom** and make your selections for **Color**, **Style**, and **Weight**.

By default, the **Minor X Grid** and **Minor Y Grid** are set to **None** and do not display in the plot viewport. If you want to display gridlines for the Minor X Grid and Minor Y Grid, select **Custom** and make your selections for **Color**, **Style**, and **Weight**.

Click **Apply** to view your changes without closing the editor. Click **OK** when you are finished.

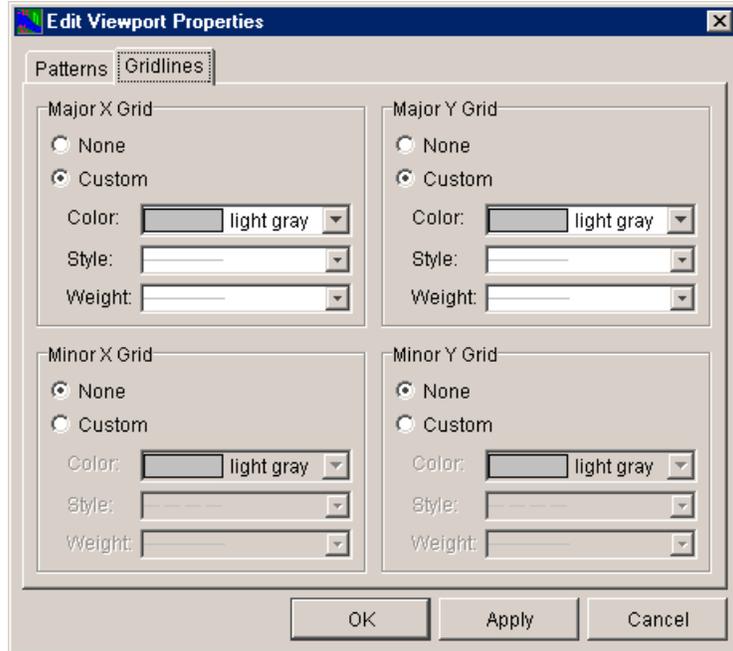


Figure 5.26 Viewport Properties Editor--Gridlines Tab

## 5.7 Adding and Customizing Marker Lines

You can add marker lines on your plot's X and Y axes and customize the appearance of these markers.

### 5.7.1 Adding Markers

To add a marker:

1. Right-click on the location in the plot where you want the marker to appear.
2. From the **Viewport shortcut menu** (Figure 5.27), point to **Add Marker**, and then click either **On X-Axis** or **On Y-Axis**.

The marker will now appear in the plot.

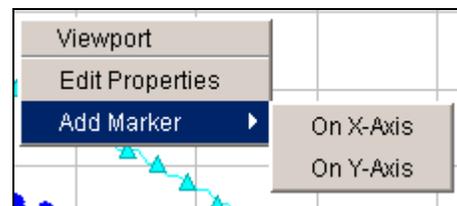


Figure 5.27 Shortcut Menu: Add Marker

## 5.7.2 Deleting Markers

To delete a marker line in a plot, right click on it with the **Pointer Tool** , and then click **Delete** from the **Marker Line shortcut menu** (Figure 5.28).



Figure 5.28 Shortcut Menu—Marker Line Properties

## 5.7.3 Customizing Markers

To edit the properties of a marker in an *individual* plot, you can either:

- From the **Edit** menu, click **Plot Properties**. When the **Plot Properties Editor** opens, select the **Marker** tab. This worksheet is available only if a marker exists in the plot. Choose the marker you want to edit from the **Marker Lines** list.

*Or*

- With the **Pointer Tool** , right-click on the marker you want to edit. From the **Marker Line shortcut menu**, select **Edit Properties** (Figure 5.28). The **Edit Marker Line Properties Editor** will open.

To specify the default appearance of markers for *all* of your plots, from the **Edit** menu, click **Default Plot Properties**. When the **Default Plot Properties Editor** opens, choose the **Marker Lines** tab.

Whether you are using the **Plot Properties Editor**, the interfaces for the specialized **Edit Marker Line Editor** and the **Default Plot Properties Editor** are very similar. However, the **Plot Properties Editor** interface differs in two ways. First, the **Marker** worksheet is available only if a marker exists in the current plot. Second, at the top of the editing panel there is a **Marker Lines** list containing all markers that exist in the current plot.

You can edit the line style and label of a marker using two editing tabs. Figure 5.29 shows the **Edit Marker Line Properties Editor** with the **Style** worksheet selected, while Figure 5.30 shows the **Label/Value** worksheet. The **Marker Line** tabs in the **Plot Properties Editor** and the **Default Plot Properties Editor** share the same two worksheets.

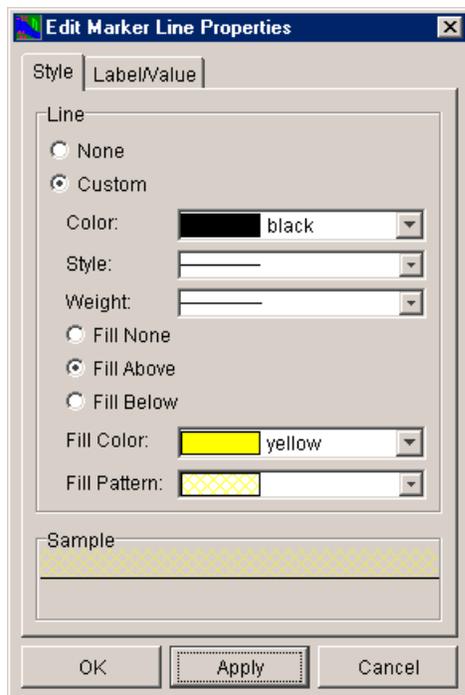


Figure 5.29 Marker Line Properties Editor—Style Tab

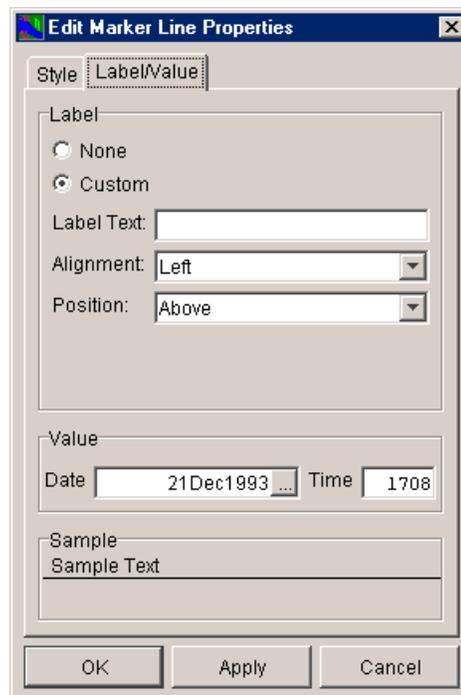


Figure 5.30 Marker Line Properties Editor—Label/Value Tab

To edit the line style for markers:

1. Select the **Style** tab.
2. Choose **Custom**.
3. Select the **Color**, **Style**, and **Weight** for the marker line.
4. You can display marker lines with fill **Above** or **Below**, or without fill. Figure 5.31 shows a plot with line Fill Above and a hatched pattern selected.

The **Sample** box provides a preview of the way the marker line will look.

Click **Apply** to save your changes without closing the editor.

To add a label to a marker line:

1. Select the **Label/Value** tab.
2. Choose **Custom**.
3. In the **Label Text** box, enter the text you want to appear in the label.
4. From the **Alignment** list, select the justification of the label--Left, Center, or Right.
5. To set the position of the label, from the **Position** list, select either Above, Center, or Below.

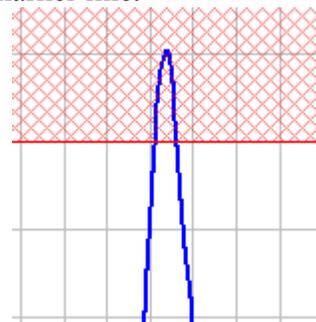


Figure 5.31 Marker Line with Fill Above

6. For the **Date** value, enter the date in the format DDMMYYYY (e.g., 21Dec1993). You can also click the  button to access the **Calendar Tool** (Figure 5.32) to select the date.
7. For the **Time** value, enter the time in 24-hour military format (e.g., for 5:08 pm, enter “1708”).

The **Sample** box provides a preview of the way the marker line will look.

Click **Apply** to save and view your changes without closing the editor. Click **OK** when you are finished editing marker line properties.



Figure 5.32 Calendar Tool

### 5.7.4 Editing Callouts

You can add descriptive callouts at specific points along a curve (Figure 5.33). To do this:

1. Right-click on the location on the curve where you want the callout to appear.
2. From the **shortcut menu** (Figure 5.34), point to **Add Callout**.
3. In the **Add Callout** dialog box (Figure 5.35), enter the text you want to appear in the callout, and then click **OK**.

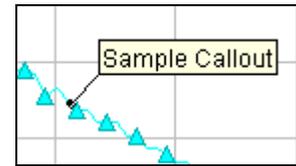


Figure 5.33 Callout

To hide all callouts in a plot, right-click on a curve in the plot. From the shortcut menu, click **Hide Callouts**.

Once you have hidden callouts, **Hide Callouts** in the shortcut menu changes to **Show Callouts**, allowing you to return callouts to the plot display.

To permanently remove all callouts from the plot, right-click on a curve in the plot to access the shortcut menu, then click **Clear Callouts**.

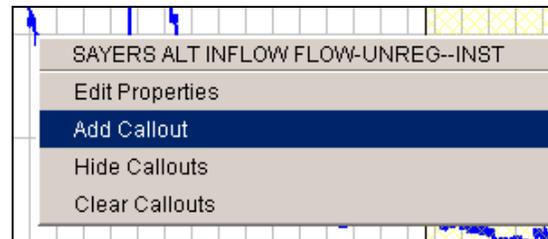


Figure 5.34 Shortcut Menu: Add Callout

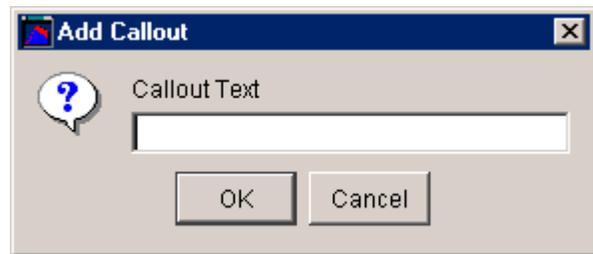


Figure 5.35 Add Callout Dialog Box

## 5.8 Customizing Axes

You can choose either a linear or log axis type, specify the axis scale, modify tic marks, and customize axis labels.

### 5.8.1 Changing Axis Type

By default, plots display using a linear scale (Linear Axis), in which the axis increases and decreases by  $x$ . You can also use the log scale, which allows you to view curves that grow exponentially in a near straight line because the axis increases or decreases by the log ( $x$ ). For example, you might wish to use the log scale when the axis has evenly-spaced major tics with values of 1, 10, 100, 1000, and so on, such as in a performance history plot showing many years of data.

To change the axis type of an individual plot, right-click on an axis. From the **Axis Tics shortcut menu**, point to **Set Axis Type**, and then select the axis type from the submenu (Figure 5.36). Depending on the axis type, you can click either **Log Axis** or **Linear Axis**.

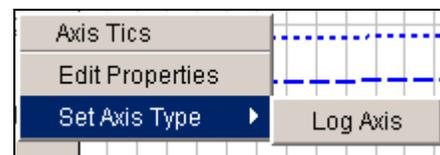


Figure 5.36 Shortcut Menu - Set Axis Type

### 5.8.2 Specifying Axis Scale

You can specify the axis scale and tic interval for individual plots. To do this, you can either:

- From the **Edit** menu, click **Plot Properties**. When the **Plot Properties Editor** opens, select the **Axis** tab. From the **Axis** worksheet, select the axis you want to edit from the **Axis** list. Once you have this set, click the **Scale** tab to access the **Scale** worksheet.

*Or*

- Right-click on the axis with the **Pointer Tool** . From the **Axis Tics shortcut menu** (Figure 5.37), click **Edit Properties**. When the **Edit Axis Properties Editor** opens, choose the **Scale** tab.



Figure 5.37 Shortcut Menu—Axis Tics

Figure 5.38 shows the **Plot Properties Editor** with the **Axis** tab selected and the **Scale** worksheet open. The **Axis** worksheets of the **Plot Properties Editor** and the **Default Plot Properties Editor** are nearly identical, except for the **Axis** list on the **Plot Properties Editor**. The **Scale** and **Tics** sub-worksheets are available in all three editors.

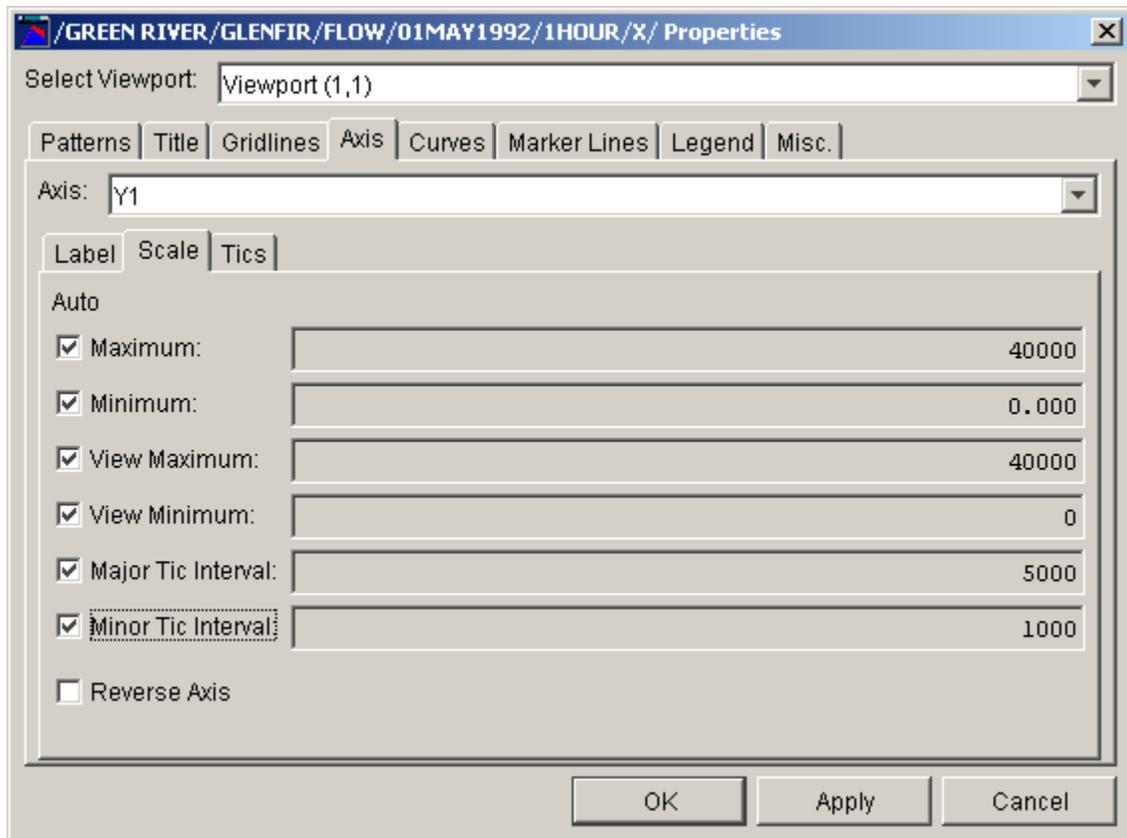


Figure 5.38 Plot Properties Editor--Scale Worksheet

With the **Scale** worksheet, you can specify the range of the scale, the amount of the scale that is visible, and the tic intervals.

If the **Auto** box is checked, the plot will automatically select the scale. Otherwise, as you zoom in and out of the plot, its view values change while the minimum and maximum scale range values remain fixed:

- **Maximum:** enter the value of the maximum range of the scale.
- **Minimum:** enter the value of the minimum range of the scale.
- **View Maximum:** enter the maximum visible range of the scale.
- **View Minimum:** enter the minimum visible range of the scale.

Tic intervals are the distances between tics on the axis scale:

- **Major Tic Interval:** specify the distance between each major tic.
- **Minor Tic Interval:** specify a value less than or equal to the major tic value.

You can also choose to reverse the axis by selecting **Reverse Axis**.

Click **Apply** to save and view your changes without closing the editor.

Click **OK** to save your changes and close the editor.

### 5.8.3 Modifying Tic Marks

You can modify the color of tic marks, choose whether or not major and minor tic marks display, and specify whether labels display. (See also “Specifying Axis Scale” in Section 5.8.2 for information about modifying tic intervals.)

To modify tic marks in an *individual* plot, you can either:

- From the **Edit** menu, click **Plot Properties**. When the **Plot Properties Editor** opens, select the **Axis** tab. From the **Axis** worksheet, select the axis you want to edit from the **Axis** list. Once you have this set, choose the **Tics** tab to set tic marks.  
*Or*
- Right-click on the axis with the **Pointer Tool** . From the **Axis Tics shortcut menu** (Figure 5.37), click **Edit Properties**. When the **Edit Axis Properties Editor** opens, choose the **Tics** tab.

To specify default settings for axis tics in *all* of your plots, click **Default Plot Properties** from the plot Edit menu. When the **Default Plot Properties Editor** opens, choose the **Axis** tab, then the **Tics** tab.

Figure 5.39 shows the **Tics** worksheet of the **Edit Axis Properties Editor**. The **Tics** worksheet is nearly identical on the **Edit Axis Properties Editor**, **Plot Properties Editor**, and **Default Plot Properties Editor**. However, at the top of the **Plot Properties Editor** is an **Axis** list containing all of the axes available for editing in the current plot. In the **Plot Properties Editor**, you must choose an axis to edit before you can make any changes.

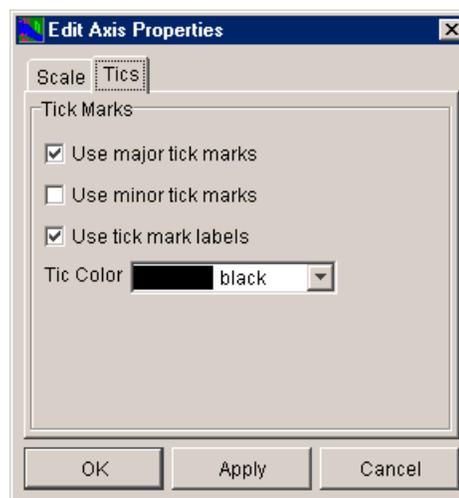
By default, plot axes display major tic marks with labels. To turn off these options, click to clear the **Use major tick marks** and **Use tick mark labels** check boxes.

You can also select **Use minor tic marks**.

To change tic color, select the color you want from the **Tic Color** list.

Click **Apply** to save and view changes without closing the editor.

Click **OK** to save your changes and close the editor.



**Figure 5.39** Axis Properties Editor--Tics Tab

## 5.8.4 Customizing Axis Labels

You can add borders and backgrounds to axis labels.

To customize axis labels in an *individual* plot, you can either:

- From the **Edit** menu, click **Plot Properties**. When the **Plot Properties Editor** opens, select the **Axis** tab. On the **Axis** worksheet, select the axis you want to edit from the **Axis** list. Once you have this set, select the **Label** tab to set axis label properties.

Or

- Right-click on the axis label with the **Pointer Tool** . From the **G2d Label shortcut menu** (Figure 5.40), click **Edit Properties**. The **Edit Label Properties Editor** will open.

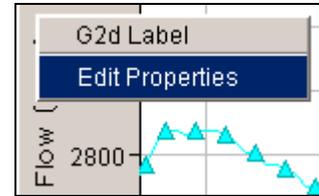


Figure 5.40 G2d Label Shortcut Menu

To specify default settings for axis labels in *all* of your plots, select **Default Plot Properties** from the plot Edit menu. When the **Default Plot Properties Editor** opens, choose the **Axis** tab, then the **Label** tab.

Figure 5.41 shows the **Edit Label Properties Editor**. The same worksheet is available on the **Label** tabs of the **Plot Properties Editor** and **Default Plot Properties Editor**, with one difference. The **Plot Properties Editor** has an **Axis** list containing all of the axes available for editing in the current plot.

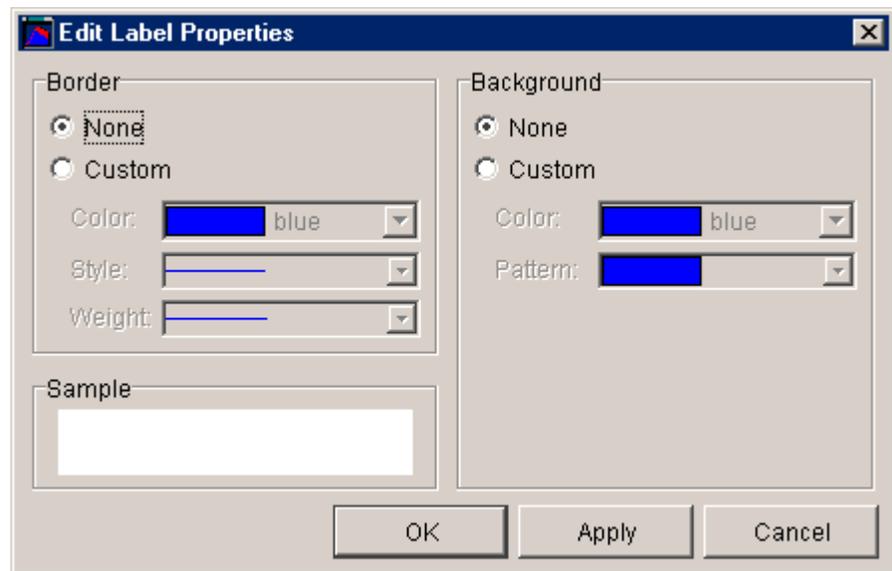


Figure 5.41 Label Properties Editor

The **Label** worksheet has two groups, **Border** and **Background**, which allow you to customize border and background of the label, respectively. Beneath the **Border** group, the **Sample** box provides a preview of the label.

To add a border around the axis label, choose **Custom** in the **Border** group, and then select the **Color**, **Style**, and **Weight** for the borderline.

To add a background to the axis label, choose **Custom** in the **Background** group, and then select a **Color** and **Pattern**.

Click **Apply** to save and view your changes without closing the editor. Click **OK** when you are finished editing axis label properties.

## 5.9 Customizing Legends

As Figure 5.42 illustrates, you can add titles to the top of plot legends and add text and graphics to the right and left sides. You can also specify whether the legend appears below or to the right of the plot (refer to Section 5.11.2).



Figure 5.42 Customizing Legends

To add legend labels to an *individual* plot, you can either:

- From the **Edit** menu, click **Plot Properties**. When the **Plot Properties Editor** opens, select the **Legend** tab.

*Or*

- Right-click in a blank area inside the legend panel of the plot with the **Pointer Tool** . From the **Legend Panel shortcut menu** (Figure 5.43), click **Edit Properties**. The **Edit Legend Properties Editor** will open.



Figure 5.43 Shortcut Menu - Legend Panel

To specify default settings for *all* of your plot legends, from the **Edit** menu, click **Default Plot Properties**. When the **Default Plot Properties Editor** opens, choose the **Legend** tab.

Whether you are using the **Plot Properties Editor**, **Edit Legend Properties Editor**, or **Default Plot Properties Editor**, the worksheet for editing legend titles is the same.

Figure 5.44 shows the **Legend Properties Editor**. This worksheet, accessed from the shortcut menu, contains the same fields as the **Legend** worksheets of both the **Plot Properties Editor** and the **Default Plot Properties Editor**.

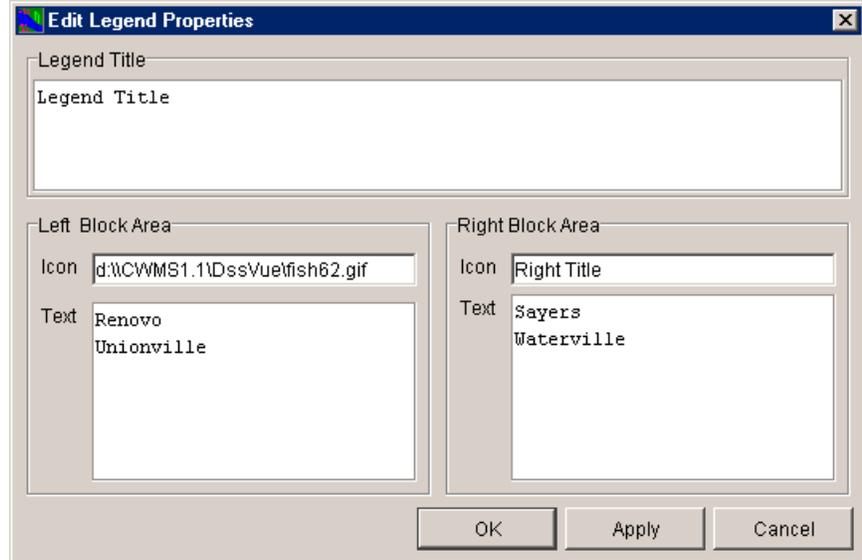


Figure 5.44 Legend Properties Editor

1. In the **Legend Title** box, enter the title you want to appear along the top of the legend box.
2. In the **Left Block Area** and **Right Block Area** groups, you can specify the **Icon** and **Text** you want to appear on either side of the legend block.
  - If you wish to display icons, type the exact paths and filenames of the icon in the **Icon** field. (The path is the location on your computer.)
  - Enter any text you want to display in the **Text** boxes.
3. Click **Apply** to view your changes without closing the editor. Click **OK** to save your changes and close the editor.

## 5.10 Customizing Window Panels

You can customize the color and spacing of the window “panel” in which plots are displayed; you can also choose whether the plot legend displays horizontally along the bottom of the plot panel or vertically along the right side.

To customize panel properties of an *individual* plot, from the **Edit** menu, click **Plot Properties**. When the **Plot Properties Editor** opens, select the **Misc.** tab.

To specify panel properties for *all* of your plots, from the **Edit** menu, click **Default Plot Properties**. When the **Default Plot Properties Editor** opens, choose the **Misc.** tab.

Whether you are using the **Plot Properties Editor** or the **Default Plot Properties Editor**, the **Misc.** worksheet is the same. Figure 5.45 shows the **Misc.** worksheet of the **Default Plot Properties Editor**.

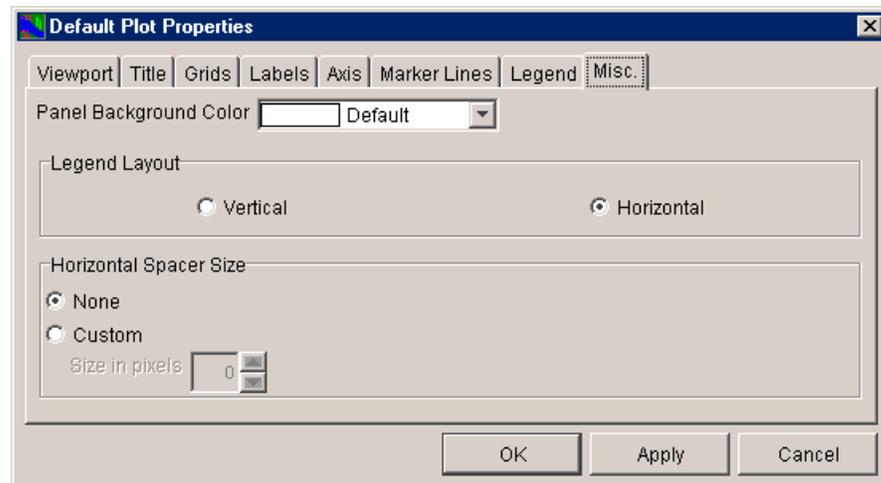


Figure 5.45 Default Plot Properties Editor--Misc. Tab

You can also edit the legend layout and spacer size from individual property editors accessed from shortcut menus, as discussed below.

### 5.10.1 Customizing the Panel Background Color

To customize the panel background color, click the down arrow beside the **Panel Background Color** field to select the color you want. There is no individual property editor available for customizing the panel background color.

### 5.10.2 Customizing the Legend Layout

If you want the plot legend to display horizontally along the bottom of the plot panel, in the **Legend Layout** group, select **Horizontal**. If you want the plot legend to display vertically along the right side of the plot panel, select **Vertical**.

Another way to adjust the position of the legend for an individual plot is to use the **Legend Panel shortcut menu** (Figure 5.46).

To access the Legend Panel shortcut menu, with the pointer tool right-click on a **blank area** inside of the legend panel in the plot window panel. If the legend is currently positioned horizontally, you can click **Move To Right**, which will cause the legend to display vertically. If the legend is currently positioned vertically, you can click **Move to Bottom**, which will cause the legend to display horizontally.



Figure 5.46 Legend Panel Shortcut Menu

### 5.10.3 Customizing the Horizontal Spacer Size

In the **Plot Properties Editor** and **Default Plot Properties Editor**, horizontal spacer size refers to the space between viewports in plots with multiple viewports. In single-viewport plots, it is the “margin” space between the right side of the viewport and the edge of the window panel.

To specify the horizontal spacer size using the **Misc.** tab of the **Plot Properties Editor** or **Default Plot Properties Editor**, in the **Horizontal Spacer Size** group, select **Custom**, then either select the pixel size from the list or enter a value less than 50.

You can also use the **Spacer shortcut menu** (Figure 5.47) to customize both horizontal and vertical spacer size for an individual plot.

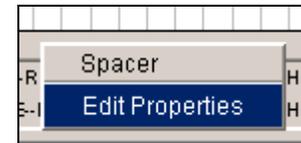


Figure 5.47 Spacer Shortcut Menu

To access the **Spacer shortcut menu**, right-click on a blank space on the plot panel. Click *between* viewports if you want to adjust vertical spacing between viewports, or *to the right* of a viewport to adjust horizontal spacing.

From the **Spacer shortcut menu**, click **Edit Properties**. The **Edit Spacer Properties** dialog box will open (Figure 5.48).



Figure 5.48 Edit Spacer Properties Dialog Box

To specify the spacer size, enter a value less than 50.

## 5.11 Customizing Plot Layout

The **Configure Plot Editor** (Figure 5.49) displays plot components in a “tree” structure and allows you to customize the layout of an individual plot. You can add and remove axes as well as add, remove, arrange the order of, and set the weight of viewports in the plot window panel.

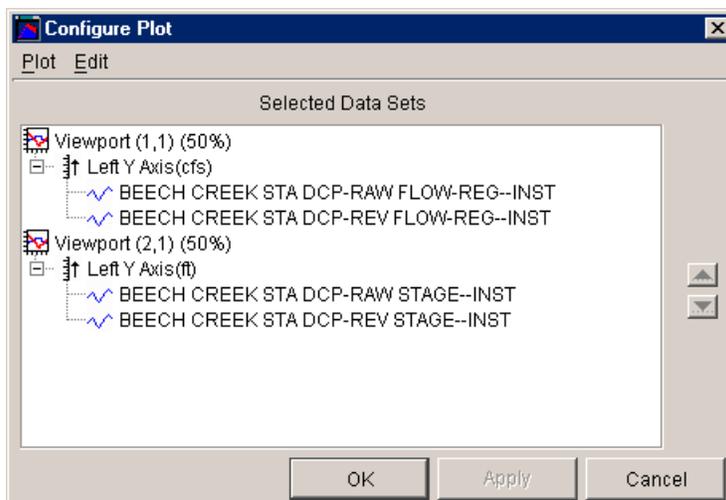


Figure 5.49 Configure Plot Editor

When you customize the layout of a plot using the **Configure Plot Editor**, your changes apply only to that individual plot unless you export the plot's properties (see Section 5.13).

To access the **Configure Plot Editor**, from the **Edit** menu, select **Configure Plot Layout**.

### 5.11.1 Adding and Removing Viewports

To add a new viewport to a plot, from the Configure Plot Editor's **Edit** menu click **Add Viewport**. The new viewport will appear at the bottom of the "tree" in the **Selected Data Sets** box.

To remove a viewport, you can either:

- Click on the name of the viewport in the Selected Data Sets "tree." From the **Edit** menu, click **Remove Viewport**.  
*Or*
- Right-click on the viewport's name in the Selected Data Sets "tree." From the shortcut menu (Figure 5.50), click **Remove**.

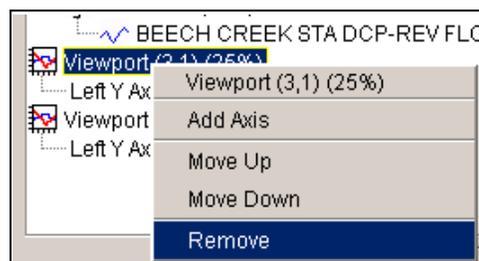


Figure 5.50 Shortcut Menu--Remove Viewport

### 5.11.2 Setting Viewport Weights

You can customize the relative sizes of viewports in your plots. To do this:

1. From the **Edit** menu of the **Configure Plot Layout Editor**, click **Set Viewport Weights**. The **Set Plot Viewport Weights** dialog box will open.
2. In the **Set Plot Viewport Weights** dialog box (Figure 5.51), you can specify the relative size of each viewport as a percentage value, with all of the weights adding up to 100%. Figure 5.51 shows four viewports of equal weight at 25% each.

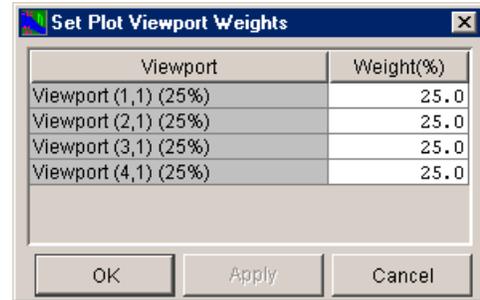


Figure 5.51 Set Plot Viewport Weights Dialog Box

Note that the **Set Plot Viewport Weights** dialog box offers the same right-click shortcut menu commands as are available in all tables. You can cut, copy, and paste data cells; insert, append, and delete rows; and print and export. For more information, refer to the section on tabular data in the **Utilities** chapter.

Click **Apply** to save and view your changes without closing the dialog box. Click **OK** to save your changes and close the dialog box.

### 5.11.3 Adding and Removing Axes

By default, viewports have a left Y-axis. You can also add a right Y-axis, remove both the left and right Y-axes, and add a new left Y-axis if you have previously removed it. Viewports can have a maximum of two axes, and you cannot remove an axis when a data set is associated with it.

To add an axis to a viewport, you can either:

- Click on the viewport's name in the tree in the Selected Data Sets box. From the **Edit** menu, choose **Add Axis**.  
*Or*
- Right-click on the viewport's name in the tree in the Selected Data Sets. From the shortcut menu (Figure 5.52), click **Add Axis**.

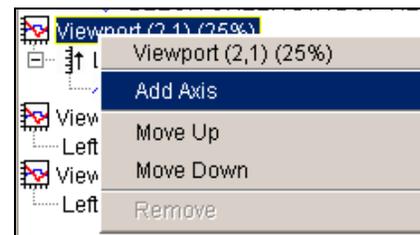


Figure 5.52 Shortcut Menu - Add Axis

The tree now displays another axis for the viewport you selected.

To remove an axis that has no data associated with it, you can either:

- Click on the name of the axis you wish to remove in the tree in the Selected Data Sets box. From the **Edit** menu, click **Remove Axis**.  
*Or*
- Right-click on the axis you wish to remove in the tree in the Selected Data Sets box. From the shortcut menu, click **Remove**.

The selected axis will no longer display in the tree.

### 5.11.4 Arranging Viewports and Axes

You can rearrange the vertical order of viewports in a plot window and move axes (with their associated data sets) to different viewports.

To move a viewport or axis,

1. From the tree in the Selected Data Sets box, right-click on the name of a viewport or axis you want to move.
2. From the shortcut menu, click **Move Up** or **Move Down** from the shortcut menu.
3. Either click **OK** or **Apply** for the change to take effect in the plot window.

Note that you cannot move individual data sets in the Configure Plot Layout Editor. You can move only the axis with which a data set is associated.

### 5.11.5 Reversing Axes

To reverse the direction of an axis, right-click on the name of the axis in the tree. From the shortcut menu, click **Reverse**. Either click **OK** or **Apply** for the change to appear in the plot window.

## 5.12 Exporting and Importing Templates

After you have customized a plot, you can save its settings as a template for use in other plots.

Generally, you will use templates when scripting plots. For example, every day you generate a plot of flow, stage, and precipitation via a script, and then apply a template that has all of the correct formatting, such as viewport placement, size, line colors, and fills. For more information about using templates with scripts, refer to the chapter on **Scripting**.

To create a template from a plot:

1. From the **File** menu, click **Export Properties**.
2. From the **Export Plot Template** dialog box (Figure 5.53), specify whether you want the template to be available for **All Applications** or **This Watershed only**, and then give the template a **Name**.
3. Click **OK** to save the template and close the dialog box.

To apply (import) a template you have created to another plot currently open:

1. From the **File** menu, click **Import Properties**.
2. In the **Import Plot Template** dialog box (Figure 5.54), specify whether you want to use a template available for **All Applications** or for **This Watershed only**.
3. A list of available templates will display. Choose the template you want by clicking on its name.
4. When you select a template, its name will display in the **Name** field.
5. Click **OK** to apply the template to the current plot and close the dialog box.

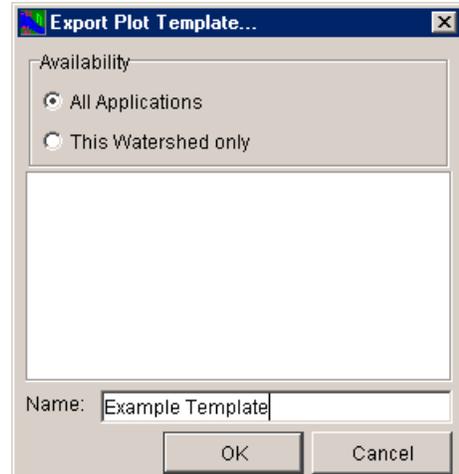


Figure 5.53 Export Plot Template Dialog Box

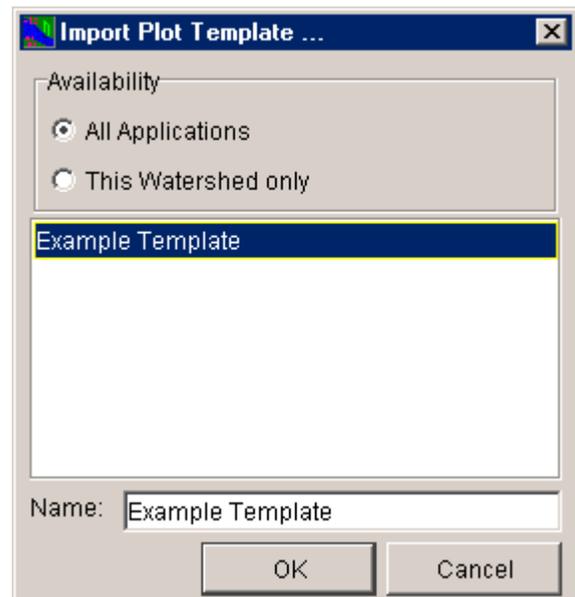


Figure 5.54 Import Plot Template Dialog Box

## 5.13 Additional Viewing Options for Plots

The **File** menu of plots (Figure 5.55) contains several commands that allow you to view plot data in tabular form, save plots, and copy and paste plots into other applications such as Microsoft Word, Excel, and Visio.



Figure 5.55 File Menu

### 5.13.1 Viewing Data in Tabular Form

To view plot data in tabular form, from the **File** menu, click **Tabulate**. A dialog box will open displaying the data in tabular form (Figure 5.56).

Ordinate	Date / Time	SAYERS-FL... ELEV-ZONE BASETYP---0	SAYERS-CO... ELEV-ZONE BASETYP---0	SAYERS-INA... ELEV-ZONE BASETYP---0	SAYERS-FL... ELEV-ZONE BASETYP---0	SAYERS-PO... ELEV BASETYP---0	SAYERS-PO... FLOW-IN BASETYP---0	SAYERS-PO... FLOW-OUT BASETYP---0
Units		ft	ft	ft	ft	ft	cfs	cfs
1	20 Aug 01 06:...	657.00	630.00	590.00	630.90	630.75	305.82	151.80
2	20 Aug 01 07:...	657.00	630.00	590.00	630.90	630.76	305.56	151.80
3	20 Aug 01 08:...	657.00	630.00	590.00	630.90	630.77	304.93	151.80
4	20 Aug 01 09:...	657.00	630.00	590.00	630.90	630.78	304.25	151.80
5	20 Aug 01 10:...	657.00	630.00	590.00	630.90	630.78	303.55	151.80
6	20 Aug 01 11:...	657.00	630.00	590.00	630.90	630.81	302.86	151.80
7	20 Aug 01 12:...	657.00	630.00	590.00	630.90	630.82	302.17	148.70
8	20 Aug 01 13:...	657.00	630.00	590.00	630.90	630.83	301.48	150.15
9	20 Aug 01 14:...	657.00	630.00	590.00	630.90	630.83	300.80	151.80
10	20 Aug 01 15:...	657.00	630.00	590.00	630.90	630.85	300.11	261.28
11	20 Aug 01 16:...	657.00	630.00	590.00	630.90	630.85	299.43	276.55
12	20 Aug 01 17:...	657.00	630.00	590.00	630.90	630.85	298.75	278.95
13	20 Aug 01 18:...	657.00	630.00	590.00	630.90	630.85	298.07	278.95
14	20 Aug 01 19:...	657.00	630.00	590.00	630.90	630.85	297.39	278.95
15	20 Aug 01 20:...	657.00	630.00	590.00	630.90	630.86	296.72	278.95

Figure 5.56 Data in Tabular Form

For more information about tables, refer to the chapter on **Utilities**.

### 5.13.2 Saving Plots

You can save a plot as an image (JPEG), a Windows Metafile (\*.wmf), as Portable Network Graphics (\*.png), or other formats.

To do this, from the **File** menu, click **Save As**. From the **Save** dialog box (Figure 5.57), select the location where you want to save the plot, enter a filename in the **File name** box, and select the file type you want from the **Files of type** list, then click **Save**.

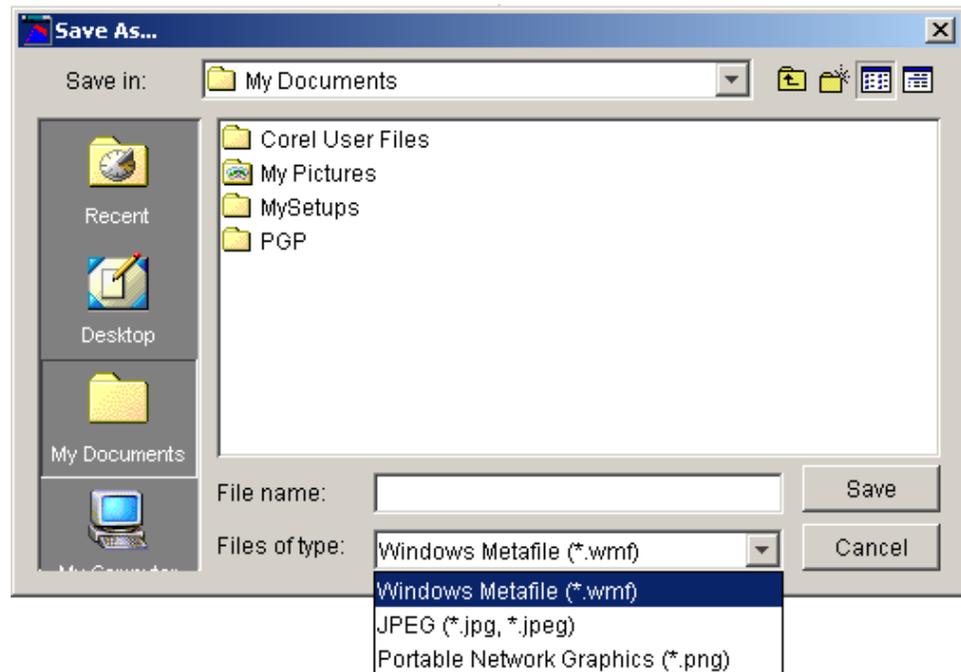


Figure 5.57 Save Dialog Box

### 5.13.3 Copying Plots to the Clipboard

Use **Copy to Clipboard** from the **File** menu to copy a plot to the clipboard. You can then paste the plot as an image into another application such as Microsoft Word, Excel, or Visio.

## 5.14 Printing Plots

The **Print** command, available from the **File** menu of plots, opens a standard, Windows-style print dialog box.

From the **File** menu, click **Page Setup**. The **Page Setup** dialog box will open (Figure 5.58). Here you can set the page **Orientation**, **Page Numbers**, and **Printer Scale**, and set the **Margins**.

**Set Margins** opens the **Printer Margins** dialog box (Figure 5.59).

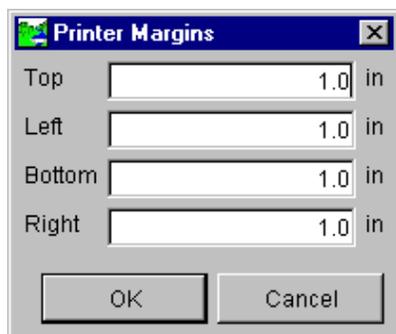


Figure 5.59 Printer Margins Dialog Box

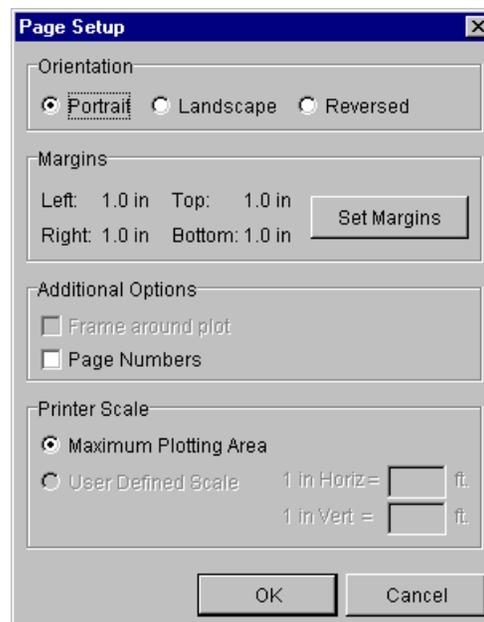


Figure 5.58 Page Setup Dialog Box

To view the plot as it will be printed, from the **File** menu, click **Print Preview**. Figure 5.60 shows an example.

Finally, the **Print Multiple** command allows you to print several plots on one page. The **Print Multiple** dialog box (Figure 5.61) shows all of the currently open plots in the **Available Plots** box. To select plots for printing, double-click on the plots in the **Available Plots** box and the selected plots will move to the **Selected Plots** box.

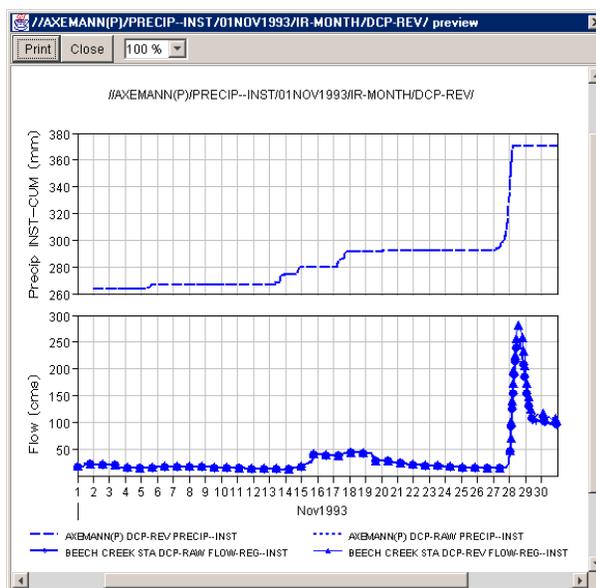


Figure 5.60 Example Print Preview of a Plot

Next, use the slider bars to specify the number of plots you wish to appear horizontally and vertically on the page. The grid to the right of the sliders reflects your choices.

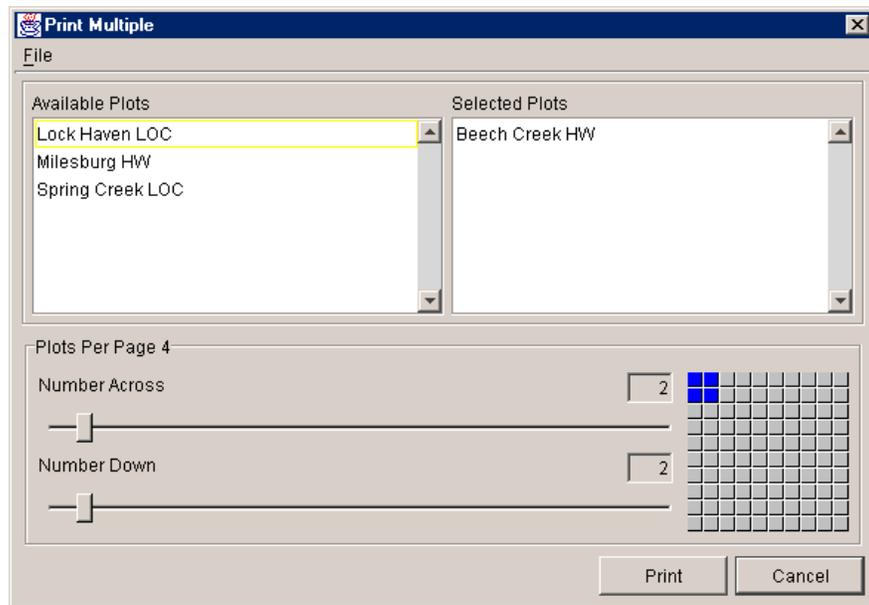


Figure 5.61 Print Multiple Dialog Box

Figure 5.62 shows a preview of the plots set up above. From the **Print Multiple** dialog box, you can also use the **Page Setup** and **Print Preview** commands. The two commands are available from the **File** menu of the **Print Multiple** dialog box.

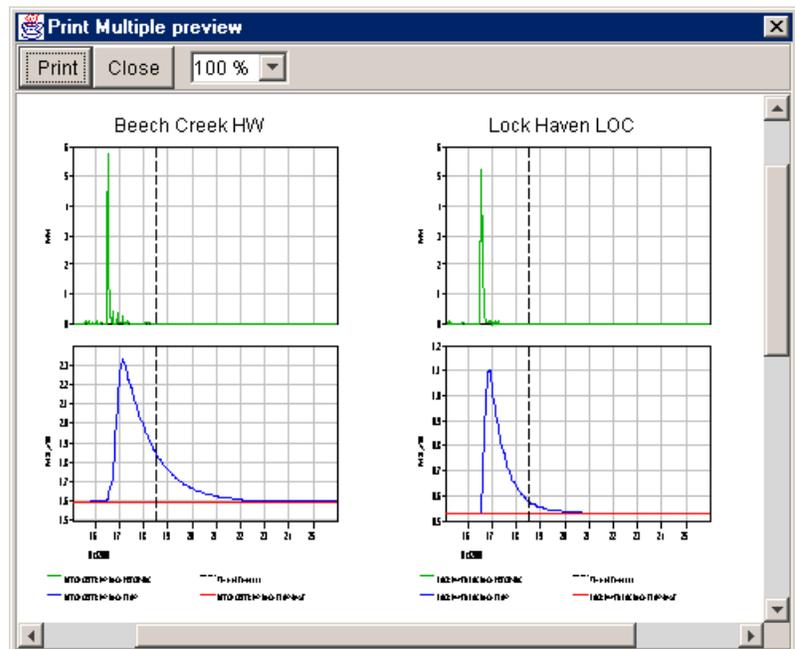


Figure 5.62 Print Multiple Preview Dialog Box (Example)