

Food Safety and Environmental Stewardship Program

25th Anniversary Report



Oregon State
University

FSES Team 2023



Kim A. Anderson, PhD
FSES Director



Peter Hoffman
FSES Assistant Director



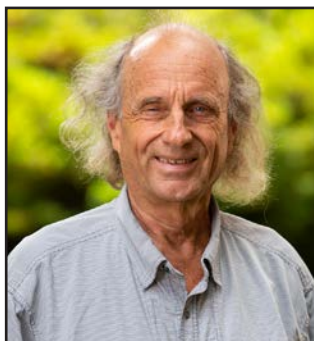
Ricky Scott
FSES Lab Manager



Lane Tidwell, PhD
Research Associate



Mike Barton
Research Assistant



Brian Smith
Statistician



Steven O'Connell, MS PhD
Research Associate



Kaley Adams
Research Assistant



Caoilinn Haggerty
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Alison Clark
Graduate Researcher



Emily Bonner
Graduate Researcher



Ian Moran
Graduate Researcher



Kelly O'Malley
Graduate Researcher



Olivia Zeigler
Undergraduate Researcher



Tyler Doyle
Undergraduate Researcher



Joana Hernandez
Undergraduate Researcher

A Message from the Director

Twenty-five years! It is hard to believe, but we are celebrating our twenty-five-year anniversary of the Food Safety and Environmental Stewardship Program. A lot has changed, but more importantly a lot has stayed the same.

I want to start by thanking the External Advisory Council, who have been with me since the early days. I am especially beholden to the staff and students that decided to take this journey with me. It was wonderful, rewarding beyond words, and we would not have accomplished so much without each other. I'd like to thank the many colleagues in the College of Agricultural Sciences that were always helpful with their insights, sharing ideas and helping to navigate. Every one of you has played a very important role in the development, the success, and the impact of the Food Safety and Environmental Stewardship Program. Your challenges and feedback have pushed me and the program to evolve and improve.

Some might say our endurance is a tribute to our hard work. I would like to think our success can be attributed to our commitment to our core values "Science Serving Society", which reflects our commitment to the science and our commitment to the community. Unique challenges are nothing new to the FSES program, and Covid did present hurdles, but while many programs may have seen a decrease in productivity, the FSES staff hit historical highs. For the first time in program history, the FSES program generated over a million chemical measures. It was only a few years ago when the typical productivity was a few thousand chemical measures and not that many years before that several hundred data points was remarkable. It is with huge gratitude and pride that I acknowledge the staff and students for their determination, resilience, and commitment to the program. When we work together, we accomplish so much.

This milestone provides me with an opportunity to both reflect on the past and to look to the future. As we celebrate, I say "Thank-You" to all that have been a part of this journey. We have established a track record of doing the difficult, and innovating when we needed new approaches. At the heart of these accomplishments is a great deal of hard work, dedication, willingness to take risks, and thinking unconventionally and creatively. Although we may be tempted to indulge in a moment of self-congratulation, I remain mindful that the landscape is ever changing and challenging. As we enter our next phase, I do so with great enthusiasm as I look at what lies ahead. Our FSES culture and passion for science is unwavering. Despite the many changes we will undoubtedly make as we navigate the years ahead, our commitment to 'Science Serving Society' will remain the foundation of the Food Safety and Environmental Stewardship Program. Here's to celebrating the past and embracing the exciting opportunities the future holds!

Sincerely,

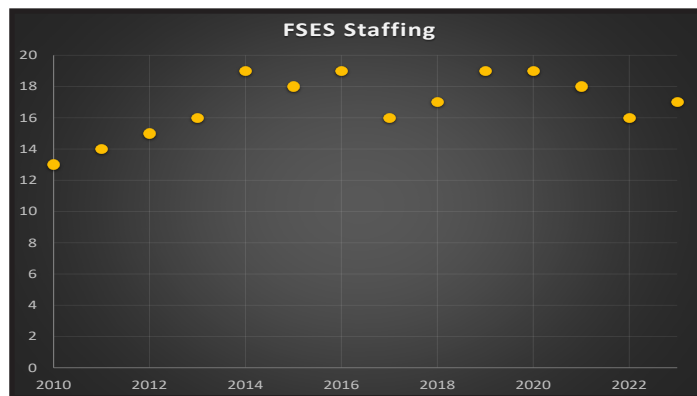
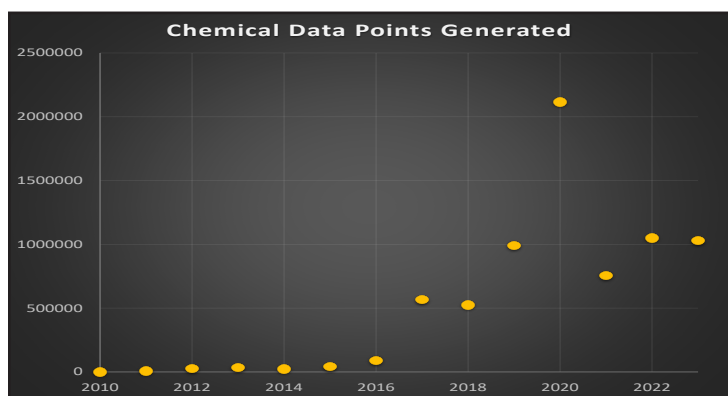
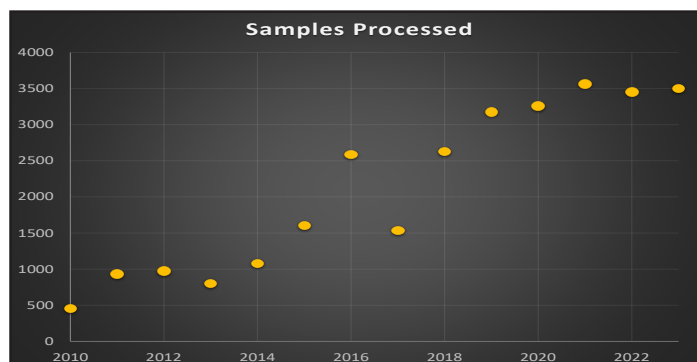


K. A. Anderson, PhD
FSES Director, Professor
Environmental and Molecular Toxicology Dept Head
OSU Alumni Distinguished Professor
Oregon State University

Key Accomplishments for 2023

Lab statistics in the last 12 months

Samples received	2,207
Chemical tests completed	2,093
Quantified chemicals	1,028,754
Quality Control samples	558



Learn more at fses.oregonstate.edu



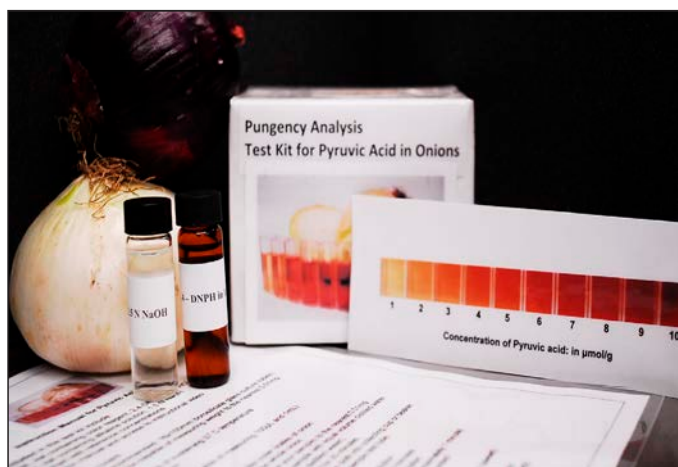
A History of Innovation

MyExposome Inc



- 2014 -First wristband publication.
- 2014 - MyExposome founded.
- Two patents granted:
 - July 2016 and February 2017
- Over \$1.5M across four grants including three SBIR grants through the DoD and an NIH/NIEHS Phase I grant
- More than \$1M in sales and contracts.

Sweet Onion Test Kit



- 2008 External Advisory Council meeting - the testing of pungency in onions discussed
- Research begins into quick field kit method for determining the pyruvic acid content of onions
- Prototypes are developed, presented to growers at allium conferences, further modified and the kit refined into a saleable unit that provides quick determinations for growers and packers.
- In the past two years, over 300 onion tests have been sold in four different countries.

Technology Transfer

- Method development and transfer to the private sector, such as a method for shikimic acid determination.

Eight Patents

- Eight patents granted to Kim Anderson and collaborators since the inception of the program.

Reporting Data Back

- A leader in the development and dissemination of easy to understand data reports intended to empower community participants.

The FSES Program

Who We Are

Our Mission

The Food Safety and Environmental Stewardship Program at Oregon State University is a research program committed to providing the highest quality analytical laboratory research support for:

- Food Safety
- Human Safety and Exposure Assessment
- Environmental Integrity Preservation
- Quality Assurance

Our Vision

To create a Food Safety and Environmental Stewardship Laboratory with a dedication to disseminating knowledge and technical resources in a systems approach to Oregon food and human safety, exposure assessment, environmental stewardship, and quality assurance.

Who We Serve

- Public safety
- Consumers
- At-risk occupations
- Agricultural companies
- Oil and gas companies
- Risk management
- Other scientists
- Sensitive populations
- Regulators / Government
- Advocacy groups
- Environmental justice groups
- Consulting organizations

**Science Serving
Society**



Our Quality Assurance Mission Statement

Quality Assurance is a definitive plan for laboratory operations that specifies the measures used to produce data of known precision and bias. Assurance implies the ability to demonstrate or prove to someone else in a court of law.

Good Laboratory Practice (GLP) is a group of standards set forth by USEPA to ensure high quality data when assessing human and environmental impacts of pesticides proposed for registration.

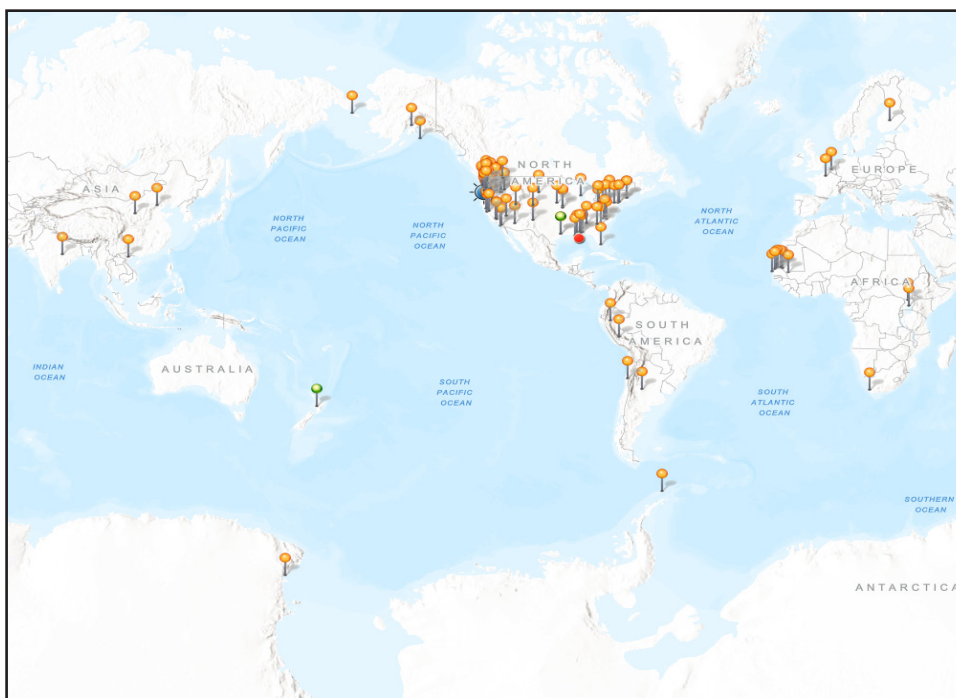
As a land grant university laboratory, however, we wear many hats. The Food Safety and Environmental Stewardship program conducts many original research studies. We have established a laboratory facility capable of GLP and QA studies. GLP provides a level of assurance, but does not guarantee good science. Good scientists do good science. The FSES program's mission is guaranteed quality assured good science.

We have undertaken this considerable task because this work is important to the public we serve. Conducting GLP or QA studies increases the cost, often substantially.

The FSES program involvement in all public studies benefits from maintaining these high quality assurance standards of operation.

Where in the world is FSES?

FSES has deployed samplers in six different continents!



The evolution

1998 the Oregon State Legislature passes the Food Safety and Environmental Stewardship act

1999 Kim Anderson is hired

Three staff
Two students

2000 Portland Harbor work begins
ODA funds bioavailable metals work

2002 \$100,000 SETAC award

2004 Kim Anderson tenured

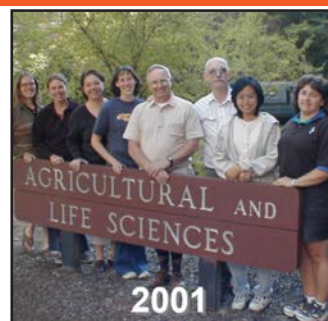
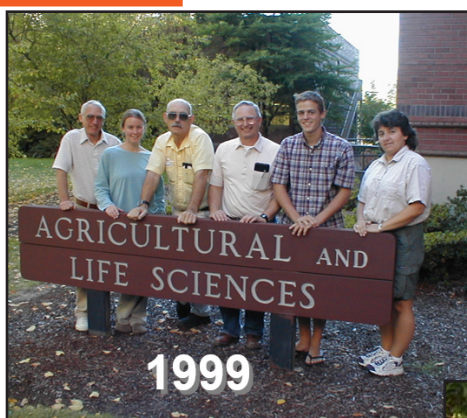
2004 OWEB funded Newberg Pool collaboration begins

2009 Superfund grant funded

2009 Kim Anderson becomes full

2010 Deepwater Horizon

2014 su



Student Mentoring

- 20 PhD Toxicology Degrees
- 3 Toxicology Masters Degrees
- 5 BRR BS Degrees Toxicology
- 9 NIEHS Toxicology Fellowship
- 2 Provost's Distinguished Graduate Fellowship
- 2 Diversity Advancement Pipeline Fellowship
- 2 ARCS Foundation Scholar
- 2 OSU Superfund KC Donnelly Externship Award
- 21 SETAC Student Travel Awards
- 1 US EPA STAR Fellowship
- 2 D.B. DeLoach Research Scholar
- 2 Chambers Environmental Research Scholar
- 1 Science Communication Fellow, OMSI
- 1 ORISE EPA Fellowship
- 2 Fang Scholars



tion of a program



full professor

horizon funded by NIEHS

4 Superfund renewed



Program Accomplishments

138 Refereed papers and reports

61 Trainees and graduate student rotations

24 Graduate advisees

17 Reports for residues in food and agricultural matrices

26 Invited participant in pesticide applicator training, food safety & residue training, and extension workshops that address chemical use and agency stakeholder meetings as requested

36 Published newsletters and communicate activities of the FSES program and web development

23 non-refereed Reports

7 refereed book chapters

Over 275 local, national and international presentations

8 patents granted

MyExposome Inc founded, now in ninth year

2014 Silicone wristbands first published

2016 Kim Anderson named OSU Alumni Association Distinguished Professor

2017 Hurricane Harvey hits Houston - NIEHS funds demonstration of wristbands in two communities

2017 Kim Anderson receives Faculty Innovator Award

2019 Superfund renewed again

2020 Covid 19 pandemic impacts everything

2023

Nine staff

Four graduate students

Four undergraduate students



Field Work



Field work is a critical part of the FSES mission. In 2023 FSES students and staff in cooperation with community volunteers, will spend more than 400 hours in the field. Completed projects will generate than 500 environmental and biological samples.



When completed, these samples will generate more than 30,000 individual chemical analyses.

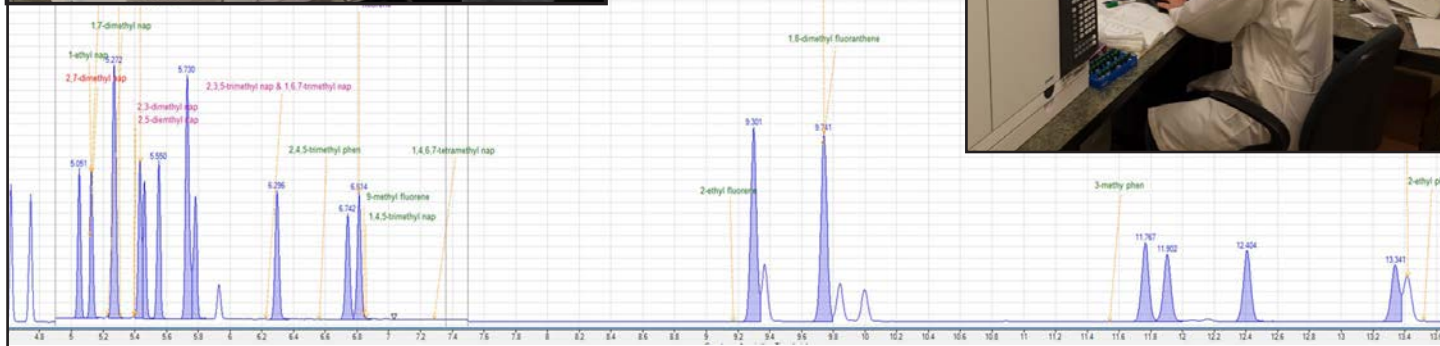


Analysis

An exceptional suite of instruments and in-house established methods allows FSES to provide quantitative data on many different chemicals and provides the instrumental horsepower necessary to develop new methods to address emerging contaminants of concern.

- 2 GC-QQQ gas chromatograph triple quad tandem mass spectrometers (Agilent 7890/7000C GC/MS/MS), with multi-ionization capabilities a robotic sample prep station and a hydrogen generator, for organic analyses such as PAHs and flame retardants.
- 2 GC-MS gas chromatograph with mass spectrometers (Agilent 8890/5977B GC/MS), with multi-ionization capabilities, organic analyses such as PCBs, flame retardants, consumer product chemicals.
- 2 GC-MS Agilent 6890N and 5975C XL MSD trip axis detector, instrument was co-developed with Agilent hydrogen gas operation, organic analyses (e.g. PAHs, OPAHs, pesticides, PBDEs). Both instruments are equipped with retention time locking instrument technology coupled with Deconvolution Reporting Software (DRS™ Agilent Technologies) that combines existing MS libraries with libraries we have created from certified standards, producing a curated MS library with over 1,500 chemicals to date.
- 2 GC-MS equipped with Markes Thermal desorption unit directly plumbed to an Agilent GC-MS 5975B and a GC6890N).
- 4 Thermal desorption micro-chamber units.
- 1 Gel Permeation Chromatograph, particle and biological samples (samples that require extensive cleanup), and dual-purposed for multiple columns setups with directed analysis separation.
- 1 Gas Chromatograph, Agilent 6890 (detectors: ECD, FID, NPD, ELCD) – analysis of PCBs, OC, OP and ON pesticides.
- 1 Mercury Analyzer Env1 LECO AMA 254 – mercury analyses.
- 5 Turbo-Vap 500's and two RapidVap– solvent reduction and/or exchange with solvent recovery for recycling
- 6140 1000W xenon-arc UV source with a quasi-collimated UV beam for weathering samples

The addition of a Gas Chromatograph Ion Ratio Mass Spectrometer as the newest tool will allow FSES to develop forensic signatures to identify sources of contaminants.



Passive Sampling

FSES focuses on developing passive sampling tools to better understand chemical fate and transport in the environment. Two state of the art technologies are

Low Density Polyethylene (LDPE)



- LDPE can be used to measure air, water, soil pore-air or sediment pore-water chemical concentrations.
- Utilization of performance reference compounds allows back-calculation to environmental concentrations for environmental compartments.

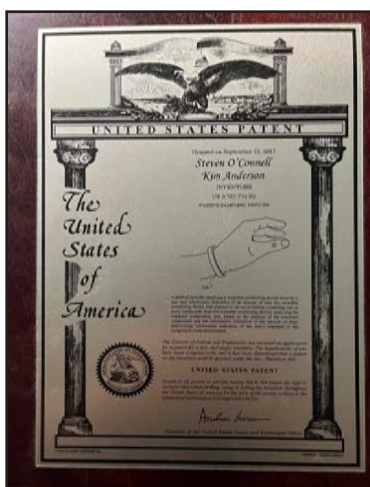


Chemical concentration, fate and movement in environmental compartments.
are routinely used in the program.

Silicone



- Silicone can be made into many different configurations; wristbands, pet tags, dogtags, and lapel clip-ons.
- Samplers successfully deployed on adults and children, cats, dogs, horses, and cows.
- in 2014, Steven O'Connell and Kim Anderson published the use of silicone wristbands to monitor personal exposures
- In 2017 and 2018 patents were granted for use of the silicone wristband as a personal exposure monitor
- Currently FSES has deployed over 5,000 wristbands
- In less than ten years there have been 79 publications using or describing the silicone wristband approach, from over 30 research groups across 17 countries



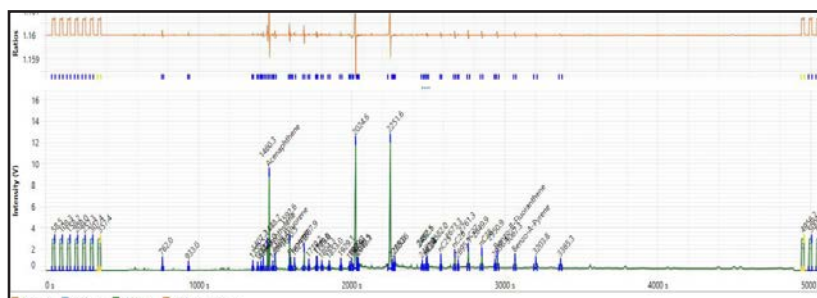
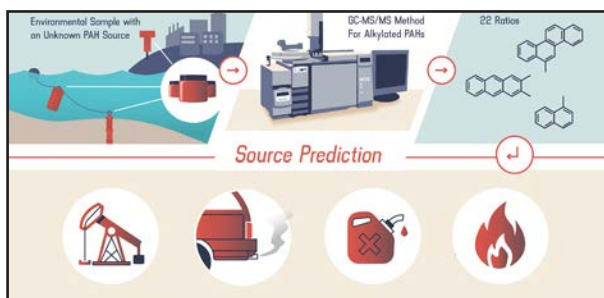
Focus Areas

FSES balances responsiveness to stakeholders with the continued development of an ever-changing environmental and social management system

New Methods

Emerging Analytical challenges

- Improved alkylated-PAH method
- Expanded phthalate and phthalate-replacement method
- Creating a GCIRMS method for determining isotope ratios in individual PAHs to determine PAH sources



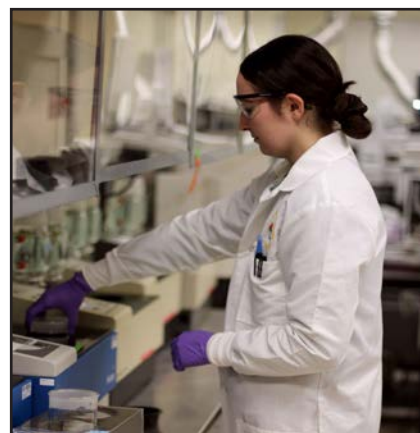
Disaster Response

Wildland Fire Chemicals

- Explaining indoor and outdoor air quality and contamination
- Assessing movement of polycyclic aromatic hydrocarbons (PAHs) and alkylated PAHs before, during, and after Wildfires
- Chasing Smoke: Wildfire smoke composition and impacts on human health

Responding to Train Derailments

Defining exposure impacts of Hurricanes Harvey and Florence



development of new technologies and methods to address the challenges of an evolving scientific and regulatory landscape.

Superfund

Innovating Technology:

- Understanding chemical movement
- Characterizing alkylated-PAHs at Superfund sites to evaluate risk
- Using effects-directed analysis (EDA) to define biological activity
- Developing isotopic ratio determinations to define the sources of contaminants



Chemical Exposures

Defining Exposures

- Using wristbands and other silicone configurations to define personal exposures in adults and children, dogs, cats, horses and cows.
- Using wristbands and dogtags to define occupational exposures in firefighters, roofers and others.



Portland Harbor



- In 2000, FSES begins field work characterizing the extent, movement and source of contaminants in Portland Harbor using passive sampling techniques.

- Biological samples were collected for comparison.

This field work continues in 2023, with 20 years of archival data providing important context

Newberg Pool



- In 2005 FSES participated in a multi-investigator project examining the causes of fish deformities in the Newberg pool of the Willamette river in Oregon.
- The collaborative effort lead to the team solving the causes of the deformities.
- The team received the Oldfield/Jackman Team Award from Oregon State.

Deepwater Horizon



- In 2007 the Deepwater Horizon oil rig blew out in the Gulf of Mexico
- Shore sites were established before oil arrived
- Subsequent eighteen months following progression in air and water across four gulf states, Florida, Alabama, Mississippi and Louisiana.
- The quick response allowed FSES to sample prior to oiling of the beaches, and throughout the disaster event.

Hurricane Harvey



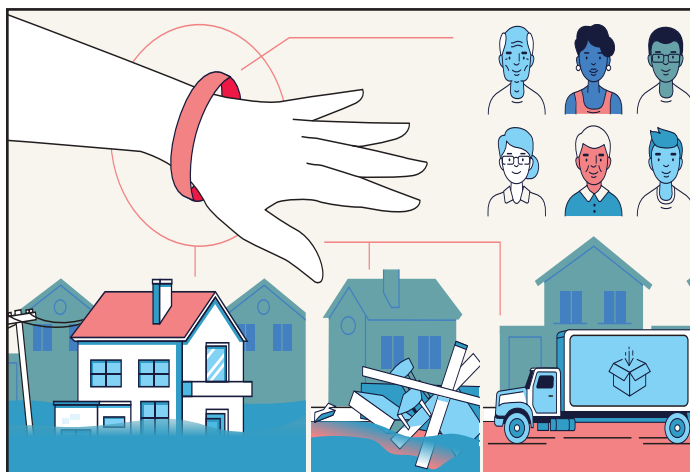
- In 2017 FSES responded to the landfall of Hurricane Harvey by distributing personal samplers to residents within two weeks of the disaster.
- This rapid response was the result of a long-term, proactive effort to have IRBs and resources in place ready to respond.
- FSES also collaborated with multiple local institutions to provide resources and study design guidance for several additional sampling campaigns.

20 Years of Crayfish



- Crayfish were first collected and analyzed in 2003
- Sampling was repeated at the same sites in 2013 and analysis of a third set is underway in 2023
- Chemical concentrations in crayfish over time are compared to environmental concentrations over time to evaluate the impact of Portland Harbor remediation efforts

Top 1% publication 2022



- “Associating Increased Chemical Exposure to Hurricane Harvey in a Longitudinal Panel Using Silicone Wristbands”.
- Samon S, Rohlman D, Tidwell LG, Hoffman PD, Oluyomi AO, Anderson KA Int J Environ Res Public Health. 19(11)
- Selected by the NIEHS as one of 32 “publications of the year” from the 3,300 publications they funded

Recent Publications and News Articles

1. Wilson LB, Moran IL, Anderson KA, Tanguay RL. 2023. Advances in PAH mixture toxicology enabled by zebrafish. *Current Opinion in Toxicology*. 34:100392.
2. Monica L. Vermillion Maier, Siddens LK, Pennington J, Uesugi S, Tilton SC, Vertel EA, Anderson KA, Tidwell LG, Ognibene TJ, Turteltaub K et al.. 2023. Benzo[a]pyrene toxicokinetics in humans following dietary supplementation with 3,3'-diindolylmethane (DIM) or Brussels sprouts.. *Toxicol Appl Pharmacol*. :116377.
3. Samon S, Rohlman D, Tidwell LG, Hoffman PD, Oluyomi AO, Walker C, Bondy M, Anderson KA. 2023. Determinants of exposure to endocrine disruptors following hurricane Harvey.. *Environ Res*. :114867.
4. Moran IL, Tidwell LG, Barton ML, Kile M, Miller P, Rohlman D, Seguinot-Medina S, Ungwiluk B, Waghiyi V, Anderson KA. 2023. Diffusive fluxes of persistent organic pollutants between Arctic atmosphere, surface waters and sediments.. *Sci Total Environ*. :164566
5. Monica L. Vermillion Maier, Siddens LK, Pennington J, Uesugi S, Labut EM, Vertel EA, Anderson KA, Tidwell LG, Tilton SC, Ognibene TJ et al.. 2023. Impact of phenanthrene co-administration on the toxicokinetics of benzo[a]pyrene in humans. UPLC-accelerator mass spectrometry following oral microdosing.. *Chem Biol Interact*. 382:110608.
6. Bonner EM, Horn GP, Smith DL, Kerber S, Fent KW, Tidwell LG, Scott RP, Adams KA, Anderson KA. 2023. Silicone passive sampling used to identify novel dermal chemical exposures of firefighters and assess PPE innovations. *International Journal of Hygiene and Environmental Health*. 248:114095.
7. Samon S, Rohlman D, Tidwell LG, Hoffman PD, Oluyomi AO, Anderson KA. 2022. Associating Increased Chemical Exposure to Hurricane Harvey in a Longitudinal Panel Using Silicone Wristbands.. *Int J Environ Res Public Health*. 19(11)
8. Monica L. Vermillion Maier, Siddens LK, Pennington J, Uesugi S, Anderson KA, Tidwell LG, Tilton SC, Ognibene TJ, Turteltaub K, Smith J et al.. 2022. Benzo[a]pyrene (BaP) metabolites predominant in human plasma following escalating oral micro-dosing with [C]-BaP.. *Environ Int*. 159:107045.
9. Rivera BN, Wilson LB, Kim D Nam, Pande P, Anderson KA, Tanguay RL. 2022. A Comparative Multi-System Approach to Characterizing Bioactivity of Commonly Occurring Chemicals.. *Int J Environ Res Public Health*. 19(7)
10. Dobbins DL, Chen H, Cepeda MJ, Berenson L, Talton JW, Anderson KA, Burdette JH, Quandt SA, Arcury TA, Laurienti PJ. 2022. Comparing impact of pesticide exposure on cognitive abilities of Latinx children from rural farmworker and urban non-farmworker families in North Carolina.. *Neurotoxicology and Teratology*. 92:107106
11. Rohlman D, Samon S, Allan SE, Barton ML, Dixon H, Ghetu CC, Tidwell LG, Hoffman PD, Oluyomi AO, Symanski E et al.. 2022. Designing Equitable, Transparent, Community-engaged Disaster Research. *Citizen Science: Theory and Practice*. 7(1)
12. O'Connell SG, Anderson KA, Epstein MI. 2022. Determining chemical air equivalency using silicone personal monitors.. *J Expo Sci Environ Epidemiol*. 32(2):268-279.
13. Dixon H, Bramer LM, Scott RP, Calero L, Holmes D, Gibson EA, Cavalier HM, Rohlman D, Miller RL, Calafat AM et al.. 2022. Evaluating predictive relationships between wristbands and urine for assessment of personal PAH exposure.. *Environ Int*. 163:107226
14. Evoy R, Kincl LD, Rohlman D, Bramer LM, Dixon H, Hystad P, Bae H, Barton ML, Phillips A, Miller RL et al.. 2022. Impact of acute temperature and air pollution exposures on adult lung function: A panel study of asthmatics.. *PLoS One*. 17(6):e0270412
15. Romano ME, Gallagher L, Doherty BT, Yeum D, Lee S, Takazawa M, Anderson KA, Kannan K, Karagas MR. 2022. Inter-method reliability of silicone exposome wristbands and urinary biomarker assays in a pregnancy cohort.. *Environ Res*. 214(Pt 3):113981.
16. Rivera BN, Ghetu CC, Chang Y, Truong L, Tanguay RL, Anderson KA. 2022. Leveraging Multiple Data Streams for Prioritization of Mixtures for Hazard Characterization.. *Toxics*. 10(11)
17. Samon S, Hammel SC, Stapleton HM, Anderson KA. 2022. Silicone Wristbands as Personal Passive Sampling Devices: Current Knowledge, Recommendations for Use, and Future Directions. *Environment International*. :10733
18. Ghetu CC, Rohlman D, Smith BW, Scott RP, Adams KA, Hoffman PD, Anderson KA. 2022. Wildfire Impact on Indoor and Outdoor PAH Air Quality.. *Environ Sci Technol*.

FSES In the News

- August, 2023 - Silicone wristbands track hundreds of unique chemical exposures (Environmental Factor)
- January, 2023 - Oregon faces sustained and novel risks and opportunities as climate changes, new assessment shows (OSU Today)
- August, 2022 - Silicone Wristbands Help Researchers Measure Chemical Exposures After Hurricane Harvey (NIEHS)
- July, 2022 - Chemical exposure for Houston residents increased directly after Hurricane Harvey, study shows (Houston Public Media)
- July, 2022 - Houston residents' chemical exposure increased post-Hurricane Harvey, OSU study finds (OSU Today)
- May, 2021 - Evaluating Fireground Exposures: Why the Sample Matters (Fire Engineering)
- October, 2020 - Wildfire Smoke Can Spread Toxics to Water, Soil, and Elsewhere (Bloomberg Law)

External Advisory Council

Bob Komoto	20 years
Dixon Landers	14 years
Loys Hawkins	13 years
Larry Curtis	12 years
Joe DeFrancesco	10 years
Craig Marcus	9 years
Gene Foster	8 years
Jeff Jenkins	8 years
Brian Nakamura	6 years
Dave Stone	5 years
Ron Burr	5 years
Colin Eagles-Smith	4 years
Dan Arp	4 years
George Ing	4 years
Janet Fults	4 years
Joe Beckman	4 years
Jon Bansen	4 years
Peter Shearer	4 years
Angie Perez	3 years
Ron Mobley	3 years
Bill Stubblefield	2 years
Diana Rohlman	2 years
Joe Tanous	2 years
Nancy Frketich	2 years
Paul Jepson	2 years
Rose Kachadoorian	2 years
Scott Bruslind	2 years
Sonny Ramaswamy	2 years
Steve Petrie	2 years
Katie Murray	2 years
Adama Ndiaye	
Alison Hensey	
Bill Boggess	
Bill Cobb	
Carol Mallory-Smith	
Greg O'Neill	
Jen Coleman	
Laurel Kincl	
Nancy Kerkvliet	
Nedey Sokhna	
Sanjai Tripathi	
William Boggess	

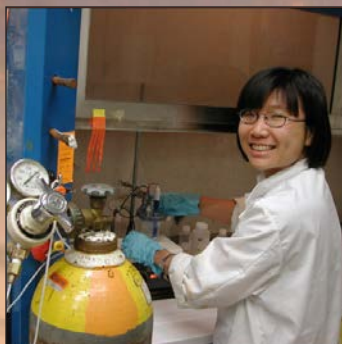
Support

State of Oregon Taxpayers

and
NIH - National Institute of Health
NIEHS National Institute of Environmental Health Sciences
US EPA - US Environmental Protection Agency
DoD - Department of Defense
DHS - FEMA Department of Homeland Security - Federal
Emergency Management Agency
NOAA - National Oceanic and Atmospheric Administration
Port of St. Helens
Pacific Union Railroad
Columbia Trust Foundation
California Breast Foundation
National Cancer Institute
Environmental Health Science Center - Oregon State Univ
United Nations - Food and Agricultural Organization
USDA - United States Department of Agriculture
ODA - Oregon Department of Agriculture
REACH Consortium
International Manganese Institute
College of Health and Human Science - Oregon State Univ
Marine and Freshwater Biomedical Sciences Center
Agricultural Research Foundation
Hood River Grower Shipper Association
ODEQ - Oregon Department of Environmental Quality
California Pistachio Commission
Autumn Seed Company
OSU Research Equipment Fund
Oregon Minor Crops Advisory Board
Society for Environmental Toxicology and Chemistry
Oregon Health Sciences University
Oregonian Newspaper
Kennecott Utah Copper, Corp
PITTCON
Small Business Innovation Research (SBIR)



Where are they now



Draphin Krissanakriangkrai
PhD 2004
Nurse
Spokane, WA



Lucas Quarles
MS 2009
GC Group LEader
OMIC USA, Inc



Wendy Hillwalker
PhD 2004
Principal Toxicologist
SC Johnson



Julie Layshock
PhD 2010
AssociateProfessor
Pacific University



Doolalai Sethajintanin
MS 2003, PhD 2005
Ministry of Public Health
Bangkok, Thailand



Sarah Allen - PhD 2011
Resource Coordinator
NOAA A&RD
Anchorage, Alaska



Angela Perez
PhD 2008
Senior Toxicologist
CTEH



Norman Forsberg
PhD 2013
Toxicologist
Arcadis



Greg Sower
PhD 2009
Consultant
Ramboll Environ US



Steven O'Connell
PhD 2014
Senior Scientist
MyExposome, Inc

How? FSES alumni.



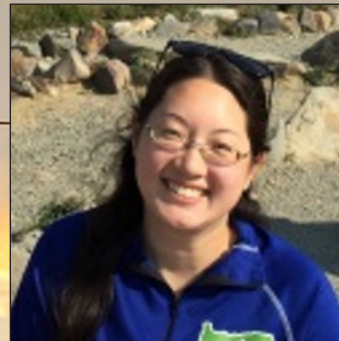
Lane Tidwell
PhD 2016
Faculty Research Assoc
FSES - Oregon State



Holly Dixon
PhD 2019
Toxicologist
Oregon Health Authority



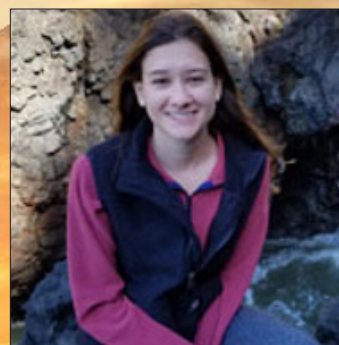
Blair Paulik
PhD 2016
Toxicologist
Oregon DEQ



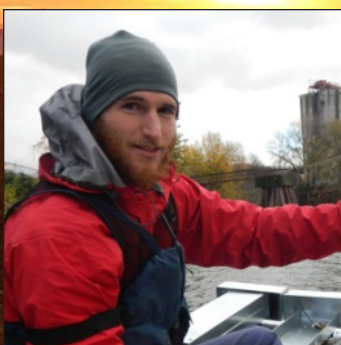
Carolyn Poutasse
PhD 2020
Air Pollution Specialist
California Air Res Bd



Carey Donald
PhD 2017
Assistant Professor
IMR - Bergen, Norway



Christine Ghetu
PhD 2022
Tribal Water Coordinator
EPA Region 10



Alan Bergman
PhD 2017
Postdoc Ecotox Center
Zurich, Switzerland



Brianna Rivera
PhD 2022
Scientist III Toxstrategies
Asheville, NC



Jamie Minick
PhD 2018
Toxicologist
Hewlett-Packard



Sam Samon
PhD 2022
PostDoc
Duke University

2023 External Advisory Committee



Robert Komoto, PhD

Retired

Bob was a manager for over 30 years of Ontario Produce Co, an onion packing, shipping and marketing company in Ontario Oregon. He had a previous career working for Chevron Research as a research chemist for 7 years. Bob, an award winning Oregon State alum, is the longest serving member of the EAC, holding a position since 2001, and remains a hallmark for FSES efforts to impact agricultural production, especially in Eastern Oregon.



Loys Hawkins

Western Cascades Territory Manager for Marrone Bio Innovations

Loys joined the EAC in 2007 and provides a demonstrated history of working in the biotechnology and agricultural industries. She is skilled in mating disruption implementation, field trials, integrated pest management, and precision agriculture.



Jon Bansen

Organic dairyman, Monmouth Oregon

Jon is a fourth-generation dairyman and he and his wife Juli are owner/operators of Double J Jerseys, a 200 cow organic dairy farm located in the foothills of the Oregon Coast range. Jon serves on the FAFO committee for Organic Valley, a farmer cooperative focused on sustainable, organic production and is often an invited guest lecturer on improved grazing techniques.



Angela Perez, PhD

Senior Toxicologist CTEH

Angie, an alumni of the FSES program, is a Senior Toxicologist with over 8 years of consulting experience in applied toxicology, exposure assessment, and human health risk assessment and an extensive background in both field work and applied toxicology.



Katie Murray

Executive Director of Oregonians for Food and Shelter

Katie came to OFS after 14 years at Oregon State University working in Agricultural Extension. Over her career, Katie has worked with producers, state natural resource agencies, and legislators to bring more focus to the realities and needs on the ground and to increase stakeholder participation in regulatory decision-making. Katie is interested in discovering collaborative paths forward that strike a practical balance between production and protection goals.

2023 Guest Participants



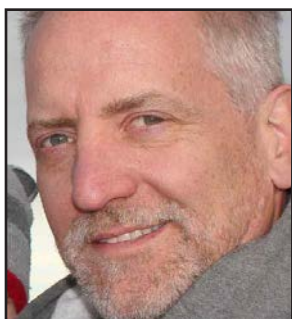
Jennifer Durringer, PhD

Jennifer M. Durringer holds the positions of Assistant Professor (Senior Research) and Director of the Endophyte Service Laboratory at Oregon State University (Corvallis, OR, USA) in the Department of Environmental & Molecular Toxicology, College of Agricultural Sciences. Her research program focuses on food safety and examines the biochemical effects, mechanisms of toxicity and ultimate biotransformation of plant and fungal compounds in humans and animals; investigates the potential of naturally produced fungal contaminants in plant hosts to act as pest deterrents; and delineates the molecular and chemical characterization of ecotypes of pathogenic fungi for improving disease management and safety in crops.



Jason Sandahl, PhD

Jason Sandahl spent 17 years with the USDA Foreign Agriculture Service leading international capacity building projects related to pesticide regulations and standards. Jason continues to coordinate international research on pesticide residues through the Minor Use Foundation and Ag Aligned Global. Jason is also a cherry, pear and apple farmer in Hood River.



Alan Thornhill, PhD

Director, Western Ecology Division, US EPA

Alan D. Thornhill is an ecologist and evolutionary biologist with over two decades of experience in academic research and teaching and in developing and coordinating both Federal and non-governmental environmental science programs.



Holly Dixon, PhD

Holly is an FSES alumni who graduated from OSU in 2019. Currently, she is a toxicologist for Oregon Health Authority where she evaluates human health risks from exposure to environmental chemicals and communicates those results to other organizations and community members. She also continues to engage in personal chemical exposure research with FSES.



Larry Curtis PhD

Larry Curtis's research focused on bioaccumulation of and responses to long-term exposures to low concentrations of persistent organic pollutants, especially organochlorine insecticides. He taught in the areas of physiology and ecotoxicology. From 1999-2007 he served as EMT department head and as an associate dean from 2007-2016.



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