



Stream Channel Characteristics Monitoring in Big Hole National Battlefield

Importance:

Stream Channels – an indicator of stream health

There is an intimate connection between stream channels and the surrounding landscape. Stream channels are a product of regional geomorphology, hydrology, riparian vegetation, upland vegetation, land use and water use. Within a stream, channel characteristics profoundly influence habitat for macroinvertebrates and fish. This connection between the surrounding landscape, stream channels, and aquatic habitat makes monitoring channel characteristics an important aspect of natural resource monitoring in the Upper Columbia Basin Network (UCBN). In addition, stream channel monitoring assists in the interpretation of results obtained from UCBN integrated water quality monitoring.

2012 Status

In 2012 the UCBN estimated the status of bank stability, percent undercut, bank angle, percent fines, and other key stream channel characteristics for 5 selected stream reaches on North Fork Big Hole River in Big Hole National Battlefield (BIHO). Basic metrics are summarized for all 5 sample reaches in the table below. These measures provide important baseline indications on the conditions of aquatic habitat, to which future samples will be compared. 2012 was the first year of monitoring in BIHO and the stream reaches will be re-sampled in 2015.

Management Applications

- Provide information on the condition of aquatic habitats
- Detect habitat degradation and potential concerns to park management
- Provide feedback on the success of park management and restoration activities
- Inform integrated assessments of climate change impacts on park resources.

Objectives

- Determine the status and trend of bank stability, percent undercut, bank angle, percent fines, and other key stream channel characteristics for selected wadeable stream reaches.



2012 monitoring on North Fork Big Hole River has contributed to the establishment of baseline conditions, which include determining bank stability and reach sinuosity.



2012 monitoring included the assessment of channel substrate.

Big Hole National Battlefield North Fork Big Hole River - Stream Channel Characteristics Summary 2012

Measure	Current Condition (August 2012)					Mean
	3211	3213	3214	3215	3216	
Average bank angle (degrees) (mean)	102.00	84.00	92.00	98.00	101.00	95.40
Residual pool depth (m) (mean)	0.63	0.65	0.49	0.71	0.97	0.69
Bankfull width-to-depth ratio at transects (ratio) (mean)	14.63	14.17	14.96	16.01	16.13	15.18
Gradient (%) (mean)	0.08	0.14	0.12	0.29	0.09	0.14
Large wood frequency (pieces/km) (mean)	2.95	4.94	5.96	20.34	2.96	7.29
Vegetated Stability (%) (mean)	53.66	92.00	89.13	97.62	78.57	82.20
Sinuosity (ratio) (mean)	1.75	2.11	1.84	1.53	1.41	1.73