September 2010 | www.epa.gov/region10/columbia

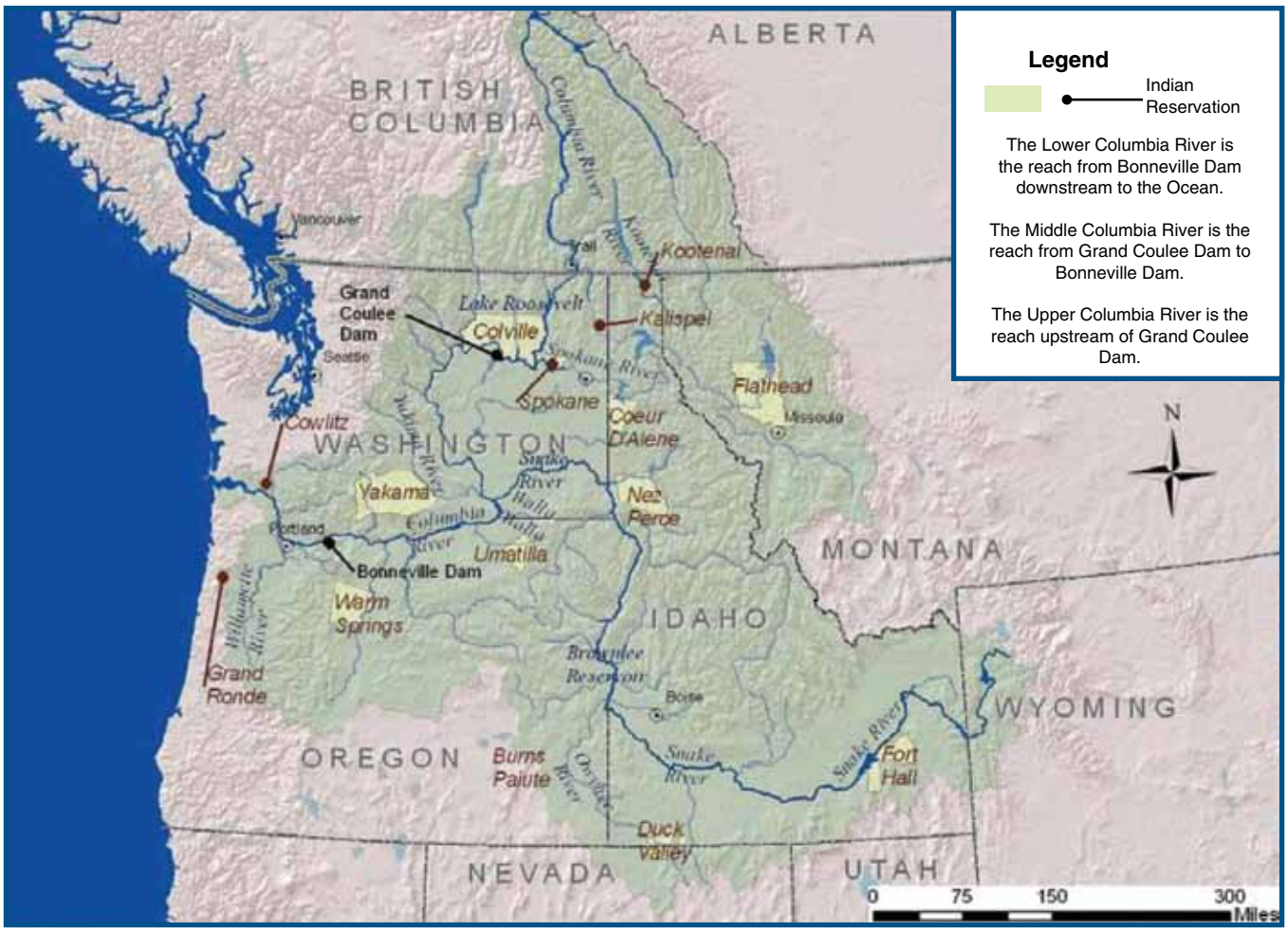
EPA
United States
Environmental Protection
Agency

Columbia River Basin Toxics Reduction Action Plan

September 2010
Prepared by:
U.S. Environmental Protection Agency, Region 10
& The Columbia River Toxics Reduction Working Group

U.S. Environmental Protection Agency
Region 10

Columbia River Basin



Excerpt from
Voyage of a Summer Sun
by Robin Cody
(used by permission from the author)

The Columbia River, like the idea for my canoe trip springs from no single source. The river gathers from glacial drip into brawling mountain streams all along the west slope of the Rocky Mountains, from British Columbia, Idaho, Montana, Wyoming. Before the Columbia becomes the border between Washington and Oregon and knifes through its cliff-guarded gorge in the Cascade Range, it has already traced Canadian rainforest and high desert. Green ferns and tall spruce are replaced by sagebrush and dry wheat, salamanders give way to rattlesnakes, loggers to cowboys, snow-capped peaks to dry-baked hills. After gathering itself from Canada, seven Western states, and two time zones, the Columbia slides from the desert into another dripping rainforest and heaves more water into the Pacific than any other river in North or South America, more than ten times what the Colorado sends through the Grand Canyon, twice the flow of the fabled Nile.

Columbia River Toxics Reduction Working Group Steering Committee

U. S. Environmental Protection Agency, Region 10
U. S. Environmental Protection Agency, Design for the Environment
Columbia River Inter-Tribal Fish Commission
Columbia Riverkeeper
Confederated Tribes of the Umatilla Indian Reservation
Idaho Department of Agriculture
Idaho Department of Environmental Quality
Lower Columbia River Estuary Partnership
Nez Perce Tribe
National Oceanic and Atmospheric Administration, Northwest Fisheries Science Center
Northwest Power and Conservation Council
Oregon Department of Environmental Quality
Oregon Department of Human Services
Oregon Environmental Council
U.S. Fish and Wildlife Service
U.S. Geological Services
Washington Department of Ecology
Washington Department of Health
Confederated Tribes and Bands of the Yakama Nation

EPA Columbia River Basin Website:
www.epa.gov/region10/columbia
https://twitter.com/EPAcolumbia

1.0
Introduction

The Columbia River Basin, in both United States and Canada, is one of the world's great river Basins in watershed size, river volume, and environmental and cultural significance. However, public and scientific concern about the health of the Basin ecosystem is increasing, especially due to the presence of toxic contaminants found in fish, wildlife, water and sediment, which can pose a health concern to people, fish and wildlife. Understanding and addressing the toxics problem is essential because the health of the Basin's ecosystem is critical to the approximately 8 million people who reside in the Basin and depend on its resources for their health and livelihood; and to the survival of fish and wildlife species that inhabit the Basin. Many threats exist in the Basin to overall ecosystem health; and restoration of the Columbia River Basin will require attention to a broader range of issues than just toxics. However, toxics are a critical issue, and in some instances, may be a limiting factor to salmon recovery efforts and a key environmental justice issue for tribal people as high fish consumers. While there are many other efforts underway, the U.S. Environmental Protection Agency (EPA) and key partners recognize there must be increased attention to Columbia River Basin toxics reduction.

Columbia River salmon and steelhead runs were once the largest runs in the world, but are now threatened and endangered in large part due to habitat and water quality, including toxics. The tribal people of the Columbia River have depended on salmon and lamprey for thousands of years for human, spiritual, and cultural sustenance. There is a major salmon recovery effort underway in the Columbia River Basin. However, little attention has been given to toxics reduction or toxics assessment, although many scientists believe that salmon recovery cannot be achieved without reducing toxics in water and sediment. EPA and others feel that toxics reduction and human health protection is an important role for EPA leadership and facilitation, and is consistent with the goals of the Clean Water Act. In 2005, EPA joined federal, state, tribal, local, industry and nonprofit partners to form the collaborative Columbia River Toxics Reduction Working Group (Working Group) to focus on toxics, and identified a goal to reduce toxics in the Columbia River Basin and prevent further contamination. This group was modeled on EPA collaborative efforts underway throughout the U.S. including the Chesapeake Bay and the National Estuary Program.

The Columbia River Basin State of the River Report for Toxics http://yosemite.epa.gov/r10/ecocomm.nsf/Columbia/SoRR/ was completed in January 2009 under the leadership of EPA Region 10 with the support and guidance of the Working Group. In the State of the River Report for Toxics, the Working Group described the risks to the Basin's human and animal communities from toxics and set forth current and future efforts needed to reduce toxics. The report focused primarily on four contaminants: mercury, dichlorodiphenyltrichloroethane (DDT) and breakdown products, polychlorinated biphenyls (PCBs), and polybrominated diphenyl ether (PBDE) flame retardants. These four contaminants were chosen as focal points because they are found throughout the Basin at levels that could adversely impact people, fish, and wildlife. However, many other contaminants are found in the Basin, including arsenic, dioxins, radionuclides, lead, pesticides, industrial chemicals, and "emerging contaminants" such as pharmaceuticals found in wastewater. The prevalence of these contaminants in the Columbia River Basin is also of great concern since they can have moderate to severe impacts on human and ecosystem health.

In 2006, EPA designated the Columbia River Basin as a priority Large Aquatic Ecosystem in the same class as Chesapeake Bay, the Great Lakes, Gulf of Mexico, and Puget Sound. These partner ecosystems each have designated funding

sources to protect and restore the water quality within their defined ecosystems. Columbia River Basin toxics reduction work is currently being done through coordination and partnerships without any designated funding sources, with the exception of work done in the estuary through the Lower Columbia River National Estuary Program, funded through Clean Water Act Section 320. The Working Group recommends that toxics reduction for the Columbia River Basin will best be accomplished through work efforts achieved through sustainable resources, which requires designated funding.

The work in the Columbia River Basin can provide leadership and support national chemical policy reform. EPA Administrator Lisa Jackson has identified a priority focus on assuring the safety of chemical in the U.S. and leading efforts to work with Congress, members of the public, the environmental community, and the chemical industry to reauthorize the Toxic Substances Control Act (TSCA). The Administration believes it is important to work together to quickly modernize and strengthen the tools available in TSCA to increase confidence that chemicals used in commerce, which are vital to our Nation's economy, are safe and do not endanger the public health and welfare of consumers, workers, and especially sensitive sub-populations such as children, or the environment. More information on the EPA Initiative can be found at: http://www.epa.gov/oppt/existingchemicals/pubs/principles.html

2.0
Action Plan Background and Goals & Objectives

To ensure a more coordinated effort for toxics reduction in the Columbia River Basin, EPA and the Columbia River Toxics Reduction Working Group partners met in Toppenish, Washington, on the Yakama Indian Nation Reservation, in September 2008, to develop a set of broad initiatives needed to reduce toxics in the Basin. The discussions led to six initiatives that were presented in the Columbia River Basin: State of the River Report for Toxics http://yosemite.epa.gov/r10/ecocomm.nsf/Columbia/SoRR/ (see Section 8.0 of the Report - Toxics Reduction Initiatives). Since that time, the Working Group has worked together to scope out a more detailed action plan focusing on five initiatives detailed below, and the actions that can be accomplished in the next five years by citizens and government, through 2015, to better understand and reduce toxic contamination in the Columbia River Basin. EPA plans to work with the Working Group and others to update this Action Plan in 2015 to address emerging issues and changing resources. The next Action Plan should provide increased detail on prioritization of actions, integration of actions and initiatives, and methods for evaluating effectiveness of efforts.

This action plan identifies two tiers of actions for each initiative: first, coordination efforts and other efforts that are already underway; and second, new efforts needed to reduce toxics in the Basin, based on additional resources. Any partner in the Basin, whether a federal or state agency, tribal government, municipality, regional government, nonprofit organization, industry group, or citizen, should be able to look at this Action Plan and identify one or more recommendations that they could implement given existing resources. With additional resources, partners should be able to engage in an increased level of toxic reduction activities across the Columbia River Basin.

The scope of this Action Plan is on the entire U.S. portion of the Columbia River Basin including most of Oregon (OR), Washington (WA) and Idaho (ID), and parts of Montana, Nevada, and Utah, with a priority focus on the EPA Region 10 portion of the Basin (ID, OR, WA). In 1996, EPA convened the National Estuary Program (NEP) in the Lower Columbia River estuary with the states of Oregon and Washington, through Clean Water Act Section 320. The Lower Columbia River National Estuary Program issued a Comprehensive Conservation and Management Plan for the estuary portion of the Basin (approximately 5% of the Basin) in 1999 which serves as the action plan for implementation and monitoring activities in the estuary and identifies toxics reduction as a high priority. EPA, the Columbia River Toxics Reduction Working Group, and the Lower Columbia River NEP, working through the Lower Columbia River Estuary Partnership, will continue to work closely together on toxics monitoring and toxics reduction throughout the Basin.

Columbia River Basin Toxics Reduction Action Plan Goal and Initiatives:

The Working Group identified the goal to: **Reduce human and ecosystem exposure to toxics in the Columbia River Basin**

Exposure to toxics will be reduced through the following initiatives:

- Increase public understanding and political commitment to toxics reduction in the Basin
- Increase toxic reduction actions
- Conduct monitoring to identify sources and then work to reduce toxic contamination
- Develop a regional, multi-agency research program
- Develop a data management system that will allow us to share information on toxics in the Basin

The Columbia River Basin State of the River Report for Toxics and this Columbia River Toxics Reduction Action Plan both represent great strides in collaboration and coordination of toxics reduction in the Columbia River Basin. The Working Group believes that the recommendations identified for each initiative, when implemented, will create a common framework for toxics reduction and make the Columbia River Basin ecosystem healthier for all who live, work, and play in the Basin.

To a great extent, success in reducing toxics in the Basin will depend on a commitment by all levels of government, in both the United States and Canada, tribal governments, nongovernmental organizations, industry groups and the public to work together. The problems are too large, widespread, and complex to be solved by only one organization or country.

3.0
Initiatives

Initiative #1:
Increase understanding and political commitment to toxics reduction in the Columbia River Basin

Political support and public awareness and engagement are critical to toxics reduction success in the Columbia River Basin. Additional resources for toxics reduction and assessment will only be accomplished through high level political support and an engaged and informed public.

The Columbia River Toxics Reduction Working Group intends to partner with Basin stakeholders to coordinate outreach to the public (municipalities, schools, business/industry groups, nonprofit organizations, farm groups, and watershed councils). This initiative is centered on four objectives to: (1) formalize the Working Group and expand Federal, State, Tribal and Regional Executive Collaboration, (2) improve communication with Basin residents; (3) raise awareness of toxics issues and reduction efforts/ opportunities; and (4) provide recognition for toxics reduction work.

Formalize Working Group and Expand Federal, State and Tribal Executive Collaboration

The Columbia River Basin is one of EPA's Large Aquatic Ecosystems (LAE) http://www.epa.gov/owow/oceans/partnerships/large_aquatic.html. Many LAEs were authorized and endorsed through Congressional action, leading to formal governance structures. An executive body comprised of Federal, State, and Tribal executives to guide toxics reduction work in the Columbia River Basin through collaborative decision-making will provide needed political support and leadership. The Working Group will also need to maintain and increase its partnership with key regional partners including the Lower Columbia River National Estuary Program, the Northwest Power and Conservation Council and the Columbia River Inter-Tribal Fish Commission.

Improve communication with Basin residents

The Columbia River Toxics Reduction Working Group has increased the interest and knowledge of Federal agencies, States, Tribes, local government, nonprofit organizations, and citizens concerning toxics in the environment and reduction strategies.

The Working Group plans to actively engage Canada as our international partner. The Working Group has put a high priority on information sharing; EPA has made efforts to improve basic email and Web communication including a Columbia River Basin website: www.epa.gov/region10/columbia. EPA's Columbia River program is using Twitter and Web 2.0 technology to reach out to new and existing audiences: https://twitter.com/EPAcolumbia. With regular "tweets" and group email blasts, real-time news and information can be shared with stakeholders,

Recommendations (current resources)

- Continue the Columbia River Toxics Reduction Working Group to coordinate work and collaborate on toxics monitoring and reduction actions
- Publish quarterly Columbia River Toxics Reduction Newsletter
- Work closer with Canada
- Continue two watershed workshops a year
- Provide recognition for toxics reduction activities (River Hero Award) and increase events to honor the River
- Connect and communicate with public through EPA's Columbia River website and Twitter feed

Recommendations (with additional resources)

- Increase toxic reduction information to Basin
- Engage and educate government and public on connection between toxics reduction and salmon recovery
- Establish executive collaboration and decision making group and formalize working group
- Increase Basin-wide watershed toxic reduction workshops
- Share information on toxics and green chemistry curriculum to schools
- Share success stories
- Provide increased recognition for toxics reduction work – industries, municipalities, schools, etc.
- Expand Columbia River Basin influence to affect national decision makers
- Establish international liaison with Canada
- Develop targeted outreach campaigns to special river users such as fishers, boaters, and surfers

creating and sustaining a community of toxics reduction partners. And tools, such as fact sheets, web pages, brochures, annual events, and recognition opportunities, and public service announcements can be used to educate the public and allow citizens to tell their story about the impact toxics have had on their lives.

In addition to Working Group meetings, EPA and partners worked together in 2009 and 2010 to host a series of watershed workshops on toxics reduction efforts in different parts of the Basin. Two workshops focused on agriculture were held in 2009 in Pendleton, OR, and in Wenatchee, WA. Two workshops in Portland, OR, focused on specific pollutants, a PCB workshop in July 2009, and a PBDE/Flame Retardant workshop held in 2010. Workshops should be continued and increased as a tool to facilitate community based dialogue, educate the public on toxics issues, provide information on toxic reduction actions, and engage additional partners in reduction efforts. In addition, the Working Group is meeting throughout the Basin to provide greater opportunities to participate; and local groups are key partners. Working group meetings were held in 2009 and 2010 in Portland, OR; White Salmon, WA; Longview, WA; The Dalles, OR; Astoria, OR; and Goldendale, WA.

The Columbia River continues to receive media attention for water quality issues. A coordinated media approach is needed to share information on successes and increase the public's understanding of toxics. Congressional interest increased in 2010 with the introduction of the Columbia River Restoration Act of 2010.

Raise awareness of toxics issues and reduction efforts/opportunities

The working group intends to increase outreach to the public including schools, business/industry groups, nonprofit organizations, and watershed councils. Examples include:

- Schools: Curriculum on toxics and green chemistry, including safer alternative products that do not require the use of toxic chemicals;
- Business/industry: Information and funding opportunities for stormwater management, green chemistry, toxics use reduction and pollution prevention actions;
- Nonprofits and watershed councils: Educational information and fact sheets on toxics, to encourage volunteer involvement and to increase collection programs;
- Agricultural community: Technical information on best management practices; and
- Municipal governments: Municipal toxic reduction success stories.

Provide recognition for toxics reduction work

Awards and recognition should be increased, building on the annual Columbia River Hero Award, presented in September 2009 and 2010. Long-term, the Working Group would like to be involved in the establishment of recognition and partnership programs with industry and agriculture to encourage leadership and innovation in toxic reduction. We should all look for opportunities to have events to honor the Columbia River and the people who work hard to protect and restore the River.

Initiative #2:
Increase toxic reduction actions

The Columbia River Toxics Reduction Working Group is committed to provide leadership to federal, state, tribal, local and other partners to coordinate, leverage and increase toxic reduction actions.

Expand Toxics Reduction Efforts

Federal, state, tribal and local agencies have multiple regulatory mechanisms available to reduce toxics. Such mechanisms include watershed plans known as Total Maximum Daily Loads (TMDLs), National Permit Discharge Elimination System (NPDES) permits, storm water controls, water quality standards, contaminated site cleanup, wetland restoration, Clean Air Act regulation and programs to control pesticide usage. These programs need to be expanded. For example, additional TMDLs for toxics and implementation plans are needed, and additional work is needed to identify contaminated sites so cleanup actions can proceed. Partnerships with Natural Resources Conservation Service, Extension Service and others can provide technical assistance to increase erosion prevention and sediment control on urban, agricultural and forest lands to limit toxic runoff of toxic chemicals and erosion of naturally occurring soils that may contain toxics, such as mercury in volcanic soil types. However, the most effective way to reduce toxics in the Columbia River Basin is through pollution prevention that targets chemical pollution at the source.

Pollution Prevention

In general, pollution prevention measures are less expensive and more effective, efficient and reliable than treating, recycling, or cleaning up pollutants after use. The Working Group advocates increased

Recommendations (current resources)

- Better use existing funding to increase toxic reduction actions.
- EPA, local governments, state and tribes, should reduce discharge of toxics through more protective water quality standards, approval and implementation of TMDLs, increased stormwater controls, and increased inspections and enforcement
- Continue Pesticide Stewardship Partnerships in OR, WA and ID
- Coordinate with existing state and local programs to implement Integrated Pest Management on private and public lands throughout the Columbia River Basin.
- Coordinate with Oregon Toxic Reduction Strategy http://www.deq.state.or.us/toxics/
- Coordinate with Washington Ecology's Toxics Threat Initiative: http://www.ecy.wa.gov/toxics/index.htm
- Continue to work to identify new contaminated sites
- Continue ongoing and future federal, state, and local activities to clean up contaminated sites
- Reduce mercury through EPA Mercury Strategy Framework

Recommendations (with additional resources)

- Expand collaborative, watershed-based toxics reduction activities throughout the Basin linked directly to monitoring data, such as Pesticide Stewardship Partnerships to reduce pesticide loadings to streams
- Expand collection and take back programs including mercury, pesticides, household hazardous waste, pharmaceuticals and electronics in Oregon, Washington, Idaho, and on tribal lands
- Promote salmon and lamprey recovery efforts that reduce toxics
- Promote industry leadership on green chemistry, transition to safer alternative products, and pollution prevention
- Expand erosion prevention and sediment, stormwater and runoff controls, and clean-up programs in Oregon, Washington, Idaho, and on tribal lands
- Increase enforcement to reduce toxics
- Promote chemical safety reform
- Increase education and technical assistance to the public on toxics reduction opportunities
- Promote eco-certification programs for consumer products that do not contain priority toxics
- Increase cross-media and cross-program coordination to develop and implement TMDLs that address and reduce discharges from air, land and water sources
- Increase technical assistance to farmers and ranchers to increase best management practices, provide eco-certification, application technology training, drift reduction training and Spanish language training to decrease pesticide use
- Increase opportunities throughout the Basin to exchange information on successful toxics reduction efforts

pollution prevention throughout the Basin, including the advancement of green chemistry. Washington Ecology is focusing on pollution prevention in urban waters through the Urban Waters Initiative: (http:www.ecy.wa.gov/urbanwaters/index.html). Washington Ecology's Local Source Control Partnerships focuses directly on assisting small businesses to prevent polluted runoff in the Spokane River Basin (http://www.ecy.wa.gov/programs/hwtr/lsp/index.html). Other specific actions that can be taken include:

- Partnerships with industry to promote research, development, and implementation of innovative chemical technologies as promoted by EPA's Green Chemistry Program http://www.epa.gov/greenchemistry/pubs/epa_gc.html#goals
- Increased use of chemical technologies that reduce or eliminate the use or generation of hazardous substances during the design, manufacture, and use of chemical products and processes.
- Chemical replacement and phase outs of certain pollutants when viable, safer alternatives are available.
- Public education about the risks of exposure to certain pollutants
- Product labeling and environmental certification programs

Promote Green Chemistry

Green Chemistry is the practice of using chemicals and chemical processes that reduce impact to health and the environment. In 2009, the EPA listed promoting green chemistry as one of its priorities in dealing with chemical safety (http://www.epa.gov/opptintr/existingchemicals/pubs/principles.html). The use and production of "green" chemicals has a number of benefits for both the public and industry by reducing waste – and reducing the toxicity of the waste, making safer products available to consumers, and reducing the use of energy and resources.

EPA's Design for the Environment (DfE) puts green chemistry into action by helping industry and consumers make safer chemical choices. As consumers, we are surrounded by chemicals – in shampoo, soaps, cleaners, which can wind up in our streams and rivers. For consumers, DfE allows products that incorporate the principles of green chemistry and meet the stringent criteria for human and environmental health to use the DfE logo. Products that earn the DfE logo are less toxic to organisms and ecosystems, are not persistent or bioaccumulative in organisms or the environment, and are inherently safer with respect to handling and use. Chemicals have a range of uses in products; chemicals such us flame retardants used for fire safety in furniture can find their way into river sediment, animals, and people. Receipts made from thermal paper often contain bisphenyl A, a reproductive toxicant for humans and aquatic life. DfE works with industry to identify inherently safer chemicals for uses as divergent as flame retardants in furniture foam and circuit boards to components in receipt paper. Other groups and activities at the EPA, such as the Environmentally Preferable Purchasing Program and Green Chemistry Presidential Awards also help to promote the broader adoption of the principles of green chemistry into the economy.

Assist in Revising Clean Water Act Criteria

EPA will continue to provide leadership for regulatory programs to reduce toxics. Currently EPA is working with the State of Oregon, and the Confederated Tribes of the Umatilla Indian Reservation to develop Clean Water Act human health criteria that should increase protection for Oregon populations, especially tribal members, who consume high amounts of fish. The new human health criteria are expected to be final in 2011. The current Oregon human health criteria are based on 6.5 grams per day fish consumption rate, which represents one 7-ounce serving a month. (Currently Idaho and Washington also have rates of 6.5 grams/day.) The new Oregon criteria will be based on 175 grams per day, about 23 fish meals a month. These criteria should result in reduced toxics in point sources, nonpoint sources, hazardous waste clean ups, water quality improvement plan (TMDL) implementation and other tools. The toxics reduction tools developed from this water quality standards work will serve as a national and regional model for increased toxics reduction actions and human health protection, especially for high fish consumers. http://www.deq.state.or.us/wq/standards/toxics.htm

In addition to affecting the numerical limits in discharge permits, revised water quality standards will also set goals for cleanup projects for contaminated areas, form the foundation for TMDLs, and while the regulatory mechanisms are not as firm, they can establish goals for non-point source control efforts, as well. Standards themselves will not solve the problem of toxic chemical contamination in the environment. A broad-based effort will be needed to deal with the spectrum of toxic chemical concerns, from legacy pollutants in river sediments to emerging contaminants such as flame retardants, pharmaceuticals, and personal care products.

Increase Resources and Support to Reduce Toxics

Some of the greatest successes in reducing toxics in the Columbia River Basin have been from improvements in agricultural practices. There have been tremendous successes in sediment reduction efforts, Pesticide Stewardship Partnerships and Pesticide Take Back programs in OR, WA, and ID. Oregon's Pesticide Stewardship Partnership programs have demonstrated great success in reducing current use organophosphate pesticides in fish and water through the use of basic best management practices and monitoring analysis. In 1999, Oregon DEQ set up two Pesticide Stewardship Partnership (http://www.deq.state.or.us/wq/pubs/factsheets/community/pesticide.pdf) pilot projects in Oregon's Hood River and Mill Creek, to work collaboratively with local stakeholders to reduce organophosphate pesticides. In the Walla Walla Basin, best management practices showed a 70% reduction in organophosphate pesticides from 2006 to 2008.

In May 2009, the Washington Department of Health lifted the DDT fish advisory for the Yakima River Basin, (http://www.doh.wa.gov/ehp/oehas/fish/yakimariver2009-fs.pdf) which had been in place for many years and was the result of decades of DDT use for agricultural production in the Basin. DDT, which binds to soil particles, was dramatically reduced in fish and water through the use of best management practices put in place by a cooperative effort of irrigation districts, farmers, the Washington Department of Ecology and the Yakama Nation.

Increased support to local soil and water conservation districts and watershed groups is needed to support the continued collection of legacy pesticides from businesses and private citizens, and to ensure proper disposal of pesticides and other hazardous wastes such as solvents, batteries, electronics, and materials containing PBDEs, to licensed hazardous waste facilities. Previous programs in OR, WA and ID have recovered toxic chemicals, including thousands of pounds of DDT, banned in the 1970's. By 2010, the Idaho State Department of Agriculture has collected over one million pounds of pesticides through collection programs. Growers, homeowners, and applicators often have pesticides that are unusable because of expiration, cancellation, deterioration, or crop changes. Permanent collection points are established throughout Idaho and materials are taken to licensed facility for incineration or disposal. Increased funding and technical assistance is needed to support and expand these successful collaborative agricultural toxic reduction work efforts throughout the Columbia River Basin. Pharmaceutical take back programs should also be expanded to provide safe disposal and reduce the input of drugs into rivers and streams.

Efforts to integrate toxics reduction with salmon recovery efforts should be increased. Recovery efforts need to acknowledge that Columbia River Basin salmon and lamprey habitat restoration and population increases are dependent on water quality and toxic reduction. More partnerships should be developed with nongovernmental partners who carry out volunteer monitoring efforts, such as Columbia Riverkeeper, and those who work with industry and agriculture to reduce the impacts of toxics on the environment through training and eco-certification programs, such as Salmon Safe.

Ongoing work efforts that should continue are Oregon's Toxics Use and Hazardous Waste Reduction Program: http://www.deq.state.or.us/lq/hw/tuhwr.htm. This program mandates certain businesses to develop a toxics reduction plan or use an environmental management system (EMS) to reduce toxic chemicals and hazardous wastes. Washington Ecology has a toxic threat Initiative focused on prevention to control toxics: http://www.ecy.wa.gov/toxics/index.htm.

Implement Previously Identified Priority Actions for Mercury Reduction

In 2008, EPA Region 10 developed a Mercury Strategy Framework which identified priority actions for reducing mercury in the Northwest: http://yosemite.epa.gov/r10/homepage.nsf/webpage/mercury. Many of those actions are critical for reducing mercury in the Columbia River Basin and the Working Group endorses implementation of these priority actions.

Initiative #3:
Conduct monitoring to identify sources and then reduce toxics

The Columbia River Basin State of the River Report for Toxics identified two initiatives critical to further success in reducing toxics in the Basin. The first was to identify, inventory, and characterize the sources of toxics in the Basin. The second was to develop a regional, multi-agency long-term monitoring plan for the Columbia River and its tributaries. The Working Group decided that these two initiatives should be combined. It was also decided that due to the size, complexity, and jurisdictional interests of the Columbia River Basin and because of the lack of funding, it was unrealistic to develop and implement a monitoring plan at the scale of the entire Basin.

Recommendations (current resources)

- Identify the contaminants of concern to focus on in the Basin
- Use the prioritization tool in one area of the River to assist in developing a monitoring plan and modify the tool based on the results of the pilot project
- Assist other partners throughout Basin on using the prioritization tool to develop monitoring plans
- Continue to seek and leverage resources to supplement existing monitoring by agencies, organizations, and Tribes in the Basin

Recommendations (with additional resources)

- Expand monitoring to the highest priority areas in the Basin as identified by the prioritization tool
- Support watershed-based targeted monitoring efforts that link directly to reduction efforts, such as TMDLs, source assessments and Pesticide Stewardship Partnerships
- Support localized monitoring efforts that will provide baseline data where habitat restoration is planned and/or ongoing; and targeted monitoring on species of concern, either ESA listed or for commercial or subsistence use
- Assess sources of contamination and loadings for priority tracking and control
- Establish toxic reduction efforts which include status and trends effectiveness monitoring
- Identify opportunities to integrate water, land, air, sediment and biota monitoring
- Develop public friendly reports to share monitoring information with the public

Finally, it was recognized that governmental (Federal, State, and Tribal) agencies and non-governmental organizations are already conducting monitoring at some locations in the Basin and any additional resources should be targeted to supplement these organizations' resources and to work towards a common monitoring framework.

Develop Tool to Prioritize Work Efforts

To assist these governmental and non-governmental organizations, the Working Group is working on a tool that would aid in prioritizing the location of future monitoring. The purpose of the tool is to develop an objective process for identifying and prioritizing additional or supplementary monitoring needed to locate sources of toxics and to target reduction actions. In addition, the prioritization tool will provide consistency in monitoring methods, detection limits and media selection, and allow for networking among agencies conducting monitoring or formulating plans for monitoring in the Basin. The monitoring will be both short and long-term depending on the need for each specific area of the Basin and is envisioned for water, sediment and biota.

The Working Group has compiled data for each tributary and the Columbia and Snake Rivers on factors that may contribute to contamination (e.g., number of wastewater treatment plants on a tributary; flow of tributary; number of mining sites in area; quantity of pesticides used in area; and number of people in area). This information will be used with data already collected on contaminant levels to assist in identifying areas where additional monitoring is needed.

A Six Step Process to Conduct Monitoring in the Columbia River Basin

There are several next steps. First, the Working Group will identify the contaminants likely to present the greatest ecological and human health concern for the Columbia Basin ecosystem. The Working Group will start with the four contaminants identified in the State of the River Report (i.e., mercury, PCBs, PBDEs, and DDTs) and identify other contaminants of concern. The Working Group will convene a group of experts to assist in this process and this workshop is expected to occur in early 2011.

Second, the Working Group will develop a pilot project in one geographic area of the Basin to test the utility of the prioritization tool and modify the tool if necessary. As a part of this pilot project, the Working Group will compile the existing contaminant information for that area and identify any data

gaps. The purpose of the pilot project is to assist in developing a monitoring plan for that specific area of the Basin.

Third, the Working Group will work with other governmental and non-governmental groups to use the prioritization tool in other areas. The purpose is to assist these groups to identify the areas where additional or supplemental monitoring is needed.

Fourth, the results from the refined monitoring will be analyzed to identify specific contaminants of concern by catchment. Once the toxics are spatially identified by catchment, the Working Group would identify specific target geographic areas and source types for needed reduction strategies.

Fifth, the Working Group will work to leverage resources for additional monitoring in these data gap areas, including the Snake River. The Snake River, as the largest tributary to the Columbia River, is integral in the overall reduction of Columbia River Basin Toxics. The prioritization tool will assist in designing any additional monitoring.

Finally, the Working Group will assist its partners in the analysis of this new monitoring data. The goal will be to link certain toxics or classes of toxics to specific catchments or to common land uses. This will assist to identify sources of contamination and further inform the toxics reduction strategy.

Initiative #4:
Develop a regional, multi-agency research and monitoring program

While limited research on the effects of toxics in the Basin ecosystem is being conducted by different agencies, there is no coordinated effort to identify the highest research and monitoring priorities or gaps in our knowledge in the Basin. The Working Group believes a collaborative effort to develop a research plan is necessary to effectively leverage limited resources among agencies and to further our understanding of the Basin's contaminant problems and their relation to the food web. A collaborative effort will enable the development of an integrated approach that focuses on issues specific to the Columbia River Basin.

Unanswered Questions

Some of the questions that need to be addressed in a research strategy include, but are not limited to:

- What are appropriate indicators/measures of success that could be used in evaluating the health of the ecosystem?
- What data must be collected to evaluate the indicators/measures of success?
- Why are mercury and PBDEs increasing in osprey?
- What are the main factors that are controlling mercury methylation in the Region?
- What are the trends in mink and otter populations in the Basin and what factors are contributing to their increase or decrease?
- What are the health effects to fish and wildlife including listed species from toxics, especially from emerging contaminants?
- What are appropriate biological markers to measure the health impacts to fish and shellfish?
- What are the appropriate standards and criteria for fish, wildlife, and humans from toxics, especially from emerging contaminants?

Recommendations (current resources)

- Identify and inventory in a database existing toxics research being conducted in the Basin
- Using this research, convene scientists to assist in developing a Regional research plan for the Basin
- Establish connections with researchers from other large aquatic ecosystems to better understand their research and its application to the Basin

Recommendations (with additional resources)

- Conduct research based on priorities identified in research plan
- Develop indicators of ecosystem health
- Develop new standards and criteria to protect fish, wildlife, and humans from toxics
- Visit other regional centers to learn more about research programs
- Conduct "Control Studies" to evaluate effectiveness of Best Management Practices, toxics reduction efforts, and emerging reduction strategies.

A specific outcome from convening scientists from throughout the Region would be to further refine and add to the questions above and develop research plans on how to address these questions. The hope is that many of these questions can be addressed by scientists within the region (National Oceanic and Atmospheric Administration (NOAA) Fisheries, EPA Corvallis Laboratory, U.S. Geological Services (USGS) Science Centers, and others). This will likely require additional resources.

Build on Previous Work

The initiative will also take advantage of the large body of existing research on the impacts of toxics and the best methods for conducting research based on monitoring work already done by the Lower Columbia River National Estuary Program and similar activities in other large aquatic ecosystems in the United States, such as the Great Lakes and Chesapeake Bay. This information may inform research efforts in the Basin. Control studies to evaluate effectiveness of emerging toxics reduction strategies and existing toxics reduction efforts will also be helpful. An example study could include controlling general water quality parameters such as sulfate and total organic carbon to reduce mercury exposure of Columbia River Basin fish.

EPA and USGS plan to convene a group of scientists in 2010 to begin discussion on developing a research/monitoring program relevant to the Columbia River Basin, performed by regional scientists and supports toxics reduction in the Basin. The goal of the meeting will be to develop a list of recommendations for high priority research based on current resources and also recommendations for other research should further resources become available. We anticipate participation from a wide range of Federal and State agencies along with Tribes, non-profits, and universities.

Initiative #5:
Develop a data management system that will allow us to share information on toxics in the Basin

The ability to access information is critical to effectively and efficiently identifying sources of toxics and then designing and implementing reduction actions. Currently, no single database contains all of the data from Columbia River Basin monitoring efforts. Many agencies and organizations are involved in monitoring and reporting environmental conditions in the Basin and have developed data bases unique to their specific needs. Some of the data are not publicly-accessible or are often available only in hard copy records, with the records are of unknown quality, and most in differing formats. While a single database would be useful, its development would be very expensive and require dedicated resources to operate and maintain.

Develop an Inventory of Existing Data

The Working Group believes it is important to build on work that has already begun or completed to develop and inventory of existing data. A first step will be to identify all the potential data sources and data bases for toxics information in the Columbia Basin. This was started as part of the Columbia River Basin State of the River Report for Toxics where data on PCBs, mercury, DDTs, and PBDEs was compiled. The data came from various sources including USGS, EPA, Northwest States, Tribes, NOAA, U.S. Fish and Wildlife Service, Columbia Riverkeeper, and numerous other sources generated over the last 20 years. In 2006, the Northwest Environmental Data Network (NED) (http://www.nwcouncil.org/ned/Default.asp) developed an inventory of publicly available environmental data sources in the Northwest. The inventory lists about 80 web sites with Northwest data and other information related to environmental information. Large amounts of data will also be available from the EPA clean ups in Portland Harbor and the Upper Columbia River. Also, toxics data was compiled from Grand Coulee Dam downstream to the Pacific Ocean as a part of the Hanford cleanup. This data will be entered into EPA's Water Quality Exchange in 2010.

Recommendations (current resources)

- Convene a group to discuss different options for managing toxics data in the Region
- Evaluate how other large aquatic ecosystems manage data

Recommendations (with additional resources)

- Create a data stewardship program, hosted and managed by a single entity
- Survey all relevant existing data management systems in the Region
- Verify that all data has a spatial component (latitude, longitude). Include a spatial component to the data available in order to view and create maps, and conduct spatial analysis

Build on Success

A second step will be to evaluate how other multi-State large aquatic ecosystems, like the Chesapeake Bay and Great Lakes, manage data, which could provide direction to our effort. And finally, a third step will be to discuss how to work with existing efforts such as the Pacific Northwest Data Exchange (http://www.nwcouncil.org/ned/Default.asp) and the Pacific Northwest Aquatic Monitoring Partnership. In order to do this, EPA plans to convene a group in 2010 to discuss the different options for managing toxics data in the Region. At this meeting we will develop a list of recommendations on how best to move forward with developing a process for sharing toxics information and what resources are needed in order to accomplish these recommendations.

4.0
Summary

There is increasing societal awareness and concern about toxics in our environment. EPA estimates that there are between 80,000 and 100,000 chemicals in use in commerce. Many of these chemicals are making their way into the magnificent Columbia River Basin and affecting the ecosystem and the fish that tribal people have consumed for 10,000 years or more. If we want to preserve the Columbia River Basin ecosystem for future generations, we must make important changes and take actions to reduce toxic contamination throughout the Basin.

This action plan represents a five year blueprint with over 60 actions (a complete list is found in Table 1) to reduce toxic contamination and restore the Columbia River Basin. As more information becomes available and partnerships develop, additional actions will likely be identified, especially if increased and sustained resources become available. The Columbia River Toxics Reduction Working Group, under EPA leadership, presents this action plan to the region, from decision makers to citizens, to serve as a catalyst for collaborative action and to recognize that the time is now to step forward and reduce toxics in the Columbia River Basin. As described in the action plan, coordination and leveraging existing resources can help accomplish some toxic reductions, however, accountable and measurable success will only happen with increased resources, political commitment and an engaged and informed public. We must all work together to increase toxic reduction actions, foster a better understanding of toxic contamination and increase public and political engagement and leadership in decisions that can affect the future human and ecosystem health of the Columbia River Basin.

We look forward to working together in the years ahead to aggressively restore this ecosystem and preserve its importance and culture for many generations to come.

Table 1
List of Columbia River Basin Toxics Reduction Actions

Initiative #1:
Increase understanding and political commitment to toxics reduction in the Columbia River Basin

Current Resources

1. Continue the Columbia River Toxics Reduction Working Group to coordinate work and collaborate on toxics monitoring and reduction actions
2. Publish quarterly Columbia River Toxics Reduction Newsletter
3. Work closer with Canada
4. Continue two watershed workshops a year
5. Provide recognition for toxics reduction activities (River Hero Award) and increase events to honor the River
6. Connect and communicate with public through EPA's Columbia River website and Twitter feed

Additional Resources Needed

7. Increase toxic reduction information to Basin
8. Engage and educate government and public on connection between toxics reduction and salmon recovery
9. Establish executive collaboration and decision making group and formalize working group
10. Increase Basin-wide watershed toxic reduction workshops
11. Share information on toxics and green chemistry curriculum to schools
12. Share success stories
13. Provide increased recognition for toxics reduction work – industries, municipalities, schools, etc.
14. Expand Columbia River Basin influence to affect national decision makers
15. Establish international liaison with Canada
16. Develop targeted outreach campaigns to special river users such as fishers, boaters, and surfers

Initiative #2:
Increase toxic reduction actions

Current Resources

17. Better use existing funding to increase toxic reduction actions.
18. EPA, local governments, state and tribes, should reduce discharge of toxics through more protective water quality standards, approval and implementation of TMDLs, increased stormwater controls, and increased inspections and enforcement
19. Continue Pesticide Stewardship Partnerships in OR, WA and ID
20. Coordinate with existing state and local programs to implement Integrated Pest Management on private and public lands throughout the Columbia River Basin.
21. Coordinate with Oregon Toxic Reduction Strategy: http://www.deq.state.or.us/toxics/
22. Coordinate with Washington Ecology's Toxics Threat Initiative: http://www.ecy.wa.gov/toxics/index.htm
23. Continue to work to identify new contaminated sites
24. Continue ongoing and future federal, state, and local activities to clean up contaminated sites
25. Reduce mercury through EPA Mercury Strategy Framework

Additional Resources Needed

26. Expand collaborative, watershed-based toxics reduction activities throughout the Basin linked directly to monitoring data, such as Pesticide Stewardship Partnerships to reduce pesticide loadings to streams
27. Expand collection and take back programs including mercury, pesticides, household hazardous waste, pharmaceuticals and electronics in Oregon, Washington, Idaho, and on tribal lands
28. Promote salmon and lamprey recovery efforts that reduce toxics
29. Promote industry leadership on green chemistry, transition to safer alternative products, and pollution prevention
30. Expand erosion prevention and sediment, stormwater and runoff controls, and clean-up programs in Oregon, Washington, Idaho, and on tribal lands
31. Increase enforcement to reduce toxics
32. Promote chemical safety reform
33. Increase education and technical assistance to the public on toxics reduction opportunities
34. Promote eco-certification programs for consumer products that do not contain priority toxics
35. Increase cross-media and cross-program coordination to develop and implement TMDLs that address and reduce discharges from air, land and water sources
36. Increase technical assistance to farmers and ranchers to increase best management practices, provide eco-certification, application technology training, drift reduction training and Spanish language training to decrease pesticide use
37. Increase opportunities throughout the Basin to exchange information on successful toxics reduction efforts

Initiative #3:
Conduct monitoring to identify sources and then reduce toxics

Current Resources

38. Identify the contaminants of concern to focus on in the Basin
39. Use the prioritization tool in one area of the River to assist in developing a monitoring plan and modify the tool based on the results of the pilot project
40. Assist other partners throughout Basin on using the prioritization tool to develop monitoring plans
41. Continue to seek and leverage resources to supplement existing monitoring by agencies, organizations, and Tribes in the Basin

Additional Resources Needed

42. Expand monitoring to the highest priority areas in the Basin as identified by the prioritization tool
43. Support watershed-based targeted monitoring efforts that link directly to reduction efforts, such as TMDLs, source assessments and Pesticide Stewardship Partnerships
44. Support localized monitoring efforts that will provide baseline data where habitat restoration is planned and/or ongoing; and targeted monitoring on species of concern, either ESA listed or for commercial or subsistence use
45. Assess sources of contamination and loadings for priority tracking and control
46. Establish toxic reduction efforts which include status and trends effectiveness monitoring
47. Identify opportunities to integrate water, land, air, sediment and biota monitoring
48. Develop public friendly reports to share monitoring information with the public

Initiative #4:
Develop a regional, multi-agency research and monitoring program

Current Resources

49. Identify and inventory in a database existing toxics research being conducted in the Basin
50. Using this research, convene scientists to assist in developing a Regional research plan for the Basin
51. Establish connections with researchers from other large aquatic ecosystems to better understand their research and its application to the Basin

Additional Resources Needed

52. Conduct research based on priorities identified in research plan
53. Develop indicators of ecosystem health
54. Develop new standards and criteria to protect fish, wildlife, and humans from toxics
55. Visit other regional centers to learn more about research programs
56. Conduct “Control Studies” to evaluate effectiveness of Best Management Practices, toxics reduction efforts, and emerging reduction strategies.

Initiative #5:
Develop a data management system that will allow us to share information on toxics in the Basin

Current Resources

57. Convene a group to discuss different options for managing toxics data in the Region
58. Evaluate how other large aquatic ecosystems manage data

Additional Resources Needed

59. Create a data stewardship program, hosted and managed by a single entity
60. Survey all relevant existing data management systems in the Region
61. Verify that all data has a spatial component (latitude, longitude). Include a spatial component to the data available in order to view and create maps, and conduct spatial analysis

Printed on 100% recycled/recyclable paper

U ited States
Environmental Protec ion
Agency