ECsafe SEAFOOD project news

ECsafeSEAFOOD is a four-year research project that aims to assess and evaluate food safety issues related to contaminants of emerging concern present in seafood as a result of environmental contamination. This joint venture of 17 partner institutions from ten EU countries is led by the Instituto Português do Mar e da Atmosfera (IPMA), and has a budget of more than €5 million, of which almost €4 million is funded by the EC Seventh Framework Programme (FP7).

www.ecsafeseafood.eu

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Project Update

ECsafeSEAFOOD partners meeting in Ghent, Belgium (July 2015)

Seafood is recognised as a high quality, healthy and safe food item, but it can accumulate environmental chemical contaminants with potential to impact on human health. In Europe, various EU laws and national requirements ensure that seafood is tested and monitored for most of these harmful contaminants to guarantee they do not exceed established maximum levels. However, recent advances in analytical capabilities have indicated that many chemicals in the seafood environment could be pollutants that pose a potential environmental and public health risk. Currently, there is a lack of adequate data to determine this risk. The EU-funded project **ECsafeSEAFOOD** aims to assess and evaluate food safety issues related to these contaminants.

Results Achieved to Date

The project has developed sensitive, rapid screening methods for targeted contaminants of emerging concern such as chloramphenicol (an antibiotic used to treat some bacterial infections), azaspiracids (marine algal toxins), tetrodotoxin (a potent neurotoxin) and sulphonamides (used in antibiotics and diuretics). These detection tools are suitable for screening of large numbers of samples and are will be made available to environmental monitoring agencies, research laboratories and analytical laboratories.

ECsafeSEAFOOD has also determined the prevalence of certain marine toxins and contaminants of emerging concern in specific commercial seafood species from different locations around Europe. As this vital information comes to light, it is communicated to local food safety authorities so that they can: a) implement measures to help prevent adverse health effects due to contaminant consumption, and b) confirm/refine the European Maximum Reference Levels (MRLs) in seafood for contaminants or biotoxins that are real hazards and for which no legislation exists or the information is still insufficient.

ECsafeSEAFOOD partners at a coordination workshop in Bilbao, Spain (February 2015)

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ECsafeSEAFOOD partners at a coordination workshop in Bilbao, Spain (February 2015)

ECsafeSEAFOOD has also created an online database which collates all related literature on contaminants of emerging concern in seafood species and relevant project results as they become available.

The project's sixth partner meeting was held recently in Ghent, Belgium, from 23-24 June 2015. The meeting was attended by members of the **ECsafeSEAFOOD** consortium, comprising 17 partner organisations from nine countries.

Impact

ECsafeSEAFOOD will contribute to ensuring availability of safe, high-quality seafood to European consumers through increased information on contaminant exposure and toxicological impacts, as well as development of new detection tools. Furthermore, enhanced consumer confidence will strengthen the competitiveness of producers of seafood products in the EU which will, in turn, have positive economic effects.

Improved knowledge on the presence of priority contaminants in the most consumed seafood in the EU will inform dietary advice for reduced contaminant exposure. Information on contaminant exposure will be disseminated to a broad range of consumer interest groups, food producers and food authorities and will hence contribute to an improved common understanding on seafood safety between different sectors.

Dr António Marques (IPMA)

A Note from the Coordinator: Dr António Marques

We are starting to see some really interesting outputs from all of the hard work the consortium is putting into this project. All partners are deeply involved and active in all ongoing aspects of the project.

In the past year of the project, the advances have been significant, particularly the wider accessibility to the contaminants database which is now available to external entities upon request.

Close links with the Food Safety Authorities at national and European levels have already been established in order to ensure that these important entities are immediately informed about the outputs of the project.

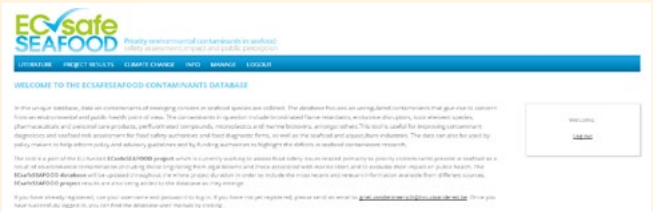
The increasing scientific developments have triggered significant advances in the dissemination of the project, reaching more than 100 activities, including the organisation of a Special Issue of Environmental Research which will increase the visibility of the project.

The major challenge for the partners in the coming months is related to the management of the limited resources available to ensure that the remaining activities are successfully accomplished.

Contaminants Database

In this unique database, data on contaminants of emerging concern in seafood species are collated. The database focuses on unregulated contaminants that give rise to concern from an environmental and public health point of view. The contaminants in question include brominated flame retardants, endocrine disruptors, toxic element species, pharmaceuticals and personal care products, perfluorinated compounds, microplastics and marine biotoxins, amongst others. The tool is useful for improving contaminant diagnostics and seafood risk assessment for food safety authorities and food diagnostic firms, as well as the seafood and aquaculture industries. It can also be used by policy makers to help inform policy and advisory guidelines and by funding authorities to highlight the deficits in seafood contaminant research.

To request access to the **ECsafeSEAFOOD** Contaminants Database, please email **griet.vandermeersch@ilvo.vlaanderen.be** introducing yourself and explaining the reasons for your request. Then visit: **www.ecsafeseafooddbase.eu**.



*Screen grab of the **ECsafeSEAFOOD** Contaminants Database*

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Work Package 3: Risk Assessment/ Modelling of Consumer Exposure and Mitigation Strategies to Reduce Health Risks

Work Package 3 Introduction

Risk assessment is frequently performed with limited information. As well as this, messages about risks and benefits associated with seafood consumption are often over-complicated and communication strategies are often not focused towards a specific audience. This means that the envisaged impact, in terms of food choice and dietary behaviour, is compromised. The development of seafood risk assessment and mitigation strategies (Work Package 3) will address these problems. Risk assessment will be conducted using seafood consumer surveys in several European countries. Mitigation strategies will include a tool for assessing the risks and benefits associated to the consumption of different seafood products, development of guidelines and utilisation of phycoremediation to decrease the risks for human health.

Progress to Date

The selection of contaminants to be screened in the exposure assessment was carried out taking into account the levels found in seafood.

A consumer survey was conducted in order to understand consumer preferences and concerns with regard to seafood safety. The survey collected nearly 3,000 responses from Ireland, Belgium, Italy, Portugal and Spain. Information gathered from the survey and the contaminants database is being combined with data from monitoring priority contaminants in seafood in order to implement realistic risk assessment using probabilistic tools. Mitigation strategies are also being addressed at this stage of the project.

Interview with Dr Wim Verbeke (University of Ghent), Work Package 3 Leader

Dr Wim Verbeke

From what you have learnt so far in Work Package 3, what are the primary perceptions, attitudes and safety concerns of consumers regarding seafood?

European citizens have positive attitudes towards eating seafood. Seafood is still considered as a healthy food product, despite issues related to contamination in the aquatic and marine environments. Nevertheless, people are also concerned about the status of the marine environment. Very few people indicated that they were not worried about marine environmental pollution. The main issues of public concern were heavy metals and plastic residues, which are the issues that have also figured high on the media agenda. Despite these concerns, people generally don't think seafood consumption entails health risks.

Based on the activities conducted in Work Package 3, can you suggest what information should be communicated to the general public in order to reduce public health risks from seafood consumption?

We will first need conclusive results from the exposure assessments that we are currently performing in order to fully respond to this question. The consumer studies performed thus far indicate that the communication of a balanced message, referring to both proven health benefits and eventual health risks of seafood, is preferred. In addition, the results of the information experiment study performed in Portugal and Belgium showed that although communicating a balanced message may result in a higher risk perception, the balanced message did not decrease the intention to eat seafood. Hence, a balanced message may contribute to a more informed decision regarding the consumption of seafood (e.g. with respect to the choice of seafood species or origin). This is certainly helpful for more vulnerable consumer groups or for market segments with specific interests in seafood information. Furthermore, this approach is transparent and may improve the credibility of seafood communications.

Special attention is given to reducing health risks for vulnerable groups. Can you elaborate on the types of people who will need this special attention and explain why?

Pregnant women and children are especially vulnerable

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groups in relation to seafood safety. Children are more vulnerable to environmental contaminants because of their rapid growth, immature chemical detoxification systems and because of the high exposure relative to their height and weight.

What type of mitigation strategies will this Work Package implement in order to achieve safe consumption of seafood?

Communication strategies such as guidelines for relevant stakeholders and an online tool both for professionals and the general public will be used. These communication activities will inform stakeholders about the assessment of health risks related to their activities, about reducing the health risks and about balancing the health risks and benefits.

In addition, mitigation strategies developed within Work Package 3 will include strategies involving industrial processes, such as phycoremediation which involves the use of algae for the removal or biotransformation of pollutants from wastewater. It will also include strategies focusing on seafood processing efforts to reduce exposure to contaminants, for example assessment of the impact that trimming seafood fat has on contaminant levels.

What have your highlights of the project been to date?

The main conclusion of the consumer survey performed in five European countries was that the health benefit perception clearly outweighed health risk perception, and that consumer perceptions differed strongly between countries. The southern European countries, Portugal and Spain, have the highest seafood consumption level, the highest benefit perception and the most positive attitude towards consuming seafood. Still, a high concern about marine environmental problems was measured in all countries with the highest concern seen also in these southern European countries. This means that a certain awareness exists about the possible risks related to marine environmental pollution, the highest awareness observed in countries with a higher involvement with seafood and the marine environment. However, a higher concern about marine environmental pollution was not associated with a higher seafood risk perception nor was it associated with lower seafood consumption.

What will your priorities be for the upcoming months of the project?

The focus for the coming months will be on the exposure and risk assessment of the selected contaminants for overall seafood consumption patterns. This assessment takes into account the concentration level of numerous contaminants in different seafood species as well as the consumption levels of these seafood species. Data on the consumption levels of 32 species in five European countries was collected as part of the consumer survey performed within this Work Package. Furthermore, mitigation strategies are being developed and tested for their impact. One of them is the development of an online tool to inform health professionals, food producers and consumers about balancing the health benefits and the health risks in order to allow for optimisation of seafood choice in favour of public health.

Work Package 4: Development of Fast Screening Methods to Detect Environmental Contaminants in Seafood

*The team from AZTI involved in **ECsafeSEAFOOD** at the AZTI facilities in Bilbao, Spain*

Introduction:

Currently, there is still a lack of accurate, low cost, easy and fast tools for the detection of environmental contaminants, resulting in less information about these contaminants and thus about their relevance. The development of fast screening/detection methods (Work Package 4) for relevant priority environmental contaminants will enable food safety authorities and seafood producers and processors to use new tools to ensure safe seafood for consumers. Additionally, it will also strengthen European technological SMEs for new market opportunities, as the tools will certainly be useful in other food sectors like agriculture and meat.

In this sense, biosensors are highly valuable since they provide enough information for routine testing and screening of samples (Rogers & Mascini, 2006). These new detection methods will be based on the high selectivity and affinity provided by the recognition elements aimed to be produced. The risk assessment procedure requires a large amount of high quality data to perform the analysis

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and characterisation, and to support a final decision about a risk. Biosensors can help to provide these data due to their capability to evaluate a larger number of samples with the same investment and hence achieve a more accurate picture of the reality. In addition, analysis with biosensors requires less aggressive reaction media, therefore diminishing the load of chemicals to the environment.

Work Package 4 Progress to Date

The project's development of fast screening methods for targeted contaminants is almost concluded and sensors are already being developed for detecting contaminants such as chloramphenicol (an antibiotic useful for the treatment of a number of bacterial infections), azaspiracids (a group of marine algal toxins), tetrodotoxin (a potent neurotoxin) and sulphonamides (used in antibiotics and diuretics).

ECsafeSEAFOOD partners touring the AZTI facilities in Bilbao, Spain (February 2015)

Dr Alejandro Barranco

Interview with Work Package 4 Leader Dr Alejandro Barranco

What is the role of AZTI in the ECsafeSEAFOOD project?

AZTI is leading Work Package 4 on development of fast screening methods. In particular our work is focused on the design and fabrication of new receptors such as aptamers (short segments of DNA, RNA, or peptide that bind to a specific molecular target) and molecular imprinted polymers (MIPs), and their application to sensor development. These receptors are key components of sensors, and have a significant influence on their main features; mainly selectivity and sensitivity. The best aptamers and MIPs will be used in different sensor platforms for the development of new tools to make the assessment of the presence of relevant priority environmental contaminants in seafood products easier and faster.

In addition, AZTI is contributing to toxicity studies which use the zebrafish animal model. Zebrafish, especially at the earliest developmental stages, are one of the best studied and most valuable alternative systems to animal experimentations and a well-established model in many fields, such as: medicine, pharmacology, ecotoxicology etc. The evaluation of the adverse effects in this model caused by relevant contaminants is providing new valuable data for the risk characterisation.

What are the implications of developing new screening methods?

Methodologies for chemical monitoring have undergone a great improvement in the last couple of decades. The integration of the recent advances in different technologies (optics, microelectronics, microfabrication, nanotechnology etc.) has led to the development of equipment with high capacity of analysis and sensitivity. As the main features of methodologies are improved (e.g. greater sensitivity and capacity for the identification of new substances), authorities are adding new substances into the legislation and setting new - mostly lower - limits in order to enhance consumer safety. Since the list of target substances in food or environmental monitoring programmes and their residue limits is constantly being modified, analytical methodologies require continuous adaptation.

Current monitoring techniques are usually based on large and expensive equipment that provide sensitive, selective, precise and reliable measurements. Moreover, they are not only capable of measuring the concentration but also of confirming the identity of the substance. However, there

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is an increasing demand for faster, cost-effective and environmentally-friendly analytical methods. In this sense, biosensors and chemical sensors offer good solutions, making them suitable to complement standard analytical methods for environmental and food applications. These new tools usually allow the analysis of a high number of samples at low cost and the identification of potentially non-compliant samples which will further require a confirmatory test. Therefore they are highly valuable and cost-effective instruments for routine testing and screening of samples. This can help the food industries to get a better characterisation and control of the safety of raw materials, ingredients and seafood products.

Have you succeeded in developing any new devices for screening priority environmental contaminants yet? If so, in what way are they innovative?

For the development of new devices we first need to produce adequate receptors. A lot of effort has already gone into accomplishing this objective. Moreover, new screening tools have been developed using existing receptors, in particular antibodies. In this sense, immunoassays have been optimised for the detection of two marine toxins and a family of antibiotics: sulphonamides. These methods open new possibilities for the detection of these environmental contaminants and they can be considered as reliable screening and quantification tools. Furthermore, they allow the analysis of a high number of samples in a short time, with high sensitivity.

By the end of this project, do you imagine that these new devices will be ready to be used in the control and monitoring practices of food producers and relevant authorities?

Yes, this is our objective. This work package has been designed for that purpose. First, new receptors are being developed and secondly, these receptors will be used on different sensor platforms to finally achieve a new device for the detection of environmental contaminants. However, it will be necessary to validate the sensors with real samples and data must be compared with those from reference analytical methods before they can be used in control and monitoring practices. Furthermore, the validation step will test their capabilities to accomplish the requirements established by the legislation and food producers. That will be the final task in this Work Package and it will indicate the real value of the new devices.

What do you perceive are the most challenging aspects both to this project as a whole and to your role within this project?

From my point of view, at this moment the most challenging aspect in **ECsafeSEAFOOD** is to achieve and provide good

quality data for the risk assessment of target environmental contaminants. This data is coming from the work in different work packages, mainly from the monitoring of environmental contaminants and the toxicological impact of chemical contaminants on human health. Another challenge of Work Package 4 will be the development of new and suitable recognition elements.

Now, AZTI has to face different challenging aspects. We are at a crucial stage where new aptamers and MIPs should be developed and characterised. Although a lot of work has been performed in the evaluation of the toxicity of different target compounds, there are still new contaminants that have been recently selected due to the lack of toxicity data. This is the case of some metabolites coming from different degradation pathways of target contaminants. The toxicity evaluation of microplastics will also be a challenge.

What are the next major steps for this work package?

The next major step in this work package is to complete the development and characterisation of antibodies, aptamers and MIPs. In the coming months these receptors should be ready for their use as recognition elements in sensors. For this purpose, the optimisation of adequate immobilisation protocols is required to achieve a simple and repeatable attachment of the recognition elements to the different sensor surfaces under study (membranes, gold chips, electrodes, quartz crystals etc.). Afterwards, the different variables affecting the performance of the new detection systems will be optimised to achieve the best sensitivity. Also, seafood matrix effects will be evaluated on the new developed devices and sample treatment protocols will be established to remove these effects, as well as to concentrate the analytes of interest as much as possible. The final step will be the validation of the new devices.

At the end of the project we hope that we will be able to provide analytical methodologies based on these new devices that will meet the requirements from the control authorities and food processors and will help to guarantee the safety of seafood products.

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ECsafeSEAFOOD TEAM PROFILES

Dr Martí Nadal

Dr Martí Nadal is a research fellow at the Institut d'Investigacions Sanitàries Pere Virgili (IISPV) and Universitat Rovira i Virgili (URV), as well as Director of the Area of Environmental Health and Risk Assessment at the Centre of Environmental, Food and Toxicological Technology (TecnATox), both located at Reus, Catalonia, Spain. He has a BSc in Environmental Science from the Autonomous University of Barcelona (UAB), a PhD degree from URV and a Master's in Environmental Engineering and Management, also from URV. Dr Nadal's high-priority areas of research are control, monitoring and prediction of the effects on human health and the environment of different pollutant sources, application of artificial neural networks (ANNs) and Geographic Information Systems (GIS) in the environmental and risk assessment, and development of tools and multicriteria methods for the integral assessment of risk in environmental decision-making processes. Dr Nadal participates in a number of different activities within **ECsafeSEAFOOD**, including the monitoring of musks and brominated flame retardants in seafood, health risk assessment and development of the online tool for consumers, and additional studies of bioaccessibility and climate change.

Marieke Reuver

Marieke Reuver is the RTD Programme Manager in AquaTT. Marieke has extensive experience in managing EC research projects, dealing specifically with knowledge management and transfer, communication and dissemination, as well as stakeholder engagement. She has been work package leader of activities related to the above for over 10 FP7 projects, and has been/is a member of project steering committees, executive committees and advisory boards in several EC research projects. In **ECsafeSEAFOOD**, Marieke is leader of Work Package 7, dealing with dissemination, knowledge management and exploitation and is a member of the **ECsafeSEAFOOD** Management Team, Governing Board, Communication Committee and the Intellectual Property Committee. She has a background in Animal Science (MSc) with an aquaculture specialisation from Wageningen University (the Netherlands).

Meet the new members of the ECsafeSEAFOOD Consortium!

Dr Maria Rambla-Alegre graduated in Chemical Sciences (specialisation in Analytical Chemistry) from University Jaume I, Castellon, Spain. Afterwards, she also earned her PhD in sciences from this university, working on the determination of antibiotics using micellar liquid chromatography in physiological samples and food. Following her doctorate, she completed a one-year postdoctoral position at Ghent University (Belgium); after which she worked for three years as a research scientist at the Research Institute for Chromatography (RIC, Kortrijk, Belgium). In July 2015 she joined IRTA as a researcher, and will be in charge of the Analytical Chemistry Laboratory, aimed at the determination of marine biotoxins with different analytical techniques, mainly chromatographic, including mass spectrometry detection. Within **ECsafeSEAFOOD** Maria's work focuses on the identification and quantification of emerging marine toxins in food and the environment.

Albert Serra-Compte has a degree in Biology and a Master's in Water Science and Technology from the University of Girona. He is currently a PhD student at the Catalan Institute for Water Research since January 2015. He focuses his research on the analysis of emerging pollutants such as pharmaceutical compounds or endocrine disruptors in biological samples by using chromatographic techniques coupled to mass spectrometry; his research also focuses on the evaluation of ecotoxicological impacts of these compounds to different aquatic organisms using metabolomics approaches. In the frame of **ECsafeSEAFOOD** project he works in the development of analytical methods for the detection of emerging pollutants like antibiotics in different seafood matrices (fish, mussels, clams).

Ricardo Alves is a researcher at the Division of Aquaculture and Seafood Upgrading (DivAV), IPMA (Portugal). He has a MSc in Marine Biology with specialisation in Marine Biotechnology from the University of Algarve, Portugal. Currently, he is finishing his PhD thesis focusing on the role of thyroid hormones

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(THs) in flatfish metamorphosis, including the endocrine disruption of THs axis. He has expertise in molecular biology and biochemistry including the emerging techniques of transcriptomics and proteomics. Within **ECsafeSEAFOOD**, his work is focused on the optimisation of in vitro procedures for bioaccessibility studies in seafood, as well as in the determination of relevant priority environmental contaminants in the monitoring and bioaccessibility studies. Furthermore, he is involved in all the tasks related to the risk assessment and climate change trials.

Eduardo Sampaio is a researcher at the Division of Aquaculture and Seafood Upgrading (DivAV), IPMA (Portugal). In 2012, he obtained an MSc in Marine Resources, with specialisation in Ecology and Marine Biology, from the University of Porto, Portugal. Since then, he has been involved in several experiments using climate change variables (warming and acidification). Furthermore, he has worked with a broad range of organisms and is now interested in future seafood quality and toxicological contents. In **ECsafeSEAFOOD**, his main task is to perform and maintain experiments predicting future scenarios of contamination in seafood. To accurately mimic future conditions, seafood (fish, mollusks, algae, etc.) is contaminated with pollutants naturally found in the environment, while submitted to climate change conditions. After the experiments, he performs physiological analysis and contaminant quantification to assess differences at organism and enzymatic levels.

Rebeca Cruz is a PhD student at the Faculty of Pharmacy, University of Porto. Her work is focused on the assessment of novel persistent toxic substances in seafood and the development of potential mitigation strategies. She has experience in food chemistry and chromatographic analysis. Currently, she has 16 peer-reviewed and indexed scientific publications and several scientific conference participations.

Rebecca carries out analyses of UV-filters and tetrabromo-bisphenol-A and is also involved in the **ECsafeSEAFOOD** project's phycoremediation experiments.

Recent ECsafeSEAFOOD Publications

This section includes details of some of the growing number of scientific publications acknowledging ECsafeSEAFOOD

Risk – benefit perception and consumption of seafood in European consumers.

Main Author(s): Jacobs S, Sioen I, De Henauw S, Tous N, Maulvault A.L, Fait G, Cardona Pons F, Verbeke W.

Title of Periodical or Series: Archives of Public Health

Publication Date: April 2014

Short URL: http://goo.gl/YUbHFa

Alternative methods for the detection of emerging marine toxins: Biosensors, biochemical assays and cell-based assays

Main Author(s): Reverté L, Soliño L, Carnicer O, Diogène J and Campàs M

Title of Periodical or Series: Marine Drugs

Publication Date: December 2014

Short URL: http://goo.gl/2hT2VU

Contribution to the genus Ostreopsis in Reunion Island (Indian Ocean): molecular, morphologic and toxicity characterization

Main Author(s): Carnicer O, Tunin-Ley A, Andree K.B, Turquet J, Diogène J and Fernández-Tejedor M

Title of Peridoical or Series: Cryptogamie, Algologie

Publication Date: February 2015

Short URL: http://goo.gl/v2RMXo

The novel ovatoxin-g and isobaric palytoxin (so far referred to as putative palytoxin) from Ostreopsis cf. ovata (NW Mediterranean Sea): structural insights by LC-high resolution MS(n.).

Main Author(s): García-Altares M, Tartaglione L, Dell'Aversano C, Carnicer O, de la Iglesia P, Forino M, Diogène J and Ciminiello P

Title of Peridoical or Series: Analytical and Bioanalytical Chemistry (ABC)

Publication Date: February 2015

Short URL: http://goo.gl/DJTQjh

Development of an ELISA for the Detection of Azaspiracid.

Main Author(s): Ingunn A. Samdal, Kjersti E. Løvberg, Lyn R. Briggs, Jane Kilcoyne, Jianyan Xu, Craig J. Forsyth, and Christopher O. Miles

Title of Periodical or Series: J. Agric. Food Chem.

Publication Date: August 2015

Short URL: http://goo.gl/nzSE04

For all scientific articles published within the ECsafeSEAFOOD project, see: http://ecsafeseafood.eu/ecsafeseafood-results/scientific-publications

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Seafood Safety Stories

The importance of seafood labelling
A new report released by Oceana, a non-profit organisation dedicated to protecting the world's oceans, endorses a "one name, one fish" policy, which would require species-specific labelling of seafood at all points along the supply chain, from the fishing boat to the dinner table.

Short URL: http://goo.gl/H6mhhf

Conflicted consumers: anxiety and food decisions
Past surveys have shown that people around Europe are worried about what they eat and where it comes from. But what causes this? And does it affect behaviour? An EU-funded project studied consumer choices about shopping, cooking and eating - offering a more accurate picture of what shapes their decisions. The results may lead to better-informed policies on health, sustainability and business.

Short URL: http://goo.gl/bjg2zA

Getting a handle on pharmaceuticals in the environment
Roughly 3000 pharmaceutical products are used in human healthcare. Since a patient's body does not fully metabolise some of them, they are excreted and can end up in the environment, where they can impact aquatic life, and potentially human beings. EU-funded researchers investigated how much concern is warranted about anticancer drugs and antibiotics.

Short URL: http://goo.gl/JzZyvv

EFSA Planning New Dioxins Risk Assessment
A recent EFSA scientific statement reviews the different recommended safe levels of dioxins in food and feed. EFSA recommends and recently accepted a request from the European Commission for a comprehensive risk assessment for animal and human health related to the presence of dioxins and dioxin-like PCBs in food and feed. This will be the first EFSA risk assessment of dioxins in feed.

Short URL: http://goo.gl/l058rG

Dates for your Diary:

EC Conference: "The Ocean of Tomorrow Projects: What results so far for healthy and productive seas and oceans?" Brussels, Belgium, 11 November 2015

In line with past editions, the objective of this 3rd Conference is twofold:

Firstly, to present the main innovative results of projects funded under the Seventh Framework Programme for Research and Technological Development (FP7) "The Ocean of Tomorrow" call 2012 which aimed at supporting the implementation of the MSFD (2008/56/EC) and the achievement of "Good Environment Status" (GES) of EU waters by 2020; and secondly, to discuss research and innovation strategies and actions to reduce pollution on land and sea and to preserve coasts, seas and oceans.

The second ECsafeSEAFOOD Stakeholder Workshop: "Science Supporting Policy for the Safety of European Seafood" 24 November 2015, Brussels, Belgium

The second **ECsafeSEAFOOD** Stakeholder Workshop is aimed at policy and decision makers. It aims to define the actions and steps that should be taken for the implementation of the Marine Strategy Framework Directive (MSFD) – Descriptor 9 (Contaminants in fish and seafood for human consumption) and Descriptor 10 (Marine litter) based on the project findings about non-regulated contaminants.

For more information, see: www.ecsafeseafood.eu/ecsafeseafood-disclaimer/ecsafeseafood-news/1264-workshop-science-supporting-policy-for-the-safety-of-european-seafood

XIV Workshop on Rapid Methods and Automation in Food Microbiology, Cerdanyola del Vallès, Spain, 24-27 November 2015

This workshop is designed for directors and technicians of industries, consultancies and laboratories of food, and other sectors (microbiological, clinical, pharmaceutical, cosmetic, chemical, environmental, etc.); food inspectors and other government staff; university teachers and technical staff, graduate and postgraduate students; people from other research centres; etc.

For more information, see: www.vef.unizg.hr/obavijesti/ref/20150706124035-136-25.pdf

ECsafeSEAFOOD Seminar, 30-31 May 2016, Frøya, Sør-Trøndelag, Norway

This seminar, entitled "Environmental Contaminants of Emerging Concern in Seafood: Are Producers, Processors, and Consumers on the Safe Side?", aims to increase awareness within the aquaculture industry of the impacts of emerging chemical contaminants in seafood safety. The seminar will target industry, students at Master's level, and food safety authorities.

To register, please contact Eliann Egaas (eliann.egaas@vetinst.no)

For more information, see: http://ecsafeseafood.eu/ecsafeseafood-disclaimer/ecsafeseafood-news/1266-ecsafeseafood-seminar

For more, view the ECsafeSEAFOOD calendar of events at: ecsafeseafood.eu/ecsafeseafood-events

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ECsafeSEAFOOD - Spreading the Word

ECsafeSEAFOOD Stakeholder Workshop

The first **ECsafeSEAFOOD** stakeholder workshop was held as part of the seventh International Festival of Good, Clean & Fair Fish, at the Slow Fish 2015 event from 14-17 May 2015 in Genoa, Italy. This event gave **ECsafeSEAFOOD** partners the opportunity to meet with relevant stakeholders in the fields of environment and fisheries, as well as consumers and academics. The consultation was the first step towards determining the optimal strategies for involving producers/processors in the project, and effectively communicating the project outputs in order to reduce public health risks from seafood consumption.

Dr Diana Alvarez-Muñoz

ECsafeSEAFOOD on the Radio

Dr Diana Alvarez-Muñoz (ICRA) was recently interviewed about her research, as part of the **ECsafeSEAFOOD** project, which detected pollutants in various seafood caught in the area of the Ebro Delta (Spain).

The full interview can be heard at the following link (in Spanish only):

www.laxarxa.com/latarda/noticia/farmacs-no-regulats-contaminen-peixos-del-delta-de-l-ebre

Dr Michiel Kotterman

ECsafeSEAFOOD at Science Slam

Dr Michiel Kotterman (Wageningen UR) was recently awarded the second prize at the SETAC conference Barcelona 2015 (Society of Environmental Toxicology and Chemistry) Science Slam with his presentation "Plastic is Fantastic". The Science Slam asks researchers to present a scientific topic in any (non-traditional) way that non-scientists will also understand and appreciate. In his presentation he discussed the topic of plastics in the environment and how seafood contaminants may not be the worst of their fears.

ECsafeSEAFOOD on Television

ECsafeSEAFOOD recently featured on the Euronews television series Futuris. To view the episode online, see:
www.euronews.com/2015/06/15/is-seafood-still-safe-to-eat

Dr António Marques on Euronews

ECsafeSEAFOOD at SlowFish

Dr António Marques presented the **ECsafeSEAFOOD** project at the SlowFish event in Genova, Italy which was held from 14-15 May 2015. This involved two oral communications entitled "Poisoned Fishing, Reality or Myth: Are consumers protected?" and "Seafood safety related with emerging contaminants: EU-funded project" at a consilium discussion panel on Ocean Pollution.

Dr António Marques discussing ECsafeSEAFOOD on the SlowFish Panel in Genova, Italy

ECsafe SEAFOOD project news
Issue 2

Further Results Expected

Further results are expected from the following assessments currently being undertaken by the **ECsafeSEAFOOD** researchers:

- The effects of cooking and processing procedures on different contaminants.
- The effects of global warming on bioaccumulation and elimination of contaminants.
- The toxicological impact of the contaminants and thus their effect on public health.
- Exposure assessment of different contaminants of emerging concern to consumers.
- Assessment of the use of microalgae to remove environmental contaminants (phycoremediation).

Online tool

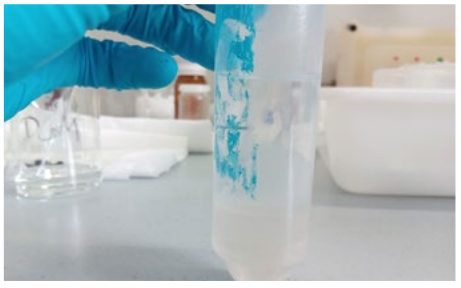
The project partners are developing content for an online tool for stakeholders that will balance the risks and benefits associated with seafood consumption, taking exposure to contaminants into consideration. The project will also produce seafood safety guidelines to help consumers to reduce or eliminate the risk of contaminated seafood. For more information about the **ECsafeSEAFOOD** online tool, contact Dr Lolita Vilavert (**lolita.vilavert@urv.cat**)

*Screen grab of the **ECsafeSEAFOOD** Online Tool (in development)*

ECsafeSEAFOOD Research Gallery

Ana Luísa Maulvault and Ricardo Alves from IPMA carry out experiments as part of the Work Package 6 Climate Change Clam trails. WP6 is assessing the transfer of relevant priority contaminants to seafood, as well as the effects from climate change. The clam trials involve assessing the effect of temperature increase and ocean acidification on transfer of relevant priority contaminants from environment to clams in feeding trials with flow through system and computer control of multiple environmental variables including seawater CO_2 and temperature levels.

Eduardo Sampaio and Vera Barbosa from IPMA



Research investigating the effects of acid on seafood samples at URV.

ECsafe SEAFOOD

Next Issue: Summer 2016

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