

## 20<sup>th</sup> International Symposium on Halogenated Environmental Organic Pollutants & Persistent Organic Pollutants (POPs)

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The 20th anniversary of the Dioxin Symposia ("Dioxin 2000") was held at the Hyatt Regency Resort and Conference Center in Monterey, California, on August 13-17, 2000. The 2000 meeting brought together 918 participants from 34 countries and while meeting participants were predominantly from the USA, Japan and Europe, we also had attendees from Azerbaijan, Brazil, Egypt, Malaysia, Russia and New Zealand. The importance and impact of these widespread contaminants to many scientific, regulatory and policy areas was clearly evident from the diverse areas of expertise of meeting participants, including basic research scientists, governmental regulators and researchers, industry representatives, consultants, the media and representatives of the general public. Over the course of the meeting we had 277 talks in 34 separate platform sessions and 313 posters in 20 sessions. In addition to general scientific subject areas, the 2000 meeting included 17 special platform sessions which showcased recent advances in biological and analytical detection methodologies, source identification and novel bioremediation technologies. In addition, inclusion of sessions on the natural formation of dioxin, global POPs treaties and international POPs management, POPs in foods and risk evaluation of dioxin-like chemicals kept the discussions lively and interesting. Several epidemiology sessions and one special session on childhood health and development with respect to persistent organochlorine exposure also put things into perspective with regards to the current state of knowledge at that time. Finally, special sessions were held on polychlorinated naphthalenes and parafins as well as the polybrominated flame retardants (brominated diphenyl ethers (PBDEs)). These specific sessions not only demonstrated that some member of these relatively newly studied classes of chemicals have biological and toxicological potencies approaching that of the coplanar PCBs, but it became apparent that they were fast becoming widespread environmental contaminants (a portent of future environmental problems and a Dioxin Symposium topic?). This meeting was also one of the first in the US in which PBDEs were a major topic of discussion and talks from these



sessions were subsequently published in a special issue of *Chemosphere* edited by Drs. Mehran Alaee and Richard Wennig. Meeting participants were also provided with the short papers of the meeting presentations published as volumes 45 through 49 of *Organohalogen Compounds* (~2,500 pages total) and a less-than-user-friendly CD containing the published short papers.

The official welcome address and opening of the Dioxin 2000 Symposium was presented by Dr. Robert D. Stephens from the California Environmental Protection Agency. Following his brief introduction, Dr. Stephens presented a plaque to Dr. Christoffer Rappe (Umea University, Sweden), recognizing his significant scientific contributions to our understanding of halogenated environmental organic pollutants and POPs. A keynote talk followed the award presentation and also started off each day of the meeting and these presentations provided excellent overviews of their selected topic areas and that made them interesting and informative for all participants. Dr. Jim Willis from the United Nations Environmental Program (Switzerland) gave the first keynote presentation entitled, "Steps to Solving the Global POPs Problem". His talk provided a unique overview of global POPs issues and international attempts to manage these widespread chemicals. This topic was followed up in a special platform session on Global POPs Treaty and Quality Criteria for International POPs Management and two sessions on POPs in foods. Dr. Barry Dellinger from Louisiana State University (USA) presented the second keynote lecture entitled, "Combustion-Generated Radicals and Their Role in the Toxicity of Fine Particulates". His talk provided an overview of the role that chemical reactions occurring on particulates play in the generation of toxic chemicals. He described some very interesting results showing that combustion generated radicals could subsequently produce chlorinated dioxins on fine particulate matter. This topic was followed up in a special session on PCDDs/PCDFs in the Atmosphere - Measurement, Trends, Sources, Fate and Transport. Dr. Martin van den Berg from the University of Utrecht (The Netherlands) presented the third keynote address entitled "Halogenated Endocrine Disruptors in Wildlife and the Aquatic Environment - Is There (Still) a Problem?". Not only did his talk highlight the current state of knowledge regarding endocrine disruptor chemicals and their effects in wildlife and aquatic organisms, but it presented interesting questions with regards to the significance, seriousness and persistence of the endocrine disruption problem. This topic was further addressed in the special sessions on Endocrine Disruptors and Ecotoxicology. The final keynote address was presented by Dr. Linda Birnbaum from the US Environmental Protection Agency (USA). She presented an integrated overview of the present state of knowledge of the health effects of dioxins in a presentation entitled "Health Effects of Dioxins: Animals are People, and Vice Versa!". In her presentation, Dr. Birnbaum pulled together the diverse array of animal toxicological and human epidemiological data available at that time on the effects of dioxin and dioxin-like chemicals. Not only did she succeed in providing a critical evaluation of the actual effects of these chemicals in the context of both animal and human health and the interrelationship between animal and humans studies and results, but she also discussed critical areas in need of further research. Numerous special sessions on epidemiology, molecular mechanisms, toxicology and risk evaluation further addressed aspects covered in her presentation.

In addition to the outstanding science and opportunities to interact with colleagues, a major attraction of this annual meeting is the opportunity to visit with colleagues in interesting locations throughout the world. This meeting was the only time that the Dioxin Symposium had been held on the west coast of the US. Monterey, which in its early days was the capital of the

Spanish territory of California, is a historic town situated on the southern most curve of the Monterey Bay. In my unbiased view, Monterey and its surrounding area offer some of the most dramatic and beautiful coastlines in the world. There were several organized sightseeing tours for accompanying persons (and those of you that had to force yourself to miss the sessions!). The weather throughout the week of the meeting was very unusual in



that it was sunny, warm and absolutely perfect. This was in stark contrast to the foggy, cloudy and cool weather typical of the Monterey Bay area during that time of year, and this certainly contributed to the efflux of meeting participants to the tours and local sights. A scenic highlights tour on the first day covered the entire Monterey Peninsula and included Fisherman's Wharf, Cannery Row and historic Monterey, Victorian architecture in Pacific Grove, Pebble Beach and its 17-Mile Drive, the Carmel Mission and the overpriced stores of Carmel-by-the-Sea. The second outing was a Big Sur Coastal Tour and Nature Walk that included the picturesque coastline from Pebble Beach to Big Sur with stops at coastal redwood groves and travel through the coastal shrub and chaparral of the Santa Lucia Mountains. The final tour was a nature walk along trails flanked by coastal cypress trees down to the tide pools along the rocky shores of the Pacific Ocean at Point Lobos, one of the Monterey peninsula's most majestic State Reserves. No

sessions were scheduled for Wednesday afternoon of the meeting to allow participants and their families to do some sightseeing in the Monterey area, while for others of us, the opportunity to play some golf at one of the many courses in the area. More than 20 attendees participated in the first Dioxin Symposia golf tournament at the Del Monte Golf course on the grounds of the Hyatt Regency Resort. While the name of the winner and their score will be kept secret, Tiger Woods has nothing to fear from any of those Dioxinologists!



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One of the most enjoyable and memorable event from my perspective and that of many others I have talked to over the years was the official welcome reception that was held at the Monterey Bay Aquarium on historic Cannery Row. The aquarium is part of the nation's largest marine sanctuary and had more than a hundred galleries and exhibits that recreated the Monterey Bay's

many habitats, from shallow tide pools to the vast open ocean. There were many unique exhibits including a three-story kelp forest and these displays contained more than 350,000 creatures that live in Monterey Bay, from sea otters and jellyfish to sharks and octopuses. Meeting participants freely wandered the halls throughout the evening and enjoyed the exhibits of the aquarium with food and drink in hand. There were also a variety of hands-on exhibits which gave everyone the opportunity to come into direct contact with many of the local marine inhabitants. Outside, walkways and patios offered nice views of Monterey, the Pacific Ocean and the California coast. The evening event was interesting, relaxing and above all, fun.

Finally, I would like to acknowledge that the success of the Dioxin 2000 Symposium from the scientific perspective goes not only to all the individuals who helped with the organization and running of the meeting, but more importantly, to all of the participants. In addition, this meeting would not have been as successful without the financial support provided by meeting exhibitors, State and Federal Governmental Agencies (CALEPA, USEPA, NIEHS) and the University of California (Superfund Basic Research Program, Center for Environmental Health Sciences, Toxic Substances Teaching & Research Program, and the Department of Environmental Toxicology).