

Calculating Channel Depth

Bankfull depth is composed of 2 parts, thalweg depth and bankfull height. These field methods apply: Thalweg and Primary Transect

1. **Bankfull Height** – Uses Primary Transect method

GIVEN:

TransectCode (e.g. A0, B0, C0, D0)

ChannelNum (0,1,2,...)

AverageBankfulHeight (whole cm) – average of left and right bankfull heights (calculated in the field).

CALCULATE:

Count the **NumberOfAvgBankfulHeights** – this is normally 11 and for this calculation is taken only from the main channel (ChannelNum = 0)

Calculate the **SiteAverageBankfulHeight**. This is

$$(\sum \text{AverageBankfulHeight}) \div \text{NumberOfAvgBankfulHeights}$$

2. **Thalweg depth** – Uses Thalweg method

GIVEN:

ThalwegStation (2 digits: e.g. A-J and 0-9 combination; A0 to K0) – there are 101 equally-spaced stations in the thalweg that designate longitudinal position up the main channel.

ThalwegDepth (cm) - Wetted depth measured in the dominant-flow portion of the main channel.

CALCULATE:

NumberOfThalwegDepths – count the observations

SiteAverageThalwegDepth –sum all Thalweg depths across the site then divide by the count.

SiteStandardDeviationThalwegDepth – Standard deviation of all Thalweg depths across the site

3. **Bankfull Depth** – sum of above

SiteAverageBankfulDepth (cm)- This is the Sum of **SiteAverageThalwegDepth** + **SiteAverageBankfulHeight**

Metric	SourceFile	Operation
NumberOfAvgBankfulHeights	PrimaryTransect	Count of the number of AverageBankfulHeight measurements where ChannelNum = 0. This is normally 11.
SiteAverageBankfulHeight	PrimaryTransect	$(\sum \text{AverageBankfulHeight}) \div \text{NumberOfAvgBankfulHeights}$
NumberOfThalwegDepths	Thalweg	Count the number of ThalwegDepth measurements.
SiteAverageThalwegDepth	Thalweg	Average the Thalweg depth measurements
SiteStandardDeviationThalwegDepth	Thalweg	Standard deviation of the ThalwegDepth measurements.
SiteAverageBankfulDepth	Thalweg,PrimaryTransect	Sum of SiteAverageThalwegDepth + SiteAverageBankfulHeight