Data Quality Assurance (QA) Procedures Part 1: Completeness, Metadata and Measurement Review 2016 Field Season

10/6/2016

Columbia Habitat Monitoring Program Metric Review Committee

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I. Introduction to Quality Assurance

For 2015, the end-of-season quality assurance review will build upon the quality assurance already completed during the end-of-day validation on the ipad, the post-process qa review in the GIS CHaMP Toolbar, and end-of-hitch validation performed while publishing data in the Data Broker (see Section 9 of the CHaMP field protocol). The goal of using electronic data loggers and the data upload functionality was to ensure a level of quality control during the data collection phase. Ensuring quality control early in the data collection process will help minimize the amount of quality assurance that must be done at the end of the season. Together these precautions should result in data that is much cleaner upon initial post-season quality assurance inspection. As a result, the focus of end-of-season quality assurance will be on visually reviewing the derived metrics for anomalous or spurious values. This review can be performed by sorting and filtering metric values in a table or by review charts of each metric.



This document provides guidance on performing end-of-season quality assurance using the functionality on CHaMPMonitoring.org. The quality assurance process will be most efficient if you first ensure that auxiliary and topographic data for all of your sites has been uploaded to CM.org using the Data Broker.

II. Post-Season QA Review Process Steps

Step 1: Report In-season Site Rejections and Clean Hitches

The goal of this step is to report in-season site rejections and to remove any visits that were downloaded to a hitch but not sampled. This work will be completed in the "Data Check In" tab on the "Field Support" tab.

tte Evaluati	ion Hitches Hitches Hitches	upport Visits	Measurements Me	strics Statu	8								Year : 2
	Site	Stream	Hitch	Hitch Date	Sample	Auxiliary Data Files	Site Photos	Topographic Data	Air Temp Readings	Stream Temp Readings	Solar Input Photos	Visit Phase	Visit Status
10	CBW05563-013151	Agency Creek	*		Sample	Data Collection Field Collection	Data Collection	Transferred					
	CBW05583-013151	Agency Creek	Lemhi Hách 6	8/29/2012	Sample	Ousity Assuration	Ouality Assuran	Ouality Assurat	Data Collection	Data Collection	Oualty Assurant	Data Collection	Post Processing E
	C8W05583-009135	Hayden Creek	Lemhi Hitch 4	8/1/2012	Sample	Data Collection Field Collection	Ouality Assurant	Ouality Assurant	Data Collection Field Collection	Data Collection Field Collection	Oualty Assurant	Data Collection	Post Processing
10	CBW05583-001487	Big Timber Creek			Sample	Data Collection	Data Colection	Data Collection	Data Collection	Data Collection	Data Collection	Planned	Available For Do

a. Report In-season Site Rejections

For sites that were rejected in-season by the scout or field crew, click the pencil icon in the first column of the grid to update the original site evaluation. This will open the site evaluation form. Answer one or more of the questions and click save.

CE Age	3W05583-0	13151
1.	Field Sampling F A frame evaluatio	rame Evaluation In that occurs during field evualation
	Rejection:	In-Field: Does not meet criteria - Dry-not perennial
	Notes:	
		Characters Remaining: 2000
2.	Field Sampling S Occurs during the	afety Evaluation visit to the site to collect sampling data
	Rejection:	In-Field: Not-Approved - Not Safe
	Notes:	
		Characters Remaining: 2000
3.	Field Sampling L Occurs during the	andowner Permission Evaluation visit to the site to collect sampling data
	Rejection:	In-Field: Denied - Denied
	Notes:	
		Characters Remaining: 2000
		Save Cancel

a. Review all sites with Visit Status = Transferred. These are the sites that may need updated site evaluations because data has not been uploaded for at least one method.

b. Clean Hitches

b. For any sites that were added to a visit and then subsequently not needed for that hitch, it is necessary to remove that site from the hitch. If any of the sites with Visit Status = Transferred were not visited on a hitch, use the red minus icon to remove the site from the hitch. You will be asked to confirm deleting the visit. Click yes.



Step 2: Complete Data Upload

- a. From the "Data Check In" tab, review the visits where Visit Phase = Data Collection. These visits do not have a complete data upload. Review the Auxillary Data Files, Site Photos, Topographic Data, Air Temp Readings, Stream Temp Readings, and Solar Input columns to identify the missing data set(s).
- b. Use the Data Broker to complete data upload for all visits in the watershed.
- c. If there are data upload problems, create a new issue in the Field Season 2015 Project of <u>JIRA</u>.
- d. Note that after a set of data has been transferred by the Data Broker for a Visit, zipped data packages for Site Photos, Topographic Data, Air Temp, Stream Temp, Solar Input and Scanned Paper Forms and Maps can be loaded directly through cm.org through the Data Check in tab (click on the blue cloud with arrow next to the Site ID).

Step 3. Tag Visits with Purpose

Tags are used to help track which visits were completed and why the visit was completed. This helps program leads to ensure that multiple objectives are meet, helps data analysts find the set of visits that participate in various analyses, and supports flexibility for project collaborators. Watershed Managers and Crew Supervisor have the most direct know of what visits are completed during a field season, the purpose for those visits, and sites where overlapping monitoring occurs (e.g. sites where fish are monitored). Watershed Managers and Crew Supervisor should review and update the purpose of all visits completed in their watershed or by their organization.

- a. From the Visit tab on the Watershed Detail Page, review the set of columns that describe the purpose of this visit. A "Yes" should appear in each column that applies for the visit. Each visit can have multiple purposes.
 - a. <u>CHaMP Core:</u> Visits to site funded directly through CHaMP or by BPA and part of a watershed-wide sampling design. Note that not all sites within core watersheds should be considered CHaMP core if they do not meet study design requirements. Core watersheds include: Entiat (IMW and Status&Trend areas, Wenatchee, Methow, Tucannon, John Day, Grande Ronde, South Fork Salmon, Lemhi, Yankee Fork)
 - b. <u>CHaMP 10% Revisit:</u> Visit is part of the annual 10% repeat survey. Primary and repeat visits should both be tagged. Applicable for 2011, 2012, 2013 and 2015.
 - c. <u>CHaMP-PiBO Comparison:</u> Applicable for 2012. Visit was part of the CHaMP-PiBO Comparison study.

- d. <u>IMW</u>: Site is located within a designated Intensively Monitored Watershed (IMW area) (e.g. Asotin, Entiat, Lemhi, and Bridge Creek (John Day Basin).
- e. <u>Effectiveness</u>: Site is within a restoration treatment area or utilized as a control or reference area.
- f. <u>Has Fish Data</u>: Fish data were collected in the same season as the Visit by your organization or another entity.
- g. <u>Velocity Validation</u>: Applicable for 2013. Velocity measurements collected during visit for validation of hydraulic model.
- h. <u>Bug Validation</u>: Applicable for 2013. Additional bug samples collected during visit for bug repeatability study.
- i. <u>AEM</u>: Visit is part of Action Effectiveness Monitoring (AEM) study design, either as reference/control site or treatment area.

b.

Visits Tab Below are the st	e visita where	monitoring data	a has been received and loaded to the	database in preparat	ion for the a	puality assurance	(QA) pro	cess. 🕏	iow more	*					
arrently viewing 29	of 29 visits							_							O Dow
Site 10 *	Sample Date	Organization	184ch	Crew	Visit ID	Stream Name	Edit Purposi of Visit	Clinitip Core	CitaMP 10% Revisit	CitaMP-PiBO Comparison	IMW	Effectiveness	Has Fish Data	Velocity Validation	Bug Validation
EW06583-003113	07/11/2013	Terrappa Inc.	Hittin #2 (HC): July 10 - July 17 (Methon)	Kenn Dreit	1919	Beaver Creek	*	Yes					1.80		
BW25583-012569	07/27/2013	Tenaque Inc.	High #3 (SC) July 24 to July 31 (Methoe)	Surya-Cree	1014	Twite Silver		-							
SW05563-014166	08/23/2013	Terregue Ing.	HILIN #5 (SQ) Aug 21 to Aug 25 (Methow)	Burya Craw	1722	Cherrych River		-							
EN20080-014017	0812-0913	Taragua no	HIGH #4 (JET WIG 1 ID HIGH 14 (SHELOR)	20e Liter	1141	DOUIDE LIVES		-							
WOREESO (4793	01/15/2015	Terrague Ins.	HILE #2 (FC) July 10 - July 17 (Method)	Kasin Cree	1941	Libby Creek		-							
W05583-010305	09(14/2013	Terracualitic	HIDI #0 (MN) Sept # to Sept 11 (Methow)	Martin Cite	1872	Methos River		1							
WORKES COOPER	07.99.0013	Terracue Inc.	Heart #3 (HC) July 24 to July 31 (Dethow)	Kavin Cree	1996	Twing Nover									
W00000-021++8		TARAGUA INC.	Hope we (king) Sept + to Sept 11 (kinemow)	March Cree	1990	Frader Creek		1							
W000005-021-448	0110-2013	Terrague Inc.	Health #2 (HG), July 10 - July 17 (Method)	Kavin Dae	1744	Pister Creat		-							
INCESSION OF T	01/24/2013	Taragualing	HIGH #3 (HC), July 24 to July 31 (Mathew)	Kavin Ciaw		Twing Proof		1							
W05583-036607	07/15/2013	Terraque inc.	Hitsh #2 (HC) July 10 - July 17 (Methon)	Kavin Dee	1521	Chairuch River	ъ.								
W06683-040217	07.26/2013	Terretue Inc.	Holes #2 (PC), July 24 to July 31 (Methow)	Kasik Clea	1818	Twisp Prver	B. /	4							
W06683-0+4313	07/28/2015	Terradua Inc.	Hitth #3 (HC), July 24 to July 31 (Methox)	Kevin Orek	1587	Twisp River	φ.	*							
W05683-113177	08/09/2013	Tanaque Inc.	HILPI #4 [JE]: Aug 7 10 Aug 14 (Stathow)	208 City	1723	Elethow River		1							
W05563-135705	08/13/2013	Terreque Inc.	Hitch #4 (JE) Aug 7 to Aug 14 (Methow)	Joe Crew	1724	Mathow River	ъ.,	· · · ·							
WOESB3-138705					1871	Mathian River		1							
W06585-187337	08/25/2013	Tenaque Inc	Hitsh #6 (SD): Aug 21 to Aug 28 (Mathow)	Surya Cree	1741	South Fork Gold C									
NORERS-TROOPS	09/04/2013	Terregue Inc.	HOUR ME (SPA) Sept 4 to Sept 11 (Methow)	Martin Oleu	1112	Mathow River	¥.	1							
W05563-224008	08/08/2013	Tanaous inc	Hitst #4 (JE): Aug 7 to Aug 14 (Methow)	Joe Crew	1725	Early Winters Dree		-							
W05563-266621	09040013	Taraqua Inc.	Hope at (RM) Sapt 4 to Sept 11 (Mathow)	Rauben Crew	1778			1							
W05583-312265	09/05/2013	Tensous Inc.	Hitch #0 (MN) Sept 4 to Sept 11 (Methovi)	Marsin Crew	1873	Mathow River		1 .							
W05583-183845	09/11/2013	Tarraque Inc.	How we (Mrc) Sept 4 to Best 11 (Methow)	Martin Cree	1742	Bouth Feel Date C	7	1							
W05583-293487	05/22/2013	Tenague Inc.	Hitch #8 (80): Aug 21 to Aug 28 (Mathow)	Surya Crew	1776	Mathew River									
W00083-386017	07/29/2013	Terraique Inc.	House #3 (SC), July 24 to July 31 (Mathow)	Suge Date	1011	Walf Own		1							
2/005563-467913					1967	Methos River	8	1							
ET00001 AL10_Col	05/20/2013	Telta Tech	R5/10 Bide channel	Cullin Diex	1802	Chevruch Filver	¥								

c. If the tags are not set correctly, edit the purpose of visits. In the column "Edit Purpose of Visit", click the tag icon. Use the popup dialog to check on or off the different purposes of the visit. The following tags are applicable to the visits conducted in 2014: CHaMP Core, IMW, Has Fish Data, and AEM



Review and update all visits completed by your organization.

Step 4: Targeted Review of Measurements (Watershed Detail page)

A limited set of quality assurance calculations are performed by CM.org and are displayed in the auxiliary data grids on the Measurements tab (e.g. Station Discharge, or Sum LWD Count

or Sum Of Fish Cover). Reviewing these calculated values provides an efficient means to identify outliers in the underlying measurement data.

There are two ways to review Measurement data on the Watershed Detail page: by GRID or GRAPH. Begin QA using the GRAPH tab, and switch to the GRID tab as needed to update data.

Coogle Imager/92013 Terral/Matica - Terral of Use	X MARCE		20 10
			Reset Map
Overview Study Design Field Suppo	rt Visits Measurements Metrics Status		Year
Auxiliary Data Topographic Data	Stream Temp Data QA Status		
X-Axis	Y-Axis	Color By	refres
Measurement ID	Average BF Width	Data Quality	
	Average BF Width x Me	easurement ID	=
22		•	Data Quality Good
20			
	•		

a.Review the following Measurement Type graphs for outliers and repair data.

Measurement Type	Х	Y	Color By	Notes
Bankfull Width	Site Length	Average BF Width	Data Quality	
Visit Information	Site Length	Count of LWD	Data Quality	
Site Marker	Elevation	Elevation	Data Quality	Review Nulls
Monument	Elevation	Elevation	Data Quality	Review Nulls
Benchmark	Elevation	Elevation	Data Quality	Review Nulls
Control Point	Elevation	Elevation	Data Quality	
Cross-Section	Average Bankfull Width	Total Discharge	Data Quality Bankfull Width Category	
Discharge	Depth	Velocity	Data Quality	
Discharge	Depth	Station Discharge	Data Quality	
Channel Segment	Average Bankfull Width	Side Channel Length	Data Quality Bankfull Width Category	
Channel Segment	Average Bankfull Width	Side Channel Width	Data Quality Bankfull Width Category	
Channel Segment	Average Bankfull Width	Percent Wetted	Data Quality Bankfull Width Category	
Fish Cover	Average Bankfull Width	Total No Fish Cover	Data Quality Width Category	
Pebbles	Measurement ID	Cobble Percent Buried	Data Quality Strahler Order	
Pebbles	Measurement ID	Cobble Percent Fines	Data Quality Strahler Order	
Undercut Banks	Average Bankfull Width	Estimated Undercut Area	Data Quality Strahler Order	
Undercut Banks	Average Bankfull Width	Average Width	Data Quality Strahler Order	

Note that point colors are only used to highlight potential issues. There may be issues with 'green' (good) colored data and some red or orange colored points may be fine. There are no restrictions or flags tracked in the data that relate to point color.

b. Investigative Review of Measurement Types. After reviewing the recommended graphs listed in the table above, we recommend 10-15 minutes of free-form, investigative review of the Measurement data. The graphing interface allows efficient review of measurements, and this is an opportunity to review measurements crews may have had trouble with or are particularly interesting in your watershed. We suggest keeping this to a finite amount of time to avoid the 'rabbit hole' exploration of data.

c. Measurement Types to Skip. The following Measurement Types (aka tables) are low priority to review on champmonitoring.org. These measurement data are either QAed on the data logger or are better reviewed as metrics:

- Riparian Structure
- Transect Photos
- Drift Invertebrate
- Large Woody Piece
- Pool Tail Fines
- Pebble Cross Section
- Drift Invertebrate Sample Results--not available until November 2015
- Taxon by Size Class Counts--not available until November 2015
- Sample Biomasses--not available until November 2015

Layout

- Crew
- Supplementary Photo
- Mid Channel Bottom of Site

Site Attributes

Visit Pool Tail Fines Channel Constraints Channel Constraint Measurements Artificially Placed Instream Structures Artificially Placed Instream Structure Photo Livestock Livestock Photo

Transects

- Transect Photos
- Riparian Structure
- Riparian Structure EMAP
- Canopy Cover
- Solar Pathfinder

• Stream Bank Invertebrates (all) Fish Abundance (all) Thalweg (all) Barriers (all) Drift Invertebrate Sample Results Taxon by size class counts Sample Biomasses **d. Measurement Types to Review using the Stream Temperature QA Protocol.** The following tables are reviewed as part of the stream and air temperature data cleaning process and are covered in STEP 6, so don't panic.

- Stream Temperature Logger
- Air Temperature Logger
- Stream Temperature Logger Maintenance

Step 5. Review Control Network Metadata

a. Review metadata information for monuments, benchmarks, control points, and markers. Note that elevations were reviewed during the Measurement Review in Step 3.

b. Review and update UTM coordinates as needed. Note that Benchmark and Control Point errors were likely repaired during Topo data review.

c. Review metadata within each table (e.g. marker types, benchmark retirement, etc) to ensure there are no outstanding control network questions in 2013.

c. Review and update crew notes as needed

d. Set the QA status for the following Measurement Types for each site:

Benchmark Site Marker Control Point Monument

III. Helpful Hints, Notes, and Tips

QA Process

- 1. The goal of the quality assurance process is to visually review the data for outstanding anomalies.
- 2. It is necessary to click the "Save Changes" button after editing cells. If you forget to click "Save Changes" and leave the Measurements tab, all of your edits will be lost.
- 3. It may be necessary to select a visit from the drop down menu before you begin editing data.

Graphs

- 4. Outliers will appear as yellow or red circles. Null values will be gray.
- 5. If the cursor is in the dropdown menu for graph selection and the item name is highlighted, use the up/down arrows on the keyboard to quickly scan through the graphs.
- 6. Clicking on any item in the legend of a graph will toggle it on/off in the graph display
- 7. Hovering over an item in the graph will display the visit information of the selected data.

Webpage

- 8. Hiding the Map is just a click away. Click the light blue Hide Map link in the lower left of the map.
- 9. Holding the "Ctrl" key when clicking a link will open a new browser window.

IV. Introduction to Website Functionality

Visit Tab on Watershed Details Page

The visit tab provides a good view for tracking progress. This grid lists all visits that were planned for the current sampling year. Use the "Visit Phase" drop down to filter the list of visits by phase. Phase has three states (data collection, quality assurance, data approved). The goal is to get all visits to the "Data Approved" phase.

Visits Tab														
below are the site vis	sts where monit	oring data has bee	in received and load	ed to the databas	e in preparation i	for the quality assurance (QA) pr	ocess, snow more *						As o	f: 9/26/2012 4:29
Rele Site ID	Sample Date	Crew	Visit Phase	Visit Status	Panel (i)	Category 🗈	Stream Name	Edit Purpose of Visit	CHaMP Core	CHaMP 10% Revisit	CHaMP PiBO Compar	MW	Remove	Visit Objective
WC503432-000152	7/5/2012	Reuben Crew	Guality Assurance	In Q/A	Annual	Source-Public	Tronsen Creek	8	Yes	Yes.				Primary Visit
WENMASTER-000269	7/5/2012	Reuben Crew	Quality Assurance	In Q/A	Annual	Source-Public	Tronsen Creek	8	Yes	4			¥	Primary Vist
WC503432-000049	7/12/2012	Reuben Crew	Quality Assurance	In G/A	Annual	Source-Public	East Fork Mission C		Yes	Yes			- i -	Primary Visit
WC503432-000042	7/13/2012	Reuben Crew	Data Collection	Post Processing	Annual	Transport-Private	Chumstick Creek	8	Yes	÷	4 3	40 B	e (Primary Vist
CBW05583-492715	7/18/2012	Reuben Crew	Quality Assurance	in G/A	Annual	Transport-Public	Chikamin Creek		Yes	Yes				Primary Visit
WC503432-000022	7/18/2012	Reuben Crew	Quality Assurance	In Q/A	Rotating Panel 2	Source-Public	Chumstick Creek	The second	Ves					Primary Visit
WENMASTER-000057	7/18/2012	Matt Crew	Quality Assurance	in Q/A	Rotating Panel 2	Source-Private	Grindstone Creek	8		Yes				Primary Vist
WENMASTER-000195	7/20/2012	Brent Crew	Quality Assurance	in Q/A	Annual	Transport-Private	Chikamin Creek			Yes		-0.0		Primary Visit
CBW05583-002731	7/23/2012	Reuben Crew	Quality Assurance	In Q/A	Rotating Panel 2	Transport-Private	Chikamin Creek	8	Yes				+1	Primary Vist
CBW05583-101099	7/25/2012	Brent Crew	Quality Assurance	in Q/A	Rotating Panel 2	Transport-Public	East Fork Mission C	16	Yes			13 0	-	Primary Visit
CBW05583-482923	7/28/2012	Brent Crew	Quality Assurance	In Q/A	Rotating Panel 2	Transport-Private	Clear Creek	8	Yes				+,	Primary Vist
CBW05583-396907	7/30/2012	Brent Crew	Quality Assurance	In Q/A	Rotating Panel 2	Source-Private	Kahler Creek	8	Yes	-	-	-	-	Primary Visit
WC503432-000155	8/1/2012	Matt Crew	Quality Assurance	in Q/A	Annual	Depositional-Private	Peshastn Creek	-	Yes					Primary Visit

It may be helpful to have the Visit Tab open in one internet browser window and then open a second window to view the Site Details page.

Note: Holding the "Ctrl" key when clicking a link will open a new browser window.

a view Stud	y Design Site Evalu	ation Site I	Export Data Up	load Visits	Measurements	Status	Metrics					
Visits Tab Below are th process. s	e site visits where monit how more ▼ 24 of 24 site visits	oring data has b	peen received and lo	oaded to the data	abase in preparatio	on for the quality As of: 10/1	9/2011 3:3					
Actions	Site ID ①	Sample Date	Crew	QA Status	Panel ①	Category 🛈	Stream Nar					
Conduct QA	CBW05583-060011	7/11/2011	Local Crew	Not Assessed	Rotating Panel 1	Transport : Priva	Chumstick Cre					
Conduct QA	WC503432-000042	7/11/2011	Local Crew	Not Assessed	Annual	Transport : Prive	Chumstick Cre					
Conduct QA	WC503432-000049	7/11/2011	Local Crew	Not Assessed	Annual	Source : Public E	East Fork Mis:					
				-	PARTY CARDING		and Statistics, "	all Transpo	an Mag Lingson			3
Conduct QA	WC503432-000029	(1701 m i 1		and the second sec								
Conduct QA Conduct QA	WC503432-000029 WC503432-000152	Details	×	10	and the second second	Carl Courses	-	(Transmit	at the local	and the second		
ionduct QA ionduct QA ionduct QA	WC503432-000029 WC503432-000152 WENMASTER-000269	End Details	C 🛇 www.champ	omonitoring.org	/Site/Details/6837	7/214#measure	ments~#auxili	arydata~#a	uxfile		t	☆
Conduct QA Conduct QA Conduct QA Conduct QA	WC503432-000029 WC503432-000152 WENMASTER-000269 WENMASTER-000071	E Details	s × C (C) www.champ Inbox 17 Google Cale	omonitoring.org/ endar ©! Yahoo! Ir	/Site/Details/6837 nbex 🔟 Login Profil	7/214#measure e - Mingle 🔡 Ci I	ments~#auxilia aMPMonitoring	arydata~#a	uxfile	0	र्ग ther boo	∱ ⊳kr
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Conduct QA Conduct QA Conduct QA Conduct QA Conduct QA Conduct QA Conduct QA	WC503432-00029 WC503432-00152 WENMASTER-000269 WENMASTER-00071 WENMASTER-000493 WC503432-000155 WENMASTER-000022 WENMASTER-000023	Crocil -	C C www.champ inbox II Google Cale Visit Informati Ar Lamperatu Fiream Temp Top of Site Stotum of Site	e Cur e of the contract of the	/Site/Details/6837 nbcx in Login Profil narge QA Notes rrently viewing 21 of easure Stream Nam	7/214#measure e - Mingle 🔡 CH 21 discharge reco e Panel	ments~#auxilia aMPMonitoring rds Transect	arydata~#a Station	uxfile Distance to	C O Dow	ther boo nload Velc	År ∍kr
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Watershed Details Page – Metrics Tab

- 1. From the Watershed menu, to navigate to your watershed page.
- 2. Click the Metrics Tab
- 3. This will display grid with calculated metrics for all visits from the selecting sampling year (drop down list highlight in red box).

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05503-03154 07	(25/201) t	29 Post Processing	Data Collection	117 Columbia River Inter-	Laurinea	Oranda F	Rotating	Gooler Gr	206										
05503-02020 05	(19/201) 1	S81 In Q/A	Quality Assurance	123 Oregon Department C	E Chris Ho	Meadow	Rotating	Upper Or	231	1									
05583-03626 05	28/201: 1	143 Post Processing	Data Collection	133 Columbia River Inter-	li Laurinda	Catherin	Rotating	Catherine	230										
05583-05289 07	01/201	441 In Q/A	Quality Assurance	104 Drepon Department C	é Ohris Ho	Mill Cree	Extra	Catherine	102		1.23 %	1.1145	0.9935	1.1035	404.61	467.28	33:52 m3	81.02 m3	3.18 m
05503-07177 08	102/2011 1	130 Post Processing	Data Collection	119 Golumbia River Inter-	fi Laurinda	Grande F	Rotating I	Upper Or	214	1	0.41%	1.1935	0.0513	1.1445	9907.76	13963.13	1047.21 m3	8733.14 m3	10.36 m
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05583.09981 07	/10/2011 1	121 Post Processing	Data Collection	107 Columbia River Inter-	la Laurinda	Grande F	Extra	Upper Gr	191										
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05583-05564 07	12/2011 1	455 In Q/A	Quality Assurance	107 Oregon Department C	Chris Ho	McCoy C	Annual	Grande F	193	1									
125583-14249 05	25/2011 1	320 In Q/A	Quality Assurance	104 Dregon Department 0	f Chris Ho	Clark Cre	Annual	Grande F	177	1									

- 4. The grid has functionality that will help you explore and edit the data:
 - a. Clicking the name of any column will sort the column of data.
 - b. Entering a value in the white filter box will limit the rows of data showing in the grid (e.g. enter the right 6 digits of the SiteID to filter for a single site).
 - c. Using the greater than (>) or less than (<) symbol and a number will filter the grid for all rows were that column has a value matching that criteria
- 5. The second tab displays a graph.
 - a. Three drop-down menus are available to configure the graph
 - i. x-axis drop down contains a subset of metrics that are indicative of channel size or other predictive metrics
 - ii. y-axis drop down contains the full set of derived metrics
 - iii. color by drop down contains sites covariates which may be useful for interpreting for filtering data



b. The default for the x-axis is Metric ID, which will generate an index or yscatter plot. It is recommended to use Metric Id as the x-axis for quality assurance review, as this encourages unbiased review of individual metric values. If there is a known relationship between two metrics, then plotting the independent variable on the x-axis can be help in quality assurance review.

- c. The default for Color By is Data Quality. This will plot points as green, yellow, or red based on thresholds established by the program QA team. Yellow points are suspiciously high. Red points are likely invalid values for the given metric. The color coding is intended to draw reviewers eyes to the points, however, are should not be interpreted as hard-n-fast rules. Feedback during the 2013 end-of-season review will help refine the thresholds for 2014.
- d. Use the Color By drop down to review and filter data by a covariate. After a covariate is select from the Color By drop down, a legend will be added the graph. Click an item in the legend to hide the corresponding points from the graph. Here is the non-filtered version.



Here is the filtered version, where "Transport" sites are not displayed.



Watershed Detail Page – Measurements Tab

- 1. From the Watershed menu, to navigate to your watershed page.
- 2. Click the Measurements Tab
- 3. This will display the auxiliary data compiled across the watershed

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W25563-09504 07/12/2011	1400	17115641 Chris Ham	On Quality Assure In Q/A	McCoy Creek	Annual	7/12/2018 10	7/10/2013 6.6	Paulis	#9¥.	2.09 m	ne	14	mv	8.5 m	0.0 m	0.0 m	0.5 m	0.0 m	0.0 m
BW00583-14245 06/20/2011	1320	17082535 Chris Horn	Cre Quality Assure In Q'A	Clark Greek	Annual	6/26/2013 2	0 27 2013 0 :	Papiño	rm .	12-	ph	14	0.00	7 m	7 m	7 m	7 m	7 -	7 m.
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0405503-22800 07/17/2012	1333	17109785 Laurinda 0	Ires Data Collectic Post Processio	Sheep Creek	Annual	7/17/2013 0	7/16/2013 0.1	Paolic	CD	0.69 m	ES. DM	AQ.LH	CD.	5.1 m	61m	0.5 m	6.1 m	0.1 m	5.1m
DW05563-20420 09/12/2010	1344	17200612 Laurinda 0	Crev Data Collectic Post Processio	South Fork Catheri	Rotating Panel 3	0/12/2013 0	9/13/2013 10	Pacific	in .	1.1 m	8Q. 00	077, 68	1h	7.5 m	0.4 m	11 m	0.0 m	7.2 ==	0.0 m
BW05583-24073 05/17/2010	1027	17073677 Chris Hom	ON QUARTY Assure In Q/A	Rock Creek	Annual	6/17/2013 9	6/18/2013 1:1	Paolito	venetian	2.11 m	hogg do	motonne	mv	4.0 m	5.9 m	6.8 m	6 m	6 m	5.7 m
5W00583-15273 07/25/2011	1501	17150265 Chris Horn	Cix Quality Assure In D/A	Meadow Creek	Annual	7/29/2013 8	7/29/2013 3 5	Paono		0.94 m			đh	19.4 m	19.4 m	19.4 m	18.4 m	19.4 m	19.4 m
W00583-20275 07/24/2011	1019	17157691 Reuben Cr	eer Quality Assure In Q/A	Meadow Creek	Annual	7/24/2013 6	7/25/2013 94	Pacific	ж	2.42 m	RM	AB	im	19.4 m	19.4 m	19.4 m	19.4 m	19.4 m	19.4 m
BW26683-25336 DB-10/2011	1345	17289402 Laurinda G	Crex Data Collectic Post Processin	North Fork Catherin	Rotating Panal 2	8/10/2013 8	8/11/2013 8 1	Paono	CD		DW. ES	AQ, LH	co	17.4 m	11.0 m	15.4 m	12.8 m	12.7 -	14 m
BAG6683 26973 08/27/2020	1442	17229324 Chris Hern	Cre Quality Assure In Q/A	South Feel Calheri	Rotating Panal 3	8/27/2020 9	8.28/2013 8.0	Paolito	16	1.63 -	rh .	oh	deady	9.6 m	8.6 m	8 m	7 m	7.6	8.1 m
BW36683-27868 DB03/2011	1799	1726674€ Chris Horn	Cri Data Collectic Post Processor	Catherina Craek	Extra	83/2013 8 5	84201312	Pasific	P.Q.R.	1.16 m	he03	dipwity.	hom	12.8 m	16.6 m	14.4 m	16.3.m	14.9 m	14.0.m
0000003-20420 00/20/2011	1336	17102000 Laurinda 0	Ines Data Collectic Post Processin	West Chicken Gree	Rotating Panel 3	02020132	7/2/2010 1:01	Pacific	AQ.	1.09 m	CDALH	60	AG	2.0 m	2.2 m	26 m	17m	21.0	2.3 m
6W20503-31146 05-15/2012	1348	17282534 Laurinda C	Prev Data Collectic Post Processin	Catherine Creek	Rotating Panel 3	8/15/2013 12	8/19/2010 12	Paolic	00	3.00	85. 65	in	co	12.0 m	12.4 m	12.2 m	12.3 m	12.2 m	12.0 m
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The Measurements Tab has a measurement type drop down which lists each table. Selecting an item from the drop down will display the appropriate table in the grid. The grid has functionality that will help you explore and edit the data:

- a. Clicking the name of any column will sort the column of data.
- b. Entering a value in the white filter box will limit the rows of data showing in the grid (e.g. enter the right 6 digits of the SiteID to filter for a single site).
- c. Using the greater than (>) or less than (<) symbol and a number will filter the grid for all rows were that column has a value matching that criteria

Editing values in the grid:

- a. Clicking in any cell will allow you to edit the value for that cell.
- b. It is necessary to click the "Save Changes" button after editing cells. If you forget to click "Save Changes" and leave the Measurements tab, all of your edits will be lost.

Charting data:

- a. The chart control is located in a separate tab. Selecting a column name from the dropdown menu will plot that data in the chart.
- b. Numeric data will be plotted as a y-scatter plot, where the x-axis is the Measurement # and the y-axis is the numeric value for the column you selected. The purpose of the graph is to quickly plot the data and look for outliers.

Note: Outliers will appear as yellow or red circles. Null values will have no color. Clicking on a point will open a new tab to the Site Details page.



c. Categorical data will be plotted as a horizontal bar-chart, where the x-axis displays the categories and the y-axis displays the number of rows corresponding to that category.



Site Details Page

If a spurious value is identified while reviewing metrics at the watershed-scale, it will be necessary to drill into that visit and review the measurements. Clicking the light blue SiteID (e.g. CBW05583-013882) from any grid will bring you to the Site Details page with the appropriate visit selected. From the Site Details page, go to the Measurements Tab. From this tab, you will be able to view, graph, and edit data for each table.

Note: Holding the "Ctrl" key when clicking a link will open a new browser window. Note: The visit selector will allow you to switch between visits at the same site.

Site: dsgn4-000205 Grande Ronde River	UTM: 11N 400009 5018736
⁽⁸⁾ The Map is Hidden Click here to show the map.	
Overview Visits Stream Temperature	This site's watershed is: Upper Grande Ronde
Measurements [Metrics] Tags Auxiliary Data [Site Photos] Topographic Data [Solar Input] Air Temp [Stream Temp] [QA Status]	Vist: SteePead Public Annual Stee-08/21/2012 UGR.CC.Bg.Streams-08/06/2013 Geter-08/06/2013 2011-00PW - Local CHev - Gande Bonde-0/2/56/2011 2011-00PW - Local CHev - Gande Bonde-0/256/2011 2011-00PW - Local CHev - Gande Bonde-0/256/201
Measurement Type: Vet Information	C Download
Measure Start Date End Date Time Zone Survey (bc0/r) Rodema Access property (bc0/r) Beacher Width Beacher Width Beacher Width Beacher Width Aneroge Width Width Areroge Width Areroge Width Width Areroge Width Width Areroge Width Arer	othomi Bottom Of Bottom Of Bottom Of Bottom Of Bottom Of Ten Ster ITIN Set Trans Set T

Editing values in the grid:

- a. Clicking in any cell will allow you to edit the value for that cell.
- b. It is necessary to click the "Save Changes" button after editing cells. If you forget to click "Save Changes" and leave the Measurements tab, all of your edits will be lost.

You are encouraged to provide a QA Ranking and Comment for each table. This ranking and comment applies to the individual visit only.

Site: CBW05583-480666 Waucup Creek	UTM: 11N 372853 5016525
⁽²⁾ The Map is Hidden Click here to show the map.	
Overview Visits	This site's watershed is: Upper Grande Ronde
Heasurements Hetrics Tags	Visit: UGR_Smal_Streams-07/10/2013
Auxiliary Data Site Photos Topographic Data Solar Input Air Temp Stream Temp QA Status	Promote Data
Measurement Type: Rparian Structure	
Grid Graph QA Notes	
⁽¹⁾ Below is a QA Rating and Comment for the Rgarian Structure data table for the visit on 7/10/2013. After entering a rating or comment, click the Save button. show more •	
Q A Rating Inot Assessed	
Comments Pass Does Not Pass Data Not Avable	
Save Cancel	