

Shore Deployments

Figures 1 and 2 illustrate the structure and configuration presently used to deploy

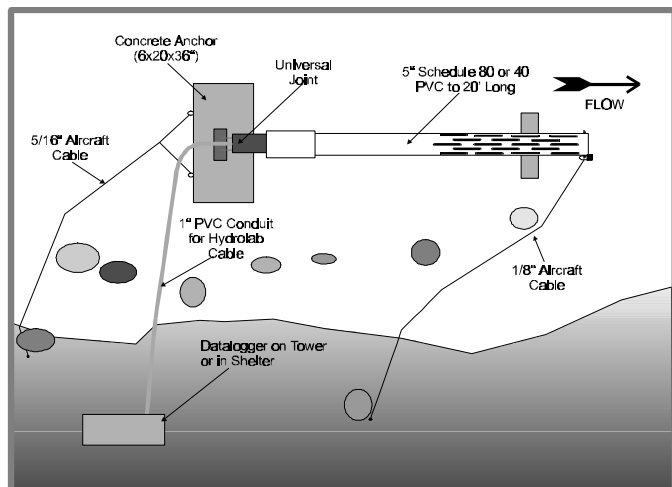


Figure 1

either real time or remote water quality instruments from shore. Many sites in southern Alberta and British Columbia use this type of deployment due to limited access and variable water level. The Datasonde or Minisonde is placed in the downstream end of a 3 to 6 meter length of 10 cm PVC pipe that has 1.5-meter of one end slotted. This pipe is oriented downstream such that water is able to pass through the slotted end and past the sensors. The pipe is connected by a heavy duty coupling to a universal joint that allows



Figure 2

the pipe to swivel in any direction. This allows the field crew to easily raise and turn the pipe towards shore for inspection and to change instruments.

The pipe and universal joint are bolted directly to a large concrete anchor weighing approximately 70 kg. If high flows are expected any number of additional anchors can be attached along with a heavy aircraft cable to shore. This cable will also facilitate the removal of the structure at the end of the season. A length of light aircraft cable is attached at the downstream end of the pipe and runs to shore to aid the field crew in the pipe retrieval. This cable is locked to a large pin that passes through the end of the pipe and prevents the unauthorised removal of the instrument. A concrete curb or rock is placed on the bottom under the slotted end of the pipe to hold the pipe above the river bottom substrate and prevent it from becoming clogged with silt. The greatest advantage with this structure is its entirely submerged and any floating material passes over it without incident.

A second method used on small streams, shown in Figures 3 and 4, is to

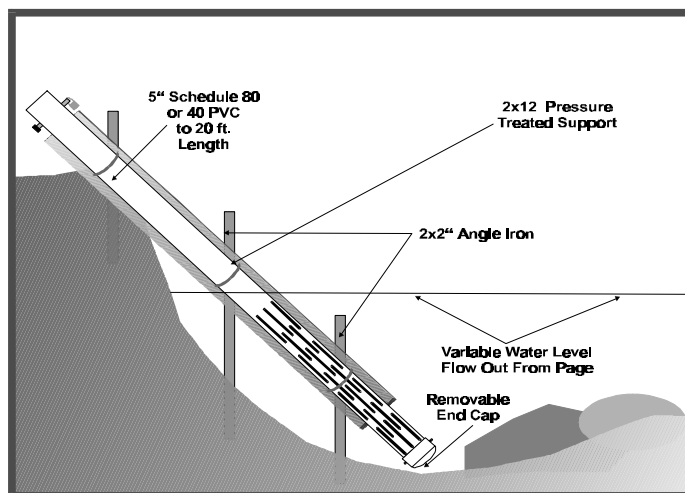


Figure 3

attach the slotted pipe to a 2x12 pressure treated board, which is then bolted to stakes driven into the bank. The pipe and 2x12 are angled down into the water at about 45° and the Datasonde or Minisonde is loaded in from the top and slides down the pipe into place at the slotted end. The cables run up the pipe and into conduit at the top and then to the shelter housing the datalogger. The end cap is removable so that sand, silt and any build up of debris can be cleaned out.



Figure 4

Bridge Deployment

The following figures (5 & 6) illustrate the deployment of a Hydrolab Datasonde or Minisonde from a bridge. The instrument is placed inside a PVC pipe 3 to 6 meters in length that has been slotted at one end. The slots allow water to freely pass through the pipe and past the sensors. The pipe is attached to the bridge pier with two heavy timbers (2x12 or larger) usually near the center of the river. The slotted end with removable cap is placed slightly above the river bottom but can be raised or lowered depending on the water level at the time. The pipe should be suspended behind the pier for protection as in Figure 6 or it may become snagged on floating debris. The advantage is mainly the ease of access. The following is a

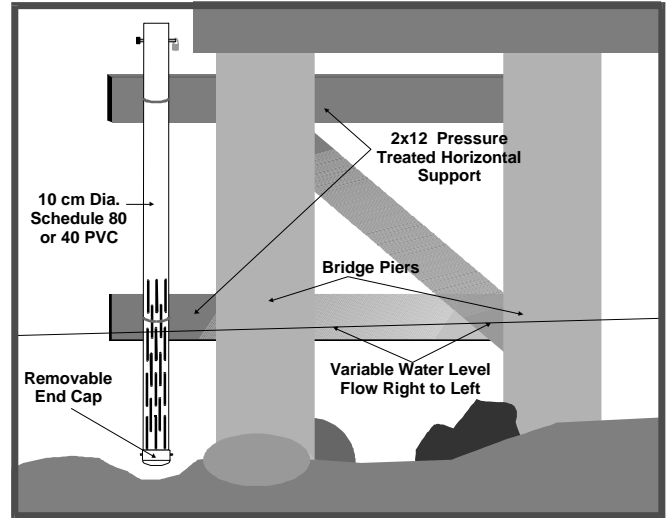


Figure 5

photo from the Salmon River in BC where this type of deployment is presently being used.

Methods of deployment can be complex but the theme is the same for all. The instrument must be protected, the information must represent the true conditions in the river and the field crews must be able to recover the instrument at any time with a minimum of effort. It is vital that field crews are skilled, trained and safety oriented. This is



Figure 6

potentially dangerous work, with many hazards.

For more information on this or any application contact Campbell Scientific (Canada) Corp. at (780) 454-2505.