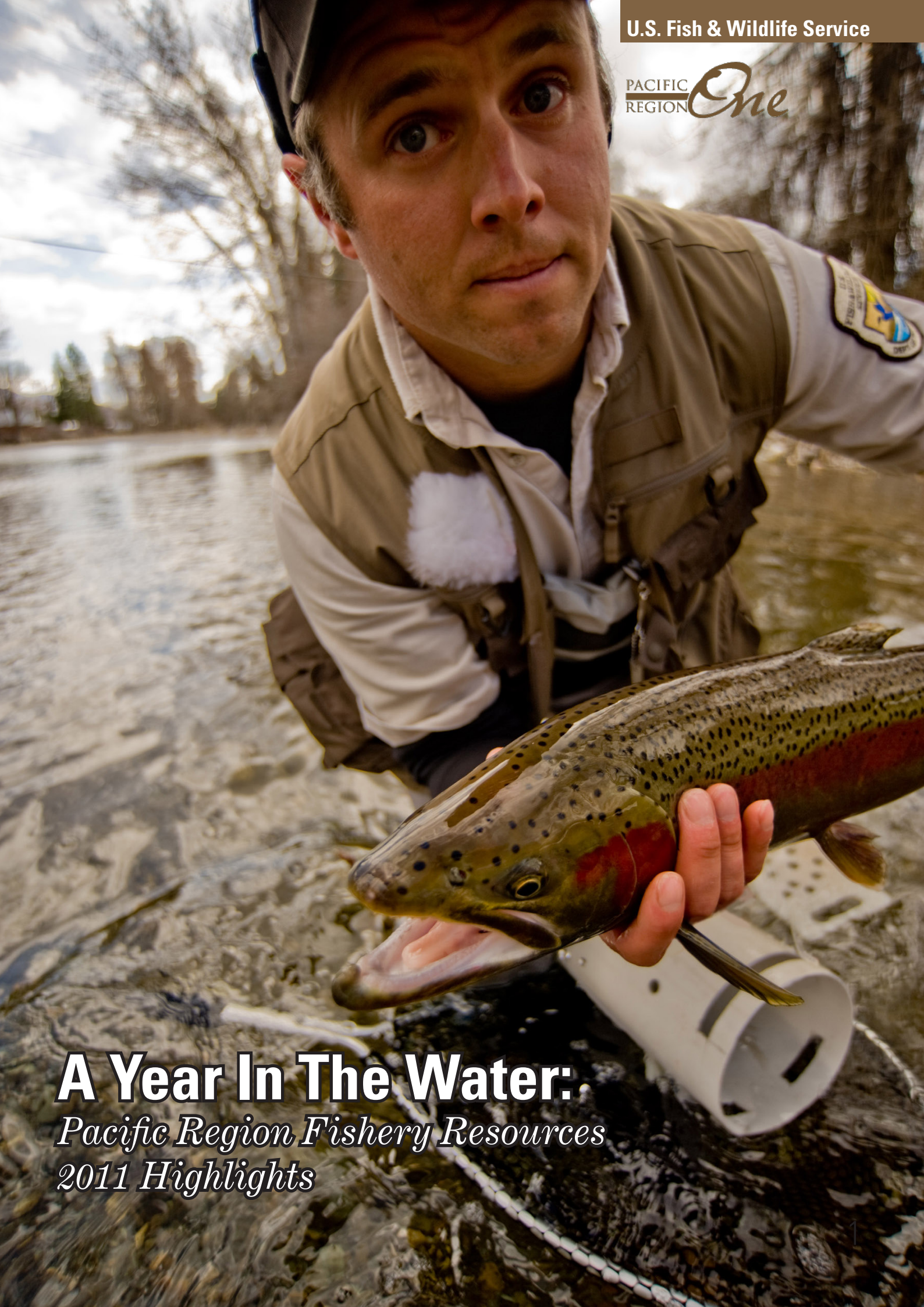
U.S. Fish & Wildlife Service

PACIFIC REGION One



A Year In The Water:

Pacific Region Fishery Resources 2011 Highlights

The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect, and enhance fish, wildlife, plants, and their habitat for the continuing benefit of the American people.

PACIFIC REGION One

Cover Page: Fisheries Biologist Matt Cooper of the Mid-Columbia Fishery Resource Office collecting steelhead for broodstock from the Methow River.

Photo Credit: Matthew Hall/USFWS

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Standing Tall In The Pacific Region

Water is the lifeblood of all that is beautiful and natural in the Pacific Northwest and Pacific Islands. Rain defines our temperate forests. Snow blankets our mountain ranges. Abundant lakes, aquifers, and waterways snake their way from high desert landscapes to the Pacific Ocean. In all its forms, water supports habitats and organisms that have shaped our culture and economy. Recognizing the relationship of water to life and economy in the Pacific Region, the Fisheries staff of the Region is unabashedly proud of the special public trust we serve.

We strive to stand tall in our work to provide abundant stocks for tribal, sport, and commercial fisheries. We strive to stand tall as we work to recover wild fish to historic population levels. We strive to stand tall as we protect and enhance aquatic habitats and other aquatic organisms. We strive to stand tall as we build and nurture partnerships in fisheries management and aquatic conservation across the Region. Most importantly, we strive to stand tall as an agency that models the best values of scientific inquiry and integrity. Our scientists and managers work to ensure that our hatcheries undergo continuous improvements to produce stock that populate our fisheries and that enhance–not detract from–wild populations. It is why we work to assure that dollars spent on conservation of aquatic habitats are distributed strategically, yet equitably. It is why we work hard every day to fight the spread of aquatic nuisance species. And it is why we keep a watchful eye on any development that affects water quality, water supply and aquatic ecosystems.

As you read this report, we hope that our commitment to science, passion for service, and pride are reflected in these accomplishments. Yet, as proud as we are, be assured that we are committed to standing even taller by building on them in the years ahead.

Proudly serving our natural resources and our citizens!

Mike Carrier
Assistant Regional Director, Fishery Resources

Robbette Schmit, Fish Biologist, on a spawning ground survey on the Entiat River, Washington.

Matthew Hall/USFWS

Hatchery Milestones

Quilcene National Fish Hatchery Centennial

In August, Quilcene National Fish Hatchery celebrated 100 years producing coho salmon for Puget Sound tribal, commercial and recreational fishing. Over the last century, the hatchery has evolved with changing demands. It has supported conservation programs benefitting listed and depressed stocks of fishes, including Hood Canal summer chum, Hood Canal winter steelhead, and most recently a pilot program for Lake Sammamish kokanee. The centennial celebration illustrated the hatchery's ongoing community involvement: over 500 visitors and tribal, federal, state, county and non-governmental partners joined us on hatchery grounds to commemorate 100 years of fish production and native species conservation. With production programs strongly supported by five area tribes plus a 20-year track record faciliating recovery of wild fish stocks, the Pacific Region's third oldest National Fish Hatchery is proof that some things get better with age.

Deputy Regional Director Richard Hannan and Quilcene National Fish Hatchery Manager Ron Wong at the Quilcene centenial celebration
Dan Magneson/USFWS

Volunteer Support

Over 1,100 volunteers provided 16,958 hours of assistance at 20 Pacific Region National Fish Hatchery System facilities, equal to $360,000 in labor costs. Nearly 40 percent of our volunteer corps were youth under 16. Our volunteers provide critical support both to the Service and the American public, helping us with outreach, maintenance, fish production, and monitoring.

Jarrett Page, Makah National Fish Hatchery assistant manager, prepping steelhead eggs for transfer to the Hoh Tribal hatchery.
Caroline Peterschmidt, MNFH

Supporting Coho Restoration

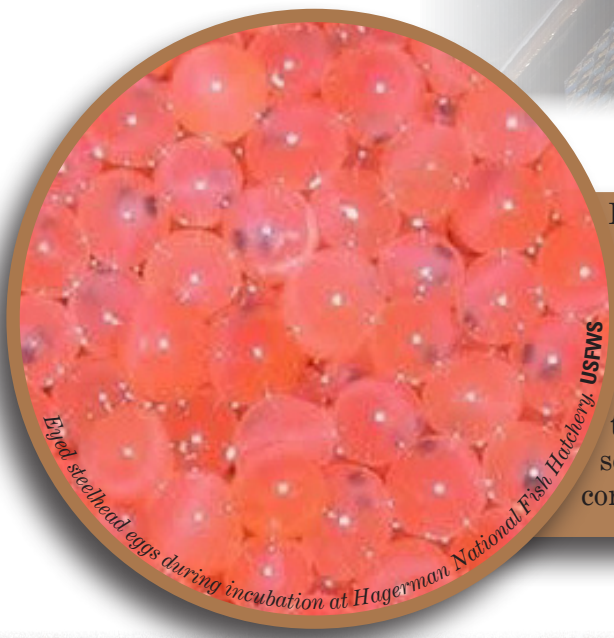
Tribal-led efforts to restore coho salmon in the Clearwater, Yakima, and Methow River Basins reached significant milestones in 2011, with substantial help from six Service hatcheries and two Fish Health Centers.

Coho returns in Idaho's Clearwater Basin continue to increase each year, a remarkable comeback for fish that were extirpated from the Snake River Basin in the late 1990's.

In Washington State, strong returns this fall allowed for the first recreational coho fishery on the Icicle, Wenatchee, and Methow Rivers in 30 years, a reflection of our close collaboration with the Yakama Nation and other partners.

Dworshak National Fish Hatchery, jointly managed by the Service and Nez Perce Tribe, raises coho, Chinook, and steelhead (left) to support harvest and recovery efforts. (Shown here: Animal Caretaker Clarise Holt)

Angela Feldmann/ USFWS



Eyed steelhead eggs during incubation at Hagerman National Fish Hatchery. **USFWS**

Completing our Hatchery Review

In March 2011, the Service published final reports for Lower Snake River Compensation Plan facilities, completing a five-year, science-based review of 24 salmon hatcheries in Washington, Oregon, and Idaho. The review examined 53 hatchery programs for Pacific salmon and steelhead, and resulted in nearly 900 recommendations to current operations. The goal of the reviews was to ensure that Service hatcheries operate in accordance with the best scientific information, and contribute to sustainable fisheries while conserving naturally-spawning fish.

Facility Upgrades

In 2011, the Service spent over $1.7 million to improve infrastructure at Pacific Region National Fish Hatcheries. Spring Creek and Quinault substantially upgraded their Visitor Centers with professional displays of Service activities. The Quinault Visitor Center (left) includes designs and motifs created by members of the Quinault Tribe.

Quinault National Fish Hatchery Visitor Center after upgrade.

Bill Edwards/USFWS

Scientific Excellence

Restoring Lake Sammamish Kokanee

Once numbering in the thousands, Lake Sammamish kokanee have greatly declined in recent years. The Service is a member of the Lake Sammamish Kokanee Working Group implementing a comprehensive conservation strategy to rebuild this native fish population. Eggs collected from wild-spawning fish were incubated at Issaquah State Hatchery and Quilcene National Fish Hatchery. In 2011, 16,000 kokanee fry were released into three Lake Sammamish tributaries. The project is slated to cover three full kokanee generations during which the Working Group will continue implementing kokanee habitat restoration efforts.

Lake Sammamish kokanee fry

Roger Tabor/USFWS

Joel Sartore/National Geographic

Bull trout are a Service priority species.

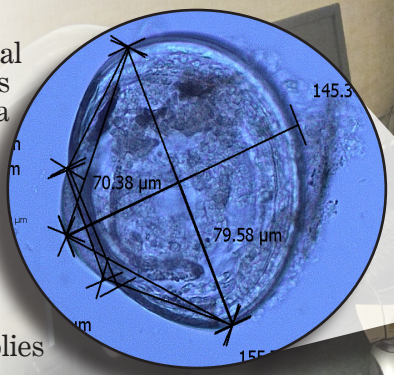
Clackamas River Bull Trout Reintroduction

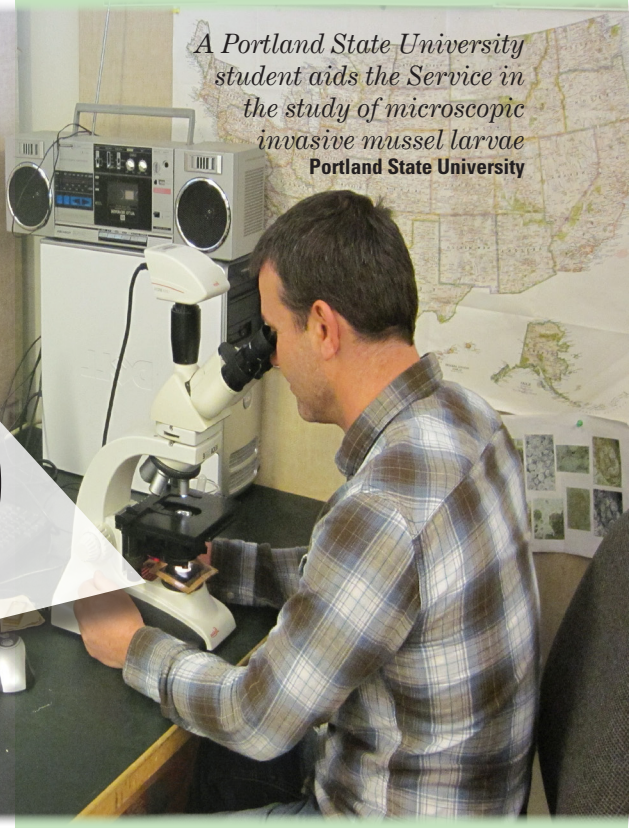
Bull trout were reintroduced to the upper Clackamas River in summer of 2011, a significant step towards the recovery of a species not seen in the basin since 1963. The Service's Oregon Fish and Wildlife Office and Columbia River Fisheries Program Office worked cooperatively with the Oregon Department of Fish and Wildlife, U.S. Forest Service, National Marine Fisheries Service, Warm Springs Tribe, and Portland General Electric in preparation for the reintroduction. Our Columbia River Fisheries Program Office is sampling 35 sites for juvenile occupancy, and working with our partners to monitor the location of radio-tagged adult fish and analyze data collected in the field.

New Invasive Species Detection Tools

Early detection of aquatic invasive species is critical to minimize impacts when introductions occur. Several 2011 projects reflect the importance of enhancing the science behind early detection programs:

- We partnered with U.S. Geological Survey to establish new protocols for underwater zebra and quagga mussel surveys and developed an associated diver training program to verify reported introductions.
- We teamed up with the Service's Mountain-Prairie Region to develop a tool that detects New Zealand mudsnails in water supplies using DNA fragments.
- We worked with Portland State University to improve accuracy of microscope-based analysis of water samples for zebra and quagga mussel larvae.





A Portland State University student aids the Service in the study of microscopic invasive mussel larvae **Portland State University**

Constructing Genetic Baselines

Recognizing the need to identify genetic risks and information gaps associated with hatchery broodstocks and adjacent wild populations they might impact, we have collected standardized genetic data for 16 Service-reared broodstocks and relevant wild populations and created 10 Broodstock Profiles available to the public. The data, which enables comparisons between hatchery and wild Chinook in Oregon's Warm Springs River and hatchery and wild tule fall Chinook in Washington's White Salmon River, help the Service and our partners better manage hatchery operations and protect wild fish.

Regional Geneticist Denise Hawkins of the Abernathy Fish Technology Center analyzing DNA samples. Genetic data are being used to develop broodstock profiles. **USFWS**

Establishing A Common Foundation

In May 2011 the Service and the Oregon Chapter of the American Fisheries Society gathered more than 150 biologists and managers from federal, tribal, and state fish and wildlife agencies to exchange scientific information on factors affecting the size and age at maturity of wild and hatchery Columbia River Basin Chinook and other Pacific salmon. By establishing a common foundation of scientific understanding, workshop attendees can better address specific management issues such as hatchery spawning protocols, selection and passage of hatchery-origin fish upstream of weirs, and predicted numbers of harvestable fish.

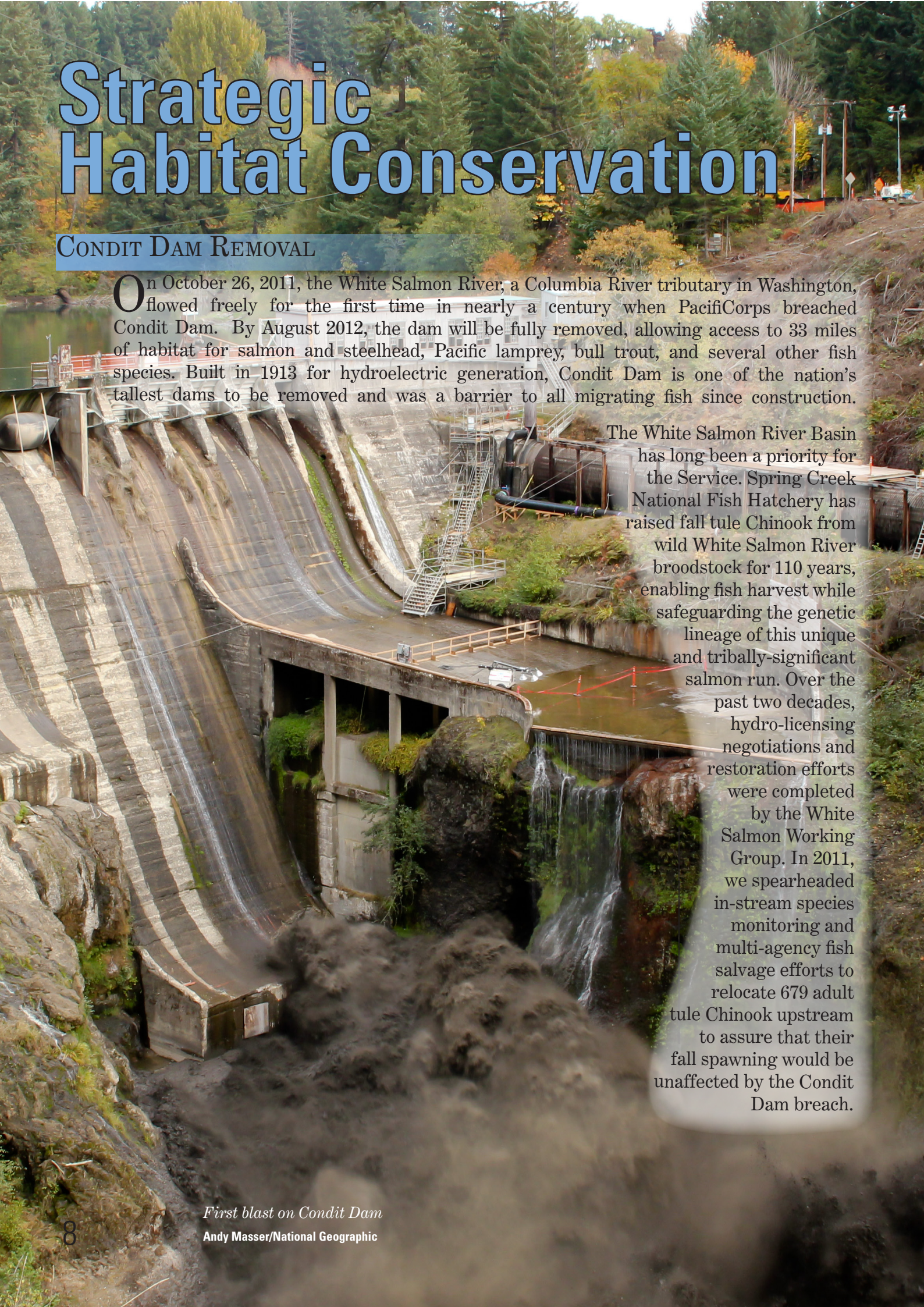
Service crew from the Columbia River Fisheries Program Office studying interactions between wild and hatchery steelhead on the North Fork of Eagle Creek **James Archibald/USFWS**

Strategic Habitat Conservation

Condit Dam Removal

On October 26, 2011, the White Salmon River, a Columbia River tributary in Washington, flowed freely for the first time in nearly a century when PacifiCorps breached Condit Dam. By August 2012, the dam will be fully removed, allowing access to 33 miles of habitat for salmon and steelhead, Pacific lamprey, bull trout, and several other fish species. Built in 1913 for hydroelectric generation, Condit Dam is one of the nation's tallest dams to be removed and was a barrier to all migrating fish since construction.

The White Salmon River Basin has long been a priority for the Service. Spring Creek National Fish Hatchery has raised fall tule Chinook from wild White Salmon River broodstock for 110 years, enabling fish harvest while safeguarding the genetic lineage of this unique and tribally-significant salmon run. Over the past two decades, hydro-licensing negotiations and restoration efforts were completed by the White Salmon Working Group. In 2011, we spearheaded in-stream species monitoring and multi-agency fish salvage efforts to relocate 679 adult tule Chinook upstream to assure that their fall spawning would be unaffected by the Condit Dam breach.



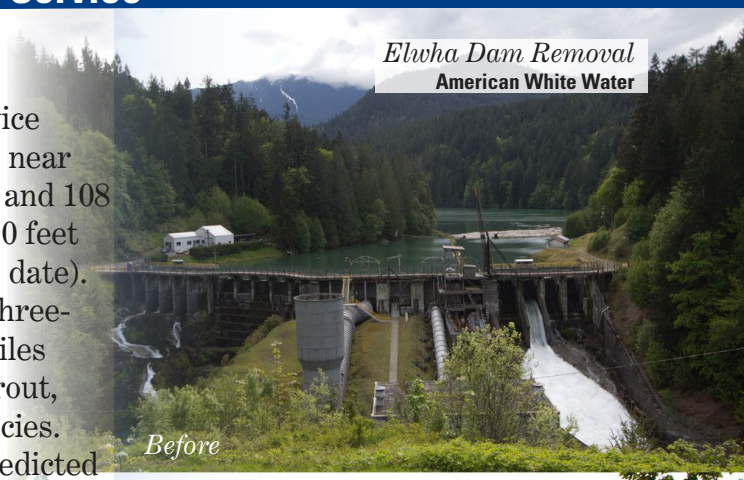
First blast on Condit Dam

Andy Masser/National Geographic

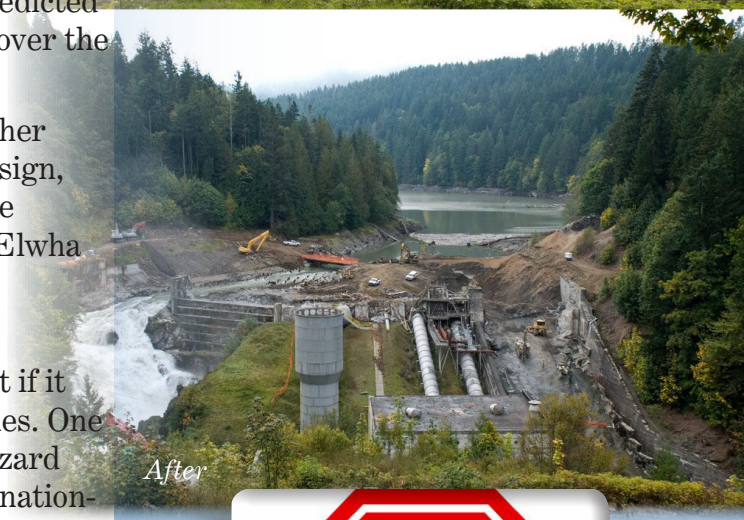
Elwha River Dam Removal

In September, contractors for the National Park Service broke ground to remove two Olympic Peninsula dams near Port Angeles, Washington - Elwha Dam, built in 1913 and 108 feet tall, and Glines Canyon Dam, built in 1927 and 210 feet tall (the nation's two largest decommissioned dams to date). Dam removal and river restoration will occur over a three-year period. The completed project will provide 70 miles of habitat benefitting Pacific salmon, steelhead, bull trout, Pacific lamprey, coastal cutthroat trout, and other species. Annual salmon populations in the Elwha River are predicted to grow from about 3,000 to 400,000 returning adults over the next 25 years.

In 2011, we assisted the National Park Service and other partners on dam decommissioning studies, project design, and implementation. We also assisted with fish salvage operations by constructing a fish capture weir below Elwha Dam to ensure successful salmon recolonization.



Elwha Dam Removal
American White Water



Invasives Prevention Planning

We can't be strategic about conserving aquatic habitat if it becomes dominated by harmful aquatic invasive species. One of our key prevention tools against their spread is Hazard Analysis and Critical Control Point planning, an internationally-adopted method that identifies invasive risks, defines the best opportunities to reduce them, and evaluates prevention effectiveness. The Pacific Region is a leader in prevention training and use.

In 2011 we:

- Developed a prevention plan to ensure invasives were not inadvertently introduced during the Clackamas River Bull Trout Translocation Project.
- Partnered with the U.S. Navy to train over 50 biologists and others on Guam to prevent the introduction of invasive species during military base expansion activities.
- Completed nearly 20 plans to guard against the spread of invasives in Oregon, Washington, and Idaho during fish passage and screening projects.

Habitat Restoration

In 2011 Fishery Resources habitat restoration projects:

Removed 34 barriers to fish passage

Restored 11 miles of in-stream habitat

Re-opened 151 miles and 98 acres for fish passage

Service Fish Passage Program funding helped replace failing culverts that posed barriers (above right) to fish migration on Deep Creek in Washington's Yakima River Basin. Five miles of pristine habitat were re-opened (above left) to bull trout and Westslope cutthroat trout. **Gary Toretta/USFS**

Youth in the Great Outdoors

Educate

Service field offices educate youth about aquatic resource conservation through a variety of programs such as Youth Fisheries Academy, 'Kids in the Creek' and Salmon in the Classroom. In April 2011 the Columbia River Fisheries Program Office initiated a new outreach program, hosting 40 area high school students in a 'biologist's day in the field' open house. Students rotated through four hands-on activities including population estimation, fish identification, radio tracking, and scale and coded-wire tag reading. The event was such a success that it will be expanded.

Engage

Over 400 youth volunteered at National Fish Hatcheries, Fish Health Centers, or Fishery Resource Offices. Leavenworth National Fish Hatchery's volunteer corps alone included 325 youth, including 190 participants from Operation Purple Camp at McChord Air Force Base, providing much-appreciated project labor on hatchery grounds.

Employ

In 2011 the Service temporarily employed 69 youth, either directly or through partnerships, to support aquatic conservation activities in the Pacific Region. Since 2009 the Pacific Region Fishery Resources program has more than doubled the number of its temporary youth hires.

Student tunes into nature next to the Chehalis River during a salmon restoration field trip on the Discovery Trail near Centralia, WA.

K. Jacobson/Education Service District 113

Finding Our Future Work Force

Student Temporary Employment Program at Work

Mara Healy had little idea that by the end of Summer 2011, she'd teach fish dissection to summer campers, identify native Western Pearlshell freshwater mussels using an aquascope, or help install a fish weir as part of the Elwha Dam removal.

Mara, a sophomore at Western Washington University, was hired as a Fishery Technician through the Service's Student Temporary Employment Program in the Western Washington Fishery Resource Office. She experienced a summer filled with outreach about Pacific salmon ecology and their habitats, and has broadened her appreciation for possible future career opportunities like freshwater ecology, fisheries biology, or conservation education.

One of her job highlights was assisting with the Youth Fisheries Academy, a week long summer program aimed at teaching underserved youth hands on science skills.

"Americans are spending less time outdoors," says Academy leader Dan Spencer. "Mara and other students like her are making a difference by connecting our youth with the natural world."

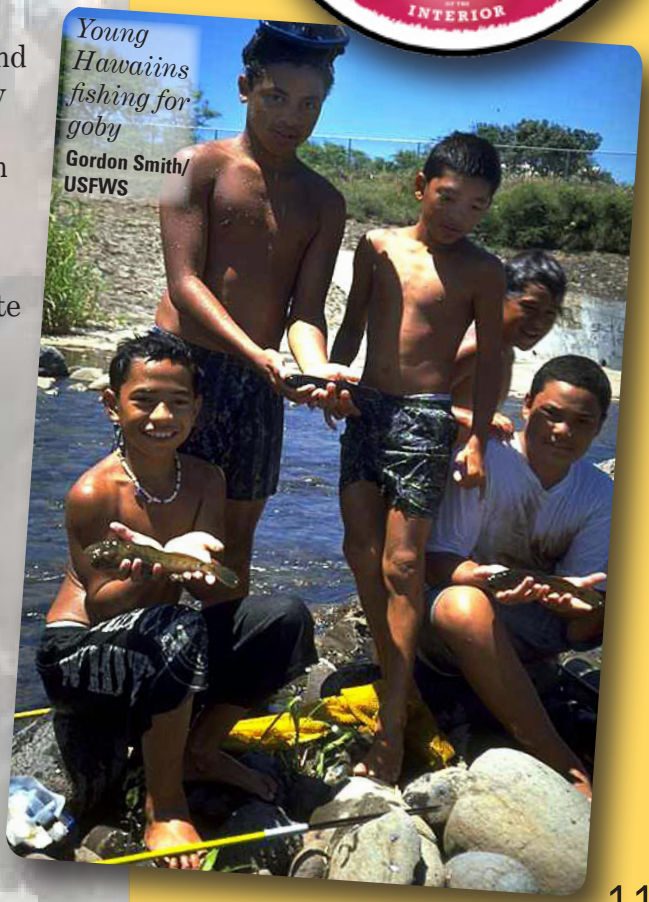
Youth visitor viewing juvenile lamprey at the Quilcene Centennial

Ron Wong/USFWS

Jason Chow can credit his Service experience to a tiny, red shrimp found nowhere else in the world. A biology major at the University of Hawaii, Jason joined the Pacific Islands Fish and Wildlife Office as a Biological Science Aide.

Jason helped the Service's Candidate Conservation program restore anchialine pools for native shrimp located on the Kalaeloa Unit of the Pearl Harbor National Wildlife Refuge. Jason created four learning stations on restoring the native dry coastal ecosystem. He then taught Kapolei High School students how to guide other students visiting the Refuge though the stations, showcasing native Hawaiian cultural practices.

Jason also participated in Hawaii Fish Habitat Partnership-led restoration efforts such as translocating rare damselflies and improving fish passage. Though nearshore marine fisheries have always been Jason's passion, his work to protect one, tiny red shrimp, has now made it possible to envision a future Service career.



Young Hawaiins fishing for goby

Gordon Smith/ USFWS

U.S. Deparment of the Interior
U.S. Fish & Wildlife Service

http://www.fws.gov/pacific/fisheries

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Photo Credit: Alan Dyck