



PNW-SETAC Newsletter

<http://www.pnw-setac.org/index.html>

P.O. Box 5331, Bellingham, WA 98227-5331

Fall 2012

Pacific Northwest Chapter - Society of Environmental Toxicology and Chemistry

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President's Address



Vicki conducting intertidal beach surveys to examine biodiversity of marine life in Howe Sound, British Columbia (August, 2012)

Greetings PNW-SETAC members!

It has been an honor serving as the president of PNW-SETAC, and the time has come for my final address as president.

It has been another interesting and educational year with PNW-SETAC for me, including a very successful annual meeting held this past April in my home town, Vancouver, BC. My experience has been positive thanks to the patience, commitment and hard work of all of the very talented PNW-SETAC Board of Directors and Officers that have served this past year.

I strongly encourage you to consider joining our Board and capitalizing on the opportunity to participate and shape future PNW-SETAC meetings, as well as continue its mission of bringing together professionals and students that are exceptionally dedicated to contributing to the field of environmental toxicology and chemistry.

Current openings include Vice-President and Secretary, so please contact me or any of the other Officer and Board members if

you are interested in these great networking opportunities.

The 21st Annual PNW-SETAC in April of 2012 was a great success with respect to attendance and presenters, and this was a result of the collective efforts of a very hard working group of Officers and Board of Directors' that made this an exceptional year for our Chapter. We had an outstanding turn-out of 143 attendees!

A special thanks to **Frank Gobas** (Simon Fraser University) and **George Ivey** (Ivey International Inc.) for delivering fascinating short courses. The special session on Wildlife Ecotoxicology chaired by **John Elliot** and **Christine Bishop** (Environment Canada) provided a snapshot of the diverse array of ecotoxicology issues in the beautiful Pacific Northwest; from urban owls to killer whales. So thank you to the chairs and presenters for this captivating session.

PNW-SETAC is also fortunate to have several corporate sponsors that are crucial to the success of our annual meetings. Corporate sponsors support our student members with travel funds and awards so they have the means to attend our meetings, as well as give generously to help fund our annual meeting from program printing to refreshments and food.

Thank you to each of the following 2012 PNW-SETAC corporate sponsors!:

- Anchor QEA, LLC
- Azimuth Consulting Group
- B.C. Ministry of Environment
- Germano & Associates
- Nautilus Environmental
- Maul Foster & Alongi, Inc.
- CH2M Hill
- ALS Environmental/ALS-Columbia
- Maxxam Analytics
- Exponent

Thank you also to all of the presenters and attendees who made our 21st Annual PNW-SETAC meeting in Vancouver an engaging and enlightening experience!

This past year as president of PNW-SETAC has been very rewarding and enjoyable, and I am pleased to pass this position onto my successor and the exceedingly proficient **Heather Henson-Ramsey** of Lewis-Clark State College, Lewiston, Idaho who is currently serving as your vice president.

I would also like to welcome some new Board of Directors **Lindsay Du Gas** as the At-Large (Student) from Simon Fraser University and At-Large (Industry) **Jerome Laroulandie** from Maxxam Analytics in Burnaby, B.C.

We thank **Lesley Shelley** for her contributions as the outgoing At-Large (Student) this past year, **Kara Warner** for her many years of services in the At-Large (Industry) position and **Fran Solomon** for serving as past president in her third and final year as an officer with PNW-SETAC.

We are currently finalizing the last details of the 2013 PNW-SETAC Regional Conference (our 22nd Annual Meeting!) that will be held April 18-20 at the Northern Quest Resort and Casino, Spokane, Washington.

2013 Annual Meeting
Northern Quest Resort
April 18th - 20th

Online registration will begin Friday February 1st and can be accessed through our website (www.pnw-setac.org). Also, don't forget to renew your 2013 Chapter membership on our website at www.pnw-setac.org/member_services.htm to take advantage of the cheaper registration rates!

Early bird registration ends Friday March 15th Regular online registrations will be accepted until **April 12th**, and on-site registration will also be available at the conference.

Hotel reservations at Northern Quest Resort and Spa are currently being accepted online at

<http://booking.ihotelier.com/istay/istay.jsp?groupID=941424&hotelID=77064>.

Reservations by telephone can be made by calling the toll-free number at **1-877-871-6772**. You **MUST** give the group name "**SETAC Annual PNW Regional Conference**" to receive the reduced rate! The last day to make reservations is **Thursday March 28th**.

In closing, it has been an honor to have participated in the PNW-SETAC Chapter and to observe firsthand the commitment and expertise its members, Officers and the Board of Directors that contribute to this successful scientific organization.

It has been particularly inspiring to see the passion and cutting edge science present in the Pacific Northwest community that's contributing to understanding and solving environmental problems.

I look forward furthering this mission with all of you for many years to come, and hope to see you at the 2013 Annual PNW-SETAC Meeting in Spokane, WA next April!

Dr. Vicki Marlatt
PNW-SETAC President
University of the Fraser Valley

2012 Chapter Meeting Highlights

Presentations and Photos are Online!

For those of you who missed the meeting, or even those of you who did attend and want to double check a presentation or confirm who you were socializing with at the poster social, we do have platform presentations, as well as photos available online pnw-setac.org/conferences.htm.

Alternatively, you can access them directly by clicking on the following link: <https://www.onlinefilefolder.com/3frCBYVkdIqAuU>, for presentations and <https://www.onlinefilefolder.com/3ft91sZaDzfoUA> for meeting photographs.

2012 Student Winners

Please join us in congratulating the following students on receiving the Chapter's Best Student Presentation

Awards at our 2012 Annual Meeting:

Platform Presentations

1st Place Best Ph.D. Presentation: **Margaret Eng**, Simon Fraser University, for her presentation: "*Early Exposure to 2,2',4,4',5-Pentabromodiphenyl Ether (BDE-99) Affects Neuroanatomy and Behavior of Zebra Finches*"

1st Place Best M.Sc. Presentation: **Jean-Pierre Desforges**, University of Victoria, for his presentation: "*Transfer of PCBs and PBDEs from Mother to Fetus in Beluga Whales (Delphinapterus leucas) from the Western Canadian Arctic*"

2nd Place Best M.Sc. Presentation **Cait Nelson**, University of British Columbia, for her presentation: "*An Assessment of Exposure and Effects of Persistent Contaminants in River Otters (Lontra canadensis) in Victoria Harbor, British Columbia*"

3rd Place Best M.Sc. Presentation **Brittany Wilmot**, Simon Fraser University, for her presentation: "*An In Situ Study of Current Use Pesticides on the Growth, Development and Gene Expression of Rana luteiventris in the Okanagan Valley, British Columbia*"



Some of the many Student Award Winners!

Poster Presentations

1st Place Best M.Sc. Presentation **Aimeé Brisebois**, Simon Fraser University, for her presentation: "*Exploring the Relationship Between the BCF, BAF and the TMF*"

2nd Place Best M.Sc. Presentation **Leslie Saunders**, Simon Fraser University, for her presentation: "*The Effect of Pre-Exposure on In Vitro Biotransformation Rates of Hydrophobic Chemicals in Rainbow Trout (Onchorhynchus mykiss)*"

1st Place Best B.S. Presentation **Jen Stiles, Geoff Lowery, Charles Hixon**, Western Washington University, for their

presentation: “*The Effect of Atrazine and Roundup® on Daphnia magna*”

2nd Place Best B.S. Presentation **Andrew Schroeder**, University of the Fraser Valley, for his presentation: “*Thyroid Gland Histopathology of a Native North American Species, Pseudacris regilla, in the Amphibian Metamorphosis Assay*”

Tied 3rd Place Best B.S. Presentation **Jacqueline Ford** and **Therese Crowell**, Western Washington University, for their presentation: “*Influence of Temperature on Heavy Metal Toxicity to Lemna turionifera*” and

3rd Place Best B.S. Presentation **Donald Lao**, Lewis Clark State College, for his presentation: “*The Acute Toxicity of Antihistamines to Snails, Lymnaea stagnalis*”

2013 PNW-SETAC!!

April 18-20, 2013

Northern Quest Resort & Casino
Spokane, WA

www.northernquest.com/hotel



<http://www.northernquest.com/casino/casino-photo-gallery>

Please mark your calendars for the upcoming 22nd Annual PNW-SETAC meeting April 18-20th at the Northern Quest Resort & Casino in Airway Heights, WA located approximately 9 miles (14.5 km) west of Spokane and 5 miles (8 km) from the airport.

The focus of this year’s meeting will be on the impacts of ore mining in the Pacific Northwest region, as well as on various remediation efforts to mitigate those impacts. An all day tour of the Silver Valley will take place on Thursday the 18th with a special session on the Bunker Hill Superfund Site offered during the meeting.

The Northern Quest Resort & Casino is the Inland Northwest's only AAA rated 4

Diamond Casino Resort. The hotel offers many amenities, including numerous hands-on opportunities to test the laws of probability, and on a personal level evaluate your level of acceptable risk.

For your relaxation, a block of rooms has been reserved at a slightly higher rate of \$119 plus tax per night.

The perks of staying there, however more than make up for the higher rate. Included in the cost is free parking and free shuttle service to and from the Spokane International Airport, free internet, and no sales tax on rooms, food, and beverage. Check in is at 4:00 pm and checkout is prior to 11:00 am.

Online reservation are currently being accepted and can be made at <http://booking.ihotelier.com/istay/istay.jsp?groupID=941424&hotelID=77064>.

Telephone reservations can be made by calling the Resort’s Reservation Department at **1-877-871-6772**. You **MUST** use our group code: “**SETAC, Annual PNW Regional Conference**” to receive the special negotiated rate.

All reservations must be accompanied by first night’s deposit with cash, check, or credit card. **Last day to reserve a room at the special rate is March 28, 2013!**

Dates to Remember:

Now:	Room Reservations Open
Feb. 1 st	Online Mtg Registration Opens
Feb. 15 th	Abstracts Due
Feb. 15 th	Student Travel Appl. Due
Feb. 28 th	Travel Funds Awarded
Mar. 15 th	Early Mtg Registration Closes
Mar. 28 th	Room Reservations Close
Apr. 12 th	Meeting Registration Closes

More information will be forthcoming in late January.

1st Call for Abstracts!

You are cordially invited to submit an abstract of your research you would like to present at the upcoming 22nd Annual Meeting of the Pacific Northwest Chapter of the Society of Environmental Toxicology & Chemistry (PNW-SETAC). We welcome submissions for both platform and poster presentations.

Abstracts must be submitted to April.Markiewicz@wwu.edu no later than **Friday February 15th**. Please follow the Abstract Submission Guidelines found on our website in the First Call for Abstracts and indicate your preference for giving a platform or poster presentation.

If you are a student, please indicate your degree program and whether you would like to have your presentation judged for the Best Student Presentation Award.

ORAL PRESENTATIONS

Oral presentations are limited to 15 minutes, with an additional 5 minutes for discussion or questions. PowerPoint slide presentations are required. Lettering should be large enough to be read at a distance of 100’, e.g., 72 pt for titles, 42 pt for presenter affiliation, and 24 pt or greater for text.

POSTER PRESENTATIONS

Posters should be able to fit on a 4’ x 6’ (1.2m x 1.8m) board using Velcro or tacks. Supplies will be provided onsite. Lettering on posters should be readable at a distance of 6’ i.e., the same as for platform presentations with 72 pt for titles, 42 pt for presenter affiliation, and 24 pt or greater for text.

If you have any questions, please contact April at [April at April.Markiewicz@wwu.edu](mailto:April.Markiewicz@wwu.edu).

Mining Sites Tour

Thursday April 18th, 8:00 am – 5:00 pm
Approx. Cost: \$55 - \$75 per person.



Source: <http://wallace-id.com/mining.html>

Please consider taking this all day tour of mining sites in the “Silver Valley” of Idaho. The bus will leave Spokane at 8:00 am and travel to Wallace, ID. The tour will include visits to the Bunker Hill Mining and Metallurgical Superfund site, one of the largest in the country, and the

Coeur d'Alene Basin Superfund site.

The focus of the tour will be on the historical, toxicological, and remediation aspects of mining, with stops along the way at both historical and new mining sites, as well as sites undergoing remediation.

Ed Moreen, USEPA, will speak on the history of mining in the region and related toxicological issues. **Terry Harwood**, Basin Environmental Improvement Project Commission, will also join us and discuss some of the current remediation projects including repository techniques, road remediation, and treatment of water from the central impounding areas.

The bus trip back to Spokane will be reserved for group discussions. Dependent on the number of attendees, **cost will range between \$55-75/person with lunch not included**, however there will be a stop for lunch in Wallace, ID for those who wish to purchase one, if you do not bring one with you.

More information will be forthcoming when the Meeting Registration packet comes out in late February or early March. Due to the early departure time from Spokane, attendees should **plan on arriving Wednesday night** so please plan accordingly.

Online Registration!

Early bird registration starts Friday February 1st so be sure to take advantage of the cheaper rates.

Early bird registration ends at the close of business hours on **Friday March 15th**, however regular registration will be open until **Friday April 12th**. Onsite registration will also be available.

More information about registering, short courses, the special session, hotel accommodations, preliminary schedule, etc. will be available early next year on our PNW-SETAC website at www.pnw-setac.org/conferences.htm. So please keep checking back!

Judges Needed

Please consider being a judge of student platform and poster presentations at our upcoming meeting in April 2013. Judging these presentations is a terrific way to provide good critical, but constructive feedback to these students as they prepare to join the greater scientific community.

Judges are needed from all aspects of PNW-SETAC membership: academia, industry, government, and students to provide a comprehensive evaluation of the student's research, and presentation skills!

If you are interested in judging, please contact me at Ruth.Sofield@wwu.edu or check the volunteer box on the online registration form when you register. I will contact you before the meeting with instructions.

Thanks in advance for your help!

Ruth Sofield

At-Large (Academia)

Western Washington University

Student At-Large



Lindsay DuGas, Simon Fraser University

Hello PNW-SETAC members!

As a graduate student at Simon Fraser University (SFU) in Burnaby, B.C., Canada I am pleased to join the PNW-SETAC Board as the At-Large (Student) Representative.

I started the Master of Environmental Toxicology (MET) program at SFU in January of 2011. Previously, I completed a BSc with a major in General Biology, also at SFU.

Post-graduation, I had the opportunity to work at the Vancouver Aquarium as an

Interpreter, followed by a role at an independent school in Vancouver, helping with marketing and fundraising initiatives. Wanting to get back into the wonderful world of science, I came back to SFU, gained some experience in a toxicology lab, and decided the MET program would be a good fit for me.

As a member of Dr. **Chris Kennedy's** lab, my research is focused on assessing the effects of current-use pesticides on sockeye salmon embryonic development and alevin emergence.

Having been born and raised in the Metro Vancouver area, I feel very fortunate to be able to work with such a regionally important species and look into some of the potential effects of pesticide contamination in B.C. streams and rivers. I've also had the opportunity, through the MET program, to take advantage of two co-op semesters.

The first of these I spent at Environment Canada, working with the Ecological Assessment Division where I compiled exposure and toxicity data to assist in the production of Screening Assessment Reports for substances currently in use in Canada.

This past summer, I worked at Stantec Consulting Ltd in Burnaby, B.C. as an Environmental Scientist and, among other things, was fortunate to be able to travel into stunningly beautiful remote areas of B.C. for field work.

As a relatively new Chapter member, my first PNW-SETAC experience was at the conference in Vancouver this past April. The opportunity to obtain advice and guidance from other students and professionals in the field of environmental toxicology and chemistry was inspirational and increased my awareness of this unique group

In talking to **Lesley Shelley**, also at Simon Fraser University and at the time the current Student representative, I learned of the upcoming opening and I knew I wanted to contribute to this regional chapter of SETAC as its next student representative.

In attending last year's meeting I was blown away by the number of students in attendance and hope we can further

increase student participation at next year's conference in Spokane!

I plan to present my research there, and encourage other students, at both the undergraduate and graduate level, to do the same!

Whether it be through a poster or platform, presenting to this group of supportive professionals allows you to hone your presentation skills and gain constructive feedback. Plus, there are great prizes to be won!

From a student perspective, I found one of the most rewarding aspects of conference attendance to be networking with individuals in government, industry and at other academic institutions, sharing advice and ideas, and gaining insight into opportunities that await post-graduation.

These relationships will become invaluable as we move out of school and into careers. Take advantage of the networking opportunities provided by attending the special session/short courses and Thursday night Welcome reception, as well as mingling during coffee breaks and poster socials!

PNW-SETAC understands how important student participation is at these meetings and will provide funding to students for conference attendance. Our goal is to ensure that all students who apply for **Student Travel Funds** will receive funding! The application form is available at our website at <http://www.pnw-setac.org/conferences.htm>.

I'm very excited to step into this At-Large (Student) role on the Chapter's Board of Directors. I look forward to contributing to conference planning, furthering student initiatives, and providing advice, support and encouragement to students within this realm.

If you have any questions, comments or feedback, please feel free to contact me. I look forward to seeing you in April!

Lindsay Du Gas, Master's Candidate
At-Large (Student) Board Member
Simon Fraser University
ldugas@sfu.ca

Get to Know Your Board Members



Ryan Loveridge, Treasurer

Ryan Loveridge, CH2M Hill, is a relatively new member on the PNW-SETAC Board of Directors. As our Treasurer his efforts ensure our bills get paid, handles all the meeting registrations online and onsite, makes sure students get travel awards, as well as any other awards due them for Best Student Presentation, and keeps us in compliance with the IRS.

Ryan was born in Winnipeg, Manitoba Canada, but moved to Prince George, B.C., where he remained until high school when his family moved to Calgary, Alberta. After high school he attended Simon Fraser University (SFU) and after graduating, stayed in the area and now lives with his family in the Vancouver B.C. area.

At SFU Ryan obtained a B.Sc and a M.Sc in Biology under the direction of Dr. **Chris Kennedy**. In the last year of his Master's program he was hired as an ecological risk assessor at CH2M Hill in their Sacramento, CA office. In retrospect, trying to finish his Master's while starting at a new job is not something he recommends to any current student.

He is still working at CH2M Hill eleven years later, but during that time has had the opportunity to work in various locations. Besides Sacramento, he also worked in Boston, MA and is now back in Canada at the Burnaby, B.C. office after being out of the country for more than 10 years.

Over the years he has moved up in rank and experience as an ecological risk assessor, and now manages staff for CH2M Hill's environmental services

(geologists, biologists, project managers, etc.) in western Canada.

Not surprising, Ryan has won longevity awards during his career at CH2M Hill, as well as published his research in the *Bulletin of Environmental Contamination and Toxicology* and in *Archives of Environmental Contamination and Toxicology*.

Over the course of his career, Ryan has gained expertise in ecological risk assessment, specifically in evaluating the biological effects of PCBs in aquatic systems. For fun, Ryan spends "99% of my free time with my wife and two young children ages 1 and 4." The remainder of his time is spent playing soccer. He is also a staunch fan of the Boston Bruins hockey team (sorry Vancouver!)

When asked why he decided to run for the Treasurer's position he responded that he had just returned to B.C. after being away 10 years and saw it as a great opportunity to get re-acquainted and re-involved with the regional scientific community.

This year's Chapter meeting was Ryan's first as Treasurer and, though the rest of the Board was very impressed by his ability to get the job done in such a calm, professional manner, he said he feels like he is still trying to catch up.

He shouldn't despair though since all the Officers and Board members feel the same way for the first 2 years of their 3 year terms! (Which is why we try to get some to re-up after their term is over so we retain that level of experience!)

Fortunately Ryan will still be Treasurer when SETAC-NA holds its annual meeting in Vancouver, B.C. Canada in 2014 and is looking forward to helping the Chapter support their efforts.

Looking ahead to when his tenure on the Board expires he hopes to continue being active in the Chapter and find time to present more of his work. In terms of his professional goals he wants to expand CH2M Hill's risk assessment services in western Canada.

After that "When work expires (and I have retired) I hope to spend less time in the rain."

SETAC 2013: Nashville, TN

November 17th–21st, 2013
Gaylord Opryland, Nashville, TN
nashville.setac.org



(Logo courtesy of www.setac.org)

Though some of you are still processing your travel reimbursement forms from the SETAC NA Long Beach, CA meeting, it's not too early to start planning on attending the 34th SETAC NA Annual Meeting being held in Nashville, TN.

The 2013 meeting theme is “*Harmonizing Science Across Disciplines*”. A fitting theme, considering Nashville is more commonly known as Music City USA and is the home of the Country Music Hall of Fame and Museum.



(Source: www.foreclosurelistings.com/list/TN/DAVIDSON/NASHVILLE/resources)

Please be sure to visit nashville.setac.org for more information.

SETAC Snippets

Other SETAC Meetings:

23rd Annual SETAC Europe Meeting, Glasgow, United Kingdom, May 12-16, 2013. The meeting theme is “*Building a Better Future: Responsible Innovation and Environmental Protection*.”
<http://glasgow.setac.eu/?contentid=570>

6th Annual SETAC Africa Meeting, Lusaka, Zambia, September 2-5, 2013. The meeting theme is “*21st Century Africa and Beyond—Balancing Economic Growth Opportunities with Environmental Sustainability*”

<http://www.setac.org/?page=SAAbout>

35th Annual SETAC North America Meeting, Vancouver, British Columbia, November 9-13, 2014.

AAAS National

February 14-18, 2013
Hynes Convention Center
Boston, MA USA
www.aaas.org/meetings

Registration is now open for the upcoming AAAS meeting to be held in Boston, MA. The “*Beauty and Benefits of Science*” meeting theme will “highlight the “unreasonable effectiveness” of the scientific enterprise in creating economic growth, solving societal problems, and satisfying the essential human drive to understand the world in which we live.”

More than 150 sessions spread across 14 tracks will be presented at the AAAS Annual Meeting. Learn about recent developments in your field and other disciplines of science, engineering, education, and policy.

Consider participating in this national meeting and contributing your own perspectives and ideas. Please visit www.aaas.org/meetings for more information.

Job Opportunity

Four Faculty Positions in Freshwater Sciences are open at the University of Washington in Seattle, WA.
[\(http://depts.washington.edu/coenv/freshwater/the-future-of-freshwater/apply/\)](http://depts.washington.edu/coenv/freshwater/the-future-of-freshwater/apply/)

The University of Washington seeks four new full-time, nine-month, tenure track faculty members to develop high impact research, teaching, and outreach as part of a new Freshwater Sciences Initiative on the Seattle and Tacoma campuses.

UW's Freshwater Sciences Initiative is intended to enhance our scientific, engineering, and educational capacity to address the future sustainability of freshwater resources.

Candidates with expertise in the following sub-disciplines are encouraged to apply:

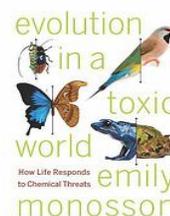
eco-hydrology, watershed/river ecology and restoration, fluvial geomorphology, urban water quality, aquatic biogeochemistry, and continental hydrology, although we also encourage applications from other biological and physical sub-disciplines of freshwater sciences.

Appointments will be made at Assistant Professor or, in exceptional circumstances, Associate Professor, in the School of Aquatic and Fishery Sciences, the School of Environmental and Forest Sciences, the Department of Earth and Space Sciences, the School of Oceanography, the Department of Civil and Environmental Engineering, or in the Environmental Science program on UW's campus in Tacoma, depending on the background of each candidate. Ph.D. is required.

Priority will be given to applications received by January 4, 2013.

More information about the search and the Freshwater Sciences Initiative can be obtained by contacting the search committee co-chairs **Joel Baker** (UW Tacoma; jebaker@uw.edu) **Dennis Lettenmaier** (College of Engineering; dennisl@uw.edu) or **Daniel Schindler** (College of the Environment; deschind@uw.edu).

Book Review



Evolution in a Toxic World: How Life Responds to Chemical Threats by Emily Monosson. 2012. Island Press, Washington, D.C. 232 pages, \$35.00 (H)

Stepping back to the beginning of life on earth, author Emily Monosson traces the origin and progressive evolution of the biochemical defense systems by which modern-day plants and animals are able to modify and remove potentially toxic chemicals from causing harm.

Dr. Monosson's premise is that understanding the origins of these systems and how they work will help us in predicting how they will react to the plethora of novel chemicals entering the environment, as well as when they may fail.

In the first half of the book, Dr. Monosson describes how early life adapted and evolved as the earth transitioned from a "sulfur world" to an "oxygen world". It did so through the development of specialized targeted proteins, i.e., enzymes that could respond to changing levels of ultraviolet radiation (UVR), oxygen, and metal bioavailability.

Some enzymes function by repairing damage, e.g., DNA photolyase repairs DNA bonds damaged by UVR, whereas others catalyze reactions, (e.g., superoxide dismutase) or bind to the chemical toxicant and make it unavailable for metabolism, e.g., metallothionein.

As she travels forward in time, Dr. Monosson explores more complex defense mechanisms that evolve to protect organisms from organic toxicants like those first produced naturally by other organisms for defense purposes. These same mechanisms conveyed protection as artificially produced organic toxicants began entering the environment as the result of the chemical and industrial revolutions.

Dr. Monosson also explores the evolution of other responses that have relevance today, for example in fighting cancer, producing compounds that may lead to advancements in drug discovery and development, and provide insights into the complex relationship between hormones and endocrine disruptors.

The fact remains, however that chemicals continue to be produced and released into the global environment, many of which having subtle and unforeseen consequences.

In the last two chapters, she discusses "contemporary evolution" in which rapid evolutionary changes have already been identified in populations exposed to various environmental stressors, including toxic chemicals in just one hundred years.

She concludes that there is ample evidence that it is human activities that have placed those selective pressures on populations to induce evolutionary changes in some and extinction in others. The ramifications on human evolution can be inferred.

Evolution in a Toxic World is well written, with complex topics conveyed in understandable lay terms and in easily readable format. Dr. Monosson does an excellent job of providing a new perspective on life's relationship with chemicals; its evolutionary basis and how it relates to our current and future response to chemical toxicants. In this context, toxicity occurs when defense systems are overwhelmed. This book is a compelling and engaging introduction to toxicology.

Dr. Emily Monosson is an environmental toxicologist, writer and consultant. She obtained her Ph.D. at Cornell University and is currently an adjunct professor at the University of Massachusetts, Amherst.

Editors Corner



www.ofrikanwriters.com/theheart.htm

Articles for the newsletter or announcements for the membership may be submitted to me at April.Markiewicz@wwu.edu at any time.

April Markiewicz
Western Washington University
PNW-SETAC Newsletter Editor