

List of Dissertation Abstract

(Risk Management and Environmental Sciences Life and Environment Management Course)

Name	Supervisor	Title	Abstract
Shiori ARIMA	Masaru OYA	The effect of the physicochemical foam characteristics and surfactant characteristics on the foam feeling	Methods evaluating foam include a foaming examination, the measurements of surface chemical properties or sensory evaluation. In the present circumstances, it is common to perform a sensory evaluation when we evaluate the foam feeling. However, a sensory evaluation has the weak points. For example, we should consider that personal difference occurs. Furthermore, we should adopt a great number of panels for sensory evaluations to obtain reliable data. Therefore, we aim at clarifying the determinative factors of the foam feeling to propose a method for quantitatively evaluating the foam feeling.
Toshihiro IIZUKA	Takashi KAMEYA	Development on LC/MS/MS Internal Standard Analysis Database for Non-regulated Chemicals and its Application	The database of LC/MS/MS simultaneous analysis including mass spectrums, liquid chromatography retention times and calibration curves were investigated for non-regulated chemicals, for which GC/MS AIQS-DB system could not applied. The calibration curves using internal standards could be made for 70 chemicals and the LOQ were 1µg/L for 40 chemicals. The monitoring by using this method were done in 38 rivers, as the results, all 70 chemicals were detected and 34-49 chemicals were detected in each site.
Kosuke INOUE	Nobuhiro KANEKO	Relationship between soil foodweb structure and nitrogen mineralization under the conservation agriculture management	Recently there is a growing interest and urgent demand for conservation agriculture because it will enable us to establish sustainable cultivation system. To adopt the conservation agriculture may enhance soil ecosystem service, like nitrogen mineralization. However, there is few study of quantify the ecosystem service at conservation agriculture system. Therefore, the aim of this study is to quantity nitrogen mineralization at conservation agriculture field. The results suggest that nitrogen mineralization rates in the no-tillage were higher compared to the tillage system. The introducing no-tillage is a good management from the perspective of driving nitrogen cycling by soil food web.

Kenta OISHI	Shigeki MASUNAGA	Bioavailability and Chemical Species of Metals in Enclosed Sea Sediments	<p>The heavy metals in the sediments cause recontamination of upper layer water, and they are toxic to the benthic organisms. Elution potential and toxicity depend on the bioavailability associated with the existing form, but in Japan there are few analysis cases that take these into consideration. In this study, I analyzed the concentration of heavy metals in the bottom sediments from various components including the existence form in the enclosed sea and evaluated their bioavailability. Results showed that the bioavailability of heavy metals was difficult to predict from the total concentration and it varied depending on metal species. Comparing the two enclosed sea, it was suggested that organic matter is an important index for evaluating the bioavailability of metals.</p>
Takumi OHASHI	Takashi KAMEYA	Monitoring of Japanese PRTR chemicals in mobile exhaust gas and atmosphere	<p>Most of the discharge destination of used chemicals are atmosphere, and the monitoring is important to know their actual situation.</p> <p>Therefore, in this study, we conducted the monitoring of 299 Japanese PRTR chemicals, which can be simultaneously analyzed by the GC-MS AIQS-DB method, and 15 carbonyl compounds, which can be analyzed by the DNPH-LC-ESI-MS/MS method, in exhaust gas and atmosphere.</p> <p>As a result, the chemicals with large emission volumes and/or without previous detection in past studies were newly found, and they were likely to be harmful air pollutants.</p>
Yuki KAWANO	Satoshi NAKAI	Research on exposure evaluation from fragrance / deodorant using life pattern data	<p>The National Institute of Technology and Evaluation (NITE) conducted "questionnaire survey on human life and behavior patterns". This survey investigated the details of acts done in the home. In this study, we used the placement type fragrance / deodorant as a target product and examined parameters required for estimation by using exposure distribution estimated by NITE's questionnaire survey result. As a result, it was suggested that the contribution of the indoor area to the exposure amount was large in the inhalation exposure due to the steady emission, which is an important parameter.</p>
Sho KITAGUCHI	Sigeki MASUNAGA	Examination of total amount determination method of telomer type perfluoroalkyl acid precursor and grasp of balance in environment	<p>A method for quantifying the total amount of perfluoroalkyl acids (PFAAs) precursors has been proposed. This is a method of decomposing precursor into perfluoroalkylcarboxylic acids (PFCAs) and quantifying it, but there is a problem that telomeric precursors generate short chain PFCAs by decomposition. Telomeric precursors also contribute to the expansion of PFCAs contamination. Therefore, we aimed to investigate optimal oxidative decomposition conditions of telomeric precursors and grasp the balance in the environment. It was found that it is difficult to grasp the total amount of precursor for each carbon chain in optimum oxidative decomposition conditions. In addition, the balance of PFAAs and precursors did not match in each treatment process in grasping the balance at the sewage treatment plant.</p>

Yukiko KUSAMA	Fumito KOIKE	The life history strategy and nesting sites of <i>Strix uralensis</i>	In this study, I set up nest boxes for Ural owl in northern part of Nagano and analyzed the influence of the nesting sites on the life history strategy such as the number of eggs and survival rate (hatching rate). As a result, the nesting place tends to be occupied a place with low altitude, and the landscape with many forest edges as a nesting place. The number of eggs is larger at the place with low altitude. In addition, pairs which have many eggs especially prefer the forest edge to breed.
Yuta TAKEMOTO	Hiroyuki MATSUDA	Evaluation of age-specific impact by fishing to Pacific bluefin tuna (<i>Thunnus orientalis</i>) resources	Bluefin tuna (<i>Thunnus orientalis</i>) is an important fishery resource in Japan and is used as seedling for edible or culturing. However, at the International Scientific Committee of the North Pacific Tuna (ISC) held in 2016, the resource of bluefin tuna was evaluated as being at a low level. In order to recover the resources from the low state, it is required to quantify the influence of the fishery received by the bluefin tuna resources and to find out what kind of management method is appropriate from there. In this research, we aim to grasp the current state of resources by quantifying the influence of bluefin tuna from fishery.
Keiichiro TANI	Hiroyuki MATSUDA	Impact assessment method of wind power generation projects on birds by Bayesian model using other area data as prior distribution	In order to speed up the environmental impact assessment (EIA) procedure for wind power generation, we develop an assessment method for the avian collision risk with wind turbines. We divided the target area into a 200m square grid, took the flight distance in the grid as a target variable, and selected nine environmental factors as explanatory variables. We construct a model to estimate the flight distance in the grid of the project site with the estimated value in the training data area as a prior distribution, and conduct a risk assessment method from the fewer number of survey days. The error of estimated collision number is mostly about ± 0.1 birds per year, and the EIA procedure can be accelerated by using training data in other areas.
Yuya NAGASHIMA	Shigeki MASUNAGA	Determination and mass balance of phosphoric acid ester flame retardants in a Japanese general sewage treatment plant	In a Japanese general sewage treatment plant, we measured the concentration of phosphoric acid ester flame retardants, which was used as a substitute of brominated flame retardants which maybe had a toxicity, and estimated mass balance in each treatment process. As a result, Tris (2-chloro-1-methylethyl) phosphate was the dominant compound in twelve phosphoric acid ester flame retardants we measured. We calculated a removal efficiency from a mass balance we estimated from a detected concentration. The removal efficiency of them was 33-90%. Most compounds was removed by a degradation but the compound whose log Kow was high was also removed by an adsorption to a sludge.

Yu NISHIMURA	Shigeki MASUNAGA	Concentration and Speciation of Metals in Seawater in Enclosed Coastal Seas	It is under consideration for various metals to establish environmental quality standards for conservation of the living environment. Since it is widely known that the toxicity of metals depends on their speciation and bioavailability, establishing the standards that take these into consideration is desirable. In this study, I have measured concentrations and evaluated speciation and bioavailability of metals in seawater in Japanese major enclosed coastal seas, where there are only few studies referring to them. This study has revealed that their actual conditions are significantly different for each seas or metals, and suggested how the appropriate environmental quality standards for metals are established. It has also mentioned the applicability of various bioavailability evaluation methods and the necessity of pursuing optimal experiment conditions.
Takahiro NIWA	Fumito KOIKE	Range expansion of alien lizards, Anolis carolinensis, on Anijima Island, Japan	A.carolinensis, which invaded Anijima island in 2013, preys on endemic insects. Analyzing the data on the number of catches of A.carolinensis and effort, I estimated the parameters of spatiotemporal population dynamics and the number of unknown populations using Bayesian estimation.
Ryosuke MAKIGI	Satoshi NAKAI	Characterization of indoor-outdoor PM2.5 mass concentration and inorganic composition	Indoor and outdoor PM2.5 mass concentrations and their time variations were measured at 3 residences in Yokohama, for 10 days during the winter and summer in 2017. Inorganic elements were analyzed by ICP-MS and EDXRF. The measurement results in the winter are shown in this manuscript. Indoor and outdoor concentrations in all residences were lower than the 24hr environmental standards (35µg/m3). Although elevation of Indoor concentrations attributed to incense sticks was not observed, smoking and cooking contributed to indoor PM2.5 concentrations. I/O concentration ratios of inorganic elements were lower than 1 except Cd at the home with a smoker.
Zhixi ZHU	Takashi KAMEYA	Chemical oxidation processes for pharmaceuticals and personal care products in aquatic environmental: degradation kinetics and characteristics	In this research, the degradation tests of 44 pharmaceutical and personal care products, which were detected out in aquatic environment, were performed by using 4 type of chemical oxidant (chlorine, ozone, Fenton reagent, ferrous[II]-activated persulfate). Concentration change were investigated by LC-ESI-MS/MS simultaneous analysis method and the degradation characteristics of 44 compounds in different oxidation process were classified by pseudo-first-order kinetic constants. The degradation byproducts of easily-oxidized compounds, and the influence of sewage matrix were also investigated.

Naichao CHI	Satoshi NAKAI	Effects of denuders for artifacts during measurements of PM2.5 concentrations	Although the filter method is the standard method for measuring the mass concentration and PM concentration of PM2.5, it is subject to the influence of artifacts such as particle reaction and volatilization, and the particle composition at the time of collection and analysis is changed. In this study, mass concentrations, inorganic ions and organic component concentrations were studied depending on if a denuder was attached. The PM2.5 mass concentration increased due to the denuder, but the change in component concentration did not always match. Although the concentration of NH4+ decreased with the denuder, Cl- and NO3- increased. The change of the organic component is slight.
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