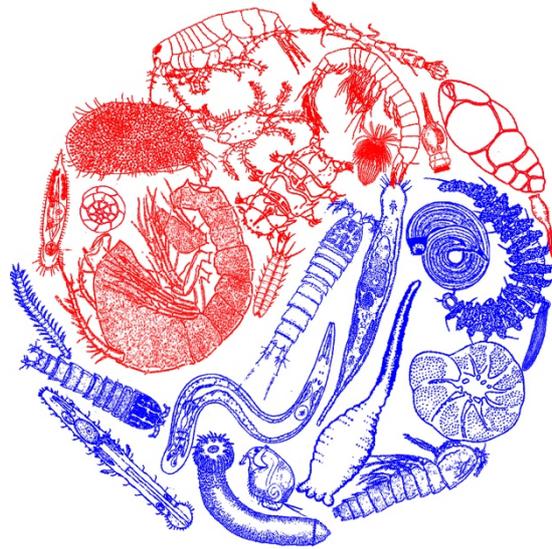


The First MEAL

Program & Abstracts



When: November 11, 2020 at 13:50

Where: Zoom Meeting Room

by MEAL (Meeting of Experts on Aquatic Life)

Programs

Time		Presenter	Title
13:50 ~ 14: 00		Wonchoel Lee	Opening Comment: The First MEAL
14:00~	14:00 ~ 14: 20	Jisu Yeom	Identification of <i>Tigriopus</i> cryptic species by Matrix-Assisted Laser Desorption Ionization Time of Flight Mass Spectrometry
	14:20 ~ 14: 40	Nayeon Park	Discrimination of Hydromedusae using matrix-assisted laser desorption/ionization time of flight mass spectrometry
	14:40~ 15: 00	Changgyun Yu	First record of a non-native hydrozoan <i>Blackfordia virginica</i> Mayer, 1910 and the bloom event in Sihwa Lake, Korea
15:00~ 15:20			Intermission: Introduction for Poster session
15:20~	15:20~ 15:40	Kanghyun Lee	Species Composition of copepods in the Northern Chukchi Sea and the East Siberian Sea from 2016 to 2019
	15:40~ 16:00	Jaehyun Kim	A new species of <i>Quinquelaophonte</i> Wells, Hick & Coull, 1982 (Harpacticoida: Laophontidae) from East sea
	16:00~ 16:20	Man-Ki Jeong	<i>Dasybranchus geojedoensis</i> sp. nov. (Annelida: Capitellidae), a New Capitellid Species from Southern Korea
	16:20~ 16:40	Euna Hwang	Morphology and Molecular Phylogenetic Position of Three New Diatom Species of Mountain Streams near the Lake Paldang in Korea
16:40~			Closing Comment

Content: Titles & Presenters

Oral Presentations

- O1 Identification of *Tigriopus* cryptic species by Matrix-Assisted Laser Desorption Ionization Time of Flight Mass Spectrometry...Jisu Yeom (Hanyang University)
- O2 Discrimination of Hydromedusae using matrix-assisted laser desorption/ionization time of flight mass spectrometry...Nayeon Park (Hanyang University)
- O3 First record of a non-native hydrozoan *Blackfordia virginica* Mayer, 1910 and the bloom event in Sihwa Lake, Korea... Changgyun Yu (MERIL: Marine Environmental Research and Information Laboratory)
- O4 Species Composition of copepods in the Northern Chukchi Sea and the East Siberian Sea from 2016 to 2019... Kanghyun Lee (Marine Act co.)
- O5 A new species of *Quinquelaophonte* Wells, Hick & Coull, 1982 (Harpacticoida: Laophontidae) from East sea... Jaehyun Kim (Hanyang University)
- O6 *Dasybranchus gejedoensis* sp. nov. (Annelida: Capitellidae), a New Capitellid Species from Southern Korea... Man-Ki Jeong (Chonnam National University)
- O7 Morphology and Molecular Phylogenetic Position of Three New Diatom Species of Mountain Streams near the Lake Paldang in Korea... Euna Hwang (Hanyang University)

Poster Presentations

- P1 Two new species of the genus *Pseudocythere* Sars, 1866 (Bythocytheridae, Pseudocytherinae) from rinsing samples (Macrobenthos) in South Korea...Hyunsu Yoo (MERIL: Marine Environmental Research and Information Laboratory)
- P2 The first insight into the patterns of size and shape variation of a microcerberid isopod...Jeongho Kim (Hanyang University)
- P3 Seasonal and spatial changes in the zooplankton community structure of the Kongsfjorden, Svalbard... Seunghan Lee (Marine Act co.)
- P4 Species diversity of free-living marine nematodes in Korea from 2015 to 2019...Jung-Ho Hong (Marine Act co.)
- P5 The use of nematodes diversity index in assessing ecological quality status in the Korean coastal ecosystems from 2018 to 2019... Jung-Ho Hong (Marine Act co.)
- P6 Description of a new species of *Eurycletodes* Sars G.O., 1909 (Copepoda: Harpacticoida: Argastidae) from Gulf of Mexico, including geographic and bathymetric distribution of the genus *Eurycletodes*...Hyun Woo Bang (Mokwon University)
- P7 Dynamics of Phytoplankton and Harmful Cyanobacteria in Three Weirs (Gangcheon, Yeosu and Ipo) of the Namhangang River in Korea ...Younghyo Kim (Hanyang University)
- P8 Benthic Diatom Communities in Korean Estuaries: Species Appearances in Relation to Environmental Variables ... Hakyung Kim (Hanyang University)
- P9 Filtration and mortality of the freshwater bivalve *Unio douglasiae* (Unionidae) against cyanobacterium *Microcystis aeruginosa* bloom waters ... Myung-Hwan Park (Hanyang University)
- P10 The Effect of Monsoon Rainfall Patterns on Epilithic Diatom Communities in the Hantangang River in Korea ... Inhwan Cho (Hanyang University)

Identification of *Tigriopus* cryptic species by Matrix-Assisted Laser Desorption Ionization Time of Flight Mass Spectrometry

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Abstract: Matrix-Assisted Laser Desorption/Ionization (MALDI) is an ionization technique that uses a laser energy absorbing matrix to create ions from large molecules with minimal fragmentation. MALDI Time-of-Flight Mass Spectrometry (MALDI-TOF MS) provides a reliable and fast alternative for species-level identification. This technique is commonly used in species identification for fungi, viruses, and bacteria. Recently, it has also been used for identification of fish, insects, and Copepoda. Compared to commonly used cytochrome c oxidase I barcoding, advantages of MALDI-TOF MS are the rapid identification of species and the low expenses.

In this study, we used MALDI-TOF MS to compare the distinct protein peak to find out its usability in species identification of cryptic species. The two species, *Tigriopus west*, *Tigriopus east*, used for experiments are cryptic species that are morphologically similar and difficult to distinguish even under optical microscope. We confirmed that the spectra from *Tigriopus* specimens were divided into two clusters by the processing of data through R. This study has confirmed that higher-resolution species identification by MALDI-TOF MS is possible, such as the identification of cryptic species of Copepoda.

Discrimination of Hydromedusae using matrix-assisted laser desorption/ionization time of flight mass spectrometry

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Abstract: Hydromedusae has a fragile gelatinous body, making it difficult for morphological identification. Although method of using DNA sequence has been used recently, this is time-consuming and costly, and there are limitations that prior information on species-specific sequences is needed. The matrix-assisted laser desorption/ionization time of flight mass spectrometry (MALDI-TOF MS) is a method of ionizing the crystallized protein and calculating the flying time to measure the protein mass. Organisms have their own protein mass, it can be used as proteome fingerprints, and these techniques have used commonly in the identification of microorganisms. In addition, there have been cases in which this method was used in the identification of eukaryotic organisms such as copepods and sandflies. In this study, protein mass spectra were obtained for 18 species of Hydromedusae. Spectra patterns were species-specific, and the dendrogram produced by clustering was suitable for species discrimination. For the three species, we further checked the peak changes depending on the sample condition (storage period, fixed solution). The peak was damaged in formalin solutions, but the ethanol sample was able to obtain an identical peak regardless of the storage period. In conclusion, protein mass analysis using MALDI-TOF MS confirmed the possibility that it could be used as a quick and inexpensive alternative to discriminate Hydromedusae species correctly

First record of a non-native hydrozoan *Blackfordia virginica* Mayer, 1910 and the bloom event in Sihwa Lake, Korea

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Abstract: The hydromedusa, *Blackfordia virginica* Mayer, 1920 (Hydrozoa: Blackfordiidae) has been known as an invasive species in brackish estuaries around the world. In the East Asia seas, since Hsu and Chin (1962) recorded its occurrence for the first time from the Jiulong River mouth, China, there has been no record until recent new finding of Toyokawa (2015) from the mouth of the Rokkaku River in Ariake Bay, Japan. This study marks another occurrence from innermost part of Sihwa Lake, Korea. Our analysis on rDNA-ITS region confirmed that samples of *B. virginica* from Sihwa Lake and Jiulong River estuary are exactly identical. Since we firstly found the medusae of *B. virginica* in Sihwa Lake, they showed extremely high density of bloom level each year with the maximum average density above 650 individuals m⁻³. Salinity of medusa occurrence ranged from 17 to 32 psu and the abundance was higher in 20 – 25 °C. Copepods, their possible major preys, were rapidly decreased soon after blooming of the jellyfish. They showed a repeating pattern in population dynamics every year; shrinkage of their bell size after bloom-peaks and depletion of the copepods, followed by disappearance of the medusa population. Polyps of *B. virginica* were found on an abandoned fish-net.

Species Composition of copepods in the Northern Chukchi Sea and the East Siberian Sea from 2016 to 2019

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Abstract: From 2016 to 2019, we boarded the Korean icebreaker ship ‘ARAON’ and collected zooplankton in the Northern Chukchi Sea Area (NCS) and East Siberian Sea (NESS) and analyzed the community structure. Copepods dominated most of the sea areas, we compared the community structure according to the time and space variations to identified at the species level. The average density of copepods by station was higher in NESS than in NCS except in 2017. In 2016, in both sea areas, *Calanus* spp. (*Calanus hyperboreus* and *Calanus glacialis*) accounted for the highest proportion, followed by *Oithona similis*. In 2017, *Calanus* spp. was the highest in NCS, followed by *Pseudocalanus* spp., but in NESS, *Pseudocalanus* spp. and *Calanus* spp. appeared in the order. In 2018, both sea areas appeared in the order of *Calanus* spp. and *Pseudocalanus* spp., In 2019, as in 2017, *Calanus* spp. was the highest in NCS, followed by *Pseudocalanus* spp., but in NESS, *Pseudocalanus* spp. and *Calanus* spp. appeared in the order. In all three years from 2017 to 2019, about 10 times more copepodite stages than adults stage in genus *Calanus* and 3 times more copepodite stages than adults stage in genus *Pseudocalanus*. In addition, the difference in the composition of copepod species between NCS and NESS appeared to be increasing in recent years.

A new species of *Quinquelaophonte* Wells, Hick & Coull, 1982 (Harpacticoida: Laophontidae) from East sea

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Abstract: During a survey of meiofauna communities inhabiting interstitial environment, we collected an undescribed harpacticoid species belonging to genus *Quinquelaophonte* showing chaetotaxical polymorphism on the second to fourth swimming legs. The detailed morphological features of the new species with those of congeners. Among them, the new species has a closely relationship with the Californian species *Quinquelaophonte longifurcata* Lang, 1965. These two species, however, are easily distinguishable by the setation of the synconxa of the maxilliped and the fourth swimming leg. Although variable setation occur in the new species, we confirmed that this species is not a species complex using partial information of mtCOI and Cytb. *Quinquelaophonte enormis* sp. nov. is the fourteenth *Quinquelaophonte* species in the world, and the second species in Korea.

Dasybranchus geojedoensis sp. nov. (Annelida:
Capitellidae), a New Capitellid Species from
Southern Korea

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Abstract: *Dasybranchus geojedoensis* sp. nov., obtained from the soft sublittoral bottom in southern Korea, is described as a new species. This new species of *Dasybranchus* is easily distinguishable from its congeners by the protruded parapodial lobes in the final few thoracic chaetigers. *Dasybranchus geojedoensis* sp. nov. closely resembles *D. bipartitus* (Schmarda, 1861) in number and position of abdominal branchiae but differs in position of genital pores and lateral organs, range of thoracic tessellated chaetigers, and denticulation of the abdominal hooks. The partial mtCOI gene sequences of the new Korean species were significantly distinct from those of undescribed species of *Dasybranchus* from Australia. In this study, a key for known species of *Dasybranchus* is also provided.

Morphology and Molecular Phylogenetic Position of Three New Diatom Species of Mountain Streams near the Lake Paldang in Korea

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Abstract: In January 2019, the epilithic diatoms were collected from two mountainous streams as mt. Gumdan and mt. Yongma near Lake Paldang in the central part of Korea. Total sixteen diatoms were isolated and classified by molecular and morphological analysis. Morphology was studied by light microscope and scanning electron microscope, while the molecular study was conducted by the small subunit (SSU) rRNA and ribulose-bisphosphate carboxylase (rbcL) genes. A molecular analysis showed that three species have a comparative difference in phylogenetic distance. Based on these, we studied the ultrastructure of three diatom species to compare the similar species. The morphological characteristics of three diatoms are as followed; first, *Hannaea* sp. relatively it has a long length but a short width and always have conical shaped spines, while similar species *H. pamirensis* have bifurcated spines in central region and conical spines near the pole. Second, *Nitzschia* sp. have bended valve apices, whilst *N. oligotrphenta* is a straight type. Lastly, *Gomphonema* sp. have a wider axial-central area than that of *G. pumilium*. Based on the both morphological and molecular studies, we can suggest the three epilithic diatoms isolated from mountainous streams are a new record.

Two new species of the genus *Pseudocythere* Sars, 1866 (Bythocytheridae, Pseudocytherinae) from rinsing samples (Macrobenthos) in South Korea

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Abstract: Genus *Pseudocythere* Sars, 1866 belonging to Pseudocytherinae, one of the three Bythocytheridae subfamilies. The family Bythocytheridae is one of the biggest family including 57 genera with many fossil species. Two new species are the first taxonomic records of the genus in Korea. Before described species belonging this genus collected from the sublittoral zone or deep-sea sediment (Horne 1986; Morkhoven 1963; Neviani 1906; Schornikov 1982) and Rinsed dredge macrobenthos samples (Scott 1905). However, two new species collected from rinsed samples of macrobenthos like Oyster, Mussels, ETC..., attached below nearshore sea structure. Therefore, soft parts morphological characters of new species are little differences from other species: Antennule shape is transformed simple type like Paradoxostomatidae.

Here I describe two new species of the genus *Pseudocythere* with detail illustration and SEM photographs.

The first insight into the patterns of size and shape variation of a microcerberid isopod

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Abstract: Cryptic species are a biological phenomenon only recently recognized due to progress in molecular studies. They pose a significant challenge to conventional taxonomic work since these species manifest with low morphological differences, but considerable genetic disparity. New taxonomic methods are in development but have yet to be tested for many animal groups. Isopods belonging to the family Microcerberidae are one such group. The Asian microcerberid isopod, *Coxicerberus fukudai* (Ito, 1974) is a major component of marine interstitial fauna with suspected cryptic species inhabiting Japan and Korea. We chose five Korean isopod populations with high molecular inter-populations divergence and applied 2D landmark-based geometric morphometrics to cephalic sensilla, pleonal points and male's pleopod II. This quantitative approach allowed us to study inter-population size and shape variation, morphospace structure, and whether the morphological pattern mirrored the genetic species. We determined that a high degree of inter-population size variation significantly influences shape changes. Once we removed the allometric effect, the size-corrected pleon shape variations yielded a new species, *C. jangsaensis* sp. nov. At the same time, we were able to resolve the *C. fukudai* species complex.

Seasonal and spatial changes in the zooplankton community structure of the Kongsfjorden, Svalbard

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Abstract: Zooplankton plays a pivotal role as they form a link in pelagic food webs between producers and secondary consumers. Also, distribution and dynamics of zooplankton communities in pelagic are influenced by physio-chemical factors, biological characters including predator pressure and the interaction of these factors. Therefore, zooplankton is an importance subject to research marine ecosystem from these factors. Arctic ocean has environmental characters such as sea ice and freezing, and is influenced by flux of various currents. This study aims to analyze zooplankton communities of the Kongsfjorden. A total of 28 zooplankton taxa were occurred and identified during study periods. Zooplankton abundance and biomass showed huge difference according to the study area and season. A comprehensive comparison of the three-year survey (2017~2019) showed that the zooplankton communities in the study area was influenced by seasonal changes and phytoplankton blooming in spring. Recently, some studies reported that the Arctic glaciers are melting constantly and that primary production in that area would be increasing. It seems that zooplankton communities in the study region were affected by environmental factors such as primary production. For this reason, if more data are accumulated throughout further studies in this region, ecological study of Arctic zooplankton would be established at a more detailed level.

Species diversity of free-living marine nematodes in Korea from 2015 to 2019

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Abstract: “National Investigation of Marine Ecosystem” is a long-term project funded and organized by Marine Environment Management Corporation designed to monitor various aspects of marine ecosystem in Korea by sampling over 129 pre-determined locations. Over the course of five years (2015–2019), all coasts of Korea: South, West, East and coasts of Jeju were monitored every Spring and Summer. From the survey, total of 69,681 specimens of freeliving marine nematodes belonging to two classes, eight orders, 42 families, 187 genera and 579 species were collected. In the view of coast, the most diverse coast was South which include 303 species belonging to 119 genera. Continuing diverse coast were West (118 genera, 294 species), East (90 genera, 226 species) and Jeju (112 genera, 189 species). According to our findings, order Araeolaimida was the most abundant generally around the coast, with Monhysterida, Chromadorida and Enoplida following. Coast of Jeju coast was seen with different assemblage compared to the other coasts. The family Comesomatidae and the genus *Dorylaimopsis* were dominant in terms of abundance in all coasts. This dataset will prove to be an important key in understanding the assemblage of free-living marine nematodes inhabiting the coasts of Korea. Furthermore, usage of the complete dataset obtained from such project will provide further insights such as seasonal variation and allow comparative distribution analysis between other continental regions.

The use of nematodes diversity index in assessing ecological quality status in the Korean coastal ecosystems from 2018 to 2019

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Abstract: Ecological quality (EcoQ) status of the Korean coast was evaluated within the “National Investigation of Marine Ecosystems in Korea” in the Spring and Summer of 2018-19. Spacially, the research took on assess the ecological quality of the sublittoral zone sediments using free-living nematodes communities. Total of 445 species belonging to eight orders, 38 families and 155 genera were collected in study area, and *Dorylaimopsis*, *Sabatieria*, *Parodontophora*, *Daptonema* and *Terschellingia* were found as dominant genera on the Spring season. In the Summer season, nematodes belonging to two classes, eight orders, 30 families, 130 genera and 382 species were found from coasts of Korean peninsula. *Dorylaimopsis* was most abundant genus, with *Sabatieria*, *Axonolaimus*, *Parodontophora* and *Sphaerolaimus* following respectively in the Summer season. The nematode diversity index (H') were from 0.00 to 3.17 in the spring season, from 0.56 to 3.06 in the summer season. Applying the nematode diversity index, the EcoQ of the study area were bad to good in the spring, poor to good in the summer. Later, the Maturity Index (MI), the c-p%, the Index of Trophic Diversity (ITD) and the presence of sensitive/tolerant genera will apply at the Korean coastal ecosystem and find more effective nematode indices to evaluate.

Description of a new species of *Eurycletodes* Sars G.O.,
1909 (Copepoda: Harpacticoida: Argestidae) from Gulf
of Mexico, including geographic and bathymetric
distribution of the genus *Eurycletodes*

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Abstract: A new species of the genus *Eurycletodes* was collected from deep-sea sediment in the Gulf of Mexico, are reported and fully described and illustrated. *Eurycletodes* (*Eurycletodes*) sp. nov. is morphologically most closely related to *E. (E.) gorbunovi* Smirnov, 1946 and *E. (E.) rectangulatus* Lang, 1936, but the *new species* is *distinguished* from all *other known congeners* by mandibular palp 2-segmented, anal operculum with denticles, and P5 exopod-1 with five setae. Of the total 29 species of genus *Eurycletodes* including new species, most species were found in the deep sea, except for some such species as *E. (O.) vadumus* found off the coast of Korea, *E. (E.) gorbunovi*, *E. (O.) irelandica*, which has no exact information on the sampling. A revised key to species of *Eurycletodes* is provided.

Dynamics of Phytoplankton and Harmful Cyanobacteria in Three Weirs (Gangcheon, Yeosu and Ipo) of the Namhangang River in Korea

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Abstract: Phytoplankton, on-site water quality, nutrients (TN, TP, COD, BOD and SS) from the three weirs (Gangcheon, Yeosu, and Ipo), which serially located in the Namhangang River are examined from May 14, 2018 to October 22, 2019, to determine the effects of hydrological and geographical factors on phytoplankton and harmful cyanobacteria dynamics. In Gangcheon weir, the upstream Wonju branch did not show a drastic increase in phytoplankton, but the mouth of Cheongmicheon Str. branch showed a higher harmful cyanobacteria (10,000 cells/mL). Those in both Yeosu and Ipo weirs were relatively lower during the monitoring, compare to other sampling sites. Total phytoplankton in Gangcheon weir, have been strongly influenced by the inflow of upstreams Cheongmi Str. and Seomgang River, while that of Yeosu weir was influenced by the inflow of Gangcheon weir. Serially, Ipo weir was strongly influenced by the inflow of Yeosu weir. The occurrence of harmful cyanobacteria in three weirs commonly showed a positive correlation with day-time length and water temperature, and negative to water flow rate. In conclusion, the total phytoplankton in each weir is strongly influenced by the inflow (i.e. algal density and water quality) of upstream weirs, and the harmful cyanobacteria are effectively generated with high water temperature, long daytime, and slow flow rate.

Benthic Diatom Communities in Korean Estuaries: Species Appearances in Relation to Environmental Variables

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Abstract: In the Korean Peninsula's southern estuaries, the distributive characteristics of epilithic diatoms and the important environmental factors predicting species occurrence were examined. The collection of diatoms and measurements of water quality and land-use were performed every May between 2009 and 2016, with no influence from the Asian monsoon and snow. Throughout the study, 564 diatoms were classified with first and second dominant species of *Nitzschia inconspicua* and *N. perminuta*. Based on diatom appearance and standing crops, the 512 sampling stations were divided into four groups by cluster analysis, and two regions, namely the West and East Sea. Geographically, G1, G2, G3, and G4 were located in the East Sea, Southeast Sea, West Sea, and Southwest Sea, respectively. Canonical correspondence analysis results indicated that environmental factors, such as turbidity, electric conductivity (EC), and total phosphorus, significantly influenced the distribution of epilithic diatoms. A random forest model showed that major environmental factors influencing the diatom species appearance included EC, salinity, turbidity, and total nitrogen. This study demonstrated that the spatial distribution of epilithic diatoms in the southern estuaries of the Korean Peninsula was determined by several factors, including a geographically higher tidal current-driven turbidity increase and higher industrial or anthropogenic nutrient-loading.

Filtration and mortality of the freshwater bivalve *Unio douglasiae* (Unionidae) against cyanobacterium *Microcystis aeruginosa* bloom waters

Myung-Hwan Park^{1,P}, Young-Hyo Kim², Euna Hwang², Ha-Kyung Kim², In-Hwan Cho², Chen Yi², Baik-Ho Kim^{3,C}

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Abstract: Filtering rate (FR) and pseudofeces production (PFP) of a freshwater filter-feeding bivalve, *Unio douglasiae*, on a toxic cyanobacterium (*Microcystis aeruginosa*) were measured with different environments. We performed the experiment to evaluate the effect of different DO concentrations (0.5, 4.5 and 9.0 mg L⁻¹) and water depths (20, 50 and 80 cm) on the filtering rate, mortality, and pseudofeces production of *U. douglasiae* against the cyanobacterial bloom (mainly *Microcystis aeruginosa*). The experiments were conducted with the varying condition of water temperature (5~35°C, mussel size (5.6~13.3 cm) and food concentrations (49 ~ 491 µg L⁻¹). Among the applied temperature, the maximum FR (1.27 L·g⁻¹·h⁻¹) and the maximum PFP (1.46 mg·gAFDM⁻¹·hr⁻¹) were observed at 15 and 25°C, respectively. In the field observation, the mussel mortality was significantly correlated with water temperature (P<0.05), pH (P<0.05) and DO concentration (P<0.05). The mortality was decreased with water depth; 65, 90, 80% of mortality at 20, 50, 80 cm water-depth, respectively. Filtering rate (FR) showed the highest value at 50 cm water depth, while the concentration of chlorophyll-*a* decreased continuously by 94% of the control at the end of the experiment. In contrast, FR decreased by 34% of the initial concentration at 20 cm water depth. Over the given water-depth range, the mussel FR ranged from 0.15~0.20 L gAFDM⁻¹ hr⁻¹ during the 18 hrs of experiment, and thereafter, they appeared to be approximately 0.11, 0.26 and 0.30 L gAFDM⁻¹ hr⁻¹ at 20, 50 and 80 cm water depth, respectively. FR was highest with the value of 0.27±0.04 L gAFDM⁻¹ hr⁻¹ at 0.5 mgO₂ L⁻¹ at the early stage of the experiment, while it increased with DO concentration. Maximum pseudofeces production was 11.2mg gAFDM⁻¹ hr⁻¹ at 9.0 mgO₂ L⁻¹. Our results conclude that *U. douglasiae* has a potential to enhance water quality in eutrophic lake by removing dominant cyanobacteria, but their effects vary with environmental parameters and position applied.

The Effect of Monsoon Rainfall Patterns on Epilithic Diatom Communities in the Hantangang River in Korea

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Abstract: Most of Korea's rivers and lakes are subject to physico-chemical disturbances, such as increased water quantity and flow rates, and influx of nitrogen and phosphorus, due to intense rainfall concentrated in the Asian monsoon season. To examine the influence of rainfall on epilithic diatom communities, we measured the diatom distribution and river water quality at 29 sites along the main-stream and tributaries of the Hantangang River, Korea, in the period of 2012–2015. Water quality parameters in the polluted sites had improved following rainfall, but the response of dominant species varied with water quality; the dominant species *Nitzschia fonticola* decreased in abundance regardless of sampling sites, and the abundance of *Achnanthydium minutissimum* in the clean sites and *Nitzschia palea* in the polluted sites increased after rainfall, respectively. The community dynamic index (CDI) showed that the most obvious shift of epilithic diatom community occurred in the mid-polluted sites in 2013 with the highest rainfall. This suggest that the effect of rainfalls on the epilithic diatom community is dependent on various parameters, such as the magnitude of rainfall, water quality and its biotic compositions of diatom communities, but it also indicates that improving the water quality of rivers is important to promote the resilience of diatom communities to extremes of precipitation. Further investigation is needed to generalize the effects of monsoon rainfall on the epilithic diatom communities, considering rivers with different environmental characteristics.

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