

# List of Dissertation Abstract

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

Name	Supervisor	Title	Abstract
Xiang Liuchun	Kaneko Nobuhiro	Feeding Habit Analysis of Soil Animals Using Stable Isotope and Fatty Acids	This study analyzed feeding habits of soil animals by using stable isotope and fatty acids analysis. Soil does not only possess a diversity of organism in trophic food web but also is vital to nutrient cycling. Soil animals are important component in the food web and also are central determinants for energy flow through terrestrial system. Although they are significant, trophic relationships in soil ecosystem are still obscured. Using stable isotope analysis, nitrogen can be used to rank relative trophic levels and carbon can be assigned food resource. Agricultural intensification not only alters the structure of arthropod communities, but also may affect biotic interactions by altering the availability of basal resources. Coleopteran larvae (Scarabaeidae) are known to feed humus and root, Isopoda (Armadilidium vulfare) is detritus feeder. We used these animals as model organisms to confirm the validity of stable isotope with fatty acid method.
Sho SUZUKI	Takashi KAMEYA	Simultaneous analysis and effects of contaminants and pretreatments of PRTR designated substances in river water.	Environmental monitoring of PRTR designated substances is required, although the quantitative errors are caused by coexistent materials in water samples at simultaneous analysis by the GC-MS. In this study, I investigated the effects by the coexistent materials for the recovery of the solid phase extraction of river water, and tried some treatment for cleaning samples up using silica gel and liquid-liquid extraction. Environmental samples from river water and waste water treatment plant are monitored, and the observed data revealed the presence of some substances that are easily influenced by the coexistent materials.
Ayano IKEMOTO	Hiroki OIKAWA	Please fill in here the English title	In order to construct a wind power, legal frameworks of an environmental effect and a land regulation will be needed. However, the knowledge of the structure and the reality is unclear. The division of roles between an assessment which has the force of law, an assessment which has the force of statute and an assessment without legally binding and the source of a conflict in an area which has a restriction of a land does not figure out. In this thesis, the elemental information to consider the way of regulation is discussed.
Ai UEDA	Fumito KOIKE	Suitable habitat of Green anole and the distribution of native lizards in Ogasawara Islands	It is said Anolis carolinensis which is invasive lizards in Ogasawara Islands is a predator and competitor of native lizards, Cryptoblepharus boutonii nigropunctatus. In this study, I analyzed the spatial niche that combined different niches. In result, I found these 2 species use different perch height and it mean they could separate the habitat. So, it is suggested ground type Cryptoblepharus b. nigropunctatus and trunk-crown type A. carolinensis would coexist.

Tomu SASAKI	Shigeki MASUNAGA	Risk assessment of chemicals related to accident of spray type daily necessities	Many health hazards (accidents) caused by consumer products occur every year, especially accidents caused by spray type products are reported much. Therefore, in this study, exposure assessment and risk assessment were conducted for pesticides / chlorine type detergents / air fresheners which are the top 3 products of accident report by spray type products. However, it was necessary to use a number of assumptions because information was insufficient only with published accident information and toxicity values. As a result, improvement of the accident information collection system and the necessity of acute toxicity value of each chemical substance were suggested.
Takumi SATO	Masaru OYA	Investigation of environmentally new use of cellulose derivatives	This study is a modeling of innovation which is way of new technology and findings new use. So in this research, we used cellulose and cellulose derivatives to find new applications. First application is way of reinforcing materials. Second one is ingredients. Third one is new removal soil method "Peeled off".
Terumasa TANAKA	Masaru OYA	Analysis of soil removal mechanism using probability density function method	In this study, washing mechanisms of various soils (oily soil, water soluble soil, solid particle soil) were analyzed using the probability density function method assuming that the adhesion of soil and washing action following the normal distribution. As a result, it was suggested that the washing mechanism can be expressed parameters from this method. In addition, it was revealed that the ionicity of the surfactant had a significant influence of soils in washing.
Kenta CHIBA	Shigeki MASUNAGA	Embryo-larval toxicity assay for copper to marine species in Japan	Embryo-larval toxicity assessment of copper for Pacific oyster ( <i>Crassostrea gigas</i> ) and Sea pineapple ( <i>Halocynthia roretzi</i> ) evaluated the effect of copper in early life stage of both species. The results show that 24 h-EC <sub>50</sub> for Pacific oyster was 26.5 µg-Cu/L and 48 h-EC <sub>50</sub> for Sea pineapple was 47.2 µg-Cu/L. At the same time, copper analysis of seawater in Shidugawa bay by ICP-MS were performed 6 times from 2015 to 2016 for the purpose of exposure assessment. Those results indicated that Pacific oyster and Sea pineapple hadn't large risk of copper to their early life stage.
Shihori NAKAMICHI	Shigeki MASUNAGA	Study of Oxidative Decomposition Method for Quantification of Total Perfluoroalkyl Acid Precursors	A new quantifying method of total perfluoroalkyl acid (PFAA) precursors that transforms PFAA precursors into perfluorinated carboxylic acids (PFCAs) in relation to their carbon chain lengths using hydroxyl radicals was proposed. However, there are concerns about formation of short-chain PFCAs. In this study, performance of different types of oxidation methods: Fenton and O <sub>3</sub> /Alkali which generate hydroxyl radicals, and O <sub>3</sub> having weaker oxidation was compared. In results, formation of short-chain PFCAs were confirmed in all methods. It became clear that these oxidation methods are too strong for this quantifying method.

Mayuko NAKAMURA	Masaru OYA	Effect of enzyme pretreatment on detergency of protein soil analyzed by probability density function method	This study is to evaluate the effect of enzyme pretreatment on detergency of protein by probability density function method and to make cleaning evaluation indicator. The cleaning evaluation indicator assuming blood contamination was prepared, pretreated with enzyme, and washed. Cleaning experiments were performed with changing the processing time or temperature of enzyme for protein soil. It was observed that adhesion force of protein soil was weakened by enzyme.
Satoshi MIYAZAKI	Fumito KOIKE	Community of large arthropods using decay wood in urban landscape	Species using decay wood are defined as "Saproxyllic species" and contribute the nutrient cycling in forest ecosystem via participating decomposition of dead wood. But there are few studies dealing with them in urban area. My result suggested that the system of wood decomposition is unstable in urban landscape. Because the community has low species diversity and few carnivore species. Stag beetle ( <i>Dorucus rectus</i> ) is important species in urban forest because it is detected specifically in urban area and very famous in Japan.
Ryo MURAKAMI	Koichi FUJIE	Effect of biomass residue application to the soil of palm plantation based on material flow analyses	Oil palm plantation area is increasing by land use change such as deforestation for demand of palm oil. It caused the decline of soil organic matter and FFB (Fresh fruits bunch) yields. In addition that, biomass residue and effluent from palm oil mill have environment impacts. This study revealed the effect of application of biomass residue and treated palm oil mill effluent to the palm cultivating soil based on material flow analyses of the plantation and the palm oil mill in order to construct recycling system palm plantation.
Keitaro MORISHITA	Koichi FUJIE	Analysis of oxygen consumption process in advanced activated sludge process based on continuous aeration off gas analysis	Sewage treatment by activated sludge process is associated with enormous power consumption for oxygen supply to the aeration tank. In this research, in order to improve the quality of treated water and saving energy of process, the material flows of dissolved oxygen and organic carbon, nitrogen derived from BOD in advanced activated sludge process were analyzed it based on 24 - hour measurement including continuous analysis of aeration off gas composition and the consumption structure of dissolved oxygen was clarified. In addition, the emission characteristics of nitrous oxide (N <sub>2</sub> O) of greenhouse gases produced in the nitrification / denitrification process were also examined.

Yuuki YAMAGISHI	Koichi FUJIE	Evaluation of oxygen transfer performance and effectors by off gas analyzing at sewage treatment process	Continuous analysis of oxygen and carbon dioxide in aeration exhaust gas was carried out in a deep tank swirling flow reactor at a sewage treatment plant to analyze and evaluate factors influencing oxygen dissolution performance. Air diffuser performance was determined from oxygen transfer efficiency and dissolved oxygen concentration, and the effect of airflow rate, MLSS on this was evaluated. We also evaluated the influence of dissolved oxygen supply from the bubble zone to the bubble free zone due to the swirling flow on the gas-liquid oxygen transfer resistance in the reaction, accumulating knowledge for improving oxygen dissolution performance.
Kyohei YOKOTA	Hiroki OIKAWA	The policy of endangered species conservation and citizen participation -Suggestion systems of species in the regulations of each prefecture-	Act on Conservation of Endangered Species of Wild Fauna and Flora have had some problems. For example, there aren't many species and it lacks citizen participation. An object of this study is suggestion system of species in the regulations of each prefecture because the system is related to the problems. Study techniques are interviews to each prefecture which have the system. As a result, to introduce only suggestion system is not enough. To introduce support system with suggestion system is important to solve these problems.
Natsuki Watanabe	Nobuhiro Kaneko	Transfer parameter values of radiocesium effects of fungi	It has been known that radiocesium increases in leaf litter during decomposition, and fungi play role in transformation of radiocesium from soil to leaf litter. We examine three possibilities of the mechanism of radiocesium accumulation; 1) fungal translocation, 2) radiocesium movement from tree to litter, 3) leaching. We choose fungi accumulated radiocesium in mushroom and soil contaminated in the forest (5.5 kBq/kg). Sterized sawdust is placed prepared the fungal cultures. We indicated that fungi accumulated radiocesium.
Xiaoyun WANG	Hiroki OIKAWA	Managing the national forests through place-based approach - examine the use of place-based approach in the United States-	There are types of place-based approaches appearing besides the National Forest Management Act which manage all the national forests in the United States. Through examining the use of place-based approach in the management of national forest in the United States, we understand three key points of the place-based approach. The types (place-based laws and agreements, etc.); background (distrust to the USFS and instability of community), and what problems they brought. These approaches might be an alternative way of national forest management, in which the community plays a leading role in the process.
Han Tianye	Masaru Oya	Evaluation method of biodegradability of environmentally-friendly surfactant	Unlike conventional methods for evaluating the biodegradability of surfactants, concentrations are not absolute values, but we focused on the relative value of the CMC of the surfactant. Based on this, while trying to compare the existing type surfactant with the environmentally-friendly surfactant, we attempted to construct a new evaluation method with the surface activity and degradability and toxicity to aquatic organisms as indices .

GAO RUI	Masaru OYA	Flow Analysis of Toxicity and Risk Information Relevant to Surfactants in China from 1950's to 2000's	In recent years, it seemed that there was an increasing number of claims on the detrimental theory of chemical substances in Chinese detergent, but the actual state of these information is not known. Therefore, in this research, before 2006, we examined how the environmental or safety related information flowed from outside China to the domestic market, how it changed, and the characteristic problems and their causes in the transition.
Binay Sangat	Kaneko Nobuhiro	Estimation of Nitrogen budget in no tillage with weed agriculture management system	No-tillage weed management(NTW) is one of the conservation agriculture methods in which weeds are controlled without using any kind of herbicides instead, they are manually managed beside the crops which can be a sustainable method to retain soil fertility as well as to maintain plant productivity. The effect of no tillage crop plantation with the presence of weed and role of fertilizer were studied by estimating N dynamics. Soil, weed, wheat, soil macrofauna and nitrogen leaching was analyzed for determination of nitrogen. No significant difference was observed between tillage and no tillage system in yield, which suggests that there was less competition between the crops and the weeds in NTW
Qingzhou LI	Masaru OYA	Development of acid cleaner for iron oxide elimination considering safety	In this research, we developed a method to uniformly reproduce the state of iron rust adhering to the substrate and examined the cleaning evaluation method such as image analysis. Cleaning experiments of common acids were carried out to remove stains made by the calcium hydroxide treatment method. Evaluation was conducted based on the washing results on concentration, temperature and time, respectively. The detergency of mixed acid of 2 kinds and mixed acid of 3 kinds was evaluated by phenanthroline spectrophotometry. We suggested the possibility of reduction method of oxalic acid and phosphoric acid usage by blending various acids.