

BLM_DNN

Homepage Guide (Trial version)

EHRNC

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Login Page

The image shows a login page for EHR&C. The page is divided into two main sections: a blue sidebar on the left and a white main content area on the right. The sidebar contains the EHR&C logo and a description of the organization. The main content area contains the 'Account Login' form. Red arrows point from text boxes to specific elements on the page: 'Register Link' points to the 'Get started!' link in the sidebar; 'Input Your email & pw' points to the email and password input fields; and 'Login button' points to the 'Log in' button.

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

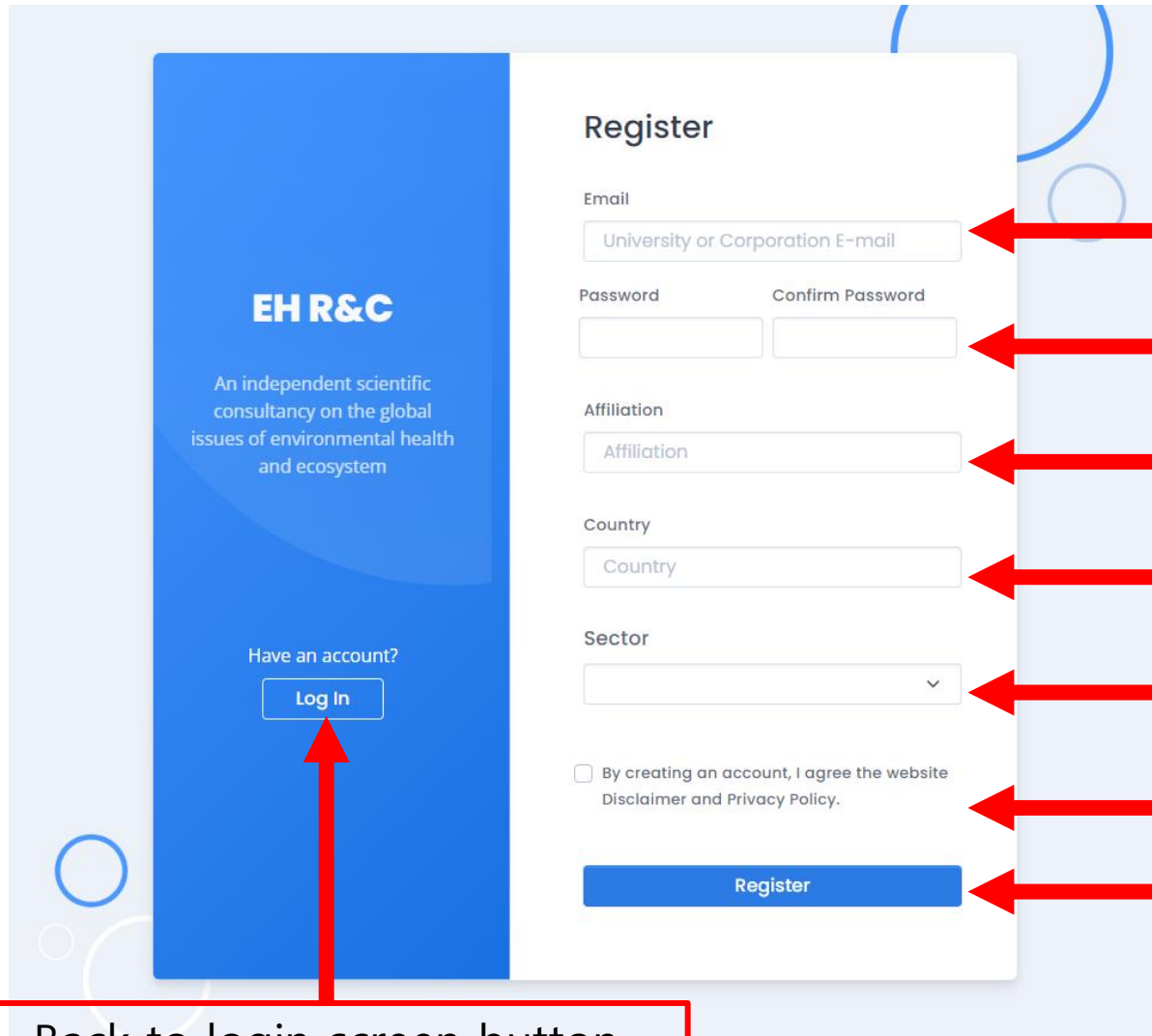
Log in

Register Link

Input
Your email & pw

Login button

Register Page



The image shows a registration form for EH R&C. On the left is a blue sidebar with the EH R&C logo and a 'Log In' button. The main form area contains fields for Email, Password, Confirm Password, Affiliation, Country, and Sector. There is a checkbox for consent to the website's disclaimer and privacy policy, and a 'Register' button at the bottom. Red arrows point from text labels on the right to the corresponding form elements. A red arrow also points from the 'Log In' button to a label at the bottom left.

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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

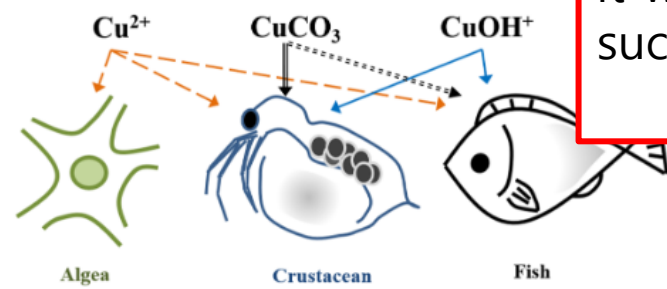
DNN model for BLM vol.1

Logout

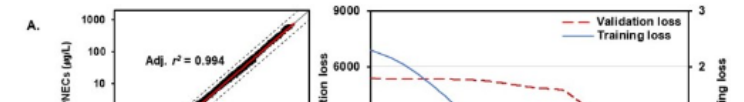
Metals are released into the aquatic environment through the use of many of industrial manufacturing and consumer products. Since the concentration of metals in water bodies that adversely affect aquatic life depends on water quality conditions, the risks to the aquatic environment need to be effectively 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. Below these are 'Annual Diss-Cu' and 'Individual Diss-Cu' fields with unit dropdowns. 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 model 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.

EH R&C

Introduction

DNN model ▾

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

Input variables

pH Mg Ca Na Alkalinity DOC

float float mg/L float mg/L float mg/L float mg CaCO₃/L float mg/L

Annual Diss-Cu Individual Diss-Cu

float μg/L 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)

Results

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 (dropdown menu)
Mg: 10 mg/L
Ca: 10 mg/L
Na: 10
Annual Diss-Cu: 1 µg/L
Individual Diss-Cu: 1 µg/L

! 값은 6.5 이상이어야 합니다.

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.

※ 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 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 (mg)	DOC (mg/L)	Annual dissolved Cu (µg/L)	Individual dissolved Cu (µg/L)
2	1	7.72	35.5	5.3	31.4	77.3	3.5	1	1
3	2	8.44	20.4	3.7	23.2	62.0	2.1	1	1
4	3	7.96	27.7	6.5	32.0	71.7	2.3	1	1
5	4	7.23	85.0	5.2	56.1	73.3	3.3	1	1
6	5	8.32	10.0	3.7	16.8	43.7	1.4	1	1
7	6	7.44	6.9	8.1	31.2	88.7	1.6	1	1
8	7	7.69	9.4	6.1	27.9	73.3	1.7	1	1
9	8	8.01	9.9	3.2	17.3	45.0	2.3	1	1
10	9	7.64	5.1	2.4	12.4	31.0	1.0	1	1
11	10	7.52	11.2	3.5	17.2	47.3	1.6	1	1
12	11	7.75	7.8	3.5	17.0	40.7	1.2	1	1
13	12	7.86	4.8	1.7	8.7	23.7	1.2	1	1
14	13	7.97	106.5	5.5	36.2	45.0	2.9	1	1
15	14	7.73	112.1	4.9	30.1	104.3	9.3	1	1

- Bad example

	A	B	C	D	E	F	G	H	I
1	source	pH	Na (mg/L)	Mg (mg/L)	Ca (mg/L)	Alkalinity (mg)	DOC (mg/L)	Annual dissolved Cu (µg/L)	Individual dissolved Cu (µg/L)
2	1	7.72	35.5	5.3	31.4	77.3	3.5	1	1
3	2	8.44	20.4	3.7	23.2	62.0	2.1	1	1
4	3	7.96	27.7	6.5	32.0	71.7	2.3	1	1
5	4	7.23	85.0		56.1	73.3	3.3	1	
6	5		10.0		16.8	43.7	1.4		
7	6		6.9		31.2	88.7	1.6		
8	7		9.4		27.9	73.3	1.7		1
9	8		9.9		17.3	45.0	2.3		1
10	9		5.1	2.4	12.4	31.0	1.0		1
11	10		11.2	3.5	17.2	47.3	1.6		1
12	11		7.8	3.5	17.0	40.7	1.2		1
13	12	7.86	4.8	1.7	8.7		1.2		1
14	13	7.97	106.5	5.5	36.2		2.9	1	1
15	14	7.73	112.1	4.9	30.1		9.3	1	1

This input file can cause errors.

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

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

After uploading the Template.csv file, click the submit button

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

Homepage errors and inquiries

Please send an e-mail to js.jo@ehrnc.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

홈페이지 관련

현재 홈페이지는 4월말 ~ 5월 초에 열리는 학회에서 정지웅 팀장님의 발표를 위한 부분에 초점이 맞춰져 있습니다.

정식 서비스로 오픈을 하기에는 홈페이지 콘텐츠 부족 및 해당 홈페이지만을 위한 도메인 구매 등등 굉장히 부족하다고 생각이 듭니다.

발표를 다녀오신 후에 사이트 맵을 더 자세히 잡고, 벤치마킹할 사이트와 비교하여 추가를 해야할 부분들이 있다고 생각합니다.

Falcon이라는 Template를 구매하여 제작된 홈페이지이지만, 박성호 선임 연구원께서 디자인 쪽에서 수정을 해주셨고, 조재성 연구원(본인)이 뒤에서 작동하는 모든 기능을 구현하였기 때문에 모든 오류를 확인해보지 않아 사용하시다가 오류가 발생 하실 수 있습니다.

그런 오류들이 발생시 어떤 상황에서 발생했는지를 상세하게 작성하여 메일로 보내주시면 참고하여 오류 및 버그 수정을 하도록 하겠습니다.

감사합니다!

-조재성 연구원 올림-