



Copper River Watershed Project

Upriver and down, salmon are common ground

COPPER RIVER SALMON HARVESTERS ROUNDTABLE

FEBRUARY 9, 2019

PARTICIPATING:

Jeff Bailey, CR/PWS Mrktg. Assoc.,
gillnetter

Chuck Derrick, Chitina Dipnetters Assoc.

Jeremy Lindgren, Chitina Dipnetters Assoc.

Greg Parrish, Newsies Alaska Rafting &
Gdg.

Stephanie Holcomb, Salmon Grove Charters

Dave Sarafin, Wrangell-St. Elias NP

Wade Buscher, drift gillnetter

Clint Marshall, Tazlina, fish wheel user

Chelsea Haisman, CDFU Exec. Director

Mark Spencer, AK eXpeditions, dipnet
charter

Dennis Zadra, CR/PWS Mrktg. Assoc.,
gillnetter

Casey Campbell, PWSAC Exec. Director

Steve Hilton, PWSAC, Gulkana Hatchery
Manager

Barbara Cellarius, Copper Center, fish
wheel user

Mark Hem, Hem Charters, dipnet charters

Bruce Cain, Ahtna Intertribal Res. Cmsn.

Gloria Stickwan, Native Village of Tazlina
Council Chair, fish wheel user

Ralph Lohse, drift gillnetter

Linda Lohse, Kenny Lake

Matt Piche, Native Village of Eyak, Fish
Biologist

Donna Renard, Native Village of Tazlina,
fish wheel user

Kevin Bartley, Ahtna Intertribal Resource
Cmsn., Cultural Anthropologist

Toni Goodlataw, Chitina

Mark Somerville, ADF&G, Glennallen

Tracy Hanson, ADF&G, Glennallen

Stormy Haught, ADF&G, Cordova

Jeremy Botz, ADF&G, Cordova

SECTION 1: FRAMING THE CONVERSATION

Introductions, and What do you want people to know about the Copper River?

Mark: it's a place for families who don't have access to coastal waters to fish.

Chelsea: coastal communities and rural communities depend on commercial fisheries.

Stephanie: we're all using the Copper River salmon, we're all acting to catch them, those actions have consequences.

Clint Marshall: it's not only important for lifestyle, but there's also a lot of cultural importance to the river that should be maintained.

Mark Hem: not sure what I would like people to know, that it's a dangerous place.

Greg: it's important like with any environment to use it responsibly, we should all work together.

Dennis: I've seen it really good, and I've seen it really bad. We need to figure out how to get it back to what it used to be.

Jeff Bailey: we've seen a lot of changes, the environment is changing, the coastal communities are feeling that strain on what is produced, our voices together are going to be way louder than if we're talking alone.

Gloria: we ought to protect our way of life so we can continue our subsistence way of life, keep it healthy.

Mark: maintaining user groups like this working with management we can keep it healthy but it's going to take work.

Tracy: I'm new and I'm here to learn about the Copper River.

Linda: the Copper River connects us to the ocean

Casey: we operate a sockeye hatchery on the Gulkana for over 30 years, we contribute a lot of sockeye to the Copper River.

Dave Sarafin: keep in mind, it's actually so many different stocks

Matt Piche: would like people to have a really good access to the research and data on the Copper River, and come together to identify the data gaps

Bruce Cain: work for Ahtna Lands, on loan to AITRC. Everyone likes to catch salmon and eat salmon.

Kevin Bartley: the Copper River is a sacred place that's critical to the culture of those who call it home.

Barbara Cellarius: Copper River salmon is most important resource for folks harvested around here.

Jeremy Lindgren: here to learn, relatively new to the area.

Chuck Derrick: recognize the food security of the Copper River and want to protect it anyway we can.

Ralph: Copper River and its salmon have been extremely important in my life, and would like it to be important for my grandchildren. There are always going to be threats to the Copper River, 1968 Army Corps of Engineers wanted to build a dam on the Copper. Proved there were more salmon than the Corps thought, . . . salmon are there to feed people.

Wade: yes, we all rely on the salmon resource and we all agree that it's an important resource, and commercial fishermen aren't evil.

Donna Renard: Copper River has been my life, not just in my lifetime but for generations before me. Provided many resources for our first peoples.

Ken Connor: last year I couldn't run salmon on the menu, \$10/lb. wholesale, way up in price. Would like to see more studies on salmon, scientific, something you could put on a spreadsheet or a graph, that we could all take a look at so we don't have to guess.

Watched 3 minute trailer for Red Gold, a movie about Bristol Bay salmon fishing and Pebble Mine. Participants were asked to be thinking about references to *salmon* and to *people* in the trailer.

Bruce Cain: I'm uncomfortable with this meeting, we just watched a film about Pebble Mine, is this an anti-development thing? CRWP has commented in the past that it represents people in this region and it doesn't. What does that purpose statement mean? Is there an agenda to represent this group to agencies? What is this group? Don't want this group to make claims on any one's behalf without our agreement. Who is paying for this?

Jeff Bailey: I'm on the Board of the Copper River/Prince William Sound Marketing Association and we funded this effort because we believe it's important to have some dialogue among salmon harvesters. We've got some examples of funding partnerships (NVE fish wheel, CR/PWS Marketing funding lower river sonar, Rob Campbell's work got funding from Saltonstall-Kennedy has lowered cost from 60K to 37K). Maybe Chitina Dipnetters and other users can help contribute to ADF&G, otherwise I think we will all see less access.

Chuck Derrick: there isn't a threat now, but we have a group that ramrodded this roundtable together, and if something comes up we'll know each other. Chuck Derrick worked on corrosion digs on TAPS, if there's a big break in the TAPS that's going to have a big effect on the Copper River.

Salmon, People flip chart. Who are the users? What are the emotions of people?

Ralph: it's our duty to maintain the Copper River. Read from Salmon Boy: there's no river system in the world where a salmon river survives near an industrialized city.

SECTION 2: CONVERSATION

1. *Small Group Activity: 10 years from now, what headline about the Copper River do you want to see in the local or national newspaper, internet news, or TV news?*

RESPECTFUL USE AND GOOD MANAGEMENT HAS MAINTAINED SUSTAINABLE WILD & HEALTHY SALMON RUNS ON THE COPPER RIVER THAT CONTINUE TO SUPPORT THE WAY OF LIFE FOR ALL ALASKANS

KEEN OVERSIGHT AND EDUCATION HAVE RESULTED IN A HEALTHY SALMON RETURN FOR THE 10TH YEAR IN A ROW

COPPER RIVER SALMON AND PEOPLE: HEALTHY AND STRONG

PRO-ACTIVE SUSTAINABILITY CREATES COPPER RIVER ABUNDANCE AND DIVERSITY

GATES FOUNDATION AWARDS \$20 MILLION TO STUDY COPPER RIVER AS MODEL FOR ECOSYSTEM DIVERSITY AND WORLD CLASS SUSTAINABLE FISHERIES MANAGEMENT

2. *Chinook Salmon Research: presentation by Matt Piche, Fish Biologist, Native Village of Eyak, funded by USFWS Office of Subsistence Management, Partners for Fisheries Monitoring*

2018 In-river abundance estimate for Copper River Chinook salmon (Piche et al. in prep)

- Marked (M) = 5,218

- Examined C = 4,789
- Recaptures R = 513
- Using a Darroch estimator, Abundance (N) = 52,524
- Standard Error = 4,034
- Lower 95% CI = 44,811
- Upper 95% CI = 60,236
- Discussed historical trends, SEG (see hand-out, included following notes)
- In-river species composition (15 year average = 96.9% sockeye and 3.1% Chinook salmon)
- CR Chinook run timing based on radio-telemetry studies
- Barriers to enumeration
- Current tributary monitoring
 - Summary of aerial index surveys (changes in # of surveys and reasoning)
 - Summary of counting tower project (Gulkana River) and NPS weirs (Long Lake and Tanada Creek)
- Current mainstem monitoring: lower river sonar project, Miles Lake sonar project, and Mark/Recapture project
- Chinook salmon distribution overview
- Chinook salmon genetics overview
- Upcoming study (2019-2020) of CR Chinook salmon run timing and distribution (ADFG Div. of Sport Fish & NVE)
- Coded wire tag study (ADFG Division of Sport Fish)
- Future of CR Chinook salmon monitoring
 - Sonar, mainstem and tributaries
 - Streambed Antennas, on tributaries

3. *Small Group Activity: What changes have you observed in fishing conditions, fishing harvests over your fishing seasons?*

Management group:

- Size of fish at age, long term decline in size at age, starting in 1976 til now
- Increase in users in upriver – steady increase in users in subsistence fishery, increases in dipnet use has dropped off
- Big decrease in number of fish wheel users
- Increase in uncertainty of forecast for sockeye

Commercial fishermen group:

- Dramatic decrease in time and area we're allowed to fish: used to fish first period for 24 hours, now usually get 12.
- Dramatic temperatures in ocean, 60 – 65 degrees for the surface, crazy for the Gulf of Alaska
- More slime problems
- Storms are more intense than they used to be
- Reduced amount of time for fishing periods, people moving to other areas.

Subsistence group:

- Decline in fish size
- Increase in harvest pressure

- Lower returns -- in the past would see 500 fish in a wheel, not happening now
- Gulkana hatchery hasn't seen a full return since 2013
- More river level fluctuation: used to be that when it rained, water level dropped because temps were cooler, now it's the opposite.
- Change in run timing

Sportfishing group:

- Smaller sockeyes, not necessarily Chinook
- Rocks are getting coated in green moss, is this an invasive species? Seeing other invasive plants along shoreline.
- More pressure in lower sections of rivers (the most accessible places, the walk in areas), Gulkana, and outside Chitina. Other guides move in when fishing is closed on the Kenai, and don't observe local etiquette.

4. *Presentation: Variation in Body Size and Energy Content of Sockeye Salmon Returning to the Copper River, Alaska, by Kristen Gorman, Ph.D., PWS Science Center*

Research summary: Sockeye salmon are an economic cornerstone of the commercial and subsistence salmon fisheries in southcentral Alaska. There has been a long-term decline in size at age of adult Copper River sockeye, with recent years (2015-2017) showing dramatic reductions in body size of returning adults. In other river systems, body size and energy density of sockeye have been negatively related to sea surface temperature during the last year of ocean residency, and recent studies have confirmed growth impacts to sockeye, and other Pacific salmon species, due to density-dependent factors at sea. We are interested in how changes in body size and energy content—measures of fish quality that are shaped during their time in the ocean—might influence the energetics of migration and spawning performance in the Copper River, a large, glacially dominated watershed. We hypothesize that body size, energy density, and total energy content of returning sockeye to the lower river are positively related (H1), that sockeye with the longest migrations to the upper reaches of the river use more energy than those migrating to lower spawning grounds (H2), and that sockeye with longer migrations invest less in gonad maturation than those with shorter migrations (H3). In a 2016 pilot study, we determined upriver sockeye used about 50% of their total energy to reach the spawning grounds, and up-river energy levels were low compared to other studies. We discuss our results and ideas for future research on the energetics of spawning migration by sockeye and other salmon of the Copper River watershed.

- Gloria asked whether they had ever looked at TEK with regard to salmon energetics?
- Matt Piche: if every single salmon reaches that lethal level, it will be critical to sample outside of the spawning grounds to see if they hit the lethal limit before they hit the spawning grounds. KG: we measured energy content on pre-spawn fish. We don't know how long these fish have been on the spawning grounds, but they were pre-spawn fish. Sockeye from the Fraser River, surprisingly, had higher energy density on spawning grounds than CR sockeye in 2016. This led us to conclude that it appears the spawning migration is energetically expensive. That said, we don't know how well our fish compare with the Fraser fish in terms of the time spent on the spawning grounds. The telemetry study will help us sort this out. Measuring

energy density when fish arrive on spawning grounds will help us understand what they expend to get to the spawning grounds.

- Kevin Bartley: are you saying you observed larger females with higher energy value produce fewer eggs? KG: yes, on average, larger fish produce more eggs. We think that changes in ocean conditions that have impacts on energy content or somatic condition of the fish might have greater implications for survival and spawning success for longer distance migrants because they have to invest more simply to get on the spawning grounds.

Mark Somerville: upriver fish may have fewer eggs, but maybe they have larger eggs. KG: need to look more at somatic mass and egg size, want to quantify the scope of the trade-offs on the Copper River and how they are responding to changes in the ocean. It appears that for Chinook salmon, spawning success has been higher in the lower river proportionately than in the upper river. May be happening in the Chitina (Klutina? and Tazlina?) River.

- Chuck Derrick: any cooperation internationally on fisheries research, where people are catching fish, collecting any genetic data? KG: this is the International Year of the Salmon, believe there's quite a bit of directed research on salmon going on. Casey says he thinks there are researchers from Japan and ?? – looking at genetics? KG: group at UW focusing on high seas genetic diversity of salmon.

Kristen also directed folks to the State of Alaska's Salmon and People research program at the National Center for Ecological Analysis and Synthesis (NCEAS), <https://www.nceas.ucsb.edu/featured/davis-0>. This project is funding eight working groups looking at a range of salmon ecology and fisheries management questions statewide, including looking at long-term changes in size of salmon across Alaska (not just Copper River). Working groups include:

Salmon Distribution and Habitat
Sociocultural and Economic Dimensions of Salmon Systems
Current Governance and Management of Salmon
Consistency, Causes and Consequences of Salmon Size Declines
Well-being and Salmon Systems
Ocean Climate Interactions with At-sea Salmon Competition
Community-Based Engagement with Salmon Science
Integrated Watershed Management for Salmon in Kenai Lowlands

5. *Small Group Activity: What are your biggest questions about fisheries science or habitat conditions in the Copper River watershed?*

(Each group made of up of representatives from each of the different fisheries)

Group 1:

Predictions for 2019 season? How are predictions made? How are Emergency Orders determined for the Susitna?

Why don't more agencies/people work together to collect data, cooperate on analysis?

Could we have some ambassadors on the river?

Group 2:

What's happening in the watershed with climate changes: effects on salmon throughout the lifecycle, river flows and glacial melting.

Where in the salmon lifecycle is mortality happening? What's changing about mortality?

What data are needed to improve forecasting?

Group 3:

Would like to see traditional ecological knowledge (TEK) incorporated into research.

What is impact of marine mammal predation on salmon?

What is the impact of beavers on habitat?

Group 4:

What is the stress of multiple captures on salmon, how does this affect escapement?

How can the science be accurate if there is no money to do the science?

Need more basic science.

Group 5:

What is the actual mortality of catch & release fisheries (fecundity, handling practices, energy)?

Mortality from marine mammals?

What are actual numbers of fish being caught in upriver fisheries?

How many fish are making it all the way to the spawning grounds?

What response capability is there to deal with oil pipeline corrosion leaks?

Group 6:

Are reduced returns an anomaly or evidence of a downward trend?

What interspecies competition exists in PWS and what are the potential impacts (other salmon, different trophic levels)?

How might pink salmon affect wild stocks?

Will lower bound escapement percentage affect future, especially with changing ocean and climate conditions?

Alaska Ocean Acidification Network:

<https://aoos.org/alaska-ocean-acidification-network/>

(a reference during discussion was made to this resource)

6. Q&A. with AK Department of Fish & Game, PWSAC, and NVE

Stormy: If we had all the money in the world, we could understand escapement for each tributary, have to use linear regression models for the system as a whole. Trend forecast, can't catch the surprises. Can't integrate marine survival into our models right now.

Chinook overview: even more basic than sockeye. Comparing different averages for previous year returns, 2, 3 5 year average, then use exponential smoothing – take all past years, a retrospective model, go back in time to each year's model, look at actual returns and work out an annual error and then choose the one that has the lowest error. Not a lot of information that goes into these forecasts. They generate controversy, have done in-house review, have made some changes to the model. Using one previous year's return to predict the coming run is just not enough.

Stephanie: how can Emergency Orders (EO) be issued now for Susitna? What data are used?

Mark S.: we have a bad year one year, and then the forecast itself is below the escapement goal, we have no choice but to start off closed and then adapt as we go. Same thing is happening in the Mat-Su, the best data they have is saying they don't have enough forecast for the harvest. Difficult to start off that way, affects everyone.

Casey: is that in line with the precautionary approach?

Jeff B: commercial fishery is always closed, it's only open by announcement.

Chuck D.: dipnet fishery is the same way.

Chuck D: when your forecast shows there's not enough fish to meet your needs, then fishery is closed except for subsistence, is that right?

Mark S.: subsistence fishery can't be closed without the other ones being closed, but I can limit the subsistence fishery if the other ones are closed or limited.

Chuck: there's nothing that guarantees Kings,

Stormy: There have been years when we've put a lot of fish above the goal up the river. We don't have a lot of information about the density of zooplankton, not going to hang myself out and say "no, over-escapement is not a problem" but it's hard to figure out a way that over-escapement could have been a problem. Sockeye returns were low across the state. The strength of the Copper River is that it's made up of a range of different sockeye stocks, it's resilient to over-escapement. Down here in PWS we have other places that are more prone – Coghill Lake, for instance, where we have observed reductions in zooplankton density, diversity and size after very large escapements. Zooplankton abundance and diversity go down, overall size of organisms go down. So, in some systems we have evidence for over-escapement. Coghill is a glacial lake, low primary production, susceptible to over-escapement. Survival issues with 2018 returns of sockeye are likely marine dependent, we've seen a lot of odd events in the North Pacific.

Matt Piche: yes, there's mortality on king salmon captured in the wheel. Is that sacrifice worth it so that we know how many Chinook are in the river? Anytime a fish is captured, held, handled, poked, prodded results in a stress response, this stress response increases the chances of mortality, if you handle enough fish you will encounter individuals in the population that can't handle the added stress and the result is mortality. Unfortunately, with most fisheries sampling this is unavoidable, but all good biologists strive to decrease stress as much as possible, in most cases it's measurable, and it is something we have data for on our specific project.

As fish biologists we must decide if the level of sampling mortality is acceptable and if it is justified by the data being collected, mortality is assessed on the project annually by NVE and our consultants at LGL, and in the past has been independently assessed by ADFG. In our case we all feel the level of sampling mortality occurring is acceptable because data suggest mortality is relatively low and the mark/recapture project is currently the only method available for knowing how many Chinook are in the Copper River.

In 2018 we had 13 unintended Chinook salmon mortalities on our fishwheels. However, this is just fish that were observed mortalities, it is more difficult to deduce what happens to the healthy-looking, live fish that we release. Stress can be cumulative in migrating adult salmonids and depending on the stress that an individual fish encounters on the rest of its

journey, handling that fish on our fishwheels could potentially be the deciding factor for its spawning success. The only good tool we have to assess this occurrence is through radio-telemetry studies. ADFG did one on our fishwheels for Chinook salmon from 2002-2005 and NVE did one on sockeye salmon from 2005-2009.

The ADFG radio-telemetry study used esophageal radio tags which are much more invasive than the normal external tags we apply below the dorsal fin. Through this study ADFG determined there is no significant mortality occurring between our mark and recapture sites, which is an assumption of our mark recapture study. This was great news and has allowed us to achieve 16 years of in-river abundance estimates. The study also found that between 9 - 14% of esophageal radio tagged Chinook salmon that migrated upriver of Wood Canyon (dipnet area located above our recapture camp) were detected at O'Brien Creek but never detected in a tributary or last detected in the mainstem. Many things could have happened to this 9 - 14% including: spawned in an unknown, unmonitored area; spawned in mainstem waters; harvested and not reported; regurgitated the radio tag; radio tag failure; died of natural causes (such as predation by seal, bear, eagle, etc., injury, exhaustion, didn't have enough body fat (energy) to reach spawning grounds); or died of unnatural causes (such as fishwheel sampling associated mortality, dipnet release once limit was reached, subsistence fishwheel associated mortality, catch and release mortality, prop strike, etc). Unfortunately, there is no way to measure natural mortality in the untagged fish. If we make the assumption that all of these fish were indeed pre-spawn mortalities and we also make the assumption that all of these pre-spawn mortalities were due to fishwheel sampling (i.e. 0% natural mortality, 0% unrelated injury, 0% predation, 0% tag failure, 0% regurgitation, 0% unreported harvest, 0% due to dipnet/fishwheel/catch release, etc.) and we assume that the highest annual number 14% is constant across all years then we are provided with a maximum worst case scenario of potential sampling mortality.

If we sample 10% of the population and 14% of that number never makes it to the spawning grounds and the total returning population estimate is 60,000 (run size was actually 59,689 in 2018) then it's possible up to a maximum of 840 fish died in route or 1.4% of the total returning population. It's extremely hard to say how much of the 1.4% was actually mortality, and if so, what was actually a result of fishwheel sampling, but it at least provides a data point on what the worst-case scenario could be. Realistically the impact of our fishwheels is much lower than this. Regardless, 0% sampling mortality is our goal, and this is why sonar could be the ideal option because you would never need to handle a fish. Counting and measuring a fish without handling is one of the many reasons we are so excited about the potential of sonar for species specific abundance. In 2019-2020 ADFG and NVE are conducting another radio-telemetry study on Chinook salmon, we will be able to assess this all over again and see what's changed.

Stormy: Sonar updated the Didson sonar, now have the Ares, upgrade of software allows us to control the frame rate, allows us to measure the fish on the screen. They've been doing this on the Kenai, they've been doing a much better job, gave us confidence we could use it.

Kenai and Copper are much different – suspended sediment load in Copper is so different, the view is much less clear. What's taken us a lot of time is figuring out how to post process. What we're finding now is that the south bank imagery is good because fish have to swim close to sonar, north bank fish swim farther away from sonar. How many fish do we have to measure a day to calibrate the software?

The new Ares files are so huge that trying to figure out how to get technicians to count fish means we either need to hire more people to count fish or get the data to town.

Didson and Ares similar, are essentially identical, not like a Bendix where you're going from clicks to images, more control to go through the imagery frame by frame.

Research where fish with gillnet marks were tracked and found to have lower spawning success because of fungal infections, and the like – Stormy can provide that paper.

Matt Piche: we're seeing a lot of fish with gillnet marks that are completely healed over (on Chinook).

Stephanie: seeing deep rigid scarring, underneath the skin, see that on sockeye and Chinook.

Mark Hem: trying to call attention to the gauntlet that salmon have to run to get to the headwaters. As long as we have a system that only manages (lower river?), it's going to be that way.

Kevin Bartley: can you think of any research that you point to that shows over escapement that points to declining runs on the Copper River?

Stormy: No.

Bruce: we've got a good system that points to salmon entering the river, have a good system for counting salmon in commercial, but do not have a good system for counting in-season harvest of upriver salmon. Post-season reporting could be improved. Don't have any measure of spawning bed escapement. Is that something that could be improved on? This goes back to the forecast, we're forecasting based on returns, has nothing to do with the brood year. But if we don't know what that is, how can we make management decisions?

Stormy: would love to have better information, we do look at age structure and use sibling models for forecasting. To do the forecast by individual stock and brood year we would need escapement and spawner-recruit information from major tributaries each year and that is not feasible currently.

Greg: guides have to mail in log books once a week.

Jeremy Lindgren: what about a check station on Edgerton?

Mark S: would need to change State statute. In season reporting will not help my management. It's worked for 20+ years. If you're worried about the accuracy of reporting, it's not when people report or what people report, it's enforcement. If we require on-line reporting, there's no way to enforce it. But we could go to on-line reporting to make it easier for people to report. Reporting rate is currently 80 - 85%.

Jeremy L: if we're not sending our information in, could we report during the season?

Chuck: what would that do for ADF&G?

Mark Hem: there's just as much non-reporting from fish wheels as there is from dipnetters.

Stephanie: there are individual sports fishermen who don't have to report, it's a small impact compared to other user groups but still, folks should be reporting.

Kevin Bartley: what do we need to know

Chuck: which salmon species are in direct competition with pink salmon for food?

Stormy/Jeremy: sockeyes.

Chuck: it seems like there could be a correlation between the large numbers of hatchery-released pinks, their good survival and growth rates during the “blob” years, and I wonder if the large numbers of pinks are contributing to the low sockeye runs and their small size.

Casey Campbell: the Copper River has been consistent for almost 30 years, PWSAC has been putting out the same number of fish for 30 years.

Kristin: but what’s changing is the ocean, as Stormy mentioned.

Mark: if have paper permits, I can’t bust anyone for not reporting. But if it’s on-line, we’d be able to track people who don’t report, and could track them across user areas.

Greg Parrish: when we get checked, if we get checked, we’re supposed to do our log book, can the troopers who stop me and check also check people with an RV for salmon harvest? But brown shirts can check your fish harvest and check your report, if you haven’t filled it out when you’re driving you didn’t fill it out when you were fishing.

Mark: Trooper can’t pull over someone for having a dipnet on the truck, have to pull them over for a moving violation.

Facilitator, on Purpose Statement: maybe today the purpose isn’t sending a message to agencies, maybe today the purpose is something else.

Ralph Lohse: I would like to see all our user groups willing to work together for all salmon as neighbors for everyone’s benefit for all generations. I did put in a proposal for weekly reporting. Accurate data are extremely important if you’re going to manage any resource. I know for a fact that memory has a tendency to fade, and either get larger or smaller with time. Reporting sooner, short enough time period, you’re going to be more accurate. If I had to wait to the end of the season, I’m not saying I would exaggerate, I would keep it in the bounds of decency, but I’ve seen it with friends, memory is not always as things are but as we would like them to be. Subsistence Committee, Ninilchik: wanted a 24 hour reporting period.

Mark S.: regulations say you have to fill out your permit on site, at the time, so it shouldn’t be an issue.

Casey: thinks in-season reporting would be important, could help with hatchery understanding.

Mark: otolith transfers and hatchery contributions on a weekly basis would be useful.

Kevin B.: if there were few commercial openers in 2018, how confident are you about composition of hatchery run vs. wild stock?

Stormy: Less confident about the 2018 results than usual because of low sample sizes from the Copper River District. We did institute a test fishery in 2018 to at least get some samples during extended closures, but they were limited. We did sample the inriver fisheries as usual.

7. Revisit Guiding Question: What do we need to know about the Copper River to live here well, now and in the future?

Wade: getting together like this is positive.

Jeff B: like to meet, should do it again.

Greg; how do we take action so it's more than just a counseling session?

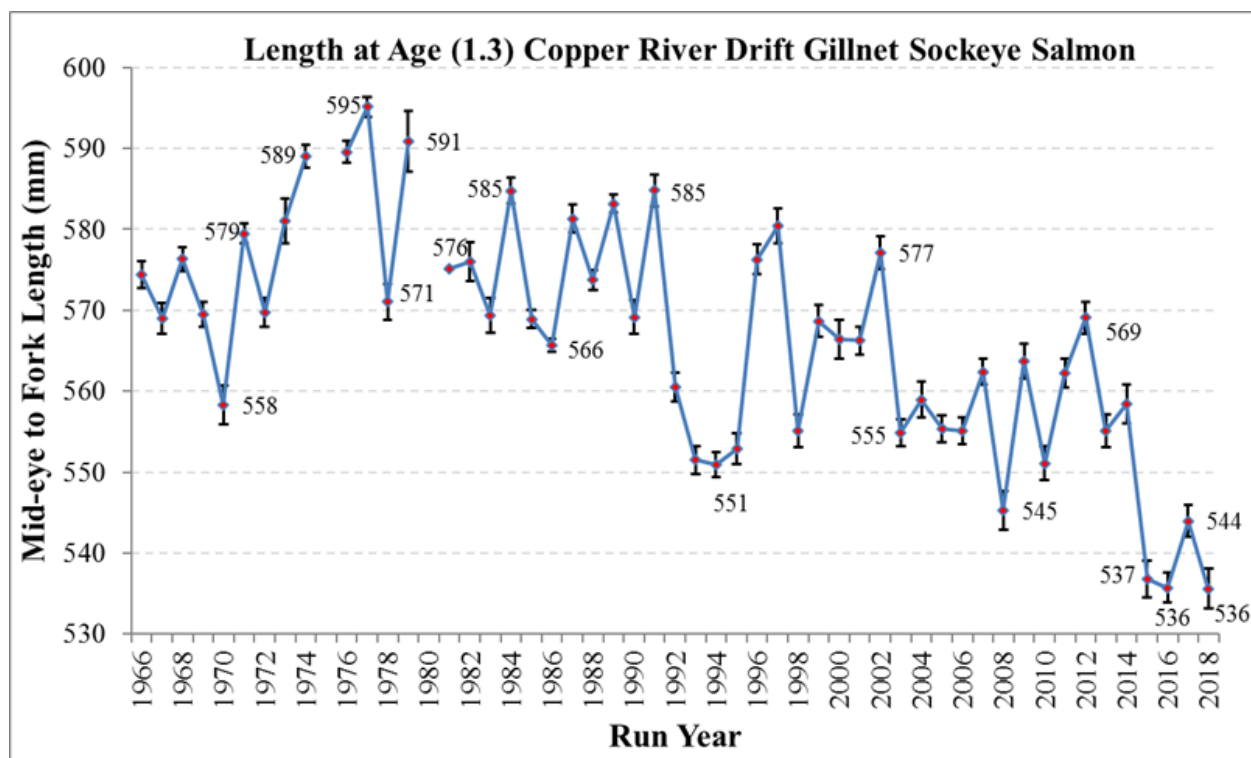
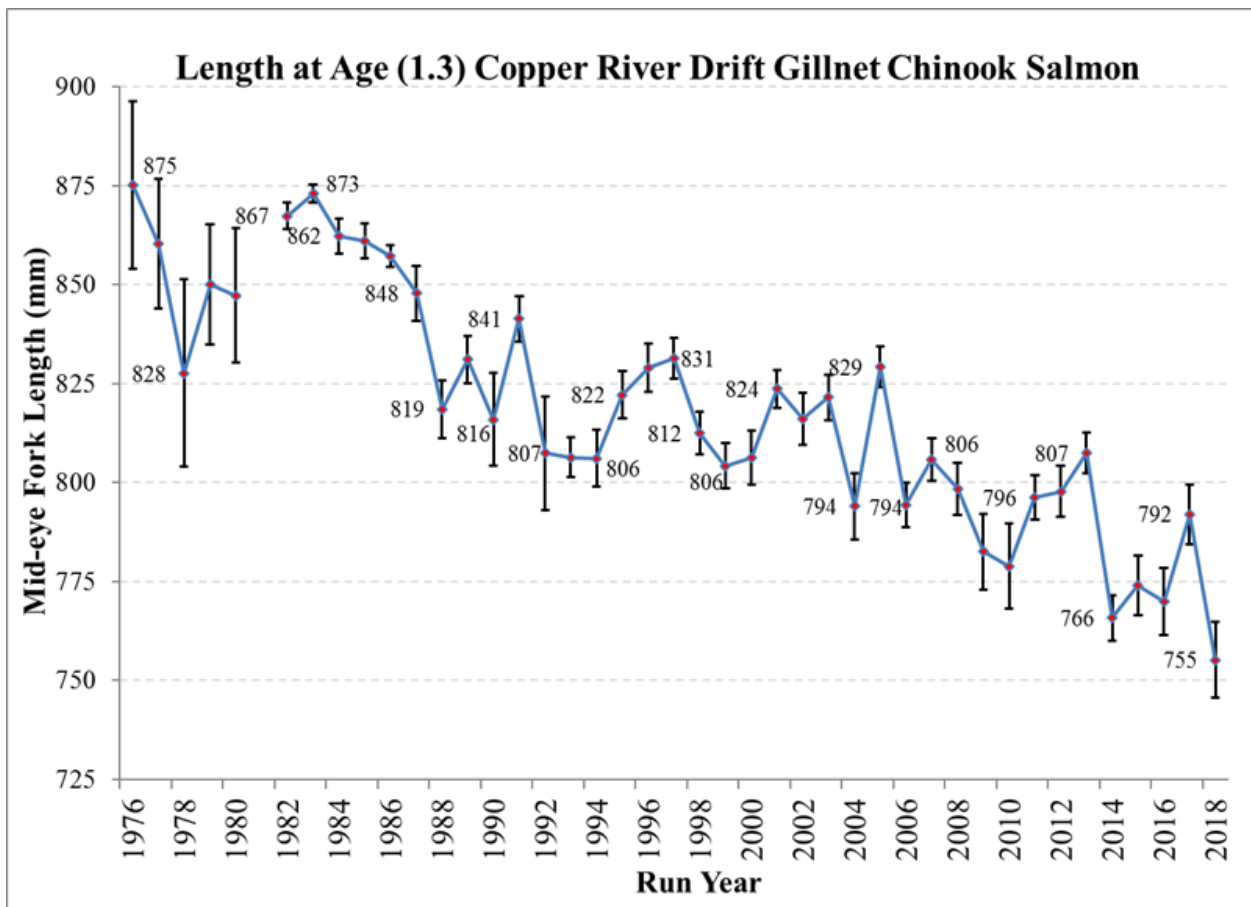
Casey: there's value to talking a common language, I've been in settings where people weren't talking from the same place.

Barbara: every one of us has more understanding than when we came in, and we should recognize that as an outcome.

Jeremy L: having a collaboration among people from within the science community and outside the science community, this is valuable.

Mark S: first meeting was people getting to know each other, we're getting a little beyond that, step wise process, getting a commonality will start to grow, it's a good thing.

Mark Hem: I really didn't want to be here, I've been involved with Board of Fish, I always knew this is what was needed, I'm only here because of Kristin's tenacity, get people together, put their differences aside, it's very encouraging to me.



Source: Alaska Department of Fish & Game

FOLLOW UP PHONE CALL ON MAY 3, 2019

Participating:

Stormy Haight, ADF&G
Mark Somerville, ADF&G
Kevin Bartley, Ahtna Intertribal Res. Cmsn.

Matt Piche, NVE
Kristen Gorman, PWS Science Center
Kristin Carpenter, CRWP

DISCUSSION

Small group meeting summary points:

- Value of the Roundtable is getting diverse stakeholders together, moving toward building a shared understanding of what information and data are used in management decisions.
- February, 2019 Roundtable led to follow up conversations between PWSAC and ADF&G, PWSAC will process personal use and subsistence harvest otoliths in a week so that ADF&G has in-season data on hatchery component of upriver fisheries.
- Stormy from ADF&G could make presentations at other venues and/or next Roundtable on what data ADF&G collects, how it's used in management and modeling.
- Kristen Gorman suggested including Mike Litzow's work for a presentation at next Roundtable, <https://www.uaf.edu/cfos/people/research-staff-and-post-docs/detail/index.xml?id=487>.

Kristin: as was proposed in the Roundtable evaluation, I asked if a small group would come together and talk about what we could do to synthesize the science questions that were raised in February when we all got together. I heard some people asking about "next steps" and felt that some wanted to see more action coming out of the Roundtable, so I thought I'd ask a small group about whether there were any specific ideas in terms of research questions or follow up actions people felt should be considered.

Stormy: the value of the Roundtable is getting everyone on the same page. I think we've made some forward progress over five years in getting everyone together, the value is in having a venue. Better forecasts, environmental indices would be great, but we have to deal with the issues as they come, look for what we can do in-season to make our management more adaptive. I think we should focus on measuring what is there now rather than come up with a complex set of predictors, try to be prepared as managers.

Mark: talking is really the big step, sharing perspectives is huge. Get everyone working from the same set of information. Meeting spurred more talks between myself and PWSAC about how we can get more hatchery components – PWSAC is willing to turn otoliths around in a week. So there's been some great follow-up among participants. I think we're one or two meetings away from the group suggesting something on its own, the group may make its own recommendation. Would be a watershed moment.

Stormy: if there are opportunities for ADF&G to make presentations, we could certainly talk about how we collect information from fish tickets, what otolith data we collect and how we use it, and the Age/Sex/Length data, how all of that is used for management and for our modeling.

Kristen: I saw a seminar recently in Fairbanks by Mike Litzow, he's done some time series analysis in the Gulf of Alaska. He's looking at how the Gulf of Alaska has entered a new

climate regime, represents a new challenge to forecasting. Funding has been a real challenge, need to be realistic about ability to track down ideas. The University has a Coastal Marine Environment program for which it needs match funding. I was chatting with UAF's Advanced Instrumentation Lab about the otolith analysis they do, the Lab just had a meeting about how they are going to maintain their operations given State budget cuts.

Stormy: if we lose that service, would light a fire under PWSAC to come up with a new marking method.

Kevin: Heard Stormy and Mark talk about the value of communication. Successful collaborations are linked to how well stakeholders know and understand each other. We need on-going communication in our region, that helps expand the perspectives at the table that are guiding decisions, expand what is knowable. AITRC would like to have a better understanding of escapement and harvest, working on how we can contribute. It's important to talk about what we can do to move forward to unify people along the river, not just for research but for management. Mark Somerville and Ben Bobowski are supportive of communication but hard to have continuity if only meet once a year. Need development of a watershed team.

Kristin: I want to be sure to distinguish between what you're talking about, which sounds like management priorities, and habitat priorities, which is a concern to the CRWP.



Native Village of Eyak

Department of the Environment and Natural Resources

Copper River Chinook Salmon Escapement Monitoring Program 2003– 2018

1	2 (a,c)	3 (a)	4 (b)	5 (b)	6 (c)	7 (a,c)
Year	Total Run Size	Harvest on Copper River Flats	In-river Abundance Estimate	Abundance Estimate Standard Error (SE)	In-river Harvest Estimate	System-wide Escapement
2003	92,485	47,721	44,764	12,506	10,721	34,043
2004	80,405	39,841	40,564	4,650	9,919	30,645
2005	66,007	35,674	30,333	1,529	8,805	21,528
2006	99,604	31,815	67,789	4,779	9,335	58,454
2007	87,582	41,233	46,349	3,283	11,784	34,565
2008	53,705	12,362	41,343	2,166	8,858	32,485
2009	42,996	10,595	32,401	2,365	4,620	27,781
2010	33,181	10,858	22,323	2,492	5,552	16,771
2011	53,889	20,000	33,889	3,329	5,896	27,993
2012	44,312	12,860	31,452	5,242	3,541	27,911
2013	42,885	10,304	32,581	4,425	3,854	28,727
2014	35,322	11,164	24,158	2,100	3,449	20,709
2015	56,174	23,868	32,306	3,977	5,699	26,607
2016	29,243	13,234	16,009	1,193	3,524	12,485
2017	53,848	13,123	40,725	4,187	7,070	33,655
2018	59,689	7,165	52,524	4,034	TBD	TBD

Copper River Sustainable fisheries Escapement Goal (SEG) = 24,000 or more Chinook salmon

- a) Russell, C.W., J.W. Botz, S. Haught, and S. Moffitt. 2017. 2016 Prince William Sound area finfish management report. Alaska Department of Fish and Game, Fishery Management Report No. 17-37, Anchorage.
- b) Piche, M.J., J.C. Whissel, and J.J. Smith. 2018. Estimating the in-river abundance of Copper River Chinook salmon, 2017 Annual Report. U.S. Fish and Wildlife Service - Office of Subsistence Management, Fisheries Resource Monitoring Program (Study No. 14-505) Anchorage, Alaska.
- c) Somerville, M.A. 2017. Fishery management report for the recreational fisheries of the Upper Copper/Upper Susitna River management area, 2016. Alaska Department of Fish and Game, Fishery Management Report No. 17-45, Anchorage.

2003-2018 Inriver Abundance Estimate, Data Collection, Data QC and Data Analyses are conducted by Native Village of Eyak Department of the Environment and Natural Resources (NVE-DENR) and LGL Alaska Research Associates.

Harvest data is obtained by the Wrangell St. Elias National Park Service (Federal Subsistence) and Alaska Department of Fish and Game (Commercial, State Subsistence, Personal Use, and Sport Fishing) through landing tickets, permits and mail out harvest surveys.

Project funding provided by the USFWS Office of Subsistence Management (FRMP & PFMP), Alaska Sustainable Salmon Fund, Alaska Department of Fish and Game Division of Sport Fish and the USFS Chugach National Forest Ranger District.



Daily in-season data available to the public at <http://eyak.fishscan.com/Summary/DailySummary.aspx>
 NVE's Chinook Escapement Monitoring Annual Reports available by request from USFW-OSM

Copper River Chinook salmon: total run size, inriver abundance & system wide escapement

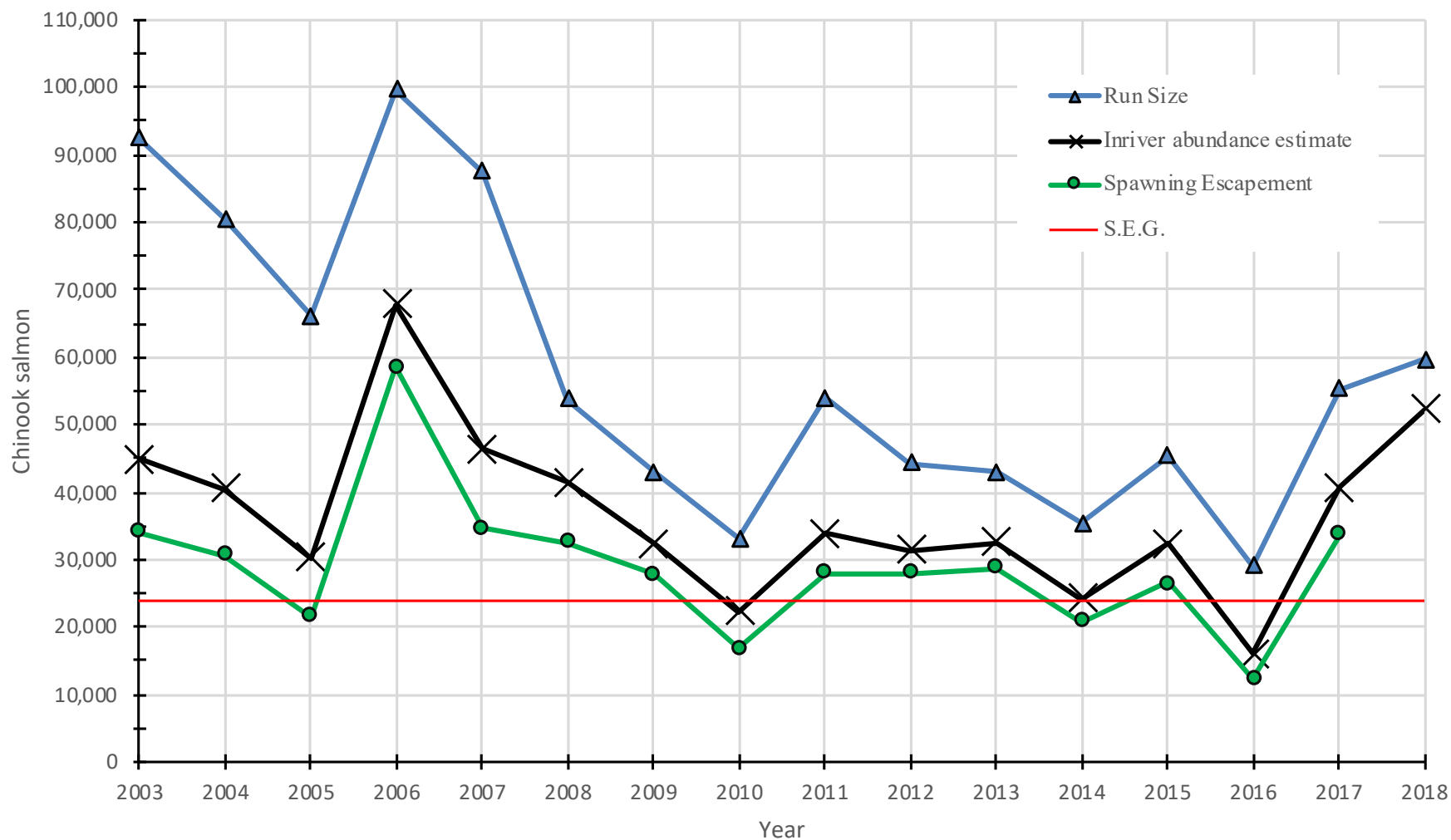


Figure 1. Total run size, inriver abundance, and system wide escapement of Copper River Chinook salmon since the establishment of NVE's mark-recapture program, 2003-2018. (a, b, c)

Daily in-season data available to the public at <http://eyak.fishscan.com/Summary/DailySummary.aspx>
NVE's Chinook Escapement Monitoring Annual Reports available by request from USFW-OSM

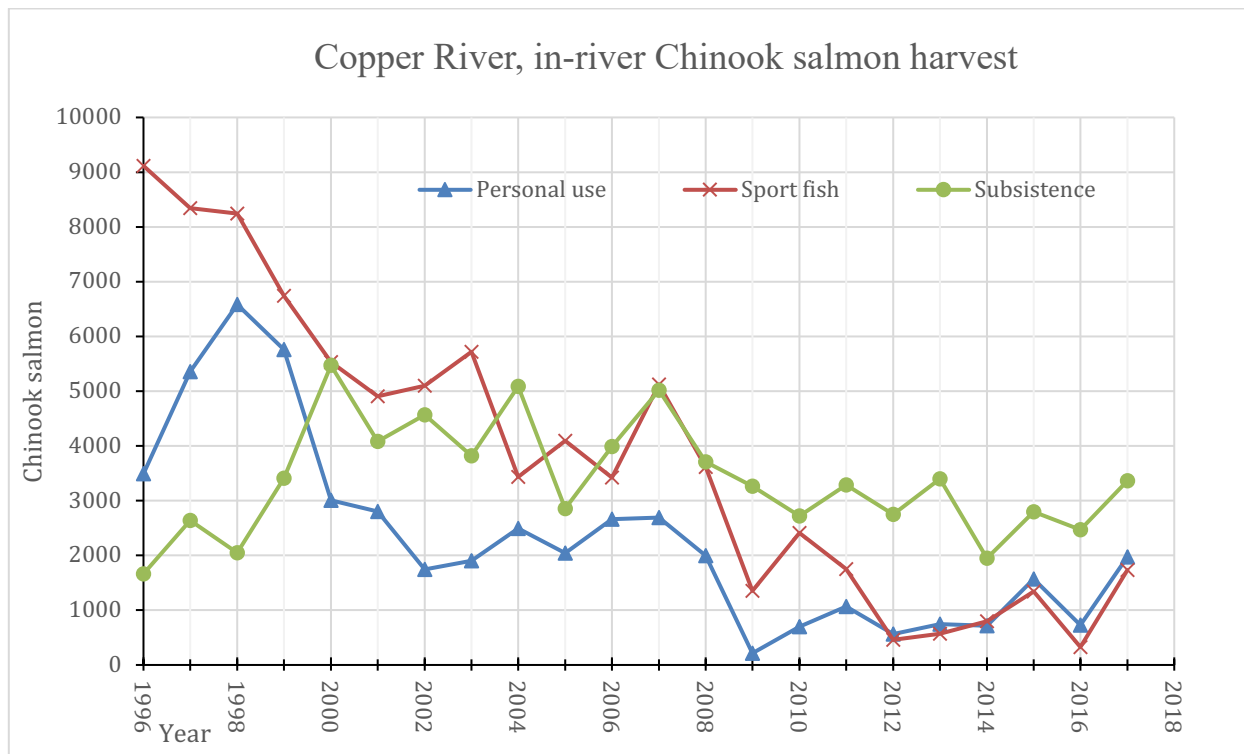


Figure 2. In-river harvest of Copper River Chinook salmon, 1996-2018. (c)

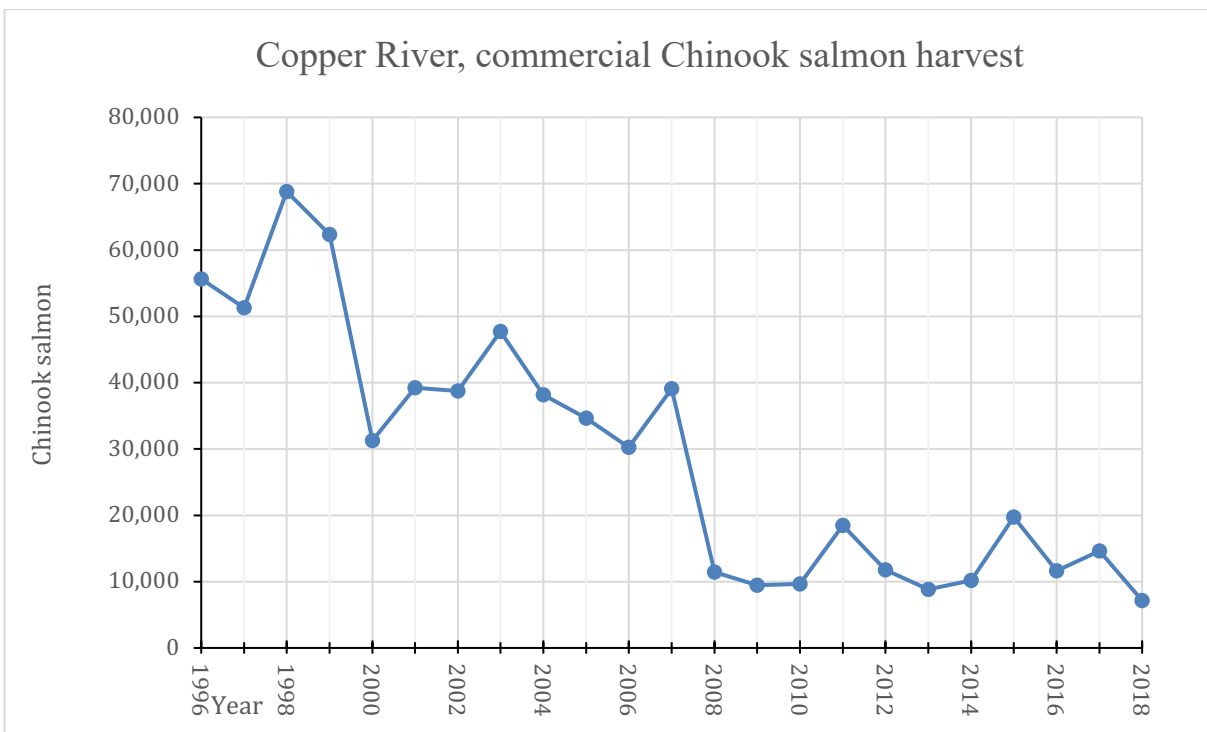


Figure 3. Commercial harvest of Copper River Chinook salmon, 1996-2018. (a)

Daily in-season data available to the public at <http://eyak.fishscan.com/Summary/DailySummary.aspx>
 NVE's Chinook Escapement Monitoring Annual Reports available by request from USFW-OSM

THANK YOU



Daily in-season data available to the public at <http://eyak.fishscan.com/Summary/DailySummary.aspx>
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