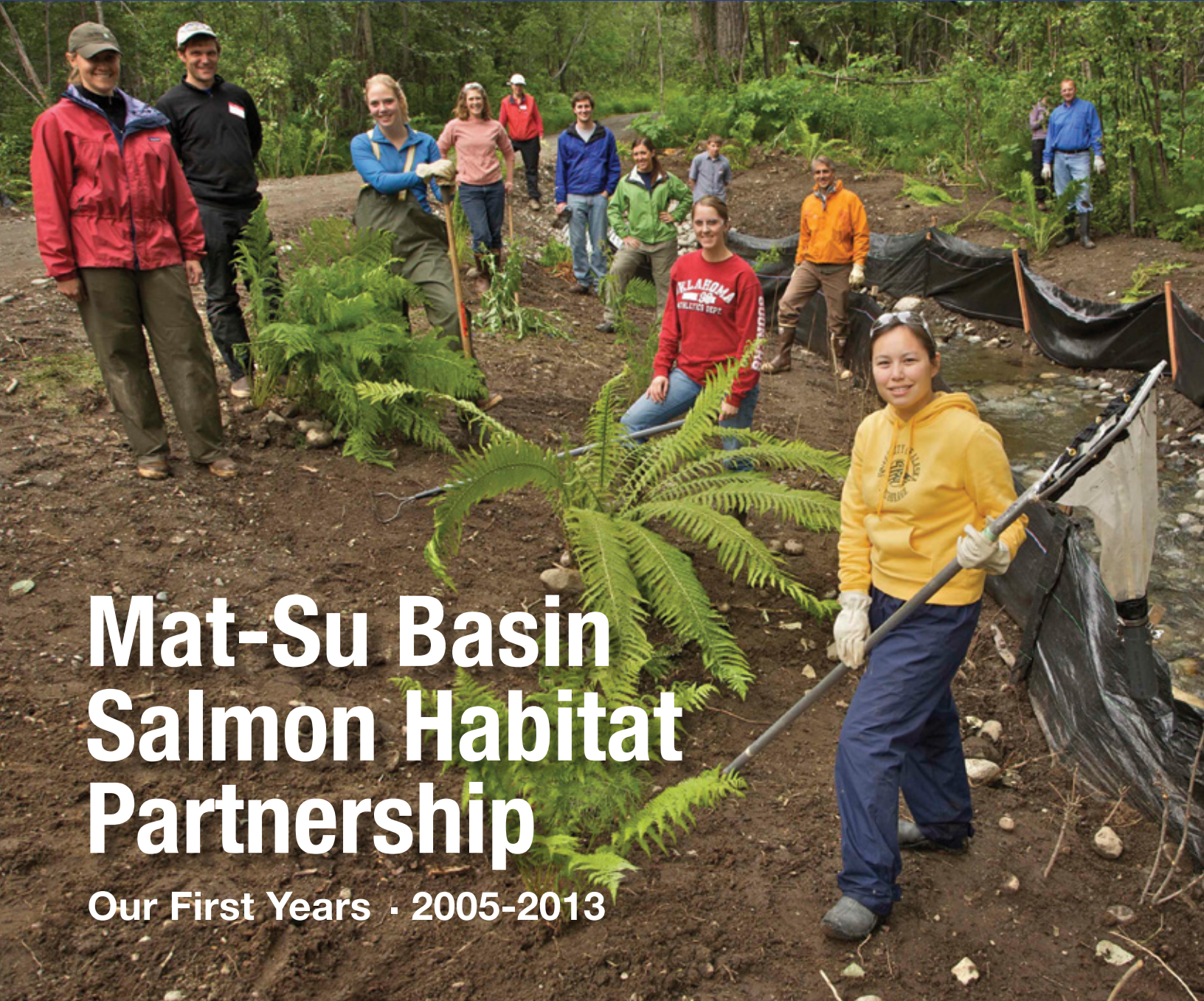


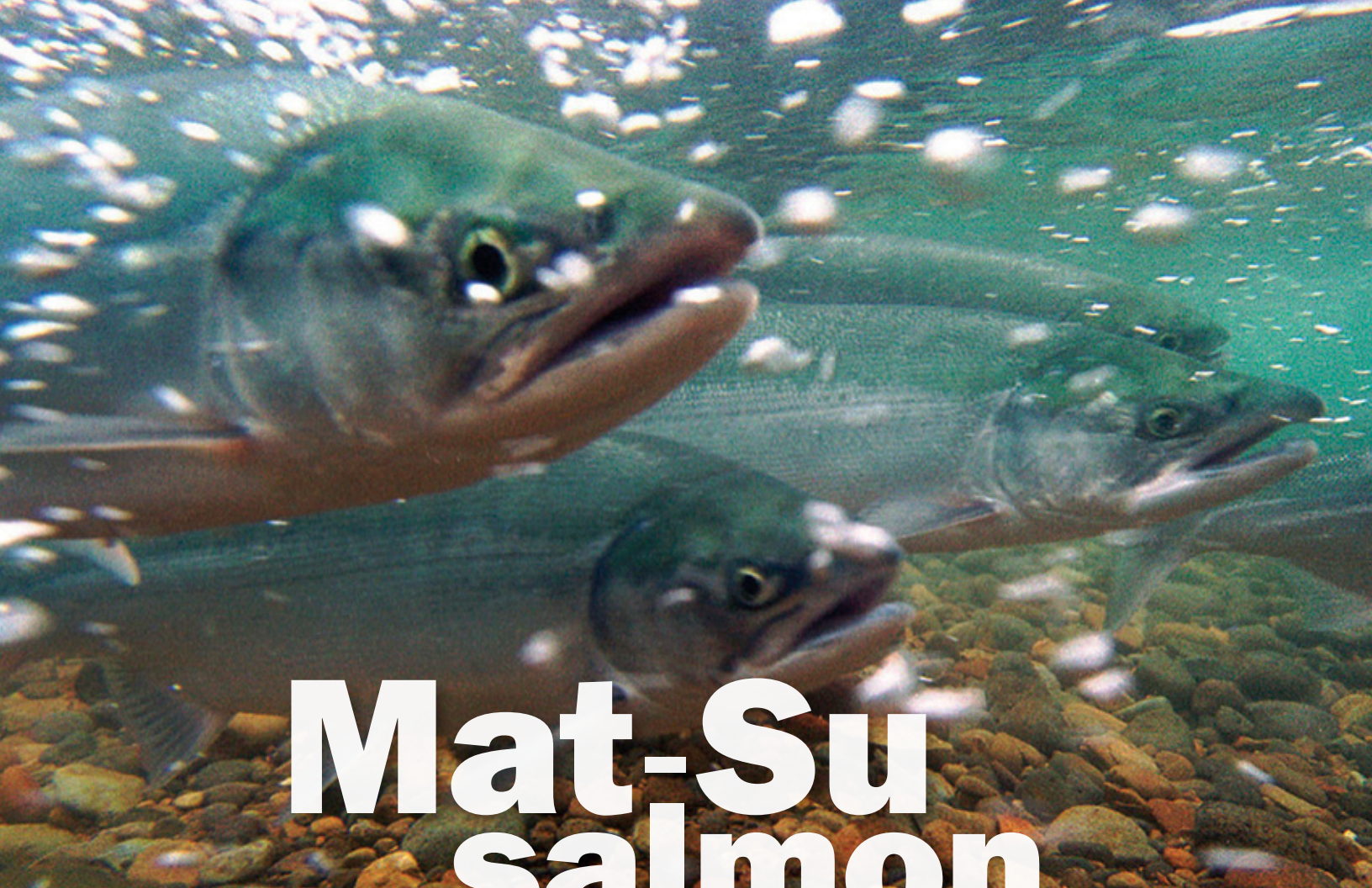
*Healthy Salmon* —————  
————— *Healthy Communities*



# Mat-Su Basin Salmon Habitat Partnership

Our First Years · 2005-2013





# Mat-Su salmon

## PARTNERSHIP





## Mat-Su Salmon Partnership ~ Our First Years 2005-2013



*Mat-Su Salmon Partnership member Andy Couch, owner of Fishtale River Guides on the Little Susitna River with Jessica Speed, Partnership Coordinator.*

Welcome to this progress report of the Matanuska-Susitna Basin Salmon Habitat Partnership! The following pages highlight and celebrate the collective work of the Partnership over the last nine years. Since 2005, the Partnership has grown with a desire to better coordinate existing salmon conservation efforts in the Mat-Su and address increasing development pressures, climate change, and other human-caused stresses on important salmon habitat. Now the Partnership is a diverse and dedicated group of over 50 individuals and organizations who are proactively addressing salmon habitat issues in the Basin. From the beginning, the Partnership has been united by a common vision where thriving fish, healthy habitats and vibrant communities can co-exist in the Mat-Su.

Guided by a Strategic Action Plan, efforts and successes have been wide ranging. Partners have improved knowledge about the habitats that Mat-Su salmon need during their life cycle, conserved productive intact habitat, strategically restored important habitats that have become degraded or disconnected from downstream habitat, and provided opportunities for education, collaboration and information sharing.

With funding from the National Fish Habitat Partnership, the Partnership has provided \$1.8 million for 55 salmon habitat projects in the Mat-Su since 2006, with millions more in matching funds and volunteer contributions from private and public sources.

Healthy salmon are key to healthy communities. Although the Mat-Su is vast (the size of Massachusetts, Vermont and Connecticut combined), salmon are the point where everyone connects. They fuel our economy, ecology and culture. They also feed local families.

The effort and many successes of the Partnership over the last nine years have been about much more than fish. It's been just as much about people. When as a Partnership we work for healthy salmon, we're really working for healthy communities, and our Alaskan way of life. Thank you for your part.

Jessica Speed,  
Mat-Su Salmon Habitat Partnership Coordinator

*On the cover: Volunteers restore habitat at Little Creek. Photo by Clark James Mishler*

*At left: Matanuska-Susitna Basin is home to five species of Pacific salmon. Photo by USFWS*

*Back Cover: Spawning sockeye salmon in a Meadow Creek tributary, Big Lake drainage. Photo by Katrina Mueller, USFWS*



CLARK JAMES MISHLER



CLARK JAMES MISHLER



DAN PARRETT

The Partnership was founded on a collaborative, cooperative, and non-regulatory approach that brings together diverse stakeholders to coalesce and catalyze diverse interests around salmon and the conservation of their habitat. This model was inspired by an approach outlined by the National Fish Habitat Partnership (NFHP), whose mission is to “protect, restore, and enhance the nation’s fish and aquatic communities through partnerships that foster fish habitat conservation and improve the quality of life for the American people”. We are one of the first four of 19 Fish Habitat Partnerships (FHPs) across the country, and the first officially recognized of four FHPs in Alaska. The Partnership operates under the guidance of NFHP, and includes diverse membership from local community groups; federal, state, local and tribal governments; businesses; fishing interests; non-profit organizations; and individual landowners. Since the beginning, the Partnership has sought to include anyone concerned about conserving salmon in the Mat-Su Basin.

In 2008, the Partnership brought together a wide range of scientists, agencies, community groups, and fishing interests to develop a Strategic Action Plan that identified major potential threats to salmon habitat in the Mat-Su Basin and conservation strategies to address them. The Partnership has been busy implementing that plan, and in 2013 we updated it to reflect changes in habitat, partnership accomplishments, and new threats to habitat.

Understanding that the whole is indeed greater than the sum of its parts, the Partnership brings people together to share knowledge, expertise, and resources. Partners have received national awards for outstanding scientific, fish passage, and outreach achievement. Thousands of youth and adult volunteers have worked on habitat restoration projects. Each partner has unique capabilities, responsibilities, and resources that contribute to the conservation of salmon habitat. By working together, we strive to safeguard these key components so that habitat can be conserved to ensure healthy, abundant salmon runs in the Mat-Su Basin into the future.

# 55 projects

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## Mat-Su Salmon Partnership Funded Projects in the Mat-Su Basin Since 2006



# 6 symposiums

The Partnership has hosted six annual Salmon Science and Conservation Symposiums with over 25 presenters and more than 100 attendees each year. These events foster collaboration and communication on the latest science, conservation and restoration of fish habitat in the Mat-Su, as well as healthy dialogue amongst diverse stakeholders.

# PARTNERSHIP

## Mat-Su Salmon Habitat Partners

Alaska Department of Commerce, Community and Economic Development

Alaska Department of Environmental Conservation

\*\*Alaska Department of Fish and Game

Alaska Department of Natural Resources

Alaska Department of Transportation & Public Facilities

Alaska Center for the Environment

Alaska Outdoor Council

Alaska Pacific University

Alaska Railroad Corporation

\*\*Alaska Salmon Alliance

\*AlaskaChem Engineering

Alaskans for Palmer Hay Flats

\*\*Aquatic Restoration & Research Institute

Bureau of Land Management

Butte Area Residents Civic Organization

\*\*Chickaloon Village Traditional Council

City of Palmer

ConocoPhillips Alaska, Inc

Cook Inlet Aquaculture Association

Cook Inletkeeper

Environmental Protection Agency

\*\*Envision Mat-Su

Fishtale River Guides

Glacier Ridge Properties

\*Great Land Trust

HDR Alaska, Inc

Knik River Watershed Group

Matanuska River Watershed Coalition

\*\*Matanuska-Susitna Borough

Mat-Su Anglers

Mat-Su Conservation Services

Montana Creek Campground

\*\*National Marine Fisheries Service

National Park Service

Native Village of Eklutna

Natural Resources Conservation Service

Palmer Soil and Water Conservation District

Pioneer Reserve

Pound Studio

SAGA

Sierra Club

The Conservation Fund

\*\*The Nature Conservancy

The Wildlifers

Three Parameters Plus, Inc

Tyonek Tribal Conservation District

United Cook Inlet Drift Association(UCIDA)

United Fishermen of Alaska

\*Upper Susitna Soil & Water Conservation District

U.S. Army Corps of Engineers

\*\*U.S. Fish and Wildlife Service

U.S. Geological Survey

U.S. Forest Service

\*Wasilla Soil and Water Conservation District

\* Organizations that have served on the Salmon Partnership Steering Committee

\*\*Organizations currently on the Steering Committee

[www.matsusalmon.org](http://www.matsusalmon.org)





# SCIENCE

Identifying important habitats for salmon requires an understanding of their geographic distribution during different life stages across the local landscape, including the physical, biological, and chemical make-up of those distinct spawning, nursery, and over-wintering habitats. There is still much to learn about how salmon are utilizing the Mat-Su Basin's vast landscape. Gathering baseline data about salmon distribution and characteristics of key habitats are important prerequisites to habitat conservation. These up front investments pay off when it comes time to choose where to put projects on the ground.

The Partnership developed science strategies that focus on fish distribution and water quantity and quality. These strategies support the overall goals of the Strategic Action

Plan and are key to identifying important habitats for salmon in the Mat-Su Basin and prioritizing fish habitat conservation actions.

Since our beginning, we have accomplished a lot! Partners have a greater understanding of juvenile salmon use of estuaries, streams in winter, and growth in different stream systems. The Matanuska River was found to be a larger producer of sockeye, chum, and coho salmon than previously thought, and clear water side channels of the glacial mainstem are the primary spawning habitat. In addition to surveying anadromous waters and wetlands, partners initiated the first comprehensive groundwater model for the Palmer-Wasilla core area to better understand connections between surface and subsurface water and for future



habitat and water quality scenarios. Partners also greatly improved wetland and hydrologic mapping of the Mat-Su Basin. For example, we've helped support the flying of over 3,450 square miles for LiDAR aerial imagery generation, resulting in one of the largest publicly available datasets in the state. This will be essential for future modeling efforts and habitat predictions. The scientific research and assessments carried out by partners in line with our partnership's strategic plan has also contributed to the development of guiding documents designed to help to conserve salmon and their habitat. For example, the Mat-Su Borough developed its first Wetlands Management Plan, Stormwater Management Plan and fish passage standards for culverts on Borough roads.



Far Left: Sockeye salmon move up a tributary to Meadow Creek as a biologist from the U.S. Fish and Wildlife Service sets traps to capture juvenile coho salmon and better understand their preferred habitats in the Big Lake watershed. This research will inform fish passage restoration efforts.

Left: Cook Inlet Aquaculture Association investigates invasive Northern pike populations at Chelatna, Whiskey, and Hewitt Lakes. Gaining insight into the seasonal movement patterns and habitat use of pike helps inform the management actions by Alaska Department of Fish and Game to reduce pike populations where they overlap with salmon and restrict their movement into waters with productive salmon habitat.

Below: Researchers with the Aquatic Research and Restoration Institute (ARRI) sample O'Brien Creek near its outlet as part of a greater effort to learn more about juvenile salmon use of Knik Arm estuaries.



**150 miles** Partners surveyed and added over 150 miles of stream to the Anadromous Waters Catalog. This catalog is an Alaska Department of Fish and Game (ADF&G) data set that tracks salmon distribution. Once a stream is officially listed in the catalog, specific protections are afforded under state law.

**358,000 acres** Partners evaluated aerial photos covering over one million acres resulting in the mapping of 358,000 acres of wetlands that will allow for more informed permitting and assessment of wetland functions and values.



# RESTORATION

CLARK JAMES MISHLER

The quality of Mat-Su Basin salmon habitat is closely linked to the level and location of human activity in the basin. The ecosystems that overlap with the more developed areas of the basin, like the Palmer-Wasilla core area, are generally more degraded, while the more remote areas are generally more intact and of higher quality for salmon. Impacted areas not only require protection against additional habitat degradation, but also strategic restoration to restore the suitability of habitat for salmon and the connectivity of habitats that are important to them during different life stages.

Juvenile and adult fish need to move on a daily basis to find food and cover. In Alaska, fish move among, and migrate between a huge variety of habitat types year round at most flows. This includes movement throughout small headwater streams, wetlands, lakes, sloughs, large rivers, clearwater side channels, estuaries, and the ocean. Feeding and spawning migrations take some fish thousands of miles up and down freshwater corridors and between freshwater, estuarine, and marine habitats. A break in the habitat connections, even if temporary, can spell trouble for salmon.

About 70% of the 587 fish-bearing road-stream crossings documented to date by ADF&G likely prevent or limit salmon from reaching spawning and nursery habitats. Most fish passage issues in the Mat-Su affect juvenile salmon because of their small size and weaker swimming capabilities. In 2011 the Partnership completed a Fish Passage Improvement Plan to prioritize barriers for restoration and take action to prevent new barriers through development of fish-friendly design standards for road-stream crossings.

Guided by the Strategic Action Plan, partners have focused their efforts on restoring degraded streambank and streamside habitat, educating landowners about how to care for their habitat, and reconnecting important habitats for salmon at various life stages.

Alaska Department of Fish & Game started a streambank restoration cooperative program in partnership with U.S. Fish and Wildlife Service and others to restore streamside areas on private and public lands. The most significant of these projects to date have been shoreline restoration and access improvements at the Sunshine Creek public fishing area, at the mouth of Willow Creek on Wasilla Lake, and at the Alaska Sailing Club on Big Lake. Additionally, Chickaloon Village



worked with the Mat-Su Trails Council on 500 feet of Plumley Maud Trail to divert McRoberts Creek from partially flowing down the trail. Another Chickaloon Village restoration project at Moose Creek restored half a mile of a 60-foot wide river to its original meander bends and eliminated a human-induced 10-foot high waterfall. This action restored king salmon access to miles of upstream habitat that had been blocked since the 1930s.

Currently partners are working together to document and quantify riparian habitat degradation in Mat-Su lakes and creeks that are important to salmon. They are also educating landowners about how to reduce their impacts to salmon habitat while retaining and even improving valued waterfront attributes like natural views and easy access.

*Top right: Fish Passage Engineer and Mat-Su Salmon Partnership Steering Committee member Bill Rice, who received 2013 USFWS National Fish Passage Program Field Biologist of the Year award, stands in a fish-friendly road-stream crossing on Government Creek.*

*Right: A Mat-Su perched culvert that is a barrier to both juvenile and adult salmon seeking to reach upstream habitat. Prevention is key. The Mat-Su Borough just this year implemented new fish friendly standards for culverts in Borough Subdivisions. Credit: Katrina Mueller*

*Below: Youth crew from the Upper Susitna Soil & Water Conservation District restoring a lakeshore bank.*



**100 miles** Fish passage has been restored to well over 100 miles of historic spawning, rearing, and overwintering habitat for juvenile and adult fish.

Partners have invested over \$6 million into improving habitat connectivity and fish passage at over 80 sites where roads cross salmon streams. This is an impressive start to replacing the over 400 identified barriers to fish passage in the Mat-Su.

**80 sites**



JEREMIAH MILLEN

# CONSERVATION



CORINNE SMITH / TNC

*Staff and interns with Conoco Phillips Alaska volunteer at stream bank restoration projects each summer and help spread the word that juvenile salmon live in Mat-Su streams year-round.*

**W**e strive to conserve key freshwater and estuarine habitats that five species of Mat-Su salmon need to thrive during their various life stages. We realize that the future of Mat-Su salmon depends on them being able to successfully complete each life stage, from egg to spawning adult. In the Mat-Su, there is still high quality, intact salmon habitat, and our top priority is to conserve and maintain that existing, intact habitat wherever possible. One of the Partnership's greatest areas of success has been in strategically conserving healthy and intact salmon habitat as outlined in the Partnership Strategic Action Plan.

Since 2005, partners have completed water reservations on important salmon streams vulnerable to development. This means that as the region grows and demand for water resources increases, water will be maintained specifically to support salmon production. Moose, Montana and Wasilla Creeks have applications submitted, and two new gauges on Kashwitna Creek and Little Willow Creek are collecting five years of data for new reservations. Once completed, these efforts added to existing reservations on other streams including Willow, Cottonwood, Meadow and Fish



# 7,000 acres

The Great Land Trust and other partners have conserved over 7,000 acres of estuaries, wetlands, riparian areas, and uplands important for salmon.

Creeks and Little Susitna River, will cover much of the priority salmon bearing waters for the “core area” surrounding the Palmer-Wasilla-Knik area and along the Parks Highway from Willow to Talkeetna.

Three wetland preservation mitigation banks and two in-lieu fee programs have been formed to help offset the impacts from wetlands development. These programs help ensure long term conservation of wetlands overall in an area, while providing an opportunity for land owners and developers to offset their individual impacts by paying to protect already banked wetlands or those identified by an in-lieu fee holder. As the Mat-Su grows and development of wetlands receives more pressure, there will be a number of mitigation options to choose from allowing for the most appropriate to be chosen.

Partners have also prioritized important wetland and riparian salmon habitat vulnerable to development, and have been actively working with willing landowners and other partners to conserve these areas for salmon. For example, the Great Land Trust prioritized riparian lands on 24 critical salmon bodies and estuaries across the Mat-Su Borough to help inform Partnership habitat conservation actions.



CARL JOHNSON

*Great Land Trust purchased 917 acres of wetlands along Wasilla Creek and transferred it to Palmer Hay Flats State Game Refuge.*



KATRINA MUELLER / USFWS

In recent years it's become evident that some Mat-Su salmon – particularly Chinook – are experiencing significant declines. This trend is occurring statewide. Although generally greatest impacts to salmon habitat occur in the more developed areas of the fast growing Mat-Su, these areas of concern are in more remote areas where there is little or no known habitat impact. Invasive Northern pike have affected some young Chinook in these areas, but with declines across the state, pike can only be part of the local situation.

Scientists do not yet know the cause of these declines, but with a life cycle in both fresh and marine waters, conditions in both these habitats affect salmon populations. So while the debate about why Chinook runs are declining continues, we'll continue to work hard ensuring that Mat-Su salmon have healthy habitats in the Mat-Su and Upper Cook Inlet so that habitat loss doesn't contribute to the other stresses salmon endure.

Looking forward, the Partnership will continue to strategically focus on bringing people together to conserve, restore, and improve scientific knowledge of salmon and their habitats in the Mat-Su. To our partners whose many accomplishments could not all be highlighted on these pages –thank you!



# Mat-Su salmon

## PARTNERSHIP

Learn more, get in touch,  
and become a member!

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