Index-velocity Quick Sheet
Stage-area Rating Tips

A stage-area rating is developed for a fixed cross-section in the stream (the standard cross-section). The standard cross-section should be located where it can be surveyed periodically to check for changes in channel geometry and needs to be well documented.

Tools for surveying the standard cross-section:
- Level and Stadia Rod
- ADCP
- Manual depth soundings
- Echo sounder

ADCPs are convenient for surveying channel depths. Keep in mind they were not designed as depth sounders because they have diverging vertical beams.
- Use a tagline if possible
- Make the ADCP transect straight across the channel

Echo sounders can provide accurate depths. Need to record sounding distances with a tagline or GPS.

Important items to remember:
- The cross-section must be referenced to gage-height
- Survey past the maximum expected stage
- Periodically check the stage-area rating for channel changes

When computing a measured-mean channel velocity (Vm) for a discharge measurement for rating development or checking of an index velocity rating, **ALWAYS** compute Vm using the area from the stage-area rating.

The USGS has developed a useful tool for developing stage-area ratings called **AreaComp**. It is available at the OSW Hydroacoustic web site, http://hydroacoustics.usgs.gov/indexvelocity/software.shtml

The software allows you to:
- Import ADCP transect ASCII files
  (you must generate those using WinRiver)
- Import comma delimited files
- Enter channel points interactively
- Generate stage-area tables for ADAPS entry