

# SFIFF 51



**2008  
Schools at the Festival  
Study Guide**

for

***FLOW: For Love of Water***

*Developed by: Christina Masson*

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## **FLOW: For Love of Water -- Film Synopsis**

*From the film's website: <http://flowthefilm.com/about.php>*

Water is the essence of life, sustaining every being on this planet. Without water, there would simply be no plants, no animals, and no people. But the global water supply isn't just at risk, it's already in crisis.

FLOW: For Love of Water, a new film by Irena Salina, highlights the local intimacies of an emerging global catastrophe: African plumbers reconnect shantytown water pipes under cover of darkness to ensure a community's survival; a Californian scientist forces awareness of shockingly toxic public water sources; a 'Big Water' CEO argues privatization is the wave of the future; a "Water Guru" in India sparks new community water initiatives in hundreds of villages; a Canadian author uncovers the corporate profiteering that drives global water business.

With an unflinching focus on politics, pollution and human rights, FLOW: For Love of Water ensures that the precarious relationship between humanity and water can no longer be ignored. While specifics of locality and issue may differ, the message is the same; water, and our future as a species, is quickly drying up. Armed with a thirst for survival, people around the world are fighting for their birthright; unless we instigate change, we face a world in which only those that can pay for their water will survive. FLOW: For Love of Water is a catalyst for people everywhere: the time has come to turn the tide and we can't wait any longer.

## **Filmmaker Biographies**

*From the film's website: <http://flowthefilm.com/about.php>*

### **Director: Irena Salina**

Born in France, Irena started her career at 15 as a radio journalist in Paris, then worked in production in various capacities on numerous US films before writing and directing her first short, See You on Monday, sponsored by LifeTime Television for the Hamptons Film Festival. Her first feature film, Ghost Bird: The Life and Art of Judith Deim (2000) is an award-winning documentary that delves into the remarkable life of St. Louis-born artist Judith Deim. GhostBird was featured at many festivals, won Best Documentary at the 15th Fort Lauderdale Film Festival, the Presidents' Award at Mexico's prestigious Ajijic Film Festival, and is an evergreen audience favorite on the Sundance Channel.

### **Producer: Steven Starr**

Founder of award-winning video monetization platform Revver.com, previously managed KPFK-FM, largest community radio signal in the U.S., co-founded P2P pioneer Uprizer, user-generated AntEye.com and LA Indymedia. Writer/director and/or producer of award-winning features Joey Breaker and Johnny Suede, co-creator/producer of The State for MTV/CBS, headed New York film office for William Morris; repping Ang Lee, Tim Robbins, Larry David, Andy Warhol, Joseph Papp, etc., and started as a concert promoter for Bob Marley & the Wailers.

### **Co-Producer: Gill Holland**

Spirit Award nominee for Producer of the Year, has produced over 40 films, including Sundance faves Spring Forward, Loggerheads, triple winner Hurricane Streets and the FOX sit-com Greg The Bunny. Gill also exec-produced Sweetland and HBO's Emmy-nominated doc Dear Jesse, and most recently exec-produced The Adventures of Power and is renovating the first LEED-certified fully sustainable building in Louisville, Kentucky.

**Co-Producer: Yvette Tomlinson**

Producer credits include the feature film Ryhthm of The Saints - in competition at Sundance 2003, was contributing producer for the Emmy Award-winning South Africa Now, collaborated on several other docs including Mandela in America, served as segment producer for A&E's Biography of the Year & CBS News' The Twentieth Century with Mike Wallace, won various awards including the Spike Lee Fellowship for her short, Act Of Contrition.

**Executive Producer: Brent Meikle**

As an international business executive, Brent has spent the last 15 years developing and marketing consumer products. Brent has won numerous awards including design and innovation awards from the Consumer Electronic Association and American Graphic Art awards for product design and package innovation. Brent's involvement with FLOW: For Love Of Water inspired him to establish an entirely new consumer brand, The Watergeeks Laboratories. The company is intent on addressing the global water crisis by empowering consumers with compelling new water utilization choices that embrace their ecological beliefs. With over 50 patents on various products, The Watergeeks Laboratories will launch in 2008.

**Executive Producer: Stephen Nemeth**

Producer credits include Fear and Loathing in Las Vegas, Why Do Fools Fall In Love, Dogtown and Z-Boys, Denise Calls Up. Docs include Pick Up The Mic, Besibol, Tuner Nation and Project Street. Stephen serves on the Advisory Board to Children's United Nations, Wildlife Ecostation, Wheels For Humanity, Shine On Sierra Leone, and Artists for Amnesty.

### **What does “Water Privatization” mean?**

Privatization is the incidence or process of transferring ownership of business from the public sector (government) to the private sector (business). In a broader sense, privatization refers to transfer of any government function to the private sector including governmental functions like revenue collection and law enforcement.

The primary three international privatized water companies are: Suez, Veolia (formerly Vivendi), and RWE, all of which are based in Western Europe.

### **What is The World Bank?**

[http://en.wikipedia.org/wiki/World\\_Bank](http://en.wikipedia.org/wiki/World_Bank)

The World Bank is an internationally supported bank that provides loans to developing countries for development programs with the stated goal of reducing poverty. It was formally established in 1945 as a response to the devastating destruction of WWII. The Bank issued its first loan in 1946: \$250 million to France for post-war reconstruction, the main focus of the Bank's work in the early post-World War II years. Over time, the "development" side of the Bank's work has assumed a larger share of its lending, although it is still involved in post-conflict reconstruction, together with reconstruction after natural disasters, response to humanitarian emergencies and post-conflict rehabilitation needs affecting developing and transition economies. The World Bank claims that its goal is to help governments in developing countries reduce poverty by providing them with money and technical expertise.

<http://www.worldbank.org/>

### **Article 31**

*At the end of the film, the filmmaker promotes the addition of an article to The Universal Declaration of Human Rights. The article reads:*

“Everyone has the right to clean and accessible water, adequate for the health and well-being of the individual and family, and no one shall be deprived of such access or quality of water due to individual economic circumstance.”

### **Excerpts from the Article: “AP Probe Finds Drugs in Drinking Water”**

*By Jeff Donn, Martha Menoza and Justin Pritchard – March 9, 2008*

<http://ap.google.com/article/ALeqM5hGsoyElv4ZL879LW6z2aZS0Pix7AD8VA14500>

A vast array of pharmaceuticals — including antibiotics, anti-convulsants, mood stabilizers and sex hormones — have been found in the drinking water supplies of at least 41 million Americans, an Associated Press investigation shows.

To be sure, the concentrations of these pharmaceuticals are tiny, measured in quantities of parts per billion or trillion, far below the levels of a medical dose. Also, utilities insist their water is safe.

But the presence of so many prescription drugs — and over-the-counter medicines like acetaminophen and ibuprofen — in so much of our drinking water is heightening worries among scientists of long-term consequences to human health.

In the course of a five-month inquiry, the AP discovered that drugs have been detected in the drinking water supplies of 24 major metropolitan areas — from Southern California to Northern New Jersey, from Detroit to Louisville, Ky.

Water providers rarely disclose results of pharmaceutical screenings, unless pressed, the AP found. For example, the head of a group representing major California suppliers said the public "doesn't know how to interpret the information" and might be unduly alarmed.

How do the drugs get into the water?

People take pills. Their bodies absorb some of the medication, but the rest of it passes through and is flushed down the toilet. The wastewater is treated before it is discharged into reservoirs, rivers or lakes. Then, some of the water is cleansed again at drinking water treatment plants and piped to consumers. But most treatments do not remove all drug residue...

...Members of the AP National Investigative Team reviewed hundreds of scientific reports, analyzed federal drinking water databases, visited environmental study sites and treatment plants and interviewed more than 230 officials, academics and scientists. They also surveyed the nation's 50 largest cities and a dozen other major water providers, as well as smaller community water providers in all 50 states.

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The federal government doesn't require any testing and hasn't set safety limits for drugs in water. Of the 62 major water providers contacted, the drinking water for only 28 was tested.

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In several cases, officials at municipal or regional water providers told the AP that pharmaceuticals had not been detected, but the AP obtained the results of tests conducted by independent researchers that showed otherwise. For example, water department officials in New Orleans said their water had not been tested for pharmaceuticals, but a Tulane University researcher and his students have published a study that found the pain reliever naproxen, the sex hormone estrone and the anti-cholesterol drug byproduct clofibric acid in treated drinking water.

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Rural consumers who draw water from their own wells aren't in the clear either, experts say.

The Stroud Water Research Center, in Avondale, Pa., has measured water samples from New York City's upstate watershed for caffeine, a common contaminant that scientists often look for as a possible signal for the presence of other pharmaceuticals. Though more caffeine was detected at suburban sites, researcher Anthony Aufdenkampe was struck by the relatively high levels even in less populated areas.

He suspects it escapes from failed septic tanks, maybe with other drugs. "Septic systems are essentially small treatment plants that are essentially unmanaged and therefore tend to fail," Aufdenkampe said.

Even users of bottled water and home filtration systems don't necessarily avoid exposure. Bottlers, some of which simply repackage tap water, do not typically treat or test for pharmaceuticals, according to the industry's main trade group. The same goes for the makers of home filtration systems.

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Perhaps it's because Americans have been taking drugs — and flushing them unmetabolized or unused — in growing amounts.

"People think that if they take a medication, their body absorbs it and it disappears, but of course that's not the case," said EPA scientist Christian Daughton, one of the first to draw attention to the issue of pharmaceuticals in water in the United States.

Some drugs, including widely used cholesterol fighters, tranquilizers and anti-epileptic medications, resist modern drinking water and wastewater treatment processes. Plus, the EPA says there are no sewage treatment systems specifically engineered to remove pharmaceuticals.

One technology, reverse osmosis, removes virtually all pharmaceutical contaminants but is very expensive for large-scale use and leaves several gallons of polluted water for every one that is made drinkable.

Another issue: There's evidence that adding chlorine, a common process in conventional drinking water treatment plants, makes some pharmaceuticals more toxic.

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Ask the pharmaceutical industry whether the contamination of water supplies is a problem, and officials will tell you no. "Based on what we now know, I would say we find there's little or no risk from pharmaceuticals in the environment to human health," said microbiologist Thomas White, a consultant for the Pharmaceutical Research and Manufacturers of America.

But at a conference last summer, Mary Buzby — director of environmental technology for drug maker Merck & Co. Inc. — said: "There's no doubt about it, pharmaceuticals are being detected in the environment and there is genuine concern that these compounds, in the small concentrations that they're at, could be causing impacts to human health or to aquatic organisms."

Recent laboratory research has found that small amounts of medication have affected human embryonic kidney cells, human blood cells and human breast cancer cells. The cancer cells proliferated too quickly; the kidney cells grew too slowly; and the blood cells showed biological activity associated with inflammation.

Also, pharmaceuticals in waterways are damaging wildlife across the nation and around the globe, research shows. Notably, male fish are being feminized, creating egg yolk proteins, a process usually restricted to females. Pharmaceuticals also are affecting sentinel species at the foundation of the pyramid of life — such as earth worms in the wild and zooplankton in the laboratory, studies show.

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"It brings a question to people's minds that if the fish were affected ... might there be a potential problem for humans?" EPA research biologist Vickie Wilson told the AP. "It could be that the fish are just exquisitely sensitive because of their physiology or something. We haven't gotten far enough along."

With limited research funds, said Shane Snyder, research and development project manager at the Southern Nevada Water Authority, a greater emphasis should be put on studying the effects of drugs in water.

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So much is unknown. Many independent scientists are skeptical that trace concentrations will ultimately prove to be harmful to humans. Confidence about human safety is based largely on studies that poison lab animals with much higher amounts.

There's growing concern in the scientific community, meanwhile, that certain drugs — or combinations of drugs — may harm humans over decades because water, unlike most specific foods, is consumed in sizable amounts every day.

Our bodies may shrug off a relatively big one-time dose, yet suffer from a smaller amount delivered continuously over a half century, perhaps subtly stirring allergies or nerve damage. Pregnant women, the elderly and the very ill might be more sensitive.

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For several decades, federal environmental officials and nonprofit watchdog environmental groups have focused on regulated contaminants — pesticides, lead, PCBs — which are present in higher concentrations and clearly pose a health risk.

However, some experts say medications may pose a unique danger because, unlike most pollutants, they were crafted to act on the human body.

"These are chemicals that are designed to have very specific effects at very low concentrations. That's what pharmaceuticals do. So when they get out to the environment, it should not be a shock to people that they have effects," says zoologist John Sumpter at Brunel University in London, who has studied trace hormones, heart medicine and other drugs.

And while drugs are tested to be safe for humans, the timeframe is usually over a matter of months, not a lifetime. Pharmaceuticals also can produce side effects and interact with other drugs at normal medical doses. That's why — aside from therapeutic doses of fluoride injected into potable water supplies — pharmaceuticals are prescribed to people who need them, not delivered to everyone in their drinking water.

"We know we are being exposed to other people's drugs through our drinking water, and that can't be good," says Dr. David Carpenter, who directs the Institute for Health and the Environment of the State University of New York at Albany.



## **S.F.'s tap water best in tests, chemists say**

*Jane Kay, Chronicle Environment Writer – March 11, 2008*

Chemists who tested drinking water from 20 utilities nationwide said they did not detect any contaminants at all at San Francisco's tap, despite news reports to the contrary.

"We didn't detect anything whatsoever," said Shane Snyder, research manager at the Southern Nevada Water Authority who helped coordinate a study by the research arm of the nation's water utilities.

The American Waterworks Association Research Foundation tested 20 of the nation's water systems, including San Francisco's for 60 compounds found in medicines, household cleaners and cosmetics.

"You guys have the best water that we tested. Period," Snyder said of San Francisco's drinking water. "I don't think we've ever tested drinking water that didn't have any of our target compounds in it."

In a story about test results of the nation's drinking water quality, the Associated Press reported Sunday that much of the supply contains traces of pharmaceuticals, solvents and other contaminants.

Among its findings, the news agency said San Francisco's water contained a sex hormone. The sex hormone was supposedly estradiol, a hormone found in vertebrate animals - mammals, reptiles, birds and fish.

In fact, no such compounds turned up in San Francisco's water samples, Snyder said.

The mistake apparently resulted from confusion over the waterworks foundation's laboratory test results conveyed by the San Francisco Public Utilities Commission to the Associated Press. The news service said it was looking into the matter.

Snyder said the misunderstanding apparently occurred because of the results of an additional tissue test that showed barely detectable levels of estrogenicity, or activity by estrogen-like chemicals at parts per quadrillion, Snyder said. The estrogenicity levels in that test were even lower than in the highly pristine water being used by the researchers for quality control, Snyder said.

National reports of San Francisco's sex-hormone water hit the San Francisco PUC hard.

The city claims bragging rights over pure Hetch Hetchy Reservoir water surrounded by nearly 500 square miles of Yosemite Valley wilderness.

While other cities in the United States - and around the world - have to drink treated water sometimes tainted with wastewater, San Francisco, the East Bay Municipal Utilities District and other big Bay Area water purveyors generally take their water from streams above effluent discharges. They protect against animal and human encroachment.

It's unclear whether any other water purveyors in the Bay Area participated in the waterworks research foundation's testing of surface and drinking water. The results are kept secret, and only the utilities can reveal them, as San Francisco has chosen to do. Some utilities sought the water testing in 2006 to find out if they had these emerging chemicals. Tony Winnicker, a spokesman for the San Francisco PUC, said the utilities need to know which chemicals are going to be a problem.

San Francisco's utility serves 2.4 million customers in the city and in Alameda, San Mateo and Santa Clara counties.



## **Classroom Discussion and Activities**

To enrich the students' experience, we recommend pre- and post-viewing discussions and activities for *Flow: For Love of Water*. Teachers are encouraged to adapt the study guide to meet their own learning objectives for their students.

### **Grade Levels**

We recommend *Flow: For Love of Water* for Grades 10-12.

### **Suggested Subject Areas**

African Studies, Asian Studies, Environmental Studies, Health, Latin American Studies, Political Science, Science, Social Science, World Affairs

### **Pre-viewing Activities**

You can share the film synopsis, as well as information on the filmmaker and on water privatization.

### **Questions for the filmmaker**

- How did you become a filmmaker?
- Where did you learn your own filmmaking skills and style?
- How did you come up with the idea for the film?
- What does it mean to be a director of a movie? What is your job description?
- Why have you chosen to do documentaries as opposed to feature films? Do you think you will ever make a feature film?
- What kind of challenges did you face in making this film?

### **Post-viewing Discussion**

To get the student discussion going, pose some general questions such as:

- Did anything in this film surprise you? If so, what was it?
- What new insights or knowledge did you gain from this film?
- What is this film about and what is the filmmaker trying to get across to the audience?

### **Post-viewing Activities**

- Come up with a topic you think would be an interesting subject for a documentary. Research it and come up with a script.
- Write your own review of the film and submit it to [www.efilmcritic.com](http://www.efilmcritic.com).
- Does your school provide bottled water to its students? Write a letter to your school or district head stating the negative impact of bottled water and encouraging a switch to tap water. You can learn more about this issue here: <http://www.thinkoutsidethebottle.org/>.

### **Essay Questions**

- What are the advantages and disadvantages of privatization?
- How do you feel about adding Article 31 to The Universal Declaration of Human Rights? What article would you add to the declaration if you had the opportunity?
- What is your response to the article, “AP Probe Finds Drugs in Drinking Water”? How do you think we, as a society, should respond to these findings?

## Recommendations

### Books

- *Blue Gold: The Fight to Stop the Corporate Theft of the World's Water* by Maude Barlow
- *The Holy Order of Water: Healing the Earth's Waters and Ourselves* by William E. Marks
- *Silenced Rivers: The Ecology and Politics of Large Dams* by Patrick McCully

### Films

- *Thirst* (Alan Snitow, 2004)
- *Up the Yangtze* (Yung Chang, 2007) – Also playing at SFIFF 51

### Websites

- The Democracy Center – based in Cochabamba, Bolivia  
<http://www.democracycctr.org/index.php>
- More information in Dr. Ashok Gadgil's UV Waterworks technology  
<http://waterhealth.com/>
- Human Sciences Research Council of South Africa  
<http://www.hsrc.ac.za/>
- Pacific Institute for Studies in Development, Environment, and Security  
<http://www.pacinst.org/>
- RWE  
<http://www.rwe.com/>
- Suez  
<http://www.suez.com/>
- Sweetwater Alliance  
<http://www.sweetwateralliance.org/>
- Think Outside the Bottle  
<http://www.thinkoutsidethebottle.org/>
- Veolia  
<http://www.veoliaenvironnement.com/en/>

Please feel free to contact me at [kzwolfer@sffs.org](mailto:kzwolfer@sffs.org) to give me feedback on the screening. Let me know what you thought of it, comments, requests for future activities, etc.

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