WY 99

Salmon Forever
Sunny Brae Sediment Lab

Suspended Sediment Sample Processing Certification

This checklist covers the proper procedure to process suspended sediment samples

Person certified PAULA Rhude Date 1-31-99 By CLARK FENTON

✓ Filled out headings properly on appropriate suspended sediment concentration data sheet

✓ Examined sample identification and matched with sign in sheet – recorded any identification discrepancies and recorded info on data sheet

✓ Weighed and recorded Total bottle weight with cap on to the nearest 0.1 of a gram on data sheet

✓ Checked volume mark on bottle and responded appropriately

✓ Wrote down QC filter # and sample filter #'s on data sheet

✓ Handled filters with forceps and placed filter fuzzy side down on glass support and turn on vacuum
✓ Wet filter with distilled water and checked for holes
✓ Clamped on glass funnel
✓ Poured sample without shaking first into funnel
✓ Washed sample cap into funnel
✓ Washed interior and outer neck of sample container into funnel
✓ Washed any sediment from sides of funnel down onto filter
✓ Unclamped funnel with vacuum on and rinsed any sediment on bottom of funnel onto filter
✓ Turned off vacuum and transferred filter to drying rack to dry

✓ Weighed empty bottle and cap and recorded Tare Bottle weight to nearest 0.1 gram

✓ Allowed filters to air dry on rack at least one hour before putting on tray

✓ Put filters into 105 ^{0} C oven to dry for at least 0.5 hour for tare filters and 1.5 hours for samples

✓ Followed SSC Protocol and recorded appropriate Quality Codes

✓ Put red mark on sign in sheet next to completed sample

✓ Used common sense and safe procedures

Comments _____

Clark Fenton

Salmon Forever
Sunny Brae Sediment Lab

HY 99

Suspended Sediment Sample Processing Certification

This checklist covers the proper procedure for processing suspended sediment samples.

Person certified CLARK FENTON Date April 14, 1999 By A. Andazola

✓ Filled out headings properly on appropriate suspended sediment concentration data sheet

✓ Examined sample identification and matched with sign in sheet – recorded any identification discrepancies and transferred sample info to data sheet

✓ Weighed and recorded Total bottle weight to the nearest 0.1 of a gram on data sheet

✓ Wrote down starting filter # on data sheet and QC filters & subsequent filters for that sample

✓ Handled filters with forceps and placed filter fuzzy side down on glass support and turn on vacuum

✓ Wet filter with distilled water and checked for holes

✓ Clamped on glass funnel

✓ Poured sample without shaking first into funnel

✓ Washed sample cap into funnel

✓ Washed interior and outer neck of sample container into funnel

✓ Washed any sediment from sides of funnel down onto filter

✓ Unclamped funnel with vacuum on and rinsed any sediment on bottom of funnel onto filter

✓ Turned off vacuum and transferred filter to drying rack.

___ Allowed at least an hour for all filters to air dry on rack before putting on tray

___ Put tray into 105 ° C oven to dry for at least 0.5 hour for tare filters and 1.5 hours for samples

___ Weighed empty bottle and cap and recorded Tare Bottle weight on data sheet

___ Recorded appropriate Quality Codes

___ Used common sense and safe procedures

___ Put red mark on sign in sheet next to completed sample

Comments _____

ssclabcert/cf/wd6/1-99

Anita Andazola

HY 99

Salmon Forever
Sunny Brae Sediment Lab

Filter Weighing Procedure Certification

This checklist outlines the proper procedures for determining the weight of filters
Using a Mettler H20t balance

Person certified CLARK FENTON **Date** April 14, 1999 **By** A. Audazola Anita Audazola

- ✓ After air-drying filters 1 hour on wire rack, placed filters in a clean pan in rows of 4 and 5 filters and heated at 105° C for 1 and 1/2 hours for samples and 1/2 hour for filter tares.
- ✓ Removed pan from oven and immediately placed in desiccator to cool for at least 1 hour before weighing for sample filters and wait 1/2 hour for filter tares.
- ✓ Zeroed balance by first full releasing scale gently and letting balance settle for at least 10 seconds. Used zero knob to set zero and then returned scale gently to full arrest
- ✓ Zeroed balance between each weigh
- ✓ Weighed a check weight before weighing filters and every 10th weigh and recorded in Check Weight book. Checked the pan for debris, and if present, gently removed it
- ✓ Set balance gently to full release, opened dessicator, removed sample tray and transferred a row of 4 or 5 filters to another tray. Immediately put tray with remainder of filters back into dessicator and closed door. Zeroed balance and brought balance back to full arrest.
- ✓ Open the sliding door and carefully placed the filter on the center of the weighing pan and then closed the door. Determined weight to tenth of a gram with half release. Set to full release and let balance stabilize for at least 10 seconds. Determined the remainder of the weight with knob and then recorded the weight on the data sheet.
- ✓ Opened the door and removed the filter.
- ✓ Closed the door.
- ____ Checked the final weight against the initial weight. The final weight should be larger. If the initial weight is larger than the final weight try to determine where the error occurred.

Comments _____

Anita Audazola

Weighing Certification continued ...

Filter Weigh Checks

Weigh precision shall be checked with comparison of 10 filter weighs. Weights shall be within 5% of each other.

CK. WT. 1.00008 CK W.T. 1.00007

1251	1. 0.10688 g	1a. 0.10684 g
1252	2. 0.10657 g	2a. 0.10647 g
1253	3. 0.11072 g	3a. 0.11063 g
1254	4. 0.10909 g	4a. 0.10907 g
1255	5. 0.10631 g	5a. 0.10629 g
1256	6. 0.11020 g	6a. 0.11008 g
1257	7. 0.10846 g	7a. 0.10837 g
1258	8. 0.10696 g	8a. 0.10685 g
1259	9. 0.10719 g	9a. 0.10711 g
1260	10. 0.10979 g	10a. 0.10972 g

CK. WT. 1.00007

Comments

Salmon Forever
Sunny Brae Sediment Lab

Sample Filter Drying and Weighing Certification

This checklist covers the proper procedure for Drying and Weighing
Suspended Sediment Samples
(Mettler H20t Balance)

Person certified SARAH HEBERLIN Date 3-5-99 By CLARK FENTON

✓ After air-drying filters 1 hour on wire rack, placed filters in a clean pan in rows of 4 and 5 filters and heated at 105° C for 1 and 1/2 hours for sample filters and 1/2 hour for filter tares.

✓ Removed pan from oven and immediately placed in desiccator to cool for at least 1 hour for sample filters and 1/2 hour for filter tares before weighing.

✓ Zeroed balance by first full releasing scale gently and let balance settle for at least 10 seconds. Used zero knob to set zero and then return scale gently to full arrest

✓ Zeroed balance between each weigh

✓ Weighed a check weight before weighing filters and used every 10th weigh and recorded on data sheet and in Check Weight book. Checked the pan for debris, and if present, gently removed it

✓ Set balance gently to full release, opened dessicator, removed sample tray and transferred a row of4 or 5 filters to another tray. Immediately put tray with remainder of filters back into dessicator and closed door. Zeroed balance and brought balance back to full arrest.

✓ Opened the sliding door and carefully placed the filter on the center of the weighing pan and then closed the door. Determined weight to tenth of a gram with half release. Set to full release and let balance stabilize for at least 10 seconds. Determined the remainder of the weight with knob and then recorded the weight on the data sheet.

✓ Opened the door and removed the filter. Closed the door.

✓ Checked the final weight against the initial weight. The final weight should be larger. If the initial weight is larger than the final weight tried to determine where the error occurred and recorded error code on data sheet.

Comments: FILTERS OUT 7 MIN.

continued ➔

Weighing Certification continued...

Filter Weigh Checks 1%

Weigh precision shall be checked with comparison of 10 filter weighs. Weights shall be within 5% of each other.

Sarah HEBERLIN Clark FENTON

FILTER ID

002	1. 0.10681 g	1a. 0.10686 g	0.05%	CK. WT. 1.00006 g DIFFERENCE
003	2. 0.10769 g	2a. 0.10773 g	0.04%	
004	3. 0.10679 g	3a. 0.10681 g	0.02 %	
005	4. 0.10785 g	4a. 0.10783 g	0.02 %	
006	5. 0.10656 g	5a. 0.10654 g	0.02 %	
007	6. 0.10705 g	6a. 0.10699 g	0.06 %	
008	7. 0.10684 g	7a. 0.10687 g	0.03 %	
009	8. 0.10682 g	8a. 0.10689 g	0.06 %.	
010	9. 0.10791 g	9a. 0.10795 g	0.04 %	
011	10. 0.10694 g	10a. 0.10731 g	0.34 %	? CK. WT. 1.00009 g

Comments

HY 99

Salmon Forever
Sunny Brae Sediment Lab

Sample Filter Drying and Weighing Certification

This checklist covers the proper procedure for Drying and Weighing
Suspended Sediment Samples
(Mettler H20t Balance)

Person certified ANITA ANDAZOLA Date 11-14-98 By CLARK FENTON

✓ After air-drying filters 1 hour on wire rack, placed filters in a clean pan in rows of 4 and 5 filters and heated at 105° C for 1 and 1/2 hours for sample filters and 1/2 hour for filter tares.

✓ Removed pan from oven and immediately placed in desiccator to cool for at least 1 hour for sample filters and 1/2 hour for filter tares before weighing.

✓ Zeroed balance by first full releasing scale gently and let balance settle for at least 10 seconds. Used zero knob to set zero and then return scale gently to full arrest

✓ Zeroed balance between each weigh

✓ Weighed a check weight before weighing filters and used every 10th weigh and recorded on data sheet and in Check Weight book. Checked the pan for debris, and if present, gently removed it

✓ Set balance gently to full release, opened dessicator, removed sample tray and transferred a row of4 or 5 filters to another tray. Immediately put tray with remainder of filters back into dessicator and closed door. Zeroed balance and brought balance back to full arrest.

✓ Opened the sliding door and carefully placed the filter on the center of the weighing pan and then closed the door. Determined weight to tenth of a gram with half release. Set to full release and let balance stabilize for at least 10 seconds. Determined the remainder of the weight with knob and then recorded the weight on the data sheet.

✓ Opened the door and removed the filter. Closed the door.

✓ Checked the final weight against the initial weight. The final weight should be larger. If the initial weight is larger than the final weight tried to determine where the error occurred and recorded error code on data sheet.

Comments: Good match on comparison weighs

continued ➡

QUALITY CONTROL 11-14-98 TARE CHK OF ANITA. A. PUT BACK IN OVEN & REWEIGH

Initial Weights of Distilled Rinsed Filters

ID	weight (g)	ID	weight (g)	ID	weight (g)	ID	weight (g)	ID	weight (g)
ANITA		CLARK							
		CHK WT.	1.00009						
131	0.12824	131	0.12820						
132	0.12791	132	0.12784						
133	0.12643	133	0.12628						
134	0.12478	134	0.12476						
135	0.12680	135	0.12676						
136	0.12678	136	0.12667						
137	0.12439	137	0.12425						
138	0.12498	138	0.12497						
		CHK. WT	1.00011						
QC8	0.12		0.12400						

Salmon Forever
Sunny Brae Sediment Lab HY99

Turbidity Sample Processing
Certification

This checklist outlines the proper procedures for determining the turbidity of several different types of sample containers with the HACH 2100P Turbidimeter

Person certified CLARK FENTON **Date** April 14,1999 **By** A. Audazola

Turbidity is to be run on all samples as soon as possible and recorded on sign-in sheet and data sheet
Turbidities are recorded and samples are placed back in order for ssc processing

If proceeding directly afterwards to SSC processing, weigh the total sample bottle weight before running turbidity

Use this protocol for running sample HACH cells in the HACH 2100P Turbidimeter

__✓__ Put 1 drop of silicone on HACH cell and wiped with black cloth, did not wipe off sample label
__✓__ Shook HACH cell for at least 5 seconds and then inserted HACH cell with white diamond point of cell label aligned with bar on case of HACH 2100P Turbidimeter
__✓__ Waited 3 seconds for air bubbles to rise before pressing read button
__✓__ Recorded turbidity on sign-in sheet

Use this protocol for samples in bottles other than HACH cells

__✓__ Shook sample bottle vigorously until no sediment is stuck to the bottom
__✓__ Poured shaken sample bottle water into HACH cell as soon as possible
__✓__ Filled HACH cell up to white label line and ran and recorded turbidity per protocol

If HACH 2100P turbidimeter reading is a flashing E7 or 1000+ then dilute the sample to get actual turbidity
Use NTU Dilution sheet to record and calculate dilution data

__✓__ Poured sample water in tared beaker and record as " original volume"
__✓__ Added appropriate dilution volume and recorded as "1st dilution volume total" and ran turbidity
__✓__ Continued dilutions until turbidity read and calculate actual turbidity
__✓__ For small dilutions poured sample water from beaker into HACH cell as soon as possible
__✓__ Stirred large dilutions with spoon and dipped HACH cell into beaker
__✓__ Ran HACH cell in HACH 2100P Turbidimeter per protocol

__✓__ Either poured HACH cell water back into sample bottle or proceeded to SSC processing with HACH cell and remainder of sample

Comments

Anita Audazola

Salmon Forever
Sunny Brae Sediment Lab HY 99

Turbidity Sample Processing
Certification

This checklist outlines the proper procedures for determining the turbidity of several different types of sample containers with the HACH 2100P Turbidimeter

Person certified ANNE ANTOUILLE **Date** 2-8-99 **By** CLARK FENTON

Turbidity is to be run on all samples as soon as possible and recorded on sign-in sheet and data sheet
Turbidities are recorded and samples are placed back in order for ssc processing

If proceeding directly afterwards to SSC processing, weigh the total sample bottle weight before running turbidity

Use this protocol for running sample HACH cells in the HACH 2100P Turbidimeter

__✓__ Put 1 drop of silicone on HACH cell and wiped with black cloth, did not wipe off sample label
__✓__ Shook HACH cell for at least 5 seconds and then inserted HACH cell with white diamond point of cell label aligned with bar on case of HACH 2100P Turbidimeter
__✓__ Waited 3 seconds for air bubbles to rise before pressing read button
__✓__ Recorded turbidity on sign-in sheet

Use this protocol for samples in bottles other than HACH cells

____ Shook sample bottle vigorously until no sediment is stuck to the bottom
____ Poured shaken sample bottle water into HACH cell as soon as possible
____ Filled HACH cell up to white label line and ran and recorded turbidity per protocol

If HACH 2100P turbidimeter reading is a flashing E7 or 1000+ then dilute the sample to get actual turbidity
Use NTU Dilution sheet to record and calculate dilution data

____ Poured sample water in tared beaker and record as " original volume"
____ Added appropriate dilution volume and recorded as "1st dilution volume total" and ran turbidity
____ Continued dilutions until turbidity read and calculate actual turbidity
____ For small dilutions poured sample water from beaker into HACH cell as soon as possible
____ Stirred large dilutions with spoon and dipped HACH cell into beaker
____ Ran HACH cell in HACH 2100P Turbidimeter per protocol

____ Either poured HACH cell water back into sample bottle or proceeded to SSC processing with HACH cell and remainder of sample

Comments w/Hach Cells only Clark Fenton

HY 99

Salmon Forever
Sunny Brae Sediment Lab

Turbidity Sample Processing
Certification

This checklist outlines the proper procedures for determining the turbidity of several different types of sample containers with the HACH 2100P Turbidimeter

Person certified Paula Rhode **Date** 2-14-99 **By** C. FENTON

Turbidity is to be run on all samples as soon as possible and recorded on sign-in sheet and data sheet
Turbidities are recorded and samples are placed back in order for ssc processing

If proceeding directly afterwards to SSC processing, weigh the total sample bottle weight before running turbidity

Use this protocol for running sample HACH cells in the HACH 2100P Turbidimeter

____Put 1 drop of silicone on HACH cell and wiped with black cloth, did not wipe off sample label
____Shook HACH cell for at least 5 seconds and then inserted HACH cell with white diamond point of cell label aligned with bar on case of HACH 2100P Turbidimeter
____Waited 3 seconds for air bubbles to rise before pressing read button
____Recorded turbidity on sign-in sheet

Use this protocol for samples in bottles other than HACH cells

____Shook sample bottle vigorously until no sediment is stuck to the bottom
____Poured shaken sample bottle water into HACH cell as soon as possible
____Filled HACH cell up to white label line and ran and recorded turbidity per protocol

If HACH 2100P turbidimeter reading is a flashing E7 or 1000+ then dilute the sample to get actual turbidity
Use NTU Dilution sheet to record and calculate dilution data

____Poured sample water in tared beaker and record as " original volume"
____ Added appropriate dilution volume and recorded as "1st dilution volume total" and ran turbidity
____ Continued dilutions until turbidity read and calculate actual turbidity
____For small dilutions poured sample water from beaker into HACH cell as soon as possible
____Stirred large dilutions with spoon and dipped HACH cell into beaker
____Ran HACH cell in HACH 2100P Turbidimeter per protocol

____Either poured HACH cell water back into sample bottle or proceeded to SSC processing with HACH cell and remainder of sample

Comments

Salmon Forever
Sunny Brae Sediment Lab HY 99

Turbidity Sample Processing
Certification

This checklist outlines the proper procedures for determining the turbidity of several different types of sample containers with the HACH 2100P Turbidimeter

Person certified JANNA FINCKE **Date** 2-21-99 **By** CLARK FENTON

Turbidity is to be run on all samples as soon as possible and recorded on sign-in sheet and data sheet
Turbidities are recorded and samples are placed back in order for ssc processing

If proceeding directly afterwards to SSC processing, weigh the total sample bottle weight before running turbidity

Use this protocol for running sample HACH cells in the HACH 2100P Turbidimeter

✓ Put 1 drop of silicone on HACH cell and wiped with black cloth, did not wipe off sample label
✓ Shook HACH cell for at least 5 seconds and then inserted HACH cell with white diamond point of cell label aligned with bar on case of HACH 2100P Turbidimeter
✓ Waited 3 seconds for air bubbles to rise before pressing read button
✓ Recorded turbidity on sign-in sheet

Use this protocol for samples in bottles other than HACH cells

✓ Shook sample bottle vigorously until no sediment is stuck to the bottom
✓ Poured shaken sample bottle water into HACH cell as soon as possible
✓ Filled HACH cell up to white label line and ran and recorded turbidity per protocol

If HACH 2100P turbidimeter reading is a flashing E7 or 1000+ then dilute the sample to get actual turbidity
Use NTU Dilution sheet to record and calculate dilution data

____ Poured sample water in tared beaker and record as " original volume"
____ Added appropriate dilution volume and recorded as "1st dilution volume total" and ran turbidity
____ Continued dilutions until turbidity read and calculate actual turbidity
____ For small dilutions poured sample water from beaker into HACH cell as soon as possible
____ Stirred large dilutions with spoon and dipped HACH cell into beaker
____ Ran HACH cell in HACH 2100P Turbidimeter per protocol NA

____ Either poured HACH cell water back into sample bottle or proceeded to SSC processing with HACH cell and remainder of sample

Comments

HY 99

Salmon Forever / Sunny Brae Sediment Lab
Stream Sampling Certification

This checklist covers the proper way to collect samples of water for turbidity and suspended sediment concentration and pertinent information.

Location 3J305 Bridge PM 3.38 4C-57

Sampler Ralph Kraus Date 5-9-99

By C. FENTON

1. Equipment

✓ Sample containers properly cleaned.
✓ Stopwatch
✓ Pencil
✓ Rite in the Rain note paper (field data sheet). Notebook
✓ Tape measure (used plastic or fiberglass to resist rust).

2. Safety

NA Established a safe path to the site: streambanks are soft and slippery.
✓ Never waded into water deeper than knees.
✓ Took a friend to monitor at night.
✓ Trusted judgement above all else - no sample is worth personal injury.

3. Sampling location

Streambank:
NA If possible, sampled the main current near the center of the stream. The outside curve of the river is often a good place to sample since the main current tends to hug this bank.
NA In shallow stretches, carefully waded into the center current to collect the sample.

Culvert:
NA Sampled culvert outflow if access is safe, (the flow here is well mixed)

Bridge:
✓ Sampled the main flow section by lowering a bottle on a weighted string or tape measure into flow several inches.

STRING — WT — CLAMP — MOUTH UPWARD

4. Sampling Procedure

A. Grab Sampling with Plastic Bottles / HACH Cells

___ Removed the cap from the bottle just before sampling. Avoided touching the insid of the bottle or the cap.

___ Wading: Tried to disturb as little bottom sediment as possible. Careful not to colle water that has sediment from bottom disturbance. Stood facing upstream. Collected th water sample on upstream side, in front.

___ Held the bottle near its base and plunged it (opening downward) below the water surface. If using an extension pole, removed the cap, affixed the bottle and plunged it into the upstream waters.

___ Collected water sample 2 to 6 inches beneath the surface or mid-way between the surface and the bottom if the river reach is shallow.

___ Turned the submerged bottle into the current and upward and away.

_✓_ Left a small air space in sample bottle. Recapped the bottle carefully, remembered not to touch or contaminate the inside.

___ Labeled the bottle with the site location, sampling date and time.

Recorded on rite-in-rain note paper or field data sheet:

_✓_ Recorded sampling date, time and location .

___ Recorded fast and slow strand floating object time and distance.

___ Recorded stage.

___ Recorded whether flow is on the rising or falling limb of the hydrograph.

B. DH-48 / Depth Integrated Sampling / Wading Rod

___ Sampled at 5 to 15 representative spacings across the stream.

___ Graphed the cross-section water depth and width of the stream.

Recorded on rite-in-rain note paper or field data sheet:

NA

___ Recorded sampling date, time and location.

___ Recorded fast and slow strand floating object time and distance.

___ Recorded dead water strand edges.

___ Recorded stage.

___ Recorded whether flow is on the rising or falling limb of the hydrograph.

C. Velocity Measurements w / floating object

_✓_ Straight, uniform stream reach.

_✓_ Reach long enough to give velocities in the 6-12 second range at high flow.

___ Graphed the cross-section water depth and width of the stream. NOT YET

_NA_ Established benchmark reference for cross-section, if new site.

_✓_ Elapsed time for object to traverse velocity section taken to nearest 0.1 second

_✓_ Distance of velocity section measured to nearest inch. .01'

___ Object time and distance measured in fast strand flow and slow strand flow.

___ Strand widths recorded. NA

D. Stage Measurements / Staff Plate

✓ Read stage to nearest 0.1 of a foot or nearest inch.

___ Staff plate or bridge rail or culvert invert correlated to crossection. NOT YET

NA Staff plate isn't under water at high flow and is protected from debris.

5. Recording Data

✓ Location

✓ Date

✓ Time

✓ Note date, time, and approximate elapsed time since start of rain.

✓ Note staff/stage gauge water level (or ~~distance~~ down from the bridge guardrail).

✓ Time and distance of floating object ~~in fast~~ and or slow strand

NA Estimated width of velocity strands, dead water, total wetted creek width.

NA RR or RL if sampled at one side. BRIDGE MIDDLE

6. Proper Labeling

Bottle:

✓ Location, Date, and Time.

✓ Velocity and Distance and Stage if possible on bottle.

7. Storing the Sample

✓ Kept in a dark and cool place and / or refrigerated.

✓ Returned to the Sunny Brae Sediment Lab for turbidity analysis within 48 hours if possible.

Comments: Crossection in Spring, HACH Cell w/ string + Clamp, Mid bridge at chip in bridge rail.

HY 99

Salmon Forever / Sunny Brae Sediment Lab
Stream Sampling Certification

This checklist covers the proper way to collect samples of water for turbidity and suspended sediment concentration and pertinent information.

Sampler STACEY KETT Date 5-24-99

By CLARK FENTON

1. Equipment

✓ Sample containers properly cleaned.
✓ Stopwatch
✓ Pencil
✓ Rite in the Rain note paper (field data sheet).
✓ Tape measure (used plastic or fiberglass to resist rust).

2. Safety

✓ Established a safe path to the site: streambanks are soft and slippery.
✓ Never waded into water deeper than knees.
NA Took a friend to monitor at night.
✓ Trusted judgement above all else - no sample is worth personal injury.

3. Sampling location

Streambank:
✓ If possible, sampled the main current near the center of the stream. The outside curve of the river is often a good place to sample since the main current tends to hug this bank.
___ In shallow stretches, carefully waded into the center current to collect the sample.

Culvert:
NA ___ Sampled culvert outflow if access is safe, (the flow here is well mixed)

Bridge:
✓ Sampled the main flow section by lowering a bottle on a weighted string or tape measure into flow several inches. 4-5"

D. Stage Measurements / Staff Plate

✓ Read stage to nearest ~~0.1~~ of a foot or nearest inch.

___ Staff plate or bridge rail or culvert invert correlated to crossection.

___ Staff plate isn't under water at high flow and is protected from debris.

Bridge Rail

5. Recording Data

✓ Location

✓ Date

✓ Time

NA Note date, time, and approximate elapsed time since start of rain.

✓ Note staff/stage gauge water level (or distance down from the bridge guardrail).

NA Time and distance of floating object in fast and or slow strand

NA Estimated width of velocity strands, dead water, total wetted creek width.

NA RR or RL if sampled at one side.

6. Proper Labeling

Bottle:

✓ Location, Date, and Time.

✓ Velocity and Distance and Stage if possible on bottle.

7. Storing the Sample

✓ Kept in a dark and cool place and / or refrigerated.

✓ Returned to the Sunny Brae Sediment Lab for turbidity analysis within 48 hours if possible.

Comments: Pole From bridge PVC Bungee Cord fast strand

D. Stage Measurements / Staff Plate

✓ Read stage to nearest ~~0.1~~ of a foot or nearest inch.

___ Staff plate or bridge rail or culvert invert correlated to crossection.

___ Staff plate isn't under water at high flow and is protected from debris.

Bridge Rail

5. Recording Data

✓ Location

✓ Date

✓ Time

NA Note date, time, and approximate elapsed time since start of rain.

✓ Note staff/stage gauge water level (or distance down from the bridge guardrail).

NA Time and distance of floating object in fast and or slow strand

NA Estimated width of velocity strands, dead water, total wetted creek width.

NA RR or RL if sampled at one side.

6. Proper Labeling

Bottle:

✓ Location, Date, and Time.

✓ Velocity and Distance and Stage if possible on bottle.

7. Storing the Sample

✓ Kept in a dark and cool place and / or refrigerated.

✓ Returned to the Sunny Brae Sediment Lab for turbidity analysis within 48 hours if possible.

Comments: Pole From bridge PVC Bungee Cord fast strand

HY 99

Salmon Forever / Sunny Brae Sediment Lab
Stream Sampling Certification

This checklist covers the proper way to collect samples of water for turbidity and suspended sediment concentration and pertinent information.

Sampler Tisa Cook Date 5-24-99

By Clark Fenton

Howard Heights Bridge HC-49

RD 4J010 PM 0.01 miles

1. Equipment

✓ Sample containers properly cleaned.
✓ Stopwatch
✓ Pencil
✓ Rite in the Rain note paper (field data sheet).
✓ Tape measure (used plastic or fiberglass to resist rust).

2. Safety

✓ Established a safe path to the site: streambanks are soft and slippery.
✓ Never waded into water deeper than knees.
JA Took a friend to monitor at night.
✓ Trusted judgement above all else - no sample is worth personal injury.

3. Sampling location

JA Streambank:
If possible, sampled the main current near the center of the stream. The outside curve of the river is often a good place to sample since the main current tends to hug this bank.
JA In shallow stretches, carefully waded into the center current to collect the sample.

Culvert:
Sampled culvert outflow if access is safe, (the flow here is well mixed)

Bridge:
✓ Sampled the main flow section by lowering a bottle on a weighted string or tape measure into flow several inches.

4. Sampling Procedure

A. Grab Sampling with Plastic Bottles / HACH Cells

✓ Removed the cap from the bottle just before sampling. Avoided touching the insid of the bottle or the cap.

✓ Wading: Tried to disturb as little bottom sediment as possible. Careful not to colle water that has sediment from bottom disturbance. Stood facing upstream. Collected th water sample on upstream side, in front.

✓ Held the bottle near its base and plunged it (opening downward) below the water surface. If using an extension pole, removed the cap, affixed the bottle and plunged it into the upstream waters.

✓ Collected water sample 2 to 6 inches beneath the surface or mid-way between the surface and the bottom if the river reach is shallow.

✓ Turned the submerged bottle into the current and upward and away.

✓ Left a small air space in sample bottle. Recapped the bottle carefully, remembered not to touch or contaminate the inside.

✓ Labeled the bottle with the site location, sampling date and time.

Recorded on rite-in-rain note paper or field data sheet:

✓ Recorded sampling date, time and location .

NA Recorded fast and slow strand floating object time and distance.

✓ Recorded stage.

NA Recorded whether flow is on the rising or falling limb of the hydrograph.

B. DH-48 / Depth Integrated Sampling / Wading Rod

___ Sampled at 5 to 15 representative spacings across the stream.

___ Graphed the cross-section water depth and width of the stream.

NA

Recorded on rite-in-rain note paper or field data sheet:

___ Recorded sampling date, time and location.

___ Recorded fast and slow strand floating object time and distance.

___ Recorded dead water strand edges.

___ Recorded stage.

___ Recorded whether flow is on the rising or falling limb of the hydrograph.

C. Velocity Measurements w / floating object

___ Straight, uniform stream reach.

___ Reach long enough to give velocities in the 6-12 second range at high flow.

___ Graphed the cross-section water depth and width of the stream.

___ Established benchmark reference for cross-section, if new site.

___ Elapsed time for object to traverse velocity section taken to nearest 0.1 second

___ Distance of velocity section measured to nearest inch.

___ Object time and distance measured in fast strand flow and slow strand flow.

___ Strand widths recorded.

D. Stage Measurements / Staff Plate

✓ Read stage to nearest 0.1 of a foot or nearest inch.

NA Staff plate or bridge rail or culvert invert correlated to crossection.

NA Staff plate isn't under water at high flow and is protected from debris.

bridge rail

5. Recording Data

✓ Location

✓ Date

✓ Time

NA Note date, time, and approximate elapsed time since start of rain.

✓ Note staff/stage gauge water level (or distance down from the bridge guardrail).

✓ Time and distance of floating object in fast and or slow strand

NA Estimated width of velocity strands, dead water, total wetted creek width.

NA RR or RL if sampled at one side. USUALLY FASTEST STRAND

6. Proper Labeling

Bottle:

✓ Location, Date, and Time.

✓ Velocity and Distance and Stage if possible on bottle.

TAPE

7. Storing the Sample

✓ Kept in a dark and cool place and / or refrigerated.

✓ Returned to the Sunny Brae Sediment Lab for turbidity analysis within 48 hours if possible.

Comments: Used pole off bridge

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Salmon Forever / Sunny Brae Sediment Lab
Stream Sampling Certification

This checklist covers the proper way to collect samples of water for turbidity and suspended sediment concentration and pertinent information.

Sampler Bob London Date 5-24-99

By Clark Fenton

Howard Hts Br

1. Equipment

✓ Sample containers properly cleaned.
✓ Stopwatch
✓ Pencil
✓ Rite in the Rain note paper (field data sheet).
✓ Tape measure (used plastic or fiberglass to resist rust).

2. Safety

✓ Established a safe path to the site: streambanks are soft and slippery.
✓ Never waded into water deeper than knees.
✓ Took a friend to monitor at night.
✓ Trusted judgement above all else - no sample is worth personal injury.

3. Sampling location

Streambank:
✓ If possible, sampled the main current near the center of the stream. The outside curve of the river is often a good place to sample since the main current tends to hug this bank.
___ In shallow stretches, carefully waded into the center current to collect the sample.

Culvert:
NA Sampled culvert outflow if access is safe, (the flow here is well mixed)

Bridge:
✓ Sampled the main flow section by lowering a bottle on a ~~weighted string~~ Pole or tape measure into flow several inches.

4. Sampling Procedure

A. Grab Sampling with Plastic Bottles / HACH Cells

✓ Removed the cap from the bottle just before sampling. Avoided touching the insid of the bottle or the cap.

✓ Wading: Tried to disturb as little bottom sediment as possible. Careful not to colle water that has sediment from bottom disturbance. Stood facing upstream. Collected th water sample on upstream side, in front.

✓ Held the bottle near its base and plunged it (opening downward) below the water surface. If using an extension pole, removed the cap, affixed the bottle and plunged it into the upstream waters.

✓ Collected water sample 2 to 6 inches beneath the surface or mid-way between the surface and the bottom if the river reach is shallow.

✓ Turned the submerged bottle into the current and upward and away.

✓ Left a small air space in sample bottle. Recapped the bottle carefully, remembered not to touch or contaminate the inside.

✓ Labeled the bottle with the site location, sampling date and time.

Recorded on rite-in-rain note paper or field data sheet:

✓ Recorded sampling date, time and location .

✓ Recorded fast and slow strand floating object time and distance. N/D

✓ Recorded stage.

N/A Recorded whether flow is on the rising or falling limb of the hydrograph.

B. DH-48 / Depth Integrated Sampling / Wading Rod

___ Sampled at 5 to 15 representative spacings across the stream.

___ Graphed the cross-section water depth and width of the stream.

Recorded on rite-in-rain note paper or field data sheet:

N/A

___ Recorded sampling date, time and location.

___ Recorded fast and slow strand floating object time and distance.

___ Recorded dead water strand edges.

___ Recorded stage.

___ Recorded whether flow is on the rising or falling limb of the hydrograph.

C. Velocity Measurements w / floating object

✓ Straight, uniform stream reach.

✓ Reach long enough to give velocities in the 6-12 second range at high flow.

N/A Graphed the cross-section water depth and width of the stream.

N/A Established benchmark reference for cross-section, if new site.

✓ Elapsed time for object to traverse velocity section taken to nearest 0.1 second

✓ Distance of velocity section measured to nearest inch.

N/D Object time and distance measured in fast strand flow and slow strand flow.

N/A Strand widths recorded.

D. Stage Measurements / Staff Plate

✓ Read stage to nearest 0.1 of a foot or ~~nearest inch~~.
NA Staff plate or bridge rail or culvert invert correlated to crossection.
✓ Staff plate isn't under water ~~at~~ high flow and is protected from debris.

5. Recording Data

✓ Location
✓ Date
✓ Time
NA Note date, time, and approximate elapsed time since start of rain. TOP
✓ Note staff/stage gauge water level (or distance down from the bridge guardrail).
___ Time and distance of floating object ~~in~~ fast and or slow strand
NA Estimated width of velocity strands, dead water, total wetted creek width.
NA RR or RL if sampled at one side.

6. Proper Labeling

Bottle:
✓ Location, Date, and Time.
✓ Velocity and Distance and Stage if possible on bottle.

7. Storing the Sample

✓ Kept in a dark and cool place and / or refrigerated.
✓ Returned to the Sunny Brae Sediment Lab for turbidity analysis within 48 hours if possible.

Comments: off bridge with pole 2nd stream side

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