

CONTENTS

Volume 164 May 2012

- 1 Dispersal of the radionuclide caesium-137 (¹³⁷Cs) from point sources in the Barents and Norwegian Seas and its potential contamination of the Arctic marine food chain: Coupling numerical ocean models with geographical fish distribution data**
H.E. Heldal, F. Vikebø, G.O. Johansen
A leakage of ¹³⁷Cs from K-159 may cause concentrations in muscle of cod exceeding the intervention level of 600 Bq/kg fresh weight for up to two years after the leakage.
- 11 Litterfall mercury deposition in Atlantic forest ecosystem from SE – Brazil**
D.C. Teixeira, R.C. Montezuma, R.R. Oliveira, E.V. Silva-Filho
Hg high values in litter are a pattern found at Tropical Forest, it seems to be correlated with physio-anatomical plant characteristics from this biome.
- 16 A stomatal ozone flux–response relationship to assess ozone-induced yield loss of winter wheat in subtropical China**
Z. Feng, H. Tang, J. Uddling, H. Pleijel, K. Kobayashi, J. Zhu, H. Oue, W. Guo
Stomatal ozone flux–response relationships were derived for winter wheat in subtropical China.
- 24 Effects of herbicides on Behr’s metalmark butterfly, a surrogate species for the endangered butterfly, Lange’s metalmark**
J.D. Stark, X.D. Chen, C.S. Johnson
Herbicides are used to remove invasive weeds from butterfly habitat. Certain herbicides may be having a negative effect on butterflies.
- 28 Effects of ethinylestradiol and of an environmentally relevant mixture of xenoestrogens on steroidogenic gene expression and specific transcription factors in zebrafish**
R. Urbatzka, E. Rocha, B. Reis, C. Cruzeiro, R.A.F. Monteiro, M.J. Rocha
An estrogenic mixture revealed different effects on specific transcription factors than EE2, probably due to multiple modes of actions of the chosen compounds.
- 36 Abundance of birds in Fukushima as judged from Chernobyl**
A.P. Møller, A. Hagiwara, S. Matsui, S. Kasahara, K. Kawatsu, I. Nishiumi, H. Suzuki, K. Ueda, T.A. Mousseau
The negative effect of radiation on abundance of birds in Fukushima exceeded that for the same species in Chernobyl.
- 40 Coal-tar pavement sealants might substantially increase children’s PAH exposures**
E.S. Williams, B.J. Mahler, P.C. Van Metre
- 42 A sensitive crude oil bioassay indicates that oil spills potentially induce a change of major nitrifying prokaryotes from the Archaea to the Bacteria**
H. Urakawa, J.C. Garcia, P.D. Barreto, G.A. Molina, J.C. Barreto
Oil spills potentially induce a change of major nitrifying prokaryotes from the archaea to the bacteria.
- 46 Assessment of polybrominated diphenyl ethers (PBDEs) in serum from the Korean general population**
J. Kim, J.-H. Kang, H. Park, S.-Y. Baek, Y.-H. Kim, Y.-S. Chang
This study will provide not only a view of representative PBDE levels in the Korean general population but also comprehensive information regarding human exposure to PBDEs in Korea.
- 53 Metal resistance in populations of red maple (*Acer rubrum* L.) and white birch (*Betula papyrifera* Marsh.) from a metal-contaminated region and neighbouring non-contaminated regions**
F.M. Kirkey, J. Matthews, P. Ryser
Adaptive metal resistance can also develop in trees with long generation times, but the degree of resistance is lower than for herbaceous species from the same region.
- 59 Functional traits of soil invertebrates as indicators for exposure to soil disturbance**
M. Hedde, F. van Oort, I. Lamy
A trait-based approach hierarchized impacts of soil pollution on soil invertebrate communities following ways of exposure.

Continued on inside back cover

CONTENTS—Continued from outside back cover

- 66 Construction and application of a zinc-specific biosensor for assessing the immobilization and bioavailability of zinc in different soils**
P. Liu, Q. Huang, W. Chen
The immobilization and bioavailability of zinc in soil were investigated as a function of soil type and aging by a newly constructed zinc-specific biosensor coupled with chemical analysis.
- 73 Fe(III) fertilization mitigating net global warming potential and greenhouse gas intensity in paddy rice-wheat rotation systems in China**
S. Liu, L. Zhang, Q. Liu, J. Zou
Insights into a complete accounting of CO₂, CH₄ and N₂O mitigated by Fe(III) fertilizer application in Chinese rice paddies.
- 81 A multimedia fate model to evaluate the fate of PAHs in Songhua River, China**
C. Wang, Y. Feng, Q. Sun, S. Zhao, P. Gao, B.-L. Li
A dynamic water flow based multimedia fate model is developed to characterize the fate and transport of organic contaminant in natural rivers.
- 89 Impacts of urbanization on carbon balance in terrestrial ecosystems of the Southern United States**
C. Zhang, H. Tian, G. Chen, A. Chappelka, X. Xu, W. Ren, D. Hui, M. Liu, C. Lu, S. Pan, G. Lockaby
Urbanization has resulted in carbon release to the atmosphere, but established urban areas may gradually accumulate carbon over time.
- 102 Spatial and temporal variation of THg concentrations in run-off water from 19 boreal catchments, 2000–2010**
K. Eklöf, J. Fölster, L. Sonesten, K. Bishop
Despite strong spatial similarity in the THg/TOC ratio across large gradients of climate, land use and deposition, THg did not follow the temporal TOC trends in individual watercourses.
- 110 Influence of N deficiency and salinity on metal (Pb, Zn and Cu) accumulation and tolerance by *Rhizophora stylosa* in relation to root anatomy and permeability**
H. Cheng, Y.-S. Wang, Z.-H. Ye, D.-T. Chen, Y.-T. Wang, Y.-L. Peng, L.-Y. Wang
N-deficiency and salinity regulate the apoplastic transport barrier of metals and their toxicities.
- 118 Polychlorinated naphthalenes (PCNs) in sub-Arctic and Arctic marine mammals, 1986–2009**
A. Rotander, B. van Bavel, F. Rigét, G.A. Auðunsson, A. Polder, G.W. Gabrielsen, G. Víkingsson, B. Mikkelsen, M. Dam
Analysis of PCNs in seven marine mammal species sampled over a 23 year period indicates a decline in the PCN load in sub-Arctic and Arctic areas in recent years.
- 125 Methane and carbon dioxide fluxes and source partitioning in urban areas: The case study of Florence, Italy**
B. Gioli, P. Toscano, E. Lugato, A. Matese, F. Miglietta, A. Zaldei, F.P. Vaccari
GHG flux measurements in Florence city revealed that domestic heating and gas network leakages are the predominant contributions to CO₂ and CH₄ emissions, respectively.
- 132 Rapid recovery of stem increment in Norway spruce at reduced SO₂ levels in the Harz Mountains, Germany**
M. Hauck, J. Zimmermann, M. Jacob, C. Dulamsuren, C. Bade, B. Ahrends, C. Leuschner
Foliar SO₂ damage rather than soil acidification is the likely cause of spruce decline in montane forests of central and northern Germany during the 20th century.
- 142 Stream habitat structure influences macroinvertebrate response to pesticides**
J.J. Rasmussen, P. Wiberg-Larsen, A. Baattrup-Pedersen, N. Friberg, B. Kronvang
Ecological impacts of pesticides on stream macroinvertebrates are influenced by the heterogeneity and physical structure of micro-habitats.
- 150 Analysis of quaternary ammonium compounds in urban stormwater samples**
A. Van de Voorde, C. Lorgeoux, M.-C. Gromaire, G. Chebbo
A protocol for benzalkonium analysis has been developed and adapted to urban runoff, then applied to roof runoff after de-mossing treatment, which represents an important source of benzalkonium in stormwaters.
- 158 Calibration and field performance of triolein embedded acetate membranes for passive sampling persistent organic pollutants in water**
J. Tang, S. Chen, Y. Xu, W. Zhong, M. Ma, Z. Wang
An in-situ calibration method using PRCs was modified and validated for TECAM passive sampler.
- 164 Toxicity of copper nanoparticles and CuCl₂ salt to *Enchytraeus albidus* worms: Survival, reproduction and avoidance responses**
M.J.B. Amorim, J.J. Scott-Fordsmand
*Toxicity of Cu chloride salt and Cu nanoparticles to *Enchytraeus albidus* indicated higher toxicity of Cu-NP.*
- 169 Effects of Tween 80 on the removal, sorption and biodegradation of pyrene by *Klebsiella oxytoca* PYR-1**
D. Zhang, L. Zhu
Nonionic surfactant Tween 80 could promote the removal and biodegradation of pyrene, mainly due to the enhancement of surfactant-facilitated sorption.
- 175 Column leaching of chromium and nickel from a contaminated soil using EDTA and citric acid**
L. Jean-Soro, F. Bordas, J.-C. Bollinger
Citric acid or EDTA application deeply impact Cr and Ni mobility during column leaching of a contaminated soil.

CONTENTS—Continued from inside back cover

- 182 **Integration of an atmospheric dispersion model with a dynamic multimedia fate model: Development and illustration**
M. Morselli, D. Ghirardello, M. Semplice, G. Raspa, A. Di Guardo
AirPlus, an integrated multimedia fate - air dispersion model, was developed to investigate the influence of specific sources on the environmental behavior of semivolatile organic chemicals at a local scale.
- 188 **Concentration responses to organochlorines in *Phragmites australis***
M. Faure, A. San Miguel, P. Ravanel, M. Raveton
*Organochlorine mixtures at environmentally relevant concentrations do not pose a significant risk to *Phragmites australis*.*
- 195 **Effects of aging on the digestive solubilization of Cu from sediments**
H. Zhong, L. Kraemer, D. Evans
Copper geochemical fractionation, sedimentary organic content and digestive fluid composition explained decrease of Cu bioavailability in sediments with aging.
- 204 **Metal leaching along soil profiles after the EDDS application – A field study**
A. Wang, C. Luo, R. Yang, Y. Chen, Z. Shen, X. Li
The metal leaching risk associated with EDDS application may be controlled under field conditions.
- 211 **Interactive effects of maternal and environmental exposure to coal combustion wastes decrease survival of larval southern toads (*Bufo terrestris*)**
B.S. Metts, K.A. Buhlmann, D.E. Scott, T.D. Tuberville, W.A. Hopkins
Maternal and environmental exposure to coal combustion wastes interact to decrease survival in larval amphibians.
- 219 **Relationships between POPs and baseline corticosterone levels in black-legged kittiwakes (*Rissa tridactyla*) across their breeding cycle**
T. Nordstad, B. Moe, J.O. Bustnes, C. Bech, O. Chastel, A. Goutte, K. Sagerup, C. Trouvé, D. Herzke, G.W. Gabrielsen
The results indicates that the baseline corticosterone level in (pre-)breeding kittiwakes might be affected by PCBs and/or other POPs.
- 227 **Bioaccumulation of microcystins in two freshwater gastropods from a cyanobacteria-bloom plateau lake, Lake Dianchi**
J. Zhang, Z. Wang, Z. Song, Z. Xie, L. Li, L. Song
Higher bioaccumulation MCs level for pulmonate mainly contributed to the stronger bioaccumulation ability in its hepatopancreas.
- 235 **Methylmercury bioaccumulation in invertebrates of boreal streams in Norway: Effects of aqueous methylmercury and diet retention**
H.A. de Wit, M.J. Kainz, M. Lindholm
Exposure to aqueous methylmercury at the base of the food chain in boreal streams determines mercury in aquatic biota at higher trophic levels.
- 242 **Lead phytotoxicity in soils and nutrient solutions is related to lead induced phosphorus deficiency**
K. Cheyns, S. Peeters, D. Delcourt, E. Smolders
Soil properties did not explain differences in plant lead toxicity among different soils. Shoot phosphorus concentration decreased with increasing soil lead concentrations.
- 248 **Depleted soil carbon and nitrogen pools beneath impervious surfaces**
S.M. Raciti, L.R. Hutyra, A.C. Finzi
The soils beneath impervious surfaces are depleted in C and N, which may have implications for the energy and nutrient balance of urban ecosystems.
- 252 **One year intensive PM_{2.5} bound polycyclic aromatic hydrocarbons monitoring in the area of Tuscany, Italy. Concentrations, source understanding and implications**
T. Martellini, M. Giannoni, L. Lepri, A. Katsoyiannis, A. Cincinelli
Six-fold decline of the PAH cancer risk index in Tuscany during the last two decades.
- 259 **Oxidative dissolution of polymer-coated CdSe/ZnS quantum dots under UV irradiation: Mechanisms and kinetics**
Y. Li, W. Zhang, K. Li, Y. Yao, J. Niu, Y. Chen
The dissolution of polymer-coated QDs under UV irradiation is a photo-oxidative reaction following first order kinetics.
- 267 **Occurrence and persistence of organic emerging contaminants and priority pollutants in five sewage treatment plants of Spain: Two years pilot survey monitoring**
M.J.M. Bueno, M.J. Gomez, S. Herrera, M.D. Hernando, A. Agüera, A.R. Fernández-Alba
Antibiotics and analgesics/anti-inflammatories were the most frequently drugs detected, following by some β -blockers, synthetic fragrances, lipid regulators and diuretics.
- Erratum**
- 274 **Erratum to “Enhancement of life cycle assessment (LCA) methodology to include the effect of surface albedo on climate change: Comparing black and white roofs” [Environmental Pollution 163 (2012) 48–54]**
T. Susca