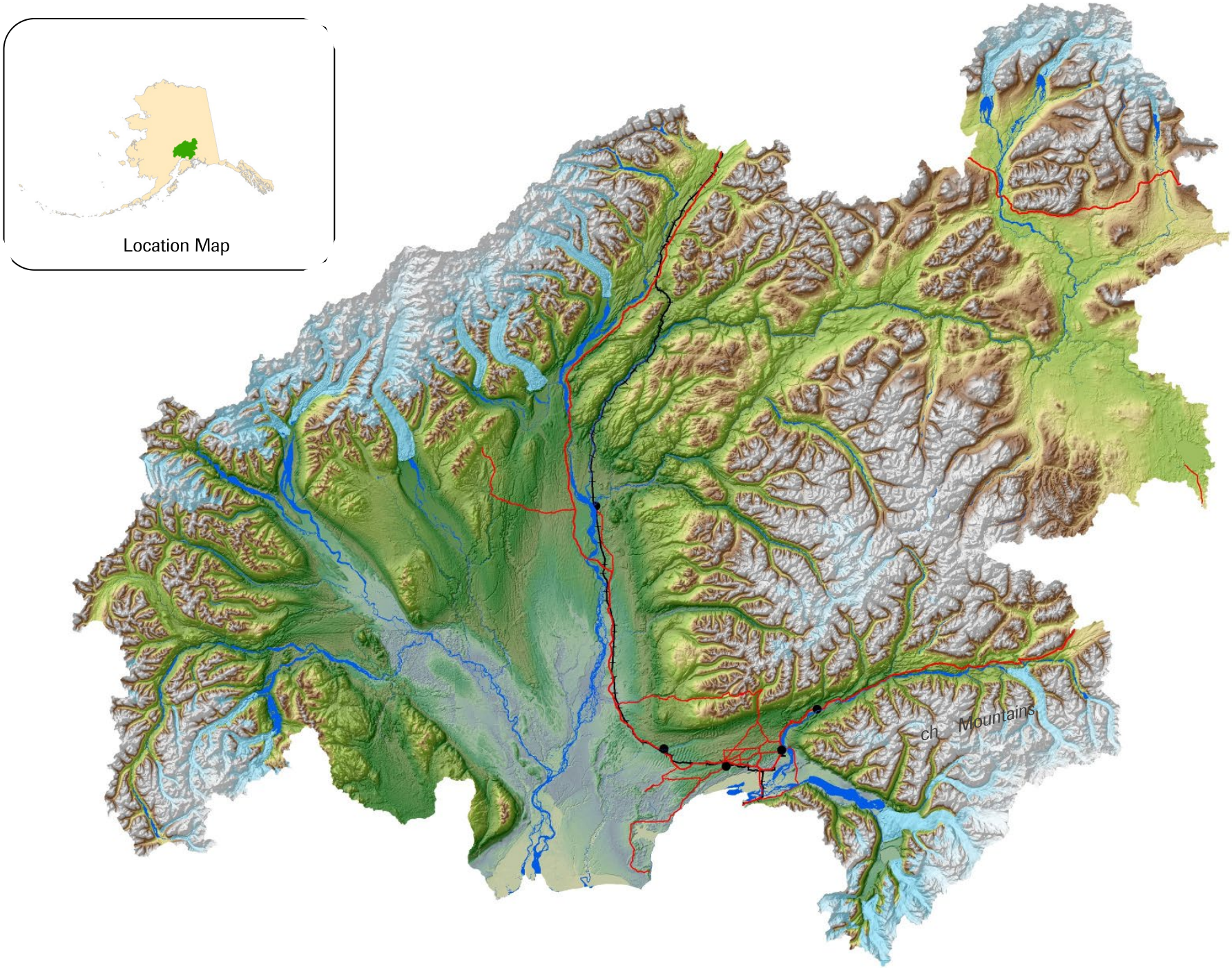
13th Annual

MAT-SU SALMON SCIENCE & CONSERVATION SYMPOSIUM

Mat-Su salmon PARTNERSHIP

November 19th, 2020

"Salmon Science in a Changing World"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Welcome to the 13th annual

Mat-Su Salmon Science and Conservation Symposium

Hosted by the Mat-Su Basin Salmon Habitat Partnership

Thank you for attending the 13th annual Mat-Su Salmon Symposium. We're glad you're here to share information and exchange ideas about salmon science and conservation in the Mat-Su. This year's Symposium theme is 'salmon science in a changing world,' and it's fitting for a year that has been full of change and the need to adapt. Amid a global pandemic, a warming climate, and social and political challenges, the Partnership is adapting and thriving. The one constant through it all? Salmon. In the Mat-Su, young salmon remain in our fresh waters, and adults return, year after year, giving us a steadiness in our lives, and the security of food in our households. The Steering Committee commits to you, this dynamic coalition of partners we call the Mat-Su Partnership, that we will continue to adapt, apply science to inform our decisions, and work toward Partnership goals to ensure that salmon remain a constant in the Mat-Su.

We have an exciting line-up of presentations for this year's virtual, one-day agenda and are honored to have Dr. Thomas Quinn as our keynote speaker. Dr. Quinn has been teaching in the School of Aquatic and Fishery Sciences at the University of Washington, and conducting research focused on behavior, ecology, evolution, and conservation of salmon and trout, and their ecosystems since 1986. In his presentation, *Changing Themes in Salmon Conservation: a 40-Year Personal Perspective*, Dr. Quinn will look back over the decades that he has studied salmon, considering themes in research and management that were pressing in the 1970s but are no longer seen in the same light, and ones which were off or low on our radar screens in the past but are now more prominent sources of concern.

The Partnership believes that thriving fish, healthy habitats and vibrant communities can co-exist in the Mat-Su Basin. Thank you for your part in keeping wild salmon abundant in the Mat-Su today and into the future.

Special thanks to the Symposium Planning Committee, this year's presenters, moderators, collaborators, and to our Symposium supporters. We hope you enjoy this year's event!

Mat-Su Salmon Partnership Steering Committee:

Erika Ammann, NOAA Fisheries
Eric Booton, Trout Unlimited
Ted Eischeid, Matanuska-Susitna Borough
Theo Garcia, Knik Tribe
Melissa Heuer, Susitna River Coalition
Michael Mazzacavallo, Alaska Department of Fish and Game
Libby Kugel, Great Land Trust (Symposium Coordinator)
Trent Liebich, U.S. Fish and Wildlife Service
Jessica Speed, Trout Unlimited (Partnership Coordinator)

Learn more about the Partnership and Symposium at www.matsusalmon.org

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Symposium Planning Committee:

Louisa Branchflower, Palmer Soil and Water Conservation District
Catherine Inman, Mat-Su Conservation Services
Libby Kugel, Great Land Trust (Symposium Coordinator)
Benjamin Meyer, University of Alaska Fairbanks
Jessica Speed, Trout Unlimited (Partnership Coordinator)

Cover Photo by Katrina Liebich, U.S. Fish & Wildlife Service
Caswell Lakes Fish Passage Project

Mat-Su Basin Salmon Habitat Partners

** Steering Committee Members*

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 and Public Facilities
Alaska Outdoor Council
Alaska Pacific University
Alaska Railroad Corporation
Alaska Salmon Alliance
Alaska Trails
AlaskaChem Engineering
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National Park Service
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The Nature Conservancy
The Wildlifers
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****Trout Unlimited***
Turkey Red
****Tyonek Tribal Conservation District***
United Cook Inlet Drift Association (UCIDA)
United Fishermen of Alaska
Upper Susitna Soil and Water Conservation District
U.S. Army Corps of Engineers
****U.S. Fish and Wildlife Service***
U.S. Geological Survey
U.S. Forest Service, Chugach National Forest
Valley Community for Recycling Solutions
Wasilla Soil and Water Conservation District

The partnership includes 63 organizations and three private individuals.

Mat-Su salmon PARTNERSHIP

The Matanuska-Susitna Basin Salmon Habitat Partnership supports abundant wild salmon and healthy habitat that coexist with vibrant communities. “Because wild salmon are central to life in Alaska, the partnership works to ensure quality salmon habitat is safeguarded and restored. This approach relies on collaboration and cooperation of diverse stakeholders to get results.

Learn more about the Partnership and Symposium at the Mat-Su Salmon Partnership website at www.matsusalmon.org and follow us on Facebook!

Thursday, November 19, 2020

Zoom Webinar

8:30 Log on and Coffee Break
Webinar is live – log in and make sure everything is working properly.

9:00 Symposium Welcome
Eric Booton (Mat-Su Basin Salmon Habitat Partnership Steering Committee Member, Trout Unlimited)
Jason Brune (Commissioner, Alaska Department of Environmental Conservation)

9:30 Keynote Address: *Changing Themes in Salmon Conservation: a 40-Year Personal Perspective* – Dr. Thomas Quinn, University of Washington
Introduction: Ben Meyer (University of Alaska Fairbanks)

10:30 Break

10:45 Conserving Salmon in a Warming World
Moderator: Dan Rinella (US Fish & Wildlife Service)
Community Perspective: Andy Couch (Owner, Fishtale River Guides)
Building Habitat Resiliency for Chinook Salmon in the Deshka River Watershed
Sue Mauger (Cook Inletkeeper)
Predicting Stream Temperatures in the Deshka and Anchor River Watersheds
Rebecca Shaftel (Alaska Center for Conservation Science, UAA)
Deshka River Water Temperature and Juvenile Coho Salmon Growth During the Record-Hot Summer of 2019
Bradley Nissen (U.S. Fish & Wildlife Service)
Premature Mortality Among Alaska's Pacific Salmon During Record Heat and Drought in 2019
Vanessa von Biela (USGS Alaska Science Center)
Short-Term Effects of Wildfire on Juvenile Chinook Salmon in the Chena River
Ben Meyer (University of Alaska Fairbanks)

12:15 Lunch Break

1:15 Partnership Updates
Jessica Speed (Mat-Su Basin Salmon Habitat Partnership Coordinator, Trout Unlimited)
Marcus Geist (Alaska Center for Conservation Sciences, UAA)

1:30 Tidbits
Moderator: Libby Kugel (Great Land Trust)
Zoë Fuller (Susitna River Coalition)
Kendra Zamzow (Chickaloon Native Village)
Tasha Jackson (Resource Data Inc.)
Matt Varner (Bureau of Land Management)
Ted Eischeid (Mat-Su Borough)

1:45 Restoring and Ensuring Access to Habitats for Fish

Moderator: Melissa Heuer (Susitna River Coalition)

Community Perspective: Walter Nesbett (Landowner, Sucker Lakes)

Cook Inlet Aquaculture Association Whiskey & Hewitt Lakes Pike Suppression Project

Andy Wizik (Cook Inlet Aquaculture Association)

Physiological Performance of Northern Pike (Esox lucius): Implications for Barrier Design in Invaded Systems

Taylor Cubbage (University of Alaska Fairbanks)

2019 Native Village of Eklutna, Eklutna River Salmon Habitat Assessment, Final Results

Carrie Ann Brophil (Native Village of Eklutna)

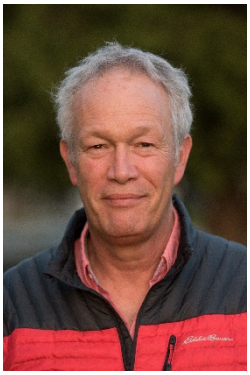
2:45 Conclusions

Kendra Zamzow (Chickaloon Native Village)

3:00 Adjourn

Keynote Speaker:

Dr. Thomas Quinn



Dr. Thomas Quinn is a Professor in the School of Aquatic and Fishery Sciences at the University of Washington, where he has taught and mentored graduate and undergraduate students since 1986. His research focuses on behavior, ecology, evolution, and conservation of salmon and trout, and their ecosystems. He has worked on all phases of the life history of salmon and trout, from embryos in the gravel to spawning adults, in a wide range of freshwater and marine environments. Much of his work has been primarily conducted in Washington, where he has investigated such topics as homing and straying, marine migrations, interactions between wild and hatchery-produced salmon, and effects of logging and dams on salmon. He has also worked extensively in Bristol Bay, where he has been a principal investigator of the UW-Alaska Salmon Program. This program, initiated in the 1940s, has investigated the physical and biological controls over salmon populations. Dr. Quinn has worked for over 30 years on topics related to the salmon and trout in these ecosystems and especially Iliamna Lake. He received the University of Washington's Distinguished Teaching Award and the Distinguished Graduate Mentor Award, and the award for Excellence in Teaching from the American Fisheries Society. In 2005 his comprehensive book, The Behavior and Ecology of Pacific Salmon and Trout, was published by the University of Washington Press, and the second, fully revised edition, was published in 2018.

Keynote Abstract

Changing Themes in Salmon Conservation: a 40-Year Personal Perspective

Salmon, trout, and the ecosystems where they thrive are seen by each of us through the lens of our direct experience and what we have learned from others over our lives. Acknowledging that we all have different and equally valid perspectives, my goal is to share the changes I have seen during my 40-year career as a scientist and teacher studying salmon conservation. Some topics were pressing concerns in the 1970s but are no longer, such as interceptions by international fisheries on the high seas. For some topics the science has matured and there is less contention than there was in the past, such as the effects of logging on habitat. On the other hand, some topics low or off the radar screen are now seen as important in the ecology and economics of salmon such as net pen aquaculture, and the effects of changing climate on freshwater and marine ecosystems. The past decades have also seen many important changes in the law, notably in the 1970s, that are now taken for granted by many, but whose effects continue to play out where salmon intersect with society. Society continues to change as well, yet salmon are, if anything, more important than they were in the past. My goal is not to convince anyone of anything, but to encourage reflection on how each of us has experienced our natural world, and how that experience informs our view of salmon and the environment they need to thrive.

Presentation Abstracts

Presentation abstracts are arranged in chronological order, as listed in the agenda.

Andy Couch, Fishtale River Guides

Community Perspective: Conserving Salmon in a Warming World Session

Andy Couch is a longtime Mat-Su resident and owner/operator of Fishtale River Guides. Andy will be sharing his own personal perspective - some of what he's observed and experienced from time spent on Mat-Su waters in his over 30 years of fish guiding.

Sue Mauger, Cook Inletkeeper

Building Habitat Resiliency for Chinook Salmon in the Deshka River Watershed

The Deshka River watershed is among the warmest salmon systems in the Cook Inlet basin in Southcentral Alaska with summer water temperatures regularly exceeding thresholds considered deleterious for rearing juvenile and spawning adult salmon, yet it produces 21% of the Chinook salmon escapement for the Susitna River drainage. Recent modeling efforts suggest average summer temperatures in the Deshka River have increased by 0.4 degrees C per decade since 1980. In the summer of 2019, maximum water temperatures reached 27.6 degrees C. In 2017, Cook Inletkeeper and the U.S. Fish and Wildlife Service (USFWS) began a 5-year effort to map the spatial heterogeneity of water temperature within the Deshka River watershed. We are intensively monitoring year-round water temperature at more than 60 sites with clusters of data loggers at 20 major tributary junctions. In 2019, USFWS initiated a study to assess juvenile salmon distribution in relation to thermal heterogeneity. In July 2020, with funding through the Alaska Sustainable Salmon Fund, Cook Inletkeeper acquired thermal imagery in the lower 32 miles of the Deshka system. With 2' x 2' resolution thermal data, we can increase our understanding of finer-scale summer temperature patterns for migrating and spawning Chinook salmon in this lower reach which exhibits the warmest temperatures and thus presents a potential thermal bottleneck for migrating fish. With a map of discrete cold-water refugia, we have an excellent opportunity to implement strategic conservation actions to ensure the Deshka River remains a salmon stronghold into the future.

Rebecca Shaftel, Alaska Center for Conservation Science, UAA

Predicting Stream Temperatures in the Deshka and Anchor River Watersheds

Stream temperature influences the growth, abundance, distribution, timing of life history events, and survival of Pacific salmon. Over the past 60 years, Alaska has warmed at more than twice the rate of the lower 48 states and increasingly, stream temperatures in Cook Inlet salmon streams indicate conditions stressful to migration, juvenile rearing, and spawning and incubation. Linking baseline monitoring with predictive models to map thermal habitats provides a means for understanding species distributions, thermal optimums, non-native invasions, and informing management of critical habitats. This project links stream temperature monitoring efforts with the National Hydrography Dataset (NHD) and Anadromous Waters Catalog (AWC) to create

thermal maps for the entire stream network of the Deshka and Anchor River watersheds. We used climatic, hydrologic, and land-cover spatial datasets to predict daily stream temperatures over the summer season and the past four decades. Then we applied the thermal maps to (1) inform thermal regimes for species and life stages, (2) identify habitats at risk of non-native invasions, and (3) locate thermal refugia into the future. Project predictions and outputs provide useful tools that can be used by resource managers and decision-makers.

Bradley Nissen, U.S. Fish and Wildlife Service; Dan Rinella, U.S. Fish and Wildlife Service; Anna-Marie Benson; Rebecca Shaftel, Alaska Center of Conservation Science, UAA

Deshka River Water Temperature and Juvenile Coho Salmon Growth During the Record-Hot Summer of 2019

The Deshka River is a major salmon-producing tributary to the Susitna River and, due to its flat topography and extensive wetland cover, is also one of the region's warmest streams. During periods of warm, dry summer weather, water temperatures in the Deshka River mainstem and many tributaries routinely exceed the 18° C threshold commonly regarded as deleterious to rearing salmonids. Concurrent temperature logging and juvenile salmon monitoring over the summer of 2019 allowed us to model the relationship between a suite of variables reflecting thermal conditions in 72 stream reaches and the size of 5832 juvenile Coho Salmon. The average daily temperature range over the month prior to sampling explained growth better than the other temperature variables (mean daily temperature, maximum daily temperature, days > 18° C, and days between 13 and 17° C), with a positive effect on size during June and a negative effect during July and August. The maximum observed average daily temperature range (5.5° C) was associated with substantial reductions in salmon body mass in August, near the end of the growing season (28% reduction for age-0 salmon; 11% for age-1 salmon). Increasing temperature variability is emerging as an important theme in climate change research and previous studies have linked it to diminished growth and performance for a wide range of ectothermic animals. Our results suggest that habitats susceptible to increasing daily temperature swings, such as small headwater streams, could become less hospitable to salmon growth than thermally stable, yet warmer, mainstem reaches.

Vanessa von Biela, USGS Alaska Science Center

Premature Mortality Among Alaska's Pacific Salmon During Record Heat and Drought in 2019

Consistent with rapid warming in northern latitudes, record-breaking warm air temperatures and prolonged drought occurred in 2019 during the Pacific salmon (genus Oncorhynchus) spawning migration in Alaska. This study compiled 109 geographically widespread observations of premature mortality (i.e., mortality without release of gametes) in Pacific salmon across Alaska associated with warm water and low water level. Carcasses per observation ranged from 1 to 35,000 and included Pink Salmon (O. gorbuscha), Sockeye Salmon (O. nerka), Chum Salmon (O. keta), Chinook Salmon (O. tshawytscha), and Coho Salmon (O. kisutch). Approximately half (48%) of observations estimated ≥1,000 carcasses and those reports occurred in Prince William

Sound (PWS) Pink Salmon, Bristol Bay and Matanuska-Susitna Sockeye Salmon, and Yukon River summer Chum Salmon. In PWS, 106 streams surveyed for spawning salmon revealed significant drought response with low water and limited evidence of spawning success in 87% of rain-driven streams (n=30) and 52% of snow-driven streams (n=65), while a low or absent drought response was most common in glacier-driven streams (82%, n=11). Although population-level consequences of premature mortality in 2019 are currently unknown, these observations do offer a window to a possible future and highlight specific locations where additional research could be focused.

Ben Meyer, Institute of Arctic Biology, University of Alaska Fairbanks; Erik Schoen, Institute of Arctic Biology, University of Alaska Fairbanks; Jason Neuswanger, South Fork Research; Carol Volk, South Fork Research; Mark Wipfli, U.S. Geological Survey, Alaska Cooperative Fish and Wildlife Research Unit, Institute of Arctic Biology, University of Alaska Fairbanks; Brian McKenna, Tanana Chiefs Council

Short-Term Effects of Wildfire on Juvenile Chinook Salmon in the Chena River

Wildfires are becoming more frequent and severe in Alaska's boreal forests, likely affecting salmon populations that support important fisheries. Yet the effects of changing wildfire regimes on the productivity of salmon and their habitats is not well understood, particularly within the context of other climate-driven changes. In the short term (0-5 years), wildfires can affect habitat quality for salmon through changes such as increases in water temperature, changes in invertebrate-based food supply, and increased erosion of fire scars. Erosion can lead to elevated sediment loads, turbidity, and fine drifting debris, which juvenile Chinook salmon spend energy pursuing instead of food prey. These changes may affect the survival of Chinook salmon directly, or indirectly through changes in juvenile growth rates, which can influence ocean survival due to size-selective mortality. The above-average fire year of 2019 in interior Alaska provided an opportunity to examine these questions when two large fires bisected the core juvenile Chinook salmon rearing habitat in the Chena River, a well-studied and accessible river that supports one of the largest populations of Chinook salmon within the Yukon River drainage. During 2020, we compared key habitat quality metrics between areas of the watershed influenced by these fires relative to nearby unburned areas. We deployed novel technologies including high-volume collection of drifting invertebrates, as well as rapid-assessment tools including digital image processing from underwater cameras and aerial drones to measure water quality parameters. We are incorporating these field data into a drift foraging model to estimate the sensitivity of juvenile feeding and growth rates to each factor, within the context of other climate-driven changes. Our approach ultimately aims to provide a basis for using remotely-sensed data to assess effects of wildfire on juvenile Chinook salmon rearing habitat at a landscape scale throughout Alaska.

Jessica Speed, Trout Unlimited/Mat-Su Basin Salmon Habitat Partnership

Updates from the Mat-Su Basin Salmon Habitat Partnership

The Mat-Su Salmon Partnership formed in 2005 to address increasing impacts on salmon habitat from human use and development in the Mat-Su Basin. Modeled after the National Fish Habitat Partnership (NFHP), this coalition of now 66 organizations uses a collaborative, cooperative, and non-regulatory approach that brings together diverse stakeholders, and is part of a broader network of 20 fish habitat partnerships across the U.S. and one of four partnerships in Alaska. Mat-Su salmon partners share a common vision for thriving fish, healthy habitats and vibrant communities co-existing in the Mat-Su.

Change and adaptability have been themes for 2020, amid a global pandemic, a warming climate and social and political challenges. 2020 brought significant change to the Mat-Su Salmon Partnership as well. After 15 years as the fiscal sponsor for the Partnership, The Nature Conservancy (TNC) has stepped down in this role. We are grateful for the dedicated leadership and long-term service of TNC and excited that Trout Unlimited has deepened its support by stepping up to become the Partnership's new host organization. We are excited for the new opportunities this change will bring. Also, new law was signed that codifies the National Fish Habitat Partnership program, solidifying its existence well into the future. With these changes, the Partnership continues to evolve and make progress toward our conservation goals. Some highlights this year include completion of three science summaries for community leaders and an online Mat-Su Salmon Habitat Project Mapper. This talk will share some recent organizational changes affecting the Partnership and recent successes in meeting our priorities.

Marcus Geist and Anjanette Steer, University of Alaska Anchorage, Alaska Center for Conservation Science

Mat-Su Salmon Habitat Project Mapper

Over the past 14 years, the Partnership has provided funding for over 100 projects addressing its Strategic Action Plan goals and objectives across the Mat-Su Basin. Given the volume of output data and reports, the Partnership recognized a need for a central project and data repository that would be accessible via a web mapping application. Through a cooperative endeavor with partner agencies, University of Alaska Anchorage staff from the Alaska Center for Conservation Science (ACCS) standardized some basic background information about each project and gathered and organized reports and data for many projects making them accessible via web links. The project inventory is served via an ArcGIS Online web map which is accessible via the Mat-Su Salmon Habitat Partnership website (matsusalmon.org) and usable by anyone with an internet connection and web browser. Beginning in 2020, the Partnership has started collecting this project metadata in a standardized form during the funding process to incorporate project reports or data into the inventory at each project's conclusion.

Walter Nesbett, Sucker Lakes Landowner

Community Perspective: Restoring and Ensuring Access to Habitats for Fish Session

Waltner Nesbett's family has owned property in the Sucker Lakes complex, in the Alexander Creek drainage for over 60 years. Walter will share his personal perspective and experience with the advance of aquatic invasive species in the Sucker Lakes area.

Andy Wizik, Cook Inlet Aquaculture Association

Cook Inlet Aquaculture Association Whiskey & Hewitt Lakes Pike Suppression Project

From 2018–2020, Cook Inlet Aquaculture Association has been suppressing northern pike populations using gillnets each summer on Whiskey and Hewitt lakes near Skwentna, Alaska as a part of an AKSSF funded collaboration with the Alaska Department of Fish and Game (ADF&G). For each year of the project, ADF&G has conducted hydroacoustic surveys of Hewitt Lake after gillnetting activities have ended in early September to estimate the number of sockeye salmon fry rearing in the lake. This project was intended to determine if the fry rearing population at Hewitt Lake increased as predation pressure from northern pike was reduced. From 2018–2020, gillnetting crews were able to remove 6,449 northern pike during nearly 20,000 gillnet hours. The catch-per-unit-effort (CPUE) calculated for gillnet harvests of northern pike has not decreased as expected during the three years remaining flat for Hewitt Lake at (0.32 pike/net-hour) and increasing slightly at Whiskey Lake from 0.26 in 2018 to 0.32 in 2020. It is not clear if the modest overall changes in CPUE data are the result of unequal fishing skill of netting crews, northern pike immigrating into the system, or if the spawning success of pike may be replacing the fish removed from the lakes. Other data do indicate that suppression may be having an impact on pike as average lengths and weights at both lakes have decreased from 2018–2020. We are still awaiting the analysis of pike age data collected in 2020 which may help clarify what the impacts of the past three years of pike suppression have been on the age structure of the pike population. Hydroacoustic surveys for sockeye fry rearing in Hewitt Lake have shown a 35% increase in fry abundance from 2018–2019 however those numbers reversed from 2019–2020 showing a decrease of nearly 30% over the 2019 estimate. The estimated numbers of sockeye fry from 2018–2020 were 367,652; 568,393 and 399,000 respectively. Anecdotally, residents at both lakes indicated that they had seen very few salmon in 2019 and more salmon in 2020 than they had in several years—so reductions in the fry estimates may be due to the lack of returning adults and independent of pike suppression efforts. The dominant prey item found in the stomachs of pike collected from both lakes for all years has been sticklebacks. Estimates of the stickleback population have increased over 35% during the project from 6.9 million in 2018 to 10.8 million in 2020. It may be that pike are being replaced faster than they can be removed from these lakes but anecdotal reports of increasing salmon escapements as well as improvements in the number of rearing sticklebacks indicate conditions may be improving in these lakes for native fish species.

Taylor Cubbage, University of Alaska Fairbanks

Physiological Performance of Northern Pike (Esox lucius): Implications for Barrier Design in Invaded Systems

The spread of invasive species has caused drastic ecological and economic consequences on a global scale, including the expansion of northern pike (Esox lucius) throughout Southcentral Alaska. Illegal introductions and subsequent establishment of pike in the region threaten salmon populations, along with the fisheries and ecosystems they support. Recent research indicates that trophic, morphological, and genetic plasticity exists in Alaskan pike, and this, along with variation in physiological parameters such as leaping and swimming abilities, may facilitate the success of individuals in new habitats. Although current management methods in Alaska (e.g., rotenone and gillnetting) are effective to remove pike from isolated waterbodies, alternatives are needed in the greater Cook Inlet region where reinvasion risk following eradication is high due to abundant and highly interconnected lake and wetland habitats. A proposed method to prevent pike reestablishment following an eradication project is fish barrier construction; however, to confidently design and install such barriers, it is essential to first quantify the maximum swimming and leaping capabilities of pike. We propose to 1) compare physiological metrics between invasive and native pike populations in Alaska to better understand mechanisms of invasion success, 2) determine, across a range of water temperatures and pike size classes, waterfall height and plunge pool depth combinations of vertical drop structures that prevent ascent, using an adjustable waterfall apparatus, and 3) determine water velocities that require pike to swim anaerobically and become exhausted, using swim tunnels and open-channel flumes. As an opportunistic predator that is highly tolerant to a wide variety of environmental conditions, invasive pike are a clear threat to salmon populations in the Mat-Su region. Incorporating the physiological limitations of pike into management tactics to prevent their spread throughout their invasive range and inhibit reintroduction to restored waters will ultimately help reduce impacts of pike on native species.

Carrie Ann Brophil, Native Village of Eklutna

2019 Native Village of Eklutna, Eklutna River Salmon Habitat Assessment, Final Results

During the summer of 2019, the lower Eklutna River was surveyed for salmon habitat characterization. The river was surveyed on foot from the inlet to Eklutna Lake during a 3-week interval. The California Salmonid Stream Habitat Restoration Manual (CSSHRM, Flosi et al., 1998) was used to develop survey methods in a previous 2007 survey of the lower Eklutna River. These same methods, utilizing the 2010 updates, were applied to the whole Eklutna River during the 2019 survey season. A photolog was developed for the river and is currently displayed as an interactive map on the NVE website. This information is being used to help support river restoration efforts on the Eklutna River.

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Thank You!

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