

Conserving Salmon Habitat in the Mat-Su Basin



Executive Summary

The Strategic Action Plan of the Mat-Su Basin Salmon Habitat Partnership 2008

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Chinook, coho, sockeye, pink, and chum salmon all return in great numbers to the streams and lakes of the Matanuska-Susitna (Mat-Su) Basin each summer to spawn. The Susitna River run of Chinook salmon is the fourth largest in the state. Yet rapid growth in the Mat-Su Basin affects quality of life for residents and habitat health for salmon. Across the Mat-Su Basin, residents value healthy fish and wildlife populations, open space, clean air and water, recreational opportunities, and a rural lifestyle. For many, salmon are an integral part of their heritage and culture, and fishing is a regular part of life and an important means of caring for their families. Population growth in the region at its current pace, combined with the current regulatory framework, enforcement, and common development and recreation practices, cause many people concern that these values can not be maintained. The greatest risk to habitat for salmon and other freshwater fish in the Mat-Su Basin may be many small actions compounding over time to degrade riparian habitat and water quality, change water flow and quantity, and block access to habitat.

Mat-Su Basin Salmon Habitat Partnership

The Matanuska-Susitna Basin Salmon Habitat Partnership formed to address increasing impacts on salmon from human use and development in the Mat-Su Basin with a collaborative, cooperative, and non-regulatory approach that would bring together diverse stakeholders. Rapid population growth and the accompanying pressures for development will increasingly challenge the ability of stakeholders to balance fish habitat conservation with these changes over time. Water quality, water quantity, and other fish habitat-related conditions are among some of the more important issues that will have to be addressed to maintain the fish habitat required to sustain fish productivity. *From the beginning, the Partnership has acted with the belief that thriving fish, healthy habitats, and vital communities can co-exist in the Mat-Su Basin.*

There has been a history of fish habitat efforts in the Mat-Su Basin, including culvert replacement, stream restoration, and stream bank stabilization. Many of these were cooperative efforts between government agencies and local organizations. In the fall of 2005, The Nature Conservancy (TNC), the Matanuska-Susitna Borough (MSB), Alaska Department of Fish and Game (ADFG), and U.S. Fish and Wildlife Service (USFWS) formalized a broad-based public and private partnership. From the beginning, this diverse partnership has attracted local community groups; local, state, and federal agencies; businesses; non-profit organizations; Native Alaskans; and individual landowners. The Partnership has sought to include anyone concerned about conserving salmon in the Mat-Su Basin.

This focus on a bottom-up, locally driven, voluntary and non-regulatory effort was inspired by the approach outlined in the National Fish Habitat Action Plan (NFHAP). The mission of NFHAP 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.”

The Intent of this Strategic Action Plan

The Partnership Steering Committee developed the Strategic Action Plan to identify Partnership long-term goals and strategies and to provide a tool the Partnership can use to prioritize projects related to fish habitat goals in the Mat-Su Basin. The intent of this Strategic Action Plan is to identify long-term goals, strategies, and voluntary actions that the Partnership and others can

undertake to conserve salmon habitat. A subsequent process has been used to prioritize fish habitat-related projects and actions in this plan. The Steering Committee plans to revisit this Strategic Action Plan every 3 to 5 years. If changes in the Mat-Su Basin significantly affect the situation for salmon habitat before then, the plan will be updated more frequently.

The Partnership developed this Strategic Action Plan to identify collaborative projects and other actions that will protect and restore important habitat for wild salmon in the Mat-Su Basin. The Steering Committee initiated the plan under the guidance of the NFHAP and administered the planning process. The NFHAP clearly identifies fish habitat as the focus for partnerships. The Steering Committee decided that the planning process would focus exclusively on habitat-related issues to remain consistent with the intent of the NFHAP and the Mat-Su Salmon Partnership. The plan scope includes not only freshwater fish habitat in the Mat-Su Basin, but nearshore, estuarine, and marine habitat in Upper Cook Inlet as well (Figure 1).

The Steering Committee identified three specific purposes for the plan:

1. Identify important habitats for salmon and other fish species in the Mat-Su Basin.
2. Prioritize fish habitat conservation actions, including protection, enhancement, and restoration of key habitat, education and outreach, research, and mitigation.
3. Identify potential collaborations and funding sources for partners to address fish habitat conservation.

Several partners raised fishery allocation issues during the planning process. These issues were specifically not included in the scope of this plan because doing so would substantially change the nature of the plan and likely shift the focus away from the purposes for which the Mat-Su Salmon Partnership formed. While the plan does not address fishery allocation, Alaska is uniquely equipped to deal with these issues through the Alaska Board of Fisheries, the state legislature, and local fish and game advisory councils. These processes are open and available to the public, including Mat-Su Salmon Partnership individuals and groups.

Overall Health of Mat-Su Basin Salmon and Habitat

This assessment of the current health of wild salmon and their habitat shows that, *taken as a whole across the Mat-Su Basin*, salmon and most of their habitats are healthy and require minimal human intervention for long term survival. A more local look at individual attributes of health, however, points out concerns about long-term sustainability of Mat-Su Basin salmon and some of the habitats they require for survival. For salmon, this assessment suggests that numbers for some sockeye, pink, and chum salmon runs may be below a sustainable level and that some stocks may be seriously degraded in time without conservation action. Data for Mat-Su salmon populations is limited so the status of many stocks, especially in the Matanuska River watershed, is based on anecdotal information, professional judgment, or is unknown. Some habitat alteration, such as blocked migration, will have cumulative impacts over time to successive salmon populations.

Figure 1. The Scope of the Strategic Plan: Mat-Su Basin and Upper Cook Inlet



Not surprisingly, the health of Mat-Su Basin salmon habitat is linked to the level and location of human activity in the basin. The ecosystems that coincide with the more developed areas of the Mat-Su Basin (i.e. Wasilla and Palmer core area and the transportation corridors) may become seriously degraded without human intervention. Reduced health of these ecosystems is linked to alteration of native riparian vegetation, degraded water quality, and water flow changes, all of which have reached levels that may impair these ecosystems in the long-term. Within these areas, Alaska Department of Environmental Conservation (ADEC) has identified over two dozen waterbodies that lack sufficient data to determine water quality, and has designated four as Impaired and three as High Priority. Some water pollution in these areas may be due to the replacement of more than 10% of native vegetation with impervious surfaces that concentrate stormwater runoff in surface waters.

Ecosystems coinciding with areas of little development (i.e. west of Susitna River, uplands, and upper Cook Inlet) have good overall health. Yet even these terrestrial ecosystems contain waterbodies that lack sufficient data, and ADEC has determined that insufficient information exists to assess how well Cook Inlet meets water quality standards.

The current state of salmon and ecosystem health directs us to which species and ecosystems may require protection and prevention measures versus restoration to regain health. Preventative conservation measures in the areas with less human impact can ensure that these ecosystems remain healthy for salmon and other aquatic species. The more impacted terrestrial ecosystems in the developed areas will require not only protection against additional alteration and degradation but also mitigation and restoration actions to restore health.

Potential Threats to Salmon and Habitat

Many human activities are potential threats to salmon and their habitats. Human activities can affect salmon by degrading or eliminating habitat, removing vegetation from wetlands and the banks of streams and lakes, degrading water quality, changing river flows, disconnecting streams, lakes, and wetlands, or blocking fish passage. Lack of data to make management decisions can also be an impediment to conserving salmon and their habitats. Most of these activities are vital to human communities and can be mitigated to reduce or eliminate negative impacts to salmon and salmon habitat.

This plan focuses on human activities that are currently major sources of stress to salmon and their habitat or are likely to be potential threats in the next 10 years. The severity and scope of particular stresses to each conservation target (Appendix 6) were analyzed in combination with the relative contribution and irreversibility of various sources to those stresses. This

combined analysis produced a ranked list of 22 potential threats to Mat-Su Basin salmon and their habitats (Appendix 7). The highest ranked potential threats were compared for impact to habitats, urgency, available information, opportunity, and reversibility, and whether a clear role for the Partnership exists. The impacts of seven potential threats are addressed in this plan.

Potential Threats to Mat-Su Basin Salmon

Housing and Urban Areas
Stormwater and Urban Runoff
Household Septics & Urban Wastewater
Roads and Railroads
Ground and Surface Water Withdrawals
Development in Estuaries
Invasive Northern Pike

Appendix 7 contains more information about the potential threats not selected, but two bear additional explanation here – Climate Change and Recreational Activities. Climate change will warm stream temperatures in the Mat-Su Basin and alter watersheds by affecting flooding frequencies, snow pack depths, precipitation, surface and groundwater volumes, and other hydrologic characteristics. The planning team did not see a clear role for the Partnership to address climate change directly but have placed a priority on protecting and restoring many of the factors that can maintain or increase the resiliency of salmon to a changing climate (e.g., loss of riparian cover, wetlands, connectivity, and reservation of water). The monitoring program will include stream temperature so that the thermal regimes of Mat-Su Basin waterbodies can be tracked and understood as climate and land uses change. Recreational Activities, including boating, ATVs, and access to fishing and hunting, were not chosen as priorities to be included in this plan at this time because the negative impacts of most of these activities are localized, are reversible given a reasonable level of funding and commitment, and identify the need for increased enforcement of existing laws and ordinances. The Partnership plans to revisit the Strategic Action Plan on a regular basis to identify potential threats that could be or should be addressed by the Partnership.

Conservation Strategies

The Mat-Su Salmon Partnership’s broad goals are to protect salmon and their habitats in the Mat-Su Basin and Upper Cook Inlet, mitigate potential threats to salmon and their habitats, restore connectivity between salmon habitats, and increase knowledge about salmon and their use of freshwater and marine habitats. The strategies for the Mat-Su Basin echo those that the National Fish Habitat Action Plan drafted to guide work at the national and partnership level: protection of healthy waters, rehabilitation of flows, reconnection of habitat, and reduction of pollutants and sedimentation in waterbodies. Some potential threats have multiple impacts to salmon and their habitat. A situation analysis for each threat

brought into focus the more discrete habitat issues upon which the Partnership can act. To conserve salmon in the Mat-Su Basin, the Partnership will address overarching science needs and eight focal issues for salmon and salmon habitat.

Focal Issues for Mat-Su Basin Salmon
<i>Alteration of riparian areas</i>
<i>Filling of wetlands</i>
<i>Impervious surfaces and stormwater runoff</i>
<i>Septic systems</i>
<i>Culverts that block fish passage</i>
<i>Loss or alteration of water flow or volume</i>
<i>Loss of estuaries and nearshore habitats</i>
<i>Increased predation from Northern Pike</i>

The Partnership’s conservation strategies encourage collaboration among multiple partners to achieve common objectives that would be difficult for any one partner to accomplish alone. In some cases, comprehensive protection can be accomplished with revisions to local and state laws and increased enforcement of such laws; some strategies recommend such changes but in no way bind affected agencies to implement these strategies. What follows are objectives and strategic actions that the Partnership thinks it can accomplish in the next 10 to 20 years.

1. Overarching Science Strategies

Objective 1.1: Anadromous Waters Catalog

By 2020, all anadromous fish habitat in the Mat-Su Basin will be included in the Anadromous Waters Catalog and thus given basic protections afforded under state law. Efforts to catalog anadromous fish should also document non-anadromous fish.

Objective 1.2: Comprehensive Surface & Groundwater Studies

By 2012, a comprehensive water quantity program will increase understanding of surface and groundwater, including quantities, flows, and variability in the Mat-Su Basin, and provide information for implementing and monitoring strategies for instream flow needs, stormwater management, fish passage, and climate change.

Objective 1.3: Water Quality Monitoring

By 2010 a comprehensive baseline and monitoring program for water quality exists to track and manage changes in Mat-Su Basin waterbodies.

2. Alteration of riparian areas

Objective 2.1: Identification of Priority Riparian Areas for Salmon

By 2015, 50% of salmon riparian areas will be mapped and prioritized for long-term legal protection and/or restoration.

Objective 2.2: Protection of Priority Salmon Riparian Habitat

By 2015, secure long-term protective status (e.g., conservation easements, designated parks, land acquisition) of at least 10% of priority riparian habitats that have not been significantly altered.

Objective 2.3: Restoration of Priority Riparian Habitat

By 2015, 5% of priority riparian habitats that have been altered are restored.

3. Filling of Wetlands

Objective 3.1: Conserve Wetlands for Salmon

By 2015, loss of wetlands that are important for salmon either as spawning or rearing habitat, re-charge of streams, or filtration of streams, will be avoided, minimized, or mitigated with protection, management, and enhancement.

4. Impervious surfaces and stormwater runoff

Objective 4.1: Minimization of Imperviousness Impacts on Water Quality

By 2012, effective impervious surfaces will remain below five percent in developing watersheds and new housing and urban development sites will not result in stormwater runoff that alters the quantity or quality of water in streams and lakes. All water flowing into salmon habitat will equal or exceed the quality necessary to protect the growth and propagation of fish as determined by state water quality standards for aquatic life.

Objective 4.2: Imperviousness Impact Assessment

By 2010, understand the magnitude of impact of impervious surfaces and stormwater runoff in the most developed watersheds.

5. Septic systems

Objective 5.1: Improved Wastewater Disposal

By 2010, septic systems are designed and constructed based on parcel size, number of parcels in a subdivision, and soil suitability, with an emphasis on developing community systems and connecting to public systems, so that septic systems do not contribute to degraded water quality.

Objective 5.2: Expanded Wastewater Infrastructure

By 2015, Mat-Su Borough and its communities have a wastewater infrastructure and treatment facilities that can handle most of the wastewater in the Mat-Su Borough.

6. Culverts that block fish passage

Objective 6.1: No New Barriers

By 2010, effective fish passage is maintained at new road crossings through improved coordination between agencies, sufficient resources for applying current state statutes, and use of improved design and construction practices for effective fish passage.

Objective 6.2: Fish Passage Restoration

By 2012, fish passage will be restored in 20 priority culverts that currently block passage of juvenile or adult fish.

7. Loss or alteration of water flow or volume

Objective 7.1: Instream Flow on Anadromous Waters

By 2020, applications for reservations of water filed with Alaska Department of Natural Resources for priority anadromous lakes and stream reaches.

Objective 7.2: Community Water Needs Study

By 2012, current and future use and need of ground and surface water by Mat-Su Basin communities are quantified in order to assess impacts to water quantity.

8. Loss of estuaries and nearshore habitats

Objective 8.1: Salmon Use of Cook Inlet

By 2012, understand salmon use of Cook Inlet, temporally and spatially, by lifestage in estuary, nearshore & deep water habitats, in order to identify habitats critical to Mat-Su Basin salmon.

Objective 8.2: Conserve Estuaries for Salmon

By 2015, loss of estuarine and nearshore habitats that are important to salmon either as rearing or migratory habitat in Cook Inlet will be avoided, minimized, or mitigated through regional cooperation.

9. Invasive Northern pike

Objective 9.1: Pathways Analysis

By 2010 understand pathways to invasion of Northern pike in order to predict future systems at risk and prevent introductions to those systems.

Objective 9.2: Introduction Reduction

By 2012, human introductions of Northern pike to additional Mat-Su Basin waterbodies is significantly reduced through education and outreach to the general public.

Measures of Conservation Success

The partnership will monitor effectiveness of strategy implementation by monitoring target viability (Table 5) and the mitigation of potential threats (Table 6). Results of implementing strategic actions need to be measured to see if strategies are working as planned and whether adjustments will be needed. Measures also allow the planning team to monitor the status of those targets and threats that were not identified as critical but may need to be reconsidered in the future.

The Future for the Mat-Su Salmon Partnership

The Mat-Su Salmon Partnership has developed this Strategic Action Plan to help partners set priorities for collaborative actions to conserve habitat for wild salmon that spawn, rear, or over-winter in the Mat-Su Basin. Relevant actions that could be guided by this plan include regulatory development; permitting; protection, restoration, and mitigation activities; assessment and research projects; and education and outreach activities. Specifically, the Strategic Action Plan addressed three purposes to provide this guidance:

This Strategic Action Plan sets out priorities for this Partnership to conserve wild salmon and their habitat in the Mat-Su Basin. Achievement of these goals and objectives will depend upon commitment by partner organizations and collaboration between partners. The history of salmon in other parts of the world indicates that wild salmon cannot persist in their full abundance unless stakeholders work together to protect salmon habitat. Within this Partnership, each partner has unique capabilities, responsibilities, and resources that can address a key component for salmon habitat. Only in working together, can all the key components for salmon habitat be protected to ensure healthy, abundant salmon runs in the Mat-Su Basin into the future.

Mat-Su Basin Salmon Habitat Partnership

AK Dept of Commerce, Community & Economic Development

AK Dept of Environmental Conservation

** AK Dept of Fish & Game*

AK Dept of Natural Resources

AK Dept of Transportation & Public Facilities

Alaska Center for the Environment

Alaska Outdoor Council

Alaska Railroad Corporation

Alaskans for Palmer Hay Flats

Aquatic Restoration & Research, Inc.

Bureau of Land Management

Butte Area Residents Civic Organization

** Chickaloon Village Traditional Council*

ConocoPhillips Alaska, Inc.

Cook Inlet Aquaculture Association

Cook Inletkeeper

Environmental Protection Agency

** Friends of Mat-Su*

Glacier Ridge Properties

Great Land Trust

Knik River Watershed Group

Matanuska River Watershed Coalition

** Matanuska-Susitna Borough*

** National Marine Fisheries Service*

National Park Service

Native Village of Eklutna

Natural Resources Conservation Service

Palmer Soil & Water Conservation District

Paul McLarnon

Sierra Club

The Conservation Fund

** The Nature Conservancy*

Upper Susitna Soil & Water Conservation District

US Army Corps of Engineers

** U.S. Fish and Wildlife Service*

US Geological Survey

USDA Forest Service

Wasilla Soil & Water Conservation District

Note: * indicates Steering Committee member
Partners as of July 2008



*Thriving fish, healthy habitats, and vital communities
in the Mat-Su Basin*

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2008**