Profile Point Filter: Advanced Filter Settings

DeltaT.exe v1.01.47 (or higher)

There are numerous filter parameters which can be changed when using the “Bottom Following” profile point filter. To change these parameters, select the Advanced Filter Settings button in the Profile Point Setup dialog box.

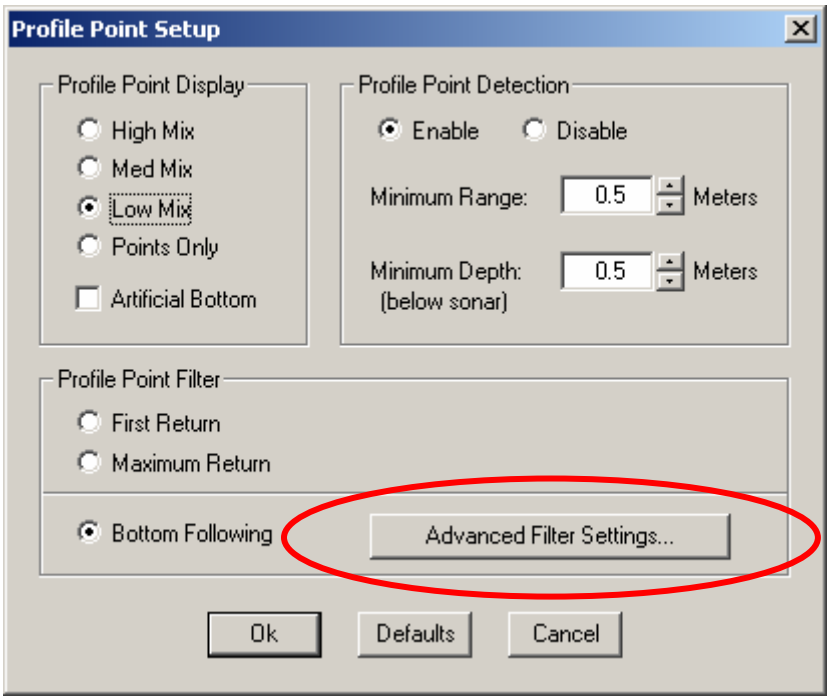

Figure 1: Profile Point Setup dialog box

All Filter settings are active in real-time or during file playback, so experimentation with these settings will not affect the stored data. The various filter settings may need to be changed depending on the bottom type and/or if there are targets on the bottom or in the water column (i.e. rocks, shipwrecks, fish schools, pilings, etc…).

Advanced Filter Settings (con't)

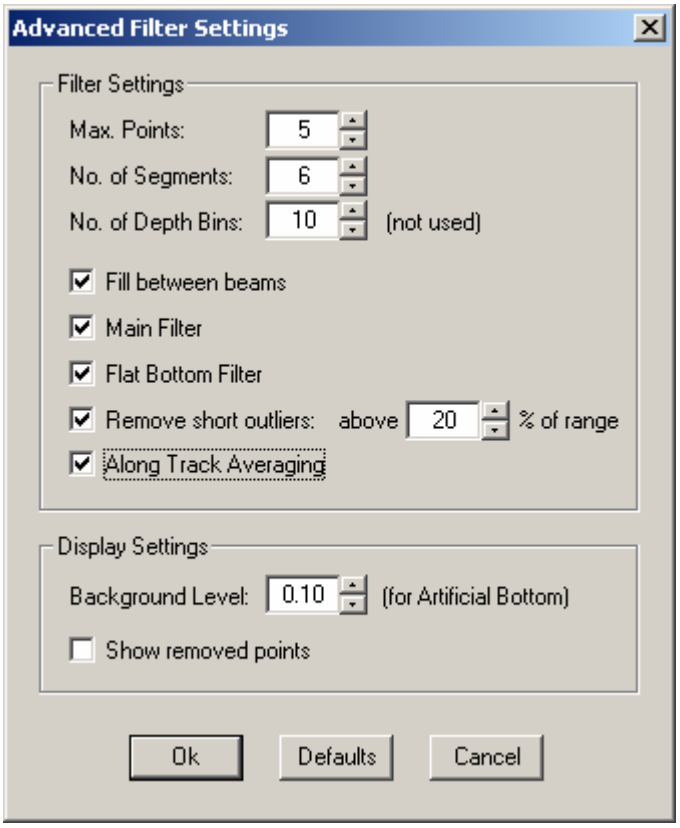

Figure 2: Advanced Filter Settings dialog box

Max Points

- the bottom detection filter detects up to "Max Points" and returns the range point with the highest summed power, assuming the bottom echo contains the highest power. A maximum of 10 points can be detected, however a setting between 2 and 5 will generate good results. Use a setting of 1 to detect all targets in the water column.

No. of Segments

- number of segments is used to help the filter work on complex bottoms (i.e. bottoms that are not flat). The bottom is divided into equal horizontal segments so the filter can act on smaller, less complex sections. Values between 3 and 5 produce good results for typical bottom types. A value of 1 could be used for a very flat bottom.

No. of Depth Bins

- not used at this time

Advanced Filter Settings (con't)

The following sequence is a good starting point for experimenting with the various parameters (check the result of each setting before moving to the next parameter):

1. **Fill between Beams**
   - this setting generates a bottom range point for beams that don't contain valid range to bottom values. The detected range points from adjacent beams are used for interpolating between the beams.

2. **Main Filter**
   - the main filter smoothes the detected range points and positions the points in the center of the returned pulse. This helps to generate a truer bottom profile specially on the outer beams where the grazing angle is such that the returned pulse can be scattered.

3. **Flat Bottom Filter**
   - the flat bottom filter reduces bottom artifacts directly beneath the transducer. All beams within +/-30 degrees of nadir are analyzed. Use this filter only if important vertical features such as pilings or seawalls are not present.

4. **Remove short outliers**
   - short outliers are unwanted targets above the bottom and in the water column. The "% of range" entry sets the effective "height off bottom" setting for the filter. This setting is entered as a percentage of the current range scale. For example, if the current range scale is 20m, a value of 20% would mean that all targets higher than 4m above the bottom will be removed. A setting of 20% can be used for relatively flat bottoms, lower settings can be used for very flat bottoms. Increase to 100% to keep all water column targets.

   Select "**Show removed points**" to display the removed points as enlarged green blocks (using the Norm Hi Color Table). Lower the "**Background Level**" setting to 0.1 or until the removed points are easily seen. This is a good diagnostic tool for evaluating the short outlier removal filter.

5. **Along Track Averaging**
   - this filter generates bottom ranges by averaging a number of consecutive pings. It uses the same ping average setting as the Options | Averaging menu. Along track averaging can be used with any of the above filters.