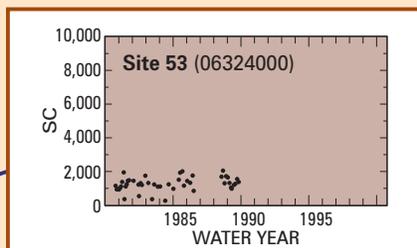
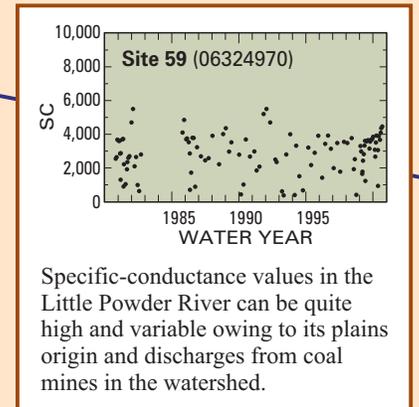
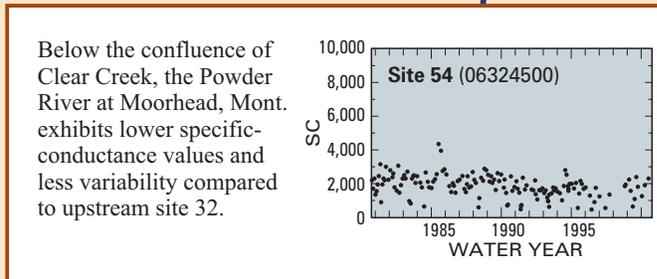
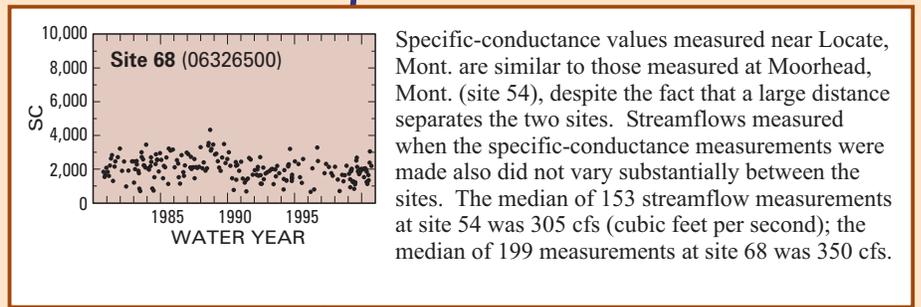


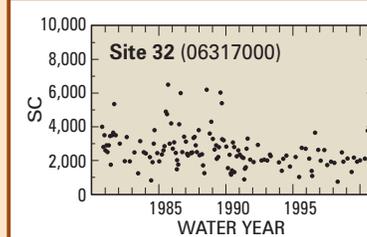
Changes in Specific Conductance with Time

Constituents of concern in CBM discharge waters include the major ions (sodium, for example), which comprise most of the dissolved-solids concentration (salinity). Increases in the major-ion concentrations in streams can be indirectly measured as increases in stream specific conductance.

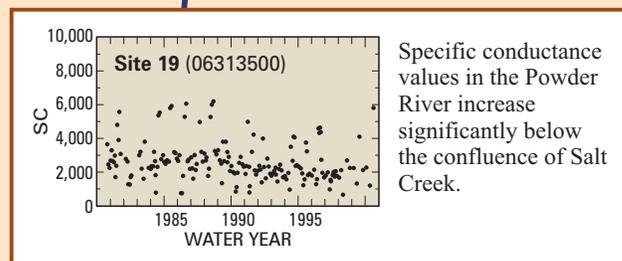
Comparing patterns of specific conductance among sites and over a common period of time, such as that shown in figure 5, is one strategy that regulators can use to detect changes in water chemistry. These changes can then be examined relative to climatic patterns and CBM or other activities in the basin to evaluate whether any cause-and-effect linkages can be established. General observations on patterns in specific conductance are provided with each graph in figure 5.



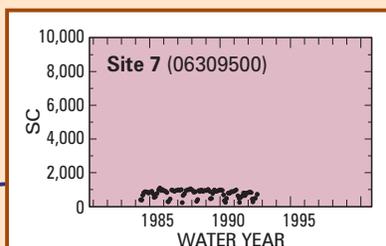
Specific-conductance values in Clear Creek, while relatively low, can be twice those typically found at the Middle Fork Powder River site (site 7). This is because site 53 is located far downstream from the stream's mountainous headwaters.



Prior to 1990, oil-field brine was discharged into Salt Creek. Since 1990, this brine has been disposed by subsurface injection. This change in practice is evident in the Powder River specific-conductance record as far downstream as Arvada, Wyo.

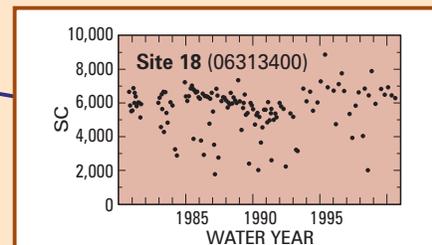


Specific conductance values in the Powder River increase significantly below the confluence of Salt Creek.



Specific-conductance values measured at the Middle Fork Powder River site are consistently low, reflecting the stream's mountainous origins.

Middle Fork Powder River



The highest specific-conductance values measured from the eight monitoring sites are from Salt Creek.

Powder River

Little Powder River

Clear Creek

Salt Creek

Figure 5. Time-series plots of specific conductance for selected sites in the Powder River Basin, Wyoming and Montana, 1981-2000 (SC = specific conductance in microsiemens per centimeter at 25 degrees Celsius).