

JUNEAU, WE HAVE A PROBLEM



Mat-Su Salmon Returns are Plummeting



Matanuska-Susitna Borough Fish and Wildlife Commission

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Juneau, We have a Problem



Salmon abundance by nature is cyclical, but numbers returning to Northern Cook Inlet streams are almost universally in decline.

King salmon numbers have dropped to record lows. Sockeye salmon numbers and harvests have spiraled downward in the Susitna River for two decades. Once identified by ADF&G as the second largest freshwater coho salmon sport fishery in Alaska, the coho minimum spawning escapement level was not even achieved four years in a row on the Little Susitna.

So discouraged this season, many sports fisherman didn't buy fishing licenses. Northern Cook Inlet anglers used to enjoy 314,435 angler days in 2007. In 2012, angler days sank to the lowest level in 37 years.

In the last five years, the personal use fishery for Upper Cook Inlet has grown into an economic force with more than 35,000 Alaskan households participating. This year—however—zero personal-use fishing occurred at the only personal use fishery in Northern Cook Inlet: Fish Creek in Knik Arm. Dipnetting for sockeye in Fish Creek is more a surprise than an established fishery.

Too many Northern District stocks of concern sputter along at low yield levels here. Seven stocks of concern out of the State's 11 stocks of concern are struggling in the Northern District drainages.

Northern District salmon fail to get through the Central District commercial fisheries gauntlet in sufficient numbers. Conservation elements in the management plan are based solely on the abundance of Kenai sockeye, not on plummeting returns of northern-bound salmon. Escapement goals—the bedrock of fisheries management—have met chronic failure in Northern District streams, while to the south, the commercial harvest often has continuous emergency openings to catch more fish. ADF&G already has the authority to manage the commercial drift gill net fishery more conservatively than what is practiced during a strong Kenai red run.

It takes fish to make fish. Please help us reverse this decline.

*Bruce Knowles Larry Engel Jim Colver Howard Delo Andy Couch
Jennifer Ehmann Ben Allen*

—Matanuska-Susitna Borough Fish and Wildlife Commission

The Matanuska-Susitna Fish & Wildlife Commission



The Matanuska-Susitna Borough Fish and Wildlife Commission consists of seven dedicated volunteers appointed by the Mayor to advise the Assembly and the Alaska State Boards of Fish and Game on policies that affect the resource and the people of the region.

Members of the Commission have 50 years of combined expertise as state biologists, 70 years combined experience as fishing guides, and 12 years of experience on the State's highest fish regulating board.

Chairman Bruce Knowles—a veteran fishing guide and advocate for sustainable fisheries.

Acting Chair Larry Engel—Chair of the Alaska Board of Fish for three years, a member on the Board for 9 years, former fisheries biologist with ADF&G for 30 years including 20 years as Mat-Su Area Manager.

Jim Colver—a personal-use fisher since 1989, a sportsfisherman, former commercial crewman in Prince William Sound, Mat-Su Borough Assembly Member 10 years, & former School Board President.

Howard Delo—a former member of the Alaska Board of Fish for three years and worked as a biologist with Fish & Game for 21 years, fisheries columnist.

Andy Couch—fishing guide business owner for 30 years in the Mat-Su, member Mat Valley Fish & Game Advisory Committee, fisheries writer.

Jennifer Ehmann—President of the Palmer Chamber of Commerce and an avid sports fisher. Chair of the Mat Valley Fish & Game Advisory Committee.

Ben Allen, owner of a sportfishing guide business, former member Mat Valley Fish & Game Advisory Committee.

The Commission seeks a more balanced allocation of fish that originate in Northern Cook Inlet.

The Commission has actively supported the development and implementation of effective fishery management plans and strategies. We have sought to foster an effective working relationship with ADF&G; providing regular input on research and management policies and strategies; facilitating the exchange of ideas and knowledge with Mat Su residents. The Commission has also successfully worked through the Governor's and Legislature's budgeting process to secure critical funding for scientific research and monitoring. The Commission has directed Borough support for independent scientific peer review to ensure that the best available science is utilized on key resource issues.



Overview

The Mat-Su Borough Fish and Wildlife Commission (MSBFWC) believes that the fishery management system in Upper Cook Inlet (UCI) is out of step with the economic and cultural realities of today. Management of UCI salmon continues to be driven by commercial fisheries despite much greater economic value and participation in sport and personal use fisheries. The sustainability of Matanuska-Susitna salmon runs has been placed at risk by overexploitation in mixed stock commercial fisheries that target larger more robust Cook Inlet salmon runs.

UCI commercial fisheries are currently operated to maximize harvest from the dominant Kenai and Kasilof River sockeye salmon stocks.

The reasonable harvest opportunity for subsistence, sport, guided sport, commercial set net, and northern personal use fisheries is severely impacted by mixed stock, drift fishery management.

Many smaller and less productive salmon stocks of Northern District origin are seriously impacted by these mixed stock commercial fisheries.

Spawning escapement goals are non-existent (Northern District pink and chum salmon), grossly inadequate (northern sockeye and coho), or not met (sockeye).

Current numbers are at critical levels for over half of all Northern king salmon stocks and Little Susitna River coho.

Information critical for effective management is severely lacking.

Timeliness and transparency of incorporation of new research data into management practice has been questionable.

The Mat-Su Borough Fish & Wildlife Commission has submitted a series of proposals to the Alaska Board of Fish regarding management of salmon originating in the Northern District drainages of Upper Cook Inlet (UCI).



The Mat-Su Salmon Factory

Northern Cook Inlet waters support one of the most diverse salmon ecosystems on the planet

Salmon Return to Practically Every Accessible Niche & Water Body

The vast and varied landscape and topography of the Borough supports a tremendous variety of fish habitat and fish runs. Salmon inhabit 733 Mat-Su Basin rivers, streams and creeks totaling 4,426 miles more than 25,000 square miles. Other regions of Alaska may support greater salmon numbers but none are more diverse.



The Mat-Su Salmon Factory

All 5 Species of North American Salmon

Chinook (king) salmon, return to large rivers and streams throughout the Borough with substantial populations in the Deshka, Lake Creek, Talkeetna River, Little Susitna, and east side Susitna River tributaries from Willow Creek to Montana Creek. Susitna basin streams support the largest king run in Cook Inlet and the fourth largest in the state. Total returns may exceed 100,000 in good years.

Coho (silver) salmon are produced in practically every accessible stream in Cook Inlet - over 900 in total. Returns number in the hundreds of thousands during good years. Susitna drainages support the largest coho returns in Cook Inlet. Genetic studies have shown the run is comprised of many unique subpopulations returning to different areas. The Deshka, Talkeetna, Little Susitna, Jim Creek, Lake Creek, Talachulitna, and Jim Creek are top producers in the Northern Inlet.

Sockeye (red) salmon include over 20 populations that spawn in lakes, rivers, and sloughs throughout the Borough. Around 300,000 Susitna sockeye return to Cook Inlet on average but numbers are dwarfed by returns of over 4 million Kenai and Kasilof sockeye, which are the focus of intensive commercial fisheries farther down the inlet.

Pink (humpy) salmon return to streams and rivers throughout Upper Cook Inlet with large populations in the Susitna and Kenai rivers. Runs are even-year dominant. Numbers are not estimated due to a limited fishery focus.

Chum (dog) salmon spawn in rivers and streams throughout Upper Cook Inlet but predominately in western and northern portions of Cook Inlet. The Little Susitna and Eastside streams including Talkeetna River are top producers. Commercial fishery data suggests that chum numbers have fluctuated at low levels since 1990. Preliminary chum escapement estimates for the Susitna River drainage ranged from 334,000 to 1,752,000 during the period 2010-2012.

Salmon Runs Support Complex, Mixed-Stock Fisheries



Salmon return to Cook Inlet waters from May through September in broadly overlapping waves.



Timing varies among species and also within a species among different stocks and populations with specific patterns adapted for the specific conditions in their home rivers.



Overlapping timing and variable abundance are at the root of complex and difficult fishery management problems in the mixed stock fisheries of Cook Inlet.

Run Timing of Salmon in UCI

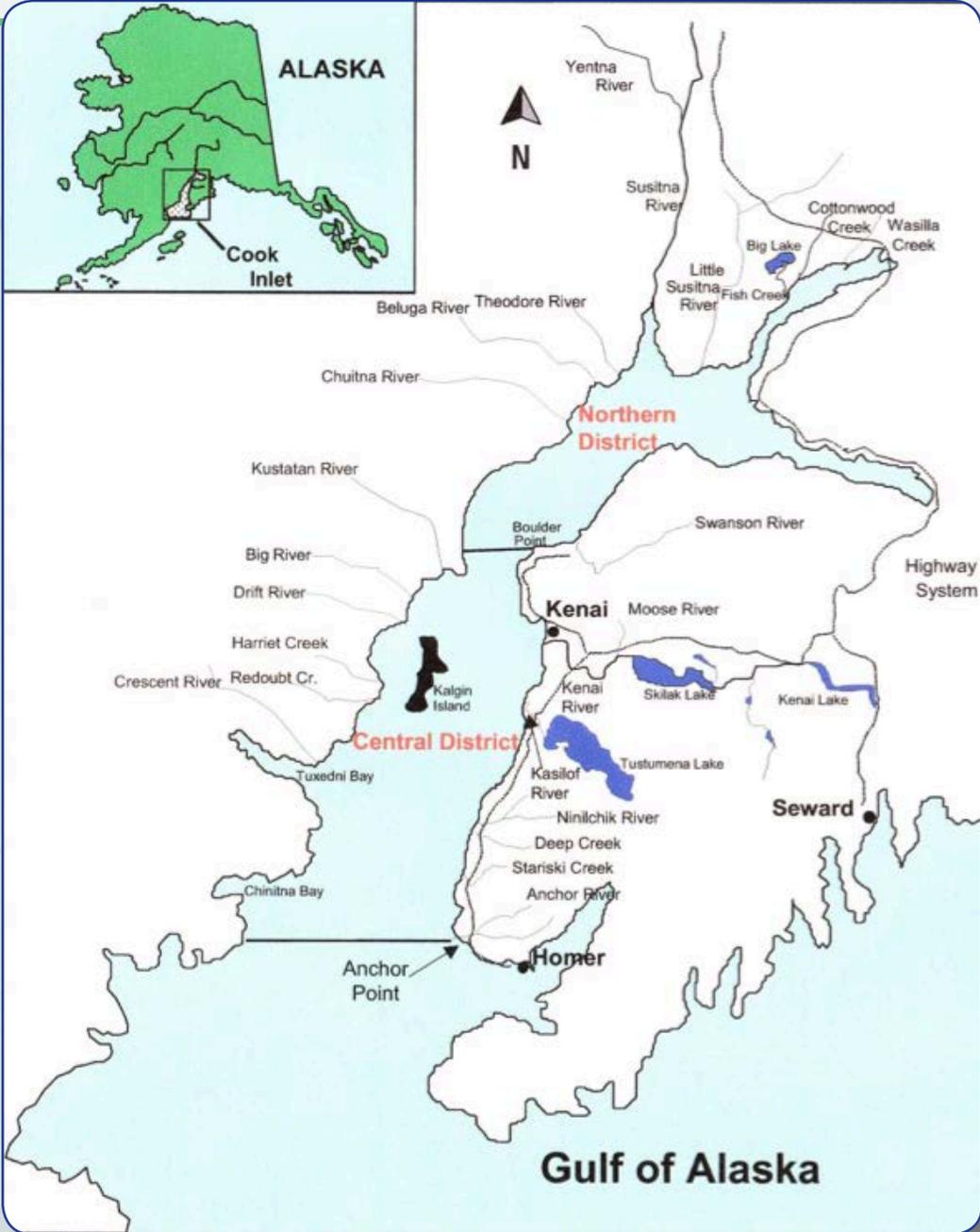


Figure 1 The Matanuska-Susitna Basin and Cook Inlet.

Water Terms

Upper Cook Inlet includes all waters draining into Cook Inlet, north of Anchor Point. It consists of two commercial fishing areas, divided into a Northern District and a Central District.

This booklet focuses on all salmon that use the drainages of the Northern District. Some water terms include Northern Inlet, Northern Cook Inlet streams, & Mat Su Basin Rivers.



An Essential Value

*Salmon are essential to the character, lifestyle
and economy of the Mat-Su Borough*

Alaska's Sport Fishery Center



About 1 of 3 Alaskans sport fish— the highest rate in the nation.



Nearly 2/3 of AK's residents reside along the shores of Upper Cook Inlet.



250,000 people sport fish annually in Upper Cook Inlet—160,000 are salmon fishermen.
Over 300,000 angler days of sport fishing effort had occurred in Northern Cook Inlet waters during a typical year. Today angler days have sunk to the lowest level in 37 years.



An Economic Engine

The value of commercial fisheries has always been widely known, yet the economic significance of sport fishing has only recently gained recognition.



Sport & Personal Use Fisheries

Half of all sport fishing in AK and more than half of personal use occurs in Upper Cook Inlet Boroughs.

Over 150,000 sport anglers and 35,000 personal use households fish for salmon in Upper Cook Inlet.

Sport anglers spent \$118 million in the Mat-Su Borough and over \$700 million in upper Cook Inlet in 2007. Cook Inlet expenditures supported 8,056 jobs and generated \$55 million in state and local taxes.

Commercial Fishery

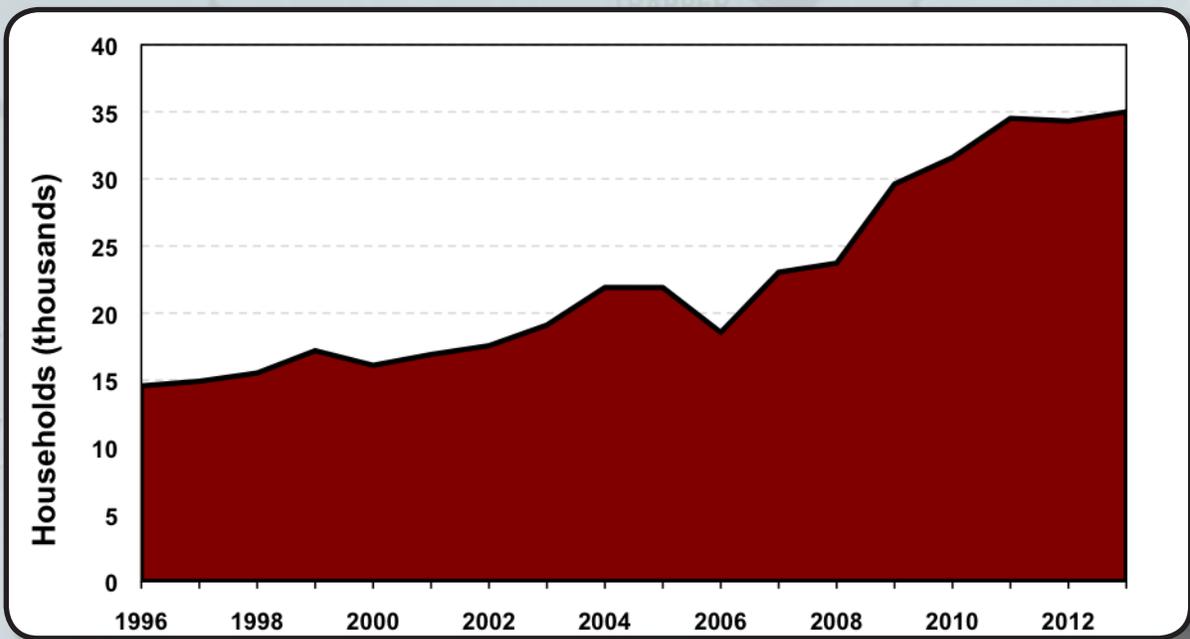
Upper Cook Inlet commercial fisheries produce only 3-5% of the statewide total salmon harvest.

A total of 1,300 commercial salmon gillnet permits are currently registered in Cook Inlet.

Ex-vessel value of the commercial salmon catch in upper Cook Inlet averaged \$26 million in 2003-2012. Wholesale value of UCI commercial salmon fishing in 2007 was \$77 million on an ex-vessel value of \$23 million.

Personal Use Fisheries—Food for Alaskans

Over 35,000 households currently participate in the UCI personal use fishery.



Only one personal use fishery exists in the Northern Inlet, (Fish Creek sockeye) and too few fish return in most years to open this fishery. No fishing occurred in in 2012 or 2013.

Dipnetting in 2010 at home on Fish Creek, a luxury.



Northern Inlet residents must currently travel to the Kenai Peninsula (or Chitna on the Copper River) to access significant numbers of salmon for personal use.



Commercial fishery windows in the Central District commercial set net fishery have been instrumental in supplying meaningful numbers of sockeye to feed Kenai area personal use.

Unbalanced Harvest Sharing



Harvest allocation has not kept pace with growing demand by the sport and personal use sectors and is out-of-step with the economic and cultural realities of today.



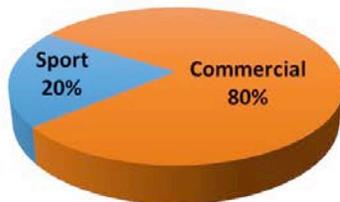
Fishery management continues to be driven by commercial fisheries despite much greater economic value and participation in sport and personal use fisheries.



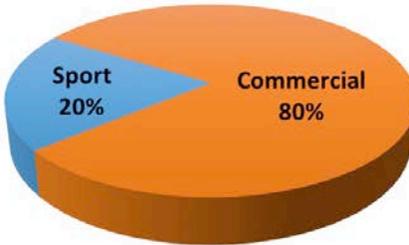
Less than 20% of the UCI salmon harvest is effectively allocated to over 150,000 sport anglers and 35,000 personal use fishery households.



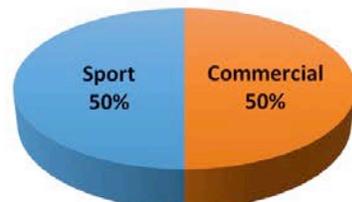
Over 80% of the harvest is taken by fewer than 1,300 limited entry commercial permit holders.



UCI Sockeye
3 million / year



All UCI Salmon



UCI Coho
400,000 / year

Figure 3. Recent 1999-2004 harvest shares of Upper Cook Inlet salmon among commercial, sport, and personal use fisheries as a result of current management plans.

Trends of Concern

Salmon abundance is by nature cyclical but numbers returning to Northern Inlet streams are almost universally in decline

Falling Numbers

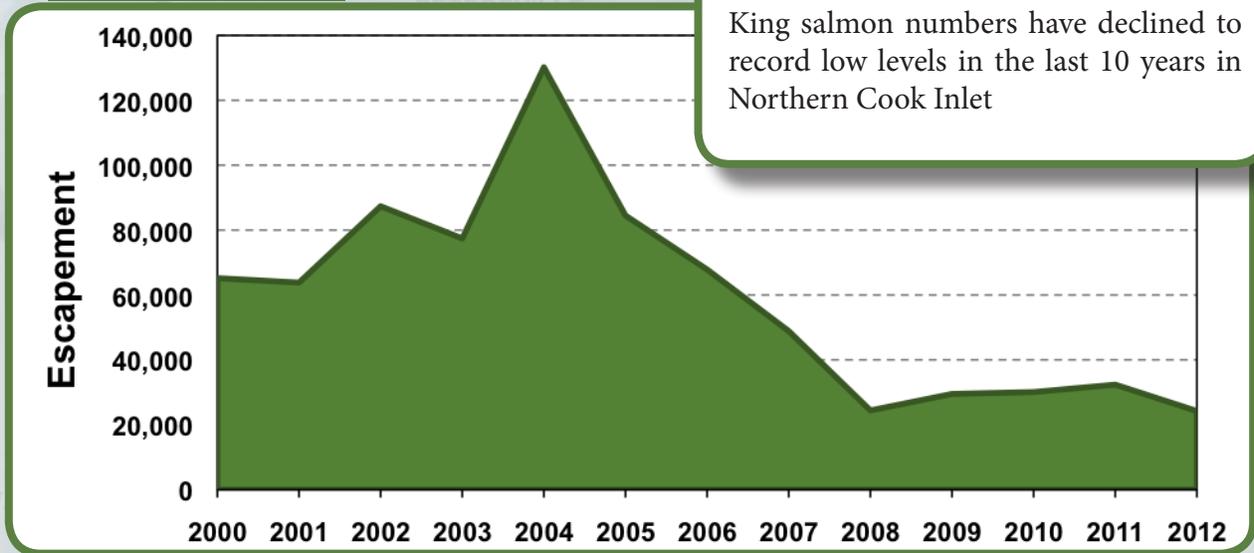


Figure 4 Escapement index for Northern Cook Inlet King salmon (total of index counts from Susitna and Knik Arm streams).

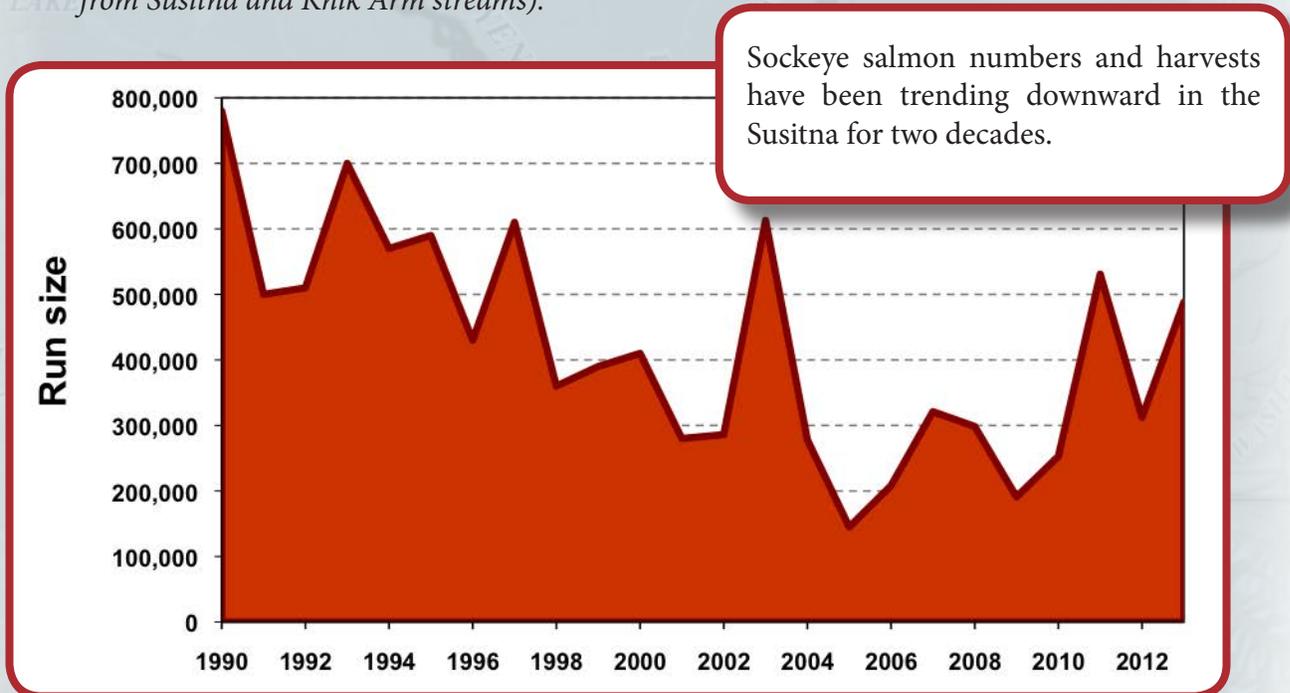


Figure 5 Historical Susitna sockeye run size to Upper Cook Inlet

Coho numbers are counted in only a handful of the hundreds of Northern Cook Inlet streams to which they return. Numbers have fluctuated widely over the last 20 years with recent numbers approaching record lows seen in many streams during the late 1990s.

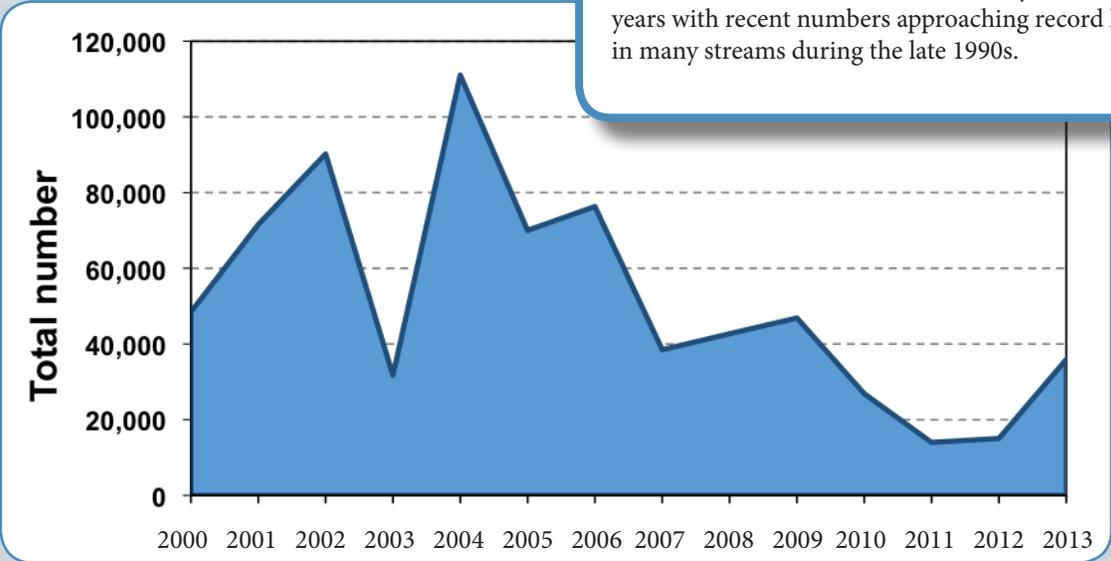


Figure 6 Escapement index for Northern Cook Inlet coho salmon (total of index counts from Deshka, Little Susitna, Jim Creek, and Fish Creek)



Chum salmon data is limited but numbers are believed to have severely declined since the 1980s. As many as 1.4 million chum were harvested in the commercial fisheries in 1982 when demand was high and significant fishing occurred in August. Commercial harvest of chum salmon has dropped dramatically in the last two decades but variable harvest effort between years can mask population trends.

Pink salmon numbers are unknown but are believed to be relatively high in the dominant even years of their run cycle, but actual data is lacking.

Failing Escapement Goals

“Salmon shall be managed to allow escapements within ranges necessary to conserve and sustain potential salmon production and maintain normal ecosystem functioning”

5 ACC 39.222 Policy for the Management of Sustainable Salmon Fisheries



A lack of goals hampers effective management for all species except Chinook.

—It is unclear whether existing goals are representative of the entire stock unit. Without goals, there are no benchmarks for assessing management effectiveness.

—Goals also provide a large measure of protection for specific stocks. Stocks without goals do not get the same management consideration.

—This lack of information and reference points poses a high risk to stock sustainability, particularly where fishery exploitation is significant.

Declining numbers of Northern Cook Inlet salmon have led to chronic failure to meet minimum escapement goals.

—Sockeye escapements fell short of at least one of their three goals in each of the last 5 years. Judd Lake numbers were short in 3 of the last 4 years.

—The majority of king stocks has missed minimum goals in most of the last 5 years.

—Coho escapement goals exist for only three streams, all located on the Knik Arm. Of these, the Little Susitna and Jim Creek have missed minimum escapement goals in the fourth and third years, respectively, of the last 5 years. There are presently no escapement goals for Susitna River drainage coho salmon.

—Only one chum salmon goal has been established in all of Cook Inlet (Clearwater Creek). No goals have been established for any northern chum stock.

Escapement Goals – Cornerstone of Sustainable Salmon Management In Alaska

—Spawning escapements are the money-in-the-bank investment that ensures continuing strong salmon returns in the future.

—Goals define a range of numbers that historically provided healthy returns and productive fisheries.

—Overfishing occurs when too many fish are harvested to each minimum spawner target. Low spawner numbers typically produce low future returns.

—Escapements in excess of goals unnecessarily forego harvest of fish surplus to the productive capacity of the habitat. These fish can be harvested without impacting future returns of that particular stock.

—Fishery managers almost universally regard meeting minimum goals as more important than exceeding maximums.

Table 1. Salmon escapement goals, failure rates, and areas of recent sport fishery closures in northern Cook Inlet.

Species	Populations	Goals	System	Goal	Failure rate ^a	Closures
Chinook	20+	18	Alexander ^b	2,100 – 6,000	100%	Yes
			Campbell ^c	>380	70% ^d	--
			Chuitna ^b	1,200 – 2,900	100% ^d	Yes
			Chulitna	1,800 – 5,100	50% ^d	Yes
			Clear	950 – 3,400	40%	Yes
			Deshka	13,000 – 28,000	20%	--
			Goose ^b	250 – 650	100% ^d	Yes
			Lake ^c	2,500 – 7,100	60%	--
			Lewis ^b	250 – 800	80%	Yes
			Little Susitna	900 – 1,800	50% ^d	--
			Little Willow	450 – 1,800	0%	Yes
			Montana ^c	1,100 – 3,100	60%	Yes
			Peters	1,000 – 2,600	30% ^d	--
			Prairie ^c	3,100 – 9,200	75%	Yes
			Sheep ^c	600 – 1,200	100% ^d	Yes
			Talachulitna ^c	2,200 – 5,000	75% ^d	Yes
Theodore ^b	500 – 1,700	100% ^d	Yes			
Willow ^b	1,600 – 2,800	80%	Yes			
Coho	100+	3	Jim ^c	450 – 700	60%	Yes
			Fish	1,200 – 4,400	0% ^d	--
			Little Susitna ^c	10,100 – 17,700	80%	--
Sockeye	30+	4	Chelatna ^b	20,000 – 65,000	20%	--
			Judd ^b	25,000 – 55,000	60%	--
			Larsen ^b	15,000 – 50,000	20%	--
			Fish	20,000 – 70,000	40%	--
Chum	Unknown	0	--	--	--	--
Pink	Unknown	0	--	--	--	--

^a Based on escapements less than minimum goal during last five years (2009-2013).

^b Stock of Concern.

^c Candidate for Stock of Concern.

^d 2009-2012 data only.

Examples of plummeting fish returns include:

—The goals for coho on the Little Susitna have failed 80% of the time over the last five years.

—The goals for coho on Jim Creek have failed 60% of the time over the last five years. Coho here are a candidate for a Stock of Concern.

—The goals for chinook on Alexander Creek have failed 100% of the time, and chinook here are a Stock of Concern.

Too Many Stocks of Concern

- Seven of 11 Alaska Stocks of Concern are in Northern Cook Inlet.
- Susitna sockeye was identified as a stock of yield concern in 2008 and 2011.
- Six king stocks were designated as stocks of management concern in 2011 (Alexander, Willow, Goose, Chuitna, Theodore and Lewis Rivers).
- In 2014, a number of additional northern Cook Inlet salmon Chinook and coho stocks are candidates for designation as Stocks of Concern based on chronic failures to meet escapement goals (Table 1).

Definitions

Stocks of concern are formally designated by the Board of Fisheries in cases where numbers are failing to meet established objectives according to Alaska's Policy for the Management of Sustainable Salmon Fisheries [5 AAC 39.222].

Yield, management, or conservation concerns may be identified based on a chronic inability, despite the use of specific management measures, to maintain harvestable surpluses, meet escapement goals or achieve sustained escapement thresholds.

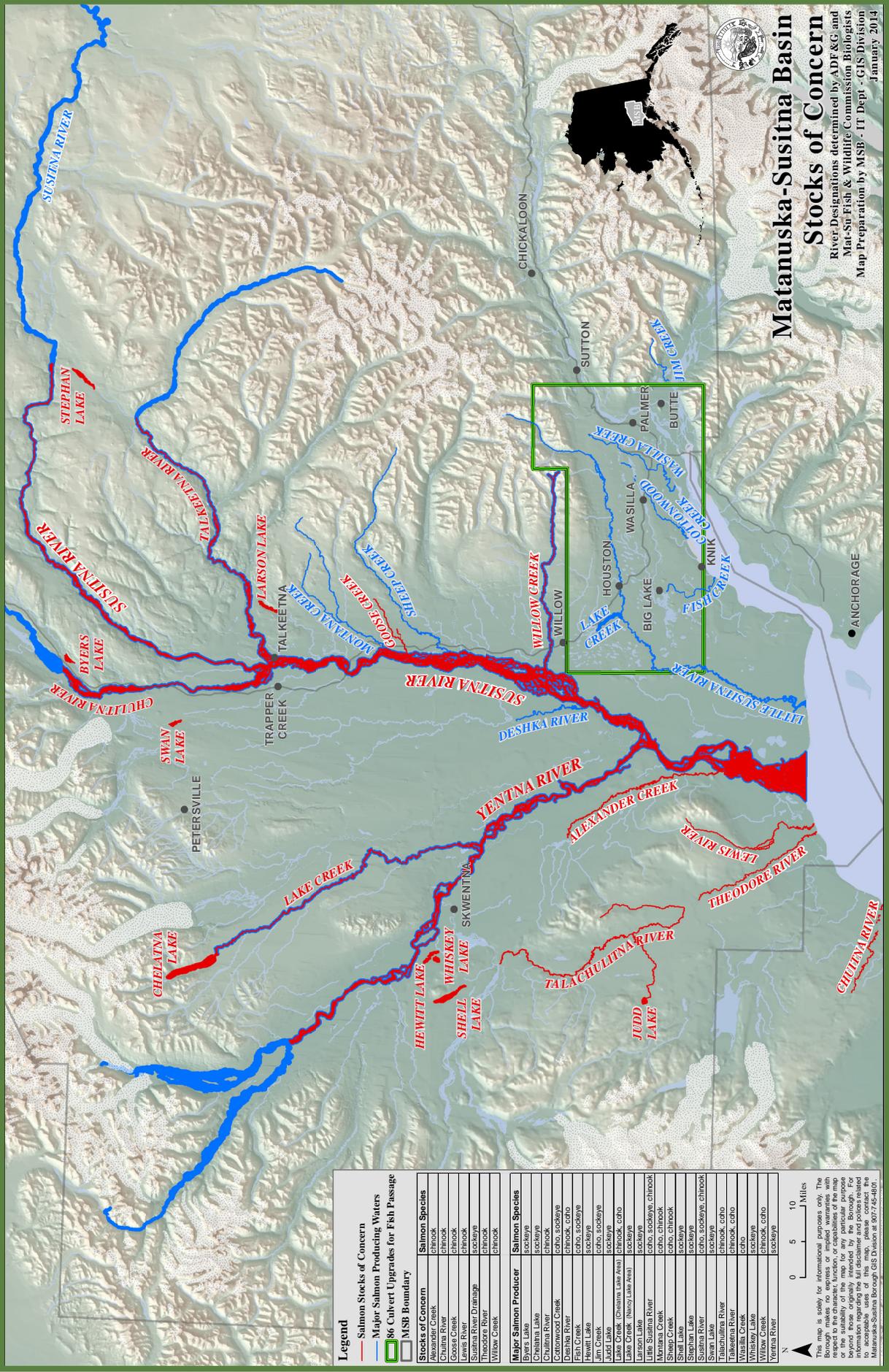
Status of all salmon stocks is reviewed at regular Board of Fisheries meetings. The Board determines if stock concerns exist. ADF&G and the Board then collaborate on the development of an action plan to remedy the concern.





Matanuska-Susitna Basin Stocks of Concern

River Designations determined by ADF&G and
Mat-Su Fish & Wildlife Commission Biologists
Map Preparation by MSB - IT Dept - GIS Division
January 2014



- Legend**
- Salmon Stocks of Concern
 - Major Salmon Producing Waters
 - 86 Culvert Upgrades for Fish Passage
 - MSB Boundary

Stocks of Concern	Salmon Species
Chickaloon River	coho, sockeye, chinook
Chulitna River	chinook
Geese Creek	chinook
Lewis River	sockeye
Susitna River Drainage	sockeye
Theodore River	chinook
Willow Creek	chinook

Major Salmon Producer	Salmon Species
Chulitna Lake	sockeye
Chulitna River	chinook
Cottonwood Creek	coho, sockeye
Deshka River	chinook, coho
Fish Creek	coho, sockeye
Hewitt Lake	sockeye
Jim Creek	coho, sockeye
Jim Lake	sockeye
Lake Creek (Chulitna Lake Area)	coho, chinook, sockeye
Lake Creek (Nancy Lake Area)	sockeye
Larson Lake	sockeye
Little Susitna River	coho, sockeye, chinook
Montana Creek	coho, chinook
Sheep Creek	coho, chinook
Stephan Lake	sockeye
Susitna River	sockeye
Talkeetna River	chinook, coho
Wasilla Creek	coho
Whiskey Lake	sockeye
Willow Creek	chinook, coho
Yentna River	sockeye

0 5 10 Miles

This map is solely for informational purposes only. The accuracy, reliability, or suitability of the map for any particular purpose is not guaranteed. The user assumes all responsibility for any use of the map. For more information regarding the full disclaimer and policies related to acceptable uses of this map, please contact the Matanuska-Susitna Borough GIS Division at 907-746-6501.

Sport Fishery Declines

- Sport fisheries are disproportionately shouldering the conservation burden of salmon declines.
- Declining numbers of kings, silvers and reds to Northern Inlet streams has resulted in widespread restriction or closure of sport fisheries since 2010.
- Sport harvest of salmon has fallen accordingly throughout the Northern Cook Inlet Management Area. For kings, harvest has declined every one of the last five years (15,919 in 2008; 11,349 in 2009; 10,824 in 2010; 9,712 in 2011; and 3,020 in 2012).
- Angler participation (measured in angler days) has fallen by over half since 2000 reaching the lowest levels in 37 years.

Angler Days

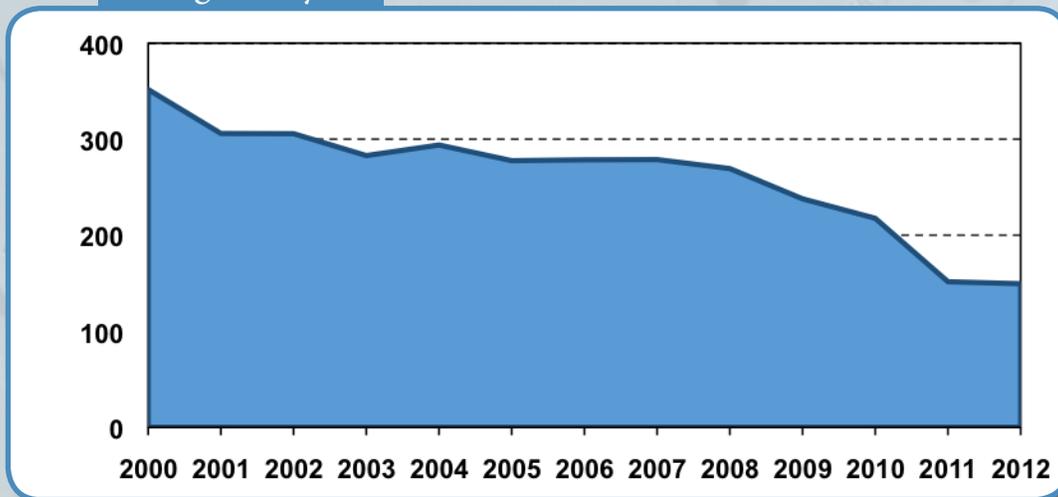


Figure 8 Sport fishing effort (all species) in Northern Cook Inlet (Knik Arm, Eastside Susitna, and Westside Susitna).

The dominant Central District commercial fisheries, managed primarily based on strong Kenai and Kaslof sockeye abundance, have continued to enjoy strong harvests throughout the recent period (although the distribution of harvest shares has varied considerably among commercial sectors in some years).

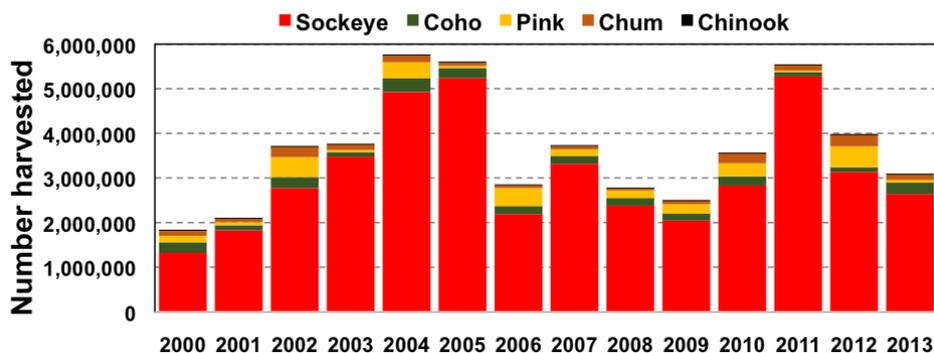
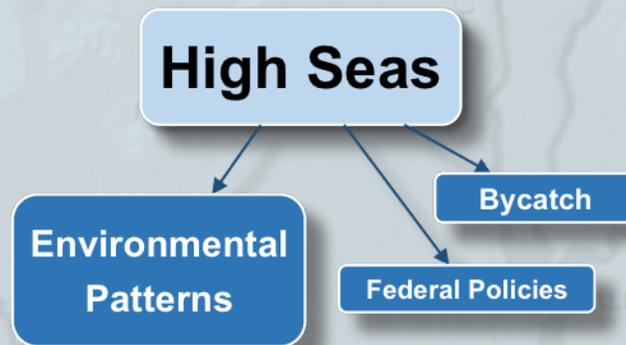


Figure 9 Trends in UCI commercial salmon harvest by species.

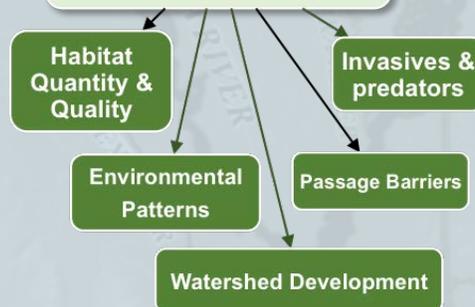
Factors Affecting Salmon Abundance in Northern Cook Inlet

Low salmon abundance has resulted from a complex network of factors, large and small, operating in freshwater, the high seas, and Cook Inlet.



- Environmental patterns, bycatch in other fisheries and related Federal Fishery Management policies can all impact salmon in the ocean.
- Marine survival of salmon can vary substantially due to annual and longer-term cycles in water temperature, circulation and forage availability.
- Ocean environmental conditions affect different salmon species and stocks differently depending on distribution and resource requirements.
- The recent collapse in king returns throughout Alaska is largely attributable to a period of unfavorable environmental conditions in the Gulf of Alaska and Bering Sea.

Freshwater



- Salmon habitat conditions are excellent across vast areas of the Mat-Su Borough. Localized issues have been identified in some developed areas, but salmon effects are quite limited in relation to the basin-wide scale of salmon production.
- The quantity and quality of the freshwater habitat ultimately determines the natural productivity and abundance of salmon, including their ability to withstand high rates of fishing.
- Natural productivity can also be affected by environmental factors like the 2006 and 2012 floods by dislodging salmon eggs incubating in the gravel.
- Numbers can be impacted by ecological factors such as invasive pike.

Culverts & Beavers & Pike, Oh My!

“Therefore, unless the impacts from pike predation, disease, and beaver dams can be significantly reduced, the total sockeye salmon production in the Susitna River drainage will continue to suffer, regardless of the amount of restrictions placed on commercial fisheries.”

— 2012 ADF&G UCI Commercial Fishery Management Report

This excuse for commercial overfishing grossly misrepresents the impact of freshwater factors and is contrary to the principles of sustainable salmon management.



If it were true that salmon productivity has been substantially reduced by freshwater habitat and ecological problems, then commercial fishery exploitation rates would need to be reduced rather than maintained in order to protect affected populations.



Salmon production reflects the combined effect of natural and manmade factors in fresh and marine waters, including significant commercial interception.



A combination of reduced freshwater productivity and high fishery exploitation rates are a recipe for stock extinction. Salmon stocks throughout the lower 48 have been federally listed under the Endangered Species Act for this very reason.

Beavers

1. Evidence for sockeye passage problems due to beaver dams is limited to a small number of systems where outlet streams have low flow rates.
2. Beaver dams provide significant benefits to salmon by creating juvenile rearing habitat and protecting essential watershed processes.
3. Negative impacts of removal include draining of wetlands, changes in riparian vegetation, loss of overwintering salmon habitat, reduced water retention time, increased flooding, and stream channel down-cutting (Hughes 2013).

Disease

Fish disease is a natural process that typically results from warm water temperatures like those seen during periodic droughts.

Northern Pike

1. Pike are all over the Bristol Bay habitat, and yet the salmon runs there are the best in the world
2. Factors other than pike are playing a role in making Susitna River sockeye salmon a Stock of Concern. This is clearly evident by declining salmon abundance in waters without pike as well in waters containing pike.
3. Declines of Chinook in Alexander Creek and sockeye in Shell and Redshirt Lakes are related to pike.
4. Where pike predation is at its worst, ADF&G has made an aggressive assault through a pike gillnet suppression program. Here's some initial findings.
5. More than 12,000 northern pike have been removed from Alexander Creek
6. Results from radio tag efforts strongly indicate that the overwhelming majority of the pike that are exiting the lake meet their fate in the suppression gillnets
7. In 2013, more Chinook salmon were observed during the aerial survey than in the past decade.
8. In 2013, more allied salmon species (Coho, chum & pink) were observed in the upper reaches of Alexander Creek during the aerial survey than in the past decade.
9. Minnow trapping studies indicate that juvenile salmon are either recolonizing old rearing areas or their numbers have increased to a level beyond the threshold of predation. In each year of a three-year study, minnows were caught farther up the creek.

More than 6,500 stomachs of northern pike were examined, 2011-2013; frogs, manfry are among the contents of this pike. ADF&G photo.



Urbanization

While development has impacted salmon habitat in some areas of the Northern Inlet, the vast majority of the salmon habitat is in pristine condition

For instance, road crossing inventories have identified 55 potential culvert barriers to adult passage and about 400 potential barriers to juvenile movement. However, these barriers affect only a few percent of the available salmon habitat.

Additionally, significant barriers are in the process of being replaced. To date, more than \$7 million has been spent on upgrading road culverts to allow for fish passage. Some 86 culverts have been replaced.

The Matanuska-Susitna Basin Salmon Habitat, a partnership between many entities and the Borough, has been singled out nationally, for its fish passage projects

Mat-Su Tends to its Freshwater

The Matanuska-Susitna Borough has a long history of active involvement in fish habitat conservation and restoration work on water quality, streams, riparian zones, wetlands and watersheds. Concern over risks from population growth and development also led the Borough in 2005 to help establish the Matanuska-Susitna Basin Salmon Habitat Partnership in cooperation with the Alaska Department of Fish and Game (ADF&G), U.S. Fish and Wildlife Service (USFWS), and The Nature Conservancy (TNC), the Matanuska-Susitna Borough (MSB).

The Partnership has been the recipient of several national awards from the U. S. Department of the Interior for fish passage and outreach projects.

A strategic action plan was completed in 2008 to identify long-term goals and strategies, and provide a tool for project prioritization. Financial and technical assistance provided by the Borough and partners have supported numerous activities including educational programs, fish passage improvements, lakeshore restoration, wetlands protection and recreational access.

86 culverts replaced for salmon passage

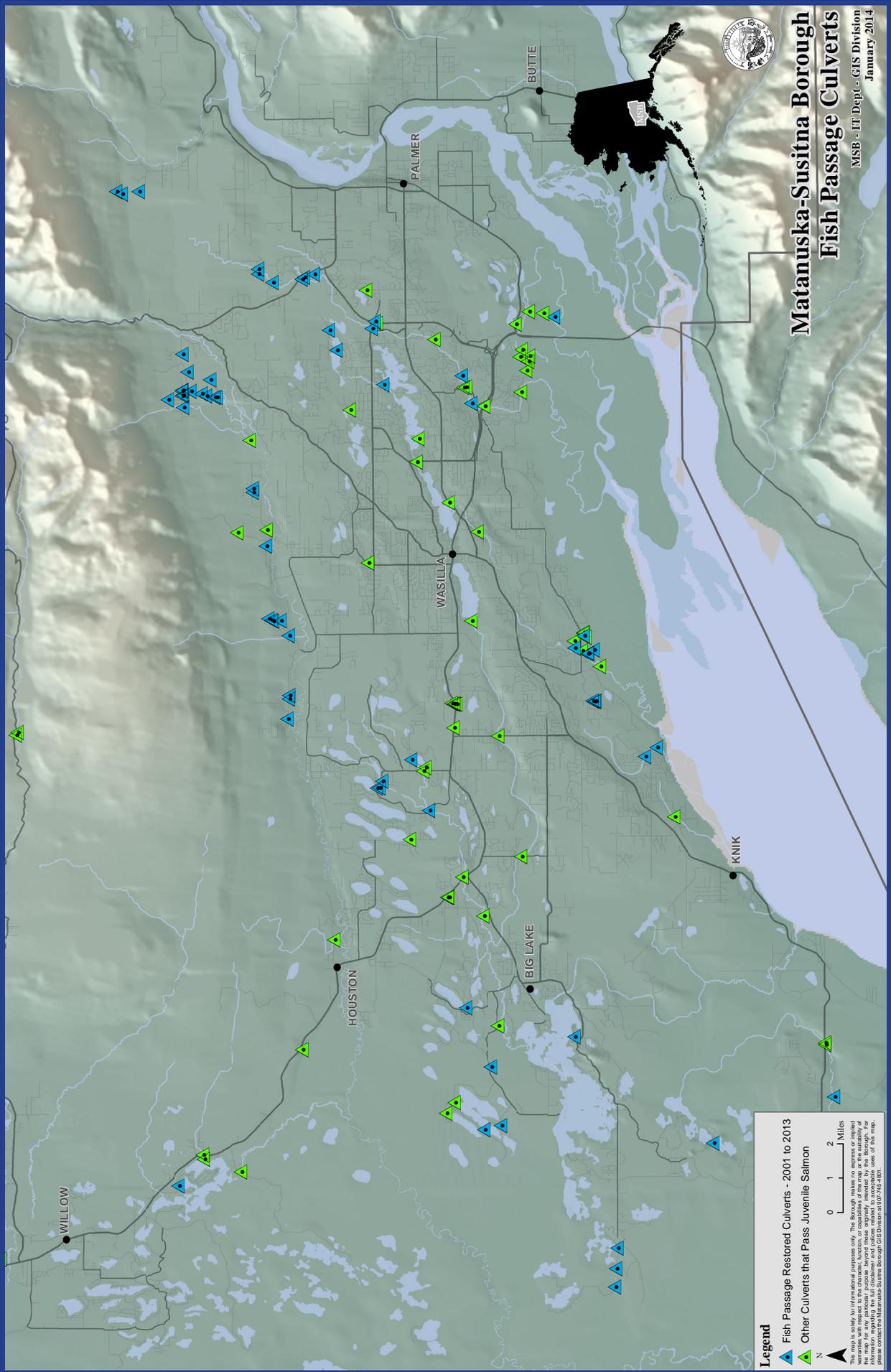


As of 2013, more than \$7 million has been spent on upgrading culverts to allow for fish passage.

- 62 replaced on Borough roads
- 14 replaced on private roads
- 4 replaced with Alaska Railroad
- 2 replaced with AKDOT
- 4 replaced with road upgrade monies by DOT

The culvert replacement area is to the east of most of the Mat-Su's major fish producing rivers, creeks, and lakes. See Stocks of Concern map, showing few roads are near creeks, lakes, and rivers with our most troubled fish.

2013 Culvert Standards adopted by MSB for fish passages



Matanuska-Susitna Borough Fish Passage Culverts

MSB - IT Dept - GIS Division
January, 2014

Legend

- ▲ Fish Passage Restored Culverts - 2001 to 2013
- ▲ Other Culverts that Pass Juvenile Salmon

0 1 2 Miles

This map is solely for informational purposes only. The Borough makes no express or implied warranty, representation, or guarantee of accuracy for the information contained on this map or any particular purpose beyond those expressly intended by the Borough. For information regarding the full disclaimer and terms related to acceptable use of this map, please contact the Matanuska-Susitna Borough GIS Department at 907-274-2411.

Causes for Decline—Cook Inlet Fishery Interceptions

Large numbers of northern-bound salmon are harvested in Cook Inlet by a mixed species and stock, commercial gillnet fishery managed primarily for Kenai and Kasilof sockeye

- The single-most important human factor currently impacting Mat-Su region salmon returns is interception in intensive commercial gill net fisheries for mixed species and stocks in the marine waters of Upper Cook Inlet. Too few salmon are escaping interception fisheries to meet sustainable escapement requirements and fishery needs in the areas where these fish are produced.
- Fisheries management priorities in Upper Cook Inlet have long been driven by commercial harvest of the large and productive Kenai and Kasilof sockeye stocks.
- Current practices are over-fishing Northern Inlet stocks of sockeye and early-run coho in order to maximize harvest of other sockeye stocks.
- Northern Inlet salmon are not getting through the Central District commercial gauntlet in sufficient numbers to support Northern Inlet subsistence, sport, guide sport, commercial, or personal use fisheries or to consistently achieve Northern spawning escapement goals.
- ADF&G has failed to develop and implement effective in-season management tools for protecting northern stocks of sockeye and coho from the Central District mixed stock commercial fishery.
- Current fishery management priorities and plans in Upper Cook Inlet must change in order to return Mat-Su rivers to their former abundance.



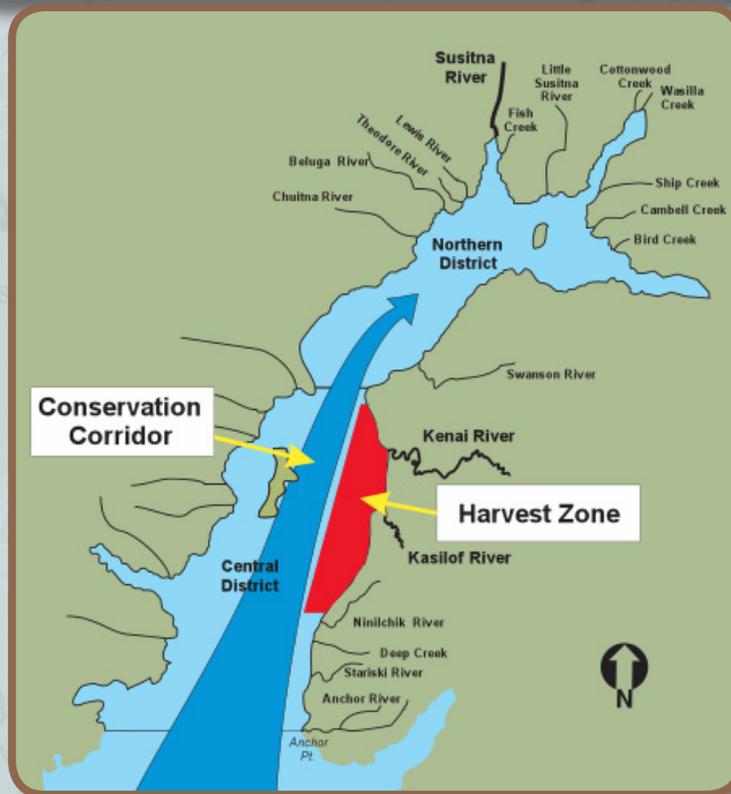
Recommendations

The Matanuska-Susitna Borough Fish and Wildlife Commission has identified the following strategies for addressing Northern Cook Inlet salmon concerns:

Fishery Management

1—Revise fishery management plans to formally recognize a priority that meeting low end escapement of any and all species has much higher priority than avoiding exceeding the high end for any species in this drainage. This will ensure that northern returns of coho and sockeye, and harvest allocations, are managed on an equal footing with the productive Kenai and Kasilof sockeye stocks.

2—Establish discrete harvest zones for mixed stock commercial fisheries in order to focus on the abundant and valuable Kenai and Kasilof sockeye stocks. Restructure UCI commercial fishery to be more similar to Bristol Bay commercial fishery – the most successful salmon fishery in the world.



3—Provide a conservation corridor for northern salmon passage by restricting the Central District drift gillnet commercial fishery to the terminal harvest zones established by the Board of Fisheries in 2011 (expanded Kenai and Kasilof sections). Subsequent use demonstrated the promise of this approach for efficiently harvesting large numbers of Kenai and Kasilof sockeye, while also reducing harvest of northern sockeye and especially coho. 2013 was the first time the conservation corridor concept was applied in its totality. Results aren't yet conclusive. There was a bigger run, and more fish did manage to go north.

Recommendations

4—The Bristol Bay sockeye fishery is the world's most successful salmon fishery and uses discreet harvest zones to manage the catch.

Cook Inlet needs to copy this approach to salmon fisheries management



5—Protect personal use and subsistence fishing opportunities. Literally tens of thousands of Alaskans fill their freezers and smokers with these fish and rely upon them for their dinner table.

6—Maintain fishery windows and increase in-river goals for Kenai sockeye to ensure adequate delivery of fish through east side set net commercial fisheries and meet the needs of the Kenai personal use sockeye fishery.

Recommendations

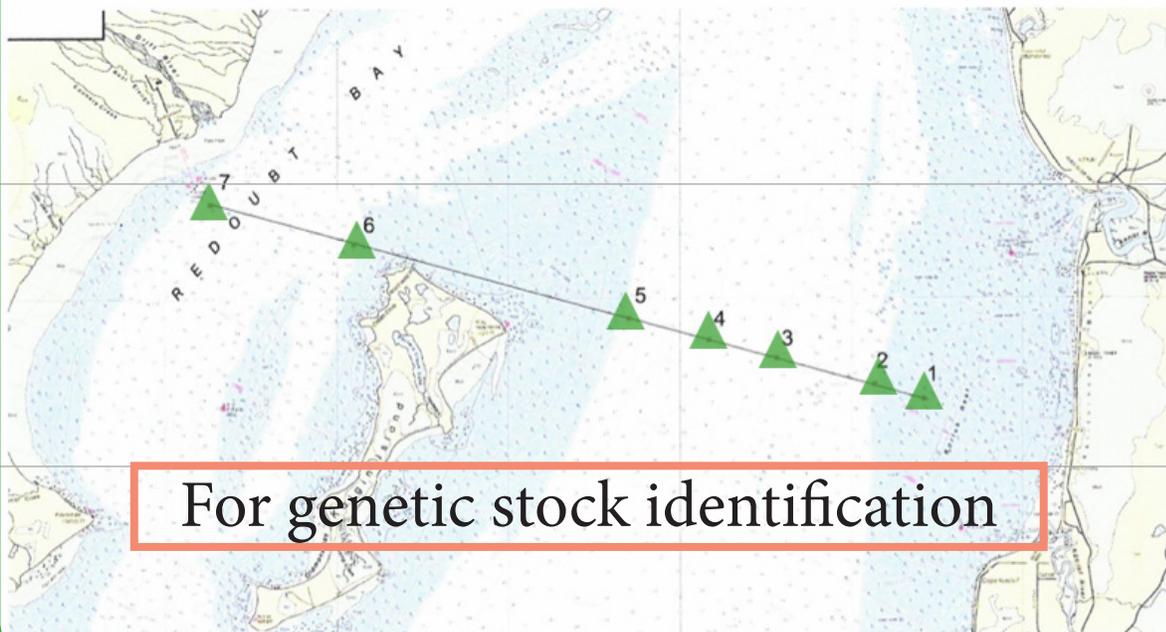
7—Establish escapement goals adequate to ensure sustainable management of all species of salmon throughout Northern Cook Inlet drainages.

8—Develop new management tools and scientific information needed for effective management of Northern Cook Inlet salmon stocks.

9—Continue to implement an annual test fishery in the Central Inlet to provide real-time in-season information on movements and abundance of specific sockeye and coho stocks

10—Take advantage of advances in genetic stock identification and acoustic telemetry to identify movement and timing of stocks of all five salmon species through the Inlet. This information will provide tremendous power for more surgical management to optimize harvest and value of all salmon fisheries

Off-Shore Test Fishery



Highlights from THE MATSU PUBLIC OPINION RESEARCH SURVEY

January 3rd to 11th, 2014
 Sample size = 404; margin of error + 4.87%
 Hellenthal and Associates

Introduction and Methodology

Four hundred four (404) MatSu registered voters were interviewed between January 3rd and 11th, 2014. Interviewing was conducted by telephone on a random digit basis. That is, computerized random numbers were generated for the last two digits of the suffix of each workable telephone prefix in MatSu. All MatSu voters who are accessible by telephone had an equal chance of being interviewed.

1. Do you fish for sport and/or personal use?

FISH FOR SPORT AND/OR PERSONAL USE	FREQUENCY	PERCENT
Yes.....	326	80.8%
No.....	78	19.2%

2. Have you wanted to fish for sport and/or personal use but couldn't?

WANTED TO FISH	FREQUENCY	PERCENT
Yes.....	165	40.8%
No.....	239	59.2%

3. Do your children and/or grandchildren go with you on sport and/or personal use fishing trips?

FISH WITH CHILDREN/GRANDCHILDREN	FREQUENCY	PERCENT
Yes.....	260	64.4%
No.....	144	35.6%

Counting all money spent of boats, ATVs, fishing gear, food, fishing licenses, lodging, gasoline and the like, roughly how much money does your family spend on sport and/or personal use fishing each year?

AMOUNT PER YEAR	FREQUENCY	PERCENT
None.....	72	17.7%
\$ 1 to \$ 400.....	102	25.3%
\$ 401 to \$1,000.....	105	25.9%
\$1,001 or more.....	126	31.1%
(All voter Mean = \$1,622.20)		
(All voter Median = \$ 462.50)		
(Fisher voter Mean = \$1,971.71)		
(Fisher voter Median = \$ 904.76)		

Survey Highlights

5. Should the number of fish allowed to pass through commercial nets to our MatSu rivers be increased or decreased?

FISH ALLOWED TO PASS NETS	FREQUENCY	PERCENT
Increased.....	262	64.9%
Decreased.....	47	11.6%
Don't know.....	95	23.4%

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the expertise of the Matanuska-Susitna Borough Fish & Wildlife Commission