

2016 YEAR IN REVIEW

Advancing Science ♦ *Protecting Ecosystems* ♦ *Engaging People*



Advancing Science 2

Protecting Ecosystems 4

Engaging People 14

The Power of Partnership 18

Donors, Board & Staff 19

Estuary Partnership Study Area Map . . Back Cover

A Note from the Director



The lower Columbia River inspires me today as much as it did the first time I caught sight of it—just as it has for thousands of people for thousands of years. Paddling in the quiet of Scappoose Bay, hiking in the Gorge where the steep cliffs meet the open river, or crossing the bridge connecting Oregon and Washington with Mount Hood looming to the east—and a few hundred other spots—always rejuvenates me. Seeing a school group out on the water in our canoes for the first time or a group of volunteers planting trees in the rain reminds me why we do what we do.

Yet disparities in education and unequal access to natural areas still exist for too many in our communities. Many still are not protected equally by our environmental and land use policies and practices—and in many cases are unfairly impacted by them. The Estuary Partnership has stepped up its work to better serve all our communities, especially communities of color and lower income communities. We have a long way to go, but we are committed to the path.

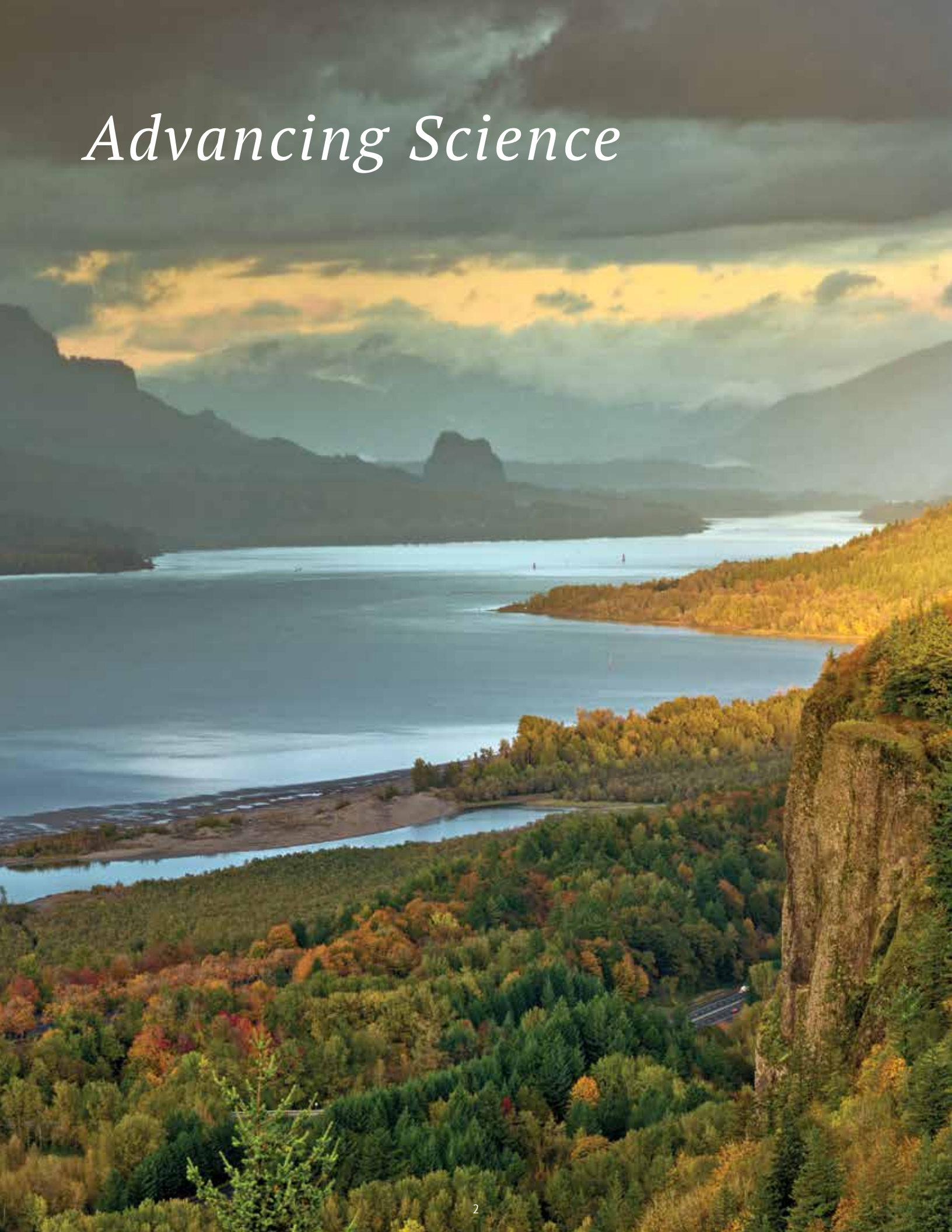
The Estuary Partnership, a National Estuary Program, is community-based; it is local people solving local problems in local water bodies. We achieve this best with equity and diversity in who we are, in our partnerships, and by continually adapting our programs to be inclusive of and responsive to the needs and goals of all community members.

Thank you for joining us in this important work.

A handwritten signature in blue ink that reads "Debrah".

Debrah Marriott
Executive Director

Advancing Science



Adapting to Climate Change

The climate has changed; and more changes are coming. In June 2016, we gathered technical experts at our annual Science to Policy Summit to share emerging data and talk about what we can do.

We learned a lot about impacts in the Columbia Basin.

- ◆ By 2100, between 13 and 65 percent of our native estuarine habitats and 12,355 acres of dry land will likely be regularly wet.
- ◆ Ocean carbon dioxide (CO₂) is increasing, causing seawater to become more acidic. This already threatens the health of coastal ecosystems and the industries that depend on them. Even a small change in water pH levels can make a huge difference in fish and shellfish survival.
- ◆ Precipitation patterns are changing, bringing more rain, less snow pack, and more intense flood events. This alters streamflow patterns, impacts water availability, and affects habitat and migration corridors used by salmon and other key species.
- ◆ Increased water temperature and changes to flow patterns will impact aquatic life and create chances of non-native species invading and outcompeting native species.
- ◆ Frequency and magnitude of precipitation events are changing. These can overwhelm stormwater and wastewater systems, increase erosion, and suspend pollutants into the waterways that we are trying to keep clean.



Our job is to adapt our work to integrate climate changes that impact how we protect the lower Columbia River. Our job is to help shift our approach to protecting the earth; we can't let damage occur and expect to recover from it.

As one step to address climate change, this past year, we assessed cold water refuges in the Columbia Gorge area. Adult and juvenile salmonids need cool spots to stop and rest as they migrate in and out through the lower river. Cold water refuges will become even more critical as stream temperatures warm. Our mapping data will tell us where we need to restore and protect critical areas to make sure there are places for salmon to stop as they migrate.

All 28 National Estuary Programs around the county are assessing impact to their regions to make sure our coasts, bays, and estuaries are climate resilient.



Protecting Ecosystems



Reducing Pollutants

Over the past 60 years, we have introduced thousands of toxics into the environment. They are in products we use—pharmaceuticals, personal care products, plastics, fertilizers—and in many farming and manufacturing practices. Toxics settle onto roofs and pavement and rainwater washes them into our rivers and streams.

Recognizing the harmful impact toxics have on our environment, many people are taking action to reduce toxics: building with pervious pavement or green roofs; driving less; reducing the use of pesticides and fertilizers; changing manufacturing processes; and purchasing green cleaners, office supplies, and personal care products. These actions add up and can make a huge difference. We just need to do more.

Our job is to make sure the region has the resources it needs to reduce and clean up toxics. Our job is to learn more about which toxics are where in the lower river so we can target clean up or reduction actions. Our job is to implement more projects, like schoolyard retrofit projects, that remove concrete and asphalt from schoolyards and divert hundreds of gallons of stormwater from costly treatment or ending up in our waterways.



Toxics, including mercury and flame retardants, end up in fish, wildlife, water, sediment, and soil, and are harmful to human health. They cause cancer and create neurological, developmental, and reproductive problems, including birth defects and learning disabilities.

Columbia River Basin Restoration Act

BRINGING RESOURCES TO THE REGION TO REDUCE TOXICS

The Estuary Partnership is working with a coalition of partners and Congress to pass the Columbia River Basin Restoration Act. The Act will create a grant program for voluntary toxics reduction activities by farmers, foresters, soil and water districts, nongovernmental entities, local and state governments, and tribes. Senator Jeff Merkley and Congressman Earl Blumenauer introduced the Act with the support of all members representing lower Columbia River communities in Oregon and Washington.

“Toxics are one of the biggest threats facing the Columbia River, particularly the lower river...and with the impact of climate change already here, it is more critical than ever we reduce and eliminate these toxics.”

– US CONGRESSMAN EARL BLUMENAUER NOV 17, 2015 CONGRESSIONAL VIDEO

“This is long overdue. Every great water body across the United States has a bill like this to help pay for clean-up strategies except for the Columbia.”

– US SENATOR JEFF MERKLEY JUL 28, 2014/FEB 18 2015 OPB



Restoring Habitat


We have lost 114,000 acres of habitat along the lower Columbia River to development, agriculture, and power since the 1880s. We have destroyed habitat for many species and blocked migration of salmon. We have polluted the waters and habitat. As a result, many fish species native to the Columbia River are now listed as threatened or endangered.

A healthy estuary is critical to the environmental and economic health of our oceans and the entire Columbia River Basin. Estuaries contain some of the richest and most diverse habitats for fish and wildlife. Some salmon spend months in estuaries, feeding, growing strong, and adjusting to saltwater before they make their way out to sea. On their return, salmon again stop in the estuary to rest before their difficult migration up river to spawn.

Our job is to restore and protect the lower Columbia River's diverse habitats so they can support the wide range of species that depend on them. Connecting the Columbia River to important wetlands improves water quality, reduces flooding of property, and restores the natural food web.

Our job is to monitor our restoration projects and gather data to make sure we are making decisions with the best science for the greatest impact.



 *This year, regional partners completed nine projects that added 1,271 acres of restored or protected habitat. Since 2000, that's 22,685 acres restored or protected along the lower Columbia River.*

Batwater Station

RETURNING A NATURAL FLOW

For years, beavers plugged culverts, impeding fish passage and flooding parts of Karin Hunt and Michael Tillson's Batwater Station property. And every year, they would clear out the jams. They needed a better solution. With help from the Columbia Soil & Water Conservation District and the Estuary Partnership, Hunt and Tillson figured out a more permanent solution.

The Estuary Partnership-led project rehabilitated wetlands on 26-acres of the property, reconnecting it to the Columbia River. It integrated an innovative restoration strategy that is modeled after beaver behavior to restore habitat for fish, waterfowl, amphibians, and reptiles.

“ *Our goal is to give the land back to nature and let it run its own course.*” –MICHEAL TILLSON, BATWATER STATION PROPERTY OWNER

Bonneville Power Administration funded the restoration work.





The Estuary Partnership brought 4th and 6th graders from Clatskanie out for several days in March to help out too, planting trees and shrubs that will establish native habitat and keep the stream cool. It's a great way for students to see how their plantings fit into larger restoration projects.

“We are delighted to share the site with students from local schools so they can see first-hand how we can get these systems working again for fish—and beavers.”

—KARIN HUNT



Steigerwald Lake National Wildlife Refuge is one of the area's most beloved urban refuges. But with a failing fish diversion structure and internal flooding from Gibbons Creek, the community is looking for a solution that will improve flood management, increase protected wetlands for fish and wildlife, and strengthen the refuge's recreation infrastructure for a growing number of visitors each year.

The refuge is owned by the US Fish & Wildlife Service (USFWS). The Port of Camas-Washougal (Port) owns the existing levee structure.

Steigerwald Lake National Wildlife Refuge

IMPROVING FLOOD PROTECTION AND RESTORING HABITAT

Over the past three years, the Estuary Partnership has worked alongside community representatives to develop and design the Steigerwald Habitat Restoration and Flood Control Project. The project will lower a section of levee along the Columbia River to a natural bank elevation and breach it in four places to reopen 912 acres of habitat for use by six species of salmon and trout and two species of lamprey.

Adding two setback levees perpendicular to the Columbia River will allow the project to reconnect Gibbons Creek with the Columbia River and reduce flooding from Gibbons Creek to Highway 14, the Port, and private residences, many of which flooded in 1996. The new levees will meet or exceed current US Army Corps of Engineers and FEMA standards for flood protection.

“*Every year, the Port spends over \$100,000 to pump out flooding from Gibbons Creek, and that’s just in electrical costs. The current levee protects us from any Columbia River flooding, but not from interior streams, like Gibbons Creek, that don’t have an outlet to the Columbia River.*” – DAVID RIPP, EXECUTIVE DIRECTOR, PORT OF CAMAS-WASHOUGAL

The project will reduce Port pumping costs and eliminate a USFWS \$4 million project to replace the failing diversion structure. During the three years of construction, the project will create 800 local jobs.



La Center Bottoms Wetlands

RECONNECTING THE RIVER

In the early 1990s, farming ended at La Center Bottoms wetlands and Clark County acquired the site for public use.

A few years ago, Clark County and the Estuary Partnership joined together to improve flood management and increase fish and wildlife habitat.

We breached a failing levee, built channels to create new connections between the wetlands and the river, added large wood to provide habitat cover and encourage beaver use, and reinforced the public trail system. Bonneville Power Administration funded this phase.

The Estuary Partnership planted more than 60,000 trees and shrubs across thirty acres and engaged local students and community members in the project. The Estuary Partnership provided education on stormwater in the classroom and in the field to La Center students, who helped plant trees at the restoration site. We also engaged community members in tree planting projects—showing the importance of streamside vegetation to stormwater management. Together, local students and community members are pitching in to plant more than 4,000 trees. Washington Department of Ecology funded plantings and stormwater components.





Middle and elementary schools are within walking distance of La Center Bottoms, making it natural for teachers to use this site as an outdoor science lab. Adding Estuary Partnership educators and the plantings has been a huge boost for their programming. Students get to measure macroinvertebrate populations and help plant about two acres on the restoration site.

“The wetlands are adjacent to their school, and it’s a big part of the community. It’s important they understand all they have in the environment here, and what it takes to keep it pristine. They’re a part of the restoration.”

–KRISTY SCHNEIDER, LA CENTER MIDDLE SCHOOL

Engaging People



Educating Students

Schools provide fewer and fewer opportunities for students to learn outdoors—some provide none at all. Teachers often do not have the resources or training to teach in outdoor settings, or to connect such learning to state education standards. And there is marked disparity among student learning for low-income students and students of color. The schools and students with the highest need for outdoor science programs often have the least access and resources.

Students need ways to succeed that incorporate how they learn best. Research is clear: when we experience something, we retain much more than if we only read or hear about it.

Our job is to bring science lessons to life.

We enrich student's earth science education. We engage students in their classroom and then get them outside to experience and apply what they have learned. This raises their academic success and teaches them skills that they don't get in the classroom.

We develop our curricula with teachers to meet their specific needs and integrate hands-on approaches that use science to increase math and literacy, strengthening Common Core knowledge and helping students meet Next Generation Science Standards.

We teach teachers: we provide on loan resource kits and offer workshops to help them build their outdoor teaching skills.

“ *Many of our kids do not get the chance to experience the outdoor spaces and nature of Vancouver. [After the field trips] my students are more aware of the natural world around them. They comment on plants on our school grounds and are interested in the birds and other creatures they see in our area.*” –MS. BOWLING, WASHINGTON ELEMENTARY, VANCOUVER, WASHINGTON



In 2016, we provided 22,125 hours of hands-on instruction in environmental sciences to 4,258 students at no cost to students or schools. To date, we have taught 67,219 students.

Vancouver Lake

BUILDING STEWARDS ONE BY ONE

This year, we kicked off Experience Vancouver Lake with Clark County, the City of Vancouver, and the Port of Vancouver. 342 students, 225 volunteers, and 160 paddlers joined us to learn, clean up, and experience this tremendous resource.

“ *We all felt the need to raise awareness about the lake by better connecting and engaging the broader community. The cleanups, community paddles, and school programs have been a resounding success.”*

–PATTY BOYDEN, DIRECTOR OF ENVIRONMENTAL SERVICES,
PORT OF VANCOUVER USA

Students received 2,394 hours of instruction. Their learning started with three lessons about watershed health, native plants and animals, and connections between organisms. It concluded with a four-hour field trip to Vancouver Lake to remove invasive blackberry, explore the natural area during a nature hike, and identify birds and plants.

“ *What struck me was that 45% of students hadn't been to Vancouver Lake before—and these are kids from Clark County schools! After the programs there was a statistical increase in their knowledge”*

–BRIAN CARLSON, PUBLIC WORKS DIRECTOR, CITY OF VANCOUVER

We led seven community paddling trips, including trips with the Skyline Housing Authority and Girl Scouts, and hosted four volunteer events, collecting 90 bags of trash and planting 247 native trees and shrubs.

“ *For the County, community awareness and use of Vancouver Lake is what it's all about. It's a great recreational resource right in our backyard.”*

–DEAN BOENING, CLEAN WATER DIVISION MANAGER, CLARK COUNTY



Connecting to the Columbia

We are connecting less and less to the natural world around us. Our natural resources depend on us to take care of them so we can leave them to our children better than we found them.


Experiencing the Columbia is especially inspiring, and builds the connection between us and our environment, giving us our sense of place. Simply being outside, walking or even sitting on a park bench—listening to nature's sounds—improves our physical and overall well-being. However, many of us do not have easy access to the river, especially the ability to get out on the water.

Our job is to help get us all outdoors.

We take people on the river in our big canoes to experience the sights and sounds of the river and learn a bit about its ecology. Paddling together with our experienced educators breaks down barriers and creates a transformative experience for many first time paddlers.

We organize volunteers to pull harmful invasive plants or plant trees and shrubs to shade streams and increase riparian habitat.



 *Since 2000, the Estuary Partnership has engaged 12,064 volunteers to monitor water quality, plant trees, map habitat, and maintain water trail sites. Students and volunteers have planted 92,760 native trees and shrubs. In the last five years, we have taken 12,563 students and adults on the water in our big canoes.*

The Power of Partnership

Volunteers make it all happen—from our Board of Directors to the students in the field for service learning, the hours dedicated to this work are humbling. This past year, students in service learning, board members, scientists, and community members donated 23,442 hours, valued at over \$739,000. Imagine if we had to raise those funds to pay people to accomplish that work. It wouldn't be possible.

“The real value in volunteers goes well beyond their time or even their expertise—it speaks to how much people here care for the Columbia River and its communities. We are taking care of our home, our little corner of the planet. We live and work here. My sheep farm depends on a healthy environment just as much as the shipping industry or any other industry does. This level of commitment bodes well for the future.”

—MARGARET MAGRUDER, CHAIR, ESTUARY PARTNERSHIP BOARD OF DIRECTORS, OWNER, MAGRUDER FARMS, CLATSKANIE, OREGON

IN-KIND SERVICE AND VALUE 2016

	HOURS	VALUE
Board Members	388	\$21,817
Scientists & Technical Experts	6,728	\$403,680
Students Service Learning	13,959	\$209,378
Parent & Teacher Volunteers	544	\$53,691
Community Volunteers	1,824	\$40,128
Professional Services	–	\$10,960
TOTAL	–	\$739,654

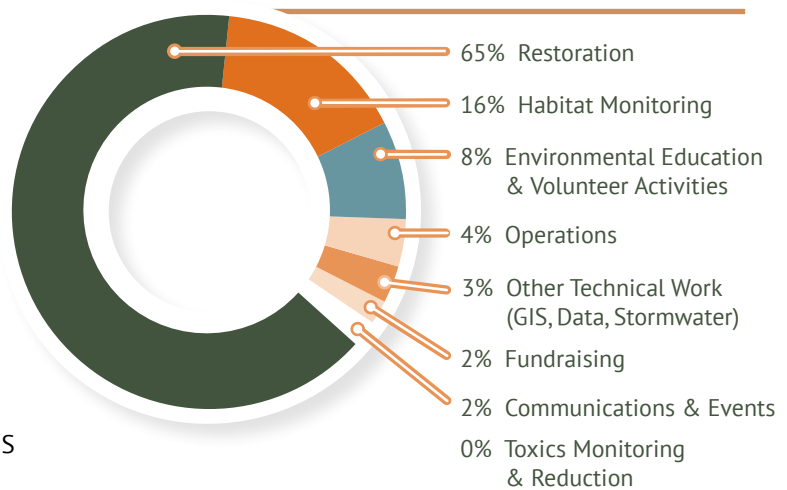
Our job is to raise funds for the region so we all can implement aspects of the lower river's Management Plan. We leverage each dollar as much as we can.

This past year, we brought nearly \$7,000,000 in cash to the region. That is a big boost to the economy: it creates about 303 family wage jobs. Since 2000, we have brought over \$58,000,000 and created over 2,569 jobs for the region.

As part of the National Estuary Program, we receive funds from Congress through US EPA. This year, we leveraged those 10:1.

Everything we raise is spent right here in Oregon and Washington. Most of it goes to other businesses and agencies in our communities to restore habitat, monitor restoration work, and get students outdoors.

EXPENSES BY ACTIVITY 2016



Thank You

PROGRAM FUNDERS

US Environmental Protection Agency
State of Oregon
State of Washington

PROJECT SUPPORTERS

Camas-Washougal Community Chest
City of Vancouver
Clark County Washington
CREST
Department of Land Conservation and Development
East Multnomah Soil and Water Conservation District
Gray Family Foundation
Juan Young Trust
Lewis and Clark National Historic Park
Lower Columbia Fish Recovery Board / Washington State Recreation and Conservation Office
National Fish and Wildlife Foundation
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LOWER COLUMBIA ESTUARY PARTNERSHIP STUDY AREA



Pacific Ocean



LEGEND

- Cities
- Major Roads
- County Lines
- EP Study Area
- ★ Feature Project
- Education Project
- ▲ Volunteer Project



Bonneville Dam

Mt. Hood



LOWER COLUMBIA ESTUARY PARTNERSHIP

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Advancing science, protecting ecosystems, engaging people to sustain the Columbia for all time.