

BLM_DNN

Homepage Guide (Trial version)

EHRNC

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Login Page

The image shows a login page for EHR&C. On the left, a blue vertical panel contains the EHR&C logo and a description: 'An independent scientific consultancy on the global issues of environmental health and ecosystem'. At the bottom of this panel, it says 'Don't have an account? [Get started!](#)'. A red arrow points from a box labeled 'Register Link' to this link. On the right, a white panel titled 'Account Login' contains two input fields: 'Email address' and 'Password'. A red arrow points from a box labeled 'Input Your email & pw' to the 'Email address' field. Another red arrow points from the same box to the 'Password' field. Below these fields is a blue 'Log in' button. A red arrow points from a box labeled 'Login button' to this button. The background is light blue with faint circular patterns.

EHR&C

An independent scientific consultancy on the global issues of environmental health and ecosystem

Don't have an account? [Get started!](#)

Account Login

Email address

Password

Log in

Register Link

Input Your email & pw

Login button

Register Page

EH R&C

An independent scientific consultancy on the global issues of environmental health and ecosystem

Have an account?
[Log In](#)

Register

Email

Password
Confirm Password

Affiliation

Country

Sector

☐ By creating an account, I agree the website Disclaimer and Privacy Policy.

[Register](#)

Email

Password & Confirm password

Your affiliation

Your country

Your sector


Consent to provision of personal information

Register button

Back to login screen button

Main Page

Move to the current main screen, introduction



Introduction

DNN model

- Copper-EU
- Copper-ASIA
- Nickel
- Zinc

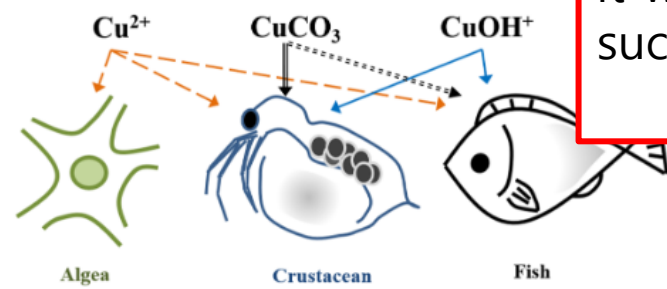
DNN model for BLM vol.1

Logout

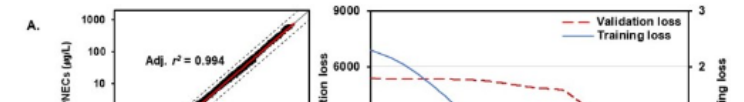
Metals are released into the aquatic environment through the use of many of industrial manufacturing and consumer products. Since the concentration of metals in water bodies that adversely affect aquatic life depends on water quality conditions, the risks to the aquatic environment need to be effectively managed for the sustainable use of metals. A PNEC as single concentration may overestimate or underestimate the risk of a metal to the aquatic environment depending on water quality conditions.

The DNN models with reduced input variables is the tools that predicts BLM-based chronic PNEC and accuracy derived using full-BLM approach (applying three different types of BLMs for each taxonomic group in accordance with EU guidelines)^a.

Using the models to quantitatively describe the bioavailability of metals, such as BLM (Biotic ligand model), it is possible to efficiently manage the site-specific risk of metals to the aquatic environment



The three different types of DNN models for BLM use different of input variables.



DNN_model applied
EU-species,
ASIA-species
movable

Nickel, Zinc will be
updated later

You can log out by
clicking on the
profile icon

It will be added later,
such as checking the
profile

Input variable Page

The screenshot shows the 'Input variable Page' for the EH R&C model. The page has a sidebar with 'Introduction' and 'DNN model' (selected). The main content area has three tabs: 'DNN(A)', 'DNN(B)', and 'DNN(C)'. Below the tabs is the 'Input variables' section. It contains input fields for pH, Mg, Ca, Na, Alkalinity, and DOC. Each field has a unit dropdown (float, mg/L, or mg CaCO₃/L). Below these are 'Annual Diss-Cu' and 'Individual Diss-Cu' fields with a unit dropdown (μg/L). A 'Calculate' button is present. Below the inputs is a table for 'Water quality conditions for ecological risk assessment' with columns for pH, Mg (mg/L), Ca (mg/L), Na (mg/L), Alkalinity (mg CaCO₃/L), and DOC (mg/L). At the bottom is a 'Results' table with columns for BLM-based chronic PNEC (μg/L), Chronic RCR, BLM-based acute HC5 (μg/L), and Acute RCR. Red arrows point from text boxes to specific elements: one to the tabs, one to the input fields, and two to the Diss-Cu fields.

You can select the model you want by clicking each tab

The input value must be entered as a number, and each variable has a limit on the number range.

Chronic results when only Annual Diss-cu is entered, Acute results when only Individual Diss-Cu is input, If you enter both, both will be calculated.

Additionally, Ph, Mg, Ca, Na, Alk, and DOC must be entered without any omission.

pH	Mg (mg/L)	Ca (mg/L)	Na (mg/L)	Alkalinity (mg CaCO ₃ /L)	DOC (mg/L)

BLM-based chronic PNEC (μg/L)	Chronic RCR	BLM-based acute HC5 (μg/L)	Acute RCR

Result and Range Functions in the Input Variables Screen

■ Input variables

pH 5 Mg 10 mg/L Ca 10 mg/L Na 10

! 값은 6.5 이상이어야 합니다.

Annual Diss-Cu 1 µg/L Individual Diss-Cu 1 µg/L

If the range of the input variable is wrong, it is displayed as shown in the picture.

If you have entered the input variable correctly case
You can get the same result as the picture.

Check input values with TABLE
You can check the result value TABLE

DNN(A) DNN(B) DNN(C)

■ Input variables

pH float Mg float mg/L Ca float mg/L Na float mg/L Alkalinity float mg CaCO₃/L DOC float mg/L

Annual Diss-Cu float µg/L Individual Diss-Cu float µg/L

Calculate

Water quality conditions for ecological risk assessment

pH	Mg (mg/L)	Ca (mg/L)	Na (mg/L)	Alkalinity (mg CaCO ₃ /L)	DOC (mg/L)	Annual Diss-Cu (µg/L)	Individual Diss-Cu (µg/L)
7	10	10	10	100	10	1	1

Results

BLM-based chronic PNEC (µg/L)	Chronic RCR	BLM-based acute HC5 (µg/L)	Acute RCR
4.66e+1	2.15e-2	1.50e+2	6.66e-3

Calculation Page after CSV upload

EH R&C

Introduction

DNN model ▾

■ Input values as a batch file

Download Template

※ Please download the Template.csv file first. And please fill in the value according to the model and up

※ Units are shown in the summary table below.

※ Calculates up to 15 samples.

Upload File

파일 선택 선택된 파일 없음

Submit

Ca (mg/L)	Na (mg/L)	Alkalinity (mg CaCO ₃ /L)	DOC (mg/L)	BLM-based chronic PNECs (µg/L)

When clicking the file selection button
You can upload a csv file with all input values.

Afterwards, if you press the submit button, the data is calculated in the calculation server according to the csv and returned to the table.

When clicking the Template Download button
You can download the Template.csv file.

The corresponding template has different csv column names depending on each model.

Model A -> template_a.csv

Model B -> template_b.csv

Model C -> template_c.csv

Template.csv

	A	B	C	D	E	F	G	H	I	J	K
1	source	pH	Na (mg/L)	Mg (mg/L)	Ca (mg/L)	Alkalinity	DOC (mg/L)	Annual dissolved Cu (µg/L)	Individual dissolved Cu (µg/L)		
2		1									
3		2									
4		3									
5		4									
6		5									
7		6									
8		7									
9		8									
10		9									
11		10									
12		11									
13		12									
14		13									
15		14									
16		15									

downloaded
template_a.csv is like the picture on
the left.
file. B and C files have columns for
each model.

That part
You just need to input it
according to the input value of
each model.

Calculation is not possible if
the input is empty.

Ex) Calculation is not possible
when input values that do not
fit the model are filled in

This part is the same as before.

Chronic results when only Annul
Diss-cu is entered,
Acute results when only Individual
Diss-Cu is input,
If you enter both, both will be
calculated.

Template.csv Good & Bad Examples

- Good example

	A	B	C	D	E	F	G	H	I
1	source	pH	Na (mg/L)	Mg (mg/L)	Ca (mg/L)	Alkalinity	DOC (mg)	Annual dissolved Cu (µg/L)	Individual dissolved Cu (µg/L)
2	1	7.722645	35.46667	5.27	31.37333	77.33333	3.533333	1	1
3	2	8.438162	20.4	3.693333	23.18333	62	2.133333	1	1
4	3	7.962741	27.67333	6.503333	32.02	71.66667	2.3	1	1
5	4	7.228001	84.96667	5.213333	56.05	73.33333	3.3	1	1
6	5	8.316241	9.983333	3.69	16.75	43.66667	1.366667	1	1
7	6	7.438162	6.87	8.106667	31.15667	88.66667	1.566667	1	1
8	7	7.693577	9.423333	6.146667	27.9	73.33333	1.733333	1	1
9	8	8.008413	9.873333	3.2	17.32667	45	2.266667	1	1
10	9	7.642971	5.143333	2.36	12.36667	31	1	1	1
11	10	7.519387	11.22333	3.45	17.21333	47.33333	1.566667	1	1
12	11	7.752724	7.79	3.526667	17.01333	40.66667	1.233333	1	1
13	12	7.864047	4.816667	1.71	8.68	23.66667	1.2	1	1
14	13	7.968958	106.4667	5.456667	36.19	45	2.933333	1	1
15	14	7.734792	112.0633	4.91	30.10333	104.3333	9.266667	1	1
16	15	7.966195	23.58667	4.17	19.63333	59.33333	1.933333	1	1

- Bad example

	A	B	C	D	E	F	G	H	I	J
1	source	pH	Na (mg/L)	Mg (mg/L)	Ca (mg/L)	Alkalinity	DOC (mg)	Annual dissolved Cu (µg/L)	Individual dissolved Cu (µg/L)	
2	1	7.722645	35.46667	5.27	31.37333	77.33333	3.533333	1	1	
3	2	8.438162	20.4	3.693333		62	2.133333	1	1	
4	3	7.962741	27.67333	6.503333		71.66667	2.3	1	1	
5	4		84.96667	5.213333		73.33333	3.3		1	
6	5		9.983333	3.69	16.75	43.66667	1.366667			
7	6		6.87	8.106667	31.15667	88.66667	1.566667			
8	7		9.423333	6.146667	27.9	73.33333	1.733333			
9	8		9.873333	3.2	17.32667	45	2.266667		1	
10	9		5.143333	2.36	12.36667	31	1		1	
11	10		11.22333	3.45	17.21333	47.33333			1	
12	11	7.752724	7.79	3.526667	17.01333	40.66667			1	
13	12	7.864047	4.816667	1.71	8.68	23.66667			1	
14	13	7.968958	106.4667	5.456667	36.19	45			1	
15	14	7.734792	112.0633	4.91	30.10333	104.3333	9.266667	1	1	

The file is missing the csv value in the middle,
if it is like this

Each model uses column values as input
values, but calculation is impossible because
there is a missing value in the middle.

Similarly, other models that use Na and Ca to
calculate also have errors in their calculations.

Calculation result Page after csv upload

Input values as a batch file

Download Template

※ Please download the Template.csv file first. And please fill in the value according to the model and upload it.
※ Units are shown in the summary table below.
※ Calculates up to 15 samples.

Upload File

파일 선택

선택된 파일 없음

Submit

When correct values are entered in Template.csv, the following results can be obtained.

Summary

pH	Mg (mg/L)	Ca (mg/L)	Na (mg/L)	Alkalinity (mg CaCO ₃ /L)	DOC (mg/L)	BLM-based chronic PNECs (μg/L)	Chronic RCR	BLM-based acute HC5s (μg/L)	Acute RCR
7.72	5.3	31.4	35.5	77.3	3.5	1.15e+1	8.73e-2	3.69e+1	2.71e-2
8.44	3.7	23.2	20.4	62.0	2.1	5.67e+0	1.76e-1	1.82e+1	5.48e-2
7.96	6.5	32.0	27.7	71.7	2.3	5.93e+0	1.69e-1	1.91e+1	5.24e-2
7.23	5.2	56.0	85.0	73.3	3.3	1.38e+1	7.24e-2	4.45e+1	2.25e-2
8.32	3.7	16.8	10.0	43.7	1.4	3.43e+0	2.92e-1	1.10e+1	9.06e-2

View all expands downward, Next shows the next page by 5

Homepage errors and inquiries

Please send an e-mail to js.jo@ehrenc.com with a screen capture and a detailed description of the situation in which the error occurred.

We will give you a quick response and kind reply.

Thank you