CALIFORNIA FILM INSTITUTE education | Microsoft

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California Film Institute Education

6th Annual Environmental Youth Forum

Social Environmentalism

Resource Guide

Monday, February 10 and Tuesday, February 11, 2014

The Christopher B. Smith Rafael Film Center

Table of Contents

Think "We," Not "Me"

Many of our environmental problems can be tracked to the hubris of humans, who are poor stewards of the real estate we call Earth. Humanity may be defined as "we," but in fact "we" includes all living beings and ecosystems, since we are completely interdependent. For too long, we humans have defined the world only in terms of ourselves—and often in the narrow terms of a particular population in a particular geographical area.

To continue on this path is catastrophic. Already the stresses on the planet are being seen in new extremes of weather, continuing species extinction, increasing health problems attributable to degrading air quality, and entire regions and groups of people struggling to maintain access to water.

The films being shown at this 6th Annual Environmental Youth Forum illustrate different facets of failures in human stewardship of the planet. Many of these failures are institutional: Continents, countries, and cultures apply their own definitions of how the world should function and expect compliance from others. Governments and religions develop methods of mastering pieces of the world that their citizens or adherents are expected to accept as what's best for the greater good—even if that's only for those falling within defined groups.

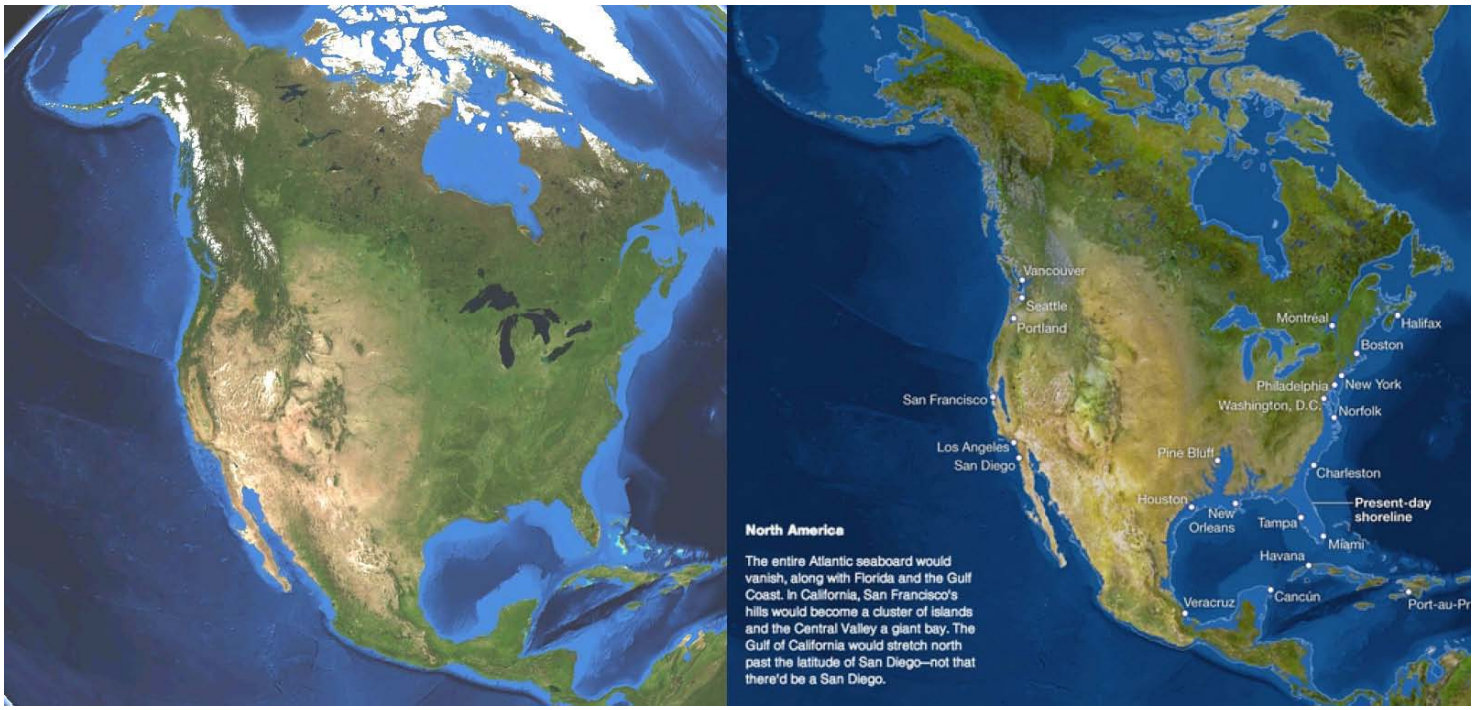
Although change is the nature of life, humans are loath to change what "worked" in the past for them. In spite of evidence to the contrary—increasing carbon levels in the atmosphere, novel technology that is cleaner than familiar technologies, medical conditions that once were rare becoming the norm—people who prefer the known status quo to the challenges involved with change ignore the dangers inherent in resisting change rather than losing the comfort of living with what they're accustomed to, even if the quality and quantity decline.

More insidiously, vested interests fight changes that they believe threaten their power, influence, and wealth. As solar power's technology continues to improve and become less expensive, utility companies selling power derived from fossil fuel sources want to charge penalties to people who are moving off the "grid"—and even selling power back to the utilities—for no longer paying them for their power. As more people turn to organic and local sources for their food—even to growing their own vegetables and raising their own livestock—single-crop factory farmers lobby for government subsidies to maintain the profits they've enjoyed from monopolizing people's access to food. And as the increasing financial and environmental costs for

transportation encourage people to seek out cleaner personal vehicles or opt for public transportation, oil drillers, suppliers, and distributors ramp up their activities by embarking on risky operations involving hydraulic fracturing, transportation by rail or pipeline, and processing from cruder and dirtier materials.

It's all in the name of ever-increasing growth and profits while ignoring the possibility that changing their methods—and mindsets—could result in sustainability, greater employment opportunities, and fairer levels of shared income. Corporations prefer to spend millions in lobbying efforts and campaign spending rather than opting for changes for the greater good.

As you watch these films and participate in the discussions about them, ask yourself if these past, current, or impending disasters and tragedies could have been avoided by thinking "we" instead of "me."

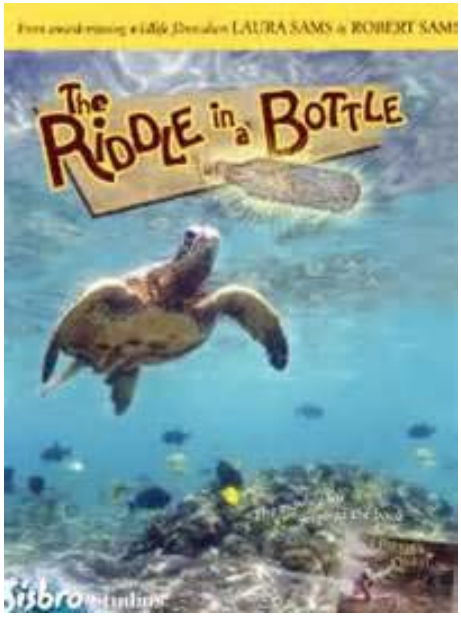


North America before sea level rises and after sea level rises 216 feet

Films for February 10

Riddle in a Bottle

About the film



Directors Laura Sams, Robert Sams
Producer Dave Cain
Screenwriters Laura Sams, Robert Sams, Dave Cain
Cinematographer Robert Sams
Editors Dave Cain, Laura Sams, Robert Sams

To celebrate Earth Day [2011], the Friends of Thunder Bay National Marine Sanctuary brought the live show of Laura and Robert Sams' Sisbro Studios to [the National Oceanic and Atmospheric Association]'s Great Lakes Maritime Heritage Center theater.

The show was a pirate-filled, water-themed, rollicking "edutainment" opportunity for families to celebrate Earth Day together in Northern Michigan. Visitors watched Sisbro's award-winning underwater children's film, *The Riddle in a Bottle*, and they enjoyed some behind-the-scenes stories about the making of nature documentaries. How did they get so close to the sea turtles and dolphins? How did they find all the frog species calling at night? Why did they decide to make a film and book about water? One of the program highlights featured Robert Sams singing a pirate song from the movie, which follows the pirate's journey to find a lost peg leg from an inland pond to the Great Lakes to the ocean.

The program also featured tips about how to make a nature-based book, using their award-winning book *A Pirate's Quest* as an example. "We hope to inspire kids to tell their own unique stories," Laura Sams said. "The world is full of inspiring things, and on Earth Day, we have a chance to think about all the ways the Earth can inspire us all - through films, books, art, and music."

http://sisbrostudios.com/in_the_news/news-headlines/sisbro-performs-a-pirate-earth-day-for-noaa-marine-sanctuary.html

About the filmmakers

Sisbro Studios was founded in 2001 by the sister/brother creative team of Laura Sams and Robert Sams, whose dream was to create science-based films, books, music, educational media, and curriculum that help people discover the natural world.

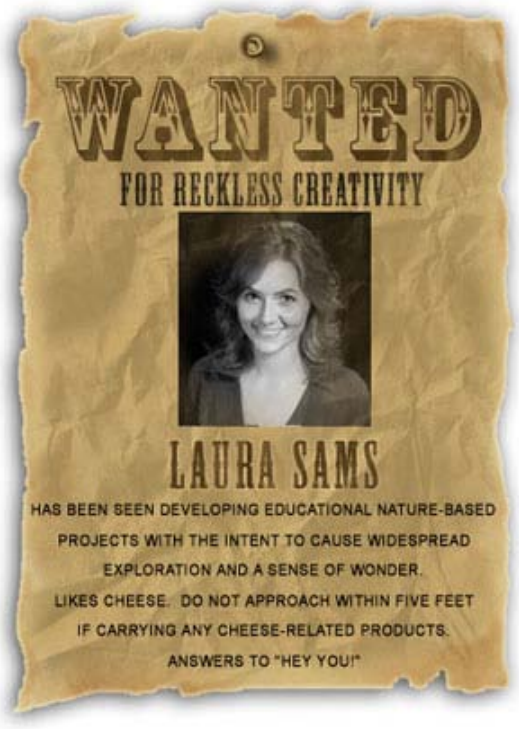
Laura and Rob set out to create stories so clever, funny, beautiful, and catchy that people can't help but share them again and again. Their work has been honored with over 50 international awards, including a Wildscreen Panda Award (which is often called the "Green Oscars"), a KIDS FIRST! Best of the Year Award, a National Parenting Publications (NAPPA) Gold Award, Parents' Choice GOLD and many more.

They have also performed live author/filmmaker visits in venues from the Smithsonian Museum of Natural History in D.C. to the Monterey Bay Aquarium to international schools in Dubai, UAE.

http://www.sisbro.com/about_sisbro/index.html

Laura Sams

Laura Sams combines a Master's degree in natural resources education with Bachelor's degrees in zoology and parks/recreation to find creative ways of helping people explore the natural world. Before her Sisbro life, she was fortunate to study hyenas in Africa and work with the education department at an aquarium in Mazatlán, Mexico. Now she focuses on writing, directing and making Sisbro Studios the best it can be.

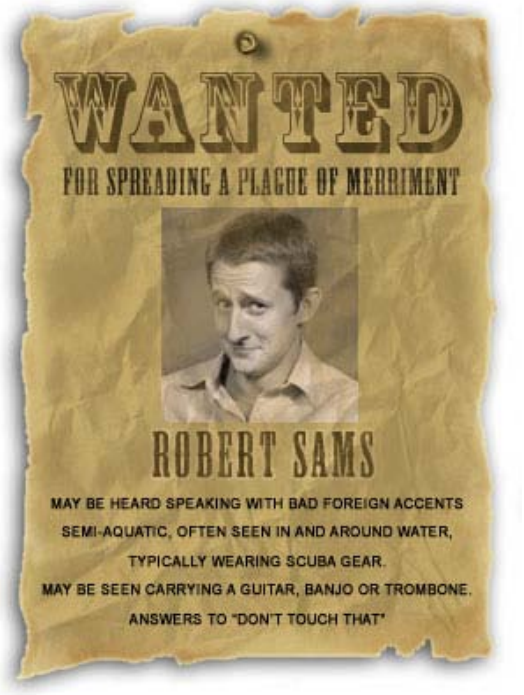


Laura recently was a final judge at the International Wildlife Film Festival in Missoula, MT, where she was thrilled to see so many talented filmmakers sharing incredible stories of the natural world.

http://www.sisbro.com/about_sisbro/about_laura_sams.html

Robert Sams

Robert Sams holds two Bachelor's degrees, one in zoology and one in communications. This means he can talk to animals … whether they understand him is another question.



In *The Riddle in a Bottle*, he is a very enthusiastic member of The Riddle Solvers. He also stars as the singing, one-legged pirate and the very sleepy Father Time. And if you listen carefully, you'll hear is voices in most of the wildlife stories, including children's favorites: the hunting eel, the munching muskrat, and the overly-excited tide pool fish.

He is a filmmaker and photographer, who has taken his cameras underwater and above ground from the Micronesian islands to the Great Lakes of Michigan. He is an author and educator, sharing his enthusiasm with thousands of children at assemblies each year. He also plays the guitar and has very expressive eyebrows.

http://www.sisbro.com/about_sisbro/about_robert_sams.html

Recognition for *The Riddle in a Bottle*

2009 NAPPA Gold Award Winner
2009 Best Children's Programming, BLUE Ocean Film Festival
2009 Best Children's Program, International Wildlife Film Festival
2009 Special Jury Award AND Script Merit Award, International Wildlife Film Festival
2009 Best Children's Film, Wild and Scenic Film Festival
2009 Best Educational Short Film, International Family Film Festival
2009 Funniest Film, Telluride Mountainfilm Festival Kids Kino Award
2009 Parent's Choice Foundation Silver Award
2008 Best Short Film, FuzzB Family Film Festival

http://www.sisbro.com/in_the_news/press_releases_awards.html

Best Children's Programming, 2009 BLUE Ocean Film Festival

Resources

Click on titles to reach links.

Deep Ocean Currents (Global Conveyor Belt) | HowStuffWorks

Great Ocean Currents | World Ocean Review

Groundwater | National Center for Atmospheric Research

How Does the Ocean Move? | Cool Classroom.org

How Ocean Currents Work | HowStuffWorks

Oceans | National Center for Atmospheric Research

Oceans Alive! Oceans in Motion | Science Learning Network

Oceans Alive! Water Currents Experiment | Science Learning Network

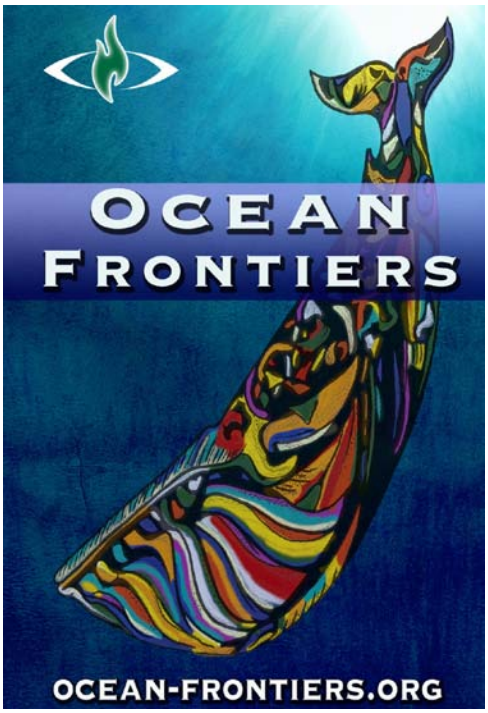
Surface Ocean Currents | Windows to the Universe

The Water Cycle for Kids | U.S. Geological Survey

The Water Cycle: Groundwater Discharge | U.S. Geological Survey Water-Science School

Ocean Frontiers:

The Dawn of a New Era in Ocean Stewardship



About the film

Directors/Producers Karen Anspacher-Meyer, Ralf Meyer
Cinematographer/Editor Ralf Meyer
Screenwriter Will Stolzenburg

Ocean Frontiers: The Dawn of a New Era in Ocean Stewardship takes us on an inspiring voyage to seaports and watersheds across the country—from the busy shipping lanes of Boston Harbor to a small fishing community in the Pacific Northwest; from America's coral reefs in the Florida Keys to the nation's premier seafood nursery in the Mississippi Delta. Here we meet an intermingling of unlikely allies, of industrial shippers and whale biologists, pig farmers and wetland ecologists, sport fishers and reef snorkelers and many more, all of them embarking on a new course of cooperation, to sustain the sea and our ocean economies.

http://ocean-frontiers.org/about/

Saving Whales at Stellwagen Bank

In the bustling shipping lanes of Boston Harbor, what was once a recurring collision of giant vessels and endangered whales has become a model for conservation in a crowded sea. Marine biologists, shipping executives and an energy company have come together, taking cues from the great whales' travelways, and finding room for both commerce and wildlife.

An Ocean Blueprint for Florida Keys

The coral reefs of the Florida Keys are America's most popular marine destination, home of myriad sea creatures and magnet for sport fishers, divers, and sightseers. Lately they are also America's showcase of marine conservation zoning, providing refuge, recreation, and livelihoods, through a collaborative plan developed by all concerned.

Iowa Farmers and Gulf of Mexico

The Mississippi Delta—terminus of America's mightiest river, nursery of one of the nation's premier fisheries, and lately an unfortunate poster child for ecological disaster—is getting help from an unlikely team of people, in an unlikely place. More than a thousand miles upstream, in the cornfields of Iowa, farmers are changing their ways to send cleaner water and new life to the nation's beleaguered Delta.

Port Orford Fishermen Protect Ocean and Way of Life

In a small fishing community on the coast of Oregon, the people of Port Orford are taking control of their destiny, by conducting their own brand of conservation. They are using local science to inform their fishery management, and protecting upstream forests to save their salmon—a farsighted perspective that considers both their links to the land, and the future of their children.

http://ocean-frontiers.org/the-films/ocean-frontiers/

Boston Harbor

After right whales received protection from whaling in 1935, their numbers started a slow increase until the 1980s. Female whales lived 52 years on average and had six chances to bear calves during their lives. But by 1995, whale life spans had plummeted. Researchers projected that female calves born after 1995 would live to age 15 on average, affording them only two chances to breed. Motherhood itself—the heart of any population's ability to grow—was threatened.

Right whales die from two major causes: collisions with ships and entanglement in fishing gear. With fewer than 400 remaining, every death is a severe blow to the species' prospects for survival. But there's reason for hope, too: studies estimate that saving just two female whales per year would put the right whale back on track to recovery.

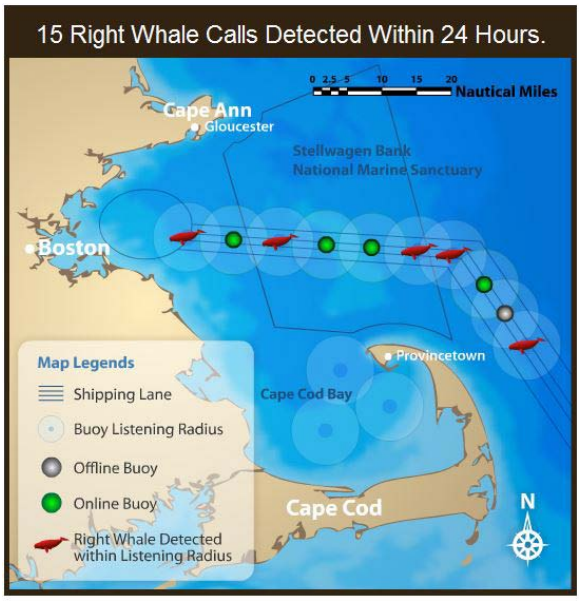
Right whale and fishing vessel avoid collision

http://www.listenforwhales.org/page.aspx?pid=431

Stellwagen Bank National Marine Sanctuary

Stellwagen Bank National Marine Sanctuary is a rich stretch of ocean at the mouth of Massachusetts Bay. It is home to several species of endangered whales including humpback whales and North Atlantic right whales. There are only an estimated 350–550 right whales remaining in the world.

The shipping lanes of Boston Harbor traverse through the Stellwagen Bank National Marine Sanctuary, bringing large ships through whale feeding grounds, resulting in deadly collisions.



Taking cues from the great whales' travel ways, their sounds and whale song, shipping executives, marine biologists, the Port of Boston and an energy company came together and found a solution that worked for both commerce and whales. In 2007, the collaborative work of these 'unlikely allies' resulted in the first port in the nation, the Port of Boston, to move the shipping lanes to protect marine mammals—reducing the risk of ship strikes to endangered right whales and other large whale species by more than 80%.

http://ocean-frontiers.org/saving-whales-at-stellwagen-bank/

Ocean Frontiers: An Ocean Blueprint for Florida Keys

In the Florida Keys, divers and fishermen have turned controversy over marine resources into a blueprint for industry and conservation collaboration.

The coral reefs of the Florida Keys National Marine Sanctuary are America's most popular marine destination—bringing in 1.2 billion dollars every year via tourism. They are also America's showcase of marine conservation zoning. With a dizzying array of people making a

living and playing in the Keys, the marine zones provide an effective way to reduce conflicts between ocean users and protect the reefs, the fisheries, and ocean-dependent jobs.

Florida Keys Sanctuary

The management of the Sanctuary is overseen by a Sanctuary Advisory Council, which is made up of more than 30 organizations and industries including sport and commercial fishing, tourism, diving, research, restoration and conservation. The Sanctuary provides refuge, recreation, and livelihoods through a collaborative plan developed by all concerned.

However, the road to the Keys management success has not been a smooth ride. Initially there was strong opposition to marine zoning, marine protected areas and marine reserves, but strong leadership and intensive stakeholder collaboration turned the Florida Keys National Marine Sanctuary into a world-renowned model of how to protect our coastal and ocean economies through ocean planning.

http://ocean-frontiers.org/ocean-blueprint-for-florida-keys/

Comprehensive Planning for the Florida Keys National Marine Sanctuary

The goal of the Florida Keys National Marine Sanctuary is to protect the marine resources of the Florida Keys and ensure responsible human interaction with these resources. Threats to the Keys come from pollution, overfishing, physical impacts of ship groundings, oil drilling proposals, and deteriorating water quality, among others. These issues represent the main drivers for protection of the Keys' coral reef.

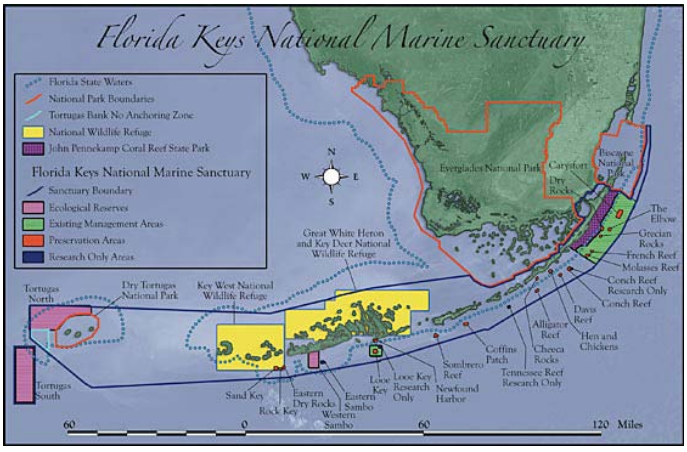
The sanctuary was designated in 1990 under the National Marine Sanctuaries Act, which required a comprehensive management plan. This example of coastal and marine spatial planning was implemented in 1997 with input from a diverse group of stakeholders.

The sanctuary functions under an agreement with the National Oceanic and Atmospheric Administration (NOAA), along with the Florida Department of Environmental Protection (DEP) and the Florida Fish and Wildlife Conservation Commission as co-trustees.

http://cmsp.noaa.gov/examples/flordiakeys.html

NOAA is the nation's primary ocean agency. Many of the underlying principles of the National Ocean Policy and marine planning efforts reflect NOAA's priorities as an operational marine science and management agency. Emphasis on ecosystem approaches to management has been a NOAA operating principle for years, and the national policy reaffirms and strengthens this operating principle by instituting regionally based planning.

http://cmsp.noaa.gov/role/index.html



Ocean Frontiers: Iowa Farmers and Gulf of Mexico

What does Iowa have to do with the Gulf of Mexico or the ocean anyway?

Well, about 200 million gallons every minute. Iowa is one of thirty-one states whose waters flow into the Gulf of Mexico, via the Mississippi River. These waters carry rain and soil, as well as the many effluents of humanity, from chemical plants in Baton Rouge, to fertilized lawns in suburban Memphis, to pig farms and cornfields in the Upper Midwest. Once these nutrients reach the Gulf, they create immense blooms of algae, whose decaying masses deplete the ocean water of oxygen—every year creating a dead zone the size of Massachusetts—a hypoxic zone that suffocates nearly everything in its path.

Caterpillar on native tallgrass

And after decades of such burden, the once fertile Gulf has begun to falter, its wetlands vanishing by the minute, its waters rendered dead from too many contaminants flowing from upstream. Realizing that one state alone cannot solve all of the Gulfs' problems, the Governors of the five Gulf States formed the Gulf of Mexico Alliance—a partnership that now extends into the Mississippi River basin.

A cadre of Iowa farmers is now changing their agricultural practices to reduce their impact on the Gulf of Mexico. Their efforts include reducing the amount of fertilizer they use, constructing wetlands to filter water before it heads downstream, and planting strips of native tallgrass prairie to prevent runoff. Iowa's goal is to reduce their nitrogen runoff by 45%.

CREP wetlands for runoff mitigation

Fewer tons of fertilizer, more acres of wetlands and prairies—all are lightening Iowa's agricultural burden on the Gulf of Mexico without burdening the returns of Iowa's farmers.

http://ocean-frontiers.org/iowa-farmers-and-gulf-of-mexico/

Iowa Conservation Reserve Enhancement Program (CREP)

CREP is a major state/federal initiative to develop wetlands which are strategically located using advanced computer technology and designed to remove nitrate from tile-drainage water from cropland areas. Removal of nitrate from these waters helps protect drinking water supplies and reduce hypoxia in the Gulf of Mexico. The program is implemented in cooperation with the USDA Farm Service Agency (FSA) and is available in 37 Soil and Water Conservation Districts (SWCD) in the tile-drained region of North Central Iowa.

Financial incentives are provided to private landowners to develop and restore wetlands that intercept tile drainage from agricultural watersheds. Landowners receive annual land payments for up to 15 years and reimbursement for costs of wetland and buffer establishment. Easements to maintain the wetlands and buffers

are required for a minimum of 30 years with permanent easements offered as well.

http://www.iowaagriculture.gov/waterResources/CREP.asp

Ocean Frontiers: Port Orford Fishermen Protect Ocean and Way of Life

Port Orford is a small fishing community on the southern Oregon coast that relies on a rich ocean ecosystem for their livelihoods. To put them on a path toward sustainability, they have recently designated the Port Orford Community Stewardship Area to both protect the ocean and their economy. The Stewardship Area encompasses 1,300 square miles, which includes their traditional fishing grounds and the upland watersheds that feed into them.

The Port Orford Ocean Resource Team, or POORT, is run by commercial fishermen who are dedicated to maintaining access to natural resources by people who are fishing selectively, while promoting sustainable fisheries and protecting marine biological diversity. They operate on the triple bottom line: ecology, equity, and economics. Partners include the City of Port Orford, Oregon Department of Fish and Wildlife, Surfrider Foundation, South Coast Watersheds Council, Redfish Rocks Community Team and Friends of Elk River among others.

Port Orford has developed a communal vision to sustain their fisheries and their ecosystem as one. In order to have a sustainable fishery and economy, they have initiated local science research to inform their fishery management, established a marine reserve and marine protected area, and have protected upstream forests to save their salmon—a farsighted perspective that considers both their links to the land, and the future of their children.

http://ocean-frontiers.org/port-orford-fishermen-protect-ocean-and-way-of-life/

Redfish Rocks Marine Reserve

The State of Oregon has designated Redfish Rocks as a fully protected marine reserve, closed to fishing on January 1, 2012. The image below shows the marine reserve boundaries, the locations of acoustic receivers, and the location where each tagged fish was released.

Tom Calvanese, a graduate student in Fisheries and Wildlife at Oregon State University, is conducting this research to learn about the movement behaviors of six commercially and recreationally valuable fish species which live there. This work is providing baseline information about fish behavior in this area prior to the closure of the reserve, and will help us to understand how the closure affects local fish populations in the future. Studying the movement patterns of fish in relationship to reserve boundaries will help us determine how much protection is being provided to different species that have different patterns and ranges of movement. Studying the movement patterns of fish in relationship to different habitats will help us understand differences in species-habitat associations.

http://www.fishtracker.org/fishtracker/Redfish_Rocks.html

About the filmmakers

Karen Anspacher-Meyer and Ralf Meyer are the filmmakers who created *Ocean Frontiers: The Dawn of a New Era in Ocean Stewardship*. The Meyers founded Green Fire Productions in 1989 and have produced dozens of award-winning documentaries that are used worldwide by NGOs, natural resource agencies, businesses, industry associations, and Native American tribes.

The Meyers have worked extensively on ocean issues. They have witnessed the degradation of ocean habitats worldwide and seen myriad conflicts erupting over how we use the ocean. In response to this, they began exploring emerging approaches to ocean management. What they learned excited them, and they set out to find examples of ecosystem-based management and marine spatial planning across the country. These real-life stories became *Ocean Frontiers*.

http://ocean-frontiers.org/the-filmmakers/

Resources

Click on titles to reach links.

Council for Sustainable Fishing

Deep Ocean Stewardship Initiative | INDEEP: International Network for Scientific Investigation of Deep-Sea Ecosystems

Executive Order 13547: Stewardship of the Ocean, Our Coasts, and the Great Lakes | The White House

Fish as Bio-Indicators and the Latest Field Methods to Assess Fish Populations | EnviroScience, Inc.

Fish Populations

Marine Biology | Wikipedia, the free encyclopedia

Marine Biology, Ocean Life Conservation, Sea Creatures, Biodiversity, Oceans Research | MarineBio.org Ocean | NOAA - National Oceanic and Atmospheric Administration

Ocean Stewardship | Thank You Ocean.org

Ocean Stewardship | World Ocean Council

Overfishing | Wikipedia, the free encyclopedia

Population Dynamics of Fisheries | Wikipedia, the free encyclopedia

The Seafood Watch Program at the Monterey Bay Aquarium | Seafood Watch.org

Sustainable Fisheries | MarineBio.org

Sustainable Fisheries Partnership

Sustainable Fishery | Wikipedia, the free encyclopedia

Sustainable Fishing | National Geographic Education

What is Marine Biology? | MarineBio.org

Working for Sustainable Fishing | World Wildlife Fund

Barracuda in Florida Marine Sanctuary

Bat City, USA

Director/Writer/Editor Laura Brooks
Producers Rod Cole, Laura Brooks
Cinematographer Rod Cole

www.videoproject.com

About the film

Bat City USA tells how a giant colony of bats,"invaded" an Austin bridge and were met with fear and hostility by residents. Thousands of Mexican free-tailed bats began moving into a downtown Austin bridge in the 1980s, after a bridge renovation left gaps between beams that created ideal roosting space.

The "bat invasion" caused a media hoopla, and the sensational headlines attracted the attention of Merlin Tuttle, a bat researcher in Milwaukee, Wisconsin. Tuttle moved to Austin, where he faced opposition from residents who wanted to exterminate the colony because of rabies concerns. Tuttle—a zealous conservationist—stepped in and worked to save the bats through education and public relations.

Talking up bats to anyone who would listen, Tuttle persuaded locals of the bats' benefits. Bats can eat 1,200 mosquitoes or moths an hour—and the 20 million bats living in the area eat upwards of 200 tons of insects each night. The advantages to agriculture are immeasurable.

Tuttle became an expert at photographing bats without depicting them as bared-teeth aggressors. He used his photos to change the bats' image from that of disease carriers to desirable creatures and saved the colony from destruction. Through Tuttle's efforts, Austin went from crying for extermination to declaring itself Bat City, USA.

The Congress Avenue Bridge bat colony is estimated to contain 1.5 million bats at the peak of bat season in August. Austin's now beloved colony came into being through an accidental but fortuitous set of circumstances related to the construction method used when Texas Department of Transportation (TxDOT) engineers widened the Congress Avenue Bridge across the Colorado River in the 1980s. Realizing what a boon the bats are to Texas, TxDOT engineers working in concert with Bat Conservation International, the group founded by Tuttle, developed construction techniques to encourage or deter bats in new bridge projects.

Bat fans watch on the Congress Avenue Bridge

Texas's bat friends have responded accordingly by populating these new "bat friendly" habitats in large numbers and consuming tremendous amounts of insects in the surrounding areas. State highway engineers have since built many "bat friendly" bridges throughout Texas.

Bat City, USA takes viewers to several bat colonies including the Congress Avenue Bridge in Austin, Bracken Cave near San Antonio, Old Tunnel Wildlife Management Area near Fredericksburg, the McNeil Bridge in Round Rock, and a small bat cave on private property near Austin. Bat emergence sequences were filmed at Congress Avenue Bridge, Bracken Cave, and McNeil Bridge.

http://batcityusathefilm.com/about/

About bats

Thirteen Incredible Bat Facts

It isn't easy being a bat. With Dracula, a few cases of rabies, their pointy teeth, and the fact that they hang upside down to sleep, bats inspire fear in many people. But as you'll see, bats are amazing creatures, even though they eat bugs—and sometimes blood.

Austin's own Mexican free-tail bat

1. Bats are the only mammals able to fly. And you thought it was the winged marmoset! Bats are exceptional in the air. Their wings are thin, giving them what is called, in flight terms, "airfoil." The power bats have to push forward is called "propulsion."

2. A single brown bat can catch around 1,200 mosquito-size insects in one hour. In Bracken Cave, Texas, it's estimated that the 20 million Mexican free-tailed bats that live there eat about 200 tons of insects—each night.

There is no doubt that the bloodthirsty reputation of the Vampire bat has been greatly exaggerated by B-horror movies and a less than attractive appearance.

Vampire bat

3. Vampire bats don't suck blood. They lap it up. Calm down. There are only three species of vampire bats in the whole world. If you are traveling in Central or South America, however, you might see a vampire bat bite a cow and then lick blood from the wound—no sucking involved.

4. Bats don't have "fat days." The metabolism of a bat is enviable—they can digest bananas, mangoes, and berries in about 20 minutes.

5. Fewer than 10 people in the last 50 years have contracted rabies from North American bats. Due to movies and television, bats are thought to be germ machines, bringing disease and toxins to innocent victims. Not true. Bats avoid people. If you are bitten by a bat, go to the doctor, but don't start making funeral arrangements—you'll probably be fine.

Bats employing echolocation

6. Bats use echolocation to get around in the dark. Bats don't see very well and do a lot of living at night, so they have to rely on navigational methods other than sight. Bats send out beeps and listen for variations in the echoes that bounce back at them and that's how they get around. Bats are nocturnal, mostly because it's easier to hunt bugs and stay out of the way of predators when it's dark. Bats do use their eyesight to see things in the daytime, but most bat business is done under the blanket of night for convenience.

7. Bats make up a quarter of all mammals. Yep, you read that right. A quarter of all mammals

are bats. There are more than 1,100 species of bats in the world. That's a lot of bats!

Bats trying to sleep in their cave

8. More than 50 percent of bat species in the United States are either in severe decline or are listed as endangered. You don't know what you've got until it's gone. Industry, deforestation, pollution, and good old-fashioned killing have wiped out many bats and their habitats. For information on how to help keep bats around, contact your local conservation society.

9. Cold night? Curl up next to a bat! Inside those drafty caves they like so much, bats keep warm by folding their wings around them, trapping air against their bodies for instant insulation.

Bats nestling inside the Congress Avenue Bridge

10. An anticoagulant found in vampire bat saliva may soon be used to treat human cardiac patients. The same stuff that keeps blood flowing from vampire bats' prey seems to keep blood flowing in human beings, too. Scientists in several countries are trying to copy the enzymes found in vampire bat saliva to treat heart conditions and stop the effects of strokes in humans.

11. Bats have only one pup a year. Most mammals of smallish size have way more offspring than that. Think cats, rabbits, and rats.

12. The average bat will probably outlive your pet dog. The average lifespan of a bat varies, but some species of brown bat can live to be 30 years old. Considering that other small mammals live only two years or so, that's impressive.

Elegant glamour shot of Austin bat, by Merlin Tuttle

13. Bats wash behind their ears. Bats spend more time grooming themselves than even the most image-obsessed teenager. They clean themselves and each other meticulously by licking and scratching for hours.

Now that you've finish reading our list of incredible bat facts, don't you have a much different opinion of bats than you did before?

http://www.animalplanet.com/mammals/13-incredible-bat-facts.htm

Resources

Click on titles to reach links.

About Bats | eHow

Austin: Bat City | Bat City Outdoors

Bat | San Diego Zoo

Bat City USA: Austin Film Society

Bat City, USA Review by Anthropology Review Database | Video Project Digital

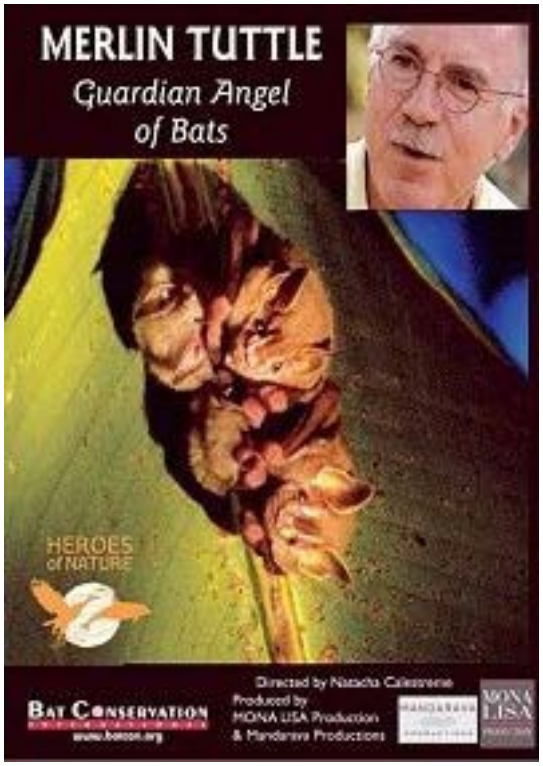
Bat City, USA: Austin, Texas Bat Facts | Habitat for Bats.org

Bat Management Plan | South Dakota Game, Fish & Parks

Bat protection raised in Adirondack mine power project | Times Union

Bat Species Profiles | BatCon.org

Bat Threats | Batworlds.com



Bats and Wind Energy | BatCon.org

Bats and Rabies | BatCon.org

Bats Management Guidelines | UC Davis

Bats' Worth to Agriculture | Encyclopedia of Earth

Benefits of Bats | BestNest.com

Benefits of Bats | West Texas Bats.org

The Benefits of Bats | U.S. Bureau of Land Management

Merlin Tuttle with a beloved bat

Benefits of Bats for Humans | Bats Gauteng.org

California Leaf-Nosed Bat | Wikipedia, the free encyclopedia

Congress Bridge Bats | Austin Video City Guide

Forest Service Puts Out 'Bat' Signal for You to Get Involved | U.S. Department of Agriculture

Fun Bat Facts for Kids | Science Kids Habitat for Bats.org

Intro to Bats | BatCon.org

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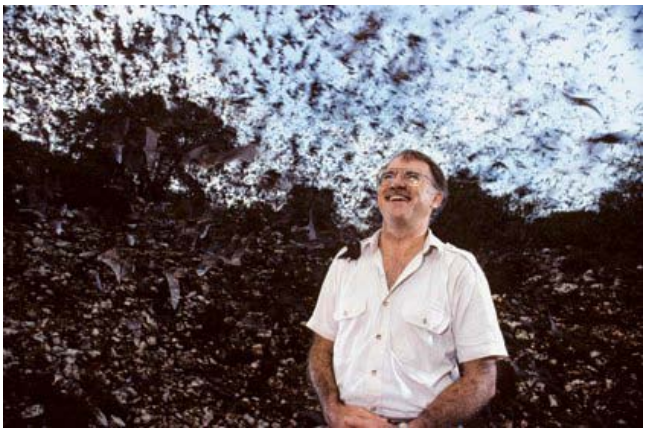
Key to California Bats | Hastings Reserve

Maryland–W. Virginia trail link shelved due to bat threat | The Charleston Gazette

Merlin Tuttle.com



Merlin watching his bats

Merlin Tuttle Gallery

North Bay big-eared bats could get added protection from the state | ContraCostaTimes.com

Brown bat posing for Merlin Tuttle

Northern California Bats.org

Threats to Bats | Bat Conservation Trust

Threats to Bats | Bats.org

Threats to Bats | Defenders of Wildlife

Threats to Bats | Year of the Bat.org

Top 10 Bat Facts | The Nature Conservancy

Types of Bats | About-Bats.com

What Is Guano? | WiseGeek.org

Films for February 11

Blackfish

About the film

Director Gabriela Cowperthwaite
Screenwriters Gabriela Cowperthwaite, Eli Despres, Tim Zimmermann (book)
Producers Gabriela Cowperthwaite, Manuel V. Oteyza
Cinematographers Jonathan Ingalls, Christopher Towey
Editor Eli Despres

http://www.imdb.com/title/tt2545118/fullcredits?ref_=tt_ov_st_sm

Blackfish tells the story of Tilikum, a performing killer whale that killed several people while in captivity. Along the way, director-producer Gabriela Cowperthwaite compiles shocking footage and emotional interviews to explore the creature's extraordinary nature, the species' cruel treatment in captivity, the lives and losses of the trainers and the pressures brought to bear by the multi-billion-dollar sea-park industry.

This emotionally wrenching, tautly structured story challenges us to consider our relationship to nature and reveals how little we humans have learned from these highly intelligent and enormously sentient fellow mammals.

http://blackfishmovie.com/about

Dawn Brancheau with Tilikum

SeaWorld Says 'Blackfish' Is 'Propaganda.' The Filmmakers Say They Want a Public Debate.

By Paula Bernstein

Back in July, SeaWorld attempted some spin control—responding to Gabriela Cowperthwaite's documentary *Blackfish* with a list of 8 problems they had with the film. They're back on the offensive with "The Truth about *Blackfish*," a web page featuring videos and text accusing the *Blackfish* team of creating propaganda rather than a documentary.

Blackfish, which was released theatrically by Magnolia Pictures and also aired on CNN, details the killing of a trainer by an orca at SeaWorld, and makes a compelling case against keeping killer whales captive.

"To make these ultimately false and misleading points, the film conveys falsehoods, manipulates viewers emotionally, and relies on questionable filmmaking techniques to create 'facts' that support its point of view," reads the SeaWorld site.

The makers of *Blackfish*, along with the filmmakers from the Oscar-winning documentary *The Cove* responded to SeaWorld's latest assertions with their own assertions.

"SeaWorld can call *Blackfish* propaganda. This does not make this assertion true. We stand by the film and the truths it tells. We also stand by the brave whistleblowers featured in it. SeaWorld's disparaging comments about those associated with *Blackfish*, its efforts to dissect arguments and make specious claims about film sequences, are an attempt to deflect from the real issues the informed public cares about," wrote Cowperthwaite in a blog post.

They've also issued a challenge: they've asked SeaWorld to debate these issues in a public forum.

"We challenge SeaWorld to debate these issues with our teams in a public forum, which we will be happy to arrange. Throughout the production and theatrical release of *Blackfish*, SeaWorld has refused to directly engage with the film or its points in any public way, despite repeated invitations. Instead of releasing more PR spin, written statements and online critiques (which often allow no comments), we encourage SeaWorld's leaders to step forward and address these issues openly and honestly in public debate. Let the public hear both sides of the argument (as we have always desired) and draw their own conclusions," Cowperthwaite wrote.

http://www.indiewire.com/article/blackfish-filmmakers-challenge-seaworld-to-a-debate-after-they-call-the-doc-propaganda

Why *Blackfish* Is Propaganda, Not a Documentary

We object to *Blackfish* because its two central premises are wrong: (1) that life at SeaWorld is harmful for killer whales and for trainers working with these animals, and (2) that SeaWorld has attempted to cover up the facts surrounding the tragic death of trainer Dawn Brancheau in 2010, as well the history of Tilikum, the killer whale involved in that accident. Nothing could be further from the truth.

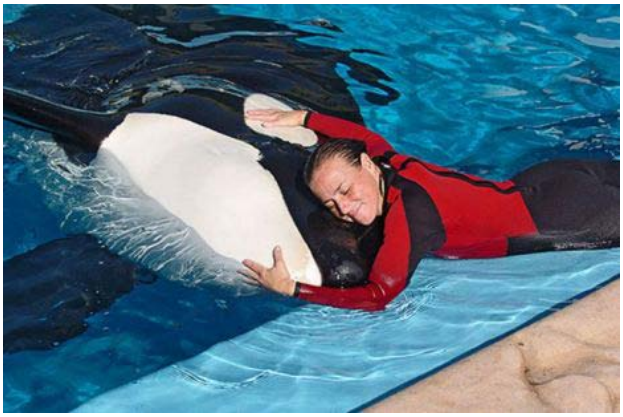
To make these ultimately false and misleading points, the film conveys falsehoods, manipulates viewers emotionally, and relies on questionable filmmaking techniques to create "facts" that support its point of view.

Here are some significant examples:

1. *Blackfish* employs false and emotionally manipulative sequences concerning the collection and separation of killer whales: Through stock footage and video mismatched to the narrative, the film implies that SeaWorld collects killer whales from the wild and separates mothers and calves. NEITHER IS TRUE. …

2. The film relies on former SeaWorld employees, most of whom have little experience with killer whales, and others who haven't worked at SeaWorld in nearly 20 years …

3. The film also relies on animal rights activists masquerading as scientists …



Dawn Brancheau with Tilikum

4. The film spins an entirely fictitious account of Dawn Brancheau's death in order to advance its anti-captivity narrative …

5. To advance both its anti-captivity narrative and its false theories surrounding Ms. Brancheau's death, the film falsely suggests that Tilikum had become psychotic and aggressive …

6. The film falsely suggests that important facts about Tilikum were concealed from his trainers and that SeaWorld is indifferent to trainer safety …

Conclusion

All of the falsehoods and misleading techniques in Blackfish are employed in the service of the film's obvious bias, one that is best revealed near the end of Blackfish by a neuroscientist with no known expertise in killer whales. She claims that all killer whales in captivity are "emotionally destroyed," and "ticking time bombs." These are not the words of science, and indeed, there is not a shred of scientific support for them. Rather, they are the words of animal rights activists whose agenda the film's many falsehoods were designed to advance. They reveal *Blackfish* not as an objective documentary, but as propaganda.

http://seaworldparks.com/en/corporatesites/truth/home/truth-about-blackfish/

Former trainer John Hargrove on SeaWorld's Bullying Tactics and PR Blunders

Interview by Greg Gilman

John Hargrove, a former killer whale trainer for 14 years, left SeaWorld in August of 2012 after witnessing his employer blatantly lie about the danger the massive mammals pose to people in captivity. A week later he was being interviewed on camera by director Gabriela Cowperthwaite for her eye-opening documentary Blackfish.

When did you first start to realize that SeaWorld was doing something unethical with these animals?

Four years into my career. The first four years of my career, SeaWorld was the happiest place on Earth. I was living out my childhood dream. … For me, with the animals, is when we started separating moms from their calves.

Contrary to what SeaWorld's carefully prepared statements that they put out saying they'll never separate moms from calves unless it's medical, that's bullshit. Total bullshit. I can give you so many examples that that's not true. And not just my opinion that it's not true—*it's not true*. I was there for those, and I know the exact reasons we moved those whales, and it was because we had a need in another park for that particular animal, whether it was a juvenile male or a juvenile female, or a female that knew all of the water work behaviors, or a dominant female, or whatever.

John Hargrove when he was a killer whale trainer

What's your response to the company's allegations that *Blackfish* only focuses on a handful of events from the park's history and ignores its contributions to education, preservation, and animal research?

I think they do some great research and rescue efforts, like with manatees and sea turtles, but that has nothing to do at all with killer whales being in captivity for entertainment purposes. It's such a deflection that they use. Yeah, I'm all for giving credit where credit is due, and I applaud you for what you do with manatees and I applaud you for what you do with sea turtles, but that has absolutely nothing to do with what we're talking about. That has absolutely nothing to do with *Blackfish*, or killer whales in captivity for entertainment, or the death of these trainers by killer whales. It's a total deflection.

And then saying it only focuses on a handful of events, in one way, is right. It only focuses on a handful of events, but there were so many others. We just scratched the surface. There's so many incidents that we did not bring up in *Blackfish*, that trainers nearly died and we didn't even touch on those. So, I mean, they should be grateful that we only brought up what we brought up. If there was more time, it would have been a less-flattering picture for them, for sure.

Were you afraid of legal repercussions from SeaWorld?

Absolutely. I know SeaWorld, I know what they're like. And they're bullies. They've always been a bully. I've just seen them bully so many different trainers, and so many court cases that were settled and gag ordered. …

What was your reaction to news that close to 200 SeaWorld Orlando employees were caught weighing in on the Orlando Business Journal's poll asking, "Has CNN's *Blackfish* Documentary Changed Your Perception of SeaWorld?" Were you somehow bothered by that? Or was it no big deal?

How embarrassing, you know? It's just so pathetic. I love the fact that they got busted. And how stupid can you be in 2014. Like really? The smartest people that are working in your IT department didn't think that it wasn't going to be traced back to your IP address and it's registered under SeaWorld Parks and Entertainment? Dude, I'm not tech savvy, and have trouble setting up Twitter, and I know that. I wouldn't make that mistake, so I just think it's hilarious. …

Was there a scene in the documentary that particularly affected you while watching it?

The capture videos were always upsetting, but I've seen those videos so many times throughout my career. For me personally, the most powerful interview in the film is with John Crowe, the hardened guy that was a part of the captures. And I just think it's because he's got this very rough exterior, but he's so tortured by what he did so many years ago. And you can see that he's tortured by it. Here's a guy that's a rough-and-tough guy, and has lived a rough-and-tough life, and yet he's sensitive enough that he's tortured by what he did.

http://www.thewrap.com/blackfish-oscars-john-hargrove-seaworld-trainer

John Hargrove is a former killer whale trainer. He spent nearly two decades in the industry at SeaWorld of California, SeaWorld of Texas, and Marineland in the south of France.

https://twitter.com/johnjhargrove

About the filmmakers

Gabriela Cowperthwaite, Director

In the summer of 2010, Dawn Brancheau, a renowned SeaWorld trainer, was killed by Tilikum, a 12,000-pound orca. I remember fragments: something about a ponytail, something about her slipping and falling, something about how this almost never happens because in these parks, the animals are happy and the trainers are safe.

But something wasn't right. Why would a highly intelligent animal attack its trainer—in effect, bite the hand that feeds it? I set out to understand this incident not as an activist, but as a mother (who had just taken her kids to SeaWorld) and as a documentary filmmaker (who can't let sleeping dogs lie).

I brought Manny Oteyza aboard as the film's producer and he soon became my right arm. I spoke to Tim Zimmermann, who wrote a phenomenal article about the incident for *Outside Magazine*, and asked him to be my associate producer …

Thus began my journey of shock and discovery.

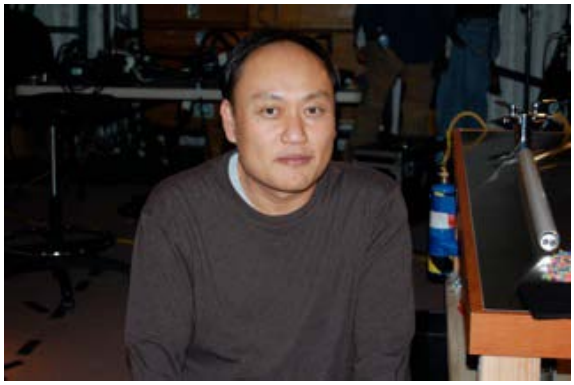
I have made TV documentaries for 12 years but *Blackfish* is my second feature length documentary and one that I call my "labor of tough love." I can't say this was an easy film to make. For two years we were bombarded with terrifying facts, autopsy reports, sobbing interviewees, and unhappy animals—a place diametrically opposite to its carefully refined image. But as I moved forward, I knew that we had a chance to fix some things that had come unraveled along the way. And that all I had to do was tell the truth.

http://blackfishmovie.com/filmmaker

Manuel V. Oteyza, Producer

Manny Oteyza has produced a diverse body of work, from scripted shorts to documentary and fiction features. Prior to production for *Blackfish*, he produced *Wayne Quinton:*

Engineering Life, a documentary for BYUTV; line produced *Amazon Gold*, a documentary short on the destruction of the Amazon; and a six-part webisode series, *Solving for X with Bill Nye* for Disney. Oteyza has also served as a producer, line producer, and field producer on series for television networks including National Geographic Channel, Military Channel, Discovery Channel, and the Travel Channel.



An alumnus of the American Film Institute's graduate producing program, Oteyza has worked on fiction films for both studios and independent companies. Upon graduation from AFI, he joined Danny DeVito and Michael Shamberg's production company, Jersey Films, later moving on to James V. Hart's Common Ground Entertainment, films for 20th Century Fox, and Sony Studios. Oteyza is a native of Cincinnati and earned his B.A. from Columbia College Hollywood.

http://blackfishmovie.com/filmmaker

Resources

Click on titles to reach links.

250 Dolphins Await Slaughter at Taiji Cove | CNN

Are Killer Whales Dangerous? | WhaleFacts.org

Busch Gardens Concerts Canceled Amid SeaWorld Controversy | Tampa Bay Online

Controversy about the Orcas | Worldless

Controversy over SeaWorld Grows Months after "Blackfish" Release | NPR

Death at SeaWorld: Shamu and the Dark Side of Killer Whales in Captivity, by David Kirby

Deer as a Meal for Mammal-Hunting Killer Whales? | The Marine Detective

How Orcas Live | OrcaFree

Humans Hunting Killer Whales | Yahoo Image Search Results

Killer in the Pool, by Tim Zimmermann

Killer Whale | Wikipedia, the free encyclopedia

Killer Whale Behavior | SeaWorld Parks & Entertainment

Killer Whale Social Structure | Dolphins World.com

Killer Whale Tilikum Makes Big Splash at SeaWorld 13 Months after Dawn Brancheau's Death | ABC News

Killer Whales (Orcas) | National Geographic

Killer Whales Don't Usually Kill People | LiveScience

Killer Whales Hunting | YouTube

Killer Whales on the Hunt | CBS News

Killer Whales: Feeding | MarineBio.net

Killers in Eden | Killers of Eden

More Death and Controversy at SeaWorld | Discovery News

Orca (Killer Whale) | American Cetacean Society

Orca Info | Orca Live

Orca Social Structure | Yahoo Image Search Results

Orca Social Structure and (Whale) Dialects | Serendip Studio

Our Care for Killer Whales | SeaWorld Parks & Entertainment

Research Publications | SeaWorld Parks & Entertainment

SeaWorld Controversy | Today News Gazette

SeaWorld's "Blackfish" Controversy Performed Another Trick | Motley Fool

Tearing Apart Families: Controlling the Orca's Social Structure in Captivity | Cetacean Inspiration

Tilikum (Killer Whale) Latest News | The Orlando Sentinel

Tilikum (orca) | Wikipedia, the free encyclopedia

Tilikum | WN Network Tilikum |Huffington Post

MisLEAD: America's Secret Epidemic

Director/Producer Tamara Rubin
Editor Heidi Zimmerman
Among the experts who appear in the film are: Dr. David Rosner, Columbia University; Noam Chomsky, M.I.T.; Nse Obot Witherspoon, Children's Environmental Health Network; Rebecca Morley, National Center for Healthy Housing; Nabil Baddour, (formerly) New Orleans Dept. of Health, Lead Poisoning Prevention Program; Dr. Theodore (Ted) Lidsky, Neuropsychologist; Dr. Felicia Rabito, Tulane University; Dr. Howard Mielke, Tulane University and Lead Labs, New Orleans; Chris Zimmer, OSHA, Portland, Oregon

http://misleadmovie.com/crew/director/
http://misleadmovie.com/crew/editor/
http://misleadmovie.com/crew/experts/

About the film

There is a question in many minds today: What has caused the sudden, alarming rise in the number of American children with ADD, ADHD, Autism Spectrum symptoms, and similar neurological disorders—expensive impairments and disabilities that create challenges for families and cost our society more than $50 billion annually?

MisLEAD: America's Secret Epidemic is the first documentary film that undertakes an intellectually rigorous, emotionally compelling, and illuminating inquiry into a hidden epidemic that impacts one in three American children today. Tamara Rubin, an Oregon mother whose children were poisoned, travels the country talking with parents and top experts across many fields—uncovering surprising answers.

MisLEAD is an outreach and education project of the 501(c)3 nonprofit Lead Safe America Foundation.

http://misleadmovie.com/synopsis/

America's Real Criminal Element: Lead

New research finds Pb is the hidden villain behind violent crime, lower IQs, and even the ADHD epidemic. And fixing the problem is a lot cheaper than doing nothing.

By Kevin Drum
Mother Jones | January/February 2013

When Rudy Giuliani ran for mayor of New York City in 1993, he campaigned on a platform of bringing down crime and making the city safe again. It was a comfortable position for a former federal prosecutor with a tough-guy image, but it was more than mere posturing. Since 1960, rape rates had nearly quadrupled, murder had quintupled, and robbery had grown fourteenfold. New Yorkers felt like they lived in a city under siege.

Throughout the campaign, Giuliani embraced a theory of crime fighting called "broken windows," popularized a decade earlier by James Q. Wilson and George L. Kelling in an influential article in *The Atlantic*. "If a window in a building is broken and is left unrepaired," they observed, "all the rest of the windows will soon be broken." So too, tolerance of small crimes would create a vicious cycle ending with entire neighborhoods turning into war zones. But if you cracked down on small crimes, bigger crimes would drop as well.

… In 1996, the *New York Times* reported that crime had plunged for the third straight year, the sharpest drop since the end of Prohibition. Since 1993, rape rates had dropped 17 percent, assault 27 percent, robbery 42 percent, and murder an astonishing 49 percent. …

And yet, doubts remained. For one thing, violent crime actually peaked in New York City in 1990, four years before the Giuliani-Bratton era. By the time they took office, it had already dropped 12 percent.

Second, and far more puzzling, it's not just New York that has seen a big drop in crime. In city after city, violent crime peaked in the early '90s and then began a steady and spectacular decline. Washington, DC, … violent crime rate has dropped 58 percent since its peak. Dallas' has fallen 70 percent. Newark: 74 percent. Los Angeles: 78 percent.

There must be more going on here than just a change in policing tactics in one city. But what?

… To address this problem, the field of econometrics gives researchers an enormous toolbox of sophisticated statistical techniques. But, notes statistician and conservative commentator Jim Manzi in his recent book *Uncontrolled*, econometrics consistently fails to explain most of the variation in crime rates. …

Experts often suggest that crime resembles an epidemic. But what kind? Karl Smith, a professor of public economics and government at the University of North Carolina-Chapel Hill, has a good rule of thumb for categorizing epidemics: If it spreads along lines of communication, he says, the cause is information. Think Bieber Fever. If it travels along major transportation routes, the cause is microbial. Think influenza. If it spreads out like a fan, the cause is an insect. Think malaria. But if it's everywhere, all at once—as both the rise of crime in the '60s and '70s and the fall of crime in the '90s seemed to be—the cause is a molecule.

A molecule? That sounds crazy. What molecule could be responsible for a steep and sudden decline in violent crime?

Well, here's one possibility: $Pb(CH_2CH_3)_4$.

In 1994, Rick Nevin was a consultant working for the US Department of Housing and Urban Development on the costs and benefits of removing lead paint from old houses. This has been a topic of intense study because of the growing body of research linking lead exposure in small children with a whole raft of complications later in life, including lower IQ, hyperactivity, behavioral problems, and learning disabilities.

But as Nevin was working on that assignment, his client suggested they might be missing something. A recent study had suggested a link between childhood lead exposure and juvenile delinquency later on. Maybe reducing lead exposure had an effect on violent crime too?

That tip took Nevin in a different direction. The biggest source of lead in the postwar era, it turns out, wasn't paint. It was leaded gasoline. And if you chart the rise and fall of atmospheric lead caused by the rise and fall of leaded gasoline consumption, you get a pretty simple upside-down U: Lead emissions from tailpipes rose steadily from the early '40s through the early '70s, nearly quadrupling over that period. Then, as unleaded gasoline began to replace leaded gasoline, emissions plummeted.

Intriguingly, violent crime rates followed the same upside-down U pattern. … In a 2000 paper he concluded that if you add a lag time of 23 years, lead emissions from automobiles explain 90 percent of the variation in violent crime in America. Toddlers who ingested high levels of lead in the '40s and '50s really were more likely to become violent criminals in the '60s, '70s, and '80s.

And with that we have our molecule: tetraethyl lead, the gasoline additive invented by General Motors in the 1920s to prevent knocking and pinging in high-performance engines. As auto sales boomed after World War II, and drivers in powerful new cars increasingly asked service station attendants to "fill 'er up with ethyl," they were unwittingly creating a crime wave two decades later.

… In the late '90s, Jessica Wolpaw Reyes was a graduate student at Harvard casting around for a dissertation topic that eventually became a study she published in 2007 as a public health policy professor at Amherst. "I learned about lead because I was pregnant and living in old housing in Harvard Square," … [and] she started thinking about lead and crime. Although the association seemed plausible, she wanted to find out whether increased lead exposure *caused* increases in crime. But how?

The answer, it turned out, involved "several months of cold calling" to find lead emissions data at the state level. During the '70s and '80s, the introduction of the catalytic converter, combined with increasingly stringent Environmental Protection Agency rules, steadily reduced the amount of leaded gasoline used in America, but Reyes discovered that this reduction wasn't uniform. In fact, use of leaded gasoline varied widely among states, and this gave Reyes the opening she needed. If childhood lead exposure really did produce criminal behavior in adults, you'd expect that in states where consumption of leaded gasoline declined slowly, crime would decline slowly too. Conversely, in states where it declined quickly, crime would decline quickly. And that's exactly what she found.

Meanwhile, Nevin had kept busy as well, and in 2007 he published a new paper looking at crime trends around the world. This way, he could make sure the close match he'd found between the lead curve and the crime curve wasn't just a coincidence. Sure, maybe the real culprit in the United States was something else happening at the exact same time, but what are the odds of that same something happening at several *different* times in several *different* countries?

Nevin collected lead data and crime data for Australia and found a close match. Ditto for Canada. And Great Britain and Finland and France and Italy and New Zealand and West Germany. Every time, the two curves fit each other astonishingly well. When I spoke to Nevin about this, I asked him if he had ever found a country that didn't fit the theory. "No," he replied. "Not one."

Just this year, Tulane University researcher Howard Mielke published a paper with demographer Sammy Zahran on the correlation of lead and crime at the city level. They studied six US cities that had both good crime data and good lead data going back to the '50s, and they found a good fit in every single one. In fact, Mielke has even studied lead concentrations at the *neighborhood* level in New Orleans and shared his maps with the local police. "When they overlay them with crime maps," he told me, "they realize they match up."

… In New Orleans, lead levels can vary dramatically from one neighborhood to the next—and the poorest neighborhoods tend to be the worst hit.

Put all this together and you have an astonishing body of evidence. We now have studies at the international level, the national level, the state level, the city level, and even the individual level. Groups of children have been followed from the womb to adulthood, and

higher childhood blood lead levels are consistently associated with higher adult arrest rates for violent crimes. All of these studies tell the same story: Gasoline lead is responsible for a good share of the rise and fall of violent crime over the past half century.

Like many good theories, the gasoline lead hypothesis helps explain some things we might not have realized even needed explaining. For example, murder rates have always been higher in big cities than in towns and small cities. We're so used to this that it seems unsurprising, but Nevin points out that it might actually have a surprising explanation—because big cities have lots of cars in a small area, they also had high densities of atmospheric lead during the postwar era. But as lead levels in gasoline decreased, the differences between big and small cities largely went away. And guess what? The difference in murder rates went away too. Today, homicide rates are similar in cities of all sizes. It may be that violent crime isn't an inevitable consequence of being a big city after all. ... Only gasoline lead, with its dramatic rise and fall following World War II, can explain the equally dramatic rise and fall in violent crime.

.. [T]here's another reason to take the lead hypothesis seriously, and it might be the most compelling one of all: Neurological research is demonstrating that lead's effects are even more appalling, more permanent, and appear at far lower levels than we ever thought. For starters, it turns out that childhood lead exposure at nearly *any* level can seriously and permanently reduce IQ. Blood-lead levels are measured in micrograms per deciliter, and levels once believed safe—65 µg/dL, then 25, then 15, then 10—are now known to cause serious damage. The EPA now says flatly that there is "no demonstrated safe concentration of lead in blood," and it turns out that even levels under 10 µg/dL can reduce IQ by as much as seven points. An estimated 2.5 percent of children nationwide have lead levels above 5 µg/dL.

But we now know that lead's effects go far beyond just IQ. Not only does lead promote apoptosis, or cell death, in the brain, but the element is also chemically similar to calcium. When it settles in cerebral tissue, it prevents calcium ions from doing their job, something that causes physical damage to the developing brain that persists into adulthood.

… One set of scans found that lead exposure is linked to production of the brain's white matter—primarily a substance called myelin, which forms an insulating sheath around the connections between neurons. Lead exposure degrades both the formation and structure of myelin, and when this happens, says Kim Dietrich, one of the leaders of the imaging studies, "neurons are not communicating effectively." Put simply, the network connections within the brain become both slower and less coordinated.

A second study found that high exposure to lead during childhood was linked to a permanent loss of gray matter in the prefrontal cortex—a part of the brain associated with aggression control as well as what psychologists call "executive functions": emotional regulation, impulse control, attention, verbal reasoning, and mental flexibility. One way to understand this, says Kim Cecil, another member of the Cincinnati team, is that lead affects precisely the areas of the brain "that make us most human."

… And one more thing: Although both sexes

are affected by lead, the neurological impact turns out to be greater among boys than girls.

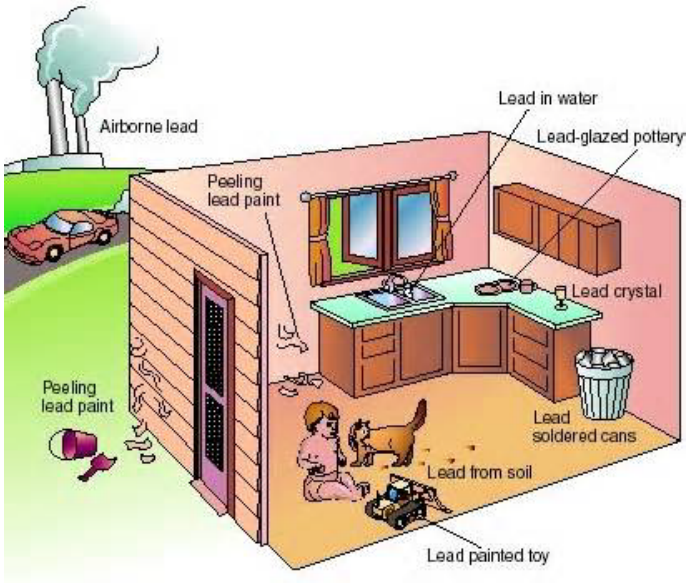
Other recent studies link even minuscule blood lead levels with attention deficit/hyperactivity disorder. Even at

concentrations well below those usually considered safe—levels still common today—lead increases the odds of kids developing ADHD.

In other words, as Reyes summarized the evidence in her paper, even moderately high levels of lead exposure are associated with aggressivity, impulsivity, ADHD, and lower IQ. And right there, you've practically defined the profile of a violent young offender.

… So is this all just an interesting history lesson? After all, leaded gasoline has been banned since 1996, so even if it had a major impact on violent crime during the 20th century, there's nothing more to be done on that front. Right?

Wrong. As it turns out, tetraethyl lead is like a zombie that refuses to die. Our cars may be lead-free today, but they spent more than 50 years spewing lead from their tailpipes, and all that lead had to go somewhere. And it did: It settled permanently into the soil that we walk on, grow our food in, and let our kids play around.



That's especially true in the inner cores of big cities, which had the highest density of automobile traffic. Mielke has been studying lead in soil for years, focusing most of his attention on his hometown of New Orleans, and he's measured 10 separate census tracts there with lead levels over 1,000 parts per million.

To get a sense of what this means, you have to look at how soil levels of lead typically correlate with blood levels, which are what really matter. Mielke has studied this in New Orleans, and it turns out that the numbers go up very fast even at low levels. Children who live in neighborhoods with a soil level of 100 ppm have average blood-lead concentrations of 3.8 µg/dL—a level that's only barely tolerable. At 500 ppm, blood levels go up to 5.9 µg/dL, and at 1,000 ppm they go up to 7.5 µg/dL. These levels are high enough to do serious damage.

Mielke's partner, Sammy Zahran, walked me through a lengthy—and hair-raising—presentation about the effect that all that old gasoline lead continues to have in New Orleans. The very first slide describes the basic problem: Lead in soil doesn't *stay* in the soil. Every summer, like clockwork, as the weather dries up, all that lead gets kicked back into the atmosphere in a process called resuspension. The zombie lead is back to haunt us.

Mark Laidlaw, a doctoral student who has worked with Mielke, explains how this works: People and pets track lead dust from soil into houses, where it's ingested by small children via hand-to-mouth contact. Ditto for lead dust generated by old paint inside houses. This dust cocktail is where most lead exposure today comes from.

Paint hasn't played a big role in our story so far, but that's only because it didn't play a big role in the rise of crime in the postwar era and its subsequent fall. Unlike gasoline lead, lead paint was a fairly uniform problem during this period, producing higher overall lead levels, especially in inner cities, but not changing radically over time. …

And just like gasoline lead, a lot of that lead in old housing is still around. Lead paint chips flaking off of walls are one obvious source of lead exposure, but an even bigger one, says Rick

Nevin, are old windows. Their friction surfaces generate lots of dust as they're opened and closed. …

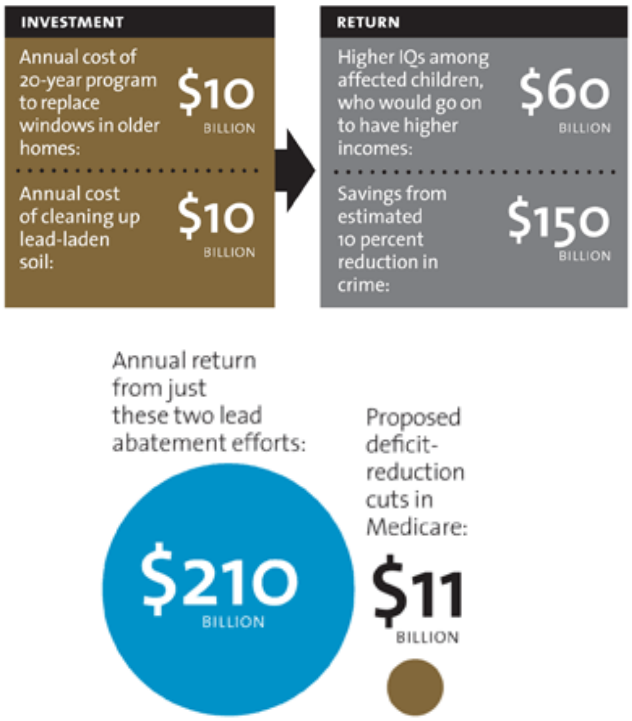
We know that the cost of all this lead is staggering, not just in lower IQs, delayed development, and other health problems, but in increased rates of violent crime as well. So why has it been so hard to get it taken seriously?

… Although it's true that lead poisoning affects low-income neighborhoods disproportionately, it affects plenty of middle-class and rich neighborhoods as well. "It's not just a poor-inner-city-kid problem anymore," Nevin says. "I know people who have moved into gentrified neighborhoods and immediately renovate everything. And they create huge hazards for their kids."

Tamara Rubin, who lives in a middle-class neighborhood in Portland, Oregon, learned this the hard way when two of her children developed lead poisoning after some routine home improvement in 2005. A few years later, Rubin started the Lead Safe America Foundation, which advocates for lead abatement and lead testing. Her message: If you live in an old neighborhood or an old house, get tested. And if you renovate, do it safely.

Another reason that lead doesn't get the attention it deserves is that too many people think the problem was solved years ago. They don't realize how much lead is still hanging around, and they don't understand just how much it costs us.

… A rough extrapolation from Mielke's estimate to clean up New Orleans suggests that a nationwide program might cost … about $20 billion per year for two decades. But the benefits would be huge. Let's just take a look at the two biggest ones. By Mielke and Zahran's estimates, if we adopted the soil standard of a country like Norway (roughly 100 ppm or less), it would bring about $30 billion in annual returns from the cognitive benefits alone (higher IQs, and the resulting higher lifetime earnings). Cleaning up old windows might double this. And violent crime reduction would be an even bigger benefit. Estimates here are even more difficult, but Mark Kleiman suggests that a 10 percent drop in crime—a goal that seems reasonable if we get serious about cleaning up the last of our lead problem—could produce benefits as high as $150 billion per year.



Put this all together and the benefits of lead cleanup could be in the neighborhood of $200 billion per year. In other words, an annual investment of $20 billion for 20 years could produce returns of 10-to-1 *every single year* for decades to come. Those are returns that Wall Street hedge funds can only dream of.

… So this is the choice before us: We can either attack crime at its root by getting rid of the remaining lead in our environment, or we can continue our current policy of waiting 20 years and then locking up all the lead-poisoned kids who have turned into criminals. … If you gave me the choice, right now, of spending $20 billion less on prisons and cops and spending $20 billion more on getting rid of lead, I'd take the deal in a heartbeat. Not only would solving our lead problem do more than any prison to

reduce our crime problem, it would produce smarter, better-adjusted kids in the bargain. There's nothing partisan about this, nothing that should appeal more to one group than another. It's just common sense. Cleaning up the rest of the lead that remains in our environment could turn out to be the cheapest, most effective crime prevention tool we have. And we could start doing it tomorrow.

Support for this story was provided by a grant from the Puffin Foundation Investigative Journalism Project.

http://www.motherjones.com/environment/2013/01/lead-crime-link-gasoline

About the filmmaker

Tamara Rubin is an internationally recognized lead-poisoning prevention advocate and documentary filmmaker. She is committed to educating every parent about a wholly preventable environmental illness that causes permanent brain damage in young children: childhood lead-poisoning. She took on the cause when her own sons were poisoned by the work of a painting contractor in 2005.

Since then Tamara has created a strong web and media presence for the cause of lead-poisoning prevention in an effort to bring a message to the world: Lead poisoning was not "solved" with the 1978 ban on lead in residential paint. Through her advocacy work, Tamara has personally helped thousands of families create safer homes and environments for their children.

Tamara was honored by a consortium of federal agencies, including the EPA, CDC, USDA, and HUD and USDoE, with the first-ever National Healthy Homes Hero award. She was named *Healthy Child Healthy World*'s Mom on a Mission in 2011. And she was Lifetime Television's "Woman of the Month" for January 2012.

http://misleadmovie.com/crew/director/

Tamara Rubin, founder of Lead Safe America, talks about raising healthy kids

Tamara Rubin has been a childhood lead poisoning prevention advocate since her children were poisoned by the work of a painting contractor in 2005.

Jenn Savidge, Mother Nature Network
Thu, Jan 10, 2013

In 2005, two of Tamara Rubin's four sons suffered from lead poisoning because of the work of a painting contractor the family had hired to renovate their home. From the moment of their diagnoses, Tamara became a lead poisoning prevention and awareness advocate, dedicating her life to help her boys and to keep other children from facing the same diagnosis. Tamara is the founder of Lead Safe America, an organization that provides emergency intervention and support to families all over the country whose children have been poisoned by lead in their homes. …

For the past year, this mom of four has been tirelessly working on a feature length documentary, *MisLEAD: America's Secret Epidemic*, about the hidden epidemic of childhood lead poisoning in America today. …

Mother Nature Network: How did you connect the dots between the remodeling work done at your home and your boys' lead poisoning?

Tamara Rubin: At first, I just didn't—nobody did! The painting work started (they started prepping the surface of the exterior of my house by removing the old lead paint), and the kids started vomiting within a day. They had headaches. A.J. (who was just 3 at the time)

started pressing his fingers on his forehead to deal with the pain. Avi (our 7-month-old who had been such a peaceful baby that we had dubbed him our "Buddha Baby") started acting cranky—not himself at all. He just started tasting solid foods, but suddenly completely refused and wanted to nurse constantly. There were several incidents where the kids were constipated and then woke up in the morning in a pool of feces from extreme diarrhea. Their gastrointestinal tracts were not working, but I did not understand why. I called the advice nurse, practically daily for what seemed like forever—but it was a matter of weeks—and every day got the same answer: "Don't worry, as long as they don't have a fever, I'm sure it is nothing; just keep them hydrated." Finally the headaches got worse for A.J., and he was covered in feces just one-too-many times, and I called the doctor and said "Test my kids for EVERYTHING." They did that and they were found to be in "perfect health." None of the tests came up positive—except for one … they had lead poisoning.

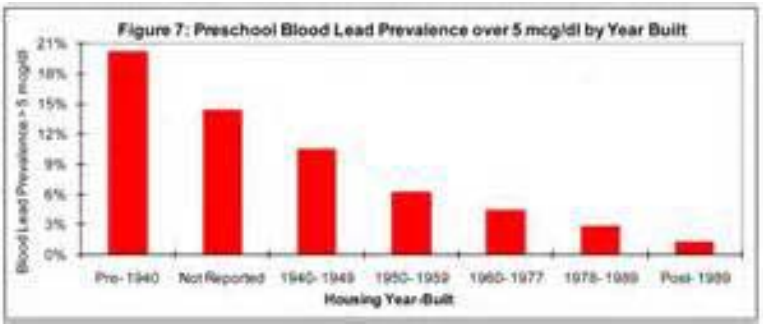
What made you decide to create a movie as the platform for your message?

My sons were poisoned in 2005, and my crusade started pretty much right away—talking to other parents, talking to school administrators, noticing and reporting peeling lead paint in cafés, restaurants, schools, parks, museums, and other public spaces … but I kept encountering the same thing: utter resistance. I served on committees and panels and testified before the Oregon state Senate and Oregon legislature to help get the new legislation passed. I told my story on the *Today* show, in *USA Today*, on every other network … when the new legislation was enacted—in an effort to help promote the importance of lead-safe work practices in renovations. I even wrote a law for the state of Oregon that, had it passed as I had written it, would have protected kids from being poisoned by existing lead hazards in schools. [It did pass, but along the way was reduced to little more than a political gesture, a mandate to create an informational website.]

What I learned was that no one seemed to care and that—even on the state level—the legislative process is just plain broken. …

Many environmental causes have had movies made about them … but in the century we have known about lead poisoning there has never (yet) been a documentary feature film about lead and the impact on our children and our society. It occurred to me that this might just be the way to reach the American public, tug at their heart strings by sharing the stories of other mothers (mothers just like them) whose children have been poisoned, present all the scientific and historical evidence right from the horse's (scientist's and historian's) mouth as it were—so the facts are in front of them; show them pervasive consequences all around them—(ADD, ADHD, Asperger's, and autism, learning disabilities, behavioral disorders, violent crime, etc.) and help them connect the dots that they have never considered connecting before (that living in an older house can cause lead poisoning no matter how much money you make and no matter what the color of your skin is) and that for this issue (like other issues), it is so important that we focus on learning the truth, not just the numbers and concepts certain industry-advised government officials have chosen for us to "know."

What do you see is the biggest challenge you face in your work?



Coaxing people from a position of "it's not my problem" to a place where they get "Oh My God—this has impacted my entire life and will impact the lives of millions of American children and adults for generations to come if we don't do something about it now!"

That, and funding.

In noting the government and industry corruption and censorship of the message of this issue (something that has gone on for nearly a century), we made a commitment in forming my nonprofit foundation to not accept any government money. The film is an outreach and education project of the Lead Safe America Foundation. …

What changes do you think are necessary to prevent childhood lead poisoning in America?

There is one and only one thing that can generate the change we need on this issue: awareness. People need to "get" this issue in a way that it will not be forgotten from generation to generation. It needs to become part of the fabric of the knowledge of our society, just like virtually every American now knows that smoking is bad for you and causes cancer, every American needs to understand that lead (in any form) is poisonous and that it does not take "eating paint chips" to poison a child (that a microscopic amount of lead dust—caused by opening and closing an old window—is enough to poison a child).

What big goals are you working on this year?

That's a big question … Primarily my goal is to get a distributor for the film so that it can have the maximum impact and reach the most possible families, whatever that takes. I would like to see it in movie theaters, as having a film in theaters gives it more credibility (I think) in the eyes of the general public—that makes it a "real" film.

http://www.mnn.com/family/protection-safety/blogs/tamara-rubin-founder-of-lead-safe-america-talks-about-raising-healthy#

Resources

Click on titles to reach links.

Lead | U.S. Centers for Disease Control

Lead | U.S. Environmental Protection Agency

Lead Exposure in Children: Prevention, Detection, and Management | Pediatrics

Lead Free Kids.org

Lead Poisoning | Kids Health.org

Lead Poisoning | MayoClinic.com

Lead Poisoning | MedlinePlus Medical Encyclopedia

Lead Poisoning and Kids | WebMD.com

Lead Poisoning and the Middle Class: The Silent Epidemic that Doesn't Discriminate | Huffington Post

Lead Poisoning Guide: Causes, Symptoms and Treatment Options | Drugs.com

Lead Poisoning in Children

Lead Poisoning in Children | FamilyDoctor.org

Lead Poisoning: Causes, Symptoms & Diagnosis | Healthline.com

Lead Poisoning: Symptoms, Causes, Treatments | Better Medicine

Lead Safe America Campaigns to Protect Kids From Lead | Healthy Child Healthy World

Lead Safe America Foundation

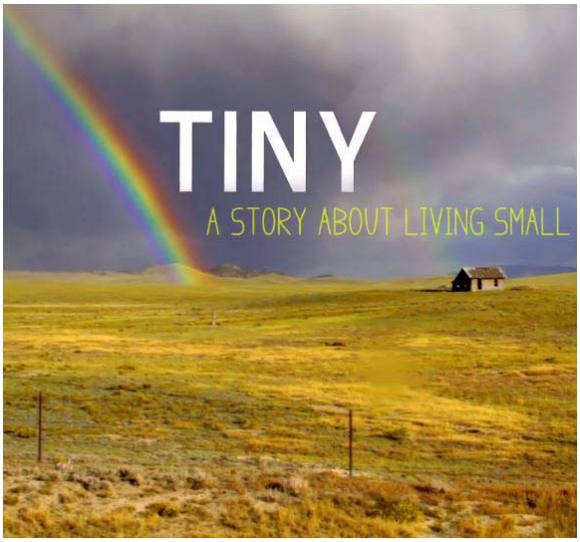
Lead: Case Management Document Chapter 3 | U.S. Centers for Disease Control

MisLEAD | Tamara Rubin.com

MisLEAD: America's Secret Epidemic | Facebook

Tamara Rubin | Facebook

TINY: a story about living small



Directors/Producers Christopher Smith, Merete Mueller
Screenwriter Merete Mueller
Cinematographer/Editor Christopher Smith
Cast Christopher Smith, Merete Mueller, Daryl Gibson, Paul H. Smith, William J. Smith, Cindy Waite

http://www.imdb.com/title/tt2450264/fullcredits?ref_=tt_ov_st_sm

About the film

What is home? And how do we find it? TINY follows one couple's attempt to build a Tiny House from scratch with no building experience, and profiles other families who have downsized their lives into houses smaller than the average parking space. Through homes stripped down to their essentials, the film raises questions about sustainability, good design, and the changing American Dream.

http://www.imdb.com/title/tt2450264/plotsummary?ref_=tt_ov_pl

Building a 'tiny house': Get a glimpse inside a miniature retreat

by Leslie Hart, Nov. 22, 2013

Envision a house that can fit on the back of a flatbed trailer. Now envision the process of building that house from scratch without prior construction experience. Christopher Smith and Merete Mueller did just that, documenting it in the film *TINY: A Story About Living Small*. And they're not alone—as the "tiny house" movement gains momentum, companies offering prefabricated models have entered the landscape. Students and alumni from Northwestern University's McCormick School of Engineering and Applied Science collaborated to build a zero-net-energy model that was featured as part of a 2012 exhibit at Chicago's Museum of Science and Industry. There's even a tiny house hotel. There are varying definitions of what constitutes a tiny house in terms of square footage, but the overall ethos involves an effort to live more simply. Many "tiny housers" aim to live sustainably as well.

Explore the construction process of Christopher and Merete's house in the photo gallery above, and learn more about the making of their documentary on their Facebook page.

http://america.aljazeera.com/watch/shows/consider-this/Consider-This-blog/2013/11/21/building-a-tiny-housegetaglimpseinsideonecouplesretreat.html

About the filmmakers

Christopher Smith: Director and Producer, Cinematographer

Originally from the Washington, DC, area, Christopher has lived in Colorado for 11 years. He studied Cinematography and Producing at the Sydney Film School in Australia, and has worked as a graphic designer and videographer in Colorado and Los Angeles. Feeling compelled to address some of the harder issues facing our world, Christopher uses his experience in media to call attention to issues of social justice and the environmental degradation of the American West. He holds a Master's degree in Public Administration, a BA in Philosophy, and a certificate in non-profit management. In 2009, he designed and led a month-long service learning trip for the University of Colorado, which explores the impact of oil and gas

development on the environment and communities of the Southwest.

Merete Mueller and Christopher Smith

http://tiny-themovie.com/about-the-film/

Merete Mueller: Producer and Director, Writer

Merete is a writer and multimedia project manager. With a special interest in issues of environmental sustainability and living "close to the bone," she's worked with environmental journalist Simran Sethi, as Managing Editor of elephant journal, and as a project manager at a slow food travel organization and a mobile app software company. "Home" for Merete is some combination of Boston, where she grew up, Maine, where she spent childhood summers, and Boulder, Colorado, where she currently lives.

http://tiny-themovie.com/about-the-film/

Five months on Facebook with the tiny house

June 30, 2011

In February, Christopher impulsively bought a 5-acre plot of land outside of Hartsel, Colorado. Thus, the Tiny House project was born. The house will eventually be parked here.

Step by Step: The Construction Process (80 photos)

Beginning May 2011, through the end of April of 2012! (P.S. If you like this album, you might also like our Tiny House ebook: http://tiny-themovie.com/ebook/)

July 1, 2011

We're excited to begin working with Kevin Hoth, of HOTH PHOTOGRAPHY as our cinematographer. Check him out!

July 6, 2011

A short video excerpt from our interview with Jay Shafer of Tumbleweed Tiny House Company, on American house culture. Says Jay, "A home is really a self-portrait."

July 8, 2011

A blustery evening out at the building site, working to weather-proof the house before the next storm rolls in!

July 18, 2011

A video excerpt from our interview with Karen Chapple, small house owner and professor of urban planning at UC Berkeley, on tiny houses as a solution for urban affordable housing.

July 22, 2011

And the roof trim goes on! (photo by Kevin Hoth)

Frame and rough walls on trailer

July 23, 2011

Check out this short clip of Christopher installing the corrugated metal roof on the Tiny House.

https://www.facebook.com/photo.php?v=10150325473132812&set=vb.165589366840932&type=2&theater

August 6, 2011

As part of our building and filming process, we've been interviewing other Tiny House

owners around the country. Daniel Aragon's "Ico" is one of the most unique we've seen so far—a 110 square foot, 12-sided dome. Take a peek at our video tour of the house and our interview with Daniel, on elephantjournal.com

Macy Miller's tiny house

August 11, 2011

Throughout the making of our film, each time we explain to someone what a "tiny house" is, we struggle with the exact definition. Are tiny houses defined by square feet? Does it need to be a primary residence to qualify as full-fledged tiny home? This great blog by Tiny r(E)volution explores the question and offers a wide variety of examples.

August 14, 2011

Many thanks to Utne Reader Associate Editor Margaret Aldrich for featuring us in her "Sweet Pursuit" online column!

August 16, 2011

Merete snaps a photo of Christopher, who is filming Kevin, who is filming the tiny house. Whoa.

August 20, 2011

When we first started, the field behind our building site was full of stubby green plants...which eventually turned into wheat. Today, we arrived at the site to find a combine harvesting the field, a sign of how much time has passed. Next steps: house wrap, windows, and siding!

August 23, 2011

Beginning of August: the exterior is finally weather-proofed, roof complete and house wrap is on!

August 27, 2011

We found these used windows at ReSource, a reclaimed building materials warehouse in Boulder, a few months ago. This afternoon we're scrubbing them down and oiling them up, in preparation for installation at the tiny house tonight.

August 28, 2011

Christopher films a rainstorm through one of our newly installed windows. We're excited to put the rest of them in, but maybe we should do a little cleaning first...

September 1, 2011

Big thanks to Alex Pino of Tiny House Talk for his write-up of our film!

Unusual octagonal tiny house

September 5, 2011

We're always excited to find examples of small living in urban settings. Our producer, Merete, recently took these photos of urban houseboats while visiting Amsterdam. Very different from our rural tiny cottage, but equally satisfying.

September 6, 2011

This tree house is just another example of how creative one can be when designing a small structure. Building small often opens up

aesthetic possibilities that the economy of scale of larger structures tend to close off. We found while making TINY that it is precisely this ability to instill their values into their home that draws many people to living small.

September 11, 2011

Work has moved, for the time being, from the exterior to the interior, starting with the electrical wiring. The house will soon be 100% solar powered.

September 14, 2011

This project is all about self-sufficiency. And part of becoming self-sufficient is learning from our mistakes.

Working on a lighting fixture

September 22, 2011

We chose Beetle Kill Pine for the exterior siding of the house because it's less expensive, it's local, it's sustainable, and it's beautiful—naturally tinted a blue-ish gray.

September 27, 2011

Siding is almost up, beetle kill pine soon to be stained a transparent blue-gray, to offset the red trim. Read more about the beetle kill pine on our blog: http://tiny-themovie.com/blue-stain-siding-eco-alternative/

A great write-up on the film from Shareable. It's been inspiring to see how many people agree that a bigger house doesn't equal a better quality home.

September 28. 2011

Our producer, Merete, has been a longtime fan of the University of Alabama's Rural Studio program, which combines sleek, innovative architecture & design with low-cost solutions for people who need homes. They're doing great work, and we're excited for this documentary film about their founder. Check it out: CITIZEN ARCHITECT FILM

Sheathing on exterior of tiny house

October 5, 2011

A scene from our visit to the land this weekend, just outside of Hartsel, Colorado. Cows, rainbow, and an abandoned tiny house. What more could you ask for?

October 7, 2011

We've been combing through some great tiny house blogs lately, looking for interesting people and designs to feature in our film. This video by TheTinyLife.com provides a wonderful synopsis of the Tiny House movement, along with some stunning photos. Great work!

Staining the siding

October 10, 2011

End of September: The exterior is sealed, stained, and finally finished! (Except for the porch...)

Insulating with blown soy material

October 11, 2011

October: Meanwhile, inside the house, work on the electrical wiring begins.

October 14, 2011

Our friend Robbie came out to the building site yesterday, to use some of our scrap wood to build a bike trailer. He's going to use it to deliver chocolate for his hand-crafted choco company, Ritual Chocolate.

And yes, those are chickens in the background.—with Robbie Stout.

October 15, 2011

This weekend's project = the porch.

October 17, 2011

The tiny house is being featured as a "field trip" destination during the upcoming Colorado Bioneers conference. If you're in Boulder, come join the tour on October 28 from 1-2pm, and see for yourself what we've been up to! More details: http://is.gd/GgJGDE

October 21, 2011

Beginning of October: The porch! This photo was taken after our first full weekend of working on it—it's nearly there, except for the floorboards and built-in bench. You can read more about the step-by-step genesis of the porch on our blog: http://tiny-themovie.com/porch-born/

October 22, 2011

We love this low-cost, pre-fab tiny home design, made from mostly recycled materials and designed as a solution for poor families in Mexico. (For more on tiny houses as an option for low-income housing, check out our interview with UC Berkeley professor Karen Chapple: http://is.gd/YamhqH)

October 25, 2011

New on our blog, a step-by-step account, plus photos of the finished porch!

Tiny house interior

Thanks to Derek "Deek" Diedreksen for mentioning the film and including our video of Daniel Aragon's 12-sided tiny house in Telluride, Colorado in a recent blog post. We're excited to meet Deek in Massachusetts next week and film his own tiny structures!

October 26, 2011

First snowstorm of the year here in Colorado.

October 27, 2011

The little guy seems to be handling the snow quite well. No leaks so far and the snow slides right off the warming metal roof. The interior insulation is scheduled to be blown in today—it'll be cozy in there in no time!

Many of you may have already seen this video, but we're re-posting it today to say Happy

Birthday to Daniel Aragon, the tiny house designer featured in the video. Stay tuned for more tiny house tours in the near future—we'll be traveling to Boston next week to film some new ones.

October 28, 2011

End of October: No, that's not the set of E.T. It's the tiny house, being sprayed with soy-based closed cell foam insulation!

Tiny house kitchen

October 30, 2011

We hosted a fun group from the Colorado Bioneers Conference on Friday, bursting with questions and curiosity about tiny houses. I think we stuffed a total of 20 people into the house at once—thanks to each of them for coming out, and we hope to host some more local events soon.

November 1, 2011

After our presentation this morning, tiny houses are all the rage in classroom 1H at Pierce Elementary School. Our favorite six-year-old reason for building a tiny house? "If I had huge muscles, I could pull it behind me wherever I wanted to go!"

November 3, 2011

Big thanks to Derek "Deek" Diedriksen, DIY creative genius and the man behind http://www.relaxshacks.com/, for showing us his micro-structures and introducing us to his brother's small home in Scituate, MA

Read more about Deek and watch our video profile of him on the blog: http://tiny-themovie.com/interview-derek-deek-diedreksen-micro-architecture-blogger-tiny-houses/

November 7, 2011

It's an exciting day: we're officially launching the Kickstarter campaign for TINY! The funds that we raise will go towards post-production of the film, and we're offering a bunch of fun Thank You rewards—including an invite to the online film premier, and a weekend in the completed tiny house. Our goal is to raise $1600 by the end of this first week.

November 9, 2011

One of the great things about building small, from scratch, is that waste is kept to a minimum. Still, our scrap wood pile is growing. There's got to an idea for an art project in there somewhere...

November 10, 2011

We're $52 away from reaching our first $1000. Who wants to be the one to knock into quadruple-digits?

November 11, 2011

A nice 'lil blog from Tiny House Talk about our Kickstarter campaign. Thank you everyone for your support so far—we're 15% of the way there!

Merete in the tiny house

Just had a fun interview/conversation via Skype with Tiny r(E)volution and got to see a glimpse of their small home and surrounding land. We love how dedicated and earnest they are about living small while their family expands. And their blog is full of some great how-tos.

November 14, 2011

Beginning of November: Christopher laid the floorboards for the sleeping loft, using some of the left-over beetle kill pine from the exterior of the house. Doesn't it look cozy?

One week into our Kickstarter campaign, we're 27% funded! Check out this article via elephantjournal.com on the project, and the story about how it all began.

Interior of Macy Miller's tiny house

Join us tomorrow with the The Chicken Whisperer (yes, that's right) on BlogTalkRadio as we're interviewed by Tiny r(E)volution's Andrew Odom about our documentary project. We hope he throws us a few curve balls!

TINY featured on the Sundance Channel blog as "Best of Kickstarter" this week!

November 16, 2011

It's always exciting when a new Kickstarter backer steps up! Our most recent backers, the folks at @Open Range Construction, have chosen a weekend in the tiny house as their reward. Close to hiking, rafting and skiing, it'll be a fun way to both get a vacation and test out tiny house living.

November 17, 2011

We're beginning to consider sustainable (and affordable) flooring options for the house, and this post from The Improvised Life caught our attention. Turning shipping pallets into floorboards? Hmm....

November 19, 2011

Big thanks to EcoSalon for featuring "TINY" this week! Our Kickstarter campaign is now 45% of the way funded, and climbing...

November 21, 2011

In Portland, Oregon this week filming a series of tiny house interviews. Today, we're visiting Tammy Strobel and Logan Smith of rowdykittens.com in their 128-square foot house built by Portland Alternative Dwellings.

November 22, 2011

Our latest tiny house video profile/interview is now live, featuring Derek "Deek" Diedricksen, tiny house blogger, author and micro-architect. Check it out over at elephantjournal.com!

November 24, 2011

A Kickstarter update in which Merete, high on holiday cheer and gratitude, gives a Thanksgiving speech. We are so very thankful to everyone who has supported our project and shown excitement or enthusiasm. Happy Thanksgiving everyone!

November 28, 2011

We spent the day with Dee Williams in Olympia, Washington yesterday. Dee has been living in her 84-square foot little house for 7 years and blew us away with her story about finding community and prioritizing the relationships that make her life feel full. She's a powerful woman and we can't wait to share the interview footage with you all!

November 29, 2011

We met Deek Diedricksen, the man behind www.relaxshacks.com and author/illustrator/cartoonist of the book "Humble Homes, Simple Shacks" in Massachusetts last month. Deek has generously offered to make 3 limited edition tiny house sketches for backers to our Kickstarter project, at the $125 level. Find more info about backing here: http://kck.st/uwAqcM and watch our video profile of Deek below: http://vimeo.com/32433801

Tammy of www.rowdykittens.com suggested that we watch this TEDx talk by Dee Williams, to prepare for our interview with Dee last weekend. We did—and we still can't stop thinking about it. Dee dives right into the heart of the tiny house movement, and the questions behind downsizing and building a home.

Filming the movie

November 30, 2011

A nice blog by Mother Nature Network about our film and Kickstarter campaign. We're almost there—at 73% with 15 days left to go! Huge thanks to everyone who has backed us so far.

https://www.facebook.com/tinythemovie

Resources

Click on titles to reach links

Videos

California DIY: Shipping container tiny home | YouTube

Itty Bitty House, take a tour of this non-toxic tiny house on wheels | YouTube

A look inside the tiny house movement | YouTube

Micro-Tiny Homes as Freedom from Codes and Loans | YouTube

miniHome by Sustain - YouTube

miniHome Walk-Through with David Suzuki | YouTube

My Life in an Off-the-Grid Solar-Powered Pyramid | YouTube

Prefabricated Shipping Container Homes Amazing Report | YouTube

small house design | YouTube

Tiny house for under $5000 | YouTube

The Tiny House Movement: From Washington State to Washington, D.C. | YouTube

Twelve Cubed Micro Home | YouTube

Articles and blogs

484 Sq. Ft. Tiny Modern Studio House | Tiny House Talk.com

Austin Tiny House | YouTube

Blog | Tiny Home Builders.com

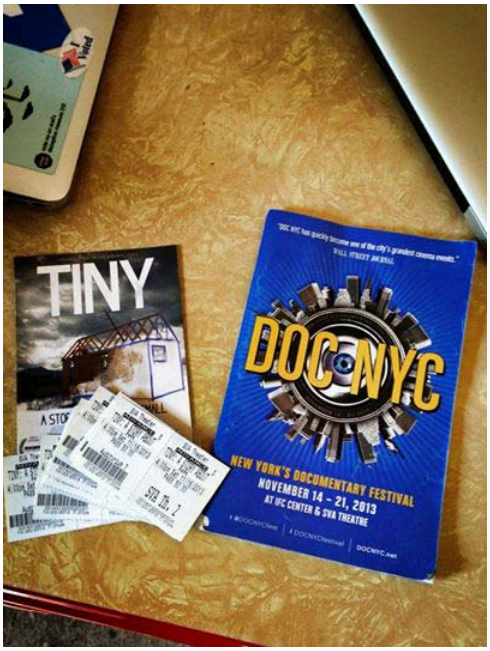
How This Man Built a $4k Gypsy Tiny Home on Wheels in 4 Months | Tiny House Talk.com

Living Without Sacrifice: Solutions to the Top 5 Tiny House Limitations | Tiny House Blog

Living Simply in Small Spaces | Tiny House Blog

Nate and Jen's House on Wheels: Living Simply and Free in a Tiny Home | Tiny House Talk

One Cool Habitat | About



Memorabilia from film showings

PDF Magazine | Tiny House Magazine

Really great idea for cutting the cost of a tiny house | Tiny Houses, Small Spaces

Ryan's Tiny House | The Tiny Life Colin's Coastal Cabin | Tiny House Blog.com

Small Home. Big Life.

Small House Swoon

Small Spaces More Freedom | Tiny House Talk.com

Timeline Photos | minimotives

Tiny House Directory by Kent Griswold

Tiny Houses, Small Spaces

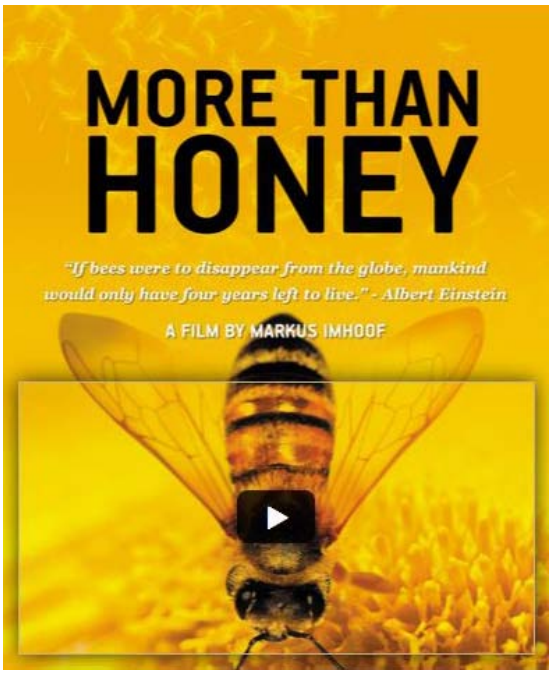
TinyHousers | minimotives

Two Shipping Containers Turned into a Small House | Tiny House Talk

What Is The Tiny House Movement? | The Tiny Life

Tiny house in Boulder

More Than Honey



About the film

Director Markus Imhoof
Screenwriters Markus Imhoof, Kerstin Hoppenhaus
Producers Markus Imhoof, Helmut Grasser, Thomas Kufus, Pierre-Alain Meier
Cinematographers Attila Boa, Jörg Jeshel
Editor Anne Fabini
Cast Fred Jaggi, Randolf Menzel, John Miller, Liane Singer, Heidrun Singer

Over the past 15 years, numerous colonies of bees have been decimated throughout the world, but the causes of this disaster remain unknown. Depending on the world region, 50% to 90% of all local bees have disappeared, and this epidemic is still spreading from beehive to beehive—all over the planet. Everywhere, the same scenario is repeated: Billions of bees leave their hives, never to return. No bodies are found in the immediate surroundings, and no visible predators can be located.

In the US, the latest estimates suggest that a total of 1.5 million (out of 2.4 million total beehives) have disappeared across 27 states. In Germany, according to the national beekeepers association, one fourth of all colonies have been destroyed, with losses reaching up to 80% on some farms. The same phenomenon has been observed in Switzerland, France, Italy, Portugal, Greece, Austria, Poland, and England.

Scientists have found a name for the phenomenon that matches its scale—"colony collapse disorder,"—and they have good reason to be worried: 80% of plant species require bees to be pollinated. Without bees, there is no pollination, and fruits and vegetables could disappear from the face of the Earth. Apis mellifera (the honey bee), which appeared on earth 60 million years before man, is as indispensable to the economy as it is to man's survival.

Should we blame pesticides or even medication used to combat them? Maybe look at parasites such as varroa mites? New viruses? Travelling stress? The multiplication of electromagnetic waves disturbing the magnetite nanoparticles found in the bees' abdomen? So far, it looks like a combination of all these agents has been responsible for the weakening of the bees' immune defenses.

Fifty years ago, Einstein had already insisted on the symbiotic relationship binding these pollen gatherers to mankind: "If bees were to disappear from the globe," he predicted, "mankind would only have four years left to live."

http://www.morethanhoneyfilm.com/about.html

Buzzkill: Can native bees do the job?

Posted by Marc R. aka Mental Masala

With the health of honey bee colonies in dramatic decline, can farmers rely on native bees to pollinate their crops?

On the right kind of farm—one with nearby natural habitat and organic management—the answer is yes, according to UC Berkeley professor Clare Kremen, an expert on native bees. Kremen shared this finding and other interesting facts

about bees in a talk at the Commonwealth Club in San Francisco a few weeks ago. …

Colony collapse disorder

In today's industrial agriculture system in the United States, the pollinators are primarily managed hives of honey bees (*Apis mellifera*). For example, according to a report from Cornell University, the U.S. almond crop is completely dependent on pollination by the honey bee; for avocados and carrots, honey bees provide about 90% of the pollination. Honey bees therefore provide tremendous economic value. …

For most of our agricultural history, humans have relied on native bees and unmanaged honey bees to pollinate our crops and ornamental plants. Trucking scores of bee hives across hundreds or thousands of miles as an on-demand pollination service is a recent development brought about by the ascendancy of industrial agriculture. Although this is the type of agriculture that most needs pollinators, it offers the worst habitat for them. Take almonds, an extreme example: they have a very short blossom period, and because of the similarity of the climate in almond-producing areas, most of the trees bloom at the same time. Thus, thousands of colonies converge on the central valley of California during the spring: in 2004, *60%* of the 2.5 million "for-hire" honey bee colonies in the U.S. were involved in pollination of California almond orchards, according to the Agricultural and Resource Economics Update.

Honey bees have been struggling in recent decades because of the varroa mite, diseases, and most recently the mysterious Colony Collapse Disorder. … There is much effort underway to find the cause of CCD, and at the same time, some experts like Kremen are looking at ways to find local help for honey bees by improving the conditions for native bees.

For 10 years, Kremen has studied wild bees. Some of her research has been in Yolo County, a rural county to the northeast of the S.F. Bay Area and home to some amazing farms that supply Bay Area markets and restaurants. Kremen and her collaborators are investigating the behavior of native bees along "gradients of agricultural intensification": one gradient starts with farms near natural habitat and ends in wall-to-wall agriculture. Another starts at organic and ends at industrial. Along this gradient, you have smaller farms with a polyculture, low use of pesticides, a tolerance of weeds (which often have flowers that provide food for pollinators) on one end, and monoculture, regular pesticide use, and a barren landscape on the other. …

On farms near natural areas, they found 30 species of native bees active in the fields and orchards; in wall-to-wall agricultural areas, just a few. They also discovered that the most efficient native pollinators live closest to the natural areas. In sum:

80% of organic farms near natural habitat received enough pollination from wild bees

50% of conventional farms near natural habitat received enough pollination from wild bees

0% of conventional farms in exclusively agricultural areas received pollination from wild bees

Little pollination (she didn't give a number) was provided by native bees on organic farms located in exclusively agricultural areas

Near the end of her talk Kremen asked, "Can wild bees pollinate modern agriculture?" Her answer was no. Modern agriculture provides too few nesting sites, too little floral resources, and too many flowers to pollinate at once.

But that doesn't mean that farmers should give up on native bees. They can create suitable habitat and nesting sites by allowing weeds and cover crops to flower, by growing a variety of crops, planting strips of flowering vegetation between fields, restoring patches of native habitat around the farm, and through creating nest sites (leaving soil undisturbed, keeping dead trees in place, and installing nest blocks). …

Kremen has been working with the Xerxes Society and several other organizations to test some of these ideas on real farms in Yolo County. The group started a project in a wall-to-wall agricultural area that involves planting hedgerows of native flowering plants and installing nesting boxes for bees. …

She concluded the talk by saying that it will take many actions to help native bees provide more pollination services to our crops. We will need improved conservation programs in agricultural areas, restoration of degraded lands, and changes in farm management practices (like more polycultures and reduced pesticide use).

http://www.ethicurean.com/2009/02/09/buzzkill-can-native-bees-do-the-job/

Center for Integrative Bee Research

The Center for Integrative Bee Research (CIBER) is located on the Crawley campus at the University of Western Australia in Perth in Western Australia. CIBER conducts basic scientific research into honeybee reproduction, immunity, and ecology and aligns its work with the needs of industrial and governmental partners. CIBER is specifically dedicated to facilitate interdisciplinary research and offers opportunities for scientists to perform collaborative research on honeybees using methods and approaches from systems biology and evolutionary ecology. The ultimate goal is to better understand how individual molecules and their interplay are responsible for complex biological process such as sexual reproduction or immunity. Research conducted at CIBER is done in close collaboration with the local beekeeping industry, notably the Better Bees of Western Australia bee breeding program. The research group consists of 20-30 researchers from all different academic levels as well as representatives from the governmental and honeybee industry sector. The research group also runs an outreach program and was involved in the making of the theatrical movie *More Than Honey*.

CIBER
SAFEGUARDING HONEY BEES

Colony collapse disorder

Reports about dramatic declines in a number of global honeybee populations, especially in commercially managed stock, resulted in an inquiry of the Australian Parliament into the future of the Australian honey bee industry. A house standing committee on Primary Industries and Resources finally published a report on the 16th of June 2008 that summarized the situation of the honeybee industry in Australia. Among a large number of recommendations, the report identified an urgent need for more research to address existing and future problems of Australian honeybees, the bee industry and recommended a substantial increase in funding for honeybee research. The need for additional and coordinated research into honeybees stimulated a number of initiatives from Australian researchers and research institutions. However, it became clear that the geographical isolation of Western Australia and the ban to import bees or some bee products into the state requires the build-up of a specific research hub. CIBER was formally set up as the Collaborative Initiative for Bee Research at the University of Western Australia in 2008 and was renamed in 2011 to Centre for Integrative Bee Research. …

The interdisciplinary approach is one of the core characteristics of CIBER's activities, which run along two different gradients: First, CIBER connects several disciplines of research including the molecular and nano sciences, evolutionary biology, and sociobiology, as well as economics. Second, CIBER bridges fundamental and applied sciences by generating new knowledge in areas of practical interest for honeybee industry partners. CIBER uses a number of modern molecular technologies such as genomics and proteomics to identify molecules involved in physiological processes such as reproduction or immunity. Research conducted at CIBER pioneered a novel scientific field in research known as evolutionary proteomics. The central idea is to understand how evolutionary processes operate on the molecular level. Researchers at CIBER conducted the first large scale analyses of the proteins present in glandular secretions supporting honeybee sperm, such as seminal fluid and spermathecal fluid.

Healthy bees and honeycomb

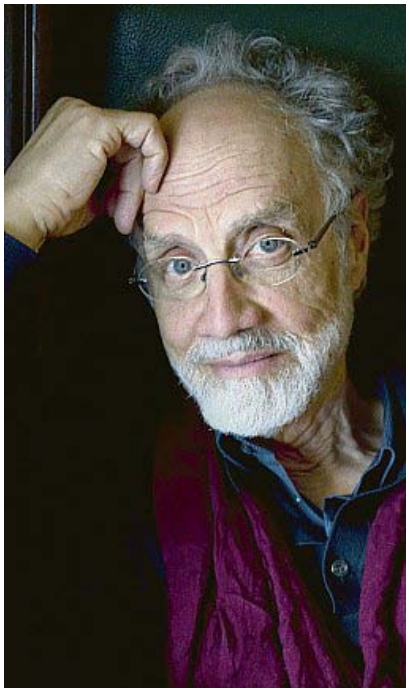
For experimental work, CIBER maintains and breeds its own bee stock of around 60 colonies, kept at an apiary on the campus of the University of Western Australia. During the winter months, most of the bee stock is moved north to overwintering grounds.

A number of research projects are done in collaboration with local beekeepers. … Each individual beekeeper owns and maintains some of the 24 bee lineages that are recognized as part of "The Western Australian Bee Breeding Program." The aim of the honey bee breeding program is to maintain a genetic pool of honey bee breeding stock for the WA apiary industry to use in maintaining a healthy population of managed honeybees. …

CIBER was involved in the making of the theatrical documentary *More Than Honey* by Swiss film maker Markus Imhoof, which was released into several European movie theatres in 2012. The group provided scientific advisory for the film, and some of the research conducted at CIBER is featured in the film.

http://en.wikipedia.org/wiki/Centre_for_Integrative_Bee_Research

About the filmmaker



Markus Imhoof was born on September 19th, 1941, in Winterthur, Switzerland. His father was professor of German and History at the Technical University Winterthur. His mother, born on a mission station in India, was an English teacher, and his sister Ursula, who is three years older than Imhoof, studied French and Italian. Imhoof studied History of the Arts and History at university in Zurich.

Imhoof has a background in both theater and film. He worked as the assistant for Leopold Lindtberg at the Zurich Playhouse. He started making films in 1961. His experiences with two Red Cross refugee children from Austria and Italy, who temporarily lived in his parents' house, later inspired the 1981 film *The Boat is Full*.

Imhoof has created shorts, documentaries, and dramatic films. *More Than Honey* is his 20th film.

"My intention with *More Than Honey* was to allow the spectator to understand the drama at play and highlight the pressures of the global economy on these small insects. Their immense, hairy eyes, as well as their unique carapace, make them look like fascinating creatures that have come from another planet—on the big screen, they appear as large as (and often larger than) men.

"In the struggle between bees and the neo-liberal market economy, bee brokers push beekeepers, who respond by pushing bees, to further increase their performance. Bees have become chain workers, a machine expected to function upon the simple push of a button. In that sense, (and assuming the risk of sounding presumptuous), I could almost say that *More Than Honey* is a bit like Chaplin's *Modern Times*—as told by bees."

http://www.morethanhoneyfilm.com/director.html

http://www.markus-imhoof.ch/english/indexengl.html

http://www.markus-imhoof.ch/english/indexengl.html

Macro filming

Translated from an interview with Markus Imhoof, published in the film's German press release.

Macro filming proved to be a real challenge. We formed a special team, first turning an abandoned factory in Austria into a purpose-built studio, where we were able to work with 15 bee colonies. As a result we produced 105 hours of macro footage in 35 days.

Important experts were of course, Attila Boa the cameraman, but also a "bee-whisperer."

Because you can't really direct bees, tell them, what to do, we filmed in April and May (European spring) where most important things take place in the life of the bees, anyway. We had a long list of scenes we wanted to show in the film like "handing over nectar in the hive,"

"storing pollen," "building wax," or the "birth of a queen."

The "bee-whisperer" checked in which colonies such an event might happen. At the same time we prepared things in the studio: a well-lit empty honeycomb around which we could place the appropriate camera and all the other necessary technical appliances. Then, he brought in the comb with the bees and we could only sit and hope that things he had observed in the hive would happen again in front of the camera. …. Finding the right bee with the tiny focus of an endoscope or macro lens already takes a lot of time. Sometimes totally different things happened than what we had expected and we had to change everything around in a hurry. Rarely were we able to help trigger certain events.

The heat caused additional difficulties. High-speed needs much more light. The higher the speed at which you want to film the more light you need, and that was a challenge because we were working with wax and the bees should not suffer. Whenever possible we worked outdoors and used mirrors, because the sun shines lighter than headlamps.

We had to experiment a lot to find the right speed, until we found out that at 70 pictures per second the bees moved at about the same speed as human beings. The viewer should not get the impression of slow motion. It should seem natural to watch the bees. At 70 pictures per second you can see what they are doing. When they are filmed with 24 pictures per second everything is so fast, the scrambling of the little legs, the tongues, antennae, wings, that it is impossible to perceive the details.

We filmed flying bees with 300 pictures per second. The wing movement seemed most natural at this speed. The wings move at 280 beats per second. For men, 24 pictures per second give a smoothly moving picture. For the bees, however, a smoothly moving picture happens between 250 and 280 pictures per second, because each individual lens of their compound eyes perceives a different image, and the next one another one, and so on. I was told about the fact after our decision to film the flying bees at different speeds. Therefore, at 300 pictures per second the bees and humans see the wing movement as a flowing movement and not as a stroboscope effect anymore.

Looking at all this effort in hindsight, it is not surprising that we needed to spend April and May of a second year until we got all the necessary footage of the bees in their diversity.

http://www.ciber.science.uwa.edu.au/blog/?page_id=20

Resources

Click on titles to reach links.

Australian Agency Studies Bees Colony Collapse Disorder | National Public Radio

Bee | Wikipedia, the free encyclopedia

Bees and Agriculture | The Nature Conservancy

Colony Collapse Disorder | Huffington Post

Colony Collapse Disorder | U.S. Department of Agriculture

Colony Collapse Disorder | Wikipedia, the free encyclopedia

Colony Collapse Disorder News | Mother Nature Network

Colony Collapse Disorder: It Won't Be Solved with the Banning of a Single Pesticide | Huffington Post

The Economic Importance of Bumblebees | Bumblebee.org

Everyone talks about dead bees; here is a blog about their life! | More Than Honey Film.com

Fewer Bees in US a Threat to World's Almond Supply | Yahoo News

Honey Bees and Colony Collapse Disorder | U.S. Department of Agriculture

Investigating colony collapse disorder

Honeybee Colony Collapse Could Be Reversed by Science | The Guardian

How Important Is a Bee? | National Public Radio
Insect Pollinators Face Interlocking Threats | VOA News

The Importance of Bees to Agriculture | Beyond the Rows

The Importance of Bees to Our Food Supply | Eating Well

The Importance of Honeybees | Mother Nature Network

Insecticides Pose Threat to Honey Bees | Nature World News

Missing Bee: The Importance of Bees and Pollination | Organic Food for Everyone

Mites Might Be the Biggest Threat to Bee Health | Bee Health Decline IPD

Neonicotinoid Pesticides Not Just a Threat to Bees; Humans also at Risk | Natural News.com

New Virus Linked to Bee Colony Collapse Disorder | LATimes.com

Pesticides: Honeybee Colony Collapse Disorder | U.S. Environmental Protection Agency

Robotic Bees to Pollinate Monsanto Crops | disinformation

Study Finds Plant Virus Could Cause Honeybee Colony Collapse Disorder | TIME.com

Swiss Couple and Researchers Barbara Baer-Imhoof and Boris Baer Talk Bees | Perth Now

Threats to Beekeeping | CCBee Beekeeping Association

Vanishing Colonies: "Honey is a diamond you can eat" | Swiss Info.ch

Western Australia Bee Research Could Save the World | Sydney Morning Herald

The Ultimate Wish:

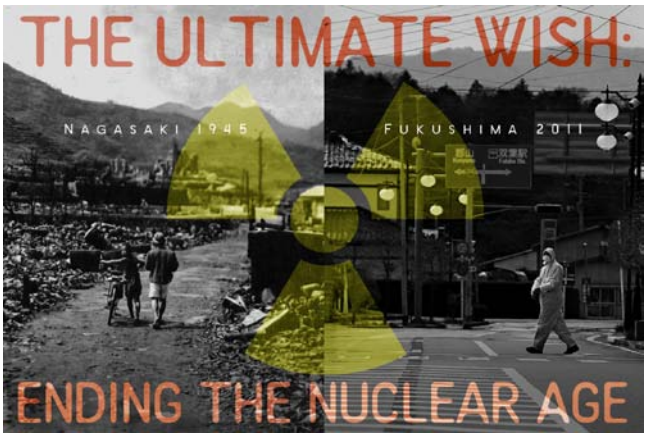
Ending the Nuclear Age

About the film

Director Robert Richter
Producers Robert Richter, Kathleen Sullivan
Cinematographers Alan Jacobsen, Rick Miranda, Jessie Epstein
Editors Ruth Schell, Michael Grenadier, Peter Kinoy

The ultimate wish for Sakue Shimohira, who was a child of 10 hiding in a Nagasaki shelter when the nuclear bomb dropped on August 9, 1945, is the abolition of all nuclear weapons. She survived the blast and has dedicated her life to making sure that what happened to her will never happen to anyone again.

Takako Shishido and her family were living in Fukushima when the triple disasters of an earthquake, tsunami, and meltdown of the Fukushima Daiichi Nuclear Power Plant devastated the area in March 2011. While many stayed in Fukushima—either with no place to go or because of assurances of safety from the Japanese government, Takako and her family left everything in Fukushima and moved to Sapporo.



Both of these women understand too well the dangers and destructive power of nuclear energy, whether in the form of a bomb or a power plant. The Ultimate Wish follows these women as they use the strength they've gained from survival and loss to speak out against nuclear energy, even in its seemingly benign form. A unique piece of history, The Ultimate Wish focuses on living witnesses to two of the world's most momentous events. At the same time it is an inspirational biography of courageous women, and an alert to everyone today about the dangers of continued nuclear proliferation in any form.

http://richtervideos.com/TheUltimateWish/

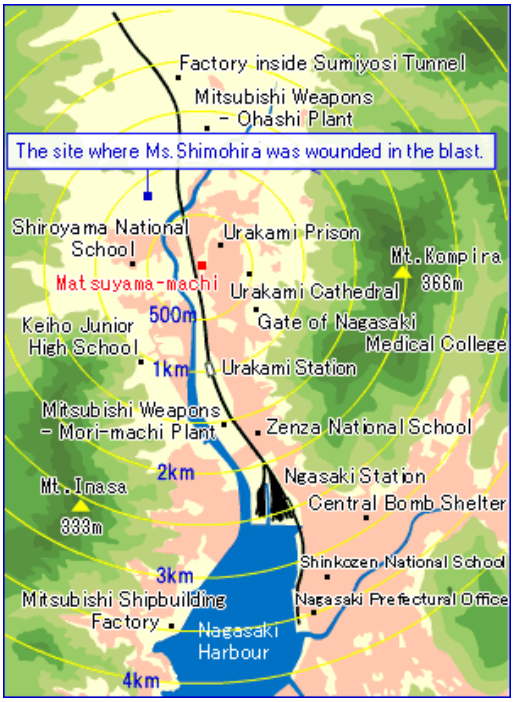
Sakue Shimohira

Many Americans say that many lives were saved by the dropping of the atomic bombs. This is wrong. You must understand that 300,000 lives were lost in Hiroshima and 75,000 in Nagasaki. People were killed, not saved. This is the truth.

… Japan was losing the war, and by that time, everyone had already left to go fight. My parents had been killed in Manchuria when I was a little girl, and I lived with my grandmother and grandfather, whom I called "Mom" and "Dad" (any reference to "mother" or "father" in this testimonial refers to Ms. Shimohira's biological grandparents). My older brother and my father had both been drafted. They had received the red letter in the mail, and knew that they had to go.

… Nagoya was bombed, Osaka was bombed. … As soon as a B-29 would fly overhead, the air raid siren would sound and we would have to run frantically for the air raid shelter. There, we had to cover our heads with a thick cotton blanket for protection from the bombing. With the atomic bomb, you have no way of escaping. With conventional bombs, you hear them get closer and closer, exploding all around you. Many people had lost their hearing due to the explosions of the conventional bombs. In order to protect ourselves, we had to cover our eyes with four fingers and stick our thumbs in our ears, so that our eyes did not fly out and we did not lose our hearing.

... There were three atomic bombs used in the war: the test bomb in New Mexico, the Hiroshima bomb, and the Nagasaki bomb. Possible targets for the bomb were Niigata, Kyoto, Kokura, and Hiroshima. In general, schools were more or less closed because of the war. In Hiroshima, the bomb fell after the air raid siren was lifted and the all clear was given. The uranium bomb from August 6, 1945, killed or severely injured 300,000 people who had done nothing bad.



We did not know about the new bomb until August 8, when my brother, who was in medical school, told us about it. He said that we should stay in the air raid shelter even if the all clear is given because in Hiroshima the new weapon had been used after the alarm was lifted.

On August 8, for the first time in a long time, the entire family was together. We began to eat dinner in the house. We even had rice that night! It was so rare back then, and even though I say “rice”, it was more like a bowl full of chopped daikon radish with a few grains of rice thrown in there. My little sister and I first picked out all of the radishes and then ate the remaining rice one grain at a time. As we ate, my brother told us about the Hiroshima bomb and insisted that we do not leave the air raid shelter even if the all clear sounded. That night, I slept in my house with my (grand)mother, holding her hand.

On August 9, early in the morning, there was an air raid siren. My younger sister and I ran to the shelter, while my older sister stayed at home, in case of fire.

We were in the shelter with other neighborhood children, 800 meters away from the hypocenter of the bomb. There were four entrance holes into the bomb shelter. There were many people inside. The area where we lived is the Catholic area of Nagasaki. As we were Christians, even we the children believed that the Americans would not bomb us—would not bomb our neighborhood. However, war does not make such distinctions.

The B-29 Bock’s Car came with the atomic bomb Fat Man from Tinian Island that morning. They first went to Kokura, their intended target, which is in Fukuoka Prefecture, but due to bad visibility, they had to go to Nagasaki. In Nagasaki, their intended target was near Spectacle Bridge. There also, the visibility was poor, so they headed north. The area that they headed to was the Catholic area, where I lived, and where believed that they would not drop such a horrible bomb. But war does not think about that.

The air raid warning was lifted, and we made to leave the bomb shelter, but my younger sister remembered what my brother had said: that even when the all clear sounds, we should not leave the air raid shelter. We went back inside the shelter with eight others.

At 11:02 a.m., we heard a bomber, and 500 meters overhead, the atomic bomb exploded. I was thrown against the stone wall in the simple shelter and knocked unconscious. When I regained consciousness, … I could not move. I did not know where my little sister was. I had to try and find her and save her. It turned out that she was in the other corner of the shelter. I had

to walk over and on the dead bodies in order to get to her, but when I stepped on some of them, it turned out that they were not dead. They cried out as I stepped on them, trying to get to my sister. I woke my sister up, made her regain consciousness. Together, we yelled for our mother.

It was a bright red circle of flame. A white cloud formed and kept expanding until it touched the ring and turned into a ball of fire. —Dr. Shuntaro Hida

... That night, our brother found us. Two or three days later, he got very sick. He began throwing up something yellow and his body grew colder and colder. "I want to die," he said, "I want to die." He died.

My sister and I hid behind a big rock until my uncle came and rescued us. Our uncle took us to the countryside and we were separated, so that we could survive. To take on one child into a family at that time was difficult, but it would not be possible to feed two, so we were separated among relatives in the countryside.

My hair began to fall out, my gums began to bleed. I had bloody stools, but we had no money for a doctor. Even so, we went to the doctor anyway. My sister came down with similar symptoms. At that time, people were saying that these were infectious diseases. Even though no doctor could diagnose any bacterial or viral infections, people still said that it was contagious. This was the beginning of the prejudice against the *hibakusha* [atomic bomb survivors].

One day, my sister and I came back to Nagasaki. … We built [a shack] out of the remains of the burnt wood. …

We were three children living on our own—me, my sister, and my nephew. There was no food. We would gather the remains of the food from the American base—the leftovers of half-eaten burgers, bitten-into bread, canned food—wash them off in the river, and eat them. We had survived the bomb, and now we were trying to live, but we could not live as humans.

At that time, many people took their own lives. Five or six years after the bomb, my sister also committed suicide by throwing herself in front of a train. She had had surgery on her stomach, but the wound did not heal well and began to rot. It was then infested with maggots and gave off a horrendous stench. She was bullied at school for it. She then began to say, "let us join Mother. Let us commit suicide and join Mother." I always said, "No, let us live. We survived. We should live." Then, one day, my sister did not come back home and I heard people talking about yet another suicide that had occurred at Ohashi. …

Fat Man's destruction

There is a courage to die, and a courage to live. I did not have the courage to die. My sister did. I was the only one left in my family after the bomb. I chose the courage to live.

If I died too, then there would be no one left to tend to the family grave. No one would

be able to offer flowers and water to those who died and were buried.

In my life, I have suffered from many diseases: thyroid cancer, ovarian cancer, appendicitis, operations on my backbone. We cannot let other *hibakusha* happen. Nagasaki must be the last atomic weapon ever used on people. We must oppose nuclear weapons.

… While we live, human beings and nuclear weapons cannot coexist.

http://nagasakiamericapeaceproject.blogspot.com/2010/07/testimony-of-ms-shimohira-sakue.html,
http://base.mng.nias.ac.jp/k1/simo.E.html

Sakue Shimohira

Almost 70 years after the Nagasaki bombing, Sakue Shimohira continues to speak out and inspire people everywhere. Her story of survival and its aftermath is the core of this powerfully moving documentary. The film follows her, in the company of students Fumi and Haruka, as she talks about her experiences to high school and college students in London, New York, and Nagasaki. Sakue responds to their questions and describes in graphic detail what happened on August 9, 1945 to her, her family, and her city: 75,000 were instantly killed, while another 75,000 experienced the consequences of radiation, fires, famine, disease, and discrimination. Although Sakue considers her sister's suicide 10 years after the end of World War II the "courage to die," Sakue found the "courage to live" and join in the global struggle for nuclear abolition.

http://www.newday.com/films/The_Ultimate_Wish.html

Takako Shishido

On June 21, 2013 in Sapporo, Hokkaido (northernmost island of Japan), 43 people who had evacuated from Fukushima area to Hokkaido filed a lawsuit against TEPCO and the Japanese government. Since spring 2011, about 4,000 people have moved to Hokkaido from Fukushima and the neighboring region, and about 3,000 are still living there today. The following is a translation of Takako Shishido's statement, as one of the four of the plaintiffs who spoke at the press conference.

My name is Takako Shishido. I have been living here in Hokkaido after evacuating my hometown of Date city in Fukushima prefecture. I joined this lawsuit because I have been receiving a many phone calls from others who have also evacuated. I am a representative of self-evacuees resident's association in Hokkaido. As I have been speaking with other evacuees, they still experience difficulty on daily basis, even after some of the evacuees have been able to somewhat settle down in the new environment. I have been receiving phone calls also from people who are still living in Fukushima. What they tell me is this; in Fukushima, the 'recovery' has been much emphasized and there is an atmosphere such as "Fukushima is ok" and "Fukushima returned to normal life". However, I hear tearful voices from all the phone calls I receive. The people there do not think that it is safe to live in Fukushima. They still buy bottled water. They still buy food from faraway places. But they cannot speak out the danger. They cannot say that they are scared. There are evacuees here in Sapporo and the people in Fukushima who cannot raise their own voice for many reasons. Their voices would not be heard unless we, those who can, speak out. If we left our stories unspoken, the media silence will become even more severe. We would like to maintain the ties between the public interests to us by raising our voices like this over and over again.

I hope bringing our voices onto a trial will force the law to investigate both Japanese

government and TEPCOs' responsibilities. For the kind of efforts will surely be necessary in possible accidents of the similar kind waiting to happen in the future. We as evacuees from Fukushima must do our best we can now so that any of our experiences will be looked at as a precedent for the next generations. I am not trying to represent other people's voices in my words, but I would like to take the role of spreading their words [of those] who are constantly living in this difficult evacuation struggle. Thank you.

http://www.jfissures.org/2013/07/03/voices-of-evacuees-joint-lawsuit-begins-in-hokkaido/

Voluntary Evacuation: A New Form of Struggle

A Conversation with Takako Shishido by Todos Somos Japon

June 23, 2012, NYC

Todos Somos Japon: Today in New York we are joined by Takako Shishido from Fukushima on her trip back from Rio de Janeiro. When the Fukushima Daiichi Nuclear Power Plant was struck by the earthquake and tsunami, followed by the series of explosions and meltdowns, Shishido-san was living in the city of Date, Fukushima Prefecture, 50km away from the plant. Last year she relocated to Sapporo City in Hokkaido with her two children and husband. As an evacuee herself, she volunteers as an organizer of the local evacuees' network.

Takako Shishido: Right now, very few or no visible effects have been detected in the bodies of those of us who live or have lived in radioactive area since last March. It is quite likely that we have already been affected, but it is hard to confirm. Under such circumstances, much fewer people are voluntarily evacuating than we feel necessary at the moment. We can't determine what will be sufficient, since nobody knows what is and will be happening to our bodies. When it becomes necessary, however, it will be very difficult for people to make an immediate decision to evacuate—especially if there is nowhere to go or no one to accept them. So it is surely important to have a system of support to accept those who want to evacuate at any instant in the future. If the state of the Fukushima Daiichi and radioactive contamination worsens, the entire Eastern Japan may face total devastation. Therefore one of the vital measures to be taken is for the State to acknowledge the right to evacuate for those who feel it necessary. It is important to create a consensus for this right so that we can say evacuation is not wrong. If many people offer their support for this, it would be so much easier for those who are living with unbearable anxiety to make their decision to get out. This is such a relief for many, and it will be much needed from now on. …

TSJ: Some point out grave risks involved even in living in the Tokyo area. It is a matter of historical magnitude that Tokyo, a world metropolis, might need to be evacuated. And to have people move out of Tokyo cannot be imagined within the scope of Japan alone; this could develop into a global refugee situation. So there is a possibility that we will need to create a support movement based on borderless networking.

TS: Yes, it would be too late to form a support system when people are already trying to evacuate and move out of their homes. People would feel more comfortable migrating if there were good support system and organizations already in place. We panicked when the

reactors exploded because there was no such evacuation system. In this on-going situation we can expect anything could happen. So any preparation will not hurt. Even if the efforts and practices may not see immediate results, they won't be wasted for they will be needed when similar things happen elsewhere in the future.

TSJ: When we initially got together to begin Todos Somos Japon as a global solidarity project, … we talked about the potentiality of these needs emerging. Our conversation didn't go into much detail at first, but we did think about such possibilities. … Any of these things we can't predict, but we need to slowly examine who is willing and able to work with us, as we go on. It may take several years, though.

Fallout from Fukushima

TS: … I have learned about some communities inviting those who have given up farming in contaminated areas, so that they can start farming again. But farmers cannot easily give up on their own land. They cannot simply move out of the land they have kept for generations, no matter how toxic it may be. … [S]ome long to go back to their land inside exclusion zones, and those who have not been restricted by the government's safety regulations are trying their best to continue producing and harvesting.

TSJ: Under such circumstance, people would definitely choose to remain in Fukushima while trying their best to avoid exposure to radiation. However, if the authorities give more strict figures to clarify possible health risks in areas wider than those currently under restriction, there will be more people who want to evacuate … I think the biggest crime is that the authorities never properly announced that this was no longer a place humans could live. …

TS: Well, the Japanese government's consensus has been that humans can live outside a 20 kilometer radius. … The state has finally acknowledged that some parts of the exclusion zone will forever be uninhabitable. But that zone is way too small in our opinion. In fact the red zone around Fukushima Daiichi is much smaller than the zone around Chernobyl set by the Ukrainian and Belarusian governments. People all over Japan, let alone those in Fukushima, still don't know how to accept this fact. …

TSJ: It seems to me, however, that mental or political pressure and regionalist imposition are more intense on those who leave the community than on those who stay.

TS: I think so. For example, the levels of pressure are very different between those imposed upon compulsory evacuees and voluntary (self) evacuees. For us self-evacuees, there are accusations such as "why can't you listen to what the state says?" The state tells us that everything is all right. … Feelings of jealousy are spreading rapidly and intensely in Fukushima today, especially towards the people from the exclusion zone who have received compensation from the government for their relocation. Some people claim: "Lucky you, getting the money," but there is nothing "lucky" about the lives of people who have been deprived of their land and subsistence, not knowing what to do. Sadly, such feelings are persistent among Fukushima residents. Lately it has been determined that certain compensation is to be offered both to some voluntary evacuees and some of those who remain in Fukushima. …

It is true that the stress from evacuation has negative effects on our bodies. I mean: although I'm totally against the idea held by the

group in support of radiation "safety" that "stress is worse than radiation," some aspect of it is true. There certainly are effects of radiation, but we won't see them immediately. It may take years until we see them in the concrete. And during these coming years, there will be innumerable people who are mentally drained. Here we see a tendency among us of having to choose one of two options: psychological damage or radiological effects. It is fundamentally wrong that people have to face such decisions. Therefore, the root of this forced decision and forced care has to be terminated; we must never let the condition that imposes the choice—nuclear power—persist. How can you not go crazy having to make such intense life-and-death decisions every single day? How can you be living and doubting if you can breathe the air around you? So many people, including myself, have had to adjust to breathing less, and didn't breathe deeply until we moved to Hokkaido.

Protest by the "self-evacuees": Takako Shishido, far right

TSJ: Also, thinking about why these people are forced to internalize such sufferings as if they were their own problems, I believe its root goes back to what TEPCO caused and the state's irresponsibility that scattered all these problems onto the people. We recently learned that Fukushima Nuclear Disaster Plaintiffs had gathered to bring criminal charges against government officials and TEPCO executives. I have been shaken up by their effort and determination. Shishido-san, how do you see the effort for the lawsuit?

TS: That is the group headed by the prominent antinuclear activist, Ruiko Muto [who has been involved in anti-nuclear activism since Chernobyl]. While I was helping them hand out fliers in Sapporo City, I learned that there had been so little judicial intervention and nothing would happen unless the people actively work on the lawsuit themselves. For example, there have been so many criminal investigations into various cases of business corruption, but nothing has been done against TEPCO. This is an abnormal state. We must motivate and move the judicial system, and in order to do so, bringing suit against the criminals ourselves is most effective. We need to pursue responsibilities of the government and TEPCO. And after all, we also need to hold ourselves accountable for our own indifference on nuclear energy that has lasted till now.

… This is just the beginning. I hope many more people will take into consideration how to connect different individuals and to connect with each other effectively. One person has two hands—each one of us could connect to two more people, and so on. I think this is how we can make our project bigger, gradually. I don't believe there will be a revolution—at least in the social climate in Japan today. But a slow transition, if not a rapid one, is definitely necessary, though I'm not sure if we can continue to catch up with the situation we are facing. … One of the things I heard many times is: "Are you going to save only yourself? What's the point? We are all irradiated anyway." I would say: What is wrong with saving myself? Only thereafter, we can say: "Let US save ourselves!" … But the social trend tends to oppose the idea quite strongly. So we need to change the trend to make people understand that they CAN protect themselves on their own.

TSJ: … [I]f there is anything positive coming out of this apocalyptic situation, it is that people are beginning to make decisions on their own.

TS: In the state where many of us were suddenly thrown to the other side of our thinkable reality zone, we found ourselves in

shock, incapable of acting. So how to stand up again from the state of shock is becoming very crucial. Thus we would like to see all of us making our life decisions by ourselves. What has happened to us can happen to everybody else—this isn't just a problem in Fukushima.

But in Japan now, I do see this issue treated as something of the past and something particular to Fukushima. So unless we change this mental climate, we can't make a movement big enough to change this situation.

Todos Somos Japon is an international coordination and solidarity project in the post-3/11 world (3/11/2011: the day of massive earthquake that triggered Fukushima).

https://www.facebook.com/TodosSomosJapon

http://www.jfissures.org/2013/01/14/voluntary-evacuation-a-new-form-of-struggle-a-conversation-with-takako-shishido-1/

About the filmmaker

Few documentary producers have received as many honors: the 2008 National Emmy for "exceptional merit in nonfiction filmmaking"; 2010 Motion Picture Academy "short list" for best doc shorts—one of ten Richter-related films honored by the Academy; three duPont Columbia Broadcast Journalism awards (TV's Pulitzer Prize); the Distinguished Science Reporting Award from AAAS (American Academy for Advancement of Science); Peabody Awards; many US and international film festival awards; and critical acclaim in the New York Times and other major papers.

Robert Richter directs, produces, writes, executive produces, and distributes documentaries on the human dimensions of the vital issues of our time, issues often ignored by mainstream media.

With passionate dedication he has dealt with tough controversies, risking his career and sometimes his life as his hard-hitting documentaries investigate governments, international agencies, and corporations.

His documentaries have been telecast in prime time on HBO, PBS, CBS, NBC, ABC, TBS, Discovery, BBC, and many other major overseas television outlets.

Colleges, high schools, community groups, libraries, churches, festivals, and theaters all over the U.S. screen his productions. He has been a guest speaker at over 50 different colleges and a jury member at US and international festivals.

http://richtervideos.com/about/

Resources

Click on titles to reach links.

Aquatic Fukushima Radiation Plume to Reach West Coast in 2014 | Nature World News

Atomic Bomb (fission device) | Encyclopedia Britannica

The Atomic Bomb 1945 | The World War II Multimedia Database

The Atomic Bombing of Hiroshima and Nagasaki | About.com

The Atomic Bombings of Hiroshima and Nagasaki | Trinity Atomic Website

Atomic bombings of Hiroshima and Nagasaki | Answers.com

Atomic bombings of Hiroshima and Nagasaki | Wikipedia, the free encyclopedia

The Bombing of Hiroshima and Nagasaki | History.com

The bombing of Nagasaki | History Learning Site.co.uk

Calls for seafood tests due to radiation leak in Japan | MSN.com

Energy imperatives, environmental awareness | Bulletin of the Atomic Scientists

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Fukushima cleanup could drag on for decades | CBS News

Fukushima Daiichi nuclear disaster | Wikipedia, the free encyclopedia

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Hibakusha *protest in New York City*

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Ms. Sakue Shimohira Nagasaki Atomic Bomb Museum

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Nuclear | Department of Energy

Nuclear Energy Clean Energy | U.S. Environmental Protection Agency

A Nuclear Free World | Let's Try Democracy

Nuclear power | Wikipedia, the free encyclopedia

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Plea of Atomic Bomb Survivor, Sakue Shimohira | Nagasaki Atomic Bomb Museum

A practical, regional approach to nuclear waste storage | Bulletin of the Atomic Scientists

The question you should have asked about Fukushima, but probably didn't. | Deep Sea News

Radiation Q & A | Global-Peace.go.jp

Suzuki's Fukushima updates | Bulletin of the Atomic Scientists

TEPCO to Pay Evacuees Additional 7 Million Yen for 'Loss of Hometowns' | Asahi Shimbun

Testimonies of Atomic Bomb Survivors | Global-Peace.go.jp

The Ultimate Wish (2012) | Covering Media

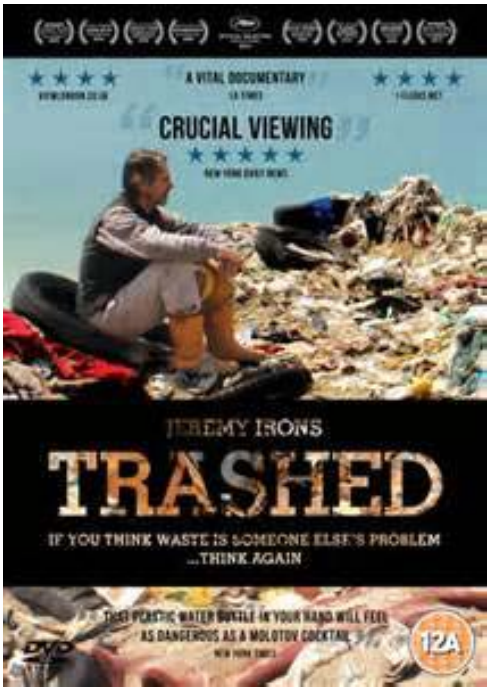
Voices of Evacuees: Joint Lawsuit Begins in Hokkaido | Fissures.org

Voluntary Evacuees from Fukushima Seek Compensation | Asahi Shimbun

West Coast of North America to Be Hit Hard by Fukushima Radiation | Washington's Blog

West Coast radiation from Fukushima disaster poses no risk, experts say | Los Angeles Times

Trashed



About the film

Director/Screenwriter Candida Brady
Producers Candida Brady, Titus Ogilvy
Cinematographers Sean Bobbitt BSC, Titus Ogilvy, Peter Ditch
Editors James Coward, Kate Coggins, Jamie Trevill
Cast Jeremy Irons

http://www.trashedfilm.com/film-makers/

British filmmaker Candida Brady's documentary *Trashed*, which was selected to receive a Special Screening at the Cannes Film Festival, follows Jeremy Irons as he sets out to discover the extent and effects of the global waste problem. Irons travels around the world to beautiful destinations tainted by pollution. This is a meticulous, brave investigative journey that takes Irons (and us) from skepticism to sorrow and from horror to hope.

The beauty of our planet from space forms a violent contrast to the scenes of human detritus across the globe. Vast landscapes in China are covered in tons of rubbish. The wide waters of the Ciliwung River in Indonesia are now barely visible under a never-ending tide of plastic. Children swim among leaking bags; mothers wash in the sewage-filled water supply. Each year we throw away 58 billion disposable cups, billions of plastic bags, 200 billion water bottles, and billions of tons of household waste, toxic waste, and e-waste.

We buy it, we bury it, we burn it, and then we ignore it. Does anyone think about what happens to all the trash we produce? We keep making things that do not break down. We have all heard these horrifying facts before, but with Jeremy Irons as our guide, we discover what happens to the billion or so tons of waste that goes unaccounted for each year.

Academy Award winning actor Jeremy Irons' is the guide in *Trashed*, highlighting solutions to the pressing environmental problems facing us all. "We've made this movie, because there are so many people who feel strongly the urgent need for the problem of 'waste' and 'sustainability' to be addressed," Irons says. "There is an equally urgent need for the most imaginative and productive solutions to this troublesome subject to be understood and shared by as many communities as possible throughout the world. This is where movies can play such an important role, educating society, bringing 'difficult' subjects to the broadest possible audience."

Having faced the worst through much of *Trashed*, Irons turns to hope. He goes in search of solutions. From individuals who have changed their lives and produce almost no waste, to increasing anti-waste legislation, to an entire city which is now virtually waste-free, he discovers that change is not only essential, but happening.

http://www.trashedfilm.com/about/

The Effects of Landfills on the Environment

Landfills are waste disposal sites. They are often man-made depressions in the ground, or

mounds above the ground, with a lining designed to prevent any leakage of waste materials … . However, landfills can leak through the base, or overflow, resulting in negative impacts on the surrounding environment.

According to the U.K. Environmental Agency, about two-thirds of landfill waste is biodegradable organic matter from households, business, and industry. As this material decomposes in landfill sites, it releases methane gas. Methane is a very potent greenhouse gas, up to 20 times more effective at trapping heat in the atmosphere than carbon dioxide, according to the U.S. Environmental Protection Agency. Therefore, methane emissions from landfill sites can potentially exacerbate global warming. However, … [if] this methane gas is used to produce electricity, [it produces] carbon dioxide as a by-product, which has a weaker global warming effect.

As rain falls on landfill sites, the organic and inorganic constituents are dissolved, forming a highly toxic leachate …. This leachate collects at the base of the landfill and usually contains high levels of toxic metals, ammonia, toxic organic compounds, and pathogens. Any leakage or escape of this leachate can result in serious contamination of the local groundwater. Furthermore, this mixture usually has a high biological oxygen demand, meaning it can quickly de-oxygenate water. Therefore, if it were to reach rivers or lakes, it would result in a loss of aquatic life.

… The spread of disease, as a result of the increase in vermin surrounding landfills, is also an issue, with other adverse health effects, such as birth defects, cancer, and respiratory illnesses also being linked with exposure to landfill sites.

http://www.ehow.com/info_8662463_effects-landfills-environment.html

Incinerator emissions

Incinerator emissions are a major source of fine particulates, of toxic metals and of more than 200 organic chemicals, including known carcinogens, mutagens, and hormone disrupters. Emissions also contain other unidentified compounds whose potential for harm is as yet unknown, as was once the case with dioxins. Since the nature of waste is continually changing, so is the chemical nature of the incinerator emissions and therefore the potential for adverse health effects.

Present safety measures are designed to avoid acute toxic effects in the immediate neighborhood, but they ignore the fact that many of the pollutants bioaccumulate, enter the food chain, and can cause chronic illnesses over time and over a much wider geographical area. No data is available to assess the effects of emissions on long-term health.

Incinerators produce bottom and fly ash, which … is light, readily windborne and mostly

of low particle size. It represents a considerable and poorly understood health hazard.

Two large cohort studies in America have shown that fine (PM2.5) particulate air pollution causes increases in all-cause mortality, cardiovascular mortality and mortality from lung cancer, after adjustment for other factors. A more recent, well-designed study of morbidity and mortality in postmenopausal women has confirmed this, showing a 76% increase in cardiovascular and 83% increase in cerebrovascular mortality in women exposed to higher levels of fine particulates. These fine particulates are primarily produced by combustion processes and are emitted in large quantities by incinerators.

Toxic metals accumulate in the body and have been implicated in a range of emotional and behavioral problems in children including autism, dyslexia, attention deficit and hyperactivity disorder (ADHD), learning difficulties, and delinquency, and in problems in adults including violence, dementia, depression, and Parkinson's disease. Increased rates of autism and learning disabilities have been noted to occur around sites that release mercury into the environment. Toxic metals are universally present in incinerator emissions and present in high concentrations in the fly ash.

Monitoring of incinerators has been unsatisfactory in the lack of rigor, the infrequency of monitoring, the small number of compounds measured, the levels deemed acceptable, and the absence of biological monitoring. Approval of new installations has depended on modeling data, supposed to be scientific measures of safety, even though the method used has no more than a 30% accuracy of predicting pollutants' levels correctly and ignores the important problems of secondary particulates and chemical interactions.

It has been claimed that modern abatement procedures render the emissions from incinerators safe, but this is impossible to establish and would apply only to emissions generated under standard operating conditions. Of much more concern are non-standard operating conditions including start-up and shutdown when large volumes of pollutants are released within a short period of time. Two of the most hazardous emissions—fine particulates and heavy metals—are relatively resistant to removal.

www.ecomed.org.uk/content/IncineratorReport_v3.pdf

Persistent organic pollutants

Persistent Organic Pollutants (POPs) are chemical substances that persist in the environment, bioaccumulate through the food web, and pose a risk of causing adverse effects to human health and the environment. With the evidence of long-range transport of these substances to regions where they have never been used or produced and the consequent threats they pose to the environment of the whole globe, the international community has now, at several occasions called for urgent global actions to reduce and eliminate releases of these chemicals.

Many POPs become incorporated into food webs. They accumulate and persist in the fatty tissues of animals and humans because they are

soluble in fats and are not easily broken down in the body. Even low environmental levels of POPs can lead to high levels in the body tissues of animals and humans.

For many POPs, the levels in fat increase as one animal eats another, so that the highest levels are found in predator animals at the top of food webs. In the Arctic food chain this includes predators such as polar bears, seals, toothed whales, birds of prey, and humans. Marine mammals accumulate particularly high levels of POPs because of their large quantities of fatty blubber and, compared to other species, a reduced capacity to break down some POPs.

U.S. carpet bombing in Vietnam with Agent Orange

Agent Orange and other herbicides … contained dioxin, a highly toxic and persistent organic pollutant linked to cancers, diabetes, birth defects, and other disabilities. Dioxin is still found in high concentrations in toxic hot spots throughout southern Vietnam, and it continues to poison the food chain. Studies have linked dioxin to birth defects in the children and grandchildren of those exposed.

Dioxin hot spots … are potentially contaminating human populations living in close proximity to these locations. The most significant hot spots have been identified, but … others may also exist which have not yet been identified. … These hot spots have very high dioxin levels due to higher levels of Agent Orange use during the American War, and the fact that these were key military bases for implementing Operation Ranch Hand.

Hot spots that exist today include those areas where Agent Orange was spilled, applied by truck-mounted and back-pack sprayers, including intensive perimeter spraying of bases, and washed out of aircraft spray tanks, thereby adding high levels of dioxin to soils; levels that were significantly higher than that resulting from aerial spray applications.

http://www.chem.unep.ch/POPs/

http://www.greenpeace.org/international/en/campaigns/toxics/toxic-hotspots/what-are-persistent-organic-po/

http://www.popstoolkit.com/about/articles/aodioxinhotspotsvietnam.aspx

http://makeagentorangehistory.org/about-agent-orange/agent-orange-dioxin/

Great Pacific Garbage Patch

The Great Pacific garbage patch, also described as the Pacific trash vortex, is a gyre of marine debris particles in the central North Pacific Ocean …. The patch extends over an indeterminate area, with estimates ranging very widely depending on the degree of plastic concentration used to define the affected area.

The patch is characterized by exceptionally high concentrations of pelagic plastics, chemical sludge, and other debris that have been trapped by the currents of the North Pacific Gyre. Despite its size and density, the patch is not visible from satellite photography, nor even necessarily to a casual boater or diver in the area, since it consists primarily of a small increase in suspended, often-microscopic particles in the upper water column. Since plastics break down to even smaller polymers, concentrations of submerged particles are not visible from space, nor do they appear as a continuous debris field to human eyes. Instead, the patch is defined as an area in which the mass of plastic debris in the upper water column is significantly higher than average.

Some of these long-lasting plastics end up in the stomachs of marine birds and animals,

and their young. [Many marine] chicks die, and many of those deaths are due to being fed plastic from their parents. For example, 20 tons of plastic debris washes up on Midway every year with five tons of that debris being fed to Albatross chicks.

Besides the particles' danger to wildlife, on the microscopic level the floating debris can absorb organic pollutants from seawater, including PCBs, DDT, and PAHs. Aside from toxic effects, when ingested, some of these are mistaken by the endocrine system as estradiol, causing hormone disruption in the affected animal. These toxin-containing plastic pieces are also eaten by jellyfish, which are then eaten by larger fish.

Many of these fish are then consumed by humans, resulting in their ingestion of toxic chemicals. Marine plastics also facilitate the spread of invasive species that attach to floating plastic in one region and drift long distances to colonize other ecosystems.

On the macroscopic level, the physical size of the plastic kills birds and turtles as the animals' digestion cannot break down the plastic inside their stomachs. A second effect of the macroscopic plastic is to make it much more difficult for animals to see and detect their normal sources of food.

http://en.wikipedia.org/wiki/Great_Pacific_Garbage_Patch

Plastic recycling

Thirty-two million tons of plastic waste were generated in 2011, representing 12.7 percent of total municipal solid waste (MSW). In 2011, the United States generated almost 14 million tons of plastics as containers and packaging, about 11 million tons as durable goods such as appliances, and almost 7 million tons as nondurable goods, such as plates and cups. Only eight percent of the total plastic waste generated in 2011 was recovered for recycling. In 2011, the category of plastics that includes bags, sacks, and wraps was recycled at about 11 percent.

According to the American Chemistry Council, about 1,800 US businesses handle or reclaim post-consumer plastics. Plastics from MSW are usually collected from curbside recycling bins or drop-off sites. Then, they go to a material recovery facility, where the materials are sorted into broad categories (plastics, paper, glass, etc.). The resulting mixed plastics are sorted by plastic type, baled, and sent to a reclaiming facility. At the facility, any trash or dirt is sorted out, then the plastic is washed and ground into small flakes. A flotation tank then further separates contaminants, based on their different densities. Flakes are then dried, melted, filtered, and formed into pellets. The pellets are shipped to product manufacturing plants, where they are made into new plastic products.

The resin identification coding system for plastic, represented by the numbers on the bottom of plastic containers, was introduced by … the plastics industry trade association in 1988. Municipal recycling programs traditionally target packaging containers, and the … coding system offered a way to identify the resin content of bottles and containers commonly found in the

residential waste stream. Plastic household containers are usually marked with a number that indicates the type of plastic. Consumers can then use this information to determine whether or not certain plastic types are collected for recycling in their area. Contrary to common belief, just because a plastic product has the resin number in a triangle, which looks very similar to the recycling symbol, it does not mean it is collected for recycling.

http://www.epa.gov/osw/conserve/materials/plastics.htm

Recycling's 'Final Frontier': The Composting of Food Waste

A move by New York City to begin collecting food scraps and other organic waste is just the latest example of expanding efforts by municipalities worldwide to recycle large quantities of unused food and slash the amount of material sent to landfills.

by Dave Levitan
Yale Environment 360, August 8, 2013

As municipal food composting programs spread across North America and Europe, no city faces a more daunting task than New York. Its Department of Sanitation collects more than 10,000 tons of trash every day, and another 1,700 tons of recyclable materials. A large portion of that waste, though, may soon have a future other than the landfill: Food scraps and other "organics" have long been just a part of New York's trash pile, but a pilot program in the city is aimed at rolling out collection of that material and composting it, a far more environmentally friendly method.

… Many … programs are still voluntary, and the bulk are in small cities and towns. But larger cities in North America—including San Francisco, Seattle, San Antonio, Toronto, and Portland, Ore.—are moving rapidly ahead. And municipal composting efforts in many European countries are far advanced and steadily growing. In 2011, the 27 states in the European Union composted on average 15 percent of municipal waste, with Austria composting 34 percent, the Netherlands 28 percent, and countries like France, Spain, and Germany each composting about 18 percent.

… The environmental benefits of recycling that material are significant. As it decomposes in landfills, food and other organic waste produce methane, a greenhouse gas 25 times more powerful than carbon dioxide. According to the EPA, landfills are the third-largest source of methane in the United States, behind industry and agriculture. Shipping waste long distances from cities to landfills produces even more greenhouse gas emissions. Composting, meanwhile, takes that waste and turns it into something usable: fertilizer. …

Municipal composting plant

The good news is that of the 87 million tons of "recovered" waste in the U.S. in 2011—meaning waste that did not end up in a landfill—organic material accounted for the largest component. But most of that material was paper; food waste accounted for only 1.6 percent of the recovered total versus 14.5 percent of the generated total, the EPA says. The U.S. does a reasonably good job of keeping paper out of landfills thanks to recycling programs, but food almost universally still goes where it shouldn't

… [A] few cities—in general, the green, progressive ones you might expect—have already taken the lead over the last decade. San Francisco—the second-densest large city in the U.S. after New York—is considered the frontrunner, thanks to legislation in 2002 that set a goal of diverting 75 percent of its waste from landfills by 2010 and achieving "zero waste" by 2020.

San Francisco's composting program began with restaurants and other businesses, and in 2009 an ordinance made it mandatory for all residents to separate organic material for collection. Instead of two bins to set out on the curb for trash and recyclables, there are now three. The green compost bins can include all food scraps, no matter how spoiled, along with vegetation from yards like leaves and flowers, and solid paper products including coffee cups, waxy paper, milk cartons, and related items. The city collected its millionth ton of organic waste for composting last fall.

Overall, 78 percent of San Francisco's waste is now diverted from landfills. Seattle has a similar program, as does Portland; the latter went a step further and scaled back residential garbage pickup to only once every two weeks when the weekly compost pickup began.

Despite some early resistance and confusion—much of it related to every-other-week garbage collection—a survey in Portland found that 66 percent of residents rated the city's recycling and composting program as "good" or "very good" after one year, with another 20 percent neutral on the issue. Along with the positive reception, there has been clear progress: In the 12-month period prior to the October 2011 start of the composting program, 94,100 tons of garbage were collected. In the following 12 months, that figure fell to 58,300 tons. Meanwhile, collections of compostable material rose from 30,600 tons to 85,400 tons, a figure that includes yard waste.

There were questions early on about vermin, but moving the scraps from the garbage can to the compost bin doesn't change much …. The organic material in Portland travels to one of two facilities that are 15 and 90 miles from downtown. Walker said regular garbage gets trucked much farther, about 140 miles from the city, so the environmental savings are compounded. The composting facilities produce fertilizers that are sold to farms, tree nurseries, and to the general public.

In Europe, the European Landfill Directive requires European Union member states to reduce "biodegradable municipal waste" sent to landfills to 35 percent of 1995 amounts by 2016. In the EU, 40 percent of waste is now composted or recycled, with 23 percent incinerated and 37 percent landfilled. Norway, Sweden, the Netherlands, Denmark, Switzerland, Belgium, Austria, and Germany now send less than three percent of their waste to landfills. Copenhagen, one of the greenest cities in the world, stopped sending organic waste to landfills as far back as 1990.

Other European countries lag far behind, with Greece and eastern European nations such as Bulgaria, Lithuania, and Romania doing almost no composting. Still, some of the swiftest progress has come from some former eastern bloc countries like Estonia. The capital city of Talinn has been collecting biodegradable kitchen waste separately since 2007, part of the reason why landfill rates in Estonia have dropped from close to 100 percent 15 years ago to below 60 percent today. Europe is also much farther

along than the U.S. in using anaerobic digestion, a process that takes organic waste and turns it into biogas, which can be used to generate electricity.

http://e360.yale.edu/feature/recyclings_final_frontier_the_composting_of_food_waste/2678/

British filmmaker Candida Brady's documentary *Trashed*, which was selected to receive a Special Screening at the Cannes Film Festival, follows Jeremy Irons as he sets out to discover the extent and effects of the global waste problem. Irons travels around the world to beautiful destinations tainted by pollution. This is a meticulous, brave investigative journey that takes Irons (and us) from skepticism to sorrow and from horror to hope.

The beauty of our planet from space forms a violent contrast to the scenes of human detritus across the globe. Vast landscapes in China are covered in tons of rubbish. The wide waters of the Ciliwung River in Indonesia are now barely visible under a never-ending tide of plastic. Children swim among leaking bags; mothers wash in the sewage-filled water supply. Each year we throw away 58 billion disposable cups, billions of plastic bags, 200 billion water bottles, and billions of tons of household waste, toxic waste, and e-waste.

Radioactive ash from incinerators in Japan

We buy it, we bury it, we burn it, and then we ignore it. Does anyone think about what happens to all the trash we produce? We keep making things that do not break down. We have all heard these horrifying facts before, but with Jeremy Irons as our guide, we discover what happens to the billion or so tons of waste that goes unaccounted for each year.

Academy Award winning actor Jeremy Irons' is the guide in *Trashed*, highlighting solutions to the pressing environmental problems facing us all. "We've made this movie, because there are so many people who feel strongly the urgent need for the problem of 'waste' and 'sustainability' to be addressed," Irons says. "There is an equally urgent need for the most imaginative and productive solutions to this troublesome subject to be understood and shared by as many communities as possible throughout the world. This is where movies can play such an important role, educating society, bringing 'difficult' subjects to the broadest possible audience."

Having faced the worst through much of *Trashed*, Irons turns to hope. He goes in search of solutions. From individuals who have changed their lives and produce almost no waste, to increasing anti-waste legislation, to an entire city which is now virtually waste-free, he discovers that change is not only essential, but happening.

http://www.trashedfilm.com/about/

About the filmmakers

Candida Brady

Filmmaker Candida Brady spent over two years researching and filming *Trashed*, but as a lifelong asthmatic, Brady has been focused on the problems of waste and the environment for most of her adult life.

The British filmmaker and journalist's work has taken her around the world. While working for the UK's national press she reported on many leading events as well as initiating campaigns for legislative changes in animal trading and welfare.

She founded her film company, Blenheim Films, in 1996, and has produced and directed documentaries on a variety of subjects, including

a 10-year project following a breakthrough treatment for HIV and AIDS.

In 2012, Candida completed *Trashed*, her first solo documentary feature film, which was selected to receive a Special Screening at the Cannes Film Festival.

She is currently working on her upcoming feature film *Urban and the Shed Crew*.

http://www.trashedfilm.com/about/

http://www.trashedfilm.com/candida-brady/

Jeremy Irons

Jeremy Irons is no stranger to taking center stage, but he may have found his most important role as investigator and guide in *Trashed*, the documentary feature for which Irons is the Executive Producer. He described his experiences filming and what he learned from it in an interview in the *New York Times*' Green section.

On the "mountain of trash" in Lebanon:

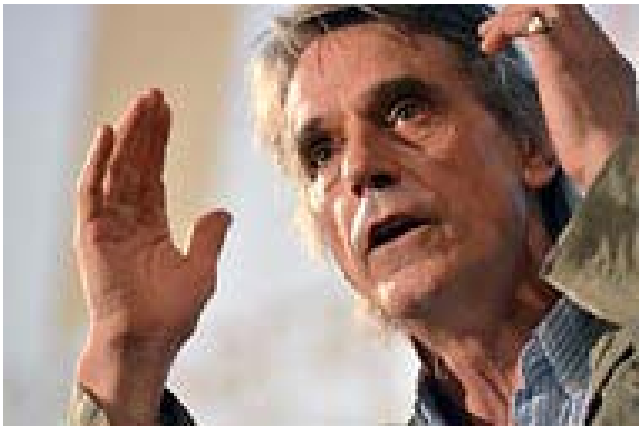
It was appalling. I've never been so grateful to leave the "set" of a film. It is certainly something to look at, but what people who see the film don't experience is the smell of dead animals and wafting chemicals that make you gag. There are flies and fleas everywhere, stray dogs tripping over rubbish and yapping furiously at the scavenging birds circling overhead.

What really made my stomach turn was watching the steady stream of evil-looking runoff oozing from the bottom of the mountain of garbage straight into the sea. It looks and smells like poison … It was all just horrific, but what's happening there is what happens if you do nothing, and it's an illustration of what we are all doing only they haven't bothered to hide it.

On habits he's changed:

I'm hardly an expert on green living. But what I've started doing since making the film is that I take packaging off at the point of purchase.

I consider myself quite capable of getting my tomatoes home safely without sitting on them, so why must they come packaged in plastic armor? And I think I can even get a pair of scissors home without chopping off my hand so I really don't need that damned impenetrable plastic shell.



So I take it off and leave it on the counter and ask the person who sold it to me to deal with it themselves, because I didn't want it in the first place. That way we push it back toward the manufacturers because the supermarkets will say: "Look, we can't deal with all of this. Can you please provide less or take it back and reuse it?"

On waste as an indisputable problem:

… [J]ust like there are those who dispute the scientific evidence behind climate change, there are those who argue there is no connection between environmental toxins and health. In the documentary we talk to villagers in France living near an incinerator who saw cancer rates spike in their community. They took the government to court over it and were told that there was no proof of any connection. Just like some of the effects of climate change, some of these health effects are still down the pipeline.

Finally, there's also a lot of money in trash, as there is in the fossil fuel industry. In places like New York, it's not just a lack of organization that results in so little being recycled, it's also that there is a huge amount of money in trash disposal. The people who are getting rid of our waste at the moment have a fine industry and have no incentive to change that.

On steps we all can take:

Find out in an intelligent way what happens to the waste that leaves your home, and decide whether this is something you approve of. You might be surprised to learn that, especially around New York, much of it is incinerated in areas with poor, disadvantaged communities. Are you okay with the poor getting your toxic ash?

If you're not, become a little motivated and write to your congressman to ask if they think this is acceptable.

I also would like to encourage people to actually buy something. If you don't have a reusable shopping bag, please get one and get a second for a friend or family member. There are kinds that fold up as small as a Ping Pong ball and you can keep it in your purse or briefcase and never have to take a pointless plastic bag home again.

http://www.trashedfilm.com/jeremy-irons/

http://green.blogs.nytimes.com/2012/12/14/q-and-a-jeremy-irons-and-trashed/

Plastic degrading in the Great Pacific Garbage Patch

Resources

Click on titles to reach links.

Bisphenol A (BPA): Use in Food Contact Application | Food and Drug Administration

Bisphenol A | Wikipedia, the free encyclopedia

BPA News, articles and information | Natural News

Carcinogen | Wikipedia, the free encyclopedia

Contaminants: Dioxin | Food and Drug Administration

Contaminants: Fumonisins | Food and Drug Administration

Dioxin | Wikipedia, the free encyclopedia

DIOXIN 2014 | The 34th International Symposium on Halogenated Persistent Organic Pollutants

Dioxin Facts | Dioxins, Furans, TCDD, PCBs

Dioxin Listed as 'Known Human Carcinogen' in U.S. Government's Ninth Report on Carcinogens | National Institutes of Health

Dioxin Revisited: Developments since the 1997 IARC Classification of Dioxin as a Human Carcinogen | National Institutes of Health

Dioxin: Environmental Assessment | Environmental Protection Agency

DioxinFacts.org

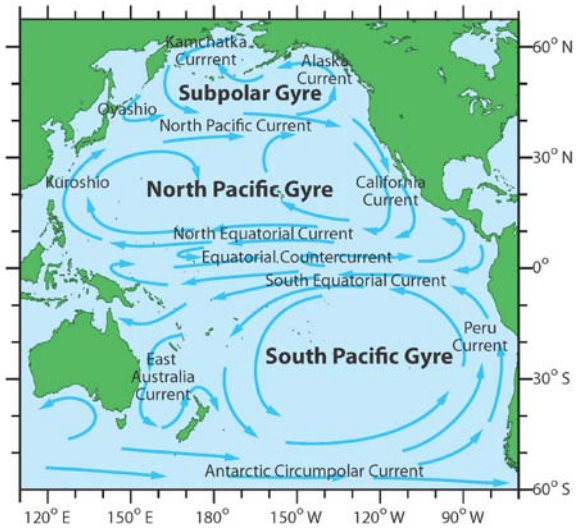
Dioxins and Furans: The Most Toxic Chemicals Known to Science | Energy Justice Network

Dioxins and Their Effects on Human Health | World Health Organization

The Disadvantages of Land Fills | eHow

The Effects of Waste Incinerators | eHow

Great Pacific Garbage Patch | Wikipedia, the free encyclopedia



Ocean Gyre | National Geographic Education

Ocean Gyres | Windows to the Universe

Plastic Waste Big Killer in Mediterranean Sea | Nature Middle East

Polychlorinated Dibenzodioxins | Wikipedia, the free encyclopedia

Pros and Cons of Incinerators | eHow

Reduce, Reuse, Recycle | Recology SF

Resource Recovery Education | Recology SF

Restrictions on Disposal of Garbage in the Mediterranean | Infomarine On Line

Saginaw Bay in Focus: Dioxin Cleanup Set for 2014 in Tittabawassee River | MLive.com

Water Quality Degradation in the Ocean | National Geographic Education

What Is BPA? | Bisphenol A (BPA) Frequently Asked Questions

What is BPA? Should I be worried about it? | Mayo Clinic

WhatBin: Where to put your plastic trash

William McDonough Explains How Sitting in Garbage Cans Can Improve the Earth | Huffington Post

Green Streets:

Turning Trash into Cash in an American Inner City

About the film

Young entrepreneurs from the Bernal Dwellings turn trash into cash and accomplish what no one else has managed in a public housing setting: start an eco-friendly waste management service in their neighborhood. This is a remarkable story about 28-year-old entrepreneur Tyrone Mullins and his peers, confronting barriers to employment, establishing recycling in the San Francisco housing projects where they live, and bringing conservation to a distressed urban community.

Green Streets crew

http://www.citizenfilm.org/green-streets/,
http://www.bhoutdoorcine.org/2012_831films.html

About the filmmaker

Sophie Constantinou, cofounder of Citizen Film, has earned international acclaim for tackling difficult subjects with artistry and sensitivity. Her directing credits include *Divided Loyalties* (Golden Gate Award, 1998 SF International Film Festival), a personal exploration of the conflict in Cyprus and Between the Lines, a lyrical documentary about women who cut themselves. Her cinematography credits include PBS's award-winning *Maquilapolis*, about the movement to change labor practices in US-Mexican border factories; HBO's *Unchained Memories*, which tells the stories of former slaves, using their testimony from the WPA archives; PBS' *Presumed Guilty*, a portrait of a public defender's office; and KQED's Emmy-winning *Home Front*, about evictions in San Francisco's Mission District.

Citizen Film's Sophie Constantinou

Sophie Constantinou continues to work on *Green Streets*, the work in progress that follows 28-year-old entrepreneur Tyrone Mullins and his friends as they turn trash into cash in the distressed San Francisco housing projects where they live.

She is also working on *Lunch Love Community*, an online documentary project offering shareable films, community engagement, and creative resources to inspire change in the way kids eat; the New Jewish Filmmaking Project's *Half-Remembered Stories,* an online multi-media documentary experience reclaiming lost Jewish stories from 11 different points of view; *Joann Sfar Draws from Memory*, a documentary portrait of graphic novelist Joann Sfar; and *Community Leadership Videos*, a series of films about Bay Area community cultural leaders and social entrepreneurs.

http://www.citizenfilm.org/sophie-constantinou/

About Green Streets

Green Streets is a community-owned and operated green business that manages recycling and composting, educates our neighbors on

how to reduce waste, and provides integrated janitorial services.

Our founders are young entrepreneurs leading by example to start a business, invest in their communities, and build careers; creating a better future for their planet, their city, and themselves.

In six months, Green Streets was able to reduce landfill waste at Bernal Dwellings, Hayes Valley, and Plaza East properties on average by 40%, lowering the complex's trash bill. Prior to Green Streets services, these properties had 152,400 gallons of trash hauled away every month. Green Streets is responsible for reducing trash bills and diverting 60,960 gallons of trash into recycling and compost.

Green Streets offers environmental waste management services for businesses, homes, and multi-family properties. They are committed to environmental stewardship through the principle of Reduce, Reuse, and Recycle. Their services improve the environment and the community.

https://www.facebook.com/pages/Green-Streets/214836271893334?sk=info

Support for community business

Click on titles to reach links.

OEWD—Celebrating Workforce Champions: 2nd Annual Awards

Partnerships for Success: Growing a Competitive Workforce System

SF firm creates jobs for those hardest hit

SFCC provides free community access to small business training

Urban Strategies

Green Streets' public profile

Click on titles to reach links.

Green Streets: Facebook

Green Streets' website

Green Streets—Screening & Discussion at Bernal Heights Library

Tell Me More | Scholarly Voices from the African Diaspora

Green Streets crew

Recycling

Click on titles to reach links.

Go Green Initiative: Our Mission

How to Recycle Trash

Interesting Recycling Facts

Little Known Recycling Facts

Recology SF—Reduce, Reuse, Recycle

Recycling

Recycling at School Events

Recycling Facts & Stats; Recycling in General

Recycling Initiatives

WhatBin—How to recycle

Where does our recycling really go?

Composting

Click on titles to reach links.

Compost—A Guide to Composting

Smart Composting Tips for Urban Gardeners & Apartment Dwellers

Urban Compost

Green Streets' logo

Standing on Sacred Ground: Pilgrims and Tourists

Director/Producer Christopher McLeod
Writer/Co-Producer Jessica Abbe
Cinematographers Will Parrinello, Andrew Black
Editor Quinn Costello

About the film

In Altai, the rich, mountainous land that lies between Russia, Siberia, China, and Mongolia, traditional Altaians created their own mountain parks to rein in tourism and protect sacred sites. Outside their parks, they resist new threats from an oil pipeline. If built, it will pass through pristine World Heritage Sites. "Sacred lands should be constantly interacting with humans," explains Danil Mamyev, founder of Altai's first nature parks. "We shouldn't think the earth hears and understands us everywhere. She only hears us through sacred lands."

http://standingonsacredground.org/film-series/pilgrims-and-tourists/altai-republic-russia

The Winnemem of Northern California survived massacres, land grabs, mining, logging and the inundation of their homes when Shasta Dam was constructed in the 1940s. Their descendents now face a second deluge. If the U.S. Bureau of Reclamation enlarges Shasta Dam, the Winnemem will lose what little is left of their homeland—ceremonial grounds, burials, and old village sites will be flooded. Puberty Rock, where girls grind medicinal teas in basins hollowed by centuries of use, is already submerged much of the year and will forever be lost.

http://standingonsacredground.org/film-series/pilgrims-and-tourists/california-usa

Christopher (Toby) McLeod on *Standing on Sacred Ground*

When we started making [*In the Light of Reverence*], we envisioned threats to sacred sites that were primarily industrial—mining, logging, mega-ski resorts and more. But we found that native people are equally concerned about rock climbers who scale sacred places and New Age spiritual seekers who sing songs, beat drums, make exotic pilgrimages and hold expensive healing workshops at Indian ceremonial sites. Well-intentioned baby boomers, it appears, are impacting sacred lands, too.

… Why *should* people care about Native America's sacred places? This struggle goes beyond environmental concerns about preserving biological and cultural diversity, extracting resources like water, coal, gold, and old growth timber, or dumping of toxic waste on Indian lands. It goes beyond the philosophical values we ascribe to religious freedom and environmental justice. It goes to our deepest need for meaning, identity, and connection to home, to place, to community and to that elusive presence we call "the sacred."

Winnemem Wintu with backdrop of Mt. Shasta

What can each of us do to protect sacred sites? We can start by looking at the world in a new way, seeing beyond the superficial satisfactions of our consumer culture and reconnecting with what is most important in our own lives. Ask yourself: "What places are sacred to me and to my ancestors? What do I value about the land and the place I call home?"

Most of us consider ourselves to be environmentalists, but now we have to do more: incorporate sacred land into models for sustainable economic development, and reach consensus on which places are so important to the local community that they must be protected or restored, with Native Americans at the table and directing the dialogue. The result will be a big step toward reconciliation with our history, with the earth and with indigenous peoples.

All of creation is sacred, not just a few "sacred places," and many others besides Native Americans feel this. We need to start living in recognition of this fact so we can protect the places we love, the land that sustains us. Surely we are a big enough country—both in geography and in spirit—to respect and protect America's sacred lands.

The Sacred Land Reader, for use with the film In the Light of Reverence

Blessing ceremony on the McCloud River

Defining Sacredness

Tribal communities are wholly defined by family relationships, whereas non-Indian communities are defined primarily by residence or by agreement with sets of intellectual beliefs. Ceremonial and ritual knowledge is possessed by everyone in the Indian community, although only a few people may actually be chosen to perform these acts. Authorization to perform ceremonies comes from higher spiritual powers and not by certification from an institution or formal organization. The Indian community passes knowledge along over the generations as a common heritage that is enriched by the experiences of both individuals and groups of people in the ceremonies.

Both the ceremony and the people's interpretation of it change as new insights are gained. By contrast, the non-Indian communities establish educational institutions which examine, clarify, and sometimes radically change knowledge to fit their needs. Knowledge is the possession of an exclusive group of people—the scholars and the professionals who deeply believe that the rank and file of their communities are not intelligent enough to understand the esoteric truths of their society. Basic truths about the world are not expected to change, regardless of the experiences of any generation, and "leading authorities" are granted infallibility based on their professional status alone.

… Indians may come to believe in the sacredness of lands based on their experiences or on intensive study of preselected evidence. [This] belief, when seen in an Indian context, is an integral part of the experiences of the people—past, present, and future. The idea does not become a bone of contention among the people, for even if someone does not have experience or belief in the sacredness of lands, he or she accords tradition the respect that it deserves. Indians who have never visited certain sacred sites nevertheless know of these places from the general community knowledge, and they feel them to be an essential part of their being. …

The first and most familiar sacred lands are those places to which we attribute a sacredness because the location is a site where, within our

own history, regardless of our group, something of great importance took place. …

We generally hold these places sacred because there men did what we might one day be required to do—give our lives in a cause we hold dear. Wounded Knee, South Dakota, is such a place for many Indians. … Every society needs these kinds of sacred places. They help to instill a sense of social cohesion in the people and remind them of the passage of the generations that have brought them to the present. A society that cannot remember its past and does not honor it is in peril of losing its soul.

Indians, because of our considerably longer tenure on this continent, have many more of these kinds of sacred places than do non-Indians. Many different kinds of ceremonies can and have been held at these locations, and there is both exclusivity and inclusiveness depending upon the occasion and the ceremony. In this classification, the site is all-important, but it is sanctified each time ceremonies are held and prayers offered there.

Protecting sacred sites: National benefits

The struggle by American Indians to protect their sacred sites and to have access to them for traditional ceremonies is a movement in which all peoples should become involved. … No other religion in this country speaks to the issue of the human relationship with the rest of the universe in this manner. The alternative use of land proposed by the Forest Service, the Bureau of Land Management, and the National Park Service allows the rapid exploitation of natural resources by a few favored private clients—a wholly secular and destructive use of the lands.

The truly ironic aspect of modern land use is that during the last three decades, Congress has passed many laws which purport to protect certain kinds of lands and resources from the very developers who now seek to exclude Indian religious people from using public lands. The Wild and Scenic Rivers Act, the Wilderness Act, the National Environmental Protection Act, the Clean Air Act, the National Historic Preservation Act, and several other statutes all take definite steps to protect and preserve the environment in a manner more reminiscent of traditional Native American religions than that of uncontrolled capitalism or the domination of land expounded by the world religions. No real progress can be made in environmental law unless some of the insights into the sacredness of land derived from traditional tribal religions become basic attitudes of the larger society.

McCloud River at the site of the coming-of-age ceremony

Vine Deloria Jr *is a member of the Standing Rock Sioux Tribe. A noted author, theologian, historian, and attorney, he is uniquely qualified to address Native American religious freedom and sacred land issues.*

The Sacred Land Reader, for use with the film In the Light of Reverence

An Assembly of Sacred Places

In Northern California there is a place that has long attracted Indians for religious purposes, and more recently non-Indian seekers as well. It is Mount Shasta, at 14,162 feet the West Coast's tallest peak, whose snow pack provides the headwaters of the Sacramento River. … To the Wintu people, living in the mountain's immediate vicinity, it is called Bulyum Puyuik, or "Great Mountain," and has long been the pivot for a constellation of special places featured in the tribe's mythology and religious practices.

Among them is Panther Meadows, a peaceful, off-road area on the mountain's southern flank, which is luxuriously carpeted

with flowers and grasses and stands at 7,500 feet just below the tree line. … [T]oday's Wintu Indian traditionalists wish recreationists would leave this area alone because it is the favored place for ceremonies conducted by one of California's most respected medicine people, Florence Jones. …

From childhood, Florence was cradled by medicine people. Her grandmother, Judy, had been a shaman; her mother, Jenny Curl, was a noted healer. Shortly after Florence's birth on November 28, 1908, she was visited by six Wintu shamans who declared her "a spiritual child."

… "They took me up to Mount Shasta to the bubbling spring, the sacred spring. That's where we start doctoring, right there." By the l990s, Florence had become the last Wintu knowledgeable in "doctoring language," her people's so-called "higher" form of secret, magical speech.

Winnemem Wintu chief Caleen Sisk stands looking towards Mt. Shasta

As Florence matured into one of northern California's leading medicine "doctors," a number of rocky places and grassy flats acquired special importance for her. She lived at the foot of Bear Mountain, an ancient Indian place, and every spring she led followers to its summit for special rituals. She also retained a retreat near Dekkas Rock, close to her own birthplace on the McCloud River, and above Shasta Lake.

… After the Harmonic Convergence in 1987, New Age guidebooks spread word of Shasta's spiritual powers to aspiring pilgrims, who danced in the nude in its meadows, painted flowers on rocks and left crystals in its springs.

Simultaneously, Shasta's appeal to winter recreationists was on the rise. Local ski promoters petitioned the U.S. Forest Service for permits to open 2,000 acres surrounding Panther Meadows for downhill runs, seven new lifts and three lodges—a $21 million ski resort that could accommodate 5,000 skiers per day on the mountain's slopes.

For Florence Jones and the Wintu, this intrusion into Mount Shasta's spirit world was a grave concern. By this time two government-funded studies had verified that in historic times the mountain figured centrally in Indian belief systems, that those beliefs and associated rituals continued up to the present day, and that protecting Mount Shasta's atmosphere of peace, quiet and religious function was essential to the cultural persistence of nearby Indian communities.

Mount Shasta is just one of California's many special locations of religious importance to its wide range of Indian groups—nearly 60 politically autonomous native communities. Reflecting that diversity, the region also contains a plethora of culturally sensitive landscapes to which the larger, non-Indian population is generally oblivious. …

Hundreds of … California Indian sites were part of vast sacred landscapes. Early reports and anthropological writings on native California describe sites for observing solstices and equinoxes, places where the action of mythological beings left their indelible imprints, caves where shamans sought training and locations where Indians prayed before harvesting natural materials for artwork or subsistence. According to the traditions of Florence Jones' Winnemem Wintu people, these spots might present themselves to a seeker almost anywhere. "A sacred place, *s'wel*,

could be a pot hole or a peculiarly shaped rock, often in animal form," says Frank LaPena, a Wintu painter and writer. "Caves, seepage holes, whirlpools in the river, and knolls were all representative of dwelling spirit sacred places. A person knew of a spirit place by the buzzing sound made there."

Winnemem Wintu girls at their coming-of-age ceremony

Both LaPena and Florence Jones continue to struggle to safeguard their sacred places around Mount Shasta from recreational development, U.S. Forest Service policies, and alternative spiritual movements. While seeking protection for Shasta by listing it on the National Register of Historic Places—which is the closest the U.S. government can come to saving places of cultural importance—the Wintu warned that the mountain might just try and defend itself.

Referring to an avalanche that took out a ski lift and lodge above Panther Meadows in the 1950s, Florence Jones said, "When that ski lift was put right on my spiritual mountain, I had a dream. The mountain said, 'Look at me, snow all over me. What are these white people doing here, walking and trampling on my clothes? My beautiful white clothes. What are we going to do, what can I do?'

"I said, 'You are my spiritual power. You are my mountain that I doctor from. If you don't want that ski lift up there and those people trampling all over your beautiful white coat, just shake 'em up.'

"Two days later it shook 'em up. Now what do you think about that?"

Apparently, Florence's feelings made an impression on Forest Supervisor Sharon Heywood. In 1998, she decided not to permit the new $21 million ski resort on the Wintu sacred mountain. [But there are] hundreds of other endangered landscapes of religious importance to American Indian peoples. Whether they are found on public, state, or private land, many of them are threatened by competing ownership claims, land development, extractive industries, government multiple-use policies, recreational tourism, or outright takeover by official agencies for scientific purposes. On the other hand, in recent years some religious sites have been "reclaimed" or even "rediscovered" by Indians. And their campaigns in and out of the legal system to safeguard old burial grounds and to repatriate ritual items from museums and private collections have met with some success.

Of all the struggles for Indian rights and the future of their traditional identities, however, none remains more difficult and urgent than the continuance and restoration of their religious interactions with their sacred landscapes.

Young Winnemem Wintu men perform the war dance at the coming-of-age ceremony

Peter Nabokov *is an anthropologist and director of the World Arts and Cultures Department at U.C.L.A.*

The Sacred Land Reader, for use with the film In the Light of Reverence

Site Report: Golden Mountains

Status: Threatened
Country: Russia
Report by: Ashley Tindall
Date Posted: Sunday, November 12, 2006
Date Updated: Friday, September 20, 2013

In southwestern Siberia, along Russia's border with China, Mongolia, and Kazakhstan, the Altai or "Golden" Mountains are home to the semi-nomadic Altai people and to many endangered species, including the totemic snow leopard and argali mountain sheep. The Golden Mountains are sacred to the Altaians and to Buddhists and Burkhanists around the world. Siberia's highest peak, Mount Belukha, is especially revered.

Mt. Belukha in Siberia

Within the Altai Republic of the Russian Federation, the Ukok Plateau is also famous as a burial ground and has been the subject of controversy in Russia over rights to the more than 150 archaeological sites that have been excavated there since the 1920s. The state-owned energy giant Gazprom has proposed building a natural gas pipeline to China across the Ukok Plateau. Mount Belukha and the sacred Katun River have seen recent influxes of tourists that bring a measure of prosperity to the impoverished Altai Republic, but may also have lasting impacts.

Altaians wish to preserve their burial sites, as well as the land that nurtures their livestock, their crops and herbal medicines, and the forests that ensure the survival of their people. "We maintain connection to the land through petroglyphs, standing stones, kurgans, throat singing, totem plants, and animals like snow leopard and wolf," says Igor Sailankin, director of Nature Park Belukha. "It's something people live with every day."

The Land and Its People

The Altai Republic was split off from the neighboring Russian province of Altaisky Krai during the Yeltsin era, partly in recognition of the Altai people's cultural and linguistic uniqueness, but also because of its geographical difference from the flat farmland and big industrial cities of the Krai. The Altai Republic is home to many people of Russian ancestry, but a third of its population is Altai and speaks the Altaian language. Today's 60,000 Altaians live predominantly in the south of the republic. They are closely related to Mongolians and are considered the original Turkic people. The Altaians joined the Czarist Russian Empire during the 18th century seeking protection from Chinese and Kazakh invaders, but the Altai didn't truly attract Moscow's attention until the 20th century when its farmland and stunning rivers and mountains began to draw ethnic Russians as settlers and tourists. The north of the Altai Republic has a large population of Russians who settled during the communist era on collective farms around the provincial capital, Gorno-Altaisk. Today, many of these ethnic Russians identify strongly as Altaians and also wish to protect Altaian lands and culture.

The heart of the Altai

Altaians have traditionally practiced shamanism, Buddhism, and Burkhanism or Ak Jang ("White Faith"). Most ethnic Altaians are Burkhanists and belong to family clans that revere totem animals, such as the argali and the wolf, and totem flowers. Burkhanists believe in a three-world cosmology (upper, middle and under) and pray to many spirits, including legendary figures from traditional oral epics. Burkhanists are known for their throat singing practice, in which the singer recounts traditional epics that are very complex and endure for hours. Altaian ceremonies always involved a "feeding of the fire" in which food and alcohol are put into a fire in front of the home as each family asks the spirits to protect the health of the land and water and to continue to provide the family with sustenance. The land is foundational to Altaian spiritualism.

Looking toward Russia

The Golden Mountain region includes the headwaters of Ob' River, one of the longest rivers in the world, and Lake Teletskoe, the world's second-deepest freshwater body after Lake Baikal. The one-million-square-mile Altai-Sayan Ecoregion (designated by the World Wildlife Fund, and including small areas of China, Kazakhstan, and Mongolia) is home to 5 million people speaking 40 languages, and includes 326 protected natural areas and 27,000 lakes. The water system forms the primary Arctic Ocean watershed and nurtures more than 3,000 floral species, many of which are unique to the Altai. The dramatic Altai range, with its myriad microclimates, is home to nearly 700 animal species, including the mountain ram, reindeer, and the endangered snow leopard. The Altai region contains many sacred sites and landscapes, including the following four:

Mount Belukha is the highest peak in the Altai Mountains. It has long been a focus of Buddhist and Burkhanist reverence, traditionally called Üch Sümer, meaning "three peaks." Belukha may be Sumeru, which is the mythical Central Asian mountain of Buddhist belief, the center of Shangri-la (Shambala), where only the spiritually advanced may enter. Several important glaciers crown the mountain and supply the headwaters of the Katun River. Belukha was first climbed in 1914 and now draws many recreational climbers each year.

The Ukok Plateau in the south is thought to have been the Elysian Fields (the "Pastures of Heaven" as local people now call it) of the Pazyryk, an ancient Siberian people. There, hundreds of people were buried over many generations. The Greek historian Herodotus reported that the Scythians (as he called the Pazyryk) were a race of fierce warriors in the Asian steppes that kept a sacred burial ground in the high eastern mountains. One of the kurgans (burial sites) is that of the famous "Ice Maiden" or "Ukok Princess"—a young and powerful female Pazyryk warrior. In 1993, archaeologist Natalia Polosmak uncovered the 5th century B.C. woman who had been buried in a larch wood chamber with six sacrificed horses. The frozen mummy was removed from the site for research in Moscow, was then on display for years in a museum in Novosibirsk, and has recently been returned to a museum in Altai.

The Katun River is central to the spirituality and culture of the Altaians. Originating from the glaciers atop Mount Belukha, the Katun forms the beginning of the magnificent Ob' River, Russia's fourth longest river which empties into the Arctic Ocean. The Katun itself supports astounding biodiversity. Indigenous Altaians conduct many ceremonies in honor of the river and have used traditional ecological knowledge

to protect the quality of the river and life in and along it for millennia.

Katun River and Ob Basin

The Karakol Valley is home to three villages, many ancient burials and—at its headwaters—the sacred mountain of Üch Enmek. The valley is now the heart of the new Üch Enmek Nature Park, where tourism is carefully managed by local people. In *Standing on Sacred Ground*, Üch Enmek Park founder Danil Mamyev explains the importance of the Karakol Valley: "This is the exact place through which planet Earth receives information. A shaman comes to these sacred places as a pilgrim and receives certain information. They then distribute this information at the human level, in human language."

Current Challenges and Preservation Efforts

In the southern section of the Altai, there are multiple large Nature Parks recently carved out by the republic's government in cooperation with local communities dedicated to preserving *both culture and biodiversity*. The oldest park was established 10 years ago and the youngest only two years ago.

There are active proposals to expand existing parks and add new ones. The parks are at the beginning of a long, difficult process: administrative resources and money are scant, management plans are mostly nonexistent, and powers of rangers are not clearly defined. There are daily problems with poachers of plants and animals, and with large numbers of what are locally known as "wild tourists"—people who seek adventure in the world's most remote places. However, the parks' directors and the Altai government are currently working to safeguard their lands and ensure sustainable tourism.

Large-scale tourism has come to the Altai in the last 10 years, with the removal of domestic travel restrictions and the growth of private car ownership, as well as the increasing interest of East Asian travelers in the Russian steppe. Many of these new vacationers have limited understanding of stewardship ethics, so incidents of environmental damage in parks or on local peoples' land are increasing.

In establishing a park, the consent of local people living within the park or using it for seasonal livestock grazing is necessary by law. Local support for parks is growing. Parks are seen as a way for Altai people to preserve their environment and culture, to increase local livelihoods, and to continue traditions of common land use and management as much of Russia's land become privatized and fragmented.

Golden Mountains

UNESCO declared the Golden Mountains, including Siberia's largest mountain, the sacred Mount Belukha, a World Heritage site in 1998. The World Wildlife Fund has designated the greater Altai-Sayan area as one of the Global 200 Ecoregions that should be protected for reasons of biodiversity. In 2000, a group of scientists and governmental and non-governmental organizations from the four surrounding countries (Russia, Kazakhstan, China, and Mongolia) established the Charter of

the Altai-Sayan Region, which states: "The Altai-Sayan region, situated in the exact center of the Eurasian continent and inhabited by the key ethnic groups of Eurasia, is its geopolitical, ethnocultural, and biospheric heart."

Disturbed Ice Maiden burial mound

The Altai Republic, primarily through the efforts of the local NGO "Ene Til," has petitioned Moscow to become a special tourist area (which would give the local government the ability to regulate its parks and assess tourist taxes).

A recent proposal by Russia's state-owned gas company Gazprom to build a natural gas pipeline to China has roused local concern. One proposed pipeline route crosses the Ukok Plateau, the biodiverse nature park and site of ancient burials. Due to a failure to reach agreement over the price of gas, the pipeline proposal has been postponed, though Gazprom survey crews were seen staking out the pipeline route on the Ukok Plateau in summer 2011.

In May 2013, in a letter to the Russian Ministry of Natural Resources, Gazprom stated that it "has not made a final decision to build the Altai Gas Pipeline across the Ukok Plateau, that it is not currently working on the project, and that there will be no funding allocated to the project in 2014 and 2015." However the company has not cancelled the project as indicated by its hosting an international conference to discuss major oil and gas infrastructure projects in Gorno-Altaisk that included a delegation from China.

Also, Altai Republic's Prosecutor's Office overturned a June 2012 decree for the preservation and development of Altai Republic's sacred sites. This decree was widely praised last year and was greeted as a step forward in protecting the Altaian people's cultural and spiritual traditions as well as the physical landscape itself, banning most resource extraction, economic development, and other potentially harmful activities.

In 2012 and early 2013, Gazprom and China National Petroleum Corporation signed a new memorandum of agreement to negotiate and develop a new eastern pipeline route, an action that may negate interest in building a western pipeline through Altai.

http://standingonsacredground.org/film-series/pilgrims-and-tourists/altai-republic-russia/site-report-golden-mountains

About the filmmakers

Christopher (Toby) McLeod

Producer/Director

Toby has been Project Director of Earth Island Institute's Sacred Land Film Project since 1984. He produced and directed *In the Light of Reverence* (2001) and has made three other award-winning, hour-long documentary films that were broadcast on national television: *The Four Corners: A National Sacrifice Area?* (1983), *Downwind/Downstream* (1988), and *NOVA: Poison in the Rockies* (1990). In 1990, he produced *Voices of the Land* as a 20-minute preview of *Standing on Sacred Ground*.

Director Toby McLeod

In 1997, he completed *A Thousand Years of Ceremony*, a 40-minute profile of Winnemem Wintu healer Florence Jones and her efforts to protect Mount Shasta as a sacred site for the Wintu—a film made specifically as an archival film for the use of the Wintu community.

After 10 years of work, he completed *In the Light of Reverence*, which was broadcast in August 2001 on the acclaimed PBS documentary series *P.O.V.* (Point of View) and won a number of awards, including the Council on Foundations' prestigious Henry Hampton Award (2005). His first film was the nine-minute short, *The Cracking of Glen Canyon Damn—with Edward Abbey and Earth First!*

McLeod has a Master's degree in journalism from U.C. Berkeley and a B.A. in American History from Yale. He is a journalist who works in film, video, print, and still photography. In 1985, McLeod received a Guggenheim Fellowship for filmmaking, and his U.C. Berkeley Master's thesis film *Four Corners* won a Student Academy Award in 1983. Toby has been working with indigenous communities as a filmmaker, journalist, and photographer for more than 35 years.

http://standingonsacredground.org/about/production-crew

Jessica Abbe

Writer (*Pilgrims and Tourists*, *Islands of Sanctuary*) and Co-Producer

Jessica co-produced *Angle of Inspiration*, a 2004 PBS documentary about the effect on the small town of Redding, California, of a startling new bridge by world-renowned architect Santiago Calatrava.

Her writing credits include *Power Paths* (2008), about the Native American movement toward renewable energy development, and *In the Light of Reverence*. Jessica wrote and produced documentaries on AIDS and San Francisco history.

Writer Jessica Abbe

She helped start *Bay Area Backroads*, the highest-rated local program during her tenure as producer, and worked for two years with director Francis Ford Coppola and author Diane Johnson on a screenplay about the search for a cure for AIDS.

Jessica holds a B.F.A. in dramatic arts from New York University and a Master's degree in journalism from U.C. Berkeley.

http://standingonsacredground.org/about/production-crew

Resources

Click on titles to reach links

About | Native American Land Conservancy

Altai Mountains (mountain range, Asia) | Encyclopedia Britannica

Altai People and Culture | Altai Pilgrim

Altai region of Siberia may be the genetic source of Native Americans | Abroad in the Yard

Altai Republic | Wikipedia, the free encyclopedia

Altay people | Wikipedia, the free encyclopedia

Blog | Sacred Land Film Project

Caleen Sisk: Winnemem Wintu | Native American Encyclopedia

CalTrout Questions Loss of Protected Rivers Caused By Raising Shasta Dam | California Trout.org

Film series grounds itself in sacred lands | The Daily Californian

Golden Mountains | Sacred Land Film Project

Altai shaman with ceremonial pipe

Home | Native American Land Conservancy

Home | Winnemem Wintu.us

International Efforts to Protect Sacred Places | Sacred Land Film Project

Is Nothing Sacred? Corporate Responsibility for the Protection of Native American Sites

Map of Sacred Lands | Sacred Land Film Project

McCloud River takes central role in dam-raising proposal | Redding Record Searchlight

McCloud River Watershed | Sacred Land Film Project

Mongolia and the Altai Mountains: Origins of genetic blending between Europeans and Asians | Phys.org

Pilgrims and Tourists: Local Connection to Worldwide Film | anewscafe.com

Sacred Land Film Project

U.S. Laws & Court Cases Involving Sacred Lands | Sacred Land Film Project

Welcome | Earth Island Institute

What Is a Sacred Site? | Sacred Land Film Project

Who We Are | Winnemem Wintu.us

Winnemem Wintu | Wikipedia, the free encyclopedia

Winnemem Wintu Tribe begins protest at McCloud River arm of Lake Shasta | Redding Record Searchlight

Winnemem Wintu tribe holds coming-of-age ceremony at Lake Shasta | Redding Record Searchlight

Winnemem Wintu Tribe Struggles To Protect Sacred Sites (VIDEO) | Huffington Post

Winnemem Wintu, U.S. Religion Census | Patheos.com

Relevant Resources

For Students

Click on titles to reach links.

American Legion Youth Program

Audubon Canyon Ranch

Bioneers Youth Initiative

Committee for Green Foothills (SF Peninsula)

Earth Island Institute (San Francisco)

Earth Island Institute's New Leaders Initiative

Earth Team (Berkeley)

Ecokids: Environmental Subjects

The Exploratorium (San Francisco) High School Explainers

Forests Forever

Friends of the Urban Forest (San Francisco)

Gallery of California Natural Resources Oakland Museum

Golden Gate Audubon Society—Volunteer

Golden Gate National Parks Conservancy—Get Involved

Greenbelt Alliance—Get Involved

Greenpeace USA—Student Network

International Cooperation of Environmental Youth (I.C.E.Y.)

Marin Environmental Resources

The Marine Mammal Center (Marin) Awareness Campaigns

The ReUse People (Oakland)

Rising Sun Energy Center (East Bay)

Roots & Shoots: Find a Group

San Francisco Clean City Coalition

San Francisco Conservation Corps

Sea Turtle Restoration Project (Marin)

Sierra Club San Francisco Bay

SPAWNERS: San Pablo Creek Watershed Neighbors Education & Restoration Society

Student Environmental Action Coalition

Sustainable Fairfax Volunteer

Sustainable World Coalition

Teens Turning Green

Tiburon Audubon

The Volunteer Center of San Francisco

The Volunteer Center of the East Bay: Student Volunteering

WildCare Student Volunteers

Youth for Environmental Sanity (YES)

For Teachers

Click on titles to reach links.

Field Trip Foundation (grades 3–5)

Green Schoolyards and School Gardens (CA Dept. of Parks and Recreation)

North American Association for Environmental Education (NAAEE)

Rainforest Action Network Resources

Resource Area for Teaching