



RISK newsletter

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“Risk Analysis on the Coast”

2011 SRA Annual Meeting

4-7 December – Charleston, South Carolina

President-elect Ann Bostrom

We are looking forward to seeing all of you at the upcoming 31st Annual Meeting of the Society for Risk Analysis (SRA) in Charleston! The many fantastic opportunities lined up include new initiatives as well as new incarnations of successful events from previous years.

We are delighted to announce that the Society will again be offering additional student support for the workshops occurring at the annual meeting. Students may register for any workshop for only \$50 and the Society will pay the balance of the fee up to a total of \$12,000 for the year. Students will be supported on a first-come, first-served basis, with a limit of five students per workshop.

Our opening plenary Monday morning stars Margaret Davidson, director of the National Oceanic and Atmospheric Administration Coastal Services Center, with a talk on “Extremes: In Weather and Risk.” At lunchtime, specialty group business meetings provide the opportunity to connect with those whose risk interests match yours particularly well.

Monday afternoon, following the panel sessions, three presidential roundtables will be held:

- A roundtable discussing the Organisation for Economic Co-operation and Development’s (OECD) Working Party on Manufactured Nanomaterials (WPMN) analysis of critical issues in risk analysis for nanomaterials, with a

presentation by Andrew Atkinson of Health Canada, and an expert-panel response, chaired by JoAnne Shatkin as part of an SRA New Initiative collaboration between OECD WPMN and SRA

- A roundtable focusing on how a Congressional Office of Regulatory Analysis should conduct and review risk assessment, organized by Richard Belzer

- A roundtable on the “Green Book” report from the Committee on Sustainability at the U.S. Environmental Protection Agency, with a focus on the relationship between

sustainability and the risk paradigm, hosted by Bernard Goldstein and Lauren Zeise. The report is available online and described in a recent [National Academies news release](#).

The poster session follows directly on the roundtables and features a rich buffet of research topics as well as dinner.

Tuesday morning, the plenary will be kicked off by Admiral Thad Allen, former National Incident Commander of the BP oil spill and senior analyst at Rand, with a talk on “Reducing Risks of Oil Spills from the Exxon Valdez to Deepwater Horizon.” Admiral Allen will discuss national attempts to reduce risks of future events following the Exxon Valdez spill and how these actually played out in

(Annual Meeting, continued on page 3)



Inside RISK

<u>President’s Message.....</u> 2	<u>Regional Organizations</u> 7	<u>World Congress on Risk 2012.....</u> 14
<u>Pantheon of Risk Analysis</u> 2	<u>Risk Analysis Journal</u> 10	<u>What Do We Do?</u> 15
<u>Japan Earthquake and Tsunami</u> 4	<u>Specialty Groups.....</u> 11	<u>News and Announcements</u> 16
	<u>Member News.....</u> 14	

President's Message

Rachel Davidson

As the end of my term approaches, I'd like to use my last newsletter message to reflect on the exciting developments within the Society this past year and look ahead to what's on the horizon. The following are just a few highlights among the many activities at the Society for Risk Analysis (SRA).



Students and young professionals. One of my focuses has been on increasing the recruitment and retention of student and young-professional members of SRA. Towards that goal, we introduced several new activities at the annual meeting—student and post-doc discounts for continuing education workshops, a career fair, a roundtable on professional development, and a mixer for students and young professionals. To ensure that their voices are heard moving forward, we also established an ad-hoc committee for students and young professionals, and the SRA membership is currently voting on the establishment of a standing education committee that explicitly includes a responsibility to represent student and young-professional members.

Website overhaul. Another major focus has been the effort to completely rebuild the SRA website. After a competitive bidding process, we are finalizing a contract with a company that will be revamping our website, and they should be beginning their work right away. We plan to roll out the new site in the first part of next year. This project should elevate our public image, improve our ability to provide up-to-date information to our members and the general public, enhance communication among the regional organizations, support specialty groups, develop a presence on social media, improve our web-based administrative systems, and facilitate future maintenance of the site.

Educational materials. A new initiative was funded to develop a clearinghouse for risk analysis course materi-

als. This new service will be implemented as an added feature within the new website.

International expansion. The expansion of SRA to include more regional organizations has continued. SRA-Egypt was founded, and we hope to have another new regional organization on board by the annual meeting. As it has been a few years since SRA's current international structure was introduced, in the next couple months the Regional Organization and Membership Committees will also be reviewing the specifics of the relationships between the regional organizations and SRA to ensure the arrangement is working as well as possible and to make any necessary adjustments.

Specialty group growth. In the past year we welcomed the new Risk and Development Specialty Group and funded a new initiative that will systematically investigate whether there are topical areas that SRA should look to developing in the future.

Gatherings. Over the past year there have been many regional workshops and meetings. We now look forward to the annual meeting that President-elect Ann Bostrom and the Program Committee have planned for Charleston, South Carolina, this December and the 2012 World Congress that will be taking place in Sydney, Australia, next summer.

Before I sign off, I would like to thank once more the many people I have worked with the past couple years who have made this experience so rewarding and enjoyable, especially the folks at Burk and Associates; Past Presidents Rick Reiss, Alison Cullen, and Jonathan Wiener; all those who have served as councilors; and the many members of SRA with whom I've had the pleasure of interacting. I look forward to seeing everyone in December, if not before.

Pantheon of Risk Analysis



Photo by John Collings

The Pantheon of Risk Analysis, launched in 2008, honors deceased giants in the field on whose shoulders we now stand and showcases how high-quality risk analysis can advance knowledge and the public good.

Any Society for Risk Analysis (SRA) member may nominate a candidate to the past president; the SRA Council selects the inductees.

In 2008, the SRA inducted 35 initial honorees into the Pantheon of Risk Analysis. In 2010, the SRA added three new inductees nominated by SRA members: William Haddon, David Blackwell, and Maurice Allais.

The full list is on the SRA website, at www.sra.org/about_pantheon.php, with links to the relevant Wikipedia page on each honoree.

New nominees are welcome. To nominate other legends in the field, please contact Past President Rick Reiss (rreiss@exponent.com).

[Return to Table of Contents](#)

(Annual Meeting, continued from page 1)

the Deepwater Horizon Spill. Discussants involved in Deepwater will kick off the Q&A with their perspectives on Deepwater Horizon. P. Lynn Scarlett's remarks will follow Admiral Allen's. She is visiting scholar and co-director of the Center for the Management of Ecological Wealth at Resources for the Future and was deputy secretary and chief operating officer of the U.S. Department of the Interior from 2005 to 2009. The second confirmed discussant is Ann Hayward Walker, president and founder of Scientific Environmental Associates (SEA). Prior to founding SEA in 1983, she was a faculty member of the College of William and Mary, School of Marine Science (Virginia Institute of Marine Science), and National Oceanic and Atmospheric Administration scientific support coordinator and worked for the Hawaii and Virginia Coastal Zone Management Programs. She has managed teams of technical specialists on over 250 oil and hazardous materials spills in support of both U.S. Coast Guard and Environmental Protection Agency federal on-scene coordinators.

Building on the successful career fair last year, we are holding the second annual Student and Young Professional Roundtable on Career Development on Tuesday afternoon, 3:30-5:00 p.m., to be followed by the Career Fair Tuesday evening, 5:00-6:30 p.m., accompanied by a mixer. Bring your questions for leaders in the field, who will be available to answer your questions about how to launch and sustain a successful career in risk analysis!

At the plenary luncheon on Wednesday, three of Lester Lave's longtime colleagues and research collaborators will reflect on his many contributions to risk and policy analysis, highlighting the promise and future trajectory stemming from their collaborative research with Lester. Granger Morgan (Carnegie Mellon University Lord Chair Professor in Engineering, professor and department head in

engineering and public policy, professor in electrical and computer engineering and at Heinz College) will lead off this tribute to Lester Lave, in which he will be joined by two longtime collaborators of Lester's —Gil Omenn (director of the Center for Computational Medicine and Bioinformatics and professor of internal medicine, human genetics, and public health at the University of Michigan) and Jay Apt (professor of technology at the Tepper School of Business and Engineering and Public Policy at Carnegie Mellon and executive director of the Carnegie Mellon Electricity Industry Center). Through his research and education contributions, as well as his service to SRA, as a member and chair of many National Research Council committees, and in many other ways, Lester Lave was a leader building the field of risk analysis.

We received 478 abstracts this year for sessions and symposia, in addition to plans for 18 workshops. Exciting new research in progress will be presented in Works in Progress posters.

Please contact Erin Johnson (ejohnson@burkinc.com) if your company is interested in being represented at our career fair.

Look for updates on the website at http://www.sra.org/events_2011_meeting.php, including information on how to take advantage of being on the coast while at the meeting. Thank you to Erin Johnson and Lori Strong of the Secretariat for their invaluable work managing meeting logistics!

The program committee this year did a stellar job, with special thanks to Gail Charnley, Stan Levinson, and Steven Lewis, as well as Stephen Beaulieu, Richard Belzer, David Berube, Amanda Boyd, Alison Cullen, J. Michael Davis, Kurt Frantzen, Anthony Fristachi, Tee Guidotti, Sandra Hoffmann, Julie Fitzgerald, Amber Jessup, Jeffrey Keisler, Jeff Lewis, Margaret MacDonell, Bob O'Connor, Bob Ross, and Joost Santos.

Society for Risk Analysis 2nd Annual Career Fair

Imagine hiring the risk analyst who is the perfect fit for your organizational needs!
Register for a table at the second SRA annual meeting Career Fair to find that perfect fit.

Finding the right job. Finding the right candidate. Continuing education. Workforce training. Career advice.
The career fair at this year's SRA annual meeting can help you put all the pieces together to improve your opportunities. Register to represent your company or organization at the SRA Career Fair on Tuesday, 6 December, 5:00-6:30 p.m. There is no cost to you! You just need to be there to answer questions about your organization and interact with prospective job applicants.

If you want to provide Career Fair sponsorship, you will receive the following additional benefits:

- Prime location at Career Fair (booths situated at lobby entrance, with the highest visibility to all student and young professional traffic)
- Inclusion of company logo in all press material related to the SRA Career Fair
- Invitation to networking events with students

Click here (http://www.sra.org/events_2011_meeting.php) to register for your table at the SRA Career Fair.

Today's most talented job candidates need your help and the dream jobs you offer.

[Return to Table of Contents](#)

2011 Japan Earthquake and Tsunami: Member Responses

In the last issue of the *Risk Newsletter*, Society for Risk Analysis (SRA) member Toru Watanabe presented his views on the 2011 Japan earthquake and tsunami and the lessons learned. In this issue, we share responses from four more SRA members.

Fukushima—Not to Worry

Dr. Ray Gallucci, Senior Risk and Reliability Analyst, U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Division of Risk Analysis, PRA Licensing Branch

My perspective on the Fukushima disaster is likely quite contrary to many others and politically incorrect, but here goes. Immediately after the disaster, I did some investigation on the various core-damage nuclear accidents that have occurred worldwide in the commercial industry, finding six (counting Fukushima as three) such accidents based on the International Atomic Energy Agency International Nuclear and Radiological Event Scale. My simplistic analysis indicated core-damage frequencies ranging from 7×10^{-5} /reactor-year to 4×10^{-4} /reactor-year, with “external events” (such as earthquakes, tsunamis, and fires) dominating and the higher values applying to “coastal” plants. Nonetheless, when I consider what it took to damage the Fukushima reactors, namely a beyond-design-basis earthquake and subsequent tsunami that killed over 20,000 people in the area, I conclude that, unless I choose to try to

defend against catastrophes on the magnitude of such tsunamis, I need not try to make reactors invulnerable to such events.

A Richter magnitude 10 earthquake may be theoretically possible anywhere on earth and, if occurring at sea, capable of generating tsunamis hundreds of feet high. I cannot protect anything against these, not even nuclear plants. My only defense would be never to live near enough to a coast at an elevation below the height of such a tsunami. Since it cannot be resisted, the only solution is total avoidance. Therefore, despite what happened at Fukushima, I choose not to try to establish what, to me, would be a futile invulnerability against them. We should continue to live along coasts, build nuclear power plants near major cooling sources like the ocean, and accept the risk that comes with these choices.

The Great East Japan Earthquake: What We Can Learn from the Perspective of Risk Management

Teruo Oshima, Japan Chemical Safety Institute President; SRA-Japan Honorary Member

The Great East Japan Earthquake and Tsunami claimed 20,000 lives, including 4,000 still missing. This earthquake was one of the five largest in history. This was a natural disaster.

However, the accident at the Fukushima Daiichi nuclear power plant was caused by human neglect, a result of disregard on the part of Tokyo Electric Power Company (TEPCO), the Japanese government, and nuclear power specialists for history and geological investigations warning that antitsunami measures were insufficient.

From the perspective of risk management, there is much to learn from this accident, not only for nuclear power generation but also for risk in general.

The Japanese government did not publicize results of the emergency radioactive substance diffusion simulation system of the accident for fear of causing panic among the public, and its update on the measured values were constantly “as of a certain date.” On the other hand, predicted values from the perspective of prevention were reported outside Japan. This reflects an essential difference in attitude to risk. The Japanese have focused mainly on natural disasters, whereas measures have been prepared to counter risk for disasters caused by human neglect abroad.

I would like to express my deepest appreciation for the heartfelt support for victims in the devastated area from more than 160 countries, especially the United States for

Operation Tomodachi, with aircraft carriers deployed to provide humanitarian assistance and disaster relief.

It is with great regret that the Fukushima Daiichi plant accident affected many countries, and the Japanese government released insufficient information in the immediate aftermath.

Measures for Earthquake Risk

- **Tohoku Bullet Trains:** At present, private railway companies operate Japanese bullet trains according to area. From the days of the National Railway Corporation before privatization, UrEDAS (Urgent Earthquake Detection System) had been set up around Japan. On 11 March 2011, the system detected the preliminary tremor (P wave) nine seconds before the earthquake struck, to implement the emergency power failure measure four seconds before the first principal shock (S wave). All 27 bullet trains running in the Tohoku area decelerated and avoided derailment. I think this deserves high praise.
- **Nuclear power generation:** In 2006, the Nuclear Safety Commission of Japan affiliated to the Cabinet Office amended the Counter Earthquake Guideline. This guideline stated risk from the perspective of probability, and antiquake measures were reconsidered for each nuclear power plant in Japan. The magnitude of the 11 March earthquake being 9.0, all plants automati-

cally stopped nuclear fission immediately after the earthquake. Although some pipes were partially broken and tanks collapsed, we can commend the fact that nuclear fission was stopped, as a first step in risk management.

Tsunami Risk Measures

The 2006 Nuclear Safety Commission Counter Earthquake Guideline hardly mentions measures for tsunamis, and it presupposed that power failure would recover within hours. This was its blind spot, which caused the accident due to failure in the core cooling system.

- **Fukushima Daiichi:** The TEPCO Fukushima Daiichi nuclear power plant has six reactors. On 11 March, units 1-3 were in operation, while 4-6 were in shut-down for planned maintenance. The tsunami destroyed power lines, including the emergency diesel generator, from flooding. The emergency battery-operated generator vehicle soon gave out. Power for cooling was lost, overheating the reactors, leading to a meltdown. This is the result of insufficient attention to the magnitude of the tsunami and the possibility of power failure that consequently lasted about 10 days. Hydrogen explosions occurred in reactor 1 on the 12th and reactor 3 on the 14th, with another explosion on the 15th in reactor 2 and damage to the building due to fire in reactor 4.
- **Disregard for prior warnings:** At a government-related conference for nuclear safety, Japanese geologists warned that antitsunami measures needed to be considered for the Fukushima plant, from the 869 Jogan earthquake tsunami sediment research results. TEPCO and the Japanese government's response had been that they could not do everything.

On the other hand, Tohoku Electric Power Company built its Onagawa nuclear power plant, to the north of Fukushima, at a location not by the sea but 15 meters above sea level. Results of geological surveys and literature on the Jogan and 1611 Keicho tsunamis were studied for this decision. This was presented at an international



Satellite image of the Fukushima Daiichi nuclear power plant, taken 14 March 2011

Photo courtesy of DigitalGlobe

conference held in 2007. Although Onagawa City was devastated by the 14.6-meter tsunami on 11 March, the nuclear power plant's basic functions remained intact.

Lessons We Can Learn from the Fukushima Daiichi Accident

- **Reconsider blind spots in risk management for further consideration:** The Fukushima Daiichi accident occurred due to disregard for prior warnings on the effect of tsunamis and loss of power for cooling, which did not recover within the predicted several hours. It will be necessary to reconsider measures for risk not only for nuclear power plants, but also all risks around us that we may have overlooked.
- **Reconfirm that there is no such thing as zero risk:** Awareness for this fact probably existed, but the government and power company's standpoint in risk communication for workers at the plant and residents in the nuclear power plant area was that the plants were absolutely safe due to multiple protection systems. Thus they had not organized training sessions, compiled a manual, or devised equipment for emergencies.
- **Comparison of government measures in Japan and abroad evident from the Fukushima Daiichi accident:** The emphasis on prevention abroad led to publication of data from the emergency radioactive substance diffusion simulation system, with measures to cope with the situation. On the other hand, the Japanese government failed to effectively employ its System for Prediction of Environmental Emergency Dose Information (SPEEDI), due to fear of causing panic among the public. The government provided information only about the status quo whenever it updated information on the accident, a fact perhaps related to the disparity in regard for risk in Japan and abroad. In the 16 March 2011 issue of *Nature*, a nuclear power specialist predicted core meltdown. On 30 March, 16 former Nuclear Safety Commission members apologized for not being able to prevent the Fukushima Daiichi accident and stated that a meltdown was most probably occurring at the plant. It was only in mid-May that the Japanese government admitted there was a meltdown.

Lessons from Fukushima: No-Failure Design and Disaster Recovery

Professor Yakov Ben-Haim, Yitzhak Moda'i Chair in Technology and Economics, Faculty of Mechanical Engineering, Technion- Israel Institute of Technology

The design of critical or dangerous technology entails an inherent conflict between no-failure design and disaster recovery capability. Failure is not acceptable, so designers seek very low failure probability. The public legitimately demands negligible severe-failure probability. For instance, the nuclear industry typically requires probability of severe failure no larger than one in a million per plant per year. Such probabilities are exceedingly—and very reassuringly—small. However, even if we honestly believe that a technology has vanishingly small probability of catastrophe, can we honestly ignore the need for disaster recovery? The accident at Fukushima Daiichi—like Three Mile Is-

land, the New Zealand earthquake, and other events—shows that disaster recovery capability is necessary even when the calculated probability of failure is tiny.

Resolving the conflict (between no-failure design and disaster recovery preparedness) begins by acknowledging that tiny probabilities cannot be reliably calculated. Surprises will occur despite the best intentions. No-failure design is still the goal. But designers and the public must manage the moral hazard of designing to eliminate failure while also preparing for disaster. The message for risk professionals is to develop robust tools for modeling and managing surprise.

We Still Have Work to Do in Communicating Radiation Risks

Dr. Genevieve Roessler, Health Physicist, University of Florida Professor Emeritus, Department of Nuclear Engineering

Those of us in the radiological risk field were overwhelmed for weeks after the Fukushima disaster. We had questions coming at us day and night from the media and from concerned people all over the world. People were distressed about exposures from the disabled reactors at the Fukushima Daiichi site, they worried about radioactivity in food and water, and they avoided air travel because of concern for radioactivity in the atmosphere. One family left California to stay with relatives in the Midwest, pregnant women were in a panic, many residents of the United States West Coast quit eating fresh garden products. This was all happening with the very serious consequences of the earthquake and tsunami taking place in the background. Homes and people were being swept away, but the media played up the radiation disaster and people heard that rather than the fact that there were actually many deaths, homes lost, and seriously interrupted lifestyles due to the tsunami.

To those of us who have studied radiation effects most of our lives, the magnitude of this overreaction to a serious

but not immediate or even long-term life-threatening situation was a surprise, and it was discouraging. We have spent many years providing radiation information—medical, environmental and, of course, nuclear. Have we failed to put radiation risk in perspective? It appears that we have not even been able to communicate radiation basics to our public.

We helped many people after the accident by explaining that the risk of health effects from any radiation exposure in Japan and worldwide was very low and likely nonexistent. We established some good contacts with the media. Some of the media contacts presented responsible reports. However, the experience let us know that we still have a huge amount of work to do. A better understanding of risk perception and a development of better risk communication techniques needs to be high on our list of priorities. A good place to start is by reading *The Feeling of Risk, New Perspectives on Risk Perception* by Paul Slovic, Earthscan, London, Washington, DC 2010.

An Invitation to Share Your Experiences and Views

How did the earthquake/tsunami disaster affect you and your work in risk analysis? What do you think were the most important lessons learned from the event? To share your experiences and views in the First Quarter 2012 issue of the *Risk Newsletter*, send a paragraph or two to Editor Mary Walchuk (editormw@hickorytech.net) by 20 December 2011. We will print all that space and time allow.

Would you like to see information about your regional organization or specialty group in the *Risk Newsletter*? Send your reports to Editor Mary Walchuk, editormw@hickorytech.net. The deadline for the First Quarter 2012 issue of *Risk Newsletter* is 20 December 2011.

[Return to Table of Contents](#)



Regional Organizations

SRA-Egypt

www.sra-egypt.org

Shady Noureldin, President

The Society for Risk Analysis (SRA)-Egypt has launched a training/educational program that aims to increase the awareness of risk analysis science in Egypt. The program targets two communities, SRA-Egypt members and the Egyptian community outside the SRA-Egypt circle. With respect to the first target audience, SRA-Egypt members, SRA-Egypt adopts the principle of sharing knowledge to enhance member awareness of risk analysis/management, one of SRA-Egypt's objectives. Based on this



Tamer Ismaiel

principle, Tamer Ismaiel, principal electrical engineer at ECG Engineering Consultants Group S.A. and a member of SRA-Egypt, will give a series of lectures on the Project Risk Management training program, which he completed at the American University in Cairo. The program topics include risk management/planning, risk identification, qualitative risk analysis, semiquantitative risk analysis, quantitative risk analysis, risk treatment and response plan, and risk monitoring and review.

Also, the Planning Committee is in the process of concluding cooperation protocols with the United Universal Company for Veterinary Services (UUVETS) and the Egyptian Council of Pro-Peace Physicians (ECOPP). SRA-Egypt and UUVETS, the first Egyptian company to operate in the field of veterinary services in Egypt, have plans to

conduct educational programs related to the basics of risk assessment science in the Egyptian veterinary field. Both parties believe that risk assessment science plays a key role in solving relevant veterinary resources' problems as well as challenges facing the Egyptian community in this domain. Dr. Muhammad Madany, a research team leader at Brooke Egypt and a councilor of SRA-Egypt, will lead the training program related to such protocols. The training program will be mainly focused on veterinary crisis and risk management.



Muhammad Madany

It is worth mentioning that ECOPP's mission is to provide treatment to poor patients all over Egypt. Both SRA-Egypt and ECOPP aim to utilize their academic expertise



Bassem Adel

and professional experience to help the Egyptian society recover from endemic diseases. Dr. Bassem Adel is the CEO of UUVETS, an MD of ECOPP, a specialist in cardiology, and an activist in poverty fighting and human rights, particularly in the field of public health. Adel is also a poet, an author of drama, and a member of both the Egyptian Book Association and the Arab Writers Union.

Upstate New York

www.sra.org/upstateny

Changhyun Kwon and Peg Coleman

The Upstate New York Regional Organization of the Society for Risk Analysis (SRA) is pleased to be managing a "new initiatives" grant awarded by the SRA Council for outreach to universities in six partnering regional organizations in the United States. Thanks to Council and Donna Vorhees and Daniella Leonte, the cochairs for the Regions Committee, for support and oversight of the project.

The grant provides funding to test a core model for outreach in a university in each partnering regional organization. The project addresses process needs for SRA to build and sustain diverse and vital local, regional, national, and international organizations. A LinkedIn group (SRAonCampus) was set up for the project after the idea arose during our monthly project teleconferences.

We appreciate the willingness of Kim Thompson and

other SRA members, including our past presidents and fellows, for their support in preparing and reviewing briefing materials to promote awareness of the benefits SRA can bring to campus (and other) environments. Success of the grant project will be measured by participation and numbers of new SRA members recruited at our campus events by June 2012.

The Council and our partnering regional organizations recognize that this is a pilot test of a new process for recruiting new members, and our lessons learned will be valuable in expanding the work of this new initiatives grant in the future.

Feel free to check the Upstate New York SRA website (<http://www.sra.org/upstateny>) for periodic postings on the project.

[Return to Table of Contents](#)

SRA-Australia and New Zealand

<http://www.acera.unimelb.edu.au/sra/news.html>

Jean Chesson, Secretary

From the opening keynote presentation on emergency management to the final paper on fishery bycatch, participants at the 6th annual conference of the Society for Risk Analysis-Australia and New Zealand (SRA-ANZ) had plenty of examples of how risk analysis can make a real difference. Over 40 people met at the St. Lucia campus of the University of Queensland in Brisbane to share experiences on 27 and 28 September 2011. The conference was preceded by a day of workshops on point of truth calibration, the R computer language, and dealing with uncertainty in risk analysis, as well as a regulators' forum.

There was good representation from both New Zealand and Australia, providing opportunities to explore similarities and differences between jurisdictions. One theme that emerged several times was the challenge posed by large numbers of unassessed risks such as those associated with the 39,000 chemicals on the Australian National Industrial Chemicals Assessment and Notification Scheme, organophosphate reassessments in New Zealand, the multiple risk assessments required for determining return on biosecurity investments, and the large



SRA-ANZ presidential time series: (from left) Rochelle Christian (2012), Simon Barry (2011), Janet Gough (2010), Jean Chesson (2009)



Interactions during the SRA-ANZ annual conference.

number of nontarget species affected by some fishing methods.

Speakers described how risk analysis methods had been applied to policing in New Zealand, the endangered button wrinklewort, spatial distancing during pandemic influenza, releases of genetically modified organisms, rainfall-independent water sources, and alternatives to animal testing, to name just a few. Methodologies included cumulative risk assessment, population viability analysis, approximation techniques for dynamic programming problems, Bayesian networks, expert elicitation, contributing factors frameworks, risk communication, risk classification, and risk perception.

Once again, SRA-ANZ was able to hold an informative and enjoyable conference at minimal expense to participants

through generous sponsorship from the Australian Centre of Excellence in Risk Analysis, the Australian Bureau of Agricultural and Resource Economics and Sciences, and the Commonwealth Scientific and Industrial Research Organisation (CSIRO). Presentations are available on the SRA-ANZ website (<http://www.acera.unimelb.edu.au/sra/news.html>).

Chapitre Saint-Laurent SETAC-SRA

<http://chapitre-saint-laurent.qc.ca>

Gaëlle Triffault-Bouchet, Présidente, and Serge Lepage, Vice President

The Society of Environmental Toxicology and Chemistry (SETAC)-Society for Risk Analysis (SRA) Chapitre Saint-Laurent held its 15th annual symposium under the theme “A Sustainable St. Lawrence River: A Utopia?” The symposium, chaired by Christian Gagnon (Environment Canada), took place at the Hotel Gouverneur Place Dupuis in Montreal (Qc, Canada) City, 26-27 May 2011. The scientific program included 48 platform presentations and 22 posters, with special sessions on chemical analysis methods, effects and risks associated with emerging contaminants (nanoparticles, pharmaceutical components, polybrominated diphenylethers, etc.). Guest speakers included Mélanie Desrosiers (Ministère du Développement durable, de l'Environnement et des Parcs du Québec) “Beyond the State of the St. Lawrence River, the Research Programs: A History”; Christian Gagnon (Environment Canada) “A Sustainable St. Lawrence River and Its Steady Contamina-

tion”; and Yves de Lafontaine (Environment Canada), “The Decline of the American Eel.”

The symposium was also an opportunity to reward students:

Excellence awards:

- Carolyne Peyrot, University of Montreal: \$2,000 from Chapitre Saint-Laurent for her MSc research project “Assessment of the Toxicological Effects of Silver Nanoparticules on Terrestrial Ecosystem by Measuring the Enzymatic Activity of Soil”
- François Perreault, UQAM: \$2,000 from Chapitre Saint-Laurent for his PhD research project “Impact of CuO Nanoparticle Coating on Their Toxicity on Chlamydomonas reinhardtii”

Best student platform presentation awards:

- Maya Al-Sid-Cheik, UQAR-ISMER (\$200 from Chapitre Saint-Laurent), “Biokinetic Study of Dis-

[Return to Table of Contents](#)

solved Silver and Radiolabelled Silver Nanoparticles ($^{110m}\text{AgNp}$) in Iceland Scallop (*Chlamys islandica*)”

- Annie Chalifour, UQAM-TOXEN (\$150 from Chapitre Saint-Laurent), “Combined Effect of Temperature and Atrazine on the Physiology of *Scenedesmus obliquus* and *Microcystis aeruginosa* in Mixed and Isolated Cultures”

Best student poster awards:

- Élyse Caron -Beaudoin, UQAM-TOXEN (\$100 from the SRA and \$100 from Chapitre Saint-Laurent), “The Flame Retardant of Emerging Concern in the Ring-Billed Gulls of the St. Lawrence River: Association with Environmental Tracers and Diet”
- Audrey Bruneau, INRS-IAF (\$150 from Chapitre Saint-Laurent), “Vulnerability of Natural Populations from

Anthropic Media to Additional Chemical Stress: The Case of *Mytilus edulis* in the Bay of Brest, France”

The symposium was a great success, with 120 participants from academia, government, industry, and private consultants.

We would like to thank all the members of the organizing committee, the speakers and participants, as well as our sponsors: Centre d’expertise en analyse environnementale du Québec, Environment Canada, Hydro Québec, INRS - ETEMDDEP, Laval University, OB Info Inc., Perkin Elmer Inc., Rio Tinto Alcan, UQAR-ISMER, SETAC, and SRA.

Our next annual symposium will be held in Québec City in June 2012. For more details on the Chapitre Saint-Laurent visit <http://chapitre-saint-laurent.qc.ca>.

SRA-China

Guofang Zhai, Secretary

RACR-2011 Held Successfully in Laredo, Texas

The Society for Risk Analysis (SRA)-China succeeded in holding the 3rd International Conference on Risk Analysis and Crisis Response (RACR), hosted by Texas A&M International University in Laredo, Texas, and supported by SRA, SRA-Europe, SRA-Japan, and the Korean Society of Environmental Toxicology, 22-25 May 2011, following the successful RACR-2007 in Shanghai and RACR-2009 in Beijing. RACR-2011 attracted more than 60 participants from 15 countries including China, the United States, Canada, France, Turkey, Italy, Chile, Greece, India, etc., and accepted 53 peer-reviewed papers from the more than 80 papers submitted. The accepted papers were included in the proceedings “Beyond Experience in Risk Analysis and Crisis Response” published by Atlantis Press. The conference was composed of three keynote speeches, 14 parallel sessions, and two workshops, and the topics covered included risk analysis theory and method, risk perception and communication, nanotech risk management, and crisis management. The keynote speeches were:

- “The Impact of Large -Scale Urban and Regional Disasters on Rural Areas,” by Robert Hurst, Critical Leadership.
- “Flood Control, Ecological Protection and Sustainable Development,” by Professor Jinren Ni, Peking University.

- “Experimental Riskology to Study in Ontological Meaning,” by Professor Chongfu Huang, Beijing Normal University.

Besides the many fruitful academic activities, the participants also took part in an interesting and meaningful visit to the United States and Mexico border, which was well organized by the host. SRA-China thanks Texas A&M International University very much for the efficient organization!

Inaugural Issue of the Official Publication Launched

In July 2011, SRA-China launched the inaugural issue of its official publication, the international *Journal of Risk Analysis and Crisis Response (JRACR)*, produced by Atlantis Press, Paris, France (<http://www.atlantis-press.com/publications/jracr>). *JRACR* disseminates research findings and applications on a variety of topics in risk analysis (RA) and improved crisis response (CR). The advisory board and editorial board consist of internationally acclaimed scholars in their respective fields who bring their combined talents to bear on critical challenges in RA and CR, coming from universities, companies, government agencies, and nongovernmental organizations in 21 different countries.

So far, no theory can fully explain risks; no technology can cope with every complex crisis. The presence of multiple potential threats stimulates the development of new theories and methods for risk analysis. The pursuit of more effective responses to crisis situations requires a continuous improvement of CR technology. The goal of *JRACR* is to enable scientists, engineers, and technical officers to share research results and valuable experience, to build a foundation for a better tomorrow.



Gathering of RACR-2011 participants

[Return to Table of Contents](#)

National Capital Area

www.sra.org/ncac

Sally Kane, President

The National Capital Area Regional Organization is planning events for the first half of 2012 on nuclear energy, synthetic biology, and management of the Chesapeake Bay. We also are exploring the potential to have a summer mini-conference in Washington, DC, that focuses on a topic of current interest to policy makers and provides practical sci-

entific knowledge. If you would like to get involved in our activities or have ideas for future events, please contact Sally Kane (smkane55@verizon.net) or Genya Dana (gvdana@gmail.com).

The National Capital Area Regional Organization website can be found at www.sra.org/ncac.

SRA-Europe

www.sraeurope.org

Julie Barnett, on behalf of the SRA-E Executive Committee

SRA-Europe Conference 2012 in Zurich, 18-20 June

The Society for Risk Analysis (SRA) is a multidisciplinary, interdisciplinary, and scholarly international society



ETH main building in the city center of Zurich, Switzerland

that provides an open forum for all persons interested in risk analysis. Risk analysis is broadly defined to include risk assessment, risk characterization, risk communication and perception, risk management, and risk policy. It

may concern individuals, public and private organizations, and society at local, regional, national, or global levels. SRA-Europe is a regional organization of the SRA.

The 2012 SRA-Europe Conference will be held at ETH Zurich, Switzerland. The special theme of this conference will be “Risk and Society: Decisions and Responsibilities,” to reflect the fact that the analysis of risk is inextricably linked to the social context. The conference aim is to facilitate interaction among all players in the risk field, ranging from risk experts from all disciplines and risk stakeholders as policy makers to the private sector, nongovernmental organizations, and other interest groups.

Topics

- Risk Perception
- Risk Communication
- Natural Hazards
- Technological Risks
- Risk Assessment
- Risk and Regulation
- Health Risks
- Anticipating Major Risks

Keynote Speakers

- John Adams
- Valerie Reyna

Participants

The SRA-Europe Conference 2012 is open to all interested researchers and experts in the various fields of risk analysis. Participants from industry are welcome.

Organizing Committee

- Dr. Michael Siegrist
- Dr. Carmen Keller
- Dr. Simone Dohle

Important Dates

- Deadline for submission of abstracts—20 January 2012
- Notification of acceptance—1 March 2012

For more information, please contact Simone Dohle (sdohle@ethz.ch). Further updated information and details can be obtained at www.sraeurope.org.

The SRA-E Executive Committee is also pleased to announce that Mathew White has been co-opted to join the committee to take over the role of secretary June 2012.



Risk Analysis Journal

Michael Greenberg, Editor in Chief; Karen Lowrie, Managing Editor

Society members have suggested many good ideas for special-issue topics for *Risk Analysis* and have assisted our area editors in organizing and managing the submissions. The September 2011 issue of the journal featured the second part of our special series on risk regulation. Coming up in the November issue is a special collection of papers on

the subject of nanotechnology risk perception. A number of special issues are planned for 2012, and we hope that readers will enjoy these collections of papers and the diverse range of risk topics that they cover. Also, we are making progress toward completing a first draft of our “Ten Greatest Accomplishments in Risk Analysis” essay and hope to publish it in 2012.

[Return to Table of Contents](#)



Economics and Benefits Analysis Specialty Group

www.sra.org/ebasg

Amber Jessup, Chair

We are greatly looking forward to seeing Economics and Benefits Analysis Specialty Group (EBASG) members at the December 2011 Society for Risk Analysis (SRA) Annual Meeting in Charleston! Room 12/13 is scheduled with symposia of interest to EBASG members for all three days, so find your favorite chair and settle in for the whole conference. Also, please join us for some special EBASG events (see the conference program for more information).

On Monday, 5 December, pick up your box lunch and help us plan for next year at the EBASG business meeting from 12:05 to 12:30 p.m. We will introduce the new officers and our Student Merit Award winner, as well as discuss future activities.

On Tuesday, 6 December, connect with old friends and meet new ones over drinks and hors d'oeuvres at our evening mixer, sponsored jointly with the Risk Policy and Law Specialty Group.

We are also planning two workshops that promise to be excellent:

- **Synthesizing Evidence: An Introduction to Systematic Reviews, Meta-Analysis, and Expert Elicitation** (morning only)

Risk analysis often requires making inferences or estimating parameter values from studies that contain inconsistent or conflicting results or address dissimilar contexts. Deciding whether and how to combine information from multiple studies requires thinking carefully about the nature of the problem to be addressed and the characteristics of the available evidence. In this workshop, we will investigate the advantages and limitations of alternative approaches to research synthesis from a cross-disciplinary perspective, including systematic reviews, meta-analysis, and expert elicitation.

- **Eliciting Judgments to Inform Decisionmaking** (full day)

Decision makers must frequently rely on data or information that is incomplete or inadequate, and judgment plays a critical role in the interpretation and characterization of those data as well as in the completion of information gaps. But how experts or other stakeholders are selected and their judgments elicited matters—these methods can also strongly influence the opinions obtained and the analysis on which they rely. This workshop will cover a range of related topics and conclude with a hands-on exercise.

The first workshop is intended for those who are interested in exploring the advantages and limitations of alternative approaches for synthesizing evidence, while the second is intended for those interested in exploring expert

elicitation techniques in more detail. More information on both workshops is available on the EBASG website (<http://www.sra.org/ebasg/2011workshops.html>).

To register for these workshops, please visit the SRA annual meeting website (http://sra.org/events_2011_meeting.php). Registration is open to the public. Special rates are available for students and for those who register early.

Special Series on Risk Regulation

In other news, the September issue of *Risk Analysis* includes Part 2 of our Special Series on Risk Regulation and is now available online. The series includes articles by participants in the SRA/Resources for the Future “New Ideas for Risk Regulation” conference and by others working on related topics. SRA members can gain free access to these articles by logging in to the “Members Only” section of the SRA website (<http://birenheide.com/sra/membersonly/index.php3>) then clicking on “Access the SRA Journal.”

The articles include:

- “Introduction to Part 2 of the Special Series on Risk Regulation,” by Lisa A. Robinson
- “The [R]Evolving Relationship Between Risk Assessment and Risk Management,” by Lisa A. Robinson and Jonathan I. Levy
- “Overcoming Barriers to Integrating Economic Analysis into Risk Assessment,” by Sandra Hoffmann
- “Risk Assessment of Environmental Chemicals: If It Ain’t Broke...,” by Bernard D. Goldstein
- “Diminishing Willingness to Pay per Quality -Adjusted Life Year: Valuing Acute Foodborne Illness,” by Kevin Haninger and James K. Hammitt
- “Valuing Mortality Risk Reductions from Environmental, Transport and Health Policies: A Global Meta-Analysis of Stated Preference Studies,” by Henrik Lindhjem, Stale Navrud, Nils Axel Braathen, and Vincent Biaisque
- “Behavioral Economics and Regulatory Analysis,” by Lisa A. Robinson and James K. Hammitt
- “The Challenge of Degraded Environments: How Common Biases Impair Effective Policy,” by Alan Berger, Case Brown, Carolyn Kousky, and Richard Zeckhauser

See you in December!

Dose Response Specialty Group

www.sra.org/drsg

Lynne Haber, Chair

The Dose-Response Specialty Group (DRSG) 2011 teleconference seminars focused on the theme of “Tox21/ NexGen: Dose-Response and In vitro to In vivo Extrapolation.” The series will culminate in a symposium at the annual meeting that will include additional highlights and

developments from the Tox21 and NexGen programs, as well as highlights of the seminar series and presentations by leading scientists commenting on the issues raised in the teleseminars. The teleseminar series included Richard Judson of the Environmental Protection Agency (EPA) talking about “Computational Toxicology and High-Throughput Risk Assessment,” preceded by Barbara Wetmore of the Hamner Institutes for Health Sciences talking about “Integration of Dosimetry, Human Exposure and High-Throughput Screening Data in the Toxicity Assessment of Environmental Chemicals,” and Weihsueh Chiu of the EPA on “NexGen Risk Assessments: Challenges and Opportunities for Dose-Response Assessment.”

To receive notifications about DRSG events, electronic mail notification list on YahooGroups.com, go to <http://groups.yahoo.com/group/DRSG> and hit the “Join this Group!” button. All are welcome to participate in the teleseminars and our monthly discussions at noon on the first Tuesday of the month on annual meeting symposia, student awards, and other business.

There will be a number of dose-response related events at the annual meeting, including several workshops, as well as symposia, posters, and a mixer jointly sponsored with the Exposure Assessment Specialty Group. See you in Charleston!

Engineering and Infrastructure Specialty Group

Joost Santos, Chair

Call for Engineering and Infrastructure Specialty Group (EISG) Vice Chair Nomination: The SRA community is urged to submit nominations for the EISG vice chair position. A biosketch (not to exceed 300 words) should accompany your nomination. Please send your nominations to joost@gwu.edu, using a subject line of “EISG Vice Chair.”

EISG Student Merit Award Competition: This year, the EISG has received multiple entries to the Student Merit Award competition. Out of these submissions, four student papers have been selected as finalists. Their topics encompass contemporary, original, and diverse research areas pertaining to engineering and infrastructure risk analysis. We request the public to watch the video presentations that each finalist prepared and uploaded on YouTube. The titles of the papers, authors, and corresponding video links are provided below. The abstracts of these papers may also be made available upon request. Please send your comments on any of the videos to joost@gwu.edu, using a subject line of “EISG Student Merit.” Additionally, please feel free to provide comments via the respective YouTube pages of the finalists. Your comments will be considered in the determination of the winner, which will be announced at our annual meeting in Charleston, South Carolina.

- “Decision Model for Management of Sewage Plumes in a Tidal Environment”

Authors: Calder RSD*, Schmitt KA, Salazar-Garcia OE; Concordia University

Video Link: http://www.youtube.com/watch?v=6GChqfII_ZM

- “Broadening the Discourse on Infrastructure Interdependence by Modeling the ‘Ecology’ of Infrastructure Systems”

Authors: LaRocca S*, Guikema SD, Cole J, Sanderson E; Johns Hopkins University

Video Link: <http://www.youtube.com/watch?v=0iZVnwXruzE>

- “Post-Disaster Resilience for Interdependent Systems: Application to Inland Port Disasters”

Authors: Pant R*, Barker K, Landers TL; University of Oklahoma

Video Link: <http://www.youtube.com/watch?v=lxSZwloGOIk>

- “Quantifying the Hurricane Risk to Offshore Wind Turbines”

Authors: Rose S*, Jaramillo P, Small M, Grossmann I, Apt J; Carnegie Mellon University

Video Link: <http://www.youtube.com/watch?v=M97RkawZgr8>

Risk Communication Specialty Group

David Berube, Chair

Planning For Sydney

With the panels and symposia all set for the 2011 Society for Risk Analysis (SRA) Annual Meeting in Charleston, our attention should shift to planning for the World Congress on Risk in Sydney, Australia, in July. This will require our divisions to produce some strong panels with a special interest to our colleagues in Asia and Australia. As such and trying to be responsible as your chairperson, I am suggesting we begin to recruit for three panels/symposia. I have spoken with event organizers and will accept responsibility to organize the panels/symposia and submit them.

First, we might want to address the effects of globalization on risk communication. As hazards are redistributed, risk implications and how we approach risk messaging for intercultural and international audiences will require some fine tuning. Emerging technologies are particularly troublesome when industries can export production processes with problematic environmental footprints. Important issues: the asymmetrical relationships between costs and benefits among different demographics, the Ameri-Eurocentric perspectives critical and cultural theorists bring to risk debate potentially at odds with unique ideocultural issues of transnational risk communication, and policy discussions of different rules and regulations on different parts of the globe and how they affect the export of risk profiles.

Second, we might want to address how the 2011 Tōhoku earthquake and tsunami effects in Miyako, Iwate, and Tōhoku were mediated. In the West, traditional and digital media amplification focused on the Fukushima nuclear

power plant complex. The antinuclear power protest groups began to use the tragedy as a way to reignite debates over nuclear power here at home when the disasters in Japan were multiple and multitudinous. Comparing coverage in Japan and throughout Southern Asia might provide a useful comparison against coverage in the United States and Europe. How the event was amplified and attenuated might be an important set of observations and the transcultural agenda setting, priming, and framing implications could prove provocative.

Third, we might want to address how to study digital media. Personally, I find myself reading papers and articles on a host of subjects involving some form of digital media methodology. To date, most have involved some form of coding associated with websites. The sampling is often peculiar and ecological validity remains problematic. Some issues: Twitter shut down its Firehose API and merely getting half access to tweets can cost you over \$250K, digital ethnographies on platforms owned by Apple are especially challenging since jailbreaking their products violates their warranties (at least), tracking online behavior has some serious Institutional Review Board implications as voyeuristic researchers follow web behavior into sites and that might be excessively intrusive, what Boolean descriptor sieving algorithms are optimal for digital media research need to be established, and so forth.

All three of these subjects interest me and I am willing to coordinate efforts to create three panels/symposia that will address each of these. Send me your ideas and I will work with you (drdmberube@gmail.com).

Decision Analysis and Risk Specialty Group

Jeffrey Keisler, President; James Lambert, President-elect; Thomas Seager, Past President; Chris Karvetksi, Secretary

DARSG at the SRA Annual Meeting: The Decision Analysis and Risk Specialty Group (DARSG) will be active at the upcoming 2011 Society for Risk Analysis (SRA) Annual Meeting in Charleston, 4-7 December, sponsoring/cosponsoring 12 strong sessions and symposia, nine constituting Track F (room R8/9), and including two panels, one poster platform, and four joint sessions with the Security and Defense Specialty Group (SDSG), Engineering and Infrastructure Specialty Group (EISG), and Risk Communication Specialty Group.

We will hold a mixer reception with the SDSG and EISG.

The DARSG meeting will be Monday, 5 December, 1:05-1:30 p.m. in Room 6. We look forward to socializing with you all there.

DARSG Student Awards: Congratulations to DARSG Student Paper Award Co-Winners:

- Dan Skinner, Cranfield University, will present “Identifying Uncertainties within Environmental Risk Assessments.”

- John Coles, University of Buffalo, will present “Partnership Optimization Decision Support System (PODSS): Improving Partnership Development and Resource Allocation in Disaster Recovery Operations Using Game Theory.”

New DARSG Members: Contact the DARSG to indicate interest or obtain information regarding any of the following:

- Volunteer to organize continuing education events at next year’s annual meeting and throughout the calendar at other locations.
- Represent the DARSG at the next World Congress on Risk in Australia in July 2012.

DARSG Member News:

Congratulations to our DARSG secretary, Professor Chris Karvetski, who recently completed his PhD at the University of Virginia and is now assistant professor and IC Fellow at George Mason University.

Past President and DARSG Founder Igor Linkov’s U.S. Army Corps of Engineers group’s new website describes its activities, many of which advance the DARSG missions (<http://el.erd.c.usace.army.mil/riskdecision/index.html>).

Kara Morgan, along with Malcom Bertoni, reviewed a May 2011 National Research Council report to the Food and Drug Administration (FDA) on a new risk characterization framework. The proposed risk characterization framework emphasizes health risk consequences and public health impacts of alternative decisions, rather than traditional risk quantification, across all FDA regulatory missions. It involves three steps: (1) identify and define the decision context, (2) estimate or characterize the public-health consequences of each option by using the risk attributes defined in the report, and (3) use the completed characterization to compare decision options and to communicate public health consequences within the agency, to decision makers, and to the public, and then use the comparison with other decision-relevant information to make informed decisions. Bertoni and Morgan are working to engage internal stakeholders in a pilot application.

The full report is available at <http://dels.nas.edu/Report/Risk-Characterization-Framework-Decision/13156>.

Risk Policy and Law Specialty Group

Tee L. Guidotti, Chair

The leadership of the Risk Policy and Law Specialty Group (RPLSG) is preparing for an especially important business meeting at the 2011 Society for Risk Analysis (SRA) Annual Meeting in Charleston. The most important item on the agenda will be adoption of bylaws. Under the new draft bylaws, elections will take place at the annual meeting, two new member-at-large Board positions will be created, and the governance of the RPLSG will be regularized, since we have been operating without bylaws for some time. Members are asked to please read and comment on the draft that was distributed by email in September.

This past year has been devoted to reconsidering the direction of the RPLSG and its value to SRA members. Our thinking is along these lines: risk policy is, in many ways, the whole point of SRA as an organization since risk assessment, and therefore the risk science that supports it, exists to guide policy and risk management. So in some ways our specialty group is the home of what should be core concerns and interests of all members and reflects the mission of the whole organization. RPLSG leadership has therefore recommitted itself to cultivating these central issues more deeply rather than changing emphasis or redefining the mission of the specialty group.

Risk law, on the other hand, is more slippery. The leadership initially discussed expanding programming and discussion on the use of risk concepts in law and was repre-

sented at the unveiling ceremony for the third edition of the Federal Judicial Center's *Reference Manual on Scientific Evidence*. We will continue to explore possibilities, but for the time being plan to put the emphasis on administrative law in the development of regulations.

In 2012 a number of initiatives will be rolled out, including a syllabus bank for courses in risk.

We are discussing partnering with other subgroups, organizations, government agencies, and risk stakeholders. We are currently benefiting from the experience of the Economics and Benefits Analysis Specialty Group on internal governance issues (our new bylaws are modeled after theirs) and we are working with the National Capital Area Regional Organization on possible policy-centered programming.



Member News

Heather Douglas

Heather Douglas is leaving the University of Tennessee in January 2012 to become the Wolfe Chair in Science and Society in the Department of Philosophy at the University of Waterloo in Ontario, Canada. She expects thinking about the role of science in policy making about risk to continue to be a central part of her work.

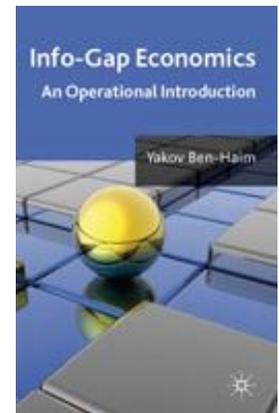
Yacov Ben-Haim

Yacov Ben-Haim has written the book *Info-Gap Economics: An Operational Introduction* (<http://info-gap.com/content.php?id=85>).

After every crisis, economists and policy analysts ask, Can better models help prevent or ameliorate such situations? This book provides an answer. Yes, quantitative models can help if we remember that they are rough approximations to a vastly more complex reality. Models can help if we include realistic but simple representations of uncertainty among our models, and if we retain the preeminence of human judgment over the churning of our computers.

Info-gap theory is a new method for modeling and managing severe uncertainty. The core of the book presents detailed examples of info-gap analysis of decisions in monetary policy, financial economics, environmental economics for pollution control and climate change, estimation, and forecasting. This book is essential reading for economic policy analysts and researchers.

Ben-Haim holds the Yitzhak Moda'i Chair in Technology and Economics at the Technion - Israel Institute of Technology. He initiated and developed info-gap decision theory for modelling and managing severe uncertainty. Info-gap theory is applied in engineering, biological conservation, economics, project management, homeland security, medicine, and other areas. He is the author of five books and numerous articles.



World Congress on Risk 2012 18-20 July 2012 – Sydney, Australia

The Society for Risk Analysis (SRA) invites you to join us for the World Congress on Risk 2012: "Risk and Development in a Changing World," Wednesday, 18 July, to Friday, 20 July 2012, at the Sydney Convention and Exhibition Centre, Australia.

Go to www.sra.org/worldcongress2012 for further details and to submit your Symposium Session proposal. The co-chairs of the World Congress 2012 are Professor Alison Cullen (University of Washington), Dr. Daniela Leonte (Australian Government Department of Health and Aging), and Professor Jonathan Wiener (Duke University).

Questions? Contact the SRA Secretariat (ddrupa@burkinc.com).

[Return to Table of Contents](#)



— a quarterly look at the incredibly diverse field of risk analysis —

Dr. Raymond H.V. Gallucci

What is your job title?

Senior Risk and Reliability Analyst, U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Division of Risk Analysis, PRA Licensing Branch, Rockville, Maryland

How is risk analysis a part of your job?

My current job, and most of my previous ones, exclusively involves risk analysis with respect to nuclear power. Currently, and at several previous employers, this has focused on modeling reactor core damage accident sequences for the commercial industry. However, I also investigated models and made similar predictions for the nonreactor side of the nuclear fuel cycle, including high-level waste management and transport of spent nuclear fuel. I also developed stochastic simulation computer models related to forecasting degradation phenomena for both nuclear and fossil electric power generating facilities, such as erosion/corrosion of steam generator tubes and replacement strategies for degraded components. Much of my early work, and some of my current, involves developing and weighing the costs and benefits (impacts and values) of alternative strategies to preempt or at least mitigate the effects of potentially severe nuclear power plant accidents. Interestingly, I was the major author on a handbook for performing such analyses in the early 1990s and am now using that handbook in my current work (nearly 20 years later), sort of a “what goes around, comes around” scenario perhaps not that unusual in the risk analysis field.

How did you decide to pursue this career?

At college, I delayed my selection of an engineering major until the latest possible time (junior year), as I was undecided which field interested me the most (I knew what did not interest me, but had several that did). Ultimately, I “defaulted” to nuclear engineering and science because of my preference for nuclear physics and math, reasoning that nuclear engineering, then a still-growing field before Three Mile Island (yes, I’m “old”), would combine the best of both worlds. My undergraduate and initial graduate studies focused highly on nuclear physics in the area of nucleonics, the behavior of neutrons in the reactor core. However, upon completion of my master’s, the nucleonics field “dried up” considerably in terms of funding, so I went looking for an alternative for my doctoral work. After “dabbling” in plasma physics for a semester, but finding it too much elec-



trically engineering oriented for my tastes, I “returned” to the nuclear engineering fold in the then growing field of probabilistic risk assessment, shortly after publication of the watershed WASH-1400 (“Reactor Safety Study”) report. Conveniently, my advisor and several of his “nucleonics” colleagues were also embarking into this then new area as a consequence of the much reduced work in nucleonics. I became the first graduate from my university with a doctorate specifically in risk and reliability analysis from the nuclear engineering department (1980).

What got you to where you are in the field of risk analysis today?

I have alternated between both the governmental and industrial side of nuclear power (and partially nonnuclear electricity generation) from employer to employer. Starting out, I was the first hire at a national laboratory with a degree and college background specific to probabilistic risk assessment. The lab was heavily into transportation risk analysis, to which I was able to apply my college experience. Both the lab and I subsequently branched out into supporting both the Department of Energy and Nuclear Regulatory Commission programs in nuclear power, including the nonreactor fuel cycle. As I mentioned, there was a focus on cost-benefit analyses, which often entailed producing analytical techniques and results to help support decision makers. I continued this pattern of alternating between government and industry until today I am now a nuclear power regulator and one of the decision makers that I used to support.

What is the most interesting/exciting part of your job?

As I am “old” and feel I have “done it all” (an oversimplification, but still it feels that way), my interests now lie in what I call “sanity checks,” whereby I try to find independent means to substantiate the results of others that I have to review to determine if they are reasonable. As a decision maker, I review many licensee (utility) applications related to risk-informed alternative means of complying with commercial reactor regulations, using “Regulatory Guides” and Standards/Peer Review results to reach conclusions. By performing “sanity checks” in addition to reviewing the submitted analyses, I am able to better gauge the validity of results being cited to support the applications. This enables me to “keep my feet wet” in the analyti-

cal arena while employing much of the insights accumulated over my 30+ years in the field doing the detailed analyses myself.

What would you recommend to those entering the field of risk analysis interested in a job like yours?

For someone interested in governmental/regulatory work, it is best to start by accumulating the experience in the particular fields that you eventually hope to regulate. For me at the Nuclear Regulatory Commission, that meant first working in the commercial, and to some extent noncommercial, nuclear power arena to become familiar with the technology and how probabilistic risk assessment is used to support it. I would strongly suggest that one consider a regulatory-type job as the endpoint of a career rather than a starting point, although there obviously have been many success stories of people who have spent their entire careers exclusively in government/regulatory work (acquiring the practical knowledge via training and special assignments).

How has membership/involvement in the Society for Risk Analysis (SRA) helped you in your work?

Here I must be a bit negative, in that there seems to be limited participation in the SRA by what I call “engineering” risk analysts such as myself.

Articles of direct interest to people in my field are sporadic, as “engineering” risk seems to be trumped largely by “other” risk disciplines, such as medical or environmental. The rigor of operations research and statistical analysis required in these fields does not fully translate into “engineering” risk, where much is based on approximations, expert judgment, and decision making with fairly high uncertainty due to limited data.

As you might gather, the types of articles that are mainly of interest to me are those related to risk perspective, decision making under uncertainty, and the infrequent risk assessment of a technology. Nonetheless, I maintain my membership and hope for increased participation by people in my risk arena.

What Do You Do?

Are you a member of the Society for Risk Analysis who would like to be featured in the “What Do We Do?” column of the *Risk Newsletter*? Send a photo (casual or formal, your choice) and the answers to the following questions to Mary Walchuk, *Risk Newsletter* editor, at editormw@hickorytech.net. We will be choosing one submission for each issue of the newsletter.

- What is your job title?
- How is risk analysis a part of your job?
- How did you decide to pursue this career?
- What got you to where you are in the field of risk analysis today?
- What is the most interesting/exciting part of your job?
- What would you recommend to those entering the field of risk analysis interested in a job like yours?
- How has membership/involvement in the Society for Risk Analysis (SRA) helped you in your work?



News and Announcements

Advancing the Next Generation (NexGen) of Risk Assessment

Videos of the presentations and the draft summary report from the 2011 NexGen conference held 15-16 February 2011 are posted at www.epa.gov/risk/nexgen/workshops.htm. To learn more about the NexGen program, please visit www.epa.gov/risk/nexgen.

The Battery in Charleston
photo courtesy of
Charleston Area
Convention &
Visitors Bureau



**“Risk Analysis on the Coast”
2011 SRA Annual Meeting
4-7 December
Charleston, South Carolina**

**Meeting information and online forms—
www.sra.org/events_2011_meeting.php**

[Return to Table of Contents](#)



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Mary A. Walchuk, *Editor*, editormw@hickorytech.net
Genevieve S. Roessler, *Consulting Editor*,
gnrssl@frontiernet.net
Sharon R. Hebl, *Editorial Associate*

Society Officers:

Rachel Davidson, *President*, rdavidso@udel.edu
Ann Bostrom, *President-elect*, abostrom@uw.edu
Henry H. Willis, *Secretary*, hwillis@rand.org
Jeff Lewis, *Treasurer*,
r.jeffrey.lewis@exxonmobil.com
Jack Fowle, *Past Treasurer*, fowle.jack@epa.gov
Richard Reiss, *Past President*, rreiss@exponent.com

Members of SRA Council:

Scott Ferson, scott@ramas.com
Daniela Leonte, d.leonte@unsw.edu.au
Igor Linkov, igor.linkov@usace.army.mil
Margaret MacDonell, macdonell@anl.gov
Ortwin Renn, ortwin.renn@sowi.uni-stuttgart.de
Lisa Robinson, lisa.a.robinson@comcast.net
Michael Siegrist, msiegrist@ethz.ch
Donna Vorhees, dvorhees@post.harvard.edu
Felicia Wu, few8@pitt.edu

Secretariat: David Drupa, Executive Secretary,
Society for Risk Analysis,
1313 Dolley Madison Blvd.,
Suite 402, McLean, VA 22101;
phone: 703-790-1745; fax: 703-790-2672;
email: SRA@BurkInc.com

Communications Chair: Felicia Wu, few8@pitt.edu

Newsletter Contributions: Send to Mary Walchuk,
Editor, *Risk Newsletter*, 115 Westwood Dr.,
Mankato, MN 56001; phone: 507-625-6142;
email: editormw@hickorytech.net

SRA website: www.sra.org

Deadline for *Risk Newsletter* Submissions

Send information for the **First Quarter 2012 SRA Risk Newsletter**, which will be on the SRA website mid-January, to Mary Walchuk, *Risk Newsletter* Editor (115 Westwood Dr., Mankato, MN 56001; phone: 507-625-6142; email: editormw@hickorytech.net) no later than **20 December 2012**.

Future Society for Risk Analysis Annual Meetings

4-7 December 2011-Charleston,
South Carolina

9-12 December 2012-San Francisco,
California

8-11 December 2013-Baltimore,
Maryland

The Society for Risk Analysis (SRA) is an interdisciplinary professional society devoted to risk assessment, risk management, and risk communication.

SRA was founded in 1981 by a group of individuals representing many different disciplines who recognized the need for an interdisciplinary society, with international scope, to address emerging issues in risk analysis, management, and policy. Through its meetings and publications, it fosters a dialogue on health, ecological, and engineering risks and natural hazards and their socioeconomic dimensions. SRA is committed to research and education in risk-related fields and to the recruitment of students into those fields. It is governed by bylaws and is directed by a 15-member elected Council.

The Society has helped develop the field of risk analysis and has improved its credibility and viability as well.

Members of SRA include professionals from a wide range of institutions, including federal, state, and local governments, small and large industries, private and public academic institutions, not-for-profit organizations, law firms, and consulting groups. Those professionals include statisticians, engineers, safety officers, policy analysts, economists, lawyers, environmental and occupational health scientists, natural and physical scientists, environmental scientists, public administrators, and social, behavioral, and decision scientists.

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