



Presented by The Sierra Fund
November 8-9, 2010
Miners Foundry, Nevada City, California

WORKSHOP NOTES

Abandoned Mines and the Conservation Movement Stone Hall, Monday November 8, 1:00pm

Notes taken reflect the best effort to capture what was said in presentations and in the discussion time following. They are presented here in order to encourage further discussion about these matters. These notes do not necessarily reflect the views of The Sierra Fund staff, board or funders.

David Brownstein of Wolf Creek Community Alliance facilitated this panel discussion and Jason Rainey of the South Yuba River Citizens League, Ellison Folk of Shute, Mihaly and Weinberger, and Elizabeth Russell of Trout Unlimited presented.

Jason Rainey, Executive Director, South Yuba River Citizens League made a presentation entitled “Mercury, Mines, Rivers & Salmon: Citizen Initiatives in the Yuba Basin to remediate mining toxins and restore salmon.” This presentation identified the Yuba Basin as a rural area, which defines the way wealth has moved, and what resources and toxins are left.

The Yuba Basin stretches to the crest of the Sierra—and what falls on the summit moves downstream. The one thing that moves upstream is salmon.

The legacy of historic mining, especially mercury, figures largely in SYRCL’s *21st Century Assessment of the Yuba Basin*. The North, Middle and South Forks of the Yuba River have been identified as the first, third and fourth most impacted mining areas in the Sierra Nevada. Impacts of legacy mining include mercury contamination, acid mine drainage, and health risk from arsenic, lead and asbestos. The Yuba Gravel Fields are a stunning example of these impacts—10,000 acres of aggregate deposited after hydraulic mining.

A primary recommendation is remediation of mercury in sediment trapped behind in-stream barriers. Contrary to popular understanding, the Sawyer Decision did not stop hydraulic mining—it just required sediment to be trapped so it didn't move downstream. Hydraulic mining continued in the Yuba Basin through the 1950s. Englebright Dam was created to hold back hydraulic mining debris. Today, Englebright Dam blocks 100 miles of salmon habitat.

The presentation ended with a question: do we modify the dam to create habitat, or do we need to both remediate sediment and also reintroduce salmon?

Ellison Folk, Attorney, Shute, Mihaly and Weinberger

Shute Mihaly and Weinberger has assisted with legal and liability work associated with abandoned mines. They have worked with community organizations dealing with mining projects and efforts to re-open historic mines. They have also advised The Abandoned Mine Alliance and the Trust for Land Restoration, both of which were interested in educating the public, and also facilitating actual cleanup projects. This presentation included impediments encountered in this work—since it became clear that abandoned mines are a serious problem, but given the state of laws right now it is a challenge for groups to address it.

The Abandoned Mine Alliance (TAMA) was founded around an innovative idea: they wanted to stake claims to abandoned mines, in order to get control over the mining interest, and facilitate cleanup. This would address the concern of public agencies that even if they cleaned a site up, someone could still re-mine it in the future. TAMA wanted to know what if there would be any liability consequences of pursuing this idea. They learned that they would indeed be subjected to liability under Superfund law, RCRA (Resource Conservation and Recovery Act), and the Clean Water Act. They also learned that the ways to deal with this liability are time-intensive—they must work out agreements with federal agencies to be given protection under all these laws. This is complicated, and the conclusion of the project was that it may not be functional to clean up large numbers of mines.

Trust for Land Restoration: This Colorado organization was asked to be trustee for cleanup of the Jamestown mine in Sonora, CA. A legal settlement included funding to do a cleanup. The state agency asked Trust for Land Restoration to oversee the trust, come up with a cleanup plan, and work with the local community to get input on the cleanup process. They learned, however, that once Trust for Land Restoration was responsible for overseeing cleanup, they were on the line for liability issues at the site. Consequently, the agreement deal broke down, since the organization could not get enough assurances about their liability from state. In the end, the state agency hired a cleanup firm to oversee the cleanup.

The presentation ended with this thought: The laws we have are designed to hold the parties who caused the contamination and the parties who hold the land responsible for cleanup. One response to the legal obstacles associated with abandoned mines is to change the laws. But perhaps we need to consider the question of whether abandoned mine cleanup is really the work of a conservation organization. A conservation organization could be to facilitate the process and educate the public and decision makers, but the actual restoration work may not be something they want to take on.

Elizabeth Russell, Mine Restoration Project Manager, Trout Unlimited

Trout Unlimited started their abandoned mine restoration program in 2003, and sees this as the most important but least addressed environmental issue we're facing in the west. She reported that 40% of headwaters streams are currently polluted by mine waste. One big challenge in this effort is talking to people about it, since they still don't realize what's in their own backyard.

Trout Unlimited has been working on pilot "Good Samaritan" cleanup projects. In the American Fork Canyon in Utah, they conducted a project to clean up the Pacific Mill mine site on Snowbird property. TU was interested in this site because it benefited listed trout species. As part of this project, they worked out an agreement with EPA as a good Samaritan to go on to property and do the cleanup. This agreement allowed them to be protected under CERCLA as long as they did not make the current problem worse. The result was a successful, small cleanup—actual restoration time was only three weeks, after 12 months of negotiations with the EPA. TU now wants to take this project as a model for others in states across the West.

For Good Samaritan cleanups, there are also Administrative Tools created by EPA in 2007 that advise about doing cleanups under CERCLA.

In response to the question posed by Ellison Folk, Elizabeth asked: who else is going to deal with abandoned mines if the conservation movement doesn't? Cleanups can be relatively inexpensive in some cases, and have a huge impact on the environment.

Another thing conservation organizations can do is work to change laws that are keeping restoration from happening. The Clean Water Act was intended to make waters "swimmable and fishable" but it is the one thing that is keeping us from addressing the problem of abandoned mines. TU is advocating for changing the laws, because without being able to clean up draining mines, there is no way to successfully address this issue in the West.

TU is trying to show that cleanups can be successful, and this effort is not without hope. There are opportunities now—including building partnerships, and engaging volunteers, planning, stream work, fish surveys and more.

Discussion and Questions

- What is an example of a cleanup on property owned by people who don't have a lot of money themselves?
 - TU did a project on the Tiger Mine outside Leadville, CO where the owner had no money for the project. TU raised funds, and had the nearby school of mines plan the project—but for liability reasons, can't touch it. Colorado Mountain College now has money in trust to maintain the site every year. It is uncertain what will happen once the current system expires, but TU sees partial cleanup as better than none.

- Abandoned mines have become an issue of the commons—and the government is supposed to be the tool by which we deal with issues of the commons. If the environmental movement needs to step in and deal with abandoned mines directly (more than just education and advocacy) they are doing the job of government.
 - How government agencies are dealing with abandoned mines varies from state to state. In Colorado, BLM and the Forest Service have largely addressed abandoned mine problems on their property (however they aren't going to spend \$ on private lands, and are never going to touch a draining mine). In Idaho, the situation is different: the Forest Service has not addressed it. In Idaho, then, getting the federal agencies to do their job is a good place to start because they have more resources and authority on the issue than conservation groups. The best situation is when both government and citizen groups are involved.
 - Often, the role of NGOs is to step in when government is not doing what needs to be done. There are laws that can be used to force cleanups—in that case, someone needs to have the money to do it.
 - Cons groups are most efficient when working on advocacy. But they are also in the best position to identify gaps in resource management, and bring resources (like volunteers) to bring groups together.
- Some organizations in the conservation movement, including The Nature Conservancy and Trust for Public Land, seem to be pursuing activities without a strong understanding of the abandoned mine issue, and using public money to purchase lands with toxic materials or liability issues. There should be protocols in place to govern using taxpayer money for this.
 - Assessments are routinely done as part of the process of buying property, which should show whether there are abandoned mines or other issues there. There may, however, be cases when these groups want to get lands purchased and then deal with known problems later, for example, when San Francisco got Treasure Island, part of the deal was to clean it up.
 - There is some dysfunction, or inability of the conservation movement to force question of mining's legacy into the statewide strategy for conservation. In bonds that fund water and land strategies, there is not much language that incentivizes anyone to tackle mining issues.
 - To outline Nevada County Land Trust's process of acquiring property: whenever they are looking at purchase of land for conservation, they do an assessment of what is on the land, what conservation values there are to protect, whether there is hazardous waste—all this in order to create a baseline and clear understanding of what they are dealing with. In some situations they determine that they are not the appropriate one to take over that project. The land trust would never build trails on sites where there is proof of hazardous waste. In a purchase, they must also go through steps to prove that they have resources to deal with what is known to be on the land. No funder is going to support them if they have not gone through this process.

Land trusts and the conservation movement cannot act like this issue doesn't exist. We need to raise the discussion about solutions!

- One answer is find miners that want to mine in a green way—finding solutions within the community that created the problem. They will make money work hard and solve problems. This solution pays for itself and doesn't require grants. Some large and small mining companies have also contributed money toward getting this problem solved.





Presented by The Sierra Fund
November 8-9, 2010
Miners Foundry, Nevada City, California

WORKSHOP NOTES

Best Management Practices and Stimulating New Technologies Stone Hall, Tuesday November 9, 11:30am

Notes taken reflect the best effort to capture what was said in presentations and in the discussion time following. They are presented here in order to encourage further discussion about these matters. These notes do not necessarily reflect the views of The Sierra Fund staff, board or funders.

Alice Rich of A.A. Rich and Associates facilitated this panel discussion and Victor Izzo of the Central Valley Regional Water Quality Control Board, Charles Alpers of the United States Geological Survey and Tom Parilo representing the Nevada Irrigation District presented.

Alice Rich outlined the goal of this panel discussion as identifying best management practices associated with abandoned mine remediation, identifying the obstacles to remediation actions, and providing information for the Mining Toxins Working Group.

Victor Izzo, Central Valley Regional Water Quality Control Board

The Regional Water Quality Control Board is concerned with the quality of water before it goes into water systems. The Regional Board's responsibility is to protect the resource. Mining waste (from waste rock or tailing) can cause water quality issues.

Mr. Izzo deals with mercury mines, copper mines, and gold mines. A main question is how to prioritize the mine sites. In general, they try to do the worst sites first.

It is hard to encourage cleanups because there are Good Samaritan statutes in state law but not in federal law. The Regional Board's Abandoned Mine Lands Unit is made up of only two people and they see new mines reported daily. Trying to identify the responsible party is the first step, and a major issue. In general, the present owners have responsibility for contaminated discharges.

Responsible Party searches have succeeded in finding resources but it is especially hard for small mines. A small cleanup is considered to be in the range of \$100K-\$1M, medium ~\$10M and huge ~\$100M+.

Mr. Izzo gave a number of examples of successful mine cleanups that used best management practices:

- Spenceville: Fish and Game field pit, treated water, very successful
- Abbot Turkey Mercury Mine
- Carson Hill Gold Mine: treated with reverse osmoses
- Empire Mine Arsenic: worked with Parks and Mining company, capped and re-vegetated
- Sliger Mine: small flow, used a bio cell
- Walker Copper Mine: plug in and decrease copper, now downstream there are fish

In general during mining there are lots of resources but after there are none.

Charlie Alpers, United States Geological Survey

Fate and Transport

Heavy metals in fish tissue increase in concentration around mined areas. And even if arsenic and lead are naturally high, they become even higher in mined areas.

Acid mine drainage (AMD) and elevated metals are all potentially toxic to aquatic life. There is also AMD in hydraulic pits, for example pit lakes, such as You Bet Mine. Often even when the water is neutralized, zinc and nickel stay in solution, so even neutral drainage can have water quality issues.

Grain size fraction is key for sampling, and also for understanding transport issues associated with heavy metals and erosion. In general with increased surface area, smaller grain size particles, there is an increase in the conversion from elemental to reactive mercury, a precursor to methylation.

Speciation is also very important to understanding fate and transport issues associated with abandoned mines. Mercury is an example: if we could disrupt the methylation process we could have an effect in cleanup, and decrease mercury concentration in fish. Speciation is also important for chromium, because chrom 6 and chrom 3 have very different toxicities.

The impact of mercury on human health is primarily a fish consumption issue. Impacts of arsenic, chromium, or lead are primarily the result of exposure from ingestion or inhalation of contaminated dust. The form of arsenic, chromium or lead that one is exposed to directly impacts the potential toxicity.

As far as animals go, birds that eat fish show an impact from mercury contamination. Foster terns show effects of mercury poisoning, and reduced reproductive success. In general, if there is AMD then there

is less aquatic life. Methylmercury in fish may also affect fish reproduction. There still needs to be research on some species because it has not been done on the fish local to the Sierra.

What we need to know:

- Quantify the benefits of remediation
- Learn if hydro turbines increase methylation
- Magnitude of atmospheric mercury contribution
- How to develop TMDLs for mercury
- How can science support BMPs?

Tom Parilo, consultant representing the Nevada Irrigation District presented a case study of a work in progress, the Combie Reservoir Sediment and Mercury Removal Project. The intent of this project is to remediate mercury from legacy mining.

NID owns and operates two reservoirs on the Bear River, both of which are 303(d) listed as impaired for mercury: Rollins and Combie.

Combie has 200,000 tons of sediment accumulated in it. Combie is a source of water for Lake of the Pines. Combie has been dredged since the 1960's but that was halted in 2003.

This project utilizes a patented technology, the Pegasus Mercury Extraction Equipment to remove mercury from the dredged sediment.

The 26 million pounds of mercury that was brought to the Sierra during the Gold Rush was estimated to be lost to the environment at a 10-30% loss rate. One result of this today is that bass have lots of methylmercury in them.

This project would restore the storage capacity of Combie reservoir, improve recreational activities, support local industry, and study the effects of project activities.

Combie provides 5,550 AF of water storage, and is two miles long. A picture taken during low water shows the accumulated sediment.

Project components include: an electric dredge, and slurry piped along the levee road to a mobile de-watering system and mercury removal equipment. There are also turbidity curtains, and the existing aggregate operation nearby that has agreed to take the material.

The major challenge of this project was to use technology to meet water quality standards. NID had to find portable equipment to avoid any long term site impacts. The mercury extraction equipment is a 12 inch concentrator and can only process 250 gallons of material a minute, which made this a three to five year project and significantly more expensive.

The primary obstacle to developing this project is that NID needed in-house expertise. The perception that this is NID's problem continues to be a problem because this is a watershed-wide problem.

Consequently the process to educate the regulators and landowners was very important to project development. Funding continues to be the major issue for this project, estimated to cost \$9 million.

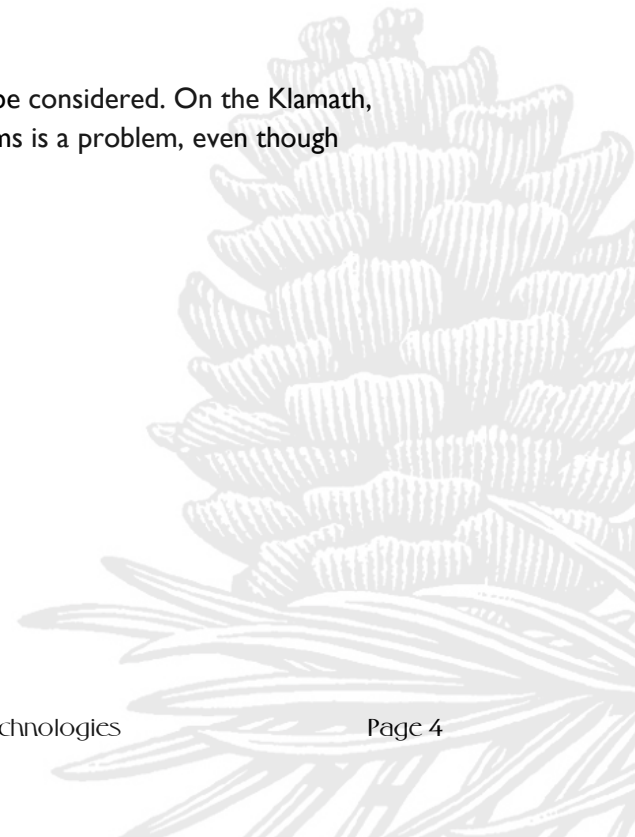
This success of this project requires an agency willing to lead, and supportive partners, landowners, and tribes.

Current status: NID has submitted a \$1 million proposal to the Sierra Nevada Conservancy for site setup costs, a \$3 million budget item through Senator Feinstein for operational costs, and plans to submit a Cleanup and Abatement Funds request.

NID has submitted their application for permits including the 401, 404, and 1600. They expect to start the project in 2011.

Discussion and Questions

- Gold dredging may redistribute methylmercury into the environment. Can there be a new gold dredge that could be designed to capture mercury?
 - Tom: The Pegasus mercury concentrator was developed by two guys from Canada, and adapted from gold mining equipment.
 - Charlie: In suction dredging, the speed of the material needs to match the through put—so it would have to be small batches, but even that doesn't get fine grain material—silt and clay still gets through. Our experience at Humbug Creek was that it takes a long time for fine particles to settle out, especially the reactive part.
- Can you calculate mercury loads for TMDL development using the load estimate for fine particles? It seems particularly easy to overestimate. In short, are the fines still eroding or have they already eroded?
 - Charlie: This is still a research question. Mineral speciation is needed to determine the source of fines as either hard rock or hydraulic. Some of this has been done by James Allen. But in general when the creeks run muddy the material is still coming down, still eroding.
- Is mercury the only contaminant of concern at Combie?
 - No, we have done an antideg study to address the others.
- How to deal with sludge in dam removals?
 - Charlie: The Upper Yuba River Studies program needs to be considered. On the Klamath, where there is active dam removal, mercury behind the dams is a problem, even though preliminary tests didn't show it was a problem.





Presented by The Sierra Fund
November 8-9, 2010
Miners Foundry, Nevada City, California

WORKSHOP NOTES

CA Tribal Peoples Leading Cultural and Environmental Healing Great Hall, Tuesday November 9, 11:30am

Notes taken reflect the best effort to capture what was said in presentations and in the discussion time following. They are presented here in order to encourage further discussion about these matters. These notes do not necessarily reflect the views of The Sierra Fund staff, board or funders.

Steve Rothert of American Rivers facilitated this panel discussion and Don Ryberg, Chairman of the Tsi-Akim Maidu Tribe, Mark Franco, Headman of the Winnemem Wintu, and Steven Haberfeld of the Indian Dispute Resolution Service spoke.

Don Ryberg, Chairman of the Tsi-Akim Maidu Tribe welcomed conference and workshop participants with a traditional Maidu greeting. He encouraged tribal people and other Sierra community members to come together to discuss the problem of mercury and other toxins in the environment, and to honor and respect the land through ceremony. It is because this has not happened in the past that we find ourselves having to address the harm that mercury does to our bodies.

We must remember that the problem we face today is created both by the pioneers and settlers, as well as the government, which profited from the gold that was taken from the Sierra. That same government sponsored the termination of Indian people by paying for scalps. Both the Indian people and the land were devastated by the Gold Rush.

Today, the impacts on the environment and human health are real but invisible, just like federally unrecognized tribes are invisible. But both exist in the Sierra.

Starting some kind of cleanup and acknowledgement of the Indian people would not cost that much, but it doesn't happen because it is not important to the public. Because the government is an extension of the people.

Don and Mark Franco have been fighting the battle for a long time to raise awareness, and they are getting old. The Tsi-Akim Maidu have brought the issue of mercury in fish to tribes across the state—resulting in 26 tribes interested in the issue. This kind of work needs to be done to make progress with the environment and Indian peoples, but the tribes need financial and other support to make it happen.

Mark Franco, Headman of the Winnemem Wintu, began with a traditional story:

Big Wolf lived by himself and he needed some helpers. So the Creator told him to find six sticks that were good and true, and sand them down until they were smooth and straight, pray over them, and then leave them by the fire overnight. Big Wolf searched for the best sticks, and worked hard on them to get them smooth and straight. He prayed over them and left them by the fire overnight. In the morning he found six good hearted, helpful people. Coyote saw this—his is also a creator—and wanted to have helpers, but wanted to do it quicker. He found 12 sticks, but they were crooked to start out with. He sanded them a little and prayed over them and left them by the fire. The next morning he had 12 of the most obnoxious, irritating individuals to work with, and they caused him heartache ever after. This is because he didn't choose his sticks carefully, and he didn't work with them to make them something that would help him.

Environmental groups and tribes can help each other in their struggle. But sometimes, environmental groups are not selective about choosing their partners, and then the tribes end up having tough groups to work with.

We are all coming from communities that need our help, especially with the issue of historic mining toxins. We need to make sure that the people coming to help us clean things up are looking out for everyone's best interest, not just their own.

They brought us here today to talk about how mercury is affecting things and how we're working with community groups.

Tribal people and community organizers and community groups have the opportunity to work on projects that will do good for rivers. Rivers should have big fish in them. We need to educate government agencies, local state and federal, about the benefits of salmon to healthy rivers. We need to have salmon ceremonies. But we need to go a step beyond calling back the salmon. The dams are blocking the salmon. Like a tiny mole, we can start doing things that will lead to the dams coming down—for example, put a windmill on your house and make your own energy! The Winnemem believe that they have a voice because of the salmon, and so have a responsibility to speak for the salmon. So even though they have limited resources, they come to conferences like this and talk about what has to happen to fix the water. Community groups need to take on the same responsibility and speak for people who don't have a voice, and for people who can't afford to have a voice.

Tribal people are all for getting help from other people—but they want it as equal partners. Don't bring tribal people out and ask them to tell a story. You may be amused but you won't understand it, won't know what it means. Also, sometimes you may ask a tribal person about something and you may not hear the answer for a month or a week or a year. It is important to keep listening, and to see the whole thing through.

Steven Haberfeld, Ph.D., Indian Dispute Resolution Service, Inc. spoke about the presence of tribes in the Sierra and what they can bring to the discussion. There are 34 federally recognized tribes in Sierra—and as many or more non-recognized. Tribes have become more involved in politics over 20-25 years, interested in getting back into their historical role as stewards of the environment.

Currently, Sierra forests are in the process of revising their management plans. Steven is working with tribes to get involved in this process so they're part of the decision making equation. It is incumbent upon non-Indians to create space for tribes in decision making, but it's also incumbent upon tribes to use their leverage and traditional wisdom to influence these decisions. Today, tribes are more than ever able to assert themselves, more willing to engage, and get involved in developing their own economies. The influence of tribes will be more increasingly obvious.

Tribes have a unique perspective on natural resources, which is shared with conservation groups. Tribes are not restricted by artificial boundaries—they can look at resource issues at watershed scale. Tribes think long term—7th generation in future—which is a great distinction from how agencies often approach the environment. Tribes have been here for a long time and have local based wisdom of plants, climate, what works and doesn't.

Tribes today enjoy tremendous political leverage including traditional hunting, fishing, gathering and trapping rights. In other states have treaty rights (but not CA). By virtue of their separate nation status, tribes enjoy a government-to-government relationship with federal agencies. The federal government has a trust responsibility to protect and enhance tribal resources on ancestral lands (which include the whole Sierra) in coordination with tribes who have property rights to resources on that land.

IDRS working with national demonstration project on National Forest activities (in NM, OR, AZ and CA) using the tribal forest protection act as legal framework. This includes restoration projects on neighboring lands and helping broker relationships AND making money doing it.

Discussion and Questions

- Dam removal in the Klamath couldn't have been done without tribal engagement—and the effective use of the legal and organizing tools that were at their disposal. Once tribes (both federally recognized and not) got engaged, things really started moving forward.
- **What tools have you used in your issues that have been effective? Stories?**

- Tribes see the importance of negotiation (and the difference between consultation and negotiation). Negotiation requires a bilaterally, mutually respectful relationship. In the example of the Desert Protection Act, the Shoshone and others started a national alliance and network to recognize the tribal presence in national parks—in the end the federal government was very pleased with the process, but it took them a long time to stop just “consulting”
- We need to remember that federally unrecognized tribes are not accorded the same respect that the other ones are. In CA there are now 110 federally recognized tribes, and 200 unrecognized. There is a resolution that ALL tribes in CA should have a say on their ancestral lands. (106 Consultation) This allows unrecognized tribes to have a say on projects that occur on their ancestral lands. The public doesn’t distinguish between recognized and unrecognized in looking at tribal support of a project. But in the end, it’s still what the recognized tribe wants that gets accomplished.
- **How can the community get together with you [tribes] to learn what your needs are and what everything used to be before we came in and destroyed everything? How can we all make a connection?**
 - Get involved in the local tribe and support them—meaning, support events. Tribes do stuff with people they know—if you get to know me, I get to know you, we can get together and do a little healing and start supporting each other.





Presented by The Sierra Fund
November 8-9, 2010
Miners Foundry, Nevada City, California

WORKSHOP NOTES

Encouraging Voluntary Cleanups Great Hall, Monday November 8, 1:00pm

Notes taken reflect the best effort to capture what was said in presentations and in the discussion time following. They are presented here in order to encourage further discussion about these matters. These notes do not necessarily reflect the views of The Sierra Fund staff, board or funders.

Leah Goldberg of Meyers Nave facilitated this panel discussion and Steve Becker of the CA Department of Toxic Substances Control, Phil Woodward of the Central Valley Regional Water Quality Control Board, Debbie Schechter of Environmental Protection Agency Region 9 and Tim Vendlinski of Sustainable Conservation presented.

Leah Goldberg gave an overview explaining the liability issues around abandoned mines.

She explained that after the presentations by the panelists there would be an opportunity for collective brainstorming on different ways to create liability relief and encourage mine cleanup activities. She also explained that the discussion would inform The Sierra Fund working group activities in the future. Audience participation and ideas were encouraged and could be posted on posters in the back of the room, since the entire Summit is something of a brain trust around this issue of abandoned mines and what we know about them.

These are the major laws that impact abandoned mine regulation today:

- 1870-Mining laws developed, enacted to register mines and miners
- 1920-Employment Initiatives

- 1972-Clean Water Act, RCRA (cradle to grave), Super Fund/CERCLA (hazardous substance clean up)

In general state laws followed these federal laws and a broad liability scheme of owner/operator was the result. In general, anybody who could have profited as a responsible party was liable for the current conditions. The conundrum was that no one wanted to touch these properties.

Given the laws on the books there is a need for liability tools specifically for Abandoned Mine Land sites. In fact there may be some upcoming legislation to fix some of these problems.

Debbie Schechter, US EPA Region 9 presented on what EPA can do about Abandoned Mines in California.

Debbie Schechter explained that EPA has CERCLA, or Superfund, authority and that there was Brownfields Funding to assess and clean up abandoned mines but that most importantly there is a real need for prioritization of abandoned mine sites.

CERCLA was passed in 1980 and gave EPA the authority to investigate, designate, and remediate sites. EPA responds to threats and then works to investigate and cleanup sites. Other federal agencies also have this authority, specifically BLM and the Forest Service.

Ms. Schechter gave a summary of CERCLA, Superfund and the Clean Water Act as the primary tools for addressing Abandoned Mines.

- CERCLA provides strict liability and gives EPA the ability to compel a responsible party, or RP, to address the issues at a site.
- Superfund is indeed a fund that gives EPA money to do cleanup where there is no RP.
- The Clean Water Act regulates discharges, and was not designed for mine sites. The Clean Water Act applies where there is acid mine drainage or a point source. It also applies to the current owner/operator, even if they are not the RP. (Whereas CERCLA only applies to owner/operators that are the RP.)

EPA response to threats includes a removal response which is short term or a remedial response which is more long term and typically means the site is on the National Priorities List or Superfund list—for example, Iron Mountain Mine.

Ms. Schechter gave two examples of EPA responses under CERCLA: Bodie State Historic Park and the Blue Ledge Mine.

- EPA conducted a removal response at Bodie State Historic Park, for lead, arsenic, and mercury where there was a tailings pile eroding into a creek. This was done under an EPA administrative order with consent from the State. EPA extracted contaminated soils, stabilized soils and put in a mercury vapor cap system.
- EPA conducted a removal response at Blue Ledge Mine which was a copper mine located three miles south of the Oregon border. The USFS got \$9.7 million to do a removal action in 2006 for arsenic, lead and copper. There are still major sources that need to be addressed at this site

including contaminated sediment and drainage that enters into the creek. The site needs constant maintenance and needs to be on the National Priorities List. This is an example of how EPA and the Forest Service have worked together on a project.

The Brownfields Program was amended in 2002 to CERCLA and provided bona fide prospective purchases to be eligible for Brownfields money as long as the owner is not a responsible party. This is done with a bona fide prospective purchasers agreement. Examples include the Nevada City Brownfields Assessment and Cleanup projects.

In summary, prioritizing mine sites is a critical step because there are nearly 47,000 abandoned mines in California. Senator Diane Feinstein created a top 100 list, where State and Federal governments came together to prioritize and make this list. However, only 5% of all the abandoned mine lands have been inventoried. EPA is working to prioritize sites and increase coordination. Site prioritization is based on risk based criteria.

The final word that Ms. Schechter gave us was that only a small portion of abandoned mines can be addressed and that Brownfields is good for sites with redevelopment potential.

Regulatory Issues Assessment with Discharges from Abandoned Mines to Surface Waters

Philip Woodward, Central Valley Regional Water Quality Control Board

Mr. Woodward explained that the Water Quality Control Board deals with all different types of mines, not just gold mines, including, copper, and mercury mines. All of which have different potential human and ecological health impacts.

In general, copper mines have the largest discharge to surface water and the Regional Water Quality Control Board (RWQCB) deals with impacts beyond property boundaries.

Specifically, problem mines are ones that have a discharge from their portals. It is important to note that there are still many creeks with no fish in them, and that the issues associated with abandoned mines goes beyond human health.

There are regulatory issues associated with abandoned mine lands and they often depend on the type of mine being considered. For example, there are mines without discharges to surface water which can be Good Samaritan cases. But there also mines with discharges for which there are no Good Samaritan provisions due to the liability under the Clean Water Act.

Mr. Woodward explained that there are regulations in the California Toxics Rule (CTR) that determine the threshold limits for priority pollutants. In general, the policy set for the impact of toxics (Toxic Standards) was made for industrial discharges and was never meant for Abandoned Mine Land (AML) sites.

The problem is that very few treatment systems can treat to the strict standards of the CTR, therefore the State Water Board is in a position to grant exceptions given that it does not impact beneficial uses of the water body.

Specifically, the strict numeric effluent limits for priority pollutants does not take into account the issues associated with abandoned mines, such as seasonal change in precipitation. AML sites cannot stop generating waste the same way an industrial facility can. Mines are often in remote areas and are often without power or access which can lead to numerous maintenance problems. In his experience, passive treatment is often not good enough. In fact, the best of the best treatment systems are often not good enough. For example, West Squaw Creek remediation work decreased discharge by 99% and cost \$12 million but is still not good enough to meet CTR standards for priority pollutants.

Another example is Iron Mountain Mine, where the discharge was reduced by 99%, but the local streams still do not support fish, and \$300 million was spent, and it is still not good enough. The Iron Mt. Mine treatment system cost \$35 million to build and costs \$6 million per year to operate and it rarely meets effluent limits.

In general simple best management practices to divert contaminated surface water away from streams and rivers often has the greatest impact. Whereas, complex biological treatment systems can be good for some metals such as copper but not good for others such as zinc. In some cases the Water Board has been working on sites for over 25 years and new treatment methods continue to be addressed.

The gold standard, to which all remediation actions are compared, is their overall impact to Beneficial Uses of water bodies. Beneficial Uses were set in some cases more than 10 years ago and yet they determine what is and is not clean enough.

In summary, there are over 1,000 Abandoned Mine Lands in California, remediation is costly, Responsible Party searches are difficult, there is a need for enforcement actions, we need state of the art remedies, often the best of the best technologies are not good enough, practical approaches continue to be effective, and above all the need to limit liability under the Clean Water Act is the most important issue.

Steve Becker, CA Department of Toxic Substances Control

Steve Becker explained that the Department of Toxic Substance Control (DTSC) wants to address Abandoned Mine Lands (AML). DTSC has an AML initiative with an outreach component and they try to work with other agencies to improve their program, especially over the last two years. DTSC's focus is on protecting human health and ecological receptors.

The programs at DTSC, or tools for AML, include:

- Voluntary Clean Up Agreements - created in 1993 these are meant to motivate parties to step in to clean up a site if they have access. DTSC provides the services of document review, oversight of site characterization, risk assessment, and evaluation.
- California Land Reuse and Revitalization Act (CLRRRL) AB 389 - CLRRRL was passed in 2004 and provides legal immunity to landowners and to contiguous property owners through a bona fide purchaser's agreement.

- **Prospective Purchaser Agreement** - This is an agreement created prior to purchase of a property and is only an option for owners that are not a responsible party. The prospective purchaser agrees to provide an appropriate level of response and DTSC provides a covenant not to sue and grants immunity at completion of the work.

Often the tools available to address abandoned mine sites depend on the ownership of the site. The term “Orphaned” Mine Site is a more accurate way of describing a site where there is no Potentially Responsible Party (PRP). State-owned sites are eligible for Superfund money. Federally-owned land is eligible to be on the National Priorities List (NPL). State, local government or nonprofit landowners are eligible for Brownfield Grants. The Proper Due Diligence or All Appropriate Inquiries Rule prior to acquisition of a property is a critical step and will determine if the owner is eligible to apply for immunities.

Steve Becker provided links to more information on his last slide including the Envirostore Project Database.

Tim Vendlinski, Sustainable Conservation explained that his organization is interested in the greening of industry. He explained that orphaned mines, mines without a responsible party, are a bigger problem for funding than abandoned mines because there is no funding for them. He explained that out of 47,000 abandoned mines in California only 5,200 are estimated to be a threat. Sustainable Conservation focused on mines on private lands, approximately 31% of the total. In reality, very few abandoned mines will be characterized and cleaned by local government, in fact, most will not make Superfund status.

The primary threat that abandoned mines pose is acid mine drainage (AMD), and this was Sustainable Conservation’s focus. Mines with continuous discharges out of adits often have elevated levels of aluminum, arsenic, cadmium, copper, lead, magnesium, mercury, nickel and zinc.

The classic laws, Clean Water Act and California Toxics Rule, were not written with AML in mind. The Good Samaritan initiative still has “citizen lawsuit” problems because it only applies under state law and not federal law. Most agencies and organizations lack the will to clean up abandoned mine lands. Where is the mining industry in the equation?

To apply NPDES discharges to mines under the Clean Water Act, one must identify the point source. Typically it is in the form of an old pipe, ditches, channels, tunnels, conduits, wells, or adits. But it is regulated as if the discharge at an abandoned mine was produced by a factory—when in fact, AMD discharge is more like storm water and should be regulated under section 402.

Mr. Vendlinski summarized the options under the current regulations for abandoned/orphaned mines in California with a flow chart of various routes toward remediation and regulation:

- 1) **Variance procedures UAA (Use Attainability Analysis)** in which site specific water quality standards are created. This option still leaves the owner/operator vulnerable to citizen suit under the Clean Water Act.
- 2) **Reconfigure and Isolate** - Waste rock piles would be capped and/or separated from water to decrease mobility of pollutants.

- 3) Extraction wells, treatment plant – A water treatment system is designed and installed for a single abandoned mine. The main problem with this is money for continual maintenance.
- 4) Best Management Practice approach to handle waste on site.
- 5) Congressional Refinements - To create a new class of permits similar to what Senator Udall is proposing with a 402 permit which would absolve owner/operators of abandoned mines of liability.

Discussion and Questions

- Are you suggesting we advocate for modern beneficial use standards? If so, is that a slippery slope?
 - Phil: Possibly if assigned on blanket terms. But is it worth it to society to spend so much money with no end in sight? In fact, it is a requirement to re-evaluate Beneficial Uses of water bodies every 3 years.
- Is the City of Nevada City a liable party if remediation of their Brownfield sites isn't good enough?
 - Tim: Liability has more to do with a drainage issue because you become a discharger, and these sites don't have drainage issues.
- Want to hear more on Executive Order 12666, polluter pays 12A66, the agency requirement to do cost benefit analysis. And I want to hear from the county health officer if he thinks we should start epidemiological study in this area.
- There is a Brownfields site in Grass Valley for re-development that has a creek running through it—how can he contain the discharge?
 - Phil: The current landowner is responsible to correct that issue.
 - Tim: They used Good Samaritan liability agreement to move hard rock waste that is dispersed into a single spot and cap it to prevent contaminated discharge.
 - Leah: Uses PPA or CLARRA
- I am interested in the up-coming mercury TMDL's. Are abandoned mine lands considered a point source? Are they given a load allocation or a waste discharge permit?
 - Phil: Ask Patrick Morris.
- How many Brownfield grants have been given out for mining?
 - Debbie: There are about 300 Brownfield grants per year, for assessment and cleanup. Nevada City got the first cleanup grant for an AML site.

- Is there a public participation component of the DTSC Voluntary Cleanup program? Does it vary from state to state? The public wants to say what level it should be cleaned up to!
 - Steve: DTSC compiles a mailing list and work notice—public involvement comes in after DTSC has assessed the site. Public participation is mandated for cleanup actions per CEQA, with a 30 day window.





Reclaiming the Sierra

Gold Country
Community Summit
on Mining Impacts

Presented by The Sierra Fund
November 8-9, 2010
Miners Foundry, Nevada City, California

WORKSHOP NOTES

Financing Remediation on Public, Tribal, Nonprofit and Private Land Great Hall, November 9, 2010, 10:15 am

Notes taken reflect the best effort to capture what was said in presentations and in the discussion time following. They are presented here in order to encourage further discussion about these matters. These notes do not necessarily reflect the views of The Sierra Fund staff, board or funders.

Jim Branham of the Sierra Nevada Conservancy facilitated this panel discussion and Ignacio Dayrit of the Center for Creative Land Recycling, Jon Blinder of Gold Country Lenders, and Bill Haigh of the Bureau of Land Management presented.

Ignacio Dayrit, Center for Creative Land Recycling (CCLR)

Finding funding for brownfields projects is like piecing together a puzzle—funding comes from many different sources. Funding is also for a variety of activities—planning, design, outreach, etc. A successful project should lay out a plan for when and where to apply, since you don't need the money all at once. Keep in mind that money attracts more money. To get funding, government, nonprofits and others need to team up.

CCLR provides technical assistance for brownfields projects in 14 western states. In this area, they have long supported Truckee and West Sacramento. They provide an excellent, and concise handout about funding sources available for these projects in CA. They also provide many details on their website.

Some funding opportunities include: US EPA Brownfields grants for Assessment, Cleanup, Technical Assistance, and Job Training. Other EPA grants include CARE (spell out), and Environmental Justice grants. There are USDA grants for reuse, Housing and Urban Development, and the CA Department of Toxic Substances Control brownfields grant and loan program. Awarding grants for cleaning up abandoned mines is increasing.

Jon Blinder, Gold Country Lenders

The purpose of this presentation is to give lessons learned from the course of his company's experiences in trying to remediate mining impacts. Jon represents investors in a conscientious development project on the edge of Grass Valley. The project was halted when it learned there was arsenic on the property.

Before this project, DTSC (Department of Toxic Substances Control) had assessed the human health risk of arsenic on a property without considering whether it was naturally occurring or not—which is incomplete and inadequate science.

Consultants to this development project were the first to make the case that arsenic in this area is naturally occurring and bound to iron oxide, so not a health risk until processed. Another area where there is incomplete information about arsenic is to what degree it is bioavailable—or available to be absorbed into the human body. It may not be true that all arsenic in soils results in human health risk.

This process took four years and \$13 million of investors' funding until the project learned that it could proceed—but by that time the development market was gone.

At this point, although studies on the health risk of arsenic have begun, there is no urgency to get them completed. Jon believes that this must change—if there is to be affordable or reasonably priced property in this community, there must be a streamline process for dealing with mine contamination on properties. One idea he presented is to create a library of soil samples from the region, so similar properties can be streamlined into the same process, and all don't have to be dealt with in a long, individual process.

Bill Haigh, Bureau of Land Management, Motherlode Field Office

Of the 253 million acres of federal land in Western states, BLM is the largest landholder.

Funding of mine cleanup on federal lands is a competitive process. Each agency and office within the agency must pitch their own project to get it funded. For example, 15 BLM field offices compete for the funding allocated to California. Certain factors increase the chance of landing funding for a project—including local partnerships, or if there is a violation filed against the site.

There are several steps to conducting a cleanup project on federal lands, each with associated (and increasing) costs. Assessments including the Preliminary Site Assessment, Removal Site Investigation, Engineering Evaluation and Cost Analysis, Human Health and Ecological Risk Assessment add up to \$100,000 or more.

BLM funding sources for mine cleanup include: \$11 million in the agency budget (nationally) last year for cleanups. Stimulus funds were a bonus last year with an extra \$29 million throughout West, with \$2 million for CA—most of which went to projects in the Nevada City area. Other funding includes the

Dept of Interior central hazmat fund, State of CA, matching funds, and EPA Superfund—if a site is listed as a Superfund, it is good for funding, but the negative stigma sends partners running!

Discussion and Questions

- A private landowner is interested in donating a parcel to the county, but it has a small mine on it so the county won't accept. Is there a possibility for private landowner cleanup/Good Samaritan cleanup?
- BLM is also looking at how they can clean up a small mixed-ownership site as a pilot project for bigger sites. They started moving in that direction by applying for stimulus funding this year on smaller sites.
 - Another way to include private property in a cleanup project is to take an area-wide approach—this looks not only at one site but at an “operating unit”—a discrete area where you make overall cleanup goals to coordinate cleanup or reuse. This can help get around liability issues since once the geographical area is defined, you then go to the regulators with new vs. existing data, and make case-specific groundwork rules about outcome goals. The regulators can then tell you how to operate or how to get exemptions so you can achieve your goals.
 - The funding sources presented in this workshop were all for public lands, but private landowners do not have the same opportunities. **What kind of creative solutions are there for private property cleanup?** The property owner can give permission to sample their site. EPA also has loans for private landowners for cleanup. Alternatively, EPA could grant money to a nonprofit for cleanup.
- Toward the end goal of identifying and cleaning up contamination, it seems that many public agencies duplicate effort. We need to consolidate the process, and create a “one-stop-shop” for landowners or developers to clearly lay out and deal with these issues.
 - Agencies DO need to work harder to coordinate. For example, EPA Region 8 has more and different science on certain issues that Region 9—they must have consistent information and make recommendations based on that.
- One solution to consolidating the issue is to take watershed or basin approach and define outcomes that way. In Sierra Nevada, the big issue is water. But reservoirs are filling up with mercury. Create set of outcomes around that and get everybody to come to the table around it. Site-specific projects work much better than addressing the issue programmatically.

- A site-specific project also helps consolidate agencies (which isn't going to happen on a large scale), identify all the necessary players, and build necessary personal relationships WITHIN state and local agencies, and nonprofits.
- On the other hand, that kind of situation takes so long that it puts people out of business—by the time you go through the time and effort to build this.
- In the case of development, it is much better to plan for a large region up front than to move forward case-by-case—Emeryville is an example of this: doing cleanup and development site-by-site only leads to lawsuits, while doing the whole city at once lets you line up your financial tools and technical solutions that will be successful.
- There is so much regulation and so little money associated with this issue—one solution is to employ or empower the mining community to get things happening.
- To reach policymakers, talk about outcomes of cleanups and impacts of not cleaning up. Gov't agencies are good at regulating, but sometimes lose sight of the end goals.
- One of the best solutions to involve the community right now is to go after a Brownfields Job Training grant. Currently, there are none in Gold Country, so whoever gets one would be on the cutting edge and could design the program. Grass Valley/Nevada City are in a great position for this because EPA loves poster children, and will often award one city a series of grants. This also attracts grant funding from other public agencies.
- The Water Board's NPDES permit applies universally—could this be used as a model to streamline cleanup process, making a permit that counties could administer?





Reclaiming the Sierra

Gold Country
Community Summit
on Mining Impacts

Presented by The Sierra Fund
November 8-9, 2010
Miners Foundry, Nevada City, California

WORKSHOP NOTES

Green Mining and Abandoned Mine Reclamation City Hall, November 9, 2010, 11:30 am

Notes taken reflect the best effort to capture what was said in presentations and in the discussion time following. They are presented here in order to encourage further discussion about these matters. These notes do not necessarily reflect the views of The Sierra Fund staff, board or funders.

John Lane of California State University at Chico facilitated this panel discussion. Presentations were made by Jim Pompy of the California Office of Mine Reclamation, Mike Miller of the Original 16 to 1 Mine, Adam Harper of the California Construction and Industrial Materials Association, and Becky Wood of Teichert.

Jim Pompy of the California Office of Mine Reclamation (OMR) was the first to present. OMR was created in 1991 to administer the Surface Mining and Reclamation Act (SMARA) of 1975. SMARA provides a framework for regulating mining in the state. OMR provides assistance to cities, counties, state agencies and mine operators for reclamation planning and promotes cost-effective reclamation. It accomplishes this work through three units: the Reclamation Unit, the Reporting and Compliance Unit, and the Abandoned Mine Lands Unit.

Mr. Pompy discussed the process of developing and submitting Reclamation Plans. These plans need to address many things, including operation and closure, beneficial end use, protection of species and wildlife habitat, geotechnical aspects, water quality, topsoil management, revegetation, and statement of responsibility. Once a Reclamation Plan is approved, the Reclamation Unit is available to provide technical assistance in all areas of reclamation, such as slope stabilization, erosion control, mitigation of impacts to sensitive species, and revegetation. The Reclamation Unit also assists mine operators to ensure that their mined land will be returned to a useable form.

The Reporting and Compliance Unit maintains a California mining database, investigates complaints, reviews financial assurances, and works with the State Mining and Geology Board to exercise enforcement.

The Abandoned Mine Lands Unit is made up of a small team of professional geologists, environmental scientists and geographic information systems (GIS) specialists who compile a statewide database of abandoned mines. This unit works with local, regional, state and federal partners, and remediates public safety hazards posed by abandoned mines. In addition, the AMLU hosts the California Abandoned Mine Lands Forum. Most abandoned mines are found in San Bernardino County, but 12 percent are located in the Mother Lode Region. More than 200 incidents related to abandoned mines have been reported. This unit handles some aspects of physical hazard remediation. One of the issues they have to take into consideration when performing remediation is bat habitat. Bats use abandoned mine locations, and it's important to leave them a way to get in and out of mine shafts, without allowing for dangerous human access. The key challenges faced by this unit are population shifts and increased recreation, as this brings more people onto abandoned mine lands. Increased coordination with the Forest Service would be very beneficial to this unit.

Mike Miller of the Original 16 to 1 Mine spoke about his experience as a miner. "10 minutes isn't enough to get into deep issues," he said, "and we didn't pick the subject." He started his presentation by letting the audience know that "I'm an environmentalist, I'm a conservationist, and I'm a gold miner."

Mr. Miller provided definitions of the different types of mines. There are patented and unpatented mines. Patented mines are fee-based ownership. Unpatented means that the federal government owns the paramount title. In other words, you have the right to mine minerals but can't use the surface for anything other than mining activities.

Further, there is placer and lode mining. Placer mining means that the gold is moved from its area of origin, usually by water. Lode mining is [when gold is removed from ore].

The Original 16 to 1 Mine operates the only underground mine with a crew in this area of California. Mr. Miller said "We are traditional gold miners. We use rail and train. The gold we mine is very high grade. We are concerned about water."

There are five elements in mining: prospecting, development, mining, and reclamation. The recent evolution of thought is that reclamation should return land to its pre-mining state. Remediation should mean that land is made available for beneficial use.

The 16 to 1 Mine has been in business for 35 years. The miners live in the area where they mine. What we do in the coming years, with the economy, will be what we leave for our grandchildren and children. There is a disparity between bureaucracies and the public. The workers are having some of the same issues with regulators.

Mr. Miller took issue with The Sierra Fund's scope in their campaign on the legacy of the Gold Rush: "The Gold Rush is a very small period of time. Most of the Gold Rush time was focused on the mechanical. The blight that has been seen recently was not caused by original Gold Rush activities.

"When you're talking about mining issues and science, there is a quantitative and qualitative approach. Science should come at an issue with no bias. Arsenic is an example. Arsenic is the most maligned element. It's also the most prevalent element on earth. Tiny doses of toxins have benefits to people. Vaccinations are an example of this. Dosage and the time of exposure to contaminants is key. Some elements are not toxic at low levels.

"We at 16 to 1 are green miners."

Becky Wood of Teichert also shared her experience and discussed Teichert's history and present work.

She began with her experience: "Mining is something that runs in my blood. I feel passionate about it. I am a miner. My father was an electrician in mines. My mother's father was a hard rock miner in New Mexico."

Ms. Wood emphasized the difference between law-abiding mining operations and others. "Mining gets a bad name since the problems are what make the news—you never hear about the good operators or those who do the right thing, only the problems left behind." She admitted that some problems are here because of historical practices. "That doesn't make what they did right. It also doesn't make those people evil." In her opinion, changing the laws will not necessarily help since bad operators will be bad even if you change the laws and make things more difficult for good operators. "More laws do not make criminals more responsible."

The mining industry has long known that there were environmental impacts from its activities. For example, there is a book written in the 1500s (translated by Herbert Hoover) on mining methods. The entire first chapter is devoted to balancing what's good and bad about mining: mining causes war, and leaves environmental degradation. These problems are recognized but solutions are not often discussed. The discussion of solutions is more recent.

Teichert has 120-year history of mining in CA. The first properties mined in Sacramento are now parks. Ms. Wood emphasized that it is important to take care of the land and turn it back into beneficial use. "As an industry, we need to hold miners to-task to ensure that mining is done properly. Miners hate waste. If you're bothering to take ore out and crush it, then why not use waste rock as an aggregate source. "

Ms. Wood presented examples of good mining operators, of miners who care about what they do and the communities they live in. One example is a mining company that operated in Yolo and Butte Counties, performed reclamation activities and did not leave behind contamination. One of the areas where they operated is now used as a research center for environmental purposes.

The presentation concluded by pointing out that mining has to occur where it is. Nature puts things in higher concentrations of minerals in certain places. "You have to go to those places and take materials from where they are. You can't outsource mining. You might not find that material someplace else."

Adam Harper of the California Construction and Industrial Materials Association (CalCIMA) discussed his organization's activities and shared photos of reclaimed mine sites.

CalCIMA is a trade association that represents construction aggregate and industrial materials industries, including rare earths, diatomaceous earth, etc.

Gold production has decreased over time. In 1861, California miners produced more than \$1 million in gold. In 1865, the state produced more than \$235 million in gold.

Mr. Harper explored what green mining could mean. Minerals fill a societal need for raw materials for tools, technology, manufacturing, and infrastructure. Modern mining operations bring science to mitigation techniques. The modern permitting and regulatory system adds to the effort to mine with

best practices: “trust but verify” is the current thinking. It is also important to reclaim lands for beneficial use.

Also, distance matters. The closer minerals are produced to their use/manufacturing location, the less energy is used to transport them. For example, a single mile of single lane of road construction requires 20,000 tons of aggregate. CalTrans estimates that 50 miles is the current average hauling distance for road aggregate. If trip length could be reduced by even 15 miles, then diesel fuel consumption would be reduced by 44 million gallons annually. Importing cement from Asia to CA adds an extra .15 to .3 tons of CO₂ emissions per ton of cement.

Discussion and Questions

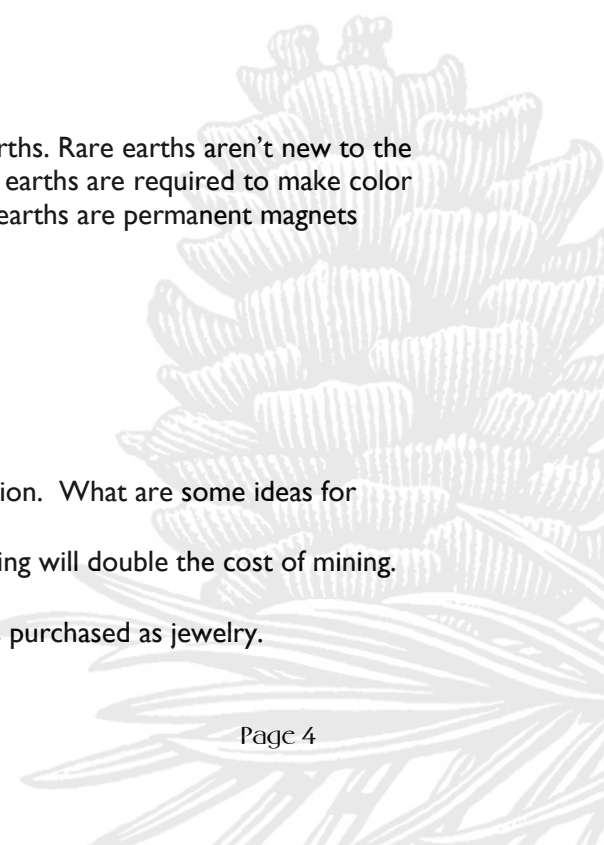
- Mining is an extractive industry with a diminishing resource. It’s hard to think of it as a sustainable resource.
 - Miners bring a lot of infrastructure that can be left behind—power, roads, railways, hydroelectric sources, etc.
 - Every operator is conflicted with immense financial issues. Sustainable also means you can pass the test of time
- Almost all power could be produced in Alleghany without any loss to the environment.
- SMARA --- includes a cost/benefit program. There has to be a benefit for the cost of certain things. 1976 law: mineral lands you can’t get anyplace else. We can’t take it someplace else.
- Mineral lands should be designated so that they are free to be developed, without use conflicts. This would be a broader meaning of conservation. The Mother Lode and other areas have been over-built with homes on top of mineral deposits. Delineating mineral lands would have been a positive thing.
- Technology is making a difference in green mining, it is becoming more efficient.

Rare Earths

- In green mining, we have a need for new materials such as rare earths. Rare earths aren’t new to the state of CA. We have the technology to produce rare earth. Rare earths are required to make color television, fuel cells, hybrid cars, rechargeable batteries, etc. Rare earths are permanent magnets that are vitally important for producing technology.
- China is stockpiling Rare Earths.

Abandoned Mines

- With abandoned mines, we are dealing with someone else’s pollution. What are some ideas for funding closure?
- Percentage fee. Long-term and sustainable. Backfilling. Surface mining will double the cost of mining.
- Gold is a stable fee resource-- put an excise tax on gold when it is purchased as jewelry.



- Cleaning up someone else's mess should come out of the taxpayers' money.

Public Comment

- Mineral extraction is obsolete.
- Before we jump into closing 46,000 mines with both feet shouldn't we look at extracting minerals from existing mines?
- Mines should be prioritized by sensitivities.
- Iron Mountain is a classic example. It costs the taxpayers a lot of money and it does environmental harm. There are still a lot of materials available at that site. It would be difficult to mine and cleanup. You could do it. You could easily remove 80 percent of the pollution and make money as well.
- The mining industry...Idaho Maryland Mine is trying to go in. The transportation is the biggest issue. The extraction process needs to be made friendlier to local residents. The Cupertino operation is a good example. The operators are working with the community.
- Can you rework gravel deposits to remove mercury? Is it successful?
 - We do have areas where we re-work dredge tailings for the aggregates. You will get mercury out if there's mercury present. We haven't seen as much mercury as you might have expected.
 - Yuba Goldfields is an area where this has been done. Sacramento County.
- DWR has a plan to rework gold fields in the Oroville area. Will have to rework tailings piles. Is there a technology available to remove mercury from tailings?
 - Yes. You should get in touch with the Nevada Irrigation District to find out about their mercury removal project.





Reclaiming the Sierra

Gold Country
Community Summit
on Mining Impacts

Presented by The Sierra Fund
November 8-9, 2010
Miners Foundry, Nevada City, California

WORKSHOP NOTES

How to Conduct Public Outreach about Human Health & Mining Toxins City Hall, November 8, 2010, 2:30 pm

Notes taken reflect the best effort to capture what was said in presentations and in the discussion time following. They are presented here in order to encourage further discussion about these matters. These notes do not necessarily reflect the views of The Sierra Fund staff, board or funders.

Roger Hicks of Yuba Docs facilitated this panel discussion and Ken Cutler of the Sierra County Public Health Office, Sherri Norris of the California Indian Environmental Alliance, Wesley Nicks of the Nevada County Environmental Health Department, and Mike Thornton of The Sierra Fund presented.

Roger Hicks of Yuba Docs welcomed the audience to the panel discussion.

There has not been a way to assess people who come into health clinics for exposure to mining toxins. We still do not have a way to do this, and we should. There is very little synchronicity or exchange in my professional life regarding topics like mining toxins. That's one of the reasons we are here today.

Wesley Nicks of the Nevada County Environmental Health Department discussed the focus and processes of his department.

Consumer protection, hazardous materials, and land use are the focuses or divisions within my department. When a land use change or development comes into the Planning Department, usually an application is filed, zoning determined, and if necessary, CEQA is undertaken. This brings a project to the Environmental Health Land Use Division. This is where questions regarding mining activities and contamination are raised.

Mines in Nevada County are clustered mostly in the western portion of the county. There are 1,281 mining features of some kind (including exploratory "coyote holes"). There is a Superfund site on Banner Lava Cap. Of the 47,000 mining sites in the state, 84 percent present a hazard.

If a mine feature is present on a property for which we receive an application, a research phase is kicked off to determine whether further action is necessary. If not, a letter is written to the Planning Department saying so. If there is a problem that is easy to fix, it is allowed. If not, the issue is forwarded to Department of Toxic Substances Control. Phase II of the process allows for samples to be collected and mitigation possibilities to be determined.

The Nevada City Co-Housing complex is an example of our process. It was built near a hydraulic mine site and burn dump that was operated by the city. The Department of Toxic Substances Control was brought in to assess the site. They found arsenic and lead in large amounts. In response, they removed 495 cubic yards of contaminated soil.

Ken Cutler, Public Health Officer in Sierra County discussed the work of local health departments and the role they play in communities.

I'd like to talk about the First 5 Commission in Nevada County. Prop 10 provided a 50-cent tax from cigarette sales to be used for child health and development in the first five years of their life. This is especially important regarding mercury toxics because children five and under are particularly susceptible to mercury-related health problems. First 5 also funds family resource centers.

To give you a bigger picture: Local health departments are mandated by the state of California. These departments are tasked with enforcing state and local laws related to public health. Their existence came out of early tuberculosis work and the spread of TB in California.

Public health departments are stretched thin. They handle everything from disease outbreak control, to STDs like HIV, as well as monitoring public pools and camps, handling syringes, and sewage leakage. Further exacerbating the difficulties local health departments face, there has been a large reduction in our staff levels recently. Sacramento has lost 40 percent of its full-time workforce.

Local health departments are varied, from the very small department in Nevada County to a huge department in Los Angeles. Despite this variation, all of them prioritize somewhat through the same process. They have unlimited opportunities to do good work but have to prioritize. They have to look at things quantitatively and weigh the magnitude and importance of an issue, as well as the feasibility of interventions.

The approach to dealing with lead is a good model for how we could approach mercury. Lead poisoning was treated as acute poisoning for a long time. Needleman studied school-age kids and correlated lead levels in their teeth with learning and attention deficits. This proved it was a big issue and affected poor populations. In those days, there was lead in paint and gasoline. The response to this issue was science-based and community-driven. We need to use lead as model for mercury.

The surgeon general recently came out with draft goals. We need to create community environments that make the healthy choice the easy and affordable choice. We need to remove involuntary exposure to toxins. We have thousands of toxins in our environment, so this is a difficult task. The California Department of Public Health paper "What is a Healthy Community?" is a great reference for this.

The Departments of Health and Human Services work on sharing information. Outreach to the most vulnerable members of our communities is important, as well as culturally appropriate communication. Education and signage is not enough. We need policy-level intervention. We need to limit the availability and presence of toxins. We need to be able to post signs at safe areas, as well as contaminated areas to

combat the assumption that areas that aren't posted are clean and safe. We need data on mercury levels and developmental outcomes. Data is not sufficient to drive political will, but it will help.

In closing, beneficial change takes time. I don't want to discourage fish as part of a healthy diet. We want to direct people to safe fish instead. I don't want to inadvertently influence people to go to more toxic environments.

Sherri Norris of the California Indian Environmental Alliance (CIEA) discussed her organization's history and presented work efforts.

CIEA was formed in 2003 to work with youth and provide education about mining toxins. In talking with the youth, CIEA found that they had learned about the Gold Rush in school, but had not been taught about the affects of the Gold Rush on their families and their tribes. The film "Gold, Greed & Genocide" was the result of youth conducting interviews with elders on this topic.

The Pit River Tribe was a partner in the film project. They told CIEA to get the message out to women and children. They did not know what information was available, but were determined to tell people there was a problem. CIEA promised to gather information and come back with it. As a result, low-level outreach materials were created that were not sophisticated, but were effective. Messaging was the most important part.

Everything CIEA does focuses on mining contaminants. Mercury is major focus. More and more is becoming known. CIEA recently developed a mercury health toolkit to make information available and consistent. As a part of developing the toolkit, CIEA made health care presentations to clinics and brochures for the public. This effort has gotten inconsistent support from governmental agencies.

The bottom line is that people want to eat fish. They need information to make good choices for themselves. The paternalistic attitude of government is to pick and choose information that is communicated to public. CIEA believes that we should give all available information to people so they can make choices for themselves. Advocacy is an important piece of this.

It is also important to know your constituency, and communicate with culture in mind. Fish is part of tribal culture, religion, and connection to the Earth. Contamination breaks that connection. It is important to be positive—CIEA can tell people salmon is OK to eat. Likewise, signs should be posted about where safe areas are—both the areas to avoid and areas that are better.

Information needs to be disseminated within communities so that they can own it and distribute it appropriately. We need national messages, local messages, and community messages. All of these need to happen so people can get accurate information.

Mike Thornton of The Sierra Fund discussed strategies around outreach.

How should we do outreach? That's the central question. The simple answer is to do what works. This is easy to say and difficult to implement. Cultural issues, class issues, communication difficulties, professional barriers—all of these things can be obstacles to outreach.

I have been a mental health and drug rehab counselor in the past. Through that work I learned that the first step is to listen to what people say. You can then begin to understand how to talk to people and what to talk about.

When the subject of mining toxins is discussed, it tends to focus only on mercury. But in reality, there is a broader range of contaminants. This year, The Sierra Fund completed a study to look at recreational sites and locations relative to mine sites. This study found that people are being directed to recreate in areas that are contaminated with things like asbestos and arsenic as a result of mining.

For effective outreach, it is important to keep a broad perspective and then drill down where it is appropriate. Some people will be interested in mercury, while others will want to hear about asbestos and other contaminants.

In addition to communication, it is important to know why we do outreach. If you talk to somebody about these issues, they may or may not change their behavior. But outreach allows them to make their own choice.

Community members need to ask their politicians to address important issues and to pay attention. Despite the difficulties related to the lack of resources and over-burden of the system, we must continue to ask the agencies to share information and educate the public.

Discussion and Questions

- There is a long-standing antagonism between “environmentalists” and other “users of the environment.” Some of this is valid and some of it is contrived. This is important to remember when sharing information.
- Is there mercury in rice?
 - It’s not an issue for plants like this. Methylmercury is the issue. Elemental mercury becomes available to human systems after it methylates, and then moves up the food chain.
 - It’s important to do research about the brands you buy.
- It is very important to evaluate what works, so we do not use up energy, time, and money in focusing on something that doesn’t work. There needs to be a formal process to figure out what works.
- We need a better baseline of human health data. Most information currently is anecdotal. To this end, CIEA is working to revise intake materials in clinics, however sometimes testing is too invasive to be effective, and sometimes people don’t want to be tested. If anyone has ideas or suggestions about this they should contact Sherri at Sherri@ciea.org [and The Sierra Fund].
- At what point does the public become aware that the processes are open for their input? How do people find out about these processes?
 - This process is open, but it’s not advertised. People can comment or participate, but they have to take the initiative to find out about what’s going on.

- CEQA triggers testing and assessments related to contaminants.
- Everything is “open to the public.” However in most cases, there is very little effort to assist the public in finding out about what’s going on. Most meetings are attended by the people who are paid to be there. Almost every process has a public participation component, but unfortunately it’s usually a small effort. There is little motivation for those systems to change. The public tends to be seen as a “pain in the butt.” That’s what they should be. The agencies do things that work for them and in their structure—they’re not evil, but there is no real incentive for them to make it easy for the public to participate.
- Agencies are often constrained in communicating this kind of information. But it is important to communicate what is happening, how it affects people, and why they should care. A local group of concerned citizens is key to all these efforts.





Reclaiming the Sierra

Gold Country
Community Summit
on Mining Impacts

Presented by The Sierra Fund
November 8-9, 2010
Miners Foundry, Nevada City, California

WORKSHOP NOTES

Research around Human Exposure to Mining Toxins City Hall, November 8, 2010, 2:30 pm

Notes taken reflect the best effort to capture what was said in presentations and in the discussion time following. They are presented here in order to encourage further discussion about these matters. These notes do not necessarily reflect the views of The Sierra Fund staff, board or funders.

Fraser Shilling of UC Davis facilitated this discussion and Perry Myers of the Department of Toxic Substances Control, Bob Brodberg of the Office of Environmental Health Hazard Assessment, and Carrie Monohan of The Sierra Fund presented.

Fraser Shilling of UC Davis reported that mining toxins present respiratory hazards, water quality hazards, and fish contamination among other things. It is important to conduct continuous exposure assessments and to apply these activities with broader ethnic coverage. We need to use human and wildlife exposure to mine ways to diminish exposure to toxins.

Bob Brodberg of the Office of Environmental Health Hazard Assessment (OEHHA) presented information about fish advisories and postings. Data are key to advisories. In order to develop advisories, OEHHA needs data. In this area, six to eight water bodies were surveyed for mercury levels. OEHHA wrote a report about the data. In 2008, the advisory protocol was updated, and advisories were subsequently updated in 2009, adding some data from a study completed by the Water Board. The San Francisco Bay advisory is being completed now.

In this area, advisories existed on the Bear River, Deer Creek, Scotts Flat, and the South Yuba. These were removed in 2009. Englebright, Lower Feather, and another were added. This is because of the change in protocols to establish advisories. To issue an advisory, data must be of known and demonstrated quality, and it must be of a certain level of detail. The fish data samples need to be species that people eat, and at least 9 to 12 fish of legal size need to be sampled for a small water body. For larger water bodies, it is better to have more samples. OEHHA has a general protocol for sampling and

analysis (posted on the agency's website). PCBs are an issue in some water bodies, but mercury is of most concern in the Sierra.

Governmental agencies work with OEHHA to provide good data. USGS and consultants have provided fish data, and also the US EPA in Southern California.

The Surface Water Ambient Monitoring Program (SWAMP) is a model for design and quality rules as they relate to data gathering. Each lake is different, so it is best to contact OEHHA if you are going to take samples. OEHHA evaluates the collected data.

Advisory criteria have been developed for a number of chemicals in fish as well, including mercury, selenium, DTDs, toxophane, and others. Advisory tissue-level documents are starting points, and then summaries of data and evaluations are completed. Sometimes brochures are made. OEHHA develops fact sheets, informs counties, and publishes advisories in the back of Fish & Game booklets (booklets people receive when they apply for fishing licenses). Advisories can also be found at www.oehha.ca.gov/fish.html.

OEHHA does not post signs about fish contamination or advisories. It is not in the agency's mandate, nor does it have the resources to do so. There is no requirement that anybody post signs.

OEHHA's overall message is for people to eat fish lower in mercury and other contaminants and higher in omega-3s.

Perry Myers of the Department of Toxic Substances Control discussed an arsenic study that his department is conducting.

An Arsenic Relative Bioavailability Study is underway. Arsenic has become more of an issue recently. DTSC's goal is to make sure that cleanups meet the law. Although arsenic has often been the driver for cleanups, not a lot of research about arsenic has been done.

DTSC's study is to develop lab methods that are relatively cheap that can verify the bioavailability of arsenic and why it is bioavailable. The project uses a tool that allows them to measure and map arsenic levels. The study is being conducted through USGS. It will result in a database of how chemical bonding works and what effects are in the soil.

The idea is that if material is not bioaccessible, there may be no reason to do a cleanup in that area. The project is hoping to determine the effects, so that a guidance document can be prepared. This could eliminate the expense of cleanup.

Project samples from Empire Mine were collected in 2009. For these samples, 2,700 lbs of soil were collected. Arsenic ranged from below 10 to above 1,000 ppm.

Arsenic is a nation-wide problem. In fact, it's an international problem and this project was invited to present findings in Italy. Everyone is looking at bioavailability. The project has been presented by Dr. Valerie Mitchell at the annual meeting of the Society of Toxicology in 2010. T. Burlak is working with Charlie Alpers of USGS and studying arsenic as well.

[Note to readers: for technical details on this project, see Mr. Myers' PowerPoint Presentation.]

Carrie Monohan of The Sierra Fund discussed the organization's work around this topic.

In the Sierra, human exposure research is about fish and dust. The Sierra Fund began an Initiative to address mining impacts four years ago. The human health aspects focused on mercury in fish, and also dust with heavy metals. The Sierra Fund completed two pilot studies—one on Abandoned Mines and Trails, and an Angler Study. These studies are not the “last word” for the research that needs to be done, but they brought to light a lot of good information.

As far as mercury is concerned, it is important to note that methylmercury is the problem (not elemental mercury or quicksilver). Methylmercury is the form that can be absorbed into the body, it is “bioavailable.”

The Central Valley Regional Water Quality Control Board's 303(d) listing identifies impaired water bodies for contaminants, including mercury. The Office of Environmental Health Hazard Assessment also lists water bodies that have contaminants in fish. The two types of listings can be confusing since in some case water bodies are listed as impaired, but do not yet have a fish advisory. In 2003, an interim fish advisory was issued, and then in 2009 four water bodies were dropped from it—as a result of lack of data, not because anything had been cleaned up.

When The Sierra Fund first started work on this issue, everyone said, “No one eats the fish up here. This isn't worthwhile.” So TSF completed surveys of anglers in the Sierra. Questions were asked like, “Are you going to eat the fish and/or feed it to your family?” The survey also asked about serving size, which allowed analysis of the surveys to compare reported consumption with fish advisories. TSF completed 151 surveys, but they analysis has not yet been released publicly.

Angler surveys were conducted at local reservoirs, such as Rollins, Upper Scotts Flat, Camp Far West, and others. Of those surveyed, when asked, “Are you going to eat the fish you catch today?” 47 percent said yes. Of those who said yes, 73 percent were going to feed the fish to their families. This is important as it leads to sensitive populations (women and children). Half of all those surveyed had fed sport fish to their kids in the last year, and 52 percent showed women who ate sport fish. Further, 5 percent of pregnant women had eaten sport fish.

The survey found that a majority of people were catching brown or rainbow trout. Brown trout are a predatory fish, so it contains more mercury than rainbow. The survey also asked about bass (large-mouth and others) and other types (crawfish, etc). In total, 92 percent of people surveyed said they eat fish they catch (not just fish they caught that day, but fish they had caught within a year). From this, TSF calculated the amount of mercury per day was being consumed—in many people, this was well above recommended levels.

Metals in dust were the other focus of another TSF study. During mining activities, more waste rock was brought up than gold—the rock that was mined was pulverized by stamp mills. Heavy metals in the rock were then spread over the surface around the mine site.

To look at this issue, TSF completed the Recreational Trails and Abandoned Mines Assessment. They looked at the map of abandoned mines and compared it with recreational trail maps—as a result, 13 sites were chosen at which to take samples. Surface samples were taken to determine potential for exposure. For example, the Foresthill OHV area is a public recreational site, and there are abandoned mines in the area. The study found high levels of metals and naturally occurring asbestos.

The study arsenic, lead and other elements. The study did consider asbestos, because even though it is naturally occurring, it was likely disturbed by mining. Analyzing the results was complicated since every agency has a different level for “How high is too high.”

TSF's next steps are: to conduct follow-up sampling (need more information about recreational sites), fish consumption advisory signs (these are not difficult, they can be posted easily), and dust exposure signs could also be created (NOA= naturally occurring asbestos).

TSF's goal is to find long-term solutions, to have a safe, healthy place to live in the long run. Mercury is no longer a non-point source—removal is possible.

It is important to remember that as far as contamination from mining activities is concerned, what was once remote is not any longer—it is in our backyards.

Discussion and Questions

- Is it a good idea to post fish advisories?
 - It's worth a try. Logically, it makes a lot of sense. The challenge is how long it stays up since a lot of places are not carefully monitored. People use signs for target practice. Kiosk version of that as well.
 - If you're going to post, the best thing is to do an evaluation of results of posting. I did a survey, and received mixed information. Some people said, “we did it, we tried it and it didn't work so we stopped.”
- Question for Perry, you used a size class of 25 microns...when is it dust? When is it something you can inhale?
 - Inhalation is not our focus at the moment. Mostly we were looking at ingestion. Typically it wasn't the inhalation pathway that was the concern, but accidental ingestion. Inhalation could be an offshoot of the study.
 - Our plan is to start with the soil samples at Empire Mine and see if it extrapolates into the rest of Nevada County. Perhaps move into Southern California. We're stretched on resources, of course. Chapman University is also looking at samples.

- How is it that those four waterways were dropped from the advisory listing?

Bob Brodberg: It's fish data needed for the advisory, not water data. We need to catch and test actual fish--Even samplers don't always have a great day catching fish. Sometimes they get to “cheat” and use electroshock or nets to get samples. .

Carrie Monohan: OEHHA changed their standards for what constituted “enough data.” Their requirements became more stringent. There weren't enough fish to make an advisory after the standards were changed—that's why they were dropped.

Bob: OEHHA analyzed the data we had from 2003 and tried to come up with advisories that made sense for the data. We tried to look at how we could extrapolate and didn't feel comfortable with

that. There were data gaps, places where sample sizes were too small. In 2009, we beefed up the standard for data. A problem for collecting data is that if you lower your standards, you won't get the data.

Rick Weaver: Data from 2003 was collected at a watershed scale and was collected on public lands, BLM and Forest Service, and others. This was a well-funded study. We didn't know how many fish were going to be required to meet protocols.

Bob: It was a screening study--280 water bodies were looked at—and it wasn't in-depth enough. One or two fish species were used indicators of water quality. Charlie [Alpers]'s study was the same. We didn't have a hand in the beginning of Charlie's study but we got the data at the end.

Rick: At Bullards Bar, no fish were collected or sampled. We're just starting to get information on the Middle and North Forks of the American River.

Bob: I wish there was a way to coordinate the data being collected and ensure that it meets multiple purposes. There is data collected to answer FERC questions, to answer 303d water quality questions, and if there is money and time left, then extra sampling can be completed. Not often. There are more water bodies than resources available.

Carrie: We do need to prioritize. We know where we need to collect data—water bodies where hydraulic mining was done. It's not hard or that expensive to collect fish data. Clearly, it's not just a question of whether people are fishing up here—we know they are. And people don't know that there are a lot of fish advisories out there.

Bob: We don't issue fish consumption advisories based on hydraulic mining site, we need to do it based on data. What we're trying to do is to get data for the fish tissue and use it as a basis to come up with what we feel is the best advice. What we want is to get the message to people: eat these fish rather than those fish.

- There is a development in Amador County on a very small mining site. They sampled mercury levels and found them to be below toxic levels. A friend of mine took a bucket and collected water from a nearby stream. He found a huge ball of mercury. Where is mercury enough to be considered toxic? Cyanide is on a lot of sites also. Is cyanide bound or does it dissipate? Why isn't anyone talking about it?

Carrie: Cyanide does have a short life. Cyanide leaching is happening now, and that could be a real problem. Mercury is likely bound to small particles, clay and silt that get moved by turbid water. What we call the "Nugget effect" is where mercury is not distributed homogeneously. Toxicity is different—that is about methylmercury in fish. Methylmercury allows for mercury to cross the blood/brain barrier. Elemental mercury in soil or water is not the focus. Since the exposure pathway to human beings is through fish consumption, The Sierra Fund is trying to get signs developed and posted. Nevada Irrigation District is interested in the issue as well so we are working together.

- Fraser: My study has found that signs don't work. We've had a decade-long discussion on signs. People list peer-to-peer information sharing as being more effective.

Carrie: And health-care providers also.

- What is the schedule on the arsenic study?

Over next six months we're hoping to kick into gear.

- If sign is reaching just one person, then it's worth it. Especially if people are new to the area. There is a supposition that the state protects us. Therefore, there is a supposition that if something is not signed, then it's safe. I don't like this data that says that people don't listen to signs. I don't believe it. If you're talking to repeat fisherman, maybe. But if you caught out-of-towners or visitors, I think you'd find a lot more people who are eating the fish and would look at signs.

Fraser: Some people use signs. A lot of people don't. We can't just make signs a part of our educational policy, and then walk away from the problem. It's just one tool. The problem has been that it's become the only tool. It's more expensive to develop effective pathways. Let's not just stop at the cheapest solution.

Audience member: Be careful not to fall into the "boy who cried wolf" syndrome. Levels of postings have to be valid—let's be gung-ho when we're certain and cautious when we're not.

Carrie: This is a local problem. It's our problem. The mercury came from this area and it's ending up in the downstream areas. The public right to know is important. We shouldn't wait to study the heck out of it. People should know about it.

- Can't fish advisory information be included in the fishing license?
 - It is. But the information is tiny and often outdated and placed at the back of a brochure.
 - The information is supposed to be available, but it's not effectively communicated.





Presented by The Sierra Fund
November 8-9, 2010
Miners Foundry, Nevada City, California

WORKSHOP NOTES

Stimulating Gold Country Economies Stone Hall, Monday November 8, 2:30 pm

Notes taken reflect the best effort to capture what was said in presentations and in the discussion time following. They are presented here in order to encourage further discussion about these matters. These notes do not necessarily reflect the views of The Sierra Fund staff, board or funders.

Jonathan Kusel of Sierra Institute for Community and Environment facilitated this panel discussion and Joe Heckel of the Grass Valley Community Development Agency, Reinette Senum of Nevada City Council and Steve Wilensky of the Calaveras County Board of Supervisors presented.

Jonathan Kusel outlined how this workshop addresses how to reclaim our communities in ways beyond public health and the environment.

Joe Heckel, Community Development Agency, City of Grass Valley

Grass Valley's heritage lies in mining. The city evolved around a number of operating hard rock mines, most prominently the Empire Mine. Since the close of the mining industry the town has continued to evolve.

Today, there is a dwindling base of vacant properties in the city. In order to allow opportunities for business, industrial and residential development in town it is important to identify and plan for what to do with vacant "brownfields" properties that are impacted by historic mining.

The city wants to be proactive by identifying sites that have contamination, and then working with agencies that have oversight to secure funds for cleanup and redevelopment. It is important to identify the kind of contamination on the site because that plays into how they can be developed.

The city has dealt with a number of impacts from historic mining. The Drew Tunnel discharged half a million gallons into the city sewer plant. Other impacts include mine shafts uncovered in the course of construction projects, mine discharge into Memorial Park, soil contamination including arsenic, lead and mercury, the Sierra Terrace subdivision project held up, and a Habitat for Humanity street widening project that uncovered three mine shafts.

Grass Valley has received a \$400,000 grant from the EPA Brownfields program for assessment of properties for hazardous materials including mine waste. This project will evaluate what the contaminated properties are within city limits, and identify redevelopment opportunities. Brownfields funds will be used to remove constraints from key infill properties. The program is also a great opportunity to think creatively about how to invest more in the community.

Reinette Senum, City Council, Nevada City

This presentation showed how the toxic legacy of mining is one of the best things Nevada City has going for it in terms of local economy.

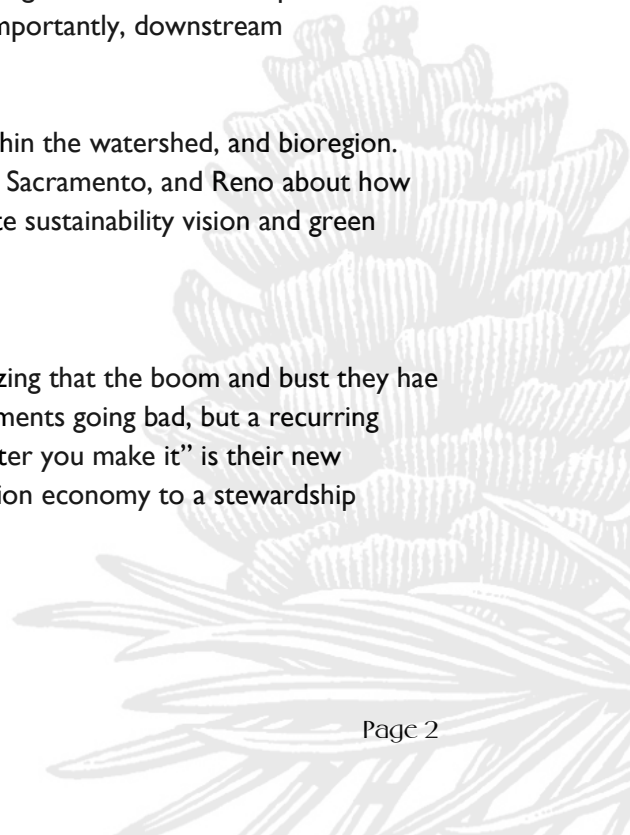
The Nevada City Sustainability Vision aims to make the town a model for sustainable living and economic practices. This vision has been developed with community groups, adopted by the city council, and earlier this year was the focus of a high powered meeting in San Francisco.

Mine remediation is central to the sustainability vision, since there is a wealth of opportunity in Nevada City for sites to clean up—attracting funding streams, stimulating new jobs, and new technologies. Nevada City could become a model for sustainable reclamation of legacy mining impacts, since communities across the nation and other places in the world are facing the same issues. A powerful project would draw in people from around the country, and most importantly, downstream communities.

With this kind of project, it is important to work collaboratively within the watershed, and bioregion. The Sustainability Vision has germinated discussion in San Francisco, Sacramento, and Reno about how to create a “green corridor” from San Francisco to Reno to promote sustainability vision and green tourism.

Steve Wilensky, Calaveras County Supervisor

In Supervisor Wilensky’s district in Calaveras County, they are realizing that the boom and bust they have witnessed over the past 50 years is not a series of economic experiments going bad, but a recurring cycle, and that a whole new idea is needed. “Clean up your mess after you make it” is their new economic theory—in other words, moving from a resource extraction economy to a stewardship economy.



Challenges the County faces are relatively unresponsive federal land agencies, disinterested downstream communities, and deep political divisions about who is to blame about the distress everyone is in. It is time to stop assigning blame, and instead decide what to do next.

To be successful, people must realize that neither forestry, mine cleanup, fish or any one piece is the whole issue—if we do that, we cannot pick ourselves up, the next round of resource exploitation will be right on us. We must understand that all issues are interconnected, and approach the solution as a single community representing the “Range of Light.”

The county is moving forward, gathering all different groups of interest including tribes, watershed organizations, jobseekers, and contractors to address a triple bottom line: economy, environment, people. We must address poverty as part of the triple bottom line. And downstream communities must be engaged: 3% of the people in California cannot repair the problems of a century of aggressive resource extraction—the other 97% of Californians should help. Their investment in our region is the basis for the planet’s survival.

One successful example of this vision moving forward is the CHIPS project—its motto is “doing good with wood.” This project relies on complex alliances of people and funding sources. It puts unemployed and tribal people back to work restoring the forest. Involves environmental groups in training the forest crews, to make the best use of partnerships and knowledge.

Discussion and Questions

A Job Training grant would be a great way to stimulate our economy, and start getting things cleaned up. Sierra College should be a partner in this, as well as private industry.

The Northwest Economic Adjustment Initiative spent a great deal of money to put people to work in the woods. The project was a failure because there was not a corresponding investment in the landscape, or the people who were going back to work—the project needed to last longer than just one year.

How do we make sure, as we’re talking about our opportunities, that these communities actually benefit—that a strong economy is actually accomplished?

To do this, communities must be better organized, they must present a vision to the rest of California about what they want to see happen, and what they are asking people to do. For example, 1.4 million people drink water out of Mokulomne River. 10 cents per month from each person could be used to reemploy people and restore the environment in the headwaters. Downstream people need to pay price for the resources that come out of the Sierra.

We need to make the case about how much it costs us if we do not address mining toxins. Cleaning this up is an investment in OURSELVES and our future. The view that we are all in it together helps build relationships, and build trust, since “what benefits me benefits you.”

There needs to be an easy contact for remediation and contamination projects, an easy contact that can help the city or a landowner. The Sierra Fund could play that role.

Banks should be an ally for addressing legacy contamination, since banks need to buy in on every property turnover. Consider a standard procedure for every sale in the Gold Country. This could address both contamination and financing.

How do we deal with silos? Getting a problem property on the path to remediation is difficult.

The CA Department of Conservation Abandoned Mines Lands Forum is an effective vehicle for bringing together parties around this issue.

The Glencoe Forest Restoration Project, which involves both BLM and private land is an on-the-ground project that brings odd partnerships together. On a small scale, it proves that local people can take care of what needs to be restored. But projects like this are not a real success until people take the model and use it on thousands of acres.

We need to get organized as a REGION—John Muir isn't here anymore, we need to find that voice inside us.

We're all part of the problem so there should be no finger pointing—all we can do at this point is move on. Lawsuits are expensive and the expense is not just dollars but destroyed communities.

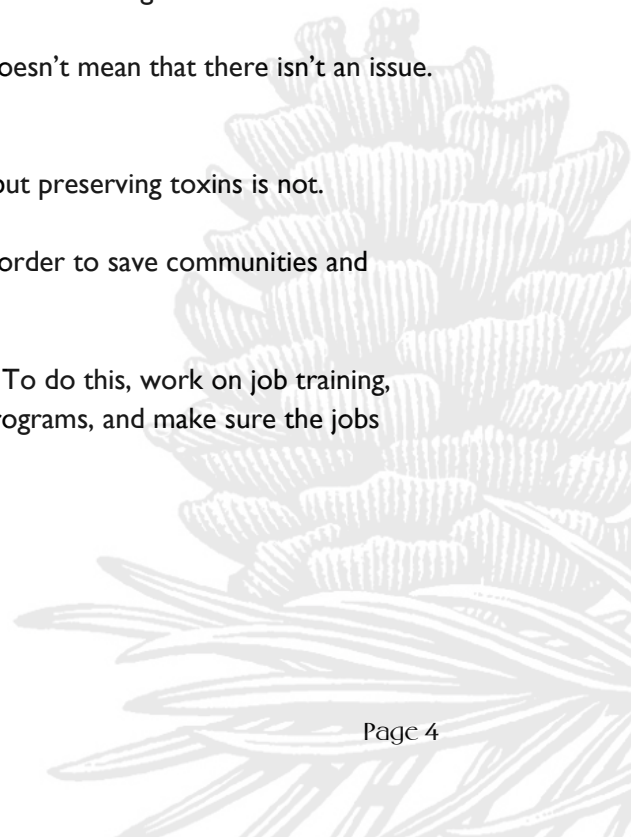
We cannot make projections about costs and values if we do not have research on what to compare it to. The scientific method requires hard data and pursuing truth without opinions. Generalizations are real problems. We need to get the academic community to join us in addressing this with real research.

We also need to keep in mind that if the science isn't there yet, it doesn't mean that there isn't an issue. We simply don't have epidemiological data.

Preserving our history is a key component in our economic vision, but preserving toxins is not.

A recent survey/assessment was done of people in Switzerland—in order to save communities and environment in the Alps.

Good paying jobs for the community are key to economic success. To do this, work on job training, build trade councils, apprentice programs, “earn while you learn” programs, and make sure the jobs created pay good wages.





Presented by The Sierra Fund
November 8-9, 2010
Miners Foundry, Nevada City, California

WORKSHOP NOTES

Talking about Local Fish Advisories in Sierra Clinics City Hall, November 8, 2010

Notes taken reflect the best effort to capture what was said in presentations and in the discussion time following. They are presented here in order to encourage further discussion about these matters. These notes do not necessarily reflect the views of The Sierra Fund staff, board or funders.

Peter Van Zant of Sierra Watch facilitated this panel discussion and Sherri Norris of the California Indian Environmental Alliance; Becky Damazo, RN, of CSU Chico; and Jane Hightower, MD, of the California Pacific Medical Center presented.

Peter Van Zant of Sierra Watch welcomed the panelists and the audience members. He stated that the purpose of our gathering was to raise awareness. He discussed briefly the Mining Toxins Working Group that was started a couple of years ago.

Sherri Norris of the California Indian Environmental Alliance discussed the focus of her organization's work and offered suggestions for how to share information regarding toxins in fish.

The biggest issue for the tribal people CIEA works with is the loss of culture, the loss of elders, and loss of the ability to transmit cultural information. That's what these toxins mean. For California Indians, fish are the culture, as well as the food. Some tribes say that fish are people. The Tsi-Akim Maidu are at ground zero for the Gold Rush. People here are put at risk by eating the fish.

In the Pit River region, where CIEA has done a lot of its work, the effort was focused on educating young mothers and pregnant women since these are the groups at highest risk. CIEA began their work there in 2003. They realized that they needed to provide information about what people can eat and how they can be proactive about the issue.

CIEA went into health clinics to share information and try to educate people most at-risk about the toxins they were ingesting. In going to clinics, they heard conflicting information. The clinics and doctors

did not know whom to believe. Dr. Hightower's work, along with OEHHA and others, has given them the tools to communicate accurate information and educate people. CIEA's effort was to provide the information to the doctors, so they could pass it along to their patients. They are trying to bridge a gap in communication and increasing the visibility of the issue.

CIEA has to tell people that eating traditional foods is not safe, and this is difficult. Their goal is to provide as much information, and make it as clear as possible, so that individuals can own the information and take action. Some of the challenges faced are that there are so many symptoms when dealing with illness caused by toxins like mercury. Also, there is still controversy about its affect on human health.

CIEA goes into clinics to provide tool kits. They encourage the clinics to revise their intake materials, so that they can then provide information to the patients who are most at risk. They ask doctors and nurses to increase the amount of personal information they gather.

One of the obstacles in gathering information is that it is culturally sensitive. Genocide happened here, and this is a second wave of genocide: by telling people not to eat fish, we are taking away their culture. It is important to respect that sensitivity and provide positive messages as much as possible. For example, wild-caught salmon is the best thing these people can eat.

It is also important to communicate these messages in person. Advisories are designed and available but they are too expensive to print at this point.

Ms. Norris left the workshop with this: "This particular toxin is destructive because it affects the ability to transmit culture—oral histories, song and dance, ceremonies, and cultural sharing. This is a large burden on young women especially, because by telling them they can't eat fish you are asking them to refrain from participating in their culture."

Becky Damazo, RN, of CSU Chico presented information regarding the second phase of a work effort she has undertaken with Chico State students that focused on environmental health and exposure to mining toxics.

This project began in June 2010, and first conducted key interviews. They went to clinics and asked what they were doing to gather information regarding individuals' environmental histories—and found that clinics were not doing anything. Most clinics did not ask about where people got their water, where they were living, and what they were eating.

We then developed some questions that we felt should be included in intake materials. These questions included home exposure, food and water exposures, and general health questions. Certain questions led you to more in-depth questions.

Project work focused on rural areas in Butte, Yuba and Nevada Counties. We worked in and around Grass Valley, Chico, and Yuba City. 244 participants from all of the clinics were surveyed. The largest group of surveys came from the Harmony Health Clinic in the Yuba City area.

The survey asked people about the source of their drinking water. Of those surveyed, 108 participants had "town water," 37 participants had wells, and 54 had purchased water. For the well water users, 16 had never tested their water, 13 said they had, and 8 said they didn't know. Four well users had had their water tested in 2010. All had built their homes in 2010. The remaining participants tested their

water in the 1990s. Most people did not know how often their water should be tested. It should be tested annually.

Also, dust activities were queried to find out about exposure to asbestos and arsenic. About 28 percent said they participate in dust-related activities. Those participants went on to another questionnaire that went into more detail. The survey asked if people lived near mines. Twelve said they did. A lot of people were unsure, and some left the question blank.

The survey also asked about workplace. Some participants felt their illness was related to work. These cases are being investigated further. The survey asked if people had smoke or carbon monoxide detectors in their homes. Most people said no, and many were smokers.

The survey also asked about fish and fish consumption---if the participant reported that they fish, they were asked if they fed fish to their families.

Of the 244 participants, 20 refused to continue to answer questions. Three-quarters were identified as having some kind of environmental health risk.

Recommendations, as a result of this study are to: improve the survey tool, recruit clinics to participate, rethink survey timing (did survey when people were in clinics, so they were sick when they filled out surveys), shorten the basic survey, and include a Spanish-language version.

Jane Hightower, MD, of the Pacific Medical Center presented information about her experience as a doctor and the writing of her book, *Diagnosis: Mercury*.

“I’m an internal medicine physician. I love diagnostics. In the late 1990s, I had a lot of people who should have been in great health coming into my office. They were upper middle to higher income people. They weren’t feeling well. I couldn’t find out the reason.”

Dr. Hightower’s discovery came with a patient who was Japanese American who was complaining of a variety of symptoms. She had seen a colleague, Dr. Kathy Fields, a dermatologist. The patient was experiencing hair loss. Dr. Fields had been on a lecture circuit and had heard people calling into a radio show in Idaho to talk about hair loss that resulted from eating fish from a lake that was contaminated with mercury. That inspired Dr. Fields to test this patient’s mercury levels. It turned the mercury levels in this patient were elevated and this was the cause of her illness.

Part of the difficulty in diagnosing high mercury levels is that many physicians don’t ask for a dietary history. This needs to be changed.

When Dr. Hightower first started working on this issue, “no one could interpret mercury-blood level numbers.” A “normal” level had not been determined or clarified. The EPA said less than 5, the World Health Organization less than 10, Cecil Essentials of Medicine said less than 50, and the FDA was silent. The FDA’s policy for “normal” levels of methylmercury in fish was determined through a lawsuit. The one part per million allowable in fish was determined by a doctor from Iraq. This was based on an incident in which over 4,500 people died, and 50,000 to 100,000 were affected by mercury poisoning.

Mercury is second only to plutonium in terms of levels of toxicity to humans. Dr. Hightower said, “We can’t rely on epidemiology to look at this issue. The CDC keeps leaving Asian Americans, Native Americans, and Pacific Islanders out of its reports. Also there is a lack of focus on specific constituents. For example, bodybuilders are at higher risk because they eat a lot of canned tuna. Also, people who

don't like fishy flavor and don't like bones in their fish and aren't deterred by price are at particularly high risk. I have found some surprising examples of groups of people at high risk. For example, East Coast Jewish people are at high risk because of the high consumption of fish. Albacore tuna consumption is very high for this group. This shows that cultural practices are a consideration as well."

Discussion and Questions

- The half-life of mercury contamination is about two months (the life of mercury in the system). Once it's in your brain, the half-life is years long. You can have different levels of mercury levels in different parts of your body (e.g., liver versus kidneys versus blood). This depends on your genetics.
- Professor Damazo's research found that people didn't relate their health to what they ate and drank.
- Health care professionals get inundated with vague symptoms, and their average visit is only 15 minutes. Dr. Hightower's average visit is one hour.
- Often nutritionists have received training about these issues but not doctors. What can be done to change this?
- As soon as you say you have symptoms from a product, you face obstacles. Companies say that patient is crazy, the doctor is incompetent. Methylmercury has finally been recognized as a hazard.
- The most protective advisory should be followed --- the EPA is stricter than the FDA.
- Studies should be continued, and results presented in a public-friendly format.
- The Nursing Association should pass a resolution about mercury awareness. Nurses often spend more time with patients than doctors.
- American Heart Association and Association of Obstetrics and Gynecologists have come out against mercury warnings. This is because their concern is that poor nutrition is a greater risk to them than mercury problems. (Dr. Hightower: AHA is paid by tuna companies.)
- WIC allows mothers to get canned salmon and sardines.

Audience Questions

1. Why does swordfish have such high levels of mercury?
Swordfish is a predatory fish--they'll eat anything—and on top of that, they live a long time. Fish don't get rid of mercury efficiently, so it accumulates in their system. The older they are and the more big fish they eat, the higher their level of mercury.
2. Does access to information make a difference and changing the story between "it's a poor person's problem" to "it's everyone's problem"?
The best thing is to tell people about the problem. The Internet has made it easier to share information. In the past, polluters could hide a lot of things. Information originally said that you could have a number of 400 (less than 5 is current number). It allowed for loosened standards in mercury control.

Health history is so important. It allows people to document their stories and have a history.

3. With physicals, are you tested for lead or mercury?

Children are tested for lead. OB/gyns often test for mercury. Women should be tested. There is no perfect test for mercury. Some variations in DNA allow for high level in different body parts. Hair levels will give you an accurate picture over time.

5. How to dispose of mercury?

If mercury is spilled on the carpet, you have to take up your carpet. The fire department will know where to dispose of it. Or a local toxic waste center.

6. Does selenium help with mercury?

Selenium is involved with glutathion, which escorts mercury out of the system. But it is important to remember that too much selenium in your body is just as bad as mercury.

7. Are fish oil supplements safe?

The fish oil is distilled. There is a lot of controversy about this. It's better to eat a sardine.

8. How can you calculate your own mercury levels?

Go to the mercury calculator at www.gotmercury.org

9. There are still many examples of foods that are unsafe and available for wide consumption. An example is the marlin jerky found in stores in Hawaii. I purchased a package and tested the mercury levels. They were between 3.79 and 7.27. There was no warning on the package at all. That's 700 micrograms of mercury in one package.

10. How do you spread the word?

Start with medical schools. Physicians need to be able to get a good social history.

We need to do with mercury what was done with lead.

There is an opportunity right now because of the move toward electronic records. If we can build environmental health history into intake forms that are used across the country. Standardized forms.

If you have something particular to your environment and area of practice, you need to tailor your practice.





Reclaiming the Sierra

Gold Country
Community Summit
on Mining Impacts

Presented by [The Sierra Fund](#)
November 8-9, 2010
Miners Foundry, Nevada City, California

COMMUNITY SUMMIT ACTIVITY NOTES Tuesday, November 9, 2010

The “Community Summit” was the culminating activity of The Sierra Fund’s Reclaiming the Sierra Conference. After two days of workshop presentations and discussions among experts, all conference participants gathered into one room to offer their best ideas and priorities for addressing the problem of legacy mining toxins in the Sierra.

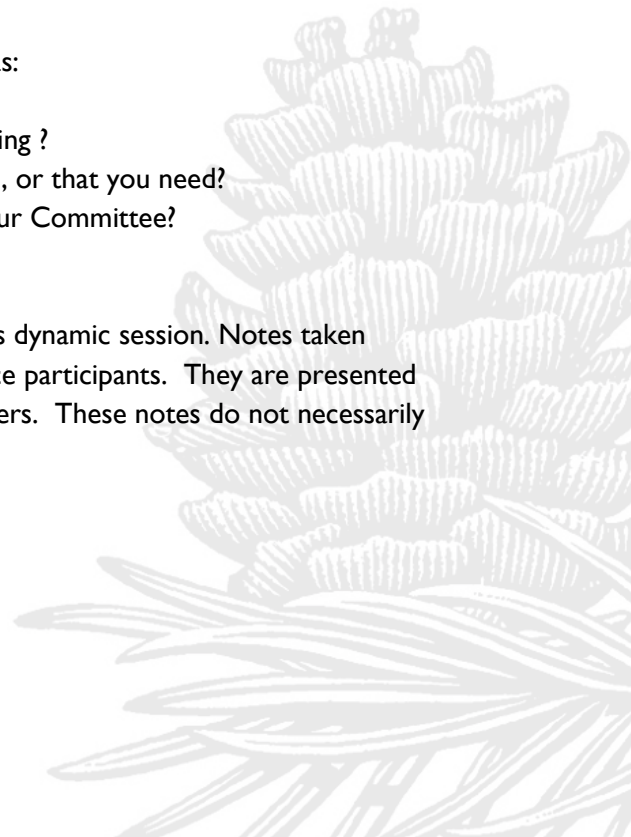
Participants broke into three groups, and had 20 minutes to discuss each of the topics of concern:

1. Human Health
2. Science and Technology
3. Outreach
4. Public Policy

For each topic, a series of questions was asked to stimulate ideas:

- Do you have new ideas for our Committee?
- Do you have any cautionary tales or words of warning?
- Is there additional data or information that we need, or that you need?
- What are your suggestions for priority actions by our Committee?
- Would you be willing to join our Committee?

The following notes reflect ideas and concerns raised during this dynamic session. Notes taken reflect the best effort to capture what was offered by conference participants. They are presented here in order to encourage further discussion about these matters. These notes do not necessarily reflect the views of The Sierra Fund staff, board or funders.



I. HEALTH

Community's Ideas

- Model surgeon general's warning for mercury
- We need to be able to post signs at safe areas, as well as contaminated areas to combat the assumption that areas that aren't posted are clean and safe.
- iPhone app telling about mercury or dust dangers
- The Nursing Association should pass a resolution about mercury awareness. Nurses often spend more time with patients than doctors.
- Spread the word about mercury by starting with medical schools. Physicians need to be able to get a good social history.
- Build environmental health history into intake forms that are used across the country. There is an opportunity for this because electronic forms are coming in.
- Reach out to midwives, nurses and nutritionists
- Pursue posting signs within a broader education strategy
- Start small campaign of NOA signs/stickers around Marrall Mine
- Look into possibility of studying blood samples from babies over last 20 yrs—who has money for research, and who is legally able to do this?
- Look into lead protocol to understand how they did it, and how we can dovetail/use as a model for mercury so we don't have to create a whole new program
- Translators for signs for fisherman, women in families (we need more non-English language signs)
- Involvement of Public Health Officer in county; if they don't know this is an issue, then they don't have a mechanism to work with doctors
- Ob-gyn give out warnings to pregnant women
- Handout immunization information about this
- Anywhere that we give out aid to people, have notifications about health warnings of mercury
- Simplified handouts with anecdotal examples to educate the public, significant studies, use case studies to communicate to people
- More education with doctors
- In schools you have programs that say no to drugs, so we need "say no to lots of fish"
- Public messages: headline that these health effects are related back to mining
- Fish markets—we don't want to put them out of business: show there are fish you can serve that won't hurt us
- Canned fish industry, need to have warnings; if they won't, have supermarkets use signs
- Campaign to promote healthy fish—and healthy other things
- Mobile clinics for testing
- Self-reporting websites to get community involved (e.g., blood test results) to provide data, with questionnaire (behavioral)

- Find out the baseline. What is already in place? CDCs, county health officers, find out statewide averages
- Outreach to military doctors. They have a transient patient base.
- Activist art (radical art) around Asbestos dust...hand out masks ---- to attract media attention
- Identify sub-sets of people who are likely to have higher impacts (for example, as a result of their profession).
- Test groundwater sources ... property owners need to know what they're buying
- Website questionnaire
- Mail-in hair samples and soil samples
- Prove that we have elevated levels of toxins so that we can get money to remediate
- Something easy to digest and accessible for people without scaring them. Handouts, grocery sack bulletins, spots on tv, public health department warnings, accessing all medical advisors.
- Experience from dealing with cholesterol includes cookbooks, handouts, bumper sticker. Give to doctors to give patients—because they don't have time to go over this with them.
- Reach out to school lunch programs, with a healthy fish program.
- Make an animated film about mercury and how it gets into your body, including the information Dr. Hightower covered in her keynote. This could be checked out at the library or played in the doctor's office waiting room. This could be aimed at not just doctors but other groups—make film and tour it, make it a social thing. Tour to schools, churches, community groups. Include a lesson plan for teachers.
- Connect with medical students
- Messages: “Sardines not tuna” “rotate your poisons!”
- Need to start somewhere—collecting some data is a good place to start. Do community-wide sampling—this would make press, be an educational initiative within the community. This establishes a baseline to use in outreach programs. Correlate sampling with questions, zip codes. Get federal money for study? Tie in with a research project—get a medical school to assist.
- Could perform random testing of volunteers—they could get the results if they want. Target high risk groups

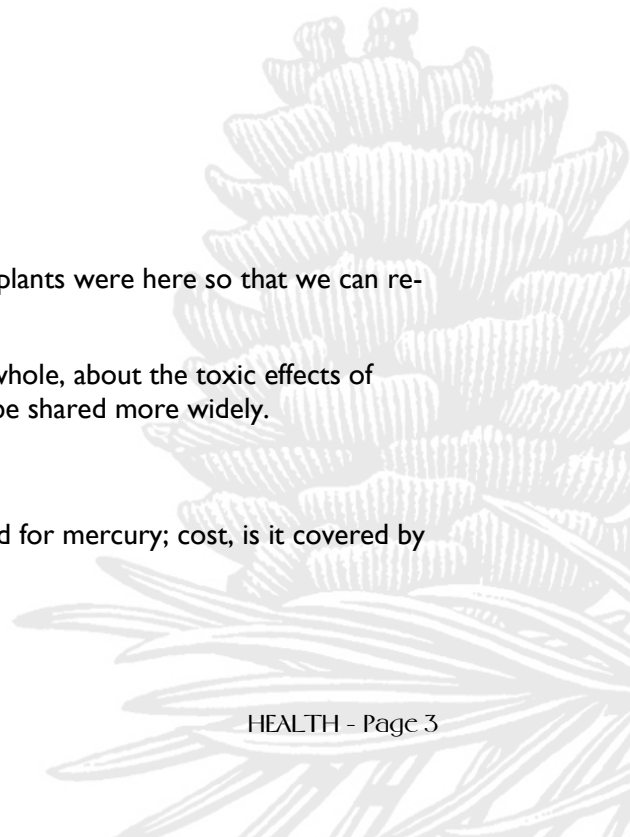
Cautionary Tales/Words of Warning

- Study done to determine effectiveness of seat belt warnings. Spies watched to see who had come to event wearing seatbelts and how many of those people left wearing seatbelts. Follow-up on what people are doing!
- Blanket terms are used. Thresholds are important to know about.

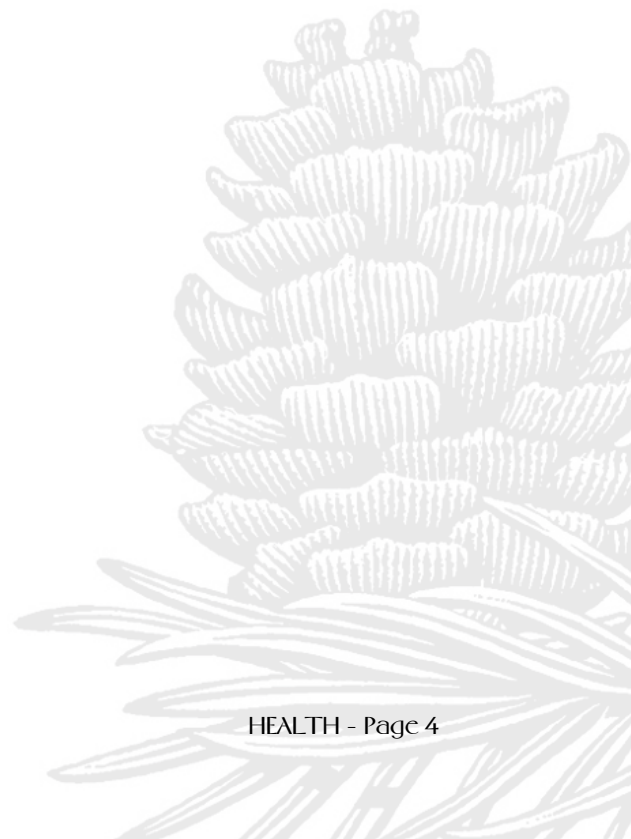
- Would a free test for mercury or selenium impact someone's insurance as a pre-condition?
- How to tell the source of mercury--Don't jump to conclusions.
- Hair test resulted in 1300 ppm of aluminum. How to tell the source? There was no way to find out where it came from.
- Don't try to make a pig sing—there are political aspects of the issue. If you try to do it through the political process, you'll have to have a lot more support than what's in this room [community process]
- People hate it when the government tells them what to do.
- Don't use acronyms at public presentations
- Don't focus on only negatives. Provide alternatives.
- Kitchen table meetings are more effective often than big events.
- Be careful not to create a scare, panic about mercury; don't create backlash
- Don't get so focused on mercury, there are other constituents; and don't just focus on fish
- Don't alienate mining companies; approach in way that you try to limit what you eat now and clean up what is causing it; but rather than point fingers, try to engage the industry
- Don't blame history
- Be aware of legal implications for land owners who want to clean up and develop property—there are a lot of actions that can create potential legal backlash against us
- Every drug rep wants us to put handout on counter.

Information and Resources You Can Share, or that You Want?

- Good centralized clearinghouse for best available science
- MSDS sheets
- We need a full picture of what the native tribes had...what the plants were here so that we can re-plant and restore wildlife, so that we can promote healing
- Baseline data gathered about what the community knows, as a whole, about the toxic effects of mining. The knowledge of mining ponds as a toxic thing should be shared more widely.
- CA's First 5
- Get information out to the public where you can go to be tested for mercury; cost, is it covered by insurance?



- Are there mobile clinics?
- Who puts up warning signs/posting?
- Who do you call if it looks like you have mercury on your property? How do you get more information as a private property owner, general public
- What other plants, foods do we need to avoid to avoid all toxins
- For tribes, use CIEA handouts on fish advisories.
- Support the legislative proposal on labeling for mercury in fish– project of the Turtle Island Institute
- California Department of Public Health paper “What is a Healthy Community?”: How to create community environments that make the healthy choice the easy and affordable choice, and remove involuntary exposure to toxins.



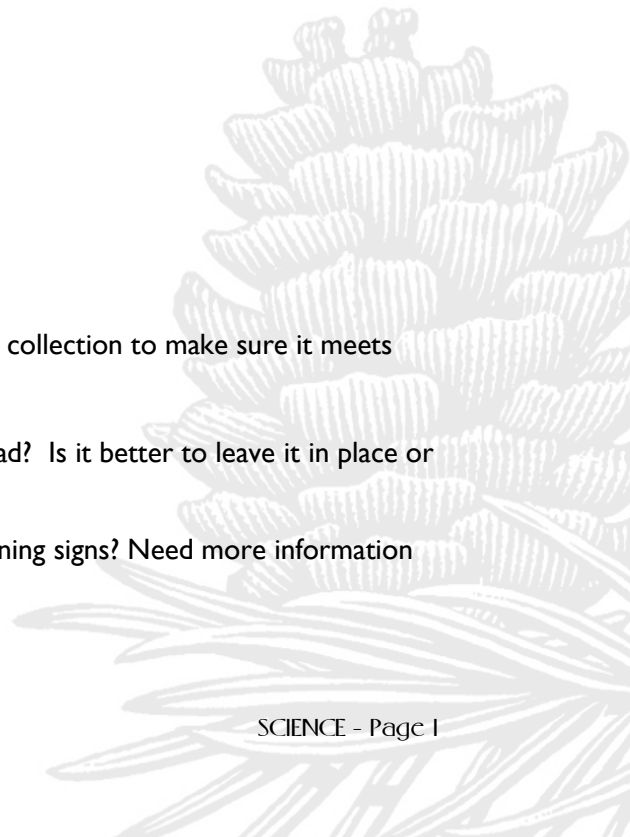
2. SCIENCE AND TECHNOLOGY

What you want to know more about?

- How to get water tested for heavy metals
- Hot spots: highest priority areas, sites
- Where is the money going to come from to work on this, and how much money do we need?
- Need online data that relates to abandoned mines
- Looking at the kind of mine it is, do we know how to remediate?
- Is there an inventory in the county of abandoned mines and what kind they are?
- How does agricultural use of water impact toxins in food sources, and does it affect crops?
- More info about different types of arsenic, and how much it affects us
- What happens when fire occurs here—how relate to water quality and abandoned mines
- Explanation of Good Samaritan law
- How does remediation technology work? What are standards of mercury, levels and thresholds in municipal water? Allowable, safe?
- We know how to clean up mine sites. We need to work on ideas of how to remediate creeks. Control mercury contamination and damage downstream.
- More how mercury affects other species in the ecosystem
- More information about other mining toxins, not just mercury

Community's Ideas about Science and Tech

- Use biotechnology to determine levels of mercury and source
- “Mercury coordinator” at Cal/EPA
- Check whether agencies have standardized process for fish data collection to make sure it meets fish advisory requirements. (if not, advocate for this)
- Suction dredging --- We need more information. Is it good or bad? Is it better to leave it in place or pull it out of the waterways?
- What are the symptoms of mercury toxicity? What are the warning signs? Need more information shared with the public.



- Quantitative assessment of mercury levels...biosentinal research and monitoring
- What is the timeframe for solving these problems?
- Methylmercury is the problem for human health. What are the bacteria that are breaking the mercury down, can we do something with that bacteria to stop methylation process?
- Provide information specific to what's toxic for kids
- There should be worksheets on BMPs when approaching landowners who would need this information
- Get youth involved in real-life science; potential long-term in job market
- Curriculum development in schools
- Central place where you could get the fish you catch tested. Coordinate with people doing the fishing. Source of data
- A technology that could be applied to find out where the pockets of mercury are
- Voluntary cleanups could work on spots that aren't necessarily hotspots.
- Make a Toolkit similar to the SNA's Climate Change Tool Kit
- One-stop clearing house
- Science needs to support policy, and technology needs to make projects better!
- We need a way of finding technology providers that are outside the main stream; help entrepreneurs validate technology; a way to quickly evaluate technologies; independent 3rd party review. Politics should not be involved in these decisions.
- Science should start with baseline of what already exists so we don't replicate—look into the Center for Disease Control, County Health Offices, infant mortality.
- We need good baseline data. Look into Edgewood Arsenal, and John H Thompson.
- Create mercury traps for mercury that is put back into suspension.
- Create a Wiki-forum – an online page for every abandoned mine, including photos, site history, information on the mine. This will help show information gaps. There could be a public version and an agency version. Take data that's already generated, make it public data. Then start adding to it.
- Consider how Green Technology applies to this committee: look for long term economically sustainable technologies—think about how to extract something valuable, and make a profitable business from reclamation.
- Create a collection depot for heavy metals so they can be reused or properly disposed of.

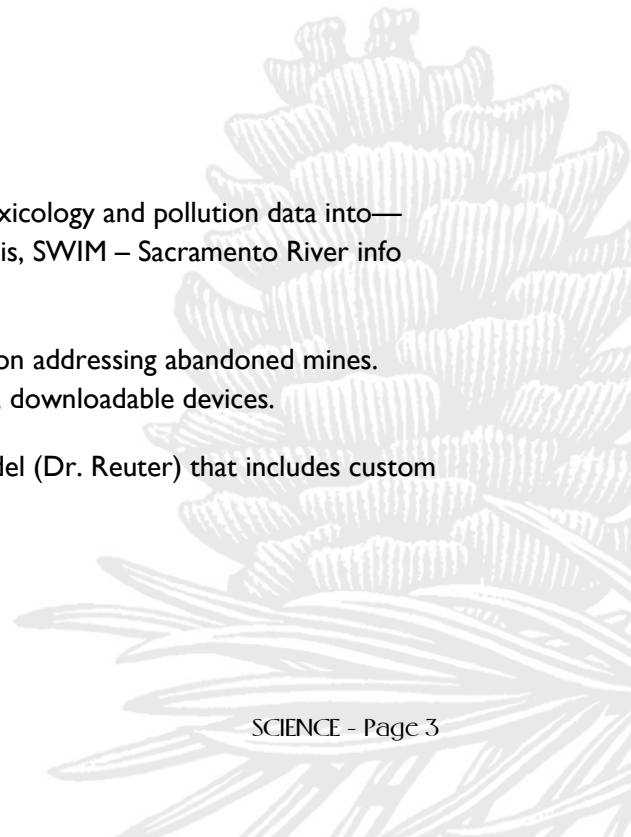
- Create a “Mercury X Prize” or AMD X Prize—a technology competition for best cleanup methods.
- Create a mercury hazard sign, like the fire hazard meter.
- Create technology for remedial actions for the creeks and streams downstream—not just AT the mine site.

Cautionary Tales

- Share information on methodology on what has worked. We need a little bit of hope. Hopelessness will be damaging.
- Timeline—be clear about whether we are fixing the issue for a short period of time or is it a long term solution
- Communicate about the issues in a way that the public can understand
- Find people who can bridge between science/technology and the public
- Be prepared for non-scientific thinking, rejection of issues—but realize it may not be possible to find common ground and how to deal with it
- Get experts to work together early and often
- Don’t leave industry out of developing new technologies
- Be clear about who is being paid and why
- Keep efforts solution-oriented; not just communication about bad news; how remediation creates new jobs, for example
- How do we fund remediation projects?
- As we learned from an example in Colorado, people can be overwhelmed with so many problem sites. Assessment allowed them to understand what was happening and prioritize effectively. We need a strategic watershed priority plan.
- Follow executive order 12666 where funding is involved.

Additional Info/Resources

- Support a special medium that people can put Environmental toxicology and pollution data into—create visual, geographic ways to display it. One model for this is, SWIM – Sacramento River info model. There are statewide standards on doing this.
- The East Coast and coal country is decades ahead of the West on addressing abandoned mines. There are tools available such as Acid Mine Drainage treatment, downloadable devices.
- Look into the Tahoe TMDL and project erosion prediction model (Dr. Reuter) that includes custom future climates.



- Facilitate an East/West dialog. Learn about: Post doctorate students from Davis go to the Wisconsin Department on Limnology; VA Electric Power; Treatment of AMD at coal mines; University of Illinois and Kikapoo State Park.

What are the Priority Actions for the next year or two?

- Establish guidelines or “road map” for private landowners
- Communicate with community leaders as to how remediation translates into jobs, economic growth for our area—and by extension improves local environment and human health
- Learn the degree of risk of contaminants, relative to one another (risk assessment of different contaminants of concern)
- Overall state strategy to help us put all data together and then iteratively determine what the next step is. Determine, as a state, the most important focus
- Identify human health risk from arsenic
- Work with the EPA so that regions across the country are coordinated instead of competing.
- Greater web presence (leads to more volunteers and stewardship)
- Link to climate change issues, since the end goals would be aligned. Remediate a site that is a meadow that is re-vegetated and possibly mitigates climate change



3. **OUTREACH** - Community's Ideas, Suggestions and Priorities

General Public Education

- Better public outreach: PSA that are free, TV, NPR, link, most gov't agencies has free public access link. Model: PSA, link to something specific, go on our website.
- Use everybody else's technology to link to our outreach program.
- Make a point to reach out to the nay-sayers and those who aren't in the choir. Those who have been against funding this stuff. Put it out to newspapers and readership you wouldn't necessarily want.
- Get Amy Goodman to do a show on this.
- Make it so attractive that people want to know about it—not so scary.
- Present mercury testing on urban waters.
- Pursue a strategic and coordinated effort that will make an impact at all levels within a certain timeframe. And then follow up with pursuing a lot of funding!

Jobs and Economy

- Build on the community's positive response to the Job Training grant suggestion
- Get federal mine cleanup grantees to hire local! - We need to figure out the process for this
- Convene "Solution Task Force" for area developers—to present all the "what if" scenarios and make all the necessary contacts for everyone

Targeted Audiences

A. Education

- Talk to mining schools about how to define/use "green mining"
- Develop Curriculum in elementary schools

B. Conservation

- Make clear the distinction between what is the government's job in this, and what is the role of nonprofits – where is the line?

- Pursue Marall Mine as a part of the “poster child” strategy of getting gov’t to do its job
- Find a strategy to get organizations acquiring land to be mindful – look up some recent acquisitions with public money and see how much assessment was done; see what the state requires when they give money; see whether the TPL, as middleman, has liability
- See if it’s a good strategy to have the middleman in land deals serve a cleanup role as a Good Samaritan solution to this problem

C. Food

- Outreach to cooking schools and chef schools—those who prepare food.
- Have “mercury safe” label for fish to promote the alternative—get this kind of info on menus.

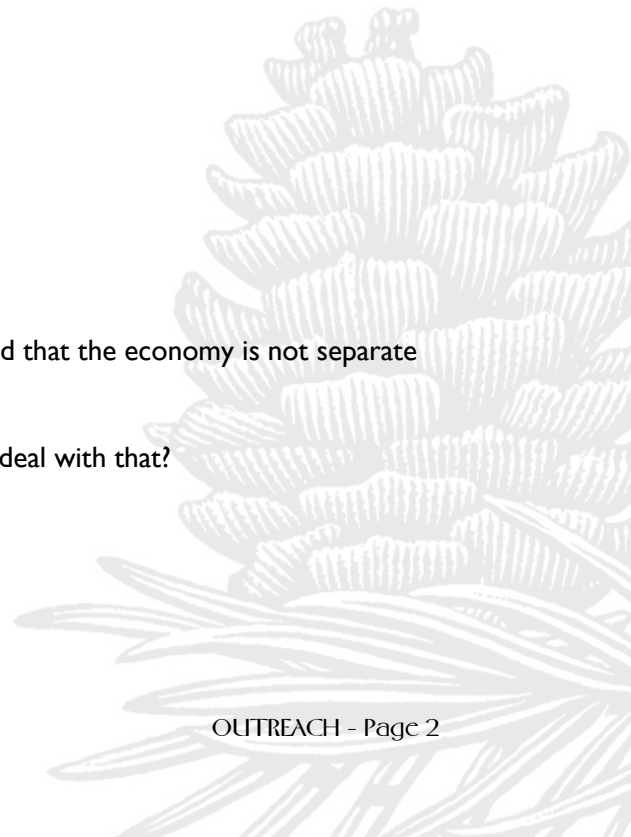
D. Downstream Communities

- Since water goes to LA – prove that the Sierra is important since it’s the source of water. Some funding LA gets for its water district must come here. They send us money, we send them clean water.
- Incentive to clean up pollution upstream “pollution trading” –
- Political process requires both authorization and appropriation to get something done. The people who benefit should be the ones who pay. But messaging needs to be understandable so they KNOW that they benefit!

E. Other

- Refine language – “orphan” mine = no PRP
- Bring in the public to help determine site use
- Get a better understanding of the public right to know
- Reality of what the Maidu believe. Earth needs to heal. And that the economy is not separate from the earth.
- Holistic—mental emotional and spiritual. 5th committee to deal with that?

Info and Resources



- DWR has a plan to rework gold fields in the Oroville area. Will have to rework tailings piles—make sure they coordinate with Combie project
- Look at the City of Seattle as model for funding upstream restoration. They do pay for restoration projects in upper watershed.
- Center for Science in the Public Interest—they should be working on a mercury issue.

Volunteer Opportunities

- Provide more information on what volunteers would do/could do
- Talk to hiking groups
- Badges for volunteers
- Flyfisherman contacts



4. POLICY

Funding

- Gold is a stable fee resource-- put an excise tax on gold when it is purchased as jewelry.
- Publish a “People’s Budget” for mining toxins – for agencies that are mandated to work on this but don’t have the funding

Policy Change

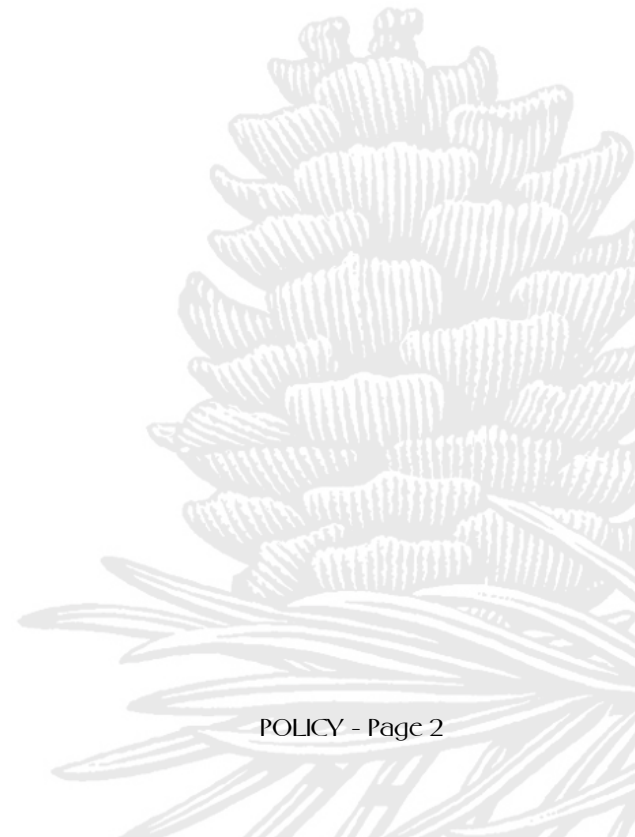
- Fix the fact that the Water Board has made rules too strict to be met, and so now grants exemptions
- Treat mine problems, like acid mine drainage more like stormwater – regulate under section 402 (not 404) – new class of federal permits, similar to what Udall proposed
- Update “beneficial uses” to take into account mining contamination
- Make nation-wide permit for development in mine-scarred lands so each developer doesn’t have to go through the process individually
- Advocate for EPA regions to share scientific data/studies so all actions based on the same research
- Nationwide permit process (not just site specific)
- If I take my kid fishing at Scotts Flat, how do I know what is safe to eat? We need to monitor lakes, post signs. Do it at every lake.
- Restaurants and stores need to label fish with mercury in it! People need to be informed that mercury is the #2 most toxic substance in the world. This could be moved forward with a coalition of mothers, doctors, environmentalists.

Priorities

- Prioritize sites for cleanup
- Introduce posting of NOA and general fish advisory at federal facilities cleanup dialog
- Contact the Brown Administration to prioritize DTSC Arsenic study
- Force fish advisories to come out on all mercury impacted waterways. Data must come out—fish tested, work with regional board and OEHHA about how to do that.
- Mercury has high priority because it is connected to the indigenous people, and the genocide that they experienced.

Lessons, Examples, Resources

- Consider parallel lessons from the experience with DDT.
- National Historic Preservation Act: Dictates that the Forest Service employ a Heritage Resource Specialist to record archeological sites. This process treats sites as though they were eligible until proved not. Streamline so that all processes can be coordinated and prevent procedural slow-down. Information is collected but it is confidential.
- This is not an issue that's well known or understood—we need to think strategically about how to roll out excellent ideas. We don't have a large understanding of the problem in the State Capitol. Ex: Silent Spring that did education for pesticides. Use legislation and policymaking to be part of effort. Be realistic about what you bite off—something small but that you can use as a campaign and build on.
- We are close with the arsenic study and what it does to human health risk—use this as an accomplishment, as something that has potential to be solved, then move on to harder things like mercury.
- We need a regional approach to the situation. How do we get elected officials to participate, agree...?
- If you get involved with elected officials, they'll get involved with you. Create relationships with them.
- Butte Co General Plan should be looked at as a working model.





Reclaiming the Sierra

Gold Country
Community Summit
on Mining Impacts

Presented by The Sierra Fund
November 8-9, 2010
Miners Foundry, Nevada City, California

WORKSHOP NOTES

Closing Panel: Community Involvement in Reclaiming the Sierra Great Hall, November 9, 2010, 4:30 pm

Notes taken reflect the best effort to capture what was said in presentations and in the discussion time following. They are presented here in order to encourage further discussion about these matters. These notes do not necessarily reflect the views of The Sierra Fund staff, board or funders.

Mike Thornton of The Sierra Fund facilitated this panel discussion and Debbie Davis of the Environmental Justice Coalition for Water, Jason Rainey of the South Yuba River Citizens League, Tim Lopez of the Voluntary Cleanup Advisory Board, and Chris Gillis of Solution Mining gave their impressions and lessons learned from the conference.

Debbie Davis, Environmental Justice Coalition for Water: “250 people came here to talk about AML—impressive! We have something that’s worth investing time, energy and effort in growing. There are other kernels around the state. We need to bring this together with others’ efforts as soon as possible in order to grow statewide momentum and succeed in making change at state level. When you’re taking something this big on, your first steps need to be what you have a reasonable chance of achieving—success breeds success!”

Jason Rainey, South Yuba River Citizens League: First of all, it’s great that this happened—it’s clear that the veil around this issue has been pierced. We have had lots of different people come together in one place here. If I have seen a theme here, it is linking movements together. We now need to see if mercury and mining’s toxic legacy is an amalgam that brings a lot of other things together. An upstream rural reparations movement upstream. Now we need to communicate this in ways that resonate with decision makers and the grassroots.

Tim Lopez, Voluntary Cleanup Advisory Board: From my experience with a voluntary cleanup advisory board in Colorado, my advice is that people should reach out to other mining communities not just in CA (even though laws in different EPA regions vary). They have other information and resources. I see a coalition building side to the committees to bring others to table. People will volunteer their expertise. Build a network. Then legislators will listen.

Chris Gillis, Solution Mining: My experience working on the East Coast is with legacy pollution from coal mining. My first reaction at seeing California's situation? I'm amazed at the level of ignorance prevalent in CA regarding historic mining, when it's supposed to be the state that's about nutrition, health, being clean and green. We need to start looking for solutions that are simple, easy and can be implemented with minimal red tape. Money is not there and it's not ever going to be. Why would we spend it on legacy issues that people would rather not see? Many solutions are similar if not identical between the East and West Coast. Networking can save money. We need to show that we're good stewards of finances as well as environment. This conference shows a great breadth of stakeholders! Now you need to make sure everyone understands that they're important groups so they keep communicating.

Lessons Learned

- Rural and urban environmental justice organizations make a powerful coalition, but may be a difficult gap to bridge. Opportunities to create alliances between people who haven't traditionally been aligned.
- Tribal and traditional environmental groups make a promising alliance. Encouraging. Takes place around water quality and salmon restoration issues. This is one that could be better meshed with cleaning up mining legacy. It's an expression of a regenerative future. We need to go above the narrow view of what we think is on our plate today and come up with unified theme of messages to help reframe public debate.
- Lessons learned from Donora, Penn: Even if there was a problem that's in the public knowledge, it may not make effective change. It's up to the people who are affected by these situations to keep it in public perception and to bring it to policymakers. In stakeholder groups, individual stakeholders may not have the best interest of group in mind. If the group is too big, you may get factions within it. Keep focused on positive aspects and not bogged down in details.