

**Folks/Guys/People:** This audio text is a radio program that looks at the one of the most fundamental aspects of **authentic democracy**: ensuring access for all to a life-sustaining natural environment (represented here by clean water) in a society that commodifies everything, including the environment. In other words, in a **capitalist** society—such as this one—the central purpose of **procedural democracy** has evolved, through class struggles, to secure for the citizenry authentic democracy in the face of, in this day and age, the overwhelming and politically corrupting power of corporations (in their single-minded corporate-driven pursuit of profits above all else), which in this instance implies access for everyone to affordable clean water. As I write this preamble, I am reminded of one of the biggest polluting threats to clean water this country has faced to date because of the activities of corporations: hydraulic fracturing (or known simply as *fracking*). This audio text must be accessed in conjunction with the audio-visual documentary titled *Tapped* available either in the library and/or through a link on the *Course AV material I: The Visual Text (online films/videos)* page. In this assignment, either read the transcripts that follow AND/OR listen to the **podcasts** via the links indicated below. NOTE: In addition to making you aware of how the connection between *procedural* democracy and *authentic* democracy in a capitalist society (see the course glossary for what these terms mean) is played out in practice, I also want you to consider what *you* can do, as you go about your daily lives, to help secure a safe life-sustaining environment for all. (Question: what does commodify mean?)

---

## living on earth™

### PRI's Environmental News Magazine

([Living on earth](#) is a radio program that airs on many NPR radio stations.)

[Air Date: Week of December 28, 2012](#)

# The Clean Water Act

*Segment I*

## A Look Back at the Birth of the Clean Water Act

[stream/download](#) *this segment* as an MP3 file

*Firefighters battle a fire on the Cuyahoga River in Ohio. (NOAA)*

Forty years ago, when rivers caught fire and fish were washing up dead by the thousands Americans came together to demand “swimmable” “fishable” waterways for all. 1972 marks the creation of the Act that changed the way water pollution is managed in America. Host Ashley Ahearn talks with William Ruckelshaus, the first administrator of the Environmental Protection Agency who oversaw the initial implementation of the Clean Water Act.



## Transcript

CURWOOD: From the Jennifer and Ted Stanley Studios in Boston, this is Living on Earth. I'm Steve Curwood. This week we bring you a special broadcast commemorating the 40th anniversary of the Clean Water Act of 1972. We've partnered with EarthFix, a public media collaboration in the Northwest that focuses on energy and the environment. And with me for this special broadcast is Ashley Ahearn, environment and science reporter with EarthFix and public radio station KUOW in Seattle. Welcome to Living on Earth, Ashley.

AHEARN: Glad to be here, Steve. When we look back 40 years ago, we had raw sewage spilling into waterways, Ohio's Cuyahoga River had caught fire – it was so polluted, and fish were washing up dead by the thousands in water bodies across the country.

CURWOOD: And, Ashley, think about these numbers: of the 3.6 million miles of rivers and 40 million acres of lakes in the United States nearly two thirds were considered “deteriorated.”

AHEARN: That's right. No big surprise then, that the Clean Water Act had overwhelming support in the House and Senate when it was introduced. The Act was supposed to make the waters in this country clean enough for fishing and swimming.

CURWOOD: And, Ashley, you talked to the guy who had to see that those goals were met. Bill Ruckelshaus, is a Republican.



*William Ruckelshaus was the first administrator of the EPA. (Wiki Creative Commons)*

AHEARN: That's right. He was the first Administrator of the Environmental Protection Agency back when it was created under the Nixon administration. He's had a long career in law, business and politics. And now he lives in Seattle, where I sat down with him in his office.

RUCKELSHAUS: Thanks for being here.

AHEARN: Take me back to the time of the creation of the Clean Water Act - what was the feeling at the time that made the EPA and made the Clean Water Act necessary?

RUCKELSHAUS: Well the sentiment was an explosion of public concern about the environment. It was caused by a number of factors, Rachel Carson's book which was written in 1962, had a cumulative effect that was quite pronounced in the country at the time. We had flammable rivers, you already mentioned the Cuyahoga River in Cleveland.

We had people in Denver wanting to see the mountains and people in Los Angeles wanting to see one another and it was a terrible time. I remember the first time I moved to Washington and the air was brown as I'd go to work in the morning. There was no industry in Washington at the time, that was all automobile pollution. So, people not only heard and saw problems of pollution on television every night, they witnessed it on the way to work, so it really created a demand that something be done.

What people have forgotten is that the Clean Water Act was vetoed by President Nixon; that veto was overridden overwhelmingly in both houses of Congress by both parties, even though the election was just two weeks away, and President Nixon was just 20 points ahead of Senator McGovern, his opponent. At the time still, his own party overturned that veto overwhelmingly.

AHEARN: What was that like? What were your conversations like with Nixon?

RUCKELSHAUS: Oh, they were so wonderful.

AHEARN: (Laughs.)

RUCKELSHAUS: I had sent him a letter prior to his decision as to whether to sign or veto the bill spelling out why I thought he should sign it, why I was in support of it. His principal concern was that he had asked for five billion dollars to devote to the sewage treatment plant grant program at the federal level. And they'd put seven billion in the bill and that got him quite agitated – he thought that was too much money. So he vetoed it. And what the override of that veto really showed was the overwhelming public support that existed at that time for cleaning up the water and the air and handling all kinds of environmental problems.

AHEARN: I want to play some tape for you that might sound familiar - it's from the NBC evening news archives from 1971:

[ARCHIVE TAPE: William Ruckelshaus, President Nixon's head man on environment was on the stand today before Senator Muskie of Maine who has dwelled on this issue himself. They were taking about clean water. How long is it going to take? I'm going to have to acquire some kind of national deadlines in order to ensure there's no inequality of treatment of this between regions – the states just don't

respond with equal speed. I think that's right. Each industry and the states must be placed on a deadline. And it's through this method that we can get uniform treatment across the country of putting everybody on the same deadline.]

AHEARN: That guy sounds familiar.

RUCKELSHAUS: He doesn't sound familiar to me!

AHEARN: (Laughs).

RUCKELSHAUS: Muskie did.

AHEARN: That deadline you were talking about ended up being 1985. There was supposed to be "zero discharge of pollutants into navigable waters by 1985" is the quote. And, quote, "swimmable, fishable waterways by 1983." Looking back on it, was that a reasonable deadline?

RUCKELSHAUS: No. It was not. Not anymore than the 1975 deadline for clean air throughout the country was reasonable. The Congress believed that setting deadlines, even if they were somewhat arbitrary and not likely to be achieved was necessary both to demonstrate the urgency of the need for the problem to be addressed, and at the same time maximize the pressure on the administrative branch to get moving to show improvement.

I can remember testifying in front of Senator Muskie that if we stopped doing everything that we were doing in the government we couldn't achieve these deadlines. And the problem with them was not the sincerity with which they were being suggested by the Congress, the problem with it was you doomed an agency like EPA to failure before it starts because we can't get there in that period of time.

It's taken us hundreds of years to get where we are today in terms of pollution. You just simply can't clean it up overnight. That was always capable of being portrayed as dragging your feet and not doing the right thing. In my view, it was just a statement of reality that we couldn't do it in that period of time.

AHEARN: So, the Act passes, you've got this new power and the money to make the changes and build the infrastructure. What happens next, what's going through your head?

RUCKELSHAUS: Well, it was a marvelous opportunity, in my view, to try to show the American people that their demand – their legitimate demand that something be done about a societal problem – would trigger the right kind of response from government and it was up to us at EPA to do the best job we could to respond to that legitimate concern, that was affecting public health and the environment.

We had less than a third of the cities in the countries providing adequate sewage treatment – in some cases, no sewage treatment. The sewage was just going directly into waterways and that was causing water borne diseases, it was causing all kinds of problems. We just had ignored it, essentially from the beginning, and this was a massive effort on the part of the federal government to deal with this problem.

AHEARN: What would have happened if we hadn't had the Clean Water Act? What did it allow you to do?

RUCKELSHAUS: That's a very good question. The way to measure progress is not just against where we were when we started versus where we are today, but where we were when we started and where we would be today had we done nothing. There are thousands of miles of waterways that are much cleaner today than they were 40 years ago as a result of the treatment being put in or discharges that were going in that have been corrected. And as I say, that doesn't mean we're home free, we've still got work to do and always will have. But we're a lot better off today than we were 40 years ago.

AHEARN: What are you seeing now when you say there's more work to do? What would be at the top of your list if you were in charge today?

RUCKELSHAUS: The biggest problem by far is what's called non-point source pollution. The point sources are water discharged from sewage treatment plants or from major industrial facilities, and those were the things that got the most attention when we started because that was 85 percent of the problem. That's what EPA estimated was true. The other kinds of problems are runoff from city streets, runoff from suburban lands, from farmlands, from rural lands, and those are so-called non-point source pollutions, it doesn't all come from one single source. And the situation is just reversed today.

The EPA's current estimates is that 85 percent of the problem is non-point source pollution. That's a much harder problem to get at because it isn't a single plant or a single city that's discharging. You can put those cities, which we've done, and industrial facilities on

permits. Permits spell out what they have to do to keep the water from being polluted from their discharge. They have self-reporting requirements if they violate any of the terms of the permit they can either be fined substantially or be put in jail if they violate on purpose the requirements of the permit itself.

So that problem is largely under social control. I'm not saying that it's gone, we still have to stay with it, but it's largely under social control. The non-point source problem is all of the rest of us. That's the ones that we're all convinced we're not doing any of this – this is all some terrible person or all some terrible industry or city that I have no control over. But getting people to manage their land in such a way, getting people to control their lives in such a way that they don't contribute to this non-point source pollution problem is proving to be very difficult.

AHEARN: I want to talk politics here for a minute. It seems like in recent years, Congress has had a really hard time reaching any sort of bipartisan agreement on anything, really. Let alone environmental issues. But 40 years ago, when the Clean Water Act came into being, things looked different. Why is the environment a partisan issue now, and how do Republicans get back into the game of protecting the environment?

RUCKELSHAUS: Well, they're not. Those Republicans in the House, in particular, though it's probably true in the Senate as well, but the ones in the House have passed a lot of laws recently through the House, but not through the Senate, that would take authority away from EPA to regulate this kind of stuff, that would even abolish EPA in the case of some of those laws... are a result of people coming to believe that the regulatory system itself is imposing unfair burdens on industry, on the American people. So that when a Republican politician rails against the EPA for excessive regulation, they don't get the same kind of feedback they would have gotten 40 years ago when these laws passed unanimously by their predecessors in Congress.

And when they asked EPA why are you doing what you're doing, because the very body I'm testifying in front of told me to do this 40 years ago, it's still in the law, you haven't amended the law. If you don't want me to enforce the law, then don't put it in the law that I'm charged with implementing. And I've seen the current Congress say that any regulation that costs over 100 million dollars a year, we should review as to whether or not it should go out in the form in which it's been promulgated.

Well, I'm going to be tempted to give them that authority and you go ahead and answer the questions from your constituents about the impact of doing this on their health, on their environment, and see how much you like making these kinds of decisions. They wouldn't last six months under those conditions. Now, it will never happen, they'll never get that kind of authority to go back, but the difference today from where we were 40 years ago is where public opinion is. If public opinion were as intolerant of what's happening to our environment and our public health today as they were 40 years ago, you wouldn't have a partisan split on this issue. There was almost unanimity that something be done about it.

AHEARN: So, what changed?

RUCKELSHAUS: I think a number of things changed. Maybe the most important thing is success. The EPA may well be a victim of its own success. We don't see the same kinds of visible pollution problems today that we did. We don't have flammable rivers anymore and we don't have smog that's so awful that you can't even see one another. That was the situation back in the '60s when the public's concern began to express itself.

We still have problems today; they tend to be more invisible. They tend to be things that you can't smell, touch and feel the way you could 40 years ago. And that just doesn't get public attention. You're also going through a terrible economic time right now. And the economy, whenever the economy deteriorates, support for the environment deteriorates as well.

AHEARN: You're a grandfather, right?

RUCKELSHAUS: Right. 12 times!

AHEARN: Wow! So, if you...

RUCKELSHAUS: That's part of the problem.

AHEARN: (Laughs.) So if you listen to this interview with your grandkids, or if your grandkids heard this interview, what would you want to tell them about the Clean Water Act and what it meant for you and your career?

RUCKELSHAUS: Well, what I'd want them to know is that their society, their government, can be responsive in a democracy to their legitimate demands. And that where problems are identified and the government is supported by the public and serious about dealing with

them, significant progress can be made. So the government isn't always the enemy, the government is sometimes a necessary institution for dealing with problems as widespread and gross as water pollution was, and it's an example of our country having successfully grappled with a problem.

So, don't, as you grow older and as you mature in your understanding of the choices that we have in society, necessarily rule out a governmental solution for a problem that you have. It's not the best way to solve all of the problems by any means, but there are some problems that we're in it together, just like our President has said. Some problems you can solve yourself, others you have to solve together – water pollution is right up there at the top.

AHEARN: Mr. Ruckelshaus, thanks for joining me.

RUCKELSHAUS: Sure Enough. Thank you.

AHEARN: Bill Ruckelshaus was the first Administrator of the Environmental Protection Agency back when it was created under the Nixon Administration.

CURWOOD: So Ashley, I'm wondering, what's he up to these days?

AHEARN: Well, Bill Ruckelshaus is really a senior statesman on the environment at this point. I mean, the man has not slowed down, or even really hesitated for a minute on the Clean Water issue. He's just wrapping up some ground-breaking work leading a panel that was convened by Washington governor Chris Gregoire to tackle ocean acidification which is starting to hurt the shellfish industry in a big way here in the Northwest.

CURWOOD: Ah, yet another emerging threat to water quality...

AHEARN: And he's on it.

[Footage used in the William Ruckelshaus interview was courtesy of "NBC Universal Archives".]

## Links

[Official EPA biography of William D. "Bill" Ruckelshaus](#)

[Information about the Ruckelshaus Center at Washington State University and the University of Washington](#)

[Earth Fix](#)

---

### Segment II

## Threats to Clean Water Today

[stream/download](#) this segment as an MP3 file



*Today one of the biggest threats to clean rivers comes from agricultural runoff. (NOAA)*

The Clean Water Act has had considerable success over 40 years, but now it faces challenges such as crumbling infrastructure, stormwater overflows, agricultural runoff and lack of enforcement. Host Ashley Ahearn discusses some of those challenges with Robert McClure of Investigate West.

## Transcript

AHEARN: It's Living on Earth. I'm Ashley Ahearn.

CURWOOD: And I'm Steve Curwood. Welcome back to our special coverage of the Clean Water Act at 40. Now Ashley, we should mention that Living on Earth has partnered with EarthFix - an environmental news service in the Northwest - to take a look at the Clean Water Act over the past 4 decades.

AHEARN: That's right. We've been exploring what the Clean Water Act has accomplished over the years and where Clean Water is still threatened in this country.

CURWOOD: So, back when the act passed in 1972 there were rivers catching fire, fish washing up dead by the thousands, and raw sewage flowing into waterways from Maine to Hawaii. We have come a long way, but there's more progress to be made, of course.

AHEARN: Right, and as you might imagine, the challenges we face today are different from the ones we faced back when the Clean Water Act was first created. Now we've got polluted runoff from large-scale agricultural operations, dirty storm water washing off of city streets - aging wastewater treatment systems - just some examples here, Steve.

CURWOOD: One of the things people might not know about the Clean Water Act is that yes, it regulates pollution, but it also allows pollution. This is not a no pollution act, it's really more of a pollution diet.

AHEARN: That's right.

CURWOOD: So, how does it work?

AHEARN: Well basically, big polluters have to get a permit, which in fact gives them permission to pollute. The rationale is that every five years or so that permit will be renewed and when it is, there will be better technology that will be incorporated to ratchet down pollution over the years.

CURWOOD: So what have we seen in the way of that ratcheting down?

AHEARN: Well, it certainly happened in the early years - when we went from having rivers that were on fire to having rivers that weren't on fire - but in recent decades that's really slowed down a lot.

CURWOOD: So where do we see the highest concentrations of permitted polluters?

AHEARN: That's in the urban areas - all the centers of manufacturing, human activities in cities - factories, sewage treatment, boat yards - all the things that we do that let at least a little bit of pollution into the water.

I headed to Seattle's Duwamish River to take a look. It's an urban waterway that's also been declared a Superfund site because of all the industrial activity that's taken place along its banks over the years.

CURWOOD: Alright, let's take a listen.

[SOUNDS OF DUWAMISH RIVER ACTIVITY]

AHEARN: For many Seattleites, the Duwamish is an invisible river. But it's not a quiet one. The river comes in the back door of the city, to the west of I-5, past storm water outflows, marinas, rusting barges and heaps of scrap metal. It escapes to Puget Sound beneath the West Seattle bridge, between piles of shipping containers and giant cranes. But despite all that, this river is on the path to recovery.

Perhaps no one has been monitoring that recovery as closely as James Rasmussen and Chris Wilkie. Wilkie is the head of the Puget Soundkeeper Alliance, and Rasmussen is with the Duwamish River Cleanup Coalition. We're on a motorboat heading up the Duwamish.

[SOUNDS OF MOTORBOAT]

AHEARN: So, where are we, James?

RASMUSSEN: We're about ready to cross underneath the Spokane Street Bridge. Most people who cross over this bridge live in West Seattle or are traveling to West Seattle, don't know that this is the Duwamish River because there's no sign on this bridge.

AHEARN: Rasmussen pulls out maps of the river. They're dotted with patches of grey, red and yellow representing high levels of arsenic, PCBs and dioxins. These are all dangerous pollutants, leftovers from this river's industrial legacy.

CURWOOD: So you have these legacy polluters on the Duwamish, alongside present day permitted polluters. But this isn't just a problem on the Duwamish.

AHEARN: That's right. EarthFix partnered with the non-profit investigative journalism organization, Investigate West, and we dug into the data on pollution permit violators. I worked with Robert McClure – he's the executive director. We took a close look at the Duwamish – and beyond.

MCCLURE: Yeah, absolutely we did see violations of a number of permits there on the Duwamish but that's very typical across the country. Very large percentages of permitted facilities are violating their permits at one time or another. That's the same picture that came up in a study that EPA did nationwide about four or five years ago. There are a lot of facilities that are routinely violating their pollution limits.

AHEARN: And is that a function of lack of enforcement on the local level with state ecology departments?

MCCLURE: It certainly is what we found in the Northwest. We found that very strapped agencies, that in the cases of Washington or Oregon, whole classes of polluters were not being enforced upon because of resource constraints. It's a money thing at the state agencies. I believe in northwest Oregon there was three and a half full time equivalent employees to supervise more than 1,000 facilities and that includes not just the enforcement and the inspections and all that, but also issuing the permits and looking over all the reports that they send in. So think about that. The numbers there are kind of staggering. And so the response was to just stop looking at certain categories of polluters.

AHEARN: One category of polluters is agriculture. As we move away from the cities, these urban hotspots for permitted polluters, tell me about agricultural runoff, agricultural pollution when it comes to the Clean Water Act and how it is regulated.

MCCLURE: Well it was left out. It was specifically left out when the Clean Water Act was passed and that was ostensibly because there would be differences in regulation from state to state because, supposedly, agriculture would be so different from state to state. I think anyone who has gone back and looked at it has seen that in fact it was a political calculation. What it means for us 40 years down the road, is that when you look broadly across the landscape, agriculture is the number one reason we're not meeting the goals of the Clean Water Act.

AHEARN: And, briefly, what are the problems with agriculture? What kind of problems do agriculture present to clean water and keeping waters clean?

MCCLURE: Well, they are allowed to dump dirty water into streams, to be very simple about it. One of the things that happens of course is that when you farm, you cut down all of the vegetation. And that allows a lot of things to happen. The rain doesn't get slowed down, so a lot of dirt runs off into the streams, also allows the streams to get overheated. We found that that was a fairly large problem that was surprising to us; that that's one of the biggest reasons that streams in the Northwest at least are not meeting the goals of the Clean Water Act is that they're getting too hot.

AHEARN: And it's also a function of livestock waste and fertilizers from farming, actual farming crops.

MCCLURE: Absolutely, yes, no doubt about it. Livestock and concentrated animal feeding operations and just regular old pasturing can produce a lot of livestock waste. And of course, then, fertilizers, yeah, that's huge. That's a lot of what you see in the middle part of the country – real problems with over application of fertilizer.

AHEARN: So, human waste is a problem for clean water, of course, and we've come a long way since the Clean Water Act was created back in 1972. Now we have sewage treatment plants around the country – talk to me about those – how are they working and what are some of the problems that you found in that?

MCCLURE: Sure, one of the biggest problems before the passage of the Clean Water Act was inadequate sewage treatment, and certainly the passage of that law and the provision of money by the federal government for local governments to improve their sewage treatment has been one of the crowning achievements of the Clean Water Act. The trouble is, that that was a generation ago or more, and the sewage treatment plants that were built or improved - they are getting old and they are breaking down.

But we don't have that kind of cash floating around to do that anymore. And so you get out into the countryside in particular, into these little towns that they may have a dwindling population and we're talking about large needs. In Idaho there's a town of about 300 that needed to come up with a million dollars to fix its sewage treatment plant, so, you know, start doing the math.

AHEARN: Here's an excerpt from a story that gets to that exact issue. It was produced by EarthFix's Bonnie Stewart. Bonnie went to a small town in Washington to find out how cash-strapped communities are coping with these costs.

STEWART: The eastern Washington town of Harrington is surrounded by farmland. It's home to 420 people. In 2005 the city had to build a new wastewater treatment plant. Mayor Paul Gilliland climbs into a white pick-up truck and takes us on a tour.

[SOUNDS OF TRUCK DOOR OPEN, DINGING]

GILLILAND: You start here; coming in from the city is the main sewer pipes that brings the 50,000 gallons a day down in from the city into our diverter box into the swirl concentrators that pull out large chunks of... ah, mostly feminine disposable apparatus that you flush down the toilet without thinking.

STEWART: The city of Harrington is short staffed. Fire chief Scott McGowan also has to manage the drinking water system and the wastewater treatment plant.

GILLILAND: He's in charge of anything with the sewer system. If it breaks in town he has to go fix it... he's spread very, very thin.

STEWART: That's why Mayor Gilliland plans to become a certified wastewater treatment plant operator too. Then he can be the backup for the fire chief. The new plant has not been trouble-free. Breakdowns have led to violations and expenses. And, of course, building the plant wasn't cheap.

GILLILAND: The city still has seven years after we built it. One and a half million dollars that it still owes and it's been a burden.

STEWART: The plant has operating costs too. Driving the monthly sewer fee rate to \$60 dollars per household. That's \$20 dollars more than Seattle charges, and \$5 dollars more than Portland. Having a fire chief operate a wastewater treatment plant may be unique to Harrington, but cities across the country are struggling to keep waters clean. In the Pacific Northwest alone, there are 550 municipal wastewater plants, many of them have fallen out of compliance.

AHEARN: That was EarthFix's Bonnie Stewart. I'm Ashley Ahearn and joining me is Robert McClure, he's Executive Director of Investigate West. OK Robert, we've got ageing treatment facilities, lack of enforcement on the local level, unregulated agricultural runoff... these are all on the list of threats to clean water in this country today. And then we have emerging contaminants, this new family of chemicals that are making their way into our waterways. Can you talk about that?

MCCLURE: Sure, there are a whole bunch of chemicals that are on the market and in the various things that we use around the house and on the lawn that are getting into our waterways. And the Clean Water Act just isn't set up to deal with those.

AHEARN: Right. And some of those chemicals have been shown to mimic the natural hormones in our bodies, and they can cause problems with reproductive health and development, metabolism, even behavior patterns in animals and people. Reporter Cassandra Profita took a look at some of those chemicals in this next story:

PROFITA: Dave Solm lives on a cul-de-sac in Oregon City. His house is immaculate. Every tool in the garage has its own hook, the countertops in the kitchen are gleaming. But in his house, as with most houses, toxic chemicals are hiding in plain sight. And he wants to know where.

SOHM: I'm curious about what things there are and I don't know what impacts I may be having that I'm not even aware of.

PROFITA: Jen Coleman is at Sohm's house to help. She works on reducing toxics for the Oregon Environmental Council.

COLEMAN: I would say the place to start is the bathroom.

PROFITA: Armed with a list of chemicals that have toxic effects on people and the environment, Coleman digs through cabinets, checks ingredient lists and compares them with contaminants that have been found in local waterways. First on her list is a chemical called triclosan. It's found in antibacterial soaps, toothpaste and deodorant. And it can be toxic to fish.



COLEMAN: What I'm looking for first is the ingredients you might find in the things you put on your skin or your hair and then rinse off on the shower, in the bathroom.

PROFITTA: The water that goes down the drains and toilets in Sohm's house is funneled into a wastewater treatment plant. The plant removes pollutants and sends treated water into the Willamette River. But scientists are increasingly finding evidence that everyday chemicals, pharmaceuticals and human hormones pass right through the treatment plants and into waterways across the country.

MORACE: What goes down your drain really does go somewhere.

PROFITTA: That's Jennifer Morace. She's a hydrologist with the U.S. Geological Survey. She tested the water coming out of nine wastewater treatment plants in the Northwest, and found traces of dozens of chemicals, from household products.

MORACE: A lot of people may think, 'oh, it goes to a treatment plant so it's taken care of.' But there's only so much we can take care of.

AHEARN: So, bottom line, Robert, this stuff is not getting treated.

MCCLURE: That's right, because the treatment plants aren't designed to treat it.

AHEARN: So, beyond the personal care products and the things that sneak through the wastewater treatment system, some contaminants don't even go through the treatment system to begin with and are instead flushed directly into nearby waterways from urban streets. Talk to me about storm water runoff.

MCCLURE: Sure, it's a huge problem. It's a growing problem because as we continue to develop, of course, we put down more hard surface; streets and parking lots and roofs and all that. In fact, it's been calculated that across the United States, an area equivalent to the state of Ohio has been paved over or otherwise put under a hard surface.

AHEARN: And that has very real affects on wildlife. I want to take you now to a visit that I did with Jen McIntyre, she's a scientist with Washington State University. And she studies what storm water runoff does to Coho salmon. We walked down a long row of tanks in her lab. After a recent rainfall, McIntyre and her team collected almost 100 gallons of water flowing off one of Seattle's major freeways, and took it here. They poured some of the water through plastic columns filled with soil and plants to filter pollutants out of the road runoff. Then, they added juvenile Coho salmon.

MCINTYRE: And I don't know if we're going to be able to see it, there are fish swimming around in the bottom of these treatments.

AHEARN: These fish are lucky. They were put in a tank of filtered water. Some of the other fish, not so much...

MCINTYRE: Behind door number two, we have some of the runoff water. And as you can see it's not very clean. And I couldn't even see the fish in here when they were in here.

AHEARN: The fish weren't in here very long. The straight cocktail of petroleum hydrocarbons, dirt, heavy metals, and particles of tires and brake pads and other pollutants that show up in storm water all over the country, made short work of those fish.

MCINTYRE: Right away, within the first day of this experiment, we saw that the fish in the street runoff all died. And the fish in the water that had been put through the soil columns are still alive.

AHEARN: Scientists have known for some time that urban storm water runoff is bad for fish. The pollutants in it can affect fish development and cause cardiovascular problems and brain hemorrhaging. But the undiluted water McIntyre collected straight from the freeway is even more toxic than your average urban creek. She's putting the water through several different filtering combinations. Some have compost, some have plants, some don't.

MCINTYRE: At the end of the day, the winner takes all. And when we find the most effective treatment, then we can start applying that out in the real world, so to speak. That's what we're very hopeful for.

AHEARN: I think that's what I loved about learning about Jen McIntyre's research, is that she is looking for solutions, she's not just highlighting the problem. Robert, why is research like this important?

MCCLURE: Because this is a problem that we actually can get a handle on, that there are solutions to. Our knowledge of storm water pollution and what it's been doing to us and our waterways has been growing, but now we're to the point that we're actually actively looking for solutions and cities across the country to varying degrees are doing this. One thing that's happening across the Northwest is people are starting to very carefully look at the way that we're building our cities and asking: 'well, how much hard-scape do we need? And, why can't we have greener cities, lush cities?'

And really a lot of the solutions to storm water pollution involve things that are esthetically pleasing. It's putting in a rain garden or vegetated soil. The more greenery you put in, the less water gets through.

AHEARN: Yeah, briefly describe: How does a rain garden work?

MCCLURE: Sure, a rain garden is a depression where water is funneled purposely and it is planted with hardy plants that are not going to be killed by taking in toxic runoff. The water goes in and soaks into the ground rather than running off into the street.

AHEARN: So, it's sort of recreating nature's natural filtration mechanism?

MCCLURE: That's right. And placing them very strategically. Another important concept is one called low-impact development, which is how we build the cities in the first place. And, to oversimplify, what's being said is that we need to build up, instead of out. And leave as much native vegetation and native soil in place as possible. And sort of minimize our footprint even within the city.

AHEARN: So, after all the threats to clean water that you and I have discussed today Robert, what gives you hope when you're covering this issue?

MCCLURE: Oh, just the fact that it is getting a lot of attention and that people do care. And that there are people like Jen McIntyre out there who are slogging away every day trying to find solutions. We've come a long way too – when you look back at the Clean Water Act, think of the progress that we've made. We didn't meet all the goals, we still have a long way to do that, but look around and we have made progress and we can continue to make progress if we put our minds to it.

AHEARN: Robert, thanks so much for joining me.

MCCLURE: Oh, it was fun, thanks!

AHEARN: Robert McClure is the executive director of Investigate West.

## Links

[Robert McClure's report for Investigate West about storm water runoff](#)

[More about the campaign to clean up the Duwamish River in Seattle](#)

---

## Segment III

# A Look Ahead at the Clean Water Act

[stream/download](#) this segment as an MP3 file

*Scientists dissect fish to look for evidence of endocrine disruption. (USGS)*

There are some chemicals the Clean Water Act was never set up to manage, but they may be having very real effects on fish. Hosts Steve Curwood and Ashley Ahearn explore the emerging threats to clean water. Then Steve Curwood turns to Katherine Baer of American Rivers for a look at the Clean Water Act in the coming years.

## Transcript

CURWOOD: It's Living on Earth. I'm Steve Curwood.



AHEARN: And I'm Ashley Ahearn. Welcome back to our special broadcast with EarthFix, marking the fortieth anniversary of the Clean Water Act.

CURWOOD: We're going to take a look ahead now to the future of the Clean Water Act and some of the challenges and emerging threats to clean water.

AHEARN: Despite the progress that's been made, there are some chemicals that the Clean Water Act never saw coming.

CURWOOD: Chemicals that can be found in household chemicals and personal care products, among other places. Some of them have been shown to mimic the hormones in our bodies. They can slip through sewage treatment.

AHEARN: Some research is showing that's a problem for fish. Scientists here first realized there was something weird going on with fish around here about 10 years ago.

I visited the lab of Lyndal Johnson. She's a fisheries biologist and toxicologist for the National Oceanic and Atmospheric Administration. She told me about the time she and some of her colleagues were out near Seattle's waterfront sampling English Sole, that's a flat fish that's common here.

JOHNSON: And this was when we noticed these fish in Elliot Bay, when all the other fish had completed spawning, ready to go home, and it's all over for them, the Elliot Bay fish were still ripe and still had eggs that they had not yet spawned.

AHEARN: The team went back and sampled more fish around Puget Sound and found even creepier results. Some male fish were producing a protein called vitellogenin.

WEST: You don't want to see that in males.

AHEARN: That's Jim West, a senior scientist with the Washington Department of Fish and Wildlife. He was out on the water with Lyndal Johnson when they found the weird fish. Vitellogenin is a protein used to make egg yolks, so you find it in mature females, but never in males.

WEST: It's an indication that they've been exposed to something, some chemical, that is essentially feminizing them.

AHEARN: These fish weren't dying. From the outside, they didn't even look different. But there were striking changes going on inside them. The team took more samples. The results: almost half of the 49 male English sole they tested on the Seattle waterfront were producing the female egg yolk protein. The researchers found similar results in the juvenile Chinook salmon they tested at that site.

But the fish here are not alone. The US Geological Survey collected bass from more than 100 rivers around the country. A third of those fish showed signs of feminization and intersex characteristics. Don Tillit is a toxicologist with the USGS in Columbia, Missouri.

TILLIT: Mainly what we saw were oocytes in what would otherwise be normal testicular tissues.

AHEARN: Testes with eggs in them.

TILLIT: Testes with eggs in them, exactly.

AHEARN: Pinpointing the exact chemicals that are causing this feminization and intersex development has been the biggest challenge for scientists so far. But many believe a group of chemicals known as endocrine disruptors are to blame. They're sort of like hormone imposters. They act like natural hormones – estrogen or testosterone for example – and mess with the body's natural hormonal messaging system.

Bisphenol A is probably the most well-known chemical in this family. You'll find it in certain plastics, the liners of canned goods, epoxies – even kid's toys. Synthetic estrogen from birth control pills has also been shown to feminize fish. These chemicals get into our bodies and then end up in wastewater. Tillit says that wastewater, even though it's been treated, carries some of the chemicals into nearby waterways.

TILLIT: It's not surprising that in certain locations, downstream from wastewater treatment plants, are some of the most common locations where we can find intersex.

AHEARN: The problem, Steve, is that even the most modern wastewater treatment facilities aren't specifically designed to remove this new class of chemicals.

CURWOOD: That's right. I talked with Katherine Baer about that – and other issues facing the Clean Water Act right now. Katherine Baer is the senior director of the Clean Water program at American Rivers and I asked her how we're doing dealing with these emerging chemical contaminants that are getting into our waterways.

BAER: IN: The area of emerging contaminants and hormone disrupting chemicals is one area that the Clean Water Act so far doesn't cover, because when the Clean Water Act was written those had not been recognized as threats. So I think right now we're in the stage that they are suspected threats but a lot of research is going on to figure out how these contaminants effect people and fish and wildlife at very low levels and in combination over time and those sorts of determinations are very difficult to make and require a lot of science.

At the same time, from a precautionary perspective, it would be good to go ahead and sort of proactively address some of those threats to the extent that we can... at least reduce the sources, and increase the treatment where it's possible in the mean time and again because that will require some investment there's been hesitancy to do too much before more information is available. And so it is another area that the Clean Water Act and the Safe Drinking Water Act are really going to have to grapple with in the coming years.

CURWOOD: So in other words we're really not protected from those chemicals now.

BAER: No.

CURWOOD: So when you look at threats to Clean Water in this country now what do you see at the top of the list? Where should efforts be focused – those big single source polluters or should that focus be shifting perhaps?

BAER: Yeah, I think it's a little bit of a half and half answer. We've made so many strides on the point source area that certainly we do need to focus on the non-point source pollution. But before doing that, I think it's important to realize that we really do still have over 850 billion gallons of pollution in the form of sewage, either partially treated or not treated at all, going into rivers and streams every year, so we still need to make sure that we invest in our water infrastructure, which is an area we really are about to fall back on. And with population growth and climate change, we need to keep our eye on that ball for the point sources.

But I think it's true that the area where we really have opportunities to make gains, to try to figure out how we do better control polluted storm water runoff from urban areas, and that's really great area, a really rich area to be working because the science and the local governments and the practioners have really learned a lot over the last 20 years about how to better do that. So we have a great opportunity now to actually imbed within the Clean Water Act policies that we have to make it more widespread and more effective for clean water.

CURWOOD: What's missing, in your opinion, from the Clean Water Act? It's 40 years old, if you could update it, what would you do?

BAER: The big issue for the Clean Water Act that stands out is that there's a gap for agriculture. And I think, over the long term, we really need to find a way to fairly address agricultural sources of pollution. And not necessarily all of them, but certainly the ones that are commensurate or equal to industrial pollution and other categories. So, hog farms, major chicken operations, bring those into the folds of the Act. So there is more equity among the pollution sources that are creating problems for our streams and rivers and can make waters more healthy across the country.

CURWOOD: How effective is the Clean Water Act in dealing with the present reality of increased drought and climate disruption? I'm thinking for example of this conflict involving the Missouri River Basin. Folks downstream in the Mississippi want more water for barge traffic and folks to the west would like to see that water diverted into the Colorado where water is very short.

BAER: It's a great point. When people think of climate change, they don't always think about water. But, point of fact, climate is hitting our water resources. Already is. And it's hitting them sort of first and worst with more frequent, intense floods and droughts throughout the country which is really creating more extremes that is going to further stress our water resources as you mentioned on the Missouri and in many other places.

So, at this point, we are quite honestly not that well equipped to face climate change and its impact on water resources. I think moving forward – and it's another area where the Clean Water Act could be a bit stronger – trying to think about the future and how our approaches to clean, and safe, and reliable water could be more resilient and how do we build in safeguards to systems.

So, flooding is a good example – if we could better use our floodplains to actually buffer some of the floods and droughts. That works to both reduce floods in wet times, but also to help soak up and recharge water into our rivers in dry times. By doing that, both with floodplains and our sort of small streams, the capillaries of our watersheds, those are going to be really important approaches.

CURWOOD: Katherine Baer, tell me about some of the important cases in the Supreme Court, or other court cases relating to the Clean Water Act that you're watching particularly closely now, and why.

BAER: Yeah, I think it's interesting. The Supreme Court has definitely taken on a number of environmental cases in the past year. And there are several that are sort of interesting. There was one that was argued several weeks ago... this was the LA Country Flood Control district vs. the Natural Resources Defense Council, and it was a very confusing case factually, but sort of at its core, it was about who's responsible. Who is liable for polluted storm water runoff in municipal areas.

So, that will be a very interesting one to watch because it's really important to make sure that polluters are held accountable for the credences of pollution permits if they are contributing. That's sort of at the core of the Clean Water Act.

Another case that I think is interesting, and it hasn't been heard at all, so it's just at the entry level, is a case questioning whether it's legal to do something called water quality trading under the Clean Water Act. And this is a case brought by Food and Water Watch. And it's interesting because there's a growing interest in trying to figure out new ways to control non-point source pollution, as we discussed, and one of them is to say, well, could a sewage treatment plant, for instance, pay a farmer to reduce pollution if that was more cost effective.

So, this lawsuit actually questions well, under the Clean Water Act, is that legal? Are there mechanisms that make that legal or illegal, and before trading can really gain traction, I think some of these legal issues do need to be resolved.

CURWOOD: I could imagine, though, if I were downstream from that sewage plant that doesn't do so well, I wouldn't be very happy if they were getting credit so they could keep on polluting right in my backyard or where I want to fish.

BAER: Yeah, you got it right on. There are major questions about if you're trading, are we creating more pollution sources in one place and benefitting some people and making it worse in others. Creating essentially another version of the hot-spot.

CURWOOD: And if history is any guide, the folks who would get the extra dose of pollution might not have as much money as the rest of society, might not be the majority ethnicity: environmental justice, in other words.

BAER: I think environmental justice concerns are something that is brought up regularly in the context of water quality trading. Who benefits and who receives the burden.

CURWOOD: What do you see as the political threats to the Clean Water Act, that it faces now?

BAER: The political threats to the Clean Water Act have been pretty fast and furious. There has been really a constant assault on the Clean Water Act, primarily from the House of Representatives. And we've seen attacks on the actual fundamental structure of the Clean Water Act. There was one legislative proposal that actually would have sort of basically removed the Environmental Protection Agency's authority to veto the very, very worst permits that threaten fish and wildlife and public health.

And, this is a veto power that has been used 13 times over the last 40 years, and so it is very seldomly used but somehow we're still trying to strip some of those very important backstops out of the Clean Water Act. And then in the budget process, we've seen riders, attempts to stop the Environmental Protection Agency from doing their job in a number of ways, for example trying to clarify the scope of the Clean Water Act and also very specific rollbacks to specific provisions. So, trying to stop funding for the Chesapeake Bay cleanup plan, that has been a long time in the making, as well as a number of more specific provisions.

It's been a little disheartening given how much support there is for clean water across the country that we're still seeing these sort of efforts, renewed efforts to weaken our clean water protections, when really, at the 40th anniversary, we need to be moving forward, not backward. I guess I just think of it, really, in a personal way. I'm a parent, as many people are, and my daughter is at that age, she's eight, she just loves to swim. I can't get her out of the water once she's in, and I think about how along with millions of other Americans, we live very close to a river in our hometown, but we can't swim there, it's not clean enough.

And really that's the vision of the Clean Water Act, is that all of us, you know, my daughter, everyone else's children, their dogs, their friends, where you are that the waters are safe enough and clean enough to swim or fish. And so that vision is really important and we're not there yet, but certainly we're much closer than we were. I think that's an important part of the Clean Water Act that's really worth protecting and fighting for.

CURWOOD: Your daughter is eight; what are you looking forward to when she turns 48, in the next 40 years for the Clean Water Act?

BAER: (Sighs.) I would love it if my daughter, by the time she's 48, and surely she'll still be swimming and enjoying rivers, that the Clean Water Act would not only address some of the very obvious gaps like agricultural pollution, it would also be trying to figure out: 'well, what are the things of the future.' And it may include things like emergent contaminants that you just mentioned.

But also, are there ways to take a more comprehensive approach to our environment. And so, I think about, for example, that we have laws for air quality, water quality, drinking water that are separate right now. But many of these things are really connected as environmental systems. So, if a city for example, planted trees to reduce storm water runoff, but there also is a co-benefit for air quality, should we be thinking of those systems?

And similarly, do we get energy efficiency benefits by using a green roof and also reducing sewer overflows and flooding. So, I think there are a lot of more comprehensive approaches and sort of areas of innovation that are untapped right now. So, trying to better reuse water and capture energy from wastewater and a lot of emerging technologies that we can better incorporate into our regulatory and policy systems as we move forward. And so I hope that when my daughter is 48, I hope that she is living in a world that has a very smart and comprehensive approach to clean water and one where she and possibly her children will be swimming in clean water wherever they live.

CURWOOD: Katherine Baer is Senior Director of Clean Water Programs at American Rivers, thank you so much Katherine.

BAER: Thank you for having me.

[MUSIC: Ernest Ranglin "Memories Of Barber Mack" from memories Of barber Mack (Island Records 1996).]

CURWOOD: And Ashley, that brings us to the end of our special program in partnership with EarthFix. It's been great to have you back on Living on Earth!

AHEARN: It's been great to have a chance to work together again, Steve.

## Links

[More about Lyndal Johnson of NOAA](#)

[More about Katherine Baer of American Rivers](#)

---

© Copyright World Media Foundation. All Rights Reserved

[Home](#) | [Contact](#) | [RSS](#) | [Donate](#) | [Newsletter](#)