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Portfolio for doctoral students

Information on doctoral student:

- First and last name **Vladyslav Mykhailenko**
- Structural unit (department, institute) **Odessa State Environmental University. Ecology and Environment Protection Department**
- Curriculum title **Ecology**

General information on studies:

- Thesis title in English and in local language **The main sources of unintentionally formed POPs generation and their impact on the environment of the Odessa industrial-and-urban agglomeration**
- Supervisor(s) **Tamerlan A. Safranov**
- Curriculum, year of matriculation: Ecology, 2018.
- Academic leaves

INFORMATION ON ACADEMIC YEAR NO. 1

Status of research work:

- Overview of performed tests, collected data, field works, content and preliminary results of data processing
- 10 most important articles, book chapters etc, with short summary

1. Vladyslav I. Mykhailenko, Tamerlan A. Safranov (2021). Estimation of Input of Unintentionally Produced Persistent Organic Pollutants into the Air Basin of the Odessa Industrial-and-Urban Agglomeration.

DOI: https://doi.org/10.12911/22998993/141479

ABSTRACT
Environmental legislation in Ukraine is changing rapidly. These changes are related to the adaptation of Ukrainian laws to the requirements of the European Union. In this regard, the paper considers the unintentional production of Persistent Organic Pollutants (POPs) in the Odessa Industrial-and-Urban Agglomeration (next – Odessa agglomeration) in the context of new regulatory and legal requirements of Ukraine. In many countries around the world, the issue of pollution of environmental components by POPs has a large focus, because POPs pose a global threat to the environment and human health. The work aims to assess the main sources of unintentional production of POPs in the Odessa agglomeration during one year (2017), taking into account the new territorial features of the Odessa agglomeration. For the first time for Odessa agglomeration, the mass of POPs formed by main sources using the newest European methodological approach is calculated, sources of unintentional production of POPs on volumes of these substances are ranked, their total mass of generation on the territory of Odessa agglomeration is calculated. The number of POPs molecules equivalent to 2,3,7,8-TCDD, which get into the air basin of the Odessa agglomeration, hence into the organisms of the agglomeration inhabitants, has been calculated. The obtained results are compared with the allowable number per capita of the agglomeration, the relevant conclusions are made. Priority sources of unintentional production of POPs have been identified, which allows taking appropriate preventive measures to reduce the scale of their generation.

2. Denga Yu. M., Mykhailenko V. I., Oleynik Y. V., Safranov T. A. (2020). Peculiarities of Pollution by Some Persistent Organic Pollutants of the Marine Environment of the Northwestern Part of the Black Sea

https://doi.org/10.26565/1992-4259-2020-23-01

The study is aimed at estimation of marine pollution in the northwestern part of the Black Sea by some persistent organic pollutants (POPs), in particular polychlorinated biphenyls (PCBs) an hexachlorobenzene (HCB).

3. Prykhodko Veronika, Safranov Tamerlan, Shanina Tetyana, Mykhailenko Vladyslav. (2019). Education for Life: The Experience of Odessa State Environmental University

DOI: 10.28925/2226-3012.2019.8.8996

The article presents the educational component overview of the solid waste management and treatment system. The need for education in this area is caused by the crisis environmental situation in Ukraine and signifcant reforms in the legislative and regulatory sphere of waste management. The result of the educational process is the acquisition of relevant competences, in particular, in matters of municipal solid waste management and treatment. The peculiarities of competence formation in the area of municipal solid waste management and treatment according to the updated list of the European Union countries key competences are outlined in paper. The process of competence formation begins with the knowledge and skills acquisition, on the basis of which the way of thinking is formed. The system model of environmental situation formation and the importance of personal contribution to the municipal solid waste problem solution are the basic foundation in teaching and mastering of this topic

4. Mykhailenko V. I., V., Safranov T. A. (2018). An Analysis of the Situation of Persistent Organic Pollutants in Ukraine (by the Example of Odessa)

DOI: 10.26565/1992-4259-2018-18-09

The full analyses of the current state of the POPs problem in Ukraine, by the example of Odessa in the following areas: analysis of the legislative framework and monitoring system of POPs; estimation of the use of equipment containing PCBs; identification of sources of unintentional formation of POPs, calculation of POPs production volumes using the most modern European methods; identification of priority sources of POPs release into the environment; general conclusions on the situation with POPs in Ukraine.

5. V. I. Mykhailenko, T. P. Shanina, T. A. Safranov (2018). Main Sources of Unintentional Production of Persistent Organic Pollutants (The Case of Odesa)

The purpose of this work is to evaluate the main sources of unintentional formation of persistent organic pollutants (using Odesa as an example).
Ukrainian hydrometeorological journal, 2018, Issue 21, pages 110-119
ISSN: 2311-0902 (print), 2616-7271 (online)

Performance at conferences:

- Name, time and place of event
- Title and co-authors of presentation
- Whether oral or poster presentation

V.I. Mykhailenko, Yu.M. Denga, Yu.V. Oleinik. Assessment of the obstruction of the Odessa region's aquatic environment with sturdy organic communication channels / IV All-Ukrainian plein air for natural sciences. Odessa, 2020 (oral presentation)

V.I. Mykhailenko, T.A. Safranov. Calculation of polychlorinated biphenyls in the bodies of residents of the Odessa industrial and urban agglomeration / Conference of young scientists of OSENU. Odessa, 2020 (oral presentation)

Mykhailenko V.I.,, T.A. Safranov. Improving the methodology for calculating unintentionally formed persistent organic pollutants in the Odessa industrial and urban agglomeration / Regional environmental problems. Intern. conf., Odessa, 2020 (oral presentation)

Mykhailenko VI, Safranov TA, Shanina TP. Calculation of individual carcinogenic risk from unintentionally formed persistent organic pollutants in cement production in the Odessa industrial and urban agglomeration. Safety, protection and protection of the natural environment: basic and applied research: Sat. report All-Russian. scientific conf., Belgorod, October 14-18, 2019 - Belgorod: BSTU Publishing House, 2019. - Part 2. - 370 s. (oral distance presentation)

Mykhailenko VI, Safranov TA, Shanina TP Unintentional formation of persistent organic pollutants in the management of solid waste in the Odessa industrial and urban agglomeration // Abstracts of the III All-Ukrainian Plein Air on Natural Sciences (oral presentation)

Prikhodko VY, Shanina TP, Safranov TA, Mykhailenko VI Ecological component of educational activity in the field of waste management // Abstracts of the XXII International scientific-practical conference "Ecology, environmental protection and sustainable use of nature: education - science - production - 2019". Kharkiv, 2019. (oral presentation)Mykhailenko VI, Safranov TA, Shanina TP Calculation of the ecological tax for receipt in environment of steady organic pollutants at dumping of sewage on an example of Odessa // Abstracts of reports of the international scientific conference "Economic and ecological problems of the present in researches of scientists" (poster presentation)

Mykhailenko VI, Safranov TA, Shanina TP, P'yanova I. Yu. Calculatoin of emission of unintentionally produced Persistent Organic Pollutants from combustion of organic fuel // Abstracts of the conference of young scientists of OSENU (oral presentation)

Mykhailenko VI Assessment of the completeness of the obtained results of emission of pollutants from mobile sources according to the Ukrainian state methodology // Abstracts of the international scientific-practical conference "Prospects for the development of natural sciences in the EU and Ukraine", Wroclaw, Poland, 2018, 132 p. (oral distance presentation)
Mykhailenko V.I., Safranov T.A. Input of unintentionally produced Persistent Organic Pollutants in water bodies with sewage waters of Odessa Industrial-And-Urban Agglomeration. Specialized and multidisciplinary scientific researches: Collection of scientific papers «ΛΌΓΟΣ» with Proceedings of the International Scientific and Practical Conference (Vol.3), December 11, 2020. Amsterdam, The Netherland: European Scientific Platform. https://doi.org/10.36074/11.12.2020.v3.01 (oral distance presentation)

The scientific and practical conference of the All-Ukrainian competition of student's scientific projects, March 28-30, 2018, Poltava (oral presentation)

The final conference of the 2nd round of the All-Ukrainian competition of student's scientific works in the direction "Environmental safety of the complex" car-environment ", specialty" Automobile transport". April 12-13, 2018, Kharkiv (oral presentation)

The international scientific and practical conference "Urban planning and coastal management», October 12-13, 2017, Sergiyivka, (oral presentation)

XIV International scientific and technical conference "Problems of ecological safety", Kremenchug, 2017. (oral presentation)

VI All-Ukrainian Congress of Ecologists with International Participation, September 20-22, 2017, Vinnitsa (oral presentation)

Conference of young scientists OSENU, May 15-16, Odessa, 2017 (oral presentation)

First All-Ukrainian plein-air conference on Natural Sciences. July 20-23, 2017, Odessa (oral presentation)

Performed teaching:
- Name and code of subject/course
- Type of work (practical course, lecture, seminar)
- Titel of lectures
- Number of classes

Urboecology (practical courses for 3rd year students) 32 hours
Waste management and management (practical courses for 4th year students) 32 hours

Articles published:
- Articles in Web of Science and/or Scopus-indexed journal

Vladyslav I. Mykhailenko, Tamerlan A. Safranov (2021). Estimation of Input of Unintentionally Produced Persistent Organic Pollutants into the Air Basin of the Odessa Industrial-and-Urban Agglomeration.

- DOI: https://doi.org/10.12911/22998993/141479

- Articles in international publications

Prykhodko Veronika, Safranov Tamerlan, Shanina Tetyana, Mykhailenko Vladyslav. (2019). Education for Life: The Experience of Odessa State Environmental University

DOI: 10.28925/2226-3012.2019.8.8996

- Articles in national publications

Denga Yu. M., Mykhailenko V. I., Oleynik Y. V., Safranov T. A. (2020). Peculiarities of Pollution by Some Persistent Organic Pollutants of the Marine Environment of the Northwestern Part of the Black Sea

https://doi.org/10.26565/1992-4259-2020-23-01

Mykhailenko V. I., V., Safranov T. A. (2018). An Analysis of the Situation of Persistent Organic Pollutants in Ukraine (by the Example of Odessa)

DOI: 10.26565/1992-4259-2018-18-09

5. V. I. Mykhailenko, T. P. Shanina, T. A. Safranov (2018). Main Sources of Unintentional Production of Persistent Organic Pollutants (The Case of Odesa)

Ukrainian hydrometeorological journal, 2018, Issue 21, pages 110-119
ISSN: 2311-0902 (print), 2616-7271 (online)

Public engagement and outreach

- Publications aimed at a non-academic audience (such as popular science texts, newspaper features etc)
- Public lectures:

ecology courses in two schools:

- Odesa specialized school number 50
- Odesa private school "Mriya"

- Media participation (such as interviews or comments)

2021:

Interview on the Odessa live channel

On the bill prohibiting the sale of plastic bags
About batteries and their disposal
About ecological bags in supermarkets
About the role of green spaces in the city
Life calculator

First city radio:

Earth Day - interview with an environmentalist
Ecology of Odessa - interview with an ecologist

The First City Channel:

About Kuyalnitsky estuary
Program "Bread and circuses" - salvation of the Kuyalnitsky estuary
Program "Bread and circuses" - Odessa International Ecological Festival

- Blogs or social media accounts

Ecoblog in Instagram: https://www.instagram.com/vladyslav_mykhailenko/

- Ecoblog in Facebook: https://www.facebook.com/mykhailenko.fameowner

- Work on advisory panels for social and cultural engagement; events in https://www.facebook.com/UkrEcoYoung/?ref=pages_you_manage
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- Industry or government or non-government organisation:

expert of 10 Industry Expert Council «Natural Science» in National Agency from Higher Education Quality Assurance (Ukraine)
member of the Council of Young Scientists at the Odessa State Regional Administration

Business and community

- Patent in the process of registration
- Membership of public or government advisory or policy group or panels member of the

expert group for the construction of a pyrolysis plant for waste (2021)

Activity plan for the next academic year
Main tasks

INFORMATION ON ACADEMIC YEAR NO. 2

Status of research work:

- Overview of performed tests, collected data, field works, content and preliminary results of data processing

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The work is related to the field of ecology and is aimed at studying the impact of Persistent Organic Pollutants (POPs) on the environment of the Odessa agglomeration.

Title of work: Sources of unintentional formation of POPs and their impact on the environment of the Odessa Industrial-And-Urban Agglomeration

Persistent Organic Pollutants represent a serious global threat to human health and the environment. They have certain properties: resistance to decomposition, bioaccumulation, extraordinary toxicity, even at ultra-low concentrations, the ability to transboundary transport and deposition.

The analysis of the legislative base of Ukraine is carried out. In the course of work, it was established that the main sources of unintentional formation of POPs in Odessa agglomeration are: combustion of organic fuels by stationary and mobile sources; production of building materials; open landfills of solid household waste; smoking of meat and fish products; functioning of crematoria; smoking tobacco products; functioning of the city sewage system, the mass of persistent organic pollutants that is formed from each type of production considered using the most modern European methods is calculated, and their total mass over the territory of Odessa is calculated.

Since different techniques give results in different units of measurement, a transition to one unit of measurement has been carried out. A comparison of the number of molecules 2,3,7,8-TCDD that fall into the atmosphere with the allowable amount, which is per 1 inhabitant of Odessa is made. Also, based on the obtained results, priority sources of unitentional production of persistent organic pollutants have been established, which allows correct and timely adoption of appropriate measures to reduce the formation of these polluting substances.

An estimation of marine pollution in the northwestern part of the Black Sea by some persistent organic pollutants (POPs), in particular polychlorinated biphenyls (PCBs) an hexachlorobenzene (HCB) (in cooperation with the Ukrainian Scientific Center for Marine Ecology).

A mathematical apparatus for calculating the accumulation of POPs in the environment has been proposed, computer and mobile applications have been developed for the automatic calculation of these concentrations. On the basis of these developments, 2 theses were made at the Odessa State Environmental University. Now copyright certificates are being issued.

At the moment, the work is in the process of writing.

PhD student: **Vladyslav Mykhailenko**
PhD supervisor: **Tamerlan A. Safranov**