

ENVIRONMENTAL HEALTH OUTREACH PROGRAM 2013-14



*A Pilot Outreach Program to Provide Education about Human
Exposure Potential to Legacy Mining Pollution in the Sierra*

May 2014



THE SIERRA FUND'S ENVIRONMENTAL HEALTH OUTREACH PROGRAM 2013-14

This report includes project activities and lessons learned from The Sierra Fund's year-long outreach program in four rural Sierra communities, and from The Sierra Fund's Mercury Health Summit held May 2, 2014.

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Anglers on the South Yuba River, August 2009 – photo by Kerry Morse

ACKNOWLEDGEMENTS

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The program was also sustained by in-kind support of our partners, especially California Indian Environmental Alliance and advisors from the CA Office of Environmental Health Hazard Assessment and CA Department of Public Health. We would also like to thank our guest presenters from the US Geological Survey, Bureau of Land Management, and USDA Forest Service.

BACKGROUND: MERCURY IN CALIFORNIA

The widespread distribution of toxins associated with the Gold Rush, including mercury, arsenic and lead, constitutes the oldest and longest neglected environmental justice problem in the State of California. The California Gold Rush, while it contributed enormously to the prosperity of the state and the nation, devastated the land and people of the Sierra Nevada mountain range (The Sierra Fund (TSF), 2008). Gold, worth billions of today's dollars, was mined from the Sierra Nevada from 1849-1950, and much of the region's 25 million acres was excavated in the process first by "49ers" and later industrial scale mining operations.

More than 26 million pounds of mercury were brought to the Sierra to process gold, and half was released into rivers and streams in the process (Alpers et al., 2005). Today, mercury is still present throughout Sierra waterways, and can affect people who eat locally caught fish, especially young mothers and children because of the documented risk of birth defects and developmental disorders. California state-issued warnings regarding mercury in fish are in effect for every lake and reservoir in the state, and in many cases advise children and women under 45 to not eat any of certain kinds of fish (www.oehha.ca.gov/fish.html).

Despite documented health hazards associated with mercury, The Sierra Fund has learned that Sierra residents are largely unaware that local fish are dangerous (Shilling et al., 2010; TSF, 2011). Our 2006 and 2008 surveys of Sierra clinics reported that not one of their maternal/infant health programs included information on mercury in fish, whether caught locally or not. The Sierra Fund's 2011 Gold Country Angler Survey, which interviewed over 150 fishermen at local water bodies found that half of the people surveyed plan to eat what they catch and serve it to their families (TSF, 2011). The survey also reports that though 90% of those surveyed knew of some kind of problem with mercury in fish, only 2% had any accurate understanding of what the fish consumption advisories meant (TSF, 2011).

The Sierra Fund launched a pilot Mercury Health Outreach Program in 2013-2014 to address this critical lack of information. Partner organization California Indian Environmental Alliance joined our program to provide expertise on outreach to health professionals and tribal leadership.

PROGRAM GOALS

"Let science inform and communities lead" – The Sierra Fund CEO Elizabeth Martin

The short term goals of this program were to prevent and reduce exposure to mercury from locally caught fish in Sierra communities, and to raise awareness about mercury in the fish and other mine-related toxins, among community members, leaders, and healthcare providers. The long term goal is to build a movement to clean up sources of legacy mining pollution in the Sierra.

PROGRAM ACTIVITIES AND RESULTS

CONTACT PARTNERS AND KEY STAKEHOLDERS

Outreach efforts for our 2013-14 program were targeted to four communities (Nevada City/Grass Valley, Quincy, Downieville, and Foresthill/Auburn), which have unique histories from legacy mining and mercury that we worked to help the public and healthcare professionals to understand. We met with public officials and organizations in each community, as a first step in getting to know the issues and political landscape. We spoke

with them about their knowledge of the issues of historic mining and mercury in fish, and asked about other important leaders or organizations to meet with in their community.

RESULTS: NETWORK OF PARTNERS STRENGTHENED

The outreach conducted over the last year has significantly strengthened our network of partners in the four communities. In total, we met with nearly 150 leaders and organizations including local agency staff, County Supervisors, nonprofit organizations, neighborhood associations, healthcare professionals and Tribal Leaders. We have greatly increased our network of contacts in these communities – our original contacts list for the project had approximately 50 individuals, and over the course of the project, we added more than 90 new contacts to our network. Meeting with existing and new partners was the first step of our program and it improved our understanding of the issues faced by each community, and informed how we shaped our outreach in each community.

RESULTS: LOCAL LEADERS INFORMED

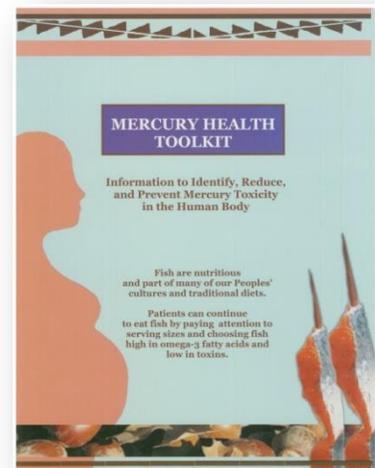
Community leaders that we met with through one-on-one meetings or community meetings include:

- County public health officials in Nevada, Plumas, and Sierra counties
- County environmental health officials in Nevada, Plumas, and Sierra counties
- County planning officials in Plumas and Sierra counties
- Two Sierra County Supervisors, two Plumas County Supervisors, one Placer County Supervisor, and one Nevada County Supervisor
- 2 tribal council members or senior tribal leadership
- 13 state legislators and 24 legislative staff
- 4 clinic directors or senior staff
- Senior staff or board members of 16 local organizations

CONDUCT TRAININGS FOR HEALTHCARE WORKERS

The Sierra Fund partnered with the California Indian Environmental Alliance (CIEA) to offer free training events on the topic “Eating Fish Safely” to healthcare professionals from Sierra hospitals and/or clinics. These trainings were designed to assist healthcare professionals in identifying patients that may be at risk from methylmercury in their bodies, and to provide these patients with advice on how they can continue to enjoy the benefits of eating fish, while avoiding toxins including mercury and PCBs. Participants learned about the presence of mercury in locally caught and commercial fish, and its danger to sensitive populations including women and children.

All participants at trainings were given CIEA’s 120 page “Mercury Health Toolkit” which was developed specifically for California healthcare professionals, and includes background on mercury in California, how it behaves in the human body, and the full text of peer-reviewed medical journal studies referenced in the training. Participants also received all relevant state-issued fish-consumption advisories issued by the State’s Office of Environmental Health Hazard Assessment (OEHHA).



California Indian Environmental Alliance’s “Mercury Health Toolkit” developed for California healthcare professionals

RESULTS: CLINIC STAFF INFORMED

The Sierra Fund and CIEA completed 10 training events, reaching 110 healthcare professionals from 15 Sierra hospitals and/or clinics (see Appendix 1 for a list of trainings). Trainings were hosted at public, private and tribal health clinics throughout the Northern Sierra, and live-teleconferenced to three remote clinics that we would not have otherwise been able to reach.

An average of 11 individuals participated in each training, fewer than the 30 per training that we anticipated when planning the program. This was partly a factor of the difficulty in scheduling trainings at busy clinics. Another reason for this difference is that we originally based our estimated number of participants on attendance at trainings we had previously held at clinics in larger communities such as Chico and Oroville, while the majority of the trainings we held as part of this program were in rural Sierra communities where clinics have much smaller staff.

While we originally planned to conduct private training sessions for each clinic, we learned that while they were interested in our materials, most did not have time for a private training or felt that their staff was too small to warrant one. Instead, individual staff members were more likely to attend events as their schedule allowed. We adapted our trainings in a variety of ways to accommodate the individuals who wanted to receive the information including: lunch hour presentations, one-on-one information sharing at a women's health day, trainings hosted by the County Public Health that were open to staff from multiple clinics, and trainings that were teleconferenced live to others who were not able to travel to participate in person. Through these strategies, we reached staff from a total of 15 different clinics. Many clinics requested extra toolkits to give to staff who could not make the training.

Presentations ranged from 15 minutes to 1 ½ hours depending on the desires of the clinic with the option for obtaining continuing medical education credits (CMEs) for doctors or nurses. Of the ten trainings completed, five were one hour or more and were eligible for CME credit. In addition to formal training events, we met with other organizations including WIC and rural health coordinating groups.

At the end of each training, a short evaluation was completed by the participants who attended for 1 hour or longer (see Appendix 2 for evaluation form). All attendees reported that prior to our training, they did not provide information about mercury in fish to their patients. Based on a series of questions about the topics covered, participants indicated a 36% increase in their understanding of the topics presented. Topics included sources of mercury in fish and in the environment, where to find fish consumption advisory information for locally caught and store bought fish, how to avoid eating higher mercury fish while still benefitting from eating lower mercury fish, and how to advise patients on fish consumption. The majority of participants also indicated that they were satisfied or very satisfied with the content and quality of the training and training materials.

RESULTS: CLINIC STAFF PROVIDE INFORMATION TO CLIENTS

In order to learn about the short term effectiveness of our trainings, we called each participating clinic at the end of the one-year project period with a short survey (see Appendix 3 for survey). Questions included whether they continued to use our materials after the training, and whether they shared them with other clinic staff or clients. Six clinics completed surveys (including two tribal health clinics and two county health centers), and one WIC office we met with.

Of the seven surveys completed, five indicated that they had begun asking patients about their fish ingestion as a result of our training. Of these, four also indicated that they have shared the toolkit and other materials with other staff in their clinic, including adding it to their nursing stations, sharing it at provider meetings and/or with other providers that were not present at the training. Five clinics indicated that they had shared the information with their patients, either verbally or by giving them

materials. Materials they specifically mentioned sharing with patients in larger quantities were CIEA's Eating Fish Safely brochure for pregnant women, and the poster of the statewide fish consumption advisory that The Sierra Fund worked with the CA Office of Environmental Health Hazard Assessment to develop (see Appendix 4 for poster).

CONDUCT PUBLIC RELATIONS CAMPAIGN

Our media campaign in the four targeted communities resulted in over 30 articles about our program published (see Appendix 6 for all media coverage). Articles included pre- and post-event publicity for our public meetings and a series of informational opinion editorials that coincided with the start of fishing season and newly released fish consumption advisories. Two local Radio Stations (KQNY in Quincy and KNCO in Nevada County) aired interviews with TSF CEO Elizabeth Martin about our program, and upcoming community meetings.

Another piece of our public relations program was outreach at relevant events in our targeted counties. To date, we have participated in 15 events. Outreach Coordinator Amber Taxiera brought educational displays, fish consumption advisories, brochures and other handouts to a variety of events and talked one-on-one with over 400 individuals.



The Sierra Fund's Outreach Coordinator Amber Taxiera tabling at the Calling Back the Salmon Festival in Lincoln, CA, October 2013 – The Sierra Fund photo

CONVENE COMMUNITY MEETINGS

Our project aimed to hold public meetings in each of the targeted communities, to inform and involve local residents in helping educate the public about the dangers posed by abandoned mines and methods to protect themselves and their families from further exposure to legacy mining toxins. In planning these meetings, we established two important protocols to guide our work in other communities: 1) only hold a public meeting if invited and co-hosted by a local organization or agency; and 2) ensure that our presentation is followed up by an expert speaker that is preferably from the local community.



The Sierra Fund Science Director Dr. Carrie Monohan presenting at The Sierra Fund's Community Meeting in Quincy, CA, April 2014 – photo by Amber Taxiera

As a result of these principles, all the public meetings we held were supported by multiple co-sponsors, facilitated by The Sierra Fund CEO Elizabeth Martin, and included at least one guest speaker. For each presentation The Sierra Fund Science Director Carrie Monohan, Ph.D., described how eating certain kinds of locally caught fish, especially bass, can result in unsafe mercury exposure. She presented the fish consumption warning recently issued by the State of California for lakes and reservoirs and also gave an overview of the region's history in her presentation: "Fish and Dust: Legacy Impacts from the Gold Rush." Representatives from

the Bureau of Land Management, the United States Geological Survey, Tahoe National Forest and the California Indian Environmental Alliance served as guest speakers following Dr. Monohan. Guest speakers from the agencies focused on local mine sites and health implications and CIEA focused on the specific harms caused by mercury in the human body, benefits of eating low mercury fish, and which local fishing sites and species are safer.

RESULTS: COMMUNITY INFORMED

We held three public meetings in Nevada City, Foresthill and Quincy. While we had hoped to hold a fourth public meeting in Downieville, during the course of working with leadership in that community we were advised that although leadership was interested in learning more about our information, no local organization or agency would co-host a public meeting with us. As a result, we held an “invitation-only” luncheon with the leadership who expressed an interest, showed them the kind of information we could present in their community if they chose, and listened to their thoughts about the issue and how to move forward with public education.



The Sierra Fund’s Community Meeting in Foresthill, CA, February 2014 – photo by Amber Taxiera

We originally anticipated 30 community members attending our public meetings, and were impressed by the overwhelming turnout and diversity of participants in the three public meetings we held. Our public meeting in Nevada City had over 100 people in attendance, approximately 75 people attended the Foresthill meeting, and 60 in Quincy. The topic clearly generated a great deal of interest from diverse community groups. The audience and co-sponsors at these meetings included nonprofit organizations, regulatory agencies, County Supervisors, gold miners, local elected officials, neighborhood associations, Tea Party members, anglers and outdoor recreationists.

The community events allowed our program an opportunity for media coverage of both the program and the issue of mercury in fish. We saw over 21 published newspaper or radio stories (see Appendix 6, Media Coverage), and the Nevada City event was filmed by a local videographer, and will be edited to air on a local television station.

Many more materials were distributed through our community meetings, tabling efforts and other outreach to general community members than we anticipated (see Appendix 5 for a list of materials distributed). We distributed 330 copies of our “Health Studies Booklet” that included executive summaries of the exposure pathways studies that The Sierra Fund conducted in 2009-11. Additionally, we distributed nearly 500 copies each of our educational brochures, over 600 copies of fish consumption advisories, and 550 copies of CIEA’s “Eating Fish Safely” brochure.

RESULTS: COMMUNITY MEMBERS REDUCE EXPOSURE

Short post-event surveys were handed out to participants in the Nevada City, Quincy, Downieville and Foresthill meetings. Not every participant completed a survey, but we collected a total of 92 evaluations. Each survey included four questions about relevant information that was presented, and how much each participant knew about each topic before and after the meeting. From these questions, we saw an average of 25% knowledge increase as a result of our meetings. When asked how likely they were to share the information they had learned with friends or family members, 88% were “very” or

“somewhat” likely to share the information. In response to the question of whether the individual intended to eat less high mercury fish in the future, 59% answered either “yes” or “probably” and 10% reported that they did not eat fish at all (of 49 answering the question).

RESULTS: COMMUNITY CALLING FOR INFORMATION AND CLEANUP

Other questions on the post-event surveys queried how important the attendees considered the information presented, and how likely they were to share information with their community leaders. For the question of how important the issue of mercury in fish or heavy metals on trails is to their community, 76% felt it was “very important” or “somewhat important” (of 33 answering the question). In terms of whether they felt it was important to conduct studies of these issues in their community, 92% felt it was “very” or “somewhat” important (of 26 answering the question). 60% were “very” or “somewhat” likely to bring up these issues with community leaders such as elected officials (of 47 answering the question).

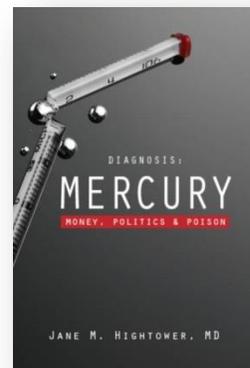
CONVENE MERCURY HEALTH SUMMIT

The Sierra Fund hosted a public informational event in the California State Capitol, followed by a “round-table” strategy session to evaluate the outreach program over the last year, and to plan a strategy for future outreach to health professionals and community members about mercury. The event “Mercury and Human Health: An Informational Summit on the Impacts of Mercury Exposure through Fish Consumption” was held in the California State Capitol on May 2, 2014. The event was hosted by The Sierra Fund, with co-sponsors Senator Fran Pavley, Assemblymember Brian Dahle, Physicians for Social Responsibility/Sacramento, Sierra Health Foundation, Sierra Nevada Conservancy, California Indian Environmental Alliance and California State University Chico’s Nursing Department.

The Mercury Health Summit featured a keynote presentation by Jane Hightower, MD, author of *Diagnosis: Mercury*. Dr. Hightower, a national expert on mercury, spoke about her research into the health impacts of consuming mercury-contaminated fish, with a special focus on the irreversible neurological impacts of this exposure during pregnancy and childhood, and other sensitive populations identified by new research but not yet recognized in government-issued mercury information and safe eating levels. Dr. Hightower took questions at the end of her presentation, and participated in the round-table discussion after that.

Seventeen people completed a written feedback form after the presentation indicating how much they learned and how important they felt these topics were. Although the audience was already a well-informed group of doctors, agency staff and legislative staff, results showed a 27% increase in their understanding of four topics. The topics queried included the history of mercury in California’s environment, fish consumption advisories, which species of fish have higher mercury, and the health effects of mercury exposure to fetal development or to adults (including sensitive populations). Of these, 12 were very likely to bring up these issues with policy makers, and 14 felt it was very important to conduct additional studies of mercury in fish in California.

After Dr. Hightower’s presentation, over 15 people remained for a facilitated discussion of how to raise awareness about mercury among health professionals in California, and how to bring them tools that will help them answer their patients’ questions. Dr. Hightower’s recommendations to doctors with patients that have high blood mercury levels was clear and concise: “Tell them: ‘Stop eating poison.’” She emphasized that while fish are an incredibly nutritious food, consumers need to avoid fish that are high in mercury. The round-table forum was an important way for participants in the Health Summit (and in our outreach program over the previous year) to give input into the success of our program, and shape the goals and activities moving forward.



*Dr. Hightower’s book
“Diagnosis: Mercury”*

The following questions were used to shape the discussion:

- What do you feel was the most effective element of our work over the last year? What was the least effective element of our work over the last year?
- What data, if any, do we need to collect in order to understand the health problems associated with consumption of mercury contaminated fish?
- What do medical professionals need or want in order to help them better serve their patients in regard to mercury contamination through consumption of contaminated fish?
- What changes in rules or policies do we need to implement in order to better protect the community from exposure to mercury from consuming contaminated fish?

Ideas, priorities and other feedback from participants in the Summit have been incorporated throughout this report.



Participants in the Mercury Health Summit Round Table, May 2014 – photos by Elizabeth Martin

LESSONS LEARNED

Collaboration with community leaders and stakeholders was central to organizing our outreach program. We learned that having local experts present at public meetings helped set the tone and calm the crowd around contentious issues. We also made it a protocol not to come into a community uninvited, but to instead have local supporters as co-sponsors of our events.

Flexibility became a theme in organizing trainings for health care professionals, whose busy schedules made it difficult to find the time during a work week for continuing education. We adapted to hosting open training sessions, shorter sessions, and offering remote ‘telecasted’ trainings sessions often occurring around lunch hour or as part of a larger staff meeting.

Response to educational efforts around mercury is slow in coming, but leaders from all levels of community and government have recognized these methods as effective tools and encouraged us to keep up the work, through media, grassroots organizing, and collaborative meetings. They emphasized that education of patients, doctors, and decision makers is the ultimate way to raise this issue and reduce public exposure to mercury.

The California Department of Public Health and Office of Environmental Health Hazard Assessment provided our program copies of some state-issued fish consumption advisory brochures for distribution, which the public found very informative. However, since these agencies no longer had funding to reprint these materials, obtaining copies of other state-issued advisories was a challenge, and our nonprofit partners ended up covering these printing costs in-kind. The state agencies tasked with creating public fish consumption information need adequate funding to produce and distribute this information for it to be effective.

NEXT STEPS

POSTING FISH CONSUMPTION ADVISORIES

One action step that we have heard broad support for is to post existing state-issued fish consumption advisories at the water bodies that they cover. In particular, the community leaders we have met with support posting the general lakes and reservoirs advisory at the many lakes and reservoirs in the Sierra that do not have site-specific advisories. The Sierra Fund is now working to build a pilot program for a “Citizen Postering Day” in the Yuba watershed, with the support of two local watershed organizations.

MAINTAIN NETWORK OF HEALTH PROFESSIONALS

The Health Summit Round Table discussion included strong feedback that we should continue to get the medical community involved because physicians are not regularly kept informed about new research on these topics. As requested in the feedback forms provided at Clinic Trainings and the Health Summit, we will maintain contact with our network of health professionals, through a quarterly update for those people who indicated they would like to be kept informed about new information and related events. This will specifically target healthcare professionals serving Sierra communities. Quarterly updates will include opportunities to receive new educational pamphlets and fish advisories, posters, free video presentations, or new online CME trainings. In addition to maintaining a network of engaged citizens and health professionals, we will be designing a form for patients concerned about their fish intake to bring to their doctors for consultation.

COLLECTING FISH TISSUE AND FISH CONSUMPTION DATA

In addition to continuing our public relations media campaign and event outreach, we are beginning a project which will help fill a critical gap in fish tissue data that currently limits public information about fish contamination in Sierra water bodies. As part of this project, we will collect hundreds of fish samples from water bodies that currently do not have site-specific advisories, conduct at least 150 surveys from anglers fishing at mercury-contaminated water bodies, raise awareness through outreach to those being surveyed, and post both general information about mercury-contaminated fish, and site-specific consumption advisories at popular fishing locations.

REFERENCES CITED

- Alpers, C.N., Hunerlach, M.P., May, J.T., and Hothem, R.L., 2005, Mercury contamination from historical gold mining in California: U.S. Geological Survey Fact Sheet 2005–3014, version 1.1, 6 p.
- Cal/EPA OEHHA. March 2009. Health Advisory for Selected Water Bodies in the Northern Sierra Nevada Foothills (Nevada, Placer, and Yuba Counties) Updated 03/18/09.
- Shilling F., A. White, L. Lippert, and M. Lubell. 2010. Contaminated fish consumption in California’s Central Valley. *Environ. Res.* 110:334-344.
- The Sierra Fund (TSF). 2010. Mining’s Toxic Legacy; An Initiative to Address Mining Toxins in the Sierra Nevada.
- The Sierra Fund (TSF). 2011. Gold Country Angler Survey: A Pilot Study to Assess Mercury Exposure from Sport Fish Consumption in the Sierra Nevada.

RESOURCES

The following resources and educational materials have supported our outreach program. Listed with each resource is a link to the web location or other contact information needed to access the publication. See Appendix 5 for a full list of materials distributed as part of our program.

MATERIALS FROM PRESENTATIONS

These PowerPoint presentations were used as part of our Community Meetings:

- [The Sierra Fund: “Fish and Dust”](#)
- [California Indian Environmental Alliance: “Eating Fish Safely”](#) - overview version of the longer presentation used

Mercury Health Toolkit – CIEA’s 120-page toolkit used for trainings of medical professionals. Available by request only. To receive copies, contact Kaylena Bray: (510) 848-2043 or Kaylena@cieaweb.org.

Peer-Reviewed Journal Articles on mercury in the human body: <http://www.ciea-health.org/resources/mercury-tribal-health/>

THE SIERRA FUND REPORTS

[Mining’s Toxic Legacy: An Initiative to Address Legacy Mining Toxins in the Sierra Nevada](#) (2008) – This 85-page report is the first-ever comprehensive look at the ongoing environmental, cultural and human health impacts of the Gold Rush.

[Gold Country Angler Survey](#) (2011) – A pilot study to assess learn whether people catching fish at Sierra water bodies are being exposed to high levels of mercury, and also to gauge health hazard awareness.

[Gold Country Recreational Trails and Abandoned Mines Assessment \(2010\)](#) – A pilot study to assess potential exposure to toxins from mine waste and naturally occurring hazardous substances by recreationists including off-highway vehicle (OHV) riders, mountain bikers, horseback riders and hikers.

[Assessing Environmental Health Risks from Abandoned Mines in the Sierra Nevada](#) (2011) – This document consists of profiles of our three main human exposure studies: the Gold Country Angler Survey, the Recreational Trails and Abandoned Mines Assessment, and our pilot test of Environmental History Forms in Sierra clinics.

FISH CONSUMPTION ADVISORIES AND SAFE EATING GUIDELINES

California Office of Environmental Health Hazard Assessment (OEHHA) – California’s state-issued safe eating guidelines, mercury advisories and fish consumption benefits, which include both:

- **Site-specific guidelines**, if there is sufficient data from the place you are fishing: http://www.oehha.ca.gov/fish/so_cal/index.html; and
- **General guidelines**: http://www.oehha.ca.gov/fish/special_reports/advisorylakesres.html for all lakes and reservoirs in California not covered by a site-specific advisory.

My Water Quality – A great map showing fish advisory locations: http://www.mywaterquality.ca.gov/safe_to_eat/consumption_advisories/

U.S. Environmental Protection Agency – Federal fish consumption advice for women of childbearing age and children: www.epa.gov/waterscience/fish/advisory.html

APPENDICES

The following materials are included as appendices to the online version of this report:

- Appendix 1: List of Trainings Completed
- Appendix 2: Post-Training Evaluation
- Appendix 3: Clinic Phone Survey
- Appendix 4: Fish Consumption Advisory Poster for Lakes and Reservoirs without Site-Specific Guidelines
- Appendix 5: Materials Distributed
- Appendix 6: Media Coverage

APPENDIX 1: LIST OF TRAININGS COMPLETED

Training	Location	Date	CMEs Offered
*Plumas Co. Public Health	Quincy, CA	8/9/13	Yes
Greenville Rancheria Tribal Health	Red Bluff, CA (& teleconferenced to Greenville)	8/15/13	No
Northern Valley Indian Health	Willows, CA	8/15/13	No
*Nevada Co. Public Health	Grass Valley, CA	8/23/13	Yes
*Nevada Co. Public Health (second training)	Grass Valley, CA	8/23/13	Yes
Northern Valley Indian Health	Chico, CA	9/25/13	No
*Auburn Renewal Center	Auburn, CA	12/10/13	Yes
Chappa De Indian Health	Auburn, CA	12/11/13	No
Feather River Tribal Health	Oroville, CA	12/11/13	No
Teleconferenced training to remote participants at the El Dorado Community Health Center and Surprise Valley Medical Center	Teleconference via Connecting to Care to Placerville, CA and Cedarville, CA	3/10/14	Yes

* *open-invitation training*

APPENDIX 2: POST-TRAINING EVALUATION

COURSE EVALUATION Eating Fish Safely: Mercury in the Human Body - [date]

The following will help us improve and provide information required by *Center for Occupational & Environmental Health - Continuing Education Program UC Berkeley*. Please tell us how effective each of the following was in helping you to better understand fish contamination issues:

1. Before this Training I knew...	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Where to find fish advisory information					
How to advise others about eating fish low in mercury					

2. How effective was the training on understanding...	Very Ineffective	Ineffective	Neutral	Effective	Very Effective
Sources of mercury in the environment and in fish?					
Health risks and benefits of eating fish?					
Advisories for fish from stores and restaurants?					
Local wild-caught fish advisories?					

3. How satisfied were you with....	Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
The content of the training?					
The quality of the materials?					
The knowledge of the trainer?					
The opportunity to practice applying the learned information?					

4. Before this training where have you received information about the health risks and benefits of eating fish?

5. What was the most useful part of the training?

6. What was the least useful part of the training?

7. How will what you learned in the training influence your professional practice?

8. Issues in cultural and linguistic competency were adequately addressed? (e.g. differences in prevalence, diagnosis, treatment in diverse populations; linguistic skills; pertinent cultural data)

Strongly Agree Agree Neutral Disagree Strongly Disagree

9. Was this presentation free from commercial bias? Yes _____ No _____ *Thank you!*

CME respondents only - Name: _____

APPENDIX 3: CLINIC PHONE SURVEY

Clinic: _____

Person answering questions (name/position): _____

Date & Time: _____

(Instructions: If the person on the phone says they don't know the answers, ask for someone who participated in a training. Ask at least the main question, use the sub questions if they need more prompting or if they give a positive answer to the main one. Type in the responses.)

1. Before the training you responded that you never asked patients about their fish ingestion. Has that changed since the training?

If yes, appx how many patients did you give information to?

Was it written or verbal?

2. Are you using the materials provided with your patients?

Which materials are you using with your patients?

Where these materials also shared with other staff in the clinic?

3. Do you feel that you have all the info you need to talk to patients, or can we provide anything else?

Would you like any more materials? Qty of which materials?

Do you need additional trainings?

Are there any upcoming events we could table or provide trainings at (for either health care providers or communities)?

4. Do you have suggestions for our program?

5. Are there any other programs or individuals we should contact to share this information with?

Tell them about the Health Summit:

- Dr Hightower will speak about her mercury research
- Will be held in Sacramento in May
- Will include discussion to form strategy for our program next year

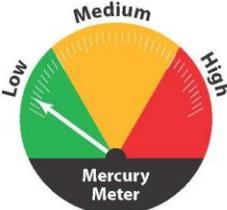
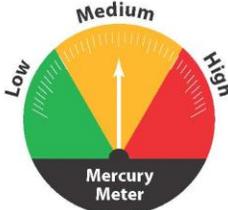
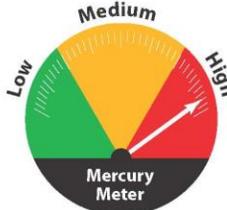
APPENDIX 4: FISH CONSUMPTION ADVISORY POSTER FOR LAKES AND RESERVOIRS WITHOUT SITE-SPECIFIC GUIDELINES

NOTICE TO SIERRA ANGLERS

A healthy guide to eating fish from California lakes and reservoirs

This information applies to all lakes and reservoirs in California without site-specific advice.

Women 18 - 45 and children 1 - 17

 <p>Low Medium High</p>  <p>Rainbow trout ♡</p>	 <p>Low Medium High</p>  <p>Bullhead</p>  <p>Catfish</p>  <p>Bluegill or Other Sunfish</p>  <p>Brown trout ♡ 16 inches or less</p>	 <p>Low Medium High</p>  <p>Bass</p>  <p>Carp</p>  <p>Brown trout over 16 inches</p>	
<p>♡ = High in Omega-3s</p>			
2 servings a week	OR	1 serving a week	Do not eat

Women over 45 and men can safely eat more fish

6 servings a week	OR	2 servings a week	OR	1 serving a week
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What is a serving?



For Adults **For Children**

The recommended serving of fish is about the size and thickness of your hand. Give children smaller servings.

Why eat fish?

Eating fish is good for your health. Fish have Omega-3s that can reduce your risk for heart disease and improve how the brain develops in unborn babies and children.

What is the concern?

Some fish have high levels of mercury. Mercury can harm the brain, especially in unborn babies and children. Women over 45 and men have lower risk and can eat more fish.

The only lakes and reservoirs that have site-specific guidelines in the Sierra are: Rollins, Combie, Camp Far West, Englebright, Donner, Oroville, Folsom, and Natoma. For site-specific information about eating fish from these and other locations in California, go to www.oehha.ca.gov/fish.

This health advisory information is issued by the California Office of Environmental Health Hazard Assessment. Posting this information is a project of The Sierra Fund, funded in part by grants from the Clarence E. Heller Charitable Foundation and The California Wellness Foundation



APPENDIX 5: MATERIALS DISTRIBUTED

The following materials were distributed to participants in The Sierra Fund's Environmental Health Outreach Program:

FISH CONSUMPTION ADVISORIES AND SAFE EATING GUIDELINES

OEHHA Fish Advisories:

- [OEHHA Safe Eating Guidelines Brochure for Folsom Lake and Lake Natoma](#)
- [OEHHA Safe Eating Guidelines Brochure for the Sacramento River and Northern Delta](#)
- [Printout of OEHHA Safe Eating Guidelines for Lake Oroville](#)
- [Printout of OEHHA Safe Eating Guidelines for the Lower Feather River](#)
- [Printout of OEHHA Safe Eating Guidelines for Lake Englebright](#)
- [Printout of OEHHA Safe Eating Guidelines for Lake Combie](#)
- [Printout of OEHHA Safe Eating Guidelines for Camp Far West Reservoir](#)
- [Printout of OEHHA Safe Eating Guidelines for Rollins Reservoir](#)
- [Printout of OEHHA Safe Eating Guidelines for the Lower American River](#)
- [Printout of OEHHA Safe Eating Guidelines for American shad, Chinook salmon, steelhead trout, striped bass and white sturgeon caught in California rivers, lakes, estuaries and coastal waters](#)
- [Printout of OEHHA Safe Eating Guidelines for Lakes and Reservoirs without site-specific advice](#)
- Poster for Sierra Anglers of OEHHA Safe Eating Guidelines for Lakes and Reservoirs without site-specific advice (see Appendix 4)
- Printout of map of site-specific fish consumption advisories from OEHHA website

Other Fish Advisories and Information:

- Printout of fish tissue database for additional locations from the [BOG/SWAMP Web Portal](#)
- FDA/EPA brochure "What you need to know about mercury in fish and shellfish: Advice for women who might become pregnant, women who are pregnant, nursing mothers, young children"
- CALFED Bay-Delta Program booklet "Frequently Asked Questions about Mercury in Fish from the California Delta Watershed: A Resource Guide for Social Service and Health Care Providers"

OTHER AGENCY MATERIALS

- [USGS Factsheet "Mercury Contamination from Historical Gold Mining in California"](#)
- [USDA Forest Service handout "Naturally Occurring Asbestos"](#)

THE SIERRA FUND MATERIALS

- ["Reclaiming the Sierra" Initiative brochure](#)
- "Fish, Mercury and You" brochure
- ["Abandoned Mines, Dust and You" brochure](#)
- ["Assessing Environmental Health Risks from Abandoned Mines in the Sierra Nevada" booklet](#)
- ["Get the Mercury Out" campaign brochure](#), poster & stickers
- ["Reclaiming the Sierra Problems & Solutions" handout](#)
- [Angler Survey Executive Summary](#)
- [Recreational Trails and Abandoned Mines Assessment Executive Summary](#)
- [Mining's Toxic Legacy Report](#) and [Executive Summary](#)
- [The Sierra Fund organizational brochure](#)

CALIFORNIA INDIAN ENVIRONMENTAL ALLIANCE MATERIALS

- CIEA Mercury Health Toolkit including full text of peer-reviewed human studies
- [CIEA "Eating Fish Safely" brochure which includes commercial fish "shopper's guide"](#)
- CIEA organization brochure

APPENDIX 6: MEDIA COVERAGE

The following media stories covered our outreach campaign activities:

Date Published	Newspaper/station	Location	Story
5/8/2013	Feather River Bulletin, Record, Progressive, & Reporter	Plumas County	Eating too much gold country fish may pose health hazard
5/10/2013	The Union	Nevada County	Be careful, selective when eating Gold Country fish
5/13/2013	Yuba Net	Regional	Going Fishing? Make sure you know which fish are safe for you and your family
5/30/2013	Auburn Journal	Placer County	Warning issued to anglers on toxic Gold Rush legacy in some fish
6/14/2013	The Union	Nevada County	"Like it or not, mercury threat exists in Gold Country Fish" - TSF Response to opinion article
7/18/2013	In ElDorado County	El Dorado County	"Like it or not:mercury threat exists in Gold Country Fish" - TSF Response to opinion article, including full references
7/30/2013	Sierra Nevada Alliance Sierra News	Regional	Member Group Spotlight: The Sierra Fund's Mining Campaign
8/5/2013	YubaNet	Regional	Good news for Sierra families who want to eat local fish - and protect their health
8/7/2013	Sacramento Bee	statewide	Guidelines issued on eating fish from California lakes, reservoirs
8/7/2013	In El Dorado County	El Dorado County	Good news for Sierra families who want to eat local fish – and protect their health
9/6/2013	Auburn Journal	Placer County	In Placer County, which fish are safe to eat? New recommendations cover all California waters without prior recommendations
9/20/2013	YubaNet	Regional	Informational Meeting on Legacy Mine Pollution in Nevada County on October 8
9/24/2013	The Union	Nevada County	New statewide advisory, guidelines for eating fish
10/7/2013	Territorial Dispatch	Regional	Informational Meeting on Legacy Mine Pollution in Nevada County
10/7/2013	YubaNet	Regional	Continued federal government shutdown causes informational meeting postponed
10/7/2013	KNCO	Nevada County	POSTPONED- Effects of Legacy Mining on Recreation and Fish
10/7/2013	The Union	Nevada County	Shutdown postpones Sierra Fund event
10/29/2013	Territorial Dispatch	Regional	Informational Meeting on Legacy Mine Pollution in Nevada Co
10/31/2013	The Union	Nevada County	Toxic mining legacy focus of meeting
11/6/2013	Yuba Net	Regional	An informative evening with The Sierra Fund

11/6/2013	Territorial Dispatch	Regional	An informative evening with The Sierra Fund
11/8/2013	The Union	Nevada County	Discussion details impacts of remnants from mining history
11/12/2013	KNCO	Nevada County	Fitzsimmons and Flores interview with Izzy Martin
2/7/2014	YubaNet	Regional	Informational Meeting on Legacy Mine Impacts in Placer Co.
2/13/2014	Georgetown Gazette	Georgetown	Informational Meeting on Legacy Mine Impacts in Placer Co.
2/14/2014	Foresthill Messenger	Foresthill	Foresthill Community Informational Meeting
2/18/2014	Colfax Record	Colfax	Sierra Fund finds toxins in Foresthill paths and fish
2/18/2014	Auburn Journal	Auburn	Sierra Fund finds toxins in Foresthill paths and fish
2/26/2014	Foresthill Messenger	Forsthill	Legacy Mine Pollution Meeting (Opinion)
4/2/2014	Feather River Bulletin	Plumas County	Informational meeting to examine legacy mining impacts
4/4/2014 & 4/6/2014	KQNY	Plumas County	Leslie Mink Interview with The Sierra Fund
4/8/2014	YubaNet	Regional	An informative evening in Quincy with The Sierra Fund
4/22/2014	YubaNet	Regional	Mercury expert to speak on human health impacts, May 2 in State Capitol
5/8/2014	YubaNet	Regional	The Sierra Fund's Mercury Health Summit a Success
5/9/2014	The Union	Nevada County	Sierra Fund hosts mercury health summit in Sacramento



THE SIERRA FUND

ABOUT THE SIERRA FUND

The Sierra Fund is the only nonprofit community foundation dedicated to the Sierra Nevada. Our mission is to increase and organize investment in the region's natural resources and communities. We pursue this mission three ways: through *Advocacy* to bring public funding to the region, *Philanthropy* to provide a vehicle for private funding, and *Strategic Campaigns* that pursue critically needed programs in the Sierra.

Since 2006, the Reclaiming the Sierra Initiative has been our primary strategic campaign. The goal of this Initiative is to assess and address mining's toxic legacy: the ongoing cultural, environmental and human health impacts of toxins left over from the Gold Rush.

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