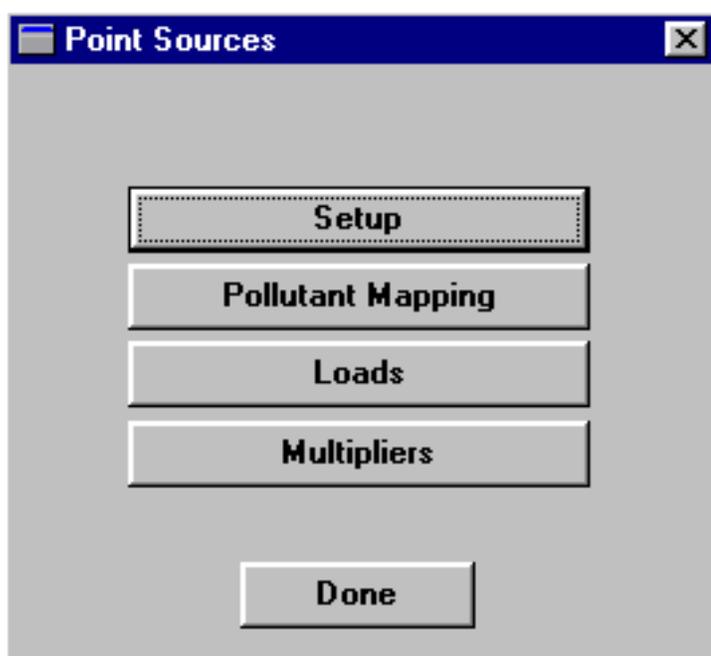# 10.9 Point Sources

1. Click this button to incorporate point source facility discharges into your simulation. The subsequent window (Screen 10.9.1) provides four options—**Setup, Pollutant Mapping, Loads,** and **Multipliers.**

2. Click *Setup* to open the "Point Sources Setup" window (Screen 10.9.2). Observe which facilities

Screen 10.9.1

discharge into the reaches being modeled. This is done by selecting each reach, one at a time, in the "Reach name" box and viewing the corresponding point source facility table. Any point source facility found in the Permit Compliance System database will be listed. The table includes Discharger Name, NPDES No., and Mile Point.

In the event that this point source facility information needs to be edited, e.g. a facility needs to be added, a facility needs to be deleted, or information concerning a facility is incorrect, changes can be made from this screen.

To add a new discharger to any reach being modeled, click the **Add** button. In the "Add Discharger" window (Screen 10.9.3), enter the discharger's name in the "Name" box, the discharger's NPDES number in the "NPDES No." box, and the facility's milepoint in the "Mile Point" box (in miles-from the most downstream point of the reach segment it discharges to). All pollutants the facility discharges should also be added on this screen. Add a pollutant by typing a pollutant name in the "Pollutant" box and clicking the **Add** button. The pollutant will be transferred from the "Pollutant" box to the large box below. Add remaining pollutants in the same manner. Remove selected pollutants by clicking on their names in the large box and clicking the **Remove** button. Click **OK** to save any changes and exit this window or **Cancel** to exit the window without saving changes.
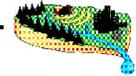

> ***Tip:*** *Flow must be added as a pollutant parameter in the "Add Discharger" window.*

To remove a discharger from the "Point Sources Setup" window, simply click on the discharger's name and click the **Remove** button.

To edit a discharger's name, NPDES number, mile point, or the names of pollutants it discharges, click on the discharger's name and click the **Edit** button. The "Edit Discharger" window opens and enables you to edit the current information. This window is identical to the "Add Discharger" window.

Click **OK** to save any changes and leave this window or **Cancel** to leave the window without saving changes.

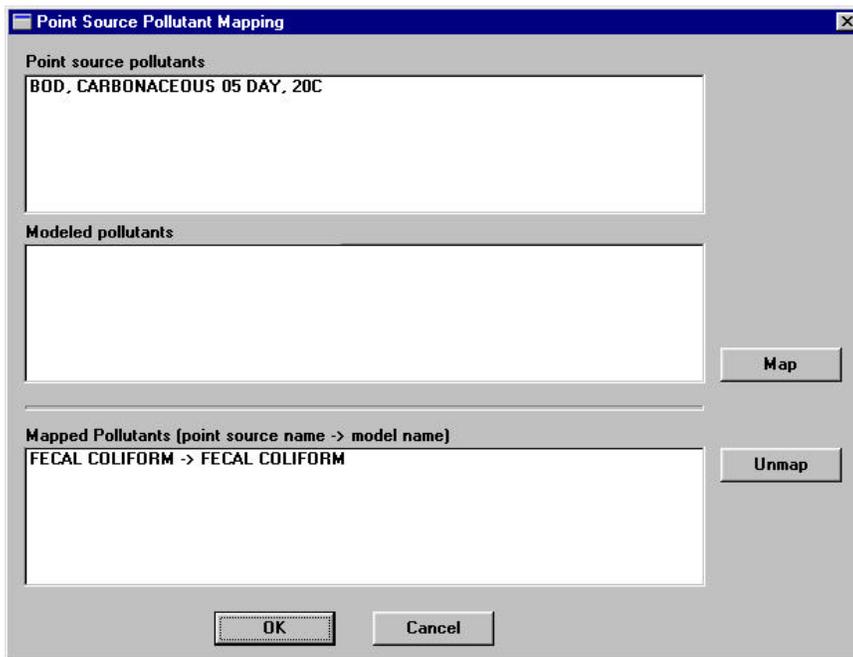3. Click **Pollutant Mapping** to open the "Point Source Pollutant Mapping" window (Screen 10.9.4). Due
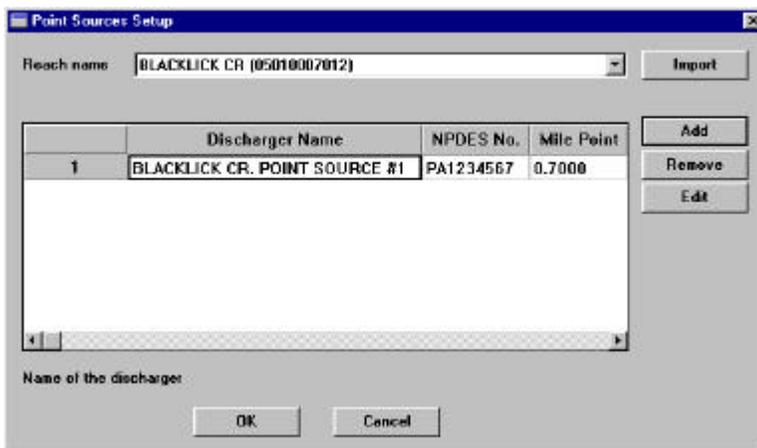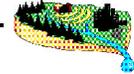
Screen 10.9.2
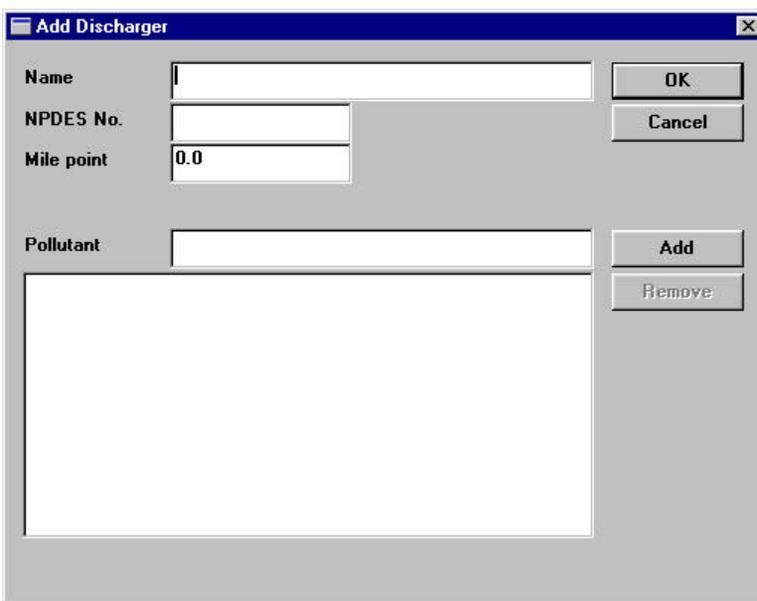
Screen 10.9.3

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to the variation in pollutant naming conventions from different sources, it is necessary to ensure that all pollutants are properly represented in the model. The "Point source pollutants" box contains all pollutants monitored for facilities in the selected watershed(s). The "Modeled pollutants" box contains all pollutants selected in the NPSM Pollutant Selection window for this simulation. To model pollutant data from a point source facility, it is necessary to match the pollutant in the "Point source pollutants" box (by highlighting it) with the corresponding pollutant in the "Modeled pollutants" box (by highlighting it) and to click on the **Map** button. The matched pollutants will move to the "Mapped Pollutants" box. If you wish to change a designation, simply highlight the pollutant combination in the "Mapped Pollutants" box and click on the **Unmap** button. Click **OK** to save any changes and leave this window or **Cancel** to leave the window without saving changes.

Screen 10.9.4

4. Click **Loads** to open the "Point Sources Pollutant Information" window (Screen 10.9.5). Discharger names for all point source facilities discharging into the stream reaches are listed in the "Discharger Name" box. Click the down arrow next to this box to view the entire list. Notice that the reach to which the facility discharges is identified below the discharger name. Point source contributions can be designated as either Constant or Time variable in the "Flow and Load" box. The "Active constituents" box displays flow and pollutants that have been mapped to the point source pollutant list for the facility listed in the "Discharger Name" box, but have not been selected for modeling. Select flow and pollutants you intend to model by highlighting their names in the "Active constituents" box and clicking the right arrow or simply by double-clicking on their names. To unselect a pollutant, highlight the appropriate name in the "Point source constituents" box and click on the left arrow.

Screen 10.9.5

To represent the point source contribution as constant, select the "Constant" radio button, be sure that flow and any pollutants you wish to model are located in the "Point source constituents" box, and click the **Edit Data** button.

The "Constant Flow and Load" window (Screen 10.9.6) appears. This window displays the Discharger Name and Reach for the facility selected on the previous screen. Additionally, it displays the flow and pollutant loading values for each pollutant selected for this facility. The flow and pollutant loading values can be edited directly on the screen as in other NPSM interface windows. Flow and pollutant loading units can be viewed by clicking on the respective column heading. Click **OK** to save any changes and leave this window or **Cancel** to leave the window without saving changes.
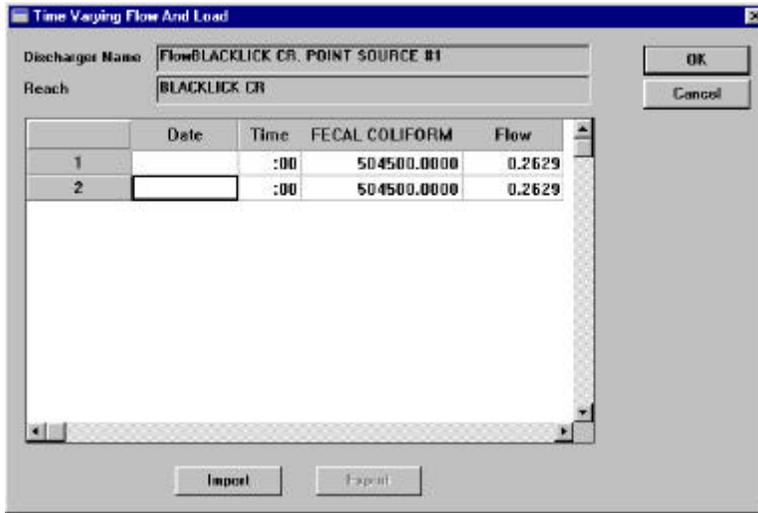

Screen 10.9.6

To represent the point source contribution as time variable, select the "Time Variable" radio button, be sure that flow and any pollutants you wish to model are located in the "Point source constituents" box, and click the **Edit Data** button. The "Time Varying Flow and Load" window (Screen 10.9.7) appears. This window displays the Discharger Name and Reach for the facility selected on the previous screen and time-varying flow and load values in a tabular format. The first column contains the number of each time-variable record used to represent the discharge data. The Date and Time columns contain the date and time, respectively, for each time-variable record. The Date column uses a "MM/DD/YYYY"

format for date entry, and the time column uses a "HH:MM" format for time entry. The remaining
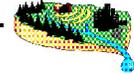
columns contain the flow and additional pollutant loading values for each time variable record. Flow and pollutant loading units can be viewed by clicking on the respective column headings. Values for Date, Time, flow, and pollutant loading can be entered directly into the table. In lieu of manually entering all time series data, data can be imported into this table using the **Import** button. Clicking the **Import** button will enable you to select an HSPF MUTSIN file containing your time series flow and pollutant loading data. In order to use this option, you must develop a MUTSIN file. Refer to *Hydrological Simulation Program - FORTRAN, User's Manual for Release 11.0* for information regarding the MUTSIN file format. Click **OK** to save changes and exit this window or **Cancel** to exit
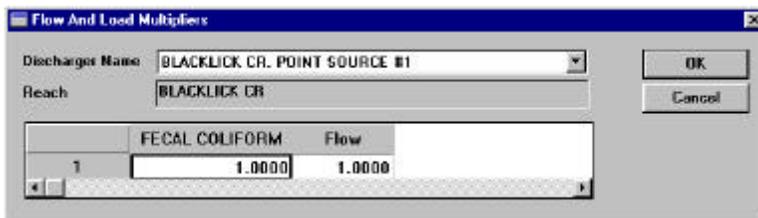

Screen 10.9.7

this window without saving changes.

In the event that you do not wish to enter a time variable value for every time step in your simulation period, select an option from the "Options for handling incomplete time series data" drop-down list. Available options include: stop on missing data, fill missing data with 0.0, fill missing data with -1.0E30, and fill missing data with next value.

Click **OK** to save any changes and leave the "Point Source Pollutant Information" window or **Cancel** to leave the "Point Source Pollutant Information" window without saving changes.

5. Click **Multipliers** to open the "Flow and Load Multipliers" window (Screen 10.9.8). This window is normally used to evaluate different point source contribution scenarios or to predict the impact of future increase in point source discharges (existing sources or new discharge) of an existing discharge on the overall loading. For each point source facility (listed in the "Discharger Name" box), you can assign different flow and pollutant load multipliers. The Default multiplier value is 1.0. However, if

Screen 10.9.8

you wish to increase or decrease the current flow, loading, or both by a certain factor, simply enter this factor directly into the table. Click **OK** to save any changes and leave this window or **Cancel** to leave the window without saving changes.

6. Click the **Done** button on the "Point Sources" window to continue.

TUTORIAL

•   *Recall that there are no data in PCS for the facilities in the three subwatersheds. Therefore we will add a facility for demonstration purposes.*

•   *On the "Point Sources Setup" screen, be sure the "Reach name" is set to Blacklick Cr. (0501000712), and click the Add button.*

•   *On the "Add Discharges" window, enter Blacklick C. Point Source #1 as the discharges name, US1234567 as the NPDES number, 1.0 as the Mile Point, and flow and fecal coliform as the pollutants.*

•   *On the "Point Source Pollutant Mapping" screen map fecal coliform.*

•   *On the "Point Source Pollutant Information" screen select constant flow and load, be sure that both flow and fecal coliform are on the "Point Source constituents" box, and select Edit Data. Enter a flow of 0.2629 cfs and a fecal coliform loading of 504,500 #/hr.*