Ecology Legacy 2005-2012

DEPARTMENT OF ECOLOGY
State of Washington

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WHO WE ARE

Ecology is Washington's principal environmental management agency and was created in 1970 by the Legislature. Ecology's mission is to protect, preserve and enhance Washington's environment, and promote the wise management of our air, land and water for the benefit of current and future generations.

We are a team of highly skilled and trained scientists, engineers, hydrogeologists, toxicologists, emergency responders, educators, administrative support staff, and janitors, among others, who take great pride in what we do.

Our work is regulatory, and we advocate change, so tension is inherent in what we do. Some simply dislike any government role in land use decisions. Others frame environmental regulations as "job killers" and want them rolled back.

But it's a false choice. Our state's natural resources support one-third of our state's economy. Protecting the environment not only ensures the quality of life we enjoy but a healthy economy, too.

Ecology employees often find themselves working in this politicized space. Even so, they are professional and dedicated to striking a healthy balance between our communities, the economy and our environment.

As 2005 began, Ecology was making important changes in response to criticism from Gov. Locke's Competitiveness Council, focusing on permitting improvements and better customer relations. Ecology was also preparing to implement a new water management program in Eastern Washington to end the stalemate over Columbia River water.

Our new director, Jay Manning, established high-level priorities to increase Ecology's accountability and help employees connect their work to the agency's goals.

All in all, the future looked bright as we started 2005: improved credibility, wide public and legislative support for environmental protections and a Governor intimately familiar with our issues and committed to the environment.

However, the national economic recession that took hold of Washington in 2008 had its impacts on Ecology's budget and challenged our ability to make progress in our key priority areas. The threat of environmental rollbacks loomed large. Like other agencies, we would see our long list of important work put at risk.

Fortunately, through Executive Orders, legislation, strategic partnerships with a broad range of interests and our own energy, Ecology has made incredible progress in key environmental areas in the last eight years.

"WHISKEY IS FOR DRINKING, WATER IS FOR FIGHTING"

It's an old adage but holds true today.

As the state's water manager, Ecology is drawn into many water battles in a challenging landscape. We have outdated laws based on the state's pioneering days. We have 29 federally recognized tribes with strong interest in water management. We have conflicting cultural, political, rural and urban perspectives. Our major source of hydroelectric power is also important for iconic salmon runs. The amount of water serving our state's needs hasn't changed since 1889 while the demands have grown enormously and continue to grow.

With increased pressure on a limited resource, it's no wonder water drives conflict.

To shift the water paradigm, Ecology has looked for opportunities to create water "wins" these past eight years. Our work is evolving to seek locally-developed solutions that benefit people, farms and fish. More and more, Ecology seeks multi-interest collaborative solutions that respect everyone's needs.

Columbia River basin

For nearly two decades, water for farmers along the Columbia River and growing cities like Pasco, Kennewick, Richland and West Richland languished in uncertainty and gridlock. A six-year moratorium on new water rights was lifted in 1998, allowing some new water uses. But those were prone to interruption in summer months to protect stream flows for endangered fish species - setting up conflict with farmers who needed water at the same time, too.

By 2005, much of Eastern Washington suffered under drought conditions, and farmers in the Odessa were drilling wells ever deeper to tap into a declining aquifer. Lawsuits and questions about the science being used to make decisions about water use further complicated the situation. At risk was billions of dollars in farm income, the livelihoods of thousands of people, the health of native fish species and the viability of growing communities.

Building on efforts begun during the previous administration, Governor Gregoire brought the water community together at the same table. Perhaps, "community' is too strong of a description to assign to this group of irrigators, environmentalists, and tribal, local, state, and federal entities—they had been bitterly fighting each other over water issues for decades.

Still, with the Governor's and Ecology's help, they put aside past differences for the sake of finally finding a solution that would benefit everyone. The ensuing negotiations between these interests resulted in the groundbreaking Columbia River Water Management legislation and a $200 million down payment for new water.

The legislation fundamentally changed the way water is managed by giving all users a portion of new water. Ecology established the Office of Columbia River (OCR) to help identify and deliver new water supplies, and we work with an active advisory group that vets projects and approaches to build consensus before we move forward.

OCR Accomplishments

Since 2006, the OCR has developed approximately 150,000 acre-feet of new water supply to meet current needs. Another 200,000 acre-feet is in near-term development. The massive Weber Siphon project will link up 10,000 acres of Odessa farmland to surface water supplies and reduce dependence on the declining aquifer. State funding and the project's readiness helped leverage federal stimulus money to speed the work.

Cities up and down the river now have an opportunity to tap into water supplies from Grand Coulee Dam's Lake Roosevelt and further north at Lake Sullivan. A pump-back project moving a water diversion downstream

on the Yakima River will help water new vineyards on Red Mountain and keep water in the lower river longer for fish.

These solutions were made possible by bringing the different interests to the table to work out wins for all.

Yakima Basin

We've used this same approach in the Yakima basin, where there is no surface water for new uses but the demands for cities, agriculture and fish are high. Stakeholders there have come together behind an integrated management approach to developing water supplies and restoring crucial fish and wildlife habitat. This group is working with Ecology and the federal government to follow a road map they all helped develop that honors every group's interests.

The plan is ambitious and expensive: it calls for the construction of fish passage at in-basin dams, habitat restoration, watershed protection, development of new surface water and groundwater storage, enhanced agricultural and municipal water conservation programs, and establishment of more effective water banking processes.

At a price tag of $58 million to fund the early proposals and close to $4 billion to fully build-out components, it will take many years to implement. But with an upfront state investment, matching federal funds are more likely to be secured for a basin that supports both a $1 billion agricultural base and the promising return of sockeye salmon.

Western Washington water solutions

These problems and solutions aren't specific to Eastern Washington. There's a growing awareness that rainy winters in Western Washington don't add up to unlimited summer water supply.

The Legislature invested heavily in the local watershed planning process in the early 2000s, with Ecology expected to develop water management rules based on the local plans. In water-short basins, though, rulemaking became an embattled process with perceived winners and losers.

The Dungeness watershed

The Dungeness watershed has many demands on its water. Much of the water supply is spoken for, with some agricultural rights dating back to the early 1900s. In late summer and early fall, the streams experience chronic low flows, further stressing four threatened fish species. Ground and surface water are connected in many parts of the watershed, meaning groundwater wells can deplete stream flows, too.

Given all these pressures, we needed ways to allow new development without more impacts to streams and fish. And we need to restore depleted flows. We began rule making in 2006, but paused in late 2010 to give local leaders time to collaborate on issues outside the rule that would otherwise remain an obstacle: water supplies for development, resource protection and flow restoration.

During this "time out" this group of basin leaders, with support by the county, Jamestown S'Klallam Tribe and Dungeness Water Users, worked on finding instream and out-of-stream solutions that serve the watershed's fundamental economic, environmental and community interests. Now a more sustainable and supported water management rule is moving forward, including innovative tools for long-term water supply and mitigation solutions that we may not have considered otherwise.

Reducing Wait Time for Water Rights Decisions

Issuing water rights has become increasingly difficult because of uncertainty over water supply, competition for water, legal complexities, and reduced state funding to process applications. In many areas of the state,

new water simply isn't available – physically or legally. By 2011, these factors helped drive the number of pending water right applications to 7,000.

We're using new approaches to break through the logjam of pending applications. One is the Lean process improvement tool to streamline the application review process. Another is offering applicants a meeting before submitting their paperwork. Ecology staff then share the current conditions that could impact the applicant's ability to get new water, giving the citizen a choice in how to proceed. Applicants can also outsource the application review process. Ecology is creating new options in water-short areas so water for growth and economic development is available.

We exceeded a legislative mandate by issuing 689 "yes" or "no" water right decisions in fiscal year 2012, and another 171 applicants decided to withdraw or seek water another way. Even with new applications being filed as we process decisions, we've seen the backlog decrease to 6,600 at the end of 2012, and our goal is to make another 500 decisions by the end of fiscal year 2013.

Ecology understands that Washington's economic prosperity depends on water, and we're committed to finding creative ways to accommodate growth without degrading existing water rights or stream flows that support many of our natural resources.

REDUCING TOXIC THREATS

Chemicals are all around us - in medicines, electronics, skincare, cosmetics, fabrics and more. They've contributed to the high standard of living we enjoy, but not without cost.

Each year, our state spends tens of millions of dollars to clean up historic toxic releases, or "legacy pollution." Businesses spend large sums of money to manage the chemicals they use and hazardous waste they generate. And people are unknowingly exposed to potentially harmful chemicals in the products they use daily.

New chemicals are introduced to the marketplace with very little known about their long-term impact on personal health or in the ecosystem. Ecology is leading efforts to change practices now and into the future to stop compounding the problems that threaten our quality of life.

Prevention

Increasingly we find today's sources of toxic chemicals in the environment are often the products we use and depend on every day. We're also finding that laws on the books today don't work to control pollution from consumer products. We've learned that preventing the use of toxic chemicals in the first place is smartest, cheapest and healthiest way to prevent toxic exposures to people and the environment.

As part of our Reducing Toxic Threats initiative, we have a framework for studying and recommending action for a list of chemicals known as persistent, bioaccumulative toxics (PBTs). This class of toxic chemicals builds up in the environment, the food chain and our bodies, and can be found decades after being phased out or banned. Many of these have been linked to serious health issues.

In the past eight years, we've completed several chemical action plans on these dangerous chemicals.

Our research on a particularly toxic flame retardant, deca-BDE - and identification of a safer, equally effective alternative - led the Legislature in 2007 to pass the first ban in the nation on this chemical. More importantly, it led to three producers of deca getting out of the business of producing, selling and importing this toxic product in the U.S.

Mercury is another widely used PBT with serious environmental and human health implications. It's found in fluorescent light bulbs, vehicle switches, thermometers, even dental amalgam used in fillings. People are exposed mainly by eating fish, a compelling reason to eliminate it from the environment.

The state began phasing out known sources of mercury, signing agreements with the auto recyclers, dental association and hospitals to properly collect and dispose of mercury. In 2008, we launched a "Take It Back" campaign to increase proper recycling of fluorescent lights. And starting in 2013, light bulb manufacturers will offer residents a free take-back program for light bulbs with mercury.

In 2008, the Legislature passed the Children's Safe Product Act, a groundbreaking law to prevent harmful chemicals from being included in children's items manufactured and sold in Washington. It requires manufacturers to report if their products for kids contain certain toxic chemicals. This law put Washington as a national leader in safety standards for children's products.

E-Cycle Washington is another consumer-friendly effort to keep electronics out of landfills. This free recycling program is financed and operated by electronics manufacturers. Now in its fourth year, E-Cycle Washington has collected more than 145 million pounds of unwanted electronics that might otherwise have been tossed in the garbage and release toxic chemicals to the air, groundwater and land.

A New Approach

If we learn anything from our past, it's that we should be avoiding, where possible, the use of chemicals we know are toxic to people and the environment. It took 40 years for the U.S. to finally ban PCBs, a chemical

we knew was harmful in the 1930s. And today, we are still cleaning up legacy contamination from it and many others like it.

But there are too many chemicals in use today to effectively manage using our traditional prevention approaches.

While we keep making progress with chemical action plans and consumer safety legislation, Ecology is exploring a new prevention frontier, one which challenges industry and policymakers to think about the manufacturing process differently. We're asking a new question: What if we use safer chemicals in the first place and avoid repeating the problems we'd otherwise be creating?

Currently manufacturers don't have to think about the downstream effects of their products. But imagine if they did: less reliance on toxics in production and products ready for recycle at the end of their lifespan, and avoiding human exposure to and cleanup costs from harmful chemicals. This new approach would also lessen the burden on taxpayers who have to otherwise deal with the cost of safe disposal.

Some Washington businesses are using the free, confidential advice offered by Ecology's Technical Resources for Engineering Efficiency team to increase the bottom line while reducing waste, energy and water costs. Others are taking advantage of Lean manufacturing techniques to increase efficiency and cut waste. Ecology's pollution prevention program has saved over $2 million and numerous jobs, improved worker safety and environmental performance, and become more competitive.

Green chemistry is an emerging field of chemical design that can be part of a smarter prevention future, and we're advancing it in Washington. Green-designed chemicals reduce or eliminate the risk to people and the environment and have to be effective, safe and make sense economically.

We're leading an eight-state consortium that's developing a guide for businesses, schools and other institutions for finding safer chemicals for the products they make or purchase. The approach is educational, not regulatory. We also want manufacturers to know what works and is safer, avoiding equally or more harmful substitutes.

Experience has shown that businesses can have very successful bottom lines while using sustainable, environmentally-friendly practices and products.

Cleaning Up Contamination

Throughout Washington, we have thousands of contaminated in-water and on-land sites. It's too late to prevent the contamination and the damage it causes to our land, air and water. As effective and essential as cleanup is, it can be complex, expensive and time-consuming. Ecology's cleanup program oversees many of the contamination cleanup projects across the state.

That work is funded by a dedicated source. Voters in 1988 approved an initiative that established a statewide cleanup program and provided funds through a tax on hazardous substances. Most revenues come from petroleum products – the most prevalent hazardous substance, and the source of contamination at many of the state's roughly 11,500 identified cleanup sites. When oil prices rise, as they did during the last several years, the revenues to the state and local toxics control accounts grow. That's given us the ability to keep cleanups – and the related good-paying construction jobs – funded even during the recession.

Since the 2005 fiscal year began, $310 million has been spent: cleaning up properties along Puget Sound shorelines; helping local governments pay for cleanup so sites can be used for economic development and public benefit; removing contaminated soil at school playgrounds, child-care facilities, parks, and other places children can be exposed; removing leaking underground tanks; and addressing other contaminated properties throughout the state.

We also have seen an increase in the number of property owners who seek Ecology's technical expertise but conduct cleanups outside Ecology's formal process.

A major win came in 2009, when the state won a $188 million settlement in federal court from Asarco's parent company, which operated smelters in Point Ruston and Everett as well as mines in Northwest and Eastern Washington. Ecology now has the funding to clean up the highly toxic lead and arsenic contamination that resulted from mining and 100 years of smelter operations.

Federal Leadership on Toxics Reform

Leadership is needed at the national level on regulating toxics. But Congress has failed to update the Toxic Substances Control Act (TSCA), the prevailing federal chemical policy that passed in 1976. As a result, states are stepping up to the plate, passing their own legislation to deal with the problem.

Our state was the first to limit cadmium, lead and phthalates in products for kids. Congress responded with similar children's product safety legislation. We developed a set of chemical policy reform principles and have the support of 13 other states. The pressure we're creating in the system is making ripple effects, but Congress needs to step up and do its part.

Reforming federal law is essential for a number of reasons. We know more today about protecting ourselves and the environment than we did in 1976. Some problems can only be resolved by changes in federal legislation. And left on their own, states have developed what amounts to a patchwork quilt of regulations that makes compliance substantially more difficult for manufacturers and retailers.

Until Congress responds – and as long as ongoing, uncontrolled toxic releases and exposures continue in Washington – states and agencies like Ecology need to keep the pressure on. Otherwise we're not doing our job.

PROTECTING AND RESTORING PUGET SOUND

When polled, residents have typically responded positively about the Puget Sound's health. But studies show otherwise - the Sound is in danger. Beneath the water's surface is a hard truth: years of pollution have taken their toll on sediments, fish and other aquatic life that live in the Sound.

Four million people call the Puget Sound home. By 2020, that number should grow to 5.1 million. The Sound's health is a quality-of-life issue for the 70 percent of Washingtonians who live around it. How can we ensure the Sound's future while meeting the demands of population and economic growth?

To make sure we do, Governor Gregoire put the restoration and protection of Puget Sound at the top of her priority list for Washington state. Her legislative and funding package proposed a partnership between governments, tribes, business and environmental groups, and citizens to achieve the singular goal of protecting the Sound and the $20 billion of economic activities it supports.

As a partner in the effort, Ecology was already doing the right work in site cleanup, air and water quality and spill prevention. But the Governor's call to action pushed us to better coordinate and collaborate.

Cleaning Up Toxics

We have a strong state cleanup program, thanks to a 1988 voter initiative. A barrel tax on hazardous substances – which is paid by industry, not general taxpayers – funds Ecology's work. Polluters also have to pay their share. Cleanup is part of Ecology's strategy to reduce toxic exposure to people and the ecosystem, and it is critical to the Sound's future.

After the Legislature approve the Governor's proposal to create the Puget Sound Partnership, Ecology reorganized and accelerated its toxic cleanup work to bolster the recovery effort.

Under the Puget Sound Initiative, we identified seven bays and their shorelines as priority for cleanup and restoration. Staff prioritized their time on known cleanup sites within one-half mile of the Sound, shutting off sources of pollution from the land while removing contaminated sediment from the water. Habitat restoration became an integral part of cleanup plans. Funding, staff resources and public involvement started coming together, with greater benefits than before.

We also partnered with local governments in new ways to speed cleanups of orphaned or neglected sites. In some communities this became more important to local leaders as the bottom fell out of the economy. Cleanup of abandoned sites could qualify for state grants, helping accelerate cleanup and ready the land for reuse.

We're seeing our work pay off. Cleaned up sites are now assets, whether as a park, redeveloped for business or as restored habitat that will strengthen the recovering ecosystem. We've seen stronger partnerships by local governments, tribes and citizens around community values in cleanups.

Cleanups can take years to complete, frustrating the community. And there are thousands of sites statewide that need cleanup. This is why we are using Lean process improvement to evaluate faster reviews of technical documents that can ultimately speed our work without shortcutting the environment.

Stormwater

Prior to modern development, land and forested areas acted like a sponge, absorbing and filtering rainfall, and eventually recharging aquifers and streams. As cities grew, we hardened the ground with pavement, roofs and concrete and engineered the excess rain to run off into streams, lakes and the Sound – without considering or understanding the impacts. A 2007 state study of toxics in Puget Sound identified stormwater runoff as the chief source. These toxics come from multiple and widespread sources, making it difficult to regulate a single source.

While State and federal regulations have done a good job of regulating end-of-discharge-pipe pollution that comes from known "point" sources, today's stormwater challenge is complex -- dealing with the impact of non-traditional flows of water across land and the toxic pollutants picked up by stormwater as it races across hard surfaces. Polluted runoff is essentially a legacy of our development choices over time. Urban stormwater also takes its toll on habitat and wildlife. Federal agencies consider stormwater runoff a primary obstacle to salmon recovery.

Solving the stormwater problem won't be easy. The problem has built over decades. Solutions will come through smarter development choices and educating citizens about personal actions that make a difference. Decision makers need to develop creative solutions that complement clean water law.

Cities and counties have a frontline role in managing the modern stormwater problem. Every five years, Ecology updates and issues municipal stormwater permits to be more protective. This year, we've incorporated the introduction of low-impact development requirements. These techniques use vegetation and soil to help rain absorb vertically into the ground rather than run off in a horizontal stream.

Some solutions, particularly those related to sources of toxics, will come through legislative changes and discussions with industry. In 2010, the Legislature passed legislation to phase out copper and other harmful chemicals from boat paint and brake pads. The Legislature also banned lead in wheel weights, coal tar in pavement sealants and phosphorus in fertilizers. We are working with the roofing industry to reduce the harmful chemicals that wash off roofing materials, down gutters and into our stormwater.

Tribes and the business and environmental communities are helping us develop new water quality standards for toxics based on human exposure. This will protect people, our environment and our economy by keeping our fish and shellfish some of the healthiest in the world.

Necessary investments and upgrades to protect water quality are expensive. Eleven Washington cities have the additional challenge of reducing overflows from their combined sanitary and stormwater systems. During heavy rainfall, these combined stormwater and wastewater systems are overwhelmed, sending raw sewage to the nearest waterway and causing significant water quality problems. Since 2005, local governments have received $183 million in state and federal funds to address this challenge. We're also providing stormwater education grants. Even with the capital funds through our Water Quality Program for large wastewater projects, funding to meet infrastructure costs remains a key issue.

Avoiding and Responding to Spills

Preparation, prevention and response efforts are part of Ecology's work to protect the state from the devastating effects of oil or chemical spills. More than 20 billion gallons of oil and other hazardous chemicals are transported across Washington waters and land every year. A good portion of the vessel traffic is along our outer coast, either on the way to foreign ports or into Puget Sound.

Ecology responds to nearly 3,800 spill reports statewide each year, 24/7. While the frequency of major oil spills has been on the decline since 2005, we haven't become complacent. We've looked to strengthen our partnerships with industry, tribes, federal agencies, British Columbia and others to keep the Sound from experiencing a crisis like the November 2007 COSCO *BUSAN* spill in San Francisco Bay.

The 2004 Legislature directed Ecology to eliminate all oil spills during oil transfers. This led to new rules in 2006 requiring vessels and oil handling facilities place boom in the water before transferring high-volumes of oil over the water. As a result, the rate of transfer spills dropped to approximately one gallon discharged per 100 million gallons of oil transferred. Upwards of 90 percent of transfers in Puget Sound are now pre-boomed.

After years of struggling to fund a seasonal then year-round response tug, the Legislature in 2008 made it an element of industry oil spill contingency plans. The move ensures year-round an emergency tug will be in place to protect the coastal shorelines and sensitive entrance to Puget Sound from oil spills that could come from a tanker, barge or other vessel in distress.

We conduct 1,000 vessel inspections each year to make sure they are meeting state, federal and international standards. We've updated state spill rules to require better oil spill contingency plans by those who transport petroleum in our state.

Ecology has been a member of the Pacific States/British Columbia Oil Spill Task Force since 1989, when it was created by then-Ecology Director Gregoire in response to the *EXXON VALDEZ* and *NESTUCCA* spills. Between 2005 and 2012, this group updated mutual aid agreements, improved consistency between the west coast states' oil spill requirements and hosted a Clean Pacific Conference in Seattle.

When prevention fails, Ecology is prepared with a rapid, aggressive and well-coordinated response.

In 2006, Ecology shifted staff to Bellingham and Vancouver for faster regional response capability. Thanks to the 2006 Legislature, we placed spill response trailers at 99 strategic locations statewide - including many in the Sound - and trained 1,000-plus local first responders how to use it. This equipment can prevent millions of dollars in cleanup costs and harm to water quality and marine life.

LIVING SHORELINES

Washingtonians love the beaches, shorelines and waterways that define so much of what makes ours a great state to live, work and play. Our economy is highly dependent upon our shorelines, too – getting our products to markets overseas and the growing shellfish industry. Most citizens easily understand the value of protecting the shorelines and their functions.

For many decades, managing shorelines and wetlands has been about minimizing their loss. Ecology's recent work has been to turn the tide toward achieving their long term sustainability.

Shoreline Master Programs

Since 1972, Washington shorelines have been protected by the voter-approved Shoreline Management Act. This accommodates three uses: public access; activities that require water access; and preservation for future generations. As a result, communities had to develop a broad program of local regulations known as Shoreline Master Programs (SMPs) to implement the Act locally. Most of these were written between 1974 and 1978.

A move to modernize these local regulations gained speed in the early 2000s. When Gov. Gregoire took office, her administration realized an added layer of complexity at play. New land use policies, such as critical areas ordinances and the Growth Management Act, came into effect after the first SMPs were written and now needed to work in concert with these updates.

At the same time, the Governor recognized the need to put more technical and financial resources in the hands of local governments to help the 260 cities and counties complete their SMP updates by 2014, particularly accelerating the work in Puget Sound communities to support its restoration and preserve ecological functions.

Ecology has provided communities the technical resources and feedback needed to design local regulations that are consistent with the Act and ensure "no-net loss" of ecological functions. Thanks to several rounds of state funding, Ecology has awarded grants to help with the planning costs.

We're seeing more innovative approaches to address complex problems in the updated shoreline rules. For instance, along the banks of the Yakima River – which changes its channel often and puts homes along it at further risk – the new regulations offer builders greater density in exchange for building the homes further away from the shorelines. The ability to develop and for people to live along the river is accommodated along with preserving the shoreline's ability to change over time without risking homes and infrastructure.

Wetland Mitigation That Works

Healthy wetlands perform critical ecosystem functions that, when lost, affect water quality, flood control and habitat for fish and wildlife. In Washington, over half of our fish and wildlife species rely on wetlands at some point in their life.

State and federal laws have a "no-net loss" standard when it comes to protecting wetlands. What this means is that development must make every attempt to avoid damaging a wetland. And if impacts are completely unavoidable, the lost functions must be recreated or enhanced elsewhere to mitigate or offset the damage.

State and national studies over the last 10 years indicated that wetland mitigation projects were only successful 50 percent of the time, for multiple reasons. Simply put, the existing mitigation process wasn't working.

In 2006, Ecology made "Mitigation that Works" an agency priority and brought together key interests who have a stake in mitigation projects. As a result of that stakeholder forum, two innovative strategies have

emerged that give the development community options to meet their offset requirements and increase the success of mitigation projects.

Wetland banks essentially allow developers to purchase credits in an already-approved mitigation project that will be managed and monitored by knowledgeable organizations for long-term success. Ecology approves wetland banks before any developer investment is made to ensure their quality.

And a new in-lieu fee mitigation program is being tested in two areas of Puget Sound now. These programs support multiple restoration sites in a watershed, again providing developers with an option to pay a fee to support monitored projects instead of building their own mitigation site.

Both options are adding valuable tools for protecting wetland resources well into the future.

HANFORD

The Hanford Nuclear Reservation is here today because of sacrifice and technological ingenuity. Embroiled in World War II, the U.S. needed to quickly advance its nuclear weapons program. The federal government chose this remote location as part of the top secret Manhattan Project, resulting in relocation of tribes and residents.

In just 13 months, members of the Greatest Generation built the world's first large-scale plutonium production reactor. And in the course of their work, scientists and engineers developed other technology we still use – Teflon, closed circuit TV, and the basic technology that led to CDs.

Forty-plus years of operations left contamination in buildings, soil and groundwater. And among the greatest threats remaining at Hanford is 56 million gallons of highly toxic radioactive waste stored underground in 177 aging and leak-prone tanks. Most of these are single-walled tanks long past their intended life span, and at least 67 have leaked.

Protecting the Columbia River from Hanford contamination is a top state priority. To do so, we're once again relying on advanced technology at Hanford, only this time to ensure successful completion of the world's largest and most complex environmental cleanup.

Cleanup

Cleanup is directed by the Tri-Party Agreement (TPA), signed in 1989 by the U.S. Department of Energy (USDOE), Environmental Protection Agency and Ecology. The TPA set cleanup timelines and schedules over 30 years.

But Hanford cleanup is often measured in decades, not months or even years. Progress is constantly challenged by complex technological issues, federal funding and politics.

Treating the tank waste is critical to protecting the Columbia River. Construction on the Waste Treatment Plant (which will immobilize or "vitrify" the waste in glass) began in 2002 but is just two-thirds complete.

Along with many cleanup timelines, construction and design of the plant fell behind as a result of cost overruns and design concerns. In 2008, the state sued USDOE to force the agency to get back on track with the missed deadlines.

The resulting legal settlement two years later set 2019 as the operations start date for the Waste Treatment Plant and requires USDOE to do all it can to meet this deadline, which includes seeking the necessary funding levels from Congress to keep the project on schedule.

Federal inaction on a national repository for storing waste from Hanford and other nuclear sites has also been an ongoing challenge. Without an identified national repository, Hanford's vitrified high-level tank waste would be forced to remain on site.

Even as the Waste Treatment Plant construction faces delays, elsewhere, hundreds of buildings have been demolished, millions of tons of contaminated soil has been removed from along the Columbia River and more than a billion gallons of contaminated groundwater has been treated. The groundwater remediation and other cleanup work received a huge boost of nearly $2 billion through the American Recovery and Reinvestment Act, sustaining and creating jobs at Hanford during the tough recession.

Hanford cleanup is pressing the boundaries of technology, both in facility design and waste treatment. Tremendous progress has been made since cleanup began back in 1989, but huge challenges remain. Ecology has a critical role in making sure the federal cleanup commitment is met and that residents of the Northwest are protected from Hanford contamination now and far into the future.

OUR CHANGING CLIMATE

We've already documented impacts of increased greenhouse gas emissions in Washington – decreasing snow pack, melting glaciers and warmer temperatures. Drier summers are putting our forests and rural communities at greater risk from wildfire. Wetter winters are increasing the frequency and intensity of flooding. And shellfish growers are seeing how increased carbon dioxide absorption in our seawaters is altering the food chain and harming their industry.

Climate change poses a critical threat to our state's quality of life. Washington is particularly vulnerable to the changes a warming climate will bring to precipitation patterns. For example, much of the state depends on snow pack to replenish sources of water for drinking, irrigation and river flows for fish and 70 percent of our state's electricity. Changes in the amount or timing of precipitation will likely require adapting our economy, built infrastructure and way of life to a new climate reality.

Since the beginning of the Industrial Era more than 250 years ago, the rapid rise in burning fossil fuels and land use changes have caused a dramatic rise in carbon dioxide emissions. These are causing the changes we're seeing today. While there's no way to "un-ring" that bell, Ecology has been working to develop emission reduction strategies to avoid worsening future problems and to prepare our state for what is to come.

Targeting Greenhouse Gas Emissions

Prior to 2005, climate change received little focus. With Gov. Gregoire's leadership, Washington became a national leader in climate policy and took steps to dramatically reduce our greenhouse gas emissions.

First, the Governor signed the clean cars bill in 2005, requiring stricter tailpipe emissions and increasing fuel efficiency for cars starting with model year 2009. Then a year later, voters approved Initiative 937, which required utilities to set energy conservation targets and acquire renewable resources like wind and solar as part of their energy portfolio.

The following year, Gov. Gregoire set the stage for a very ambitious and comprehensive state response to the climate change threat when she issued her first climate change executive order. In it, she set goals for greenhouse gas emission reductions from our state, creating clean energy jobs and reducing the money the state spends on imported fuels. She also directed the state to assess steps required to prepare for the impacts of climate change on water supply, public health, agriculture, forestry and coastal areas.

To support this new agenda, Ecology established climate change as an agency-level priority and began working with interested parties, other state agencies and joining regional and multi-national coalitions on reducing emissions.

Over the next three years, a lot would be accomplished in climate change in Washington.

Ecology and Commerce established the Climate Action Team, which worked quickly to recommend strategies to reduce emissions. The 2008 Legislature passed a series of climate change bills based on their recommendations, including a comprehensive framework for achieving greenhouse gas emission reductions.

This also included passing into law portions of the Governor's executive order setting emission reduction goals and requiring certain facilities and emission sources to report their emissions to Ecology on a regular basis. The Legislature also directed Ecology to work with its Western Climate Initiative partners to design a regional carbon cap-and-trade market system for consideration the following year.

The 2009 session ended with mixed results. The Legislature passed bills requiring state agencies to cut their own emissions and develop a statewide response strategy for our economic and public health sectors. But legislators failed in the last minutes of the session – even with Gov. Gregoire personally working the bill – to pass the cap-and-trade system.

The Governor responded with a second executive order directing state agencies to continue making progress, including directing Ecology to continue working on a carbon market model.

Cutting emissions from a coal-fired plant

The Governor also ordered Ecology to negotiate with TransAlta to reduce emissions from their Centralia coal-fired power plant – the state's largest single source of greenhouse gases. TransAlta not only provides hundreds of Lewis County families with living wage jobs but powers about 10 percent of the state's grid.

Those voluntary talks began in 2010 and had to address a reduction in climate-changing emissions and coal use, protect family-wage jobs and protect the stability of the state's power system. The final agreement set a schedule for phasing out the coal-fired power production by 2025 while transitioning the plant to a cleaner source of energy.

The Governor signed legislation in 2011 that put this collaborative agreement into law, making this one of Washington's most significant accomplishments in addressing climate change.

Economics play a role

The recession had a definite impact on political support and Ecology's funding for climate change work. As the state went into survival mode and the Legislature looked for costs to cut, Ecology's climate office was deeply cut.

Preparing for the impacts of coming change

Funding remained for a two-person team to complete a state climate change response strategy that outlines steps to prepare the state for coming impacts. This was released in April 2012.

Many of the challenges created by climate change are similar to those we have been wrestling with for decades – water supply and quality, ecosystem health, air quality, and shoreline and habitat protection and restoration. But the rate and severity of the changes projected in the coming years will be unlike anything Washingtonians have ever experienced.

Spring snowpack is projected to decline 28 percent by 2020 (relative to 1916-2006) which will make it more challenging to meet water needs for communities, irrigation, fish, and hydropower generation. Sea-level rise will magnify the adverse impact of storm surges and high waves on the coast, will increase the risk of coastal flooding and damage, and cause increased coastal erosion and retreat of coastal cliffs, beaches and dunes.

Rising temperatures, more frequent and longer lasting heat waves, and drier summers are expected to contribute to larger, more severe wildfires. Researchers project that the area burned by fire each year in the Columbia Basin will double or triple by the 2080s, compared to the 1916-2006 average. Costs of fighting wildfires are expected to rise and risks to communities, the environment, and wildlife are expected to increase.

Oceans need a carbon dioxide reduction strategy, too

In 2005 and 2006, disastrous production failures in regional oyster hatcheries signaled an emerging problem for Washington's seawaters: ocean acidification.

Science shows our oceans are becoming more acidic as they absorb some of the carbon dioxide that humans have added to the atmosphere. As a result, seawater chemistry is changing in ways we are just beginning to understand. For Washington, ocean acidification is likely to have significant ramifications for marine life, the economy and our cultural heritage.

Increased acidity leads to a chemically corrosive marine environment, particularly affecting organisms that use calcium carbonate to form their skeletons, shells or other body parts. Calcifers, as they are known, include:

oysters, scallops, mussels, geoduck, barnacles, urchins, sand dollars, brittle stars and even some seaweeds. In the broader marine environment, some calcifers provide habitat, shelter and food for plants and animals. Ocean acidification not only puts calcifers at risk, but also any species that rely on them.

Ocean acidification also has implications for Washington's shellfish industry, which generates around $270 million each year. This includes license fees and tourism dollars as well the jobs associated with restaurants, retailers and distributors.

Washington's tribal communities may also be affected. Many tribal families have supplemented salmon fishing with shellfish harvest for jobs and to feed their families. Shellfish are also part of the cultural fabric of many tribal communities.

Concerned, Gov. Gregoire appointed a Blue Ribbon Panel in early 2012 to study what's known about ocean acidification and develop state-level recommendations, making Washington the first state in the nation to take this approach with ocean acidification

The Panel issued its report in Nov. 2012, saying the most urgent action we can take is to slow the pace of ocean acidification by going after its sources – chiefly global carbon dioxide emissions.

In response, the Governor proposed funding to establish a center for ocean acidification at the University of Washington and issued an executive order to ensure state action on the most critical recommendations.

ECOLOGY'S EFFICIENT AND EFFECTIVE MANAGEMENT

Having good financial, personnel and operational management strategies has been essential to Ecology's ability to weather the recession.

Ecology Budget Basics

The majority of Ecology's funding comes from sources other than the state general fund. Most of those are fees, permits, federal dollars and dedicated environmental accounts established by the Legislature or the voters. As a result, Ecology's budget was less vulnerable to the decrease in state sales tax revenues as the recession began to take hold.

Ecology's budget supports local governments. About 99 percent of our capital budget and 13 percent of our operating budget passes through in the form of grants and low-interest loans. This money supports construction jobs, economic development and provides resources to address public health and environmental concerns.

Recession impacts

Since the start of the recession, the Legislature cut Ecology's general funds by $33.2 million (25 percent). We also saw a flattening or decline in the dedicated funds tied to construction, economic growth and environmental permits, which hurt the programs depending on those dollars. These losses were only partially offset by increases in federal funding, resulting in reduced capacity across Ecology programs.

For the Ecology programs and services that heavily relied on state general funds, the agency had to be more creative to keep meeting citizen and business needs. Where possible, we sought approval by the Legislature to increase some permit fees so the person or entity benefiting – not the taxpaying public – would bear the cost. Sometimes we were successful; other times, not.

We recognized our most important asset is our educated and experienced workforce. We managed our cuts and remaining funded vacancies in ways that allowed us to handle layoffs with a minimum number of employees who had to leave Ecology.

Good internal communication became more important than ever, as the budget and staff cuts became the topic of conversation in every agency hallway. We used our intranet to provide detailed information about budget and policy decisions, before, during and after the legislative debates and decisions. We held frequent all-staff meetings (a benefit of video conferencing) and provided detailed budget and HR information to the entire agency via e-mail and our intranet.

Working Smarter

Ecology's efforts to be a leader in sustainability and reduce the state's carbon dioxide emissions dovetailed well with the Governor's and legislative directives to cut travel and reduce fuel costs. We added hybrid vehicles to our motor pool to improve gas mileage. We increased our video conference capacity in most of our offices to reduce the need for travel to internal meetings. Of course, an added benefit to less time on the road is more time in the office to work.

Needed repairs for the Lacey office presented the right opportunity to install more energy efficient fixtures and lighting. Combined with other efficiency and greenhouse gas (GHG) reduction actions taken in our three state-owned facilities, we're saving $110,000 in operating costs and reducing energy use by 20 percent each year. We've blown past the 2020 GHG targets and are on the way to meeting the 2035 state GHG reduction goals.

Increasingly, our public expects easy online access to the data we manage and to be able to upload the information Ecology requires from them. To meet these demands, we've been developing new applications. For instance, businesses can now apply for certain permits online and upload required reports. We've expanded the interactive Coastal Atlas to link users with maps, photos and data of our shorelines. These are just a few examples

of how we've modernized our business to better serve our customers. Next up – an online grant and loan management system.

Improving the way we do business

Ecology is no stranger to Lean, having successfully worked with Impact Washington for several years to help the business community apply Lean tools to their manufacturing lines. It was a natural fit for us to embrace the Governor's December 2011 charge to use Lean as a primary tool to reduce the cost of government and improve service. Lean philosophy and tools complement the regulatory reform work we embraced following recommendations in the early 2000s by Gov. Locke's Competitiveness Council.

We are conducting Lean events and implementing actions quickly – 21 projects on our 2012 work plan alone. Recently, we used Lean tools to tackle the time and cost to complete cleanups done by local entities to get the environmental and economic benefits more quickly. We also are using Lean to improve our internal processes for filling public disclosure requests. At 18,000 requests per year, we need to find efficiencies so we can focus more effort on our on-going environmental work.

FINAL THOUGHTS

Quality of life drives Ecology's work. Having a great quality of life is essential to what makes Washington such a wonderful place to live, recreate and do business.

We take seriously our role in protecting the resources that support healthy communities and families, our economy and businesses, and our unsurpassed natural environment. When all three of these elements are healthy, Washingtonians thrive. When our air, land or water is degraded, our communities and businesses struggle.

We are optimistic that this state can attain a sustainable quality of life that doesn't degrade over time, but that outcome is not guaranteed. It will take continued regulation, but also a willingness to look toward more creative solutions when regulations alone can't solve the problem. Most importantly, it requires the will to do what's right and to seek collaborative solutions that work for all interests.

We have already seen how taking a new approach in water supply can move us away from "winner-take-all" to "wins-for-all" solutions. Ecology is also trying new approaches in policy areas where regulations aren't sufficiently protecting our quality of life. We are hosting facilitated conversations between stakeholders to find solutions to problems where laws and rules don't exist or aren't addressing emerging problems.

Seeking collaborative, multi-interest solutions can be challenging and time consuming. It requires having respect for each other's interests and takes time and persistence. But the approaches can transform our state and promise more durable solutions.

We need to continue to improve our processes and provide our citizens with the best possible customer service. Ecology is committed to continuous improvement in these areas, and we actively seek stakeholder input to learn what is working well and how we can do our job better.

At the same time, Ecology works hard to uphold its responsibilities under state and federal law in protecting the quality of Washington's air, water and soil.

Take the Hanford Nuclear Reservation. The federal government is responsible for cleaning up the nuclear waste, but we have to remain vigilant and hold Congress and federal agencies accountable for keeping their promise. Cleanup laws and legal agreements make that possible.

We've been on the right path these past eight years, even through a deep, enduring recession. Keeping quality of life at the forefront of our decisions and policy discussions has given citizens, businesses and policy makers a common yardstick for evaluating our state's future.

As we look ahead to the future, this common measure will help frame the necessary discussions about our state's challenges and problems and how best to adapt and create solutions that truly work for everyone.