

BASL Chain of Custody (COC) Procedure

1. Visit the BASL website (<http://www.biology.ualberta.ca/basl/>) and click the “Sample Submission” tab on the top of the website.
2. Follow the instructions on the “Sample Submission” page and choose the appropriate Chain of Custody (COC) for your sample submission.
3. COCs
 - 3.1. Download the Inorganic COC form if inorganic parameters are requested, and open with Microsoft Excel.
 - 3.2. Choose the first tab in the bottom to read the instructions before filling in any information.
 - 3.3. After you understand the instructions, click the second tab to fill in the COC.
 - 3.4. Basic Information:
 - 3.4.1. Fill in the project name (**keep the name short**), client name, contact phone, contact e-mail, supervisor, billing address or speed code, comments for billing, sample matrix, submitted by, date of submission, preservation/filtering status, rush and date required.
 - 3.5. Analysis Requested:
 - 3.5.1. Choose all the parameters which you require analysis by putting an “X” in the blue cells.
 - 3.5.2. On the third tab in the bottom, called “Sample List”, enter sample information corresponding to the samples you are going to submit. Please only fill in the blue area.
 - 3.5.3. The “Sample ID” is the abbreviated sample name you use in the field, and the BASL will use this info in the final reporting. It is not necessary to write down all your site info on the bottles, tubs or any other containers.
 - 3.5.4. “Bottle Number” is the number you label on the bottles, which are used to organize samples. Please make the “Bottle Number” as simple as you can (e.g., 1, 2, 3, etc.)
 - 3.6. Sample Submission:

Several situations could happen when clients need to submit samples:

SCENARIO 1: Samples are filtered by clients, they are distributed in different containers and all the samples are requested with the same parameters. In this case the client only needs to fill in ONE COC form which indicates all the parameters they want analyzed. In the “Sample List” tab, only write down the unique list of Sample IDs once per COC.

For e.g., there are 10 sites of samples to be analyzed for TP, TDP, SRP, Nitrite+Nitrate, Ammonia, TN, TDN, Silica, pH, Alkalinity, Conductivity, UV (254 nm), UV (365 nm), Turbidity, Dissolved Cations (Al, Ca, Fe, K, Mg, and Na), Anions (S/C), Carbons (DOC/DIC) and CHN. The COC tab will look like:

Select a sample matrix

Comments for Billing:

Sample Matrix: Water

RUSH Date required by (mm/dd/yy): Note: Extra charge will apply. Please consult with Laboratory Manager.

Analysis Requested (Check "x" on the blue box):

Nutrient		Status	Cations			Status
	Particulate Phosphorus			Total	X	Dissolved
X	Total Phosphorus		X	Aluminum		
X	Total Dissolved Phosphorus		X	Calcium		
X	Soluble Reactive Phosphorus		X	Iron		
X	Nitrite+Nitrate		X	Potassium		
	Nitrate only		X	Magnesium		
	Nitrite only		X	Sodium		
X	Ammonia			Trace Metals		
X	Total Nitrogen			Anions		Status
X	Total Dissolved Nitrogen		X	Sulfate		
	Total Kjeldahl Nitrogen		X	Chloride		
	Dissolved Kjeldahl Nitrogen			Carbons		Status
X	Silica			Total Organic Carbon		
	Physical		Status	Total Inorganic Carbon		
X	pH		X	Dissolved Organic Carbon		
X	Alkalinity		X	Dissolved Inorganic Carbon		
	Gran Alkalinity			Stable Isotope		Status
X	Conductivity			Hydrogen (D/H)		
	Color (440 nm)			Oxygen (18O/16O)		
X	UV (254 nm)			Nitrogen (15N/14N)		
	UV (350 nm)			Carbon (13C/12C)		
X	UV (365 nm)			Carbon (13C/12C) - Org		
	UV Spectra			Total Carbon and Nitrogen (IRN)		
X	Turbidity			Total Carbon - Org (IRMS)		
	Ash Free Dry Mass		X	Total Carbon and Nitrogen (CHN)		
	Total Dissolved Solids			Others		Status
	Non Filterable Residue			Other Parameter:		
	Chlorophyll a: Fluorimetric			Archive raw sample		

Preservation /filtering status need to be noted

Preservation /filtering status:
All TP and TDP (filtered) samples are preserved with sulfuric acid. All Cations samples are filtered and preserved with nitric Acid.

And the “Sample List” tab will look like:

BASL Excel Sample List					
LAB USE ONLY			Client field		
BASL Sample ID	Receiving Date (mm/dd/yy)	Sample Matrix	Sample ID	Sampling Date (mm/dd/yy)	Bottle Number
		Water	A1	08/29/2022	1
		Water	A2	08/29/2022	2
		Water	A3	08/30/2022	3
		Water	A4	08/30/2022	4
		Water	A5	08/31/2022	5
		Water	A6	08/31/2022	6
		Water	A7	09/01/2022	7
		Water	A8	09/01/2022	8
		Water	A9	09/02/2022	9
		Water	A10	09/02/2022	10

Please note that on different subsampled tubes and bottles from the same site, you only need to label parameter + bottle number. DO NOT label “Sample ID” information on the containers.

SCENARIO 2: Samples are filtered by client, but all filtered samples in one container, unfiltered samples in another container, and all the samples require the same parameters. In this case the client only needs to fill in ONE COC form which indicates all the parameters they want analyzed. For the “Sample List” tab, only write down the unique list of Sample IDs ONCE per COC.

For e.g., there are 10 sites of samples to be analyzed for TP, TDP, SRP, Nitrite+Nitrate, Ammonia, TN, TDN, Silica, pH, Alkalinity, Conductivity, UV (254 nm), UV (365 nm), Turbidity, TDS, NFR, Dissolved Cations (Al, Ca, Fe, K, Mg, and Na), Anions (S/C), Carbons (DOC/DIC) and CHN. The COC tab will look like:

Select a sample matrix	Sample Matrix: Water	Filtered samples labeled as F. Unfiltered samples labeled as UF.		Preservation /filtration status need to be noted
	RUSH	Date required by (mm/dd/yy):	Note: Extra charge will apply. Please consult with Laboratory Man	
Analysis Requested (Check "x" on the blue box):				
	Nutrient	Status	Cations	Status
	Particulate Phosphorus		Total X Dissolved	
X	Total Phosphorus		X Aluminum	
X	Total Dissolved Phosphorus		X Calcium	
X	Soluble Reactive Phosphorus		X Iron	
X	Nitrite+Nitrate		X Potassium	
	Nitrate only		X Magnesium	
	Nitrite only		X Sodium	
X	Ammonia		Trace Metals	
X	Total Nitrogen		Anions	Status
X	Total Dissolved Nitrogen		X Sulfate	
	Total Kjeldahl Nitrogen		X Chloride	
	Dissolved Kjeldahl Nitrogen		Carbons	Status
X	Silica		Total Organic Carbon	
	Physical	Status	Total Inorganic Carbon	
X	pH		X Dissolved Organic Carbon	
X	Alkalinity		X Dissolved Inorganic Carbon	
	Gran Alkalinity		Stable Isotope	Status
X	Conductivity		Hydrogen (D/H)	
	Color (440 nm)		Oxygen (18O/16O)	
X	UV (254 nm)		Nitrogen (15N/14N)	
	UV (350 nm)		Carbon (13C/12C)	
X	UV (365 nm)		Carbon (13C/12C) - Org	
	UV Spectra		Total Carbon and Nitrogen (IRM)	
X	Turbidity		Total Carbon - Org (IRMS)	
	Ash Free Dry Mass		X Total Carbon and Nitrogen (CHN)	
X	Total Dissolved Solids		Others	Status
X	Non Filterable Residue		Other Parameter:	
	Chlorophyll a: Fluorimetric		Archive raw sample	

The “Sample List” tab will look like:

BASL Excel Sample List

LAB USE ONLY			Client field		
BASL Sample ID	Receiving Date (mm/dd/yy)	Sample Matrix	Sample ID	Sampling Date (mm/dd/yy)	Bottle Number
		Water	B1	09/01/2022	F1/UF1
		Water	B2	09/01/2022	F2/UF2
		Water	B3	09/01/2022	F3/UF3
		Water	B4	09/01/2022	F4/UF4
		Water	B5	09/01/2022	F5/UF5
		Water	B6	09/01/2022	F6/UF6
		Water	B7	09/01/2022	F7/UF7
		Water	B8	09/01/2022	F8/UF8
		Water	B9	09/01/2022	F9/UF9
		Water	B10	09/01/2022	F10/UF10

On different subsampled bottles, label all Filtered/Unfiltered + Bottle Number belonging to the same “Sample ID” together. DO NOT duplicate fill the “Sample List”. Here is a bad example:

BASL Excel Sample List

LAB USE ONLY			Client field		
BASL Sample ID	Receiving Date (mm/dd/yy)	Sample Matrix	Sample ID	Sampling Date (mm/dd/yy)	Bottle Number
		Water	B1	09/01/2022	F1
		Water	B2	09/01/2022	F2
		Water	B3	09/01/2022	F3
		Water	B4	09/01/2022	F4
		Water	B5	09/01/2022	F5
		Water	B6	09/01/2022	F6
		Water	B7	09/01/2022	F7
		Water	B8	09/01/2022	F8
		Water	B9	09/01/2022	F9
		Water	B10	09/01/2022	F10
		Water	B1	09/01/2022	UF1
		Water	B2	09/01/2022	UF2
		Water	B3	09/01/2022	UF3
		Water	B4	09/01/2022	UF4
		Water	B5	09/01/2022	UF5
		Water	B6	09/01/2022	UF6
		Water	B7	09/01/2022	UF7
		Water	B8	09/01/2022	UF8
		Water	B9	09/01/2022	UF9
		Water	B10	09/01/2022	UF10

Same sample ID means same site!

Note: If samples are not filtered by the client, indicate on the COC that the BASL needs to subsample. Then, fill in the COC with the parameters you are requesting.

SCENARIO 3: Samples from the same site are requested for different parameters. Fill out two separate COC forms and indicate which parameters you are requesting on each. For e.g.,:

First Request:

Analysis Requested (Check "x" on the blue box):							
Nutrient		Status	Cations			Status	
	Particulate Phosphorus		Total		Dissolved		
X	Total Phosphorus		Aluminum				
X	Total Dissolved Phosphorus		Calcium				
X	Soluble Reactive Phosphorus		Iron				
	Nitrite+Nitrate		Potassium				
	Nitrate only		Magnesium				
	Nitrite only		Sodium				
	Ammonia		Trace Metals				
	Total Nitrogen		Anions			Status	
	Total Dissolved Nitrogen		Sulfate				
	Total Kjeldahl Nitrogen		Chloride				
	Dissolved Kjeldahl Nitrogen		Carbons			Status	
	Silica		Total Organic Carbon				
	Physical		Status	Total Inorganic Carbon			
X	pH		Dissolved Organic Carbon				
X	Alkalinity		Dissolved Inorganic Carbon				
	Gran Alkalinity		Stable Isotope			Status	
X	Conductivity		Hydrogen (D/H)				
	Color (440 nm)		Oxygen (18O/16O)				
X	UV (254 nm)		Nitrogen (15N/14N)				
	UV (350 nm)		Carbon (13C/12C)				
X	UV (365 nm)		Carbon (13C/12C) - Org				
	UV Spectra		Total Carbon and Nitrogen (IRMS)				
	Turbidity		Total Carbon - Org (IRMS)				
	Ash Free Dry Mass		Total Carbon and Nitrogen (CHN)				
	Total Dissolved Solids		Others			Status	
	Non Filterable Residue		Other Parameter:				
	Chlorophyll a: Fluorimetric		Archive raw sample				

“Sample List” tab:

BASL Excel Sample List					
LAB USE ONLY			Client field		
BASL Sample ID	Receiving Date (mm/dd/yy)	Sample Matrix	Sample ID	Sampling Date (mm/dd/yy)	Bottle Number
		Water	C1	09/01/2022	1
		Water	C2	09/01/2022	2
		Water	C3	09/01/2022	3
		Water	C4	09/01/2022	4
		Water	C5	09/01/2022	5
		Water	C6	09/01/2022	6
		Water	C7	09/01/2022	7
		Water	C8	09/01/2022	8
		Water	C9	09/01/2022	9
		Water	C10	09/01/2022	10

Second Request:

Analysis Requested (Check "x" on the blue box):							
Nutrient		Status	Cations			Status	
	Particulate Phosphorus		Total	X	Dissolved		
	Total Phosphorus		Aluminum				
	Total Dissolved Phosphorus		Calcium				
	Soluble Reactive Phosphorus		Iron				
X	Nitrite+Nitrate		Potassium				
X	Nitrate only		Magnesium				
X	Nitrite only		Sodium				
X	Ammonia	X	Trace Metals				
	Total Nitrogen		Anions			Status	
	Total Dissolved Nitrogen	X	Sulfate				
	Total Kjeldahl Nitrogen	X	Chloride				
	Dissolved Kjeldahl Nitrogen		Carbons			Status	
X	Silica	X	Total Organic Carbon				
	Physical		X	Total Inorganic Carbon			
	pH		X	Dissolved Organic Carbon			
	Alkalinity		X	Dissolved Inorganic Carbon			
	Gran Alkalinity		Stable Isotope			Status	
	Conductivity		Hydrogen (D/H)				
	Color (440 nm)		Oxygen (18O/16O)				
	UV (254 nm)		Nitrogen (15N/14N)				
	UV (350 nm)		Carbon (13C/12C)				
	UV (365 nm)		Carbon (13C/12C) - Org				
	UV Spectra		Total Carbon and Nitrogen (IRM)				
	Turbidity		Total Carbon - Org (IRMS)				
	Ash Free Dry Mass		Total Carbon and Nitrogen (CHN)				
	Total Dissolved Solids		Others			Status	
	Non Filterable Residue		Other Parameter:				
X	Chlorophyll a: Fluorimetric		Archive raw sample				

“Sample List” tab (same as the first request):

BASL Excel Sample List					
LAB USE ONLY			Client field		
BASL Sample ID	Receiving Date (mm/dd/yy)	Sample Matrix	Sample ID	Sampling Date (mm/dd/yy)	Bottle Number
		Water	C1	09/01/2022	1
		Water	C2	09/01/2022	2
		Water	C3	09/01/2022	3
		Water	C4	09/01/2022	4
		Water	C5	09/01/2022	5
		Water	C6	09/01/2022	6
		Water	C7	09/01/2022	7
		Water	C8	09/01/2022	8
		Water	C9	09/01/2022	9
		Water	C10	09/01/2022	10

SITUATION 4: Samples from different sites are requested for different parameters. Fill out two separate COC forms and indicate which parameters you requesting on each. For e.g.,:

First Request:

Analysis Requested (Check "x" on the blue box):						
Nutrient		Status	Cations			Status
	Particulate Phosphorus		Total	X	Dissolved	
	Total Phosphorus		Aluminum			
	Total Dissolved Phosphorus		Calcium			
	Soluble Reactive Phosphorus		Iron			
X	Nitrite+Nitrate		Potassium			
X	Nitrate only		Magnesium			
X	Nitrite only		Sodium			
X	Ammonia		X	Trace Metals		
	Total Nitrogen		Anions			Status
	Total Dissolved Nitrogen		X	Sulfate		
	Total Kjeldahl Nitrogen		X	Chloride		
	Dissolved Kjeldahl Nitrogen		Carbons			Status
X	Silica		X	Total Organic Carbon		
	Physical	Status	X	Total Inorganic Carbon		
	pH		X	Dissolved Organic Carbon		
	Alkalinity		X	Dissolved Inorganic Carbon		
	Gran Alkalinity		Stable Isotope			Status
	Conductivity			Hydrogen (D/H)		
	Color (440 nm)			Oxygen (18O/16O)		
	UV (254 nm)			Nitrogen (15N/14N)		
	UV (350 nm)			Carbon (13C/12C)		
	UV (365 nm)			Carbon (13C/12C) - Org		
	UV Spectra			Total Carbon and Nitrogen (IRM)		
	Turbidity			Total Carbon - Org (IRMS)		
	Ash Free Dry Mass			Total Carbon and Nitrogen (CHN)		
	Total Dissolved Solids		Others			Status
	Non Filterable Residue			Other Parameter:		
X	Chlorophyll a: Fluorimetric			Archive raw sample		

“Sample List” tab:

BASL Excel Sample List					
LAB USE ONLY			Client field		
BASL Sample ID	Receiving Date (mm/dd/yyyy)	Sample Matrix	Sample ID	Sampling Date (mm/dd/yyyy)	Bottle Number
		Water	C1	09/01/2022	1
		Water	C2	09/01/2022	2
		Water	C3	09/01/2022	3
		Water	C4	09/01/2022	4
		Water	C5	09/01/2022	5
		Water	C6	09/01/2022	6
		Water	C7	09/01/2022	7
		Water	C8	09/01/2022	8
		Water	C9	09/01/2022	9
		Water	C10	09/01/2022	10

Second Request:

Analysis Requested (Check "x" on the blue box):						
Nutrient		Status	Cations			Status
	Particulate Phosphorus		Total		Dissolved	
X	Total Phosphorus		Aluminum			
X	Total Dissolved Phosphorus		Calcium			
X	Soluble Reactive Phosphorus		Iron			
	Nitrite+Nitrate		Potassium			
	Nitrate only		Magnesium			
	Nitrite only		Sodium			
	Ammonia		Trace Metals			
	Total Nitrogen		Anions			Status
	Total Dissolved Nitrogen		Sulfate			
	Total Kjeldahl Nitrogen		Chloride			
	Dissolved Kjeldahl Nitrogen		Carbons			Status
	Silica		Total Organic Carbon			
	Physical		Total Inorganic Carbon			
X	pH		Dissolved Organic Carbon			
X	Alkalinity		Dissolved Inorganic Carbon			
	Gran Alkalinity		Stable Isotope			Status
X	Conductivity		Hydrogen (D/H)			
	Color (440 nm)		Oxygen (18O/16O)			
X	UV (254 nm)		Nitrogen (15N/14N)			
	UV (350 nm)		Carbon (13C/12C)			
X	UV (365 nm)		Carbon (13C/12C) - Org			
	UV Spectra		Total Carbon and Nitrogen (IRM)			
	Turbidity		Total Carbon - Org (IRMS)			
	Ash Free Dry Mass		Total Carbon and Nitrogen (CHN)			
	Total Dissolved Solids		Others			Status
	Non Filterable Residue		Other Parameter:			
	Chlorophyll a: Fluorimetric		Archive raw sample			


“Sample List” tab (different than first request):

BASL Excel Sample List					
LAB USE ONLY			Client field		
BASL Sample ID	Receiving Date (mm/dd/yy)	Sample Matrix	Sample ID	Sampling Date (mm/dd/yy)	Bottle Number
		Water	D1	09/01/2022	1
		Water	D2	09/01/2022	2
		Water	D3	09/01/2022	3
		Water	D4	09/01/2022	4
		Water	D5	09/01/2022	5
		Water	D6	09/01/2022	6
		Water	D7	09/01/2022	7
		Water	D8	09/01/2022	8
		Water	D9	09/01/2022	9
		Water	D10	09/01/2022	10

3.6.1. Mercury and Organic COCs work the same as the Inorganic COC, only the parameters are different. Please always read the “Instruction” tab in the COC Excel for more detail.

3.6.1.1. Mercury COC:

Note: Only enter on the blue box. The pink box is for laboratory use only. Anything entered on the pink box will be deleted.
Do not modify any format on the COC. Any format changes on the COC will be rejected.

 UNIVERSITY OF ALBERTA Biogeochemical Analytical Service Laboratory		BASL Mercury Chain of Custody 2-255, CCIS Building, University of Alberta, Edmonton, Alberta T6G 2E1 Phone: (780) 492-5497 Fax: (780) 248-5861 Website : www.biology.ualberta.ca/basl/	
		Laboratory use only	
Project name:		Laboratory ID range:	
Client name:		Chain of Custody ID:	
Contact phone:		Received by:	
Contact e-mail:		Date received:	
Supervisor:			
Billing Address or Speedcode:		Submitted by:	
Billing comment:		Date of submission:	
Sample Matrix:		Preservation/filtering status:	

RUSH Date required by: _____ Note: Extra charge will apply. Please consult with Laboratory Manager.

Analysis Requested (Check "x" on the blue box):

Mercury	Filtered (y/n)	Preserved (y/n)	Status	Methyl Mercury	Filtered (y/n)	Preserved (y/n)	Status
Total Mercury				Methyl Mercury			
Dissolved Mercury				Dissolved Methyl Mercury			

Laboratory Notes (For lab use only):

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NEXT TAB TO ENTER SAMPLE INFORMATION

“Sample List” tab:

BASL Excel Sample List

LAB USE ONLY			Client field		
BASL Sample ID	Receiving Date (mm/dd/yy)	Matrix	Sample ID	Sampling Date (mm/dd/yy)	Bottle Number

3.6.1.2. Organic COC:

BASL Organic Chain of Custody			
 UNIVERSITY OF ALBERTA Biogeochemical Analytical Service Laboratory		2-255, CCIS Building, University of Alberta, Edmonton, Alberta T6G 2E1	
		Phone: (780) 492-5497 Fax: (780) 248-5861	
		Website : www.biology.ualberta.ca/basl/	
Laboratory use only			
Project name:		Laboratory ID range:	
Client name:		Chain of Custody ID:	
Contact phone:		Received by:	
Supervisor:		Date received:	
Speedcode:			
Billing Address:		Submitted by:	
		Date of submission:	
Billing comment:		Sample submission comment:	
Sample Matrix:			
RUSH	Date required by:		Note: Extra charge will apply. Please consult with Laboratory Manager.
Analysis Requested (Check "x" on the blue box):			
Organic	Status	Organic	Status
Alkane		Residual Solvent	
Polycyclic Aromatic Hydrocar		Mycotoxin	
Lipid Determination		Terpene	
% Dry Weight		Pesticides	
Laboratory Notes (For lab use only):			
NEXT TAB TO ENTER SAMPLE INFORMATION			

“Sample List” tab:

BASL Excel Sample List					
BASL Sample ID	Receiving Date (mm/dd/yy)	Matrix	Sample Description	Sampling Date (mm/dd/yy)	Bottle Number

3.7. Sample COCs should be submitted in electronic form to our staff Amy Xiao, administrator and customer services of BASL, at xxiao1@ualberta.ca.

Or you can submit both electronic and hard copy of the COC to our lab, electronic version goes to Amy's email and hard copy can come with your samples together. If you are not able to give electronic version of the COCs, we also accept hard copy, but electronic version is preferred.

- 3.8. If possible, try to submit the COCs as early as you have all the information, which gives our staff enough time to prepare all the subsampling procedures. At least half day early, up to weeks ahead, is preferred.
- 3.9. Before submitting your COCs, please double check all your COC forms and make sure the one you are going to send are the right and saved one. Once your COCs are submitted, the BASL will respond to let you know it has been received.
 - 3.9.1. If the samples are shipped to the BASL with a tracking number, please attach your tracking number in the email as well.
 - 3.9.2. If the samples are shipped without tracking number, please give us a notice if samples are already shipped, the carrier's name, and expected date of arrival.
 - 3.9.3. If the samples are submitted by person, please drop off the samples on the black cart outside BASL (CCIS 2-255), and call 780-492-5497 (lab) or email us.
- 3.10. For some special request samples, such as light sensitive samples, fragile samples, or frozen samples, please label your cooler/container clearly to make sure they have been treated well during transportation by carrier.
- 3.11. Clients who submit their samples in person (especially students), please arrange your samples either in parameter order or pack them in sites if samples are subsampled by client and are in different containers.
- 3.12. After we received the client's samples, if any samples are not match the information on the COCs, we will contact the client to confirm the information.