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Microbial Source Tracking:
Applicability to Improvement and Protection of Surface Water Quality

Valerie J. Harwood, Ph.D., University of South Florida, Department of Biology

Valerie J. Harwood, Ph.D.

Water Quality Monitoring

The goal of microbiological aspects of water quality analysis is to detect fecal contamination, which brings with it the elevated risk of waterborne disease due to the presence of bacterial, viral, or protozoan pathogens. Due to constraints based on time, finite funds, and methodological issues, it is virtually impossible to test for all possible pathogens in a water sample. Thus, water quality monitoring has relied for over 100 years on enumerating indicator organisms (IOs), whose presence should ideally be correlated with the risk of waterborne disease in humans using that water. Total coliforms, fecal coliforms, E. coli and Enterococcus spp. (enterococci) are the most commonly used indicator organisms in the United States, and are frequently termed fecal indicator bacteria. IOs are relatively poor predictors of the presence of some pathogens, including enteric viruses and protozoa such as Cryptosporidium spp., leading to the potential for false-negative results (IOs absent; pathogens present). Conversely, IOs can be present in waters where there are few or no viral, bacterial or protozoan pathogens, leading to false-positive results (IOs present, pathogens absent).

Nonspecific indicators of fecal contamination

Coliforms, E. coli and enterococci are nonspecific indicators of fecal pollution in that they are present in the gastrointestinal tract of all warm-blooded animals (and some cold-blooded ones). Some animal feces, such as those of cattle, swine, and particularly, human, are more likely to contain human pathogens than the feces of most other species. Many water quality experts therefore recognize that contamination from these sources represents a higher risk to water users than contamination from other animals. Although there is no direct evidence that fecal contamination from any source is "safe," very low levels of IOs from a high-risk source would indicate a greater potential health hazard than higher levels of IOs from a low risk source. Currently, no testing method for IO source determination is approved by any regulatory agency; however, a number of approaches, collectively termed microbial source tracking (MST) methods, are the subject of very active research efforts by many investigators across the country (USEPA, 2005).

Microbial source tracking methods

MST methods can be roughly grouped into library-dependent and library-independent approaches. Library-dependent methods typically begin with culture of a large number of bacterial isolates (generally IOs such as E. coli or enterococci) from the feces or sewage associated with various host species (e.g. cattle) or groups (e.g. livestock) that may impact the water body.

The isolates are typed, or "fingerprinted" by either phenotypic or genotypic

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CEHA Support Services

John Morihara
110 South Fairfax Avenue, #A11-175
Los Angeles, California, 90036
(323) 634-7698 Phone
(323) 571-1889 Fax
support@ceha.org
www.ceha.org

Design/Printing

Concord Graphic Arts
3270 Monument Way
Concord, CA 94518
(925) 682-9670

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CEHA Publications Committee

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Khartma2@yahoo.com

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President's Message

Darryl C.F. Wong, REHS
2006-2007
CEHA President

Dear CEHA Members,

Well, the holidays should be over by the time you read this. I am hoping you and your families enjoyed a special time of peace and happiness; and that you were able to share many wonderful meals and conversations with friends and family that you have not seen in a long time.

I am pleased to announce that our membership has grown since I last addressed you. Though it was not the 300 members that I was hoping for, it was a very positive step forward. We are up about 100 new members. Several chapters have been very busy providing training opportunities, social events, and actively recruiting new members. Their hard work is showing and I commend them for their tireless efforts to promote CEHA and our profession. However, John Morihara, CEHA Support Services, candidly reminded me that "It is not over till the fat bald guy sings!" I am not so sure I want to hear Mr. Morihara sing, but we all need to get out there and promote CEHA and our profession. We can achieve that 300th new member or more by the 2007 AES if we all just took the time to encourage one new person to join. CEHA is the voice for all Environmental Health Specialists and is recognized as so by other agencies and groups in our profession.

The 2007 AES Committee has put together a great technical and educational program just for you. They have also provided some really fun social events to keep you amused and in the mood to relax and mingle with your old friends and peers. Learning should be fun! For details and registration information, go to the CEHA website at www.ceha.org. There is still time to be a volunteer at the 2007AES and learn from the best. Please contact Lori Braunreither (lbraunes@hsd.cccounty.us) or George Nakamura (gmlnaka@comcast.com) if you wish to be a part of this fantastic team. Remember to save the dates of April 23 to April 27 for the 2007 AES, held at the Radisson Resort Hotel in Sacramento. I hope to see you all there.

While things slowed (just slightly) from the normal frantic pace for me during the holidays, I decided to give it a try to update the CEHA website. With the help of Jeff Eisert, CEHA Website Chair, I was able to correct and remove some old information. If you have not checked the CEHA website lately, please take a look (www.ceha.org). It may not be obvious, but some new items have been added. I plan on making more changes as time permits. Obviously I am limited by my duties as President, and am looking for a competent computer person to help Mr. Eisert with the website. If you are interested, let me know.

Looking at some of the past President Messages (yes, you can go to the CEHA website and read previous bulletins), I noted that the issue of the REHS registration program came up a few times. This issue is still alive and kicking. The general message from my predecessors was to study the issues and be informed as to what it all meant and how it may affect you. I've placed a Frequently Asked Questions (FAQ) link about the fee increase for the REHS registration program, as well as one for continuing education, on the CEHA website. CEHA supports the California Registration Program and Continuing Education.

I realize that the controversy on registration, as well as continuing education, is the root that divides many of us. At the CCDEH conference that I attended last September, there was a discussion about our registration between two directors. I will not go into the details of this discussion, other than saying this controversy exists at all levels in our profession. However, you should know that the State of California does not have to recognize "another registration" if the current registration program through the Department of Health Services (DHS) is replaced. Keep in mind, your registration by the State of California allows you to enforce the rules and regulations of the California Health and Safety Code. And, you are required to be registered within 3 years upon accepting your position as a trainee. Without this requirement, we could all just remain as technicians or trainees, working as "designees" for the rest of our careers. Now that is a thought if you are a budget conscious manager.

And what about continuing education, you may ask? Most registered professionals, if not all, require some degree of continuing education to maintain their registration. This is to ensure they are keeping current with new findings and technology in their fields; and more so to ensure their job is viewed as a vital and respected profession. Now that is a simple concept.

Several months ago, a dear friend of mine invited me to attend the Master Gardeners Tour in Carmel Valley. Now don't laugh, gardening is serious business (and really big money!). What I was astonished to learn was that each Master Gardener was required to maintain 12 hours of continuing education units a year through the University of California to retain their titles as "Master Gardener". Wow, a gardener is required to attend so many hours of training each year in order to "cut our lawns" (yes, I am being facetious), and Environmental Health Specialists have never been required to maintain any type of training or educational hours/credits once they pass their exam. I find this rather ironic since our decisions, in an ever changing and challenging technical field, can affect the health and safety of all.

I am also concerned that our registration may be scrutinized should there be a change. If we have never required continuing education to maintain this "hallowed" REHS title that we all strived to achieve, one may argue (at the legislative level) why do we need it now. We need to realize that we could in fact take a step backwards in the recognition that our profession has worked so hard to achieve. We have done nothing to prove that we, Registered Environmental Health Specialists, have maintained our credentials to ensure our capabilities are the most current and reliable to serve the people of California. Again, there are no guarantees that changing to another registration would be accepted or recognized by the State of California.

I do not have a crystal ball to tell me if what I have mentioned above will come to be. I do understand that the issues above are far from settled and there will be changes coming in the near future. I have been talking with many of our peers, including directors and DHS personnel, who are very concerned about the REHS Registration Program and continuing education. The general feeling is that a vast majority of those in our profession do

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Watch the CEHA webpage for updates on this educational opportunity!!

California Environmental Health Association

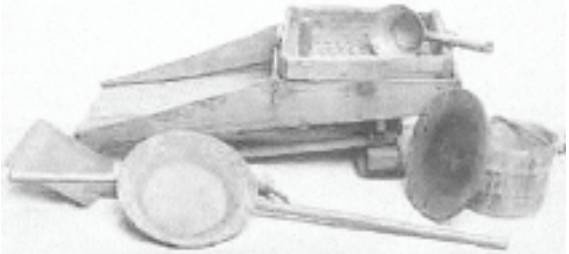
Don't miss it!!! See You there!!

CEHA 2007 AES
ENDLESS OPPORTUNITIES

56th Annual Educational Symposium

April 23-27, 2007
Radisson Hotel, Sacramento

Folks came west for the endless opportunities available in California—the Gold Rush being one opportunity. The Gold Rush theme will be incorporated throughout the conference. Learn about the history of California and Sacramento while learning about Environmental Health and the history of our exhibiting companies. To get into the spirit of the week, start planning now to dress in gold rush or historic costume for the evening banquet.



Microbial Source Tracking, continued from cover

methods, and their fingerprints make up the known source library. Phenotypic fingerprinting, which relies on observable characteristics of the IOs, can be carried out by a variety of methods, including antibiotic resistance analysis (Hagedorn et al., 1999; Harwood et al., 2000; Harwood et al., 2003; Wiggins, 1996; Wiggins et al., 2003) and carbon source utilization (Hagedorn et al., 2003). Genotypic fingerprinting, which detects differences among strains at the genetic level, can also be carried out by a number of methods, including ribotyping (Parveen et al., 1999; Moore et al., 2005), pulsed field gel electrophoresis (Stoeckel et al., 2004), and rep-PCR (Johnson et al., 2004).

Once the library has been validated for its ability to predict the source of IOs that are not part of the sample set used to make the library, the fingerprints of isolates from water samples can be matched with their closest neighbors in the library. Because the source of the library isolates is known, the source of each isolate from the water can be inferred. Implementing these methods is not usually straightforward, since (a) certain fingerprints in the library will generally be isolated from more than one host, leading to uncertainty about the source of isolates from water that match to these "cosmopolitan" strains, and (b) some water isolates may not match any of the library isolates, which suggests that the library is not large enough to be representative of the diversity of IO types in that environment.

MST libraries are expensive and time-consuming to construct, and their applications across geographical distance or over time spans over one year has not been determined (USEPA, 2005; Wiggins et al., 2003); however, library-independent methods are less subject to some of these concerns. These methods generally rely on detection of a specific gene(s) found in a microorganism that is unique to a certain host or group of hosts. Polymerase chain reaction (PCR) or DNA probes are used to detect the genes, which may be present in fecal indicator bacteria such as enterococci (Scott et al., 2005), in other bacteria such as the Bacteroides-Prevotella group (Bernhard and Field, 2000), or in bacterial viruses (Hsu et al., 1995). In some cases, direct detection of genes in specific pathogens that are unique to a host source is employed (Noble et al, 2003). A disadvantage of library-independent methods is that tests have been developed for only a handful of host species or groups to date, including humans (Bernhard and Field, 2000; Scott et al., 2005), ruminants such as deer and cattle (Bernhard and Field, 2000), and horses (Dick et al., 2005). Another uncertainty that must be addressed when using library-independent methods is the distribution of the marker (gene) in the host population, i.e., an ideal marker would be widely distributed in the host population (found in most or all individuals). A marker associated with an organism with patchy distribution in the host population is more problematic, as a negative result may be obtained when the fecal contamination originates from a small number of individuals.

Comparisons among MST methods have been made in several studies (Griffith et al., 2003; Moore et al., 2005; Stoeckel et al., 2004), which concluded that all of the methods had certain pros and cons. Among the major drawbacks of library-dependent methods was their tendency to false-positive results (detection of contamination from a source when not actually present). Library-independent methods tended more toward false-negative results, particularly in fecal samples from individual animals or humans. Since those reports were published, the field has advanced a great deal, particularly in terms of knowledge about how to validate (test the accuracy of) methods (USEPA, 2005). Challenge (proficiency) samples that are derived from material that was not used to develop the methods are essential, as are intentionally contaminated samples whose fecal source is blinded to the testing laboratory. Validation of both library-dependent and library-independent methods in the time and geographic location of the study is also crucial to meaningful quality control.

The Use of MST Data

Currently, most MST methods are largely qualitative, detecting the presence or absence of sources of fecal pollution. These methods can be extremely useful for investigation of contamination in targeted studies over a relatively small area (see, for example, Hagedorn et al., 1999; Whitlock et al., 2002, Wiggins, 1996). Studies that aim to detect fecal loading over large geographic areas, or from a large number of potential sources, will face greater hurdles at the present time. Several investigators have recommended a "toolbox" approach, in which two or more MST methods coupled with hydrological and land use data are used to develop a weight of evidence answer to the question of major contamination source(s) to a water body. New methods and quantitative adaptations of existing methods, such as quantitative PCR for Bacteroides-Prevotella (Dick et al., 2004) have been published or are under development which will expand the MST repertoire and improve our ability to investigate more complex contamination scenarios. Ultimately, the goals of MST are to increase the accuracy of both risk assessment and source allocation in water bodies contaminated with fecal material, which will improve protection of public health and ecosystem health in environmental waters across the country.

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Valerie J. (Jody) Harwood, Ph.D. is an environmental microbiologist, and microbial ecologist. She is currently an Associate Professor in the Department of Biology at the University of South Florida, Tampa FL. She received a BA in French from Iowa State University and a BS in Biology from SUNY Plattsburgh. She earned her Ph.D. in Biomedical Sciences at Old Dominion University and Eastern Virginia Medical School in Norfolk, Virginia. Dr. Harwood conducted postdoctoral research at the University of Maryland Center of Marine Biotechnology (COMB) in Baltimore. She was Assistant Professor for 3 years at University of North Florida (Jacksonville), and since 1998 has been a member of the Biology Department at USF.

One of Dr. Harwood's major areas of expertise is microbial source tracking (MST), which endeavors to determine the source(s) of indicator bacteria such as fecal coliforms and enterococci in water by phenotypic and genotypic typing methods. She is also interested in the persistence and ecology of enteric organisms in secondary habitats, like water and sediments. Genotyping of Vibrio vulnificus, a foodborne pathogen which causes frequently lethal infections, is another area explored by her lab. Harwood has published and presented papers on the efficacy of wastewater treatment on reduction of microbial numbers, on the biochemistry of the hyperthermophile Pyrococcus furiosus, on Vibrio genetics, physiology, and detection in environmental waters, and on phylogeny and antibiotic resistance of Enterococcus spp. She has published over twenty peer-reviewed papers, and has been awarded state and federal funding exceeding 1.5 million dollars.

Presient's Message, continued from pg. 3

not fully understand or know what is at stake here. Again, I encourage you to read the FAQ's on the CEHA website. Know the facts. Be informed and share with as many as you can contact. We must ensure that our registration is maintained and upheld to the highest standards.

As I stated before, CEHA has a voice. This is your voice. There are over 3,680 Registered Environmental Health Specialists in the State of California. Yes, our voice has grown a little. However, there are only 657 active members in CEHA as I write this message. We can build a much stronger voice by increasing our membership. With a stronger voice, we can effect positive changes to our profession. We need to go beyond the issues that divide us and look to the future of our profession. It is time for us to come together. It is time for CEHA to be fully recognized as a leader in our profession.

As always, I am at your service.

Be well. Be safe.

Darryl C.F. Wong

Darryl C.F. Wong, REHS

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Public Health Paradox – The Real Threats

I sit to write this just before Halloween, a time that we celebrate our fear of the goblins and ghouls. Often times what we fear and what we should fear are two disparate ideas. In Public Health we see irrational fears and general panic everyday. So as I sit here looking at the jack-o-lantern staring at me from my window, I am reminded of a presentation given recently by Gary Feldman, MD entitled Public Health Paradox – The Real Threats (and they ain't just the Pandemics). So what are the threats that will be visiting our doorway? They are:

- Population
- Energy Consumption
- Global Warming
- Ecological Change – Food Crash
- Rise in Sea-Level – Loss of Cities
- Economic Collapse, and
- Massive Migration

Let's take a look at each of these and ask ourselves two questions, how do these impact Public Health and what we can do to be part of the conversation and therefore the solution.

We are heading for a population of 11 billion by the year 2050. Much of this growth will be seen in urban and coastal communities. Surprisingly, the limit on population is neither fertility nor mortality, it is FOOD. Malthus (1766-1834) theorized that the capacity to grow food increased arithmetically, but population grows geometrically, so that food will ultimately limit population growth. So far this theory has not become reality due to three things.

1. Better seeds that are disease resistant and offer greater efficiencies
2. Genetically Modified Foods, and
3. Chemical Fertilizers

Whereas nitrogen fixation is limited in nature, humans can manufacture fixed nitrogen at will. It could be argued that Fritz Haber (Haber-Bosch Process) is the father of over 2 billion people. His discovery allows the fixation of atmospheric nitrogen using pressure and lots of fossil fuels. Excess use of nitrogen leads to not only polluted waterways and algae blooms but also the release of many greenhouse gases. It takes more energy to grow food with chemical fertilizers than the energy that can be extracted from the food. This propels a hidden energy debt, it could be said that we are, in reality, eating fossil fuels. More food leads to more people, which leads to more energy use and the need for more food.

Our current use of energy consumption is not sustainable unless we dramatically shift energy sources. Our energy consumption is leading to global warming with a inevitable rise in sea level and possible economic collapse. Global warming is changing the ecosystem with a possible crisis in food production and a decrease in fresh water. At the very least, agriculture will have to adapt on a world-wide basis. If sea-ice melts there is no net increase in sea-level. However, when land-ice melts water levels rise. A rise in sea-level affects major population centers and will drive massive in-land migration. An increase in hurricanes, loss of croplands, hunger and economic collapse is sure to follow. Hurricanes and flooding will bring vector borne diseases, respiratory diseases, overcrowding and communicable disease outbreaks.

The role of Public Health is to take ownership of aspects of population control and energy independence. We will be welcome at the table when we bring good research, energy, and pragmatism to the party. Remember an erg of prevention is worth a joule of cure. We must also prepare for an increase in hunger, poverty and infectious diseases. As Public Health professionals we will be called upon to protect our citizens from disease and trauma. Now is the time to enter the conversation and to identify how our profession can be part of the solution.

Making 2007 Your Most Successful Year!

This is the perfect time of year for setting goals and developing a plan for success. Notice that the term New Year's Resolution was not used. Although resolutions are frequently made this time of year, they are also just as frequently forgotten. They may become mere wistful thoughts in a matter of hours or days.

Only about three percent of the population engages in some form of personal goal setting, and only one percent actually writes down goals. It should be noted that there is no small coincidence between the one percent of the people who write down goals and the highest achieving, highest income-earning men and women around the world. People without goals and a plan to reach their goals often find themselves directionless. Tom Hopkins, a world-renowned sales trainer, summed it up well when he said "If you don't know where you are going, you will more than likely end up somewhere else."

Are you going to end up where you want to be at the end of 2007? Setting a goal and developing a plan to accomplish the goal is the beginning from which all great things are accomplished. The following considerations may help you to set goals to make 2007 your most successful year.

- **Goals equal success!** When you begin your new year with solid goals and desired outcomes in mind, you set yourself up for mind-blowing success.
- **Write your goals down.** Don't be like the young man who said, "My memory is the thing I use to forget with." Goals left only to memory are destined to fade away like so many forgotten New Year's resolutions, and are nothing more than wishes.
- **Use a map.** You wouldn't start on a long road trip without a map, so don't start 2007 without setting goals and developing a plan to accomplish your goals.
- **Don't settle for "just getting by".** Do something that you love to do, and that you are good at. If your job is not fulfilling, do something to make it fulfilling! Or, change your job. If you love to do something, but you aren't that proficient, don't beat yourself up, take action! Find a mentor, take classes, and keep doing it until you are good.
- **Remember to think of others.** Going the extra mile for others can have far-reaching consequences, and can help you to be successful in life.
- **Take time to smell the roses.** Sometimes the journey is what is important…not the final destination.
- **Remember to review your plan frequently.** A plan is only good if you use it. Constant review is required to ensure goal achievement and success.

ESCOLAR
The Ex-Lax Fish

Ray Mc Donald Evans, REHS,
Consulting Sanitarian

STRANGE BUT TRUE...

My interest in the Escolar fish was stimulated by a meal I had some time ago in a local fish restaurant. About three hours after eating a tasty Escolar filet, I developed an intense urge to heed the call of nature. It was more of a shout or scream, rather than a call. Fortunately for all, I was near a public restroom. There was little warning, and I am glad I didn't sneeze…

THE EX-LAX FISH...

Escolar, *(Lepidocybium flavobrunneum),* sometimes called butterfish, snow fish, or white tuna, is usually caught as a by-product of long-line tuna fishing. The species can reach 6 feet in length and weigh over 100 pounds. It is part of a family of 24 species known as the gempylid fishes. They are a small group of pelagic, predaceous oceanic fishes that also include the Snake Mackerels and the Oil Fish *(Ruvettus pretiosus)*. Most gempylids have large, sharp teeth and are fished from tropical seas including the Gulf of Mexico. (The name Escolar comes from the Spanish for scholar, an allusion to the appearance of the fish face – it looks like the fish is wearing eyeglasses).

POISON PISCEANS...

These fish often contain purgative oil known as gemplylotoxin. Classified by the FDA as a marine toxin, this oil contains high levels of high molecular weight esters similar to oleic acid and castor oil. Ingestion of fish containing this oil can cause pronounced diarrhea – so much so that Pacific Island people use it as a convenient remedy for constipation. The fish is absolutely delicious, very moist, mild and buttery, but despite its pleasant taste, many chefs consider Escolar problematic and refuse to serve it. A Los Angeles chef recently pointed out the unpredictable nature of the fish when he humorously observed, "Escolar is… sort of a crap shoot."

ORANGE COUNTY EH SPECIALIST ENCOUNTERS ESCOLAR-AND SAVES THE DAY!

Recently fishermen on a sports fishing boat sailing in Mexican waters 125 miles out of San Diego caught a five-foot, 75-pound Escolar at 250 feet. Tuna was the expected catch, and squid used as the bait. Fortunately an Orange County Environmental Health Specialist was on board, who gave advice on the problematic nature of the catch, thus avoiding an ugly incident at sea.

ADVICE FOR THE ADVENTUROUS...

To avoid an embarrassing "blow out" those considering a meal of Escolar are advised as follows:

- Keep the portion size small; three or four ounces are ample, six is probably the limit
- You guessed it – the more you eat, the greater chance you will be truly moved by this delicious fish
- Grilling helps extract some of the purgative oil
- Don't sauté, especially if the pan juices are incorporated into a sauce

Plan your day accordingly ...

The sad result of intemperate consumption ...

Ray Evans is a former Orange County Supervising Environmental Health Specialist

Southwest Chapter Joins CAPSBA and DEH to Sponsor the Third Annual Body Art Safety Training Seminar

Kathy Hartman, REHS

The Southwest Chapter of CEHA and the California Alliance for the Promotion of Safe Body Art (CAPSBA) joined with the San Diego County Department of Environmental Health (DEH) to sponsor the Third Annual Body Art Safety Training Seminar in San Diego. This annual seminar is unique. As David Vidra, one of our instructors, said last year, "You can get more training at this seminar in one day that most people can even find in a year." Body Art Practitioners and Environmental Health Specialists not only have the opportunity to earn a Bloodborne Pathogens Training Certificate (when attendees pass the test) from an OSHA-authorized trainer, but they also have a chance to interact with each other on a non-regulatory basis. It does make a difference when you see each other across a table in class as opposed to across a counter in a body art studio.

2006 Body Art Safety Seminar

David Vidra, a Licensed Practical Nurse, Medical Assistant, and OHSA authorized Industry Outreach Instructor, provided the Bloodborne Pathogens Training. David has over twenty years of experience in body piercing that includes opening Cleveland's first piercing studio. He made training that can be rather dull…anything but dull! Of particular interest were several letters received by his company, Health Educators, Inc., from OSHA. It is not always easy for practitioners to apply information that has been developed for medical situations, even if they can find an OSHA interpretation. OSHA interpretations were very informative and addressed many typical body art practices such as: breaking off needles from needle bars; the use of latex gloves in combination with petroleum-based lubricants and lotions; hand washing requirements; and the use of safe work practices during body art procedures when there are no commercially available engineering controls.

Samantha Tweeten, PhD, who is currently an epidemiologist with the County of San Diego in the HIV/AIDS Epidemiology Unit, kept everyone on the edge of their seats with her session titled Body Piercing and Tattooing Associated Complications. As she talked about the reasons people get body art, potential complications, pigment reactions, infections, and non-infectious complications, she managed to keep EVERYONE engaged with a constant stream of interesting (gory) pictures. Even the "seasoned" artists and piercers were groaning and murmuring. There were tons of questions, and some people were totally grossed out. Her presentation did make people realize that it is important to be careful when performing a procedure and that it is also important to give good aftercare instructions to the client. The practitioner may do everything right, but the tattoo or the piercing ends up becoming infected because the client did not follow good aftercare instructions after they left the shop.

Kris Lachance, an OSHA Authorized General Industry Instructor, gave a session on documentation for the body modification industry. Although post-procedure complications are on a decline, lawsuits are becoming more frequent. Kris's coverage of client release forms, the questions a practitioner should ask their client, and the importance of proper identification, would be very useful if a practitioner is sued by a client. Record keeping forms and requirements that included employee awareness of everything from hazardous material lists, exposure control plans, emergency eyewash stations, and personal protective equipment, introduced practitioners to documentation they probably will be required to keep when the state body art regulations are adopted.

Kris Lachance

Fakir Musafar, a Master Piercer and shaman, known worldwide for his fifty years of research and personal exploration of primitive body decoration and rituals, rounded out the day with two sessions.

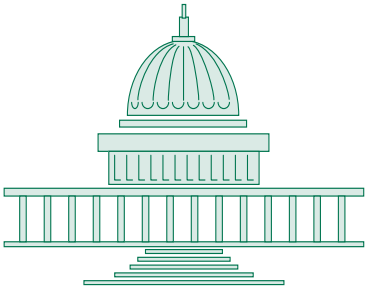
Fakir Musafar

The first session, Non-invasive Aftercare, reviewed the stages that all wounds go through, and how appropriate care can shorten the healing time. It was interesting to learn just how much the thinking about proper aftercare has changed over the years. In place of protocols that called for the use of harsh chemicals (antiseptics), research has shown that better results are obtained if a simple isotonic saline solution is used to keep the wound clean. In fact, in many cases, people who think they have an infection, actually have an irritation from the products they are using to help the healing process.

The last session given by Fakir, The Secret and Mysterious Aspects of Body Art, was perhaps the most intriguing. It was interesting to hear how all western body art practices have been "borrowed and adapted" from other cultures. Tattooing, body piercing, branding, scarification, and suspensions have all had great significance in other cultures for many years.

Continued on page 15

2005 – 2006 Final Legislative Report



The last day for the Governor to sign or veto bills was October 14, 2006. If you have any questions please call me at 805/654-2811, or e-mail at melinda.talent@ventura.org.

Updates to current legislation are now posted at www.CEHA.org as the information becomes available.

BILL #	AUTHOR	TOPIC	STATUS (10/4/2006)
FOOD/POOLS			
AB 389	ARAMBULA	POOLS - ENCOURAGES DHS TO PROVIDE SWIMMING POOL SAFETY INFO. TO PUBLIC	Failed passage
AB 1333	**FROMMER**	**GREASE WASTE HAULER REQUIREMENTS**	**CHAPTERED**
AB 1956	SHIRLEY HORTON	PILOT PROGRAM FOR REPORTING COMMUNICABLE DISEASE	VETOED
AB 2214	**TRAN**	**FOOD – REQUIRE DHS TO STUDY EFFECTS OF TRADITIONAL ASIAN FOOD AND PROTECT PUBLIC HEALTH**	**CHAPTERED**
AB 2644	MONTANEZ	EXPAND INSPECTION PROGRAM FOR VENDED WATER	Failed passage
AB 2676	**COMMITTEE ON AG**	**EXTEND FARMER'S MARKET REQUIREMENTS TO 2012**	**CHAPTERED**
AB 2977	**MULLIN**	**SWIMMING POOL SAFETY ACT – APPLIES TO PRIVATE POOLS**	**CHAPTERED**
AB 3005	EMMERSON	RESIDENTIAL CARE FAC. SITING REQUIREMENTS	Failed passage
SB 144	**RUNNER**	**RETAIL FOOD – CAL CODE**	**CHAPTERED**
SB 412	FIGUEROA	MASSAGE – CERT. OF MASSAGE PRAC. REMOVES LOCAL CONTROL	Failed passage
SB 905	MACHADO	BSE TESTING	Failed passage
SB 1772	MORROW	WATER VENDING MACHINE INSPEC.	Failed passage
SJR 5	SPEIER	USDA AND FOOD RECALL SYSTEM	Failed passage
HAZARDOUS MATERIALS AND WASTE			
AB 158	**BERMUDEZ**	**RAILROAD SAFETY TASK FORCE – CUPA REP ON TASK FORCE**	**CHAPTERED**
AB 492	BACA	HAZARDOUS WASTE – PERCHLORATE REPORTS FOR GENERATORS	Failed passage
AB 956	COTO, CEDILLO, MALDONALDO	HAZARDOUS MATERIAL RELEASE SITE- PUBLIC INFO.	Failed passage
AB 1327	TRAN	HAZARDOUS MATERIALS – ACCIDENTAL RELEASE PREVENTION PROGRAM	Failed passage
AB 1341	**ES&TM COM.**	**CA POLLUT. CONTROL - BROWNFIELD**	**CHAPTERED**
AB 1681	**PAVLEY**	**LEAD JEWELRY – HAZ. WASTE DISPOSAL PENALTIES**	**CHAPTERED**
AB 1688	**NIELLO**	**ILLEGAL DUMPING OFFICERS**	**CHAPTERED**
AB 2127	PLESCIA	THIS BILL WOULD REQUIRE A STUDY BY CIWMB AND THE SWRCB ON THE ENVIRONMENTAL IMPACT OF BATTERIES	Failed passage
AB 2144	**MONTANEZ**	**HAZ. MAT. – LAND USE**	**CHAPTERED**
AB 2145	MONTANEZ	HAZARDOUS MATERIALS - LIABILITY	Failed passage
AB 2155	**WOLK**	**HAZARDOUS WASTE TREATMENT – PHARMACEUTICAL FACILITIES EXEMPTIONS**	**CHAPTERED**

BILL #	AUTHOR	TOPIC	STATUS
AB 2202	SALDANA	HAZARDOUS WASTE – DEFIN. OF ELECTRONIC DEVICE	Failed passage
AB 2231	**PAVLEY**	**EMERGENCY SERVICES INFO.**	**CHAPTERED**
AB 2335	**SALDANA**	**MEDICAL WASTE – DEFIN. OF INFECTIOUS AGENT**	**CHAPTERED**
AB 2367	**LA SUER**	**HAZARDOUS MATERIALS – PROP 65 PENALTIES**	**CHAPTERED**
AB 2490	RUSKIN	CA TOXIC RELEASE INVENTORY	VETOED
AB 2587	**LIU, KEENE**	**HAZARDOUS WASTE – METH CLEANUP OF CONTAMINATED PROP.**	**CHAPTERED**
AB 2628	BACA	HAZARDOUS SUBSTANCES – PERCHLORATE CLEANUP FUNDS	Failed passage
AB 2724	KLEHS	HAZARDOUS MATERIALS – UST CHANGES TO PENALTIES	Failed passage
AB 2825	RUSKIN	CALARP – SCHOOL SITES, ENV. IMPACTS & REQUIREMENTS	VETOED
AB 2834	RUNNER	HAZARDOUS WASTE – SCHOOL FAC. CONTAMINATION ASSESS.	Failed passage
AB 2988	LIEU	HAZARDOUS MATERIALS – DRY CLEANERS – CHANGES HAZ. DEFIN.	Failed passage
AB 3001	PAVLEY	HAZARDOUS WASTE – REDEFINES ELECTRONIC WASTE	Failed passage
SB 354	**ESCUTIA**	**HAZARDOUS SUBSTANCES – BROWNFIELDS TASK FORCE**	**CHAPTERED**
SB 960	SIMITIAN	HAZARDOUS WASTE – RESEARCH DATABASE	VETOED
SB 982	COMMITTEE ON ENV. QUALITY	HAZARDOUS WASTE – REQUIRE DTSC TO MAINTAIN WEBSITE FOR HAZ. VIOLATIONS & UGT INFO.	VETOED
SB 989	**COMMITTEE ON ENV. QUALITY**	**HAZARDOUS MATERIALS – REMEDIAL ACTIONS**	**CHAPTERED**
SB 1305	**FIGUEROA**	**MEDICAL WASTE – DEFINE HOUSEHOLD SHARPS WASTE AND REQUIREMENTS**	**CHAPTERED**
SB 1458	SIMITIAN	HAZARDOUS WASTE – ESTABLISH ILLEGAL DRUG LAB WASTE CLEANUP ACT	Failed passage
SB 1478	SPEIER	HAZARDOUS MATERIALS – CALEPA - TOXIC CHEM. RELEASE FORMS	Failed passage
WATER			
AB 371	**GOLDBERG**	**WATER RECYCLING REQUIREMENTS DESIGN STANDARDS**	**CHAPTERED**
AB 1421	LAIRD	WATER – DISCHARGE PERMITS, CLEANUP TO BACKGROUND LEVELS, RELACEMENT WATER	Failed passage
AB 1953	**CHAN**	**WATER SYSTEMS - LEAD PLUMBING DEFINITIONS**	**CHAPTERED**
AB 2402	RUSKIN	WATER SYSTEMS – TREATMENT ALTERNATIVES	Failed passage
SB 187	SOTO	DRINKING WATER- PUBLIC HEALTH GOAL	VETOED
SOLID WASTE			
AB 1688	**NIELLO**	**SOLID WASTE-DUMPING OFFICERS**	**CHAPTERED**
AB 1992	**CANCIAMILL**	**CHANGES THE DEFINITION OF "GARBAGE" TO "SOLID WASTE**	**CHAPTERED**
AB 2118	MATTHEWS	SOLID WASTE – DIVERSION - CONVERSION TECHNOLOGY.	Failed passage
AB 2127	PLESCIA	REQUIRE THE CIWMB TO DO A STUDY ON THE IMPACTS OF RANDOM DISPOSAL OF ALKALINE BATTERIES.	Failed passage
AB 2147	**HARMAN**	**COMPOSTABLE PLASTIC CONTAINER**	**CHAPTERED**
AB 2206	MONTANEZ	REQUIRE JURISDICTIONS TO INCLUDE MULTIFAMILY DWELLINGS & LARGE VENUES IN THEIR RECYCLING EFFORTS.	VETOED
AB 2211	**KARNETTE**	**EXPAND THE 2136 (DUMP CLEAN-UP) PROGRAM**	**CHAPTERED**

BILL #	AUTHOR	TOPIC	STATUS
AB 2289	**RUSKIN**	**PLASTIC REPROCESSING**	**CHAPTERED**
AB 2296	**MONTANEZ**	**CORRECTIVE ACTION PLAN AS PART OF ITS CLOSURE – POSTCLOSURE PLAN.**	**CHAPTERED**
AB 3001	PAVLEY	ADD LAPTOP COMPUTERS TO THE "E" WASTE LIST	Failed passage
SB 369	**SIMITIAN**	**EXTEND THE GRANT PROGRAM FOR RUBBERIZED ASPHALT**	**CHAPTERED**
SB 926	FLOREZ	REQUIRE THAT THE "COUNTY" BE LEAD AGENCY ON ALL LANDFILL SITING PROJECTS.	Failed passage
SB 928	PERATA	DIVERSION - CHANGE THE PERCENTAGE OF SOLID WASTE THAT MUST BE DIVERTED	Failed passage
SB 1515	KEHOE	REQUIRE A TRAFFIC STUDY ON THE BENEFITS OF CHANGING OPERATING HOURS AT LANDFILLS TO REDUCE TRAFFIC CONGESTION	Failed passage
SB 1835	FLOREZ	REQUIRE THAT NO SOLID WASTE FACILITY PERMIT CAN BE ISSUED UNLESS IT IS CONSISTENT WITH PLANNING, ZONING AND CONDITIONAL USE PERMIT REQUIREMENTS	VETOED

LAND USE

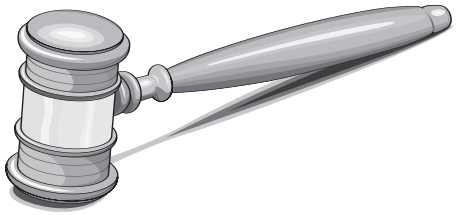
AB 802	WOLK	WATER SUPPLY – FLOOD WATER TO SUPPLEMENT WATER SUPPLY	Failed passage
AB 1337	RUSKIN	GREEN BUILDING STANDARDS	Failed passage
AB 1464	MCCARTHY	CEQA – EIR REVIEW PERIOD	Failed passage
AB 2160	**LIEU**	**HOUSING – GREEN BUILDING GUIDELINES**	**CHAPTERED**
AB 2763	NAVA	HOUSING - FARMWORKER HOUSING/LABOR CAMPS, RELOCATABLE HOUSING REGULATIONS	Failed passage
AB 2779	STRICKLAND	SEWER SYSTEM FUND – REIMBURSEMENT FOR CONNECTION FROM SEPTIC TO SEWER	Failed passage
AB 2878	RUSKIN	GREEN BUILDING STANDARDS – SUSTAINABLE CONSTRUCTION	Failed passage
AB 2928	LAIRD	GREEN BUILDING CONSTRUCTION GUIDELINES – SUSTAINABLE CONSTRUCTION	Failed passage
SB 646	KUEHL	WASTE DISCHARGE REQUIREMENTS WAIVERS – 303(D) LISTED	Failed passage
SB 1070	**KEHOE**	**WATER QUALITY – WATER BOARD INFO. ON MONITORING PROGRAM**	**CHAPTERED**
SB 1242	LOWENTHAL	WATER SUPPLY – INTEGRATED WATER MGMT. PLAN	Failed passage
SB 1792	MARGETT	CEQA – EIR REVIEW PERIOD	Failed passage
SB 1802	**DUCHENY**	**HOUSING – FARMWORKER HOUSING DEFIN. OF EMPLOYEE HOUSING UNITS**	**CHAPTERED**

ENV HEALTH AND MISC.

AB 815	LIEBER	OCCUPATIONAL SAFETY AND HEALTH EXPOSURE LIMITS	Failed passage
AB 816	LIEBER	LINKED WITH AB 815- OCCUPATIONAL SAFETY AND HEALTH EXPOSURE LIMITS	VETOED
AB 2703	AGHAZARIAN	REHS PROGRAM – INCREASE FEES	Failed passage
SB 162	**ORTIZ**	**PUBLIC HEALTH – TRANSFER SOME PROGRAMS FROM DEPT. OF HEALTH SERVICES TO DEPT. OF PUBLIC HEALTH. WATER, FOOD AND WATER,**	**CHAPTERED**
SB 1430	**ALQUIST**	**EMERGENCY HEALTH PREPAREDNESS ACT – PUBLIC HEALTH RESPONSE**	**CHAPTERED**
SB 1436	**FIGUEROA**	**SMALL BUSINESS LIAISON FOR GOVT. AGENCIES FOR WEB INFO.**	**CHAPTERED**
SB 1505	**LOWENTHAL**	**HYDROGEN FUEL FUNDING AND REGULATIONS**	**CHAPTERED**
SB 1759	**ASHBURN**	**REHS PROGRAM- INCREASE IN FEES, CEUS, BACKGROUND CHECKS. PUBLIC WATER SYSTEM INSPECTION FREQUENCY.**	**CHAPTERED**

Board Highlights October 2006 meeting

Mike Wetzel, Secretary



- Approved financial report and budget.
- Approved 2007 budget.
- Approved budget line item to for Public Relations committee.
- Approved budget line item to increase website funds.
- Updated policy and procedure manual.
- Approved motion to hire a book keeper.
- Approved motion to purchase laptop for Treasurer / Bookkeeper for CEHA purposes.
- Promote the 2007 AES Sacramento.
- Guidance and direction provided to Support Services on old application and old PO Box.
- Central Chapter is trying hard to reestablish itself as an active chapter.
- CEHA Traveling Seminar committee is looking for topics and speakers to take on the road.
- 2006 Northern Update reported as a successful training and fundraiser.
- 2008 AES to be hosted by the Southwest Chapter in San Diego at a location to be determined.
- CEHA to start developing ways to address SB 1759 and how contact hours can be issued and tracked at CEHA events.
- CEHA needs to actively recruit more members for better representation of the profession.

Next Board of Directors meeting will be on 1/20/07. Check the CEHA website "Events" link at www.ceha.org for time and location.

Registered Environmental Health Specialist Program News

Margaret Blood, Program Administrator

Biennial renewal notices were mailed out the last week of September for all Registered Environmental Health Specialists whose registration expires in 2006. Our ability to notify you of fees due relies on an accurate mailing address. If your address has changed since 2004 be sure to notify our office. We can not change the database information based on a verbal request; therefore, you must fax or mail your new information including your name and REHS # and signature to:

California Department of Health Services
EHS Registration Program
Fax: (916) 449-5665
MS 7404
PO Box 997413
Sacramento, California 95899-7413

RENEWAL FEES REMAIN $92 FOR ACTIVE AND $25 FOR RETIRED REGISTRANTS.

If the renewal fee is not paid by January 31, 2007 your registration will be suspended. A penalty fee equal to half the registration fee ($46) will be charged for each year of delinquency or portion thereof to revalidate a suspended registration. The penalty will continue to accrue for each year or portion thereof that the renewal fee is not paid. If you have not paid the fees and associated penalties within three years, your registration will be revoked. A registration that has been revoked will not be re-validated. To reapply a new application, college transcript evaluation and fees must be submitted. You will need to meet all current requirements and pass the REHS examination.

You can check your registration status by visiting the Registered Environmental Health Specialist web site at: www.dhs.ca.gov/ps/ddwem/enironmental/REHS/REHS.htm, click on "CHECK LIST OF ACTIVE REHS". This page will be removed after December 31, 2006 and reposted in February 2007 showing registrants with 2007 and 2008 expiration dates.

Senate Bill 1759 has been chaptered. This bill provides additional funding for the Registered Environmental Health Specialist program by increasing fees for biennial registration renewal, new applications and examinations. Revenues from the proposed fee increases will be used to support the administration of a continuing education program and ongoing program activities. The new fees will go into effect July 1, 2007.

The proposed regulations for continuing education are currently being reviewed by the Office of Regulations, California Department of Health Services (CDHS). The public comment period will not be scheduled until the regulation package has been approved by several state control agencies including the Department of Finance and the Office of Administrative Law. We will keep you informed on the progress of the regulation package through this bulletin and CDHS internet page. In the meantime, the proposed continuing education proposal enjoys the strong support of the Environmental Health Specialist Registration Committee, CEHA and California Conference of Directors of Environmental Health.

As the continuing education regulations are refined through the review process, we are developing a draft implementation plan in order to have the stakeholders identified and goals and objectives clarified.

Over 1,000 REHS applicants have been certified as meeting the minimum education requirements to begin their training programs in local environmental health departments. Counties may request mailing labels, for recruitment purposes, of both the registered environmental health specialists and the certifiable applicants. CDHS charges a nominal fee ($100 – REHS and $50 – certifiable applicants) for the labels.

If you have any questions regarding registration issues, please contact Margaret Blood at (916) 552-9991 mblood@dhs.ca.gov or Cynthia Cotton (916) 449-5662 ccotton@dhs.ca.gov.

Check CEHA webiste REHS Link for information about increase in REHS registration fee at www.CEHA.org

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Covered by patent numbers 5,492,635; 5,480,561; 5,360,556; 6,540,920; 5,531,894; D461,870; D445,476

3rd Annual Body Art safety Training Seminar, continued from pg. 9

Although body art forms borrowed from other cultures have arrived in the West, in most cases, the magic, spiritual practices, tribal practices, rituals, and rites that accompanied that body art in the originating culture has been lost to Western culture.

Fakir, feels that body piercers should be careful when piercing because they can be affected by chakras and energy flow. He certainly had an electric effect on the audience at the seminar.

The annual body art safety training seminars have been well received by body art practitioners and health inspectors, and continue to provide a way for CEHA, CAPSBA, and DEH to partner in providing education that meets the needs of body art practitioners.

The co-chairs of the seminar, Cathy Montie and Kathy Hartman, extend a hearty "Thank you" to Heather Stachelrodt and Dorothy Janse from the Southwest Chapter of CEHA for helping to put the program binders together and for managing the registration desk. Their hard work helped to made the seminar run smoothly.

CAPSBA looks forward to continuing the partnership with CEHA and DEH to provide this unique training, and would like to partner with other CEHA chapters and other local jurisdictions to offer training for body art practitioners throughout the state. The next Body Art Safety Training Seminar will be held on October 29, 2007 at the Handlery Hotel in San Diego.

If you have any questions or would like to partner with CAPSBA to offer a seminar to body art practitioners in your area, please contact the president of CAPSBA, Cathy Montie at 858-277-5087.

Kathy Hartman retired from San Diego County DEH in March 2006. She is active in CEHA where she is the Chair and Editor of the CEHA bulletin, and in CAPSBA where she is the Treasurer and Training Director. Kathy is an OSHA authorized Industry Outreach Instructor, who provides Bloodborne Pathogens Training classes for Mega Productions Tattoo EXPO events and to local body art practitioners. Her company, YourTrainingPlace.com specializes in online training for Environmental Health Specialists and body art practitioners.

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Kristen Towner

CEHA Calendar of Events

January 20, 2007;
Board of Directors Meeting - Long Beach

April 7, 2007
World Health Day http://www.who.int/en

April 24-27, 2007
56th AES, Radisson Hotel and Spa, Sacramento, CA

April 24, 2007
Board of Directors Meeting – Sacramento 1:00 - 5:00 pm

April 28, 2007
New Board of Directors Meeting,
Sacramento 9:30 am to 4:00 pm

June 18 – 21, 2007
NEHA's 71st Annual Educational Conference, at the Tropicana Hotel ($119 room rate), Atlantic City, New Jersey

It's not too early (or late) to start thinking about CEHA Awards and Scholarships!

All applications must be postmarked on or before February 16, 2007.

Do you know a deserving EHS, student or professional? Now is the time to start thinking about an individual or group of individuals that have gone above and beyond for Environmental Health.

All nominations/applications must be postmarked on or before February 16, 2007.

Please Note: CEHA has a new mailing address. The new address is:
110 South Fairfax Avenue, #A11-175
Los Angeles, California, 90036

The new phone, fax and email are:
(323) 634-7698 Phone
(323) 571-1889 Fax
support@ceha.org

Please visit the CEHA website at www.ceha.org

California Environmental Health Association
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