Matanuska-Susitna Borough Fish and Wildlife Commission

2014 Report on Fish, Fish Habitat, Fishery Issues and Activities

March 20, 2015

Matanuska-Susitna Borough
350 East Dahlia Avenue, Palmer AK 99645

Contents

1 EXECUTIVE SUMMARY

The primary purpose of this report is to inform the Matanuska-Susitna Borough Mayor and Assembly, State Legislators representing House and Senate districts within the Borough, residents of the Borough, fishing interests throughout the Cook Inlet region and members of the Alaska Board of Fisheries on the status of important issues relating to the salmon stocks originating in the rivers and streams of the Matanuska-Susitna Borough. A secondary purpose is to summarize 2014 activities of the Borough Fish and Wildlife Commission.

An effort has been made to provide objective and comprehensive descriptions of issues that are frequently the subject of discussion in fishery news. These statements summarize report sections that follow:

1) The Matanuska-Susitna Fish and Wildlife Commission was established by the Borough to advise the Assembly and the Alaska Department of Fish and Game on policies that affect the fish and wildlife resources and the people of the region.
2) Salmon are essential to the character, lifestyle and economy of the Mat-Su Borough. Successful sport, personal use, subsistence and commercial fisheries are all vital to the social and economic well-being of people throughout the region.
3) Salmon stocks originating in the rivers and streams of the Mat-Su have experienced significant declines in numbers over the past 20 years.
4) The Fish and Wildlife Commission believes that the fishery management system which prioritizes commercial fishing at the expense of other uses in Upper Cook Inlet (UCI) is out of step with the economic and cultural realities of today.
5) Changes to the commercial drift gillnet fishery management adopted by unanimous vote of the Alaska Board of Fisheries in 2014 are a substantive advance in reducing interception of northern stocks.
6) Management plan changes increased returns of coho salmon to the Mat-Su and produced improved sport fishing and excellent ex-vessel value in commercial Drift Gillnet fisheries in 2014.
7) Sustainability and management of the Mat-Su's tremendous salmon resources and stewardship of critical freshwater fish habitat is a primary focus of the Matanuska-Susitna Borough's and its Fish and Wildlife Commission's efforts.
8) Science informs resource management decisions by identifying alternatives, tradeoffs, risks, and uncertainties but decisions are ultimately based on socially constructed values and expectations of the stakeholders at the policymaking table.

9) The Board of Fisheries process, while not always pretty, is far from broken. Balancing the interests on the Board is critical.

10) The management of salmon in Upper Cook Inlet is consistent with Constitutional provisions for sustained yield to achieve maximum benefit for Alaskans.

11) The Policy for Management of Sustainable Salmon Fisheries defines the state of the art in modern scientific management of salmon based on Alaska's long history of success.

12) Production concerns for northern Cook Inlet stocks such as sockeye will require reductions in historical levels of commercial exploitation in order to avoid long-term conservation problems.

13) The UCI Commercial drift gillnet fleet catches substantial amounts of northern-bound coho as "bycatch," while they are actually targeting Kenai sockeye.

14) Pink and Chum salmon cannot be commercially harvested in large numbers from Upper Cook Inlet without, at the same time, killing large numbers of northern bound coho salmon.

15) The essential question of fishery economics in Cook Inlet is not which fishery is more valuable, but rather, how to optimize the combined net value of the commercial, sport, personal use, and subsistence fisheries.

16) Over 30,000 households currently participate in the Cook Inlet personal use fisheries on the Kenai Peninsula but opportunities are limited in Mat-Su waters.

17) Hatchery stocking of salmon can be important for providing salmon fisheries under certain conditions but benefits, costs and risks much be carefully evaluated.

18) Management of salmon in the Upper Cook Inlet is consistent with the national standards set forth in the Magnuson-Stevens Act (MSA).

2 INTRODUCTION

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

The Matanuska-Susitna Borough, incorporated in 1964, comprises over 25,000 square miles and is home to almost 100,000 Alaskans, approximately 15% of the State's total population. Many thousands of additional Alaskans living in Anchorage and elsewhere work, travel, own property and/or recreate in the Borough. As the name implies, the Borough contains the two major river systems, the Matanuska and the Susitna, but also a multitude of additional rivers, stream and lakes.

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

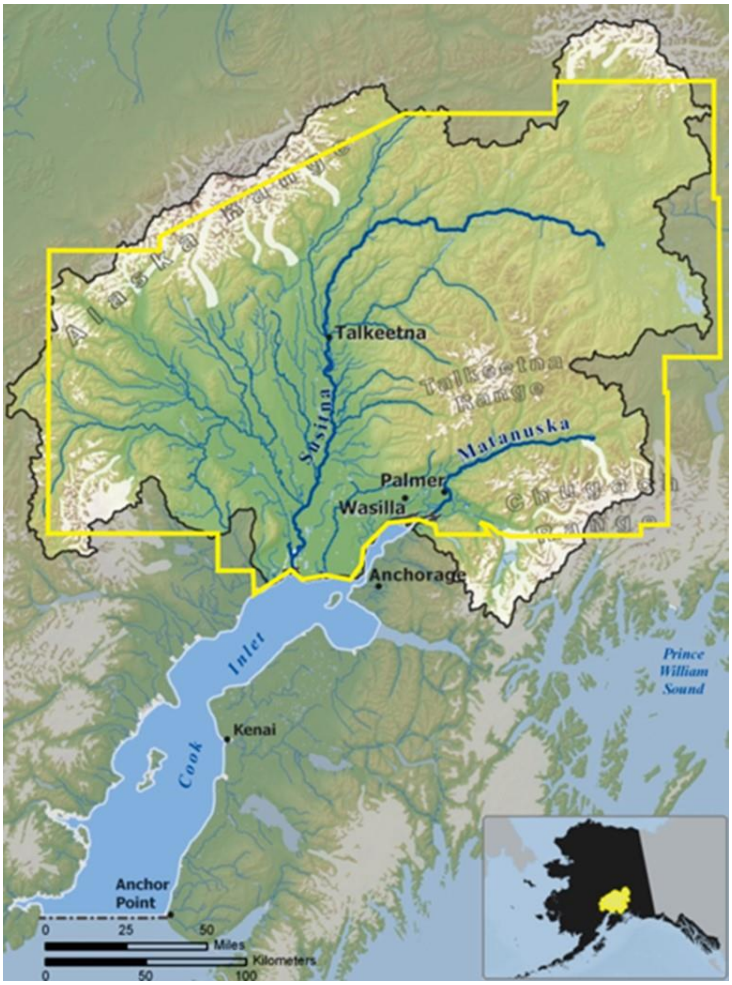


Figure 1. Major salmon-producing systems and boundary of the Matanuska-Susitna Borough.

3 THE MAT-SU BOROUGH FISH & WILDLIFE COMMISSION

The Matanuska-Susitna Borough Fish and Wildlife Commission was established by the Borough to advise the Assembly and the Alaska Department of Fish and Game on policies that affect the fish and wildlife resource and the people of the region.

3.1 Membership

The Matanuska-Susitna Borough Fish and Wildlife Commission was established by the Borough to advise the Assembly and the Alaska Department of Fish and Game on interests of the Borough in the conservation and allocation of fish, wildlife and habitat. The Commission consists of seven dedicated volunteers appointed by the Mayor and the Assembly. Members of the Commission have 50 years of combined expertise as state biologists, over 40 years of combined experience as fishing guides, and 12 years of experience on the State's fishery regulatory board.

Chairman Bruce Knowles – Veteran fishing guide and advocate for sustainable fisheries

Steve Colligan – Borough Assembly member representing District 4 which includes the greater Wasilla area. Lifelong Alaska, business owner and sportsman.

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

Howard Delo – a former member of the Alaska Board of Fish for three years and worked as a biologist with ADF&G for 21 years, outdoor columnist.

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

Jehnifer Ehmann – Past president of the Palmer Chamber of Commerce and an avid sports fisher. Chair of the Matanuska Valley Fish and Game Advisory Committee.

Terry Nininger – Resident of Alaska for 35 years, member of the Mat Valley Fish & Game Advisory Committee and the planning committee for the Mat-Su Salmon Symposium. Retired, his career has been in resource development, specifically in forest products.

The Commission is assisted by Frankie Barker, Environmental Planner, with the Borough's Planning Department.

3.2 Objectives & Accomplishments in 2014

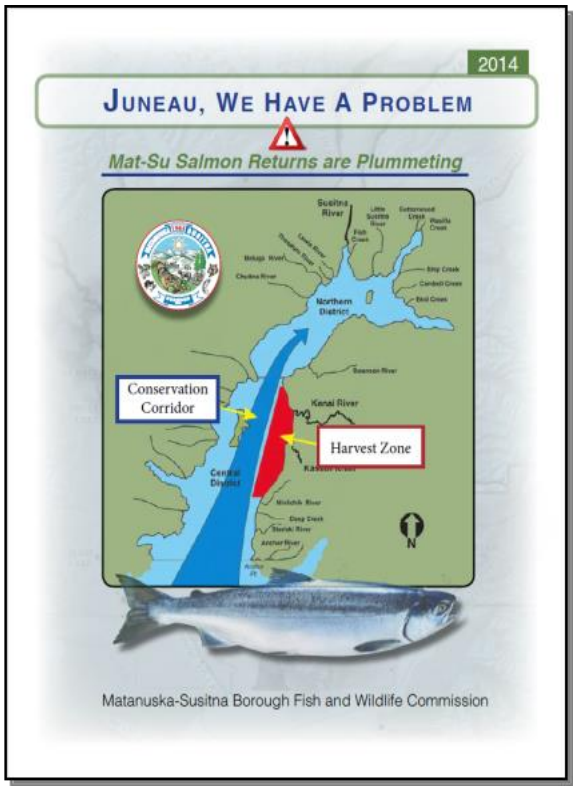
The Commission focused its 2014 efforts on four primary objectives:

1. Conservation and sustainability of the Borough's salmon resources.
2. Development and implementation of effective fishery management plans through the Alaska Board of Fisheries process.
3. Protection and restoration of the Borough's salmon habitat.
4. Development and application of a robust scientific foundation for efforts to conserve and manage salmon, their habitats, and their fisheries.

2014 was a very important year for the Commission and for fisheries in the Mat-Su. Significant accomplishments were made on each of the Commission's objectives.

Salmon Conservation & Sustainability

- The Commission documented concerns for the status of northern Cook Inlet coho, Chinook, and sockeye stocks and presented this information to the Board of Fisheries at their 2014 Upper Cook inlet meeting.
- Commission members provided testimony to the Alaska legislature regarding northern Cook Inlet salmon concerns.
- The Commission worked closely with the ADF&G and local interests to foster effective, publicly accepted strategies for the conservation of populations of king and sockeye salmon which have been designated stocks of concern. There are fourteen Stocks of Concern statewide, eight of them in the Mat-Su.



Effective Fishery Management

- Commission participation and Borough support at the 2014 Board of Fisheries meeting was instrumental in the adoption of fishery management plan changes aimed at increasing numbers of sockeye and coho salmon entering the rivers and streams of the Mat-Su to meet escapement goals and support sport, personal use, and subsistence fisheries.
- In 2014 the Little Susitna River had its largest coho escapement since 2006. Fish Creek had its largest coho since 2002 and also opened to dipnetting of sockeye for the first time in four years.

Habitat Protection & Restoration

- The Commission successfully worked through the Governor's and Legislature's budgeting process to secure critical funding for Borough habitat protection and restoration efforts.

Scientific Foundation

- The Commission successfully worked through the Governor's and Legislature's budgeting process to secure critical funding for scientific research and monitoring.
- A collaborative Research, Monitoring and Evaluation (RM&E) planning process was initiated to identify needs and priorities for information required for protection and management of Mat-Su salmon.
- The Commission continued to track progress of new research and management projects including the northern offshore test fishery project, the coho genetic stock assessment project, salmon population studies made possible through funding for the proposed Susitna-Watana dam environmental studies, habitat permitting, fishery issues in neighboring areas of Upper Cook Inlet and efforts to reduce the abundance of invasive northern pike in select locations.

4 UPPER COOK INLET SALMON FISHERIES

Successful sport, personal use, subsistence and commercial fisheries are all vital to the social and economic well-being of people throughout the region.

4.1 Sport Fisheries

Sport fisheries for salmon occur in virtually every river and stream of the Matanuska-Susitna Borough. Popular fisheries on the east side of the Mat-Su such as the Little Susitna River and the streams flowing into Knik Arm are accessible by road while those on the west-side of the Susitna drainage are accessible primarily by riverboat or air travel. Popular west side streams include the Deshka River, Lake Creek and the Talachulitna River.

Sport fishing participation within the Mat-Su area, as defined by angler-days, has been estimated annually by ADF&G for the past 37 years. From 1977 to 2011 an average of 290,000 angler-days has been expended within Mat-Su waters. A record 403,800 angler-days was reported in 1992. The Kenai Peninsula is the only management unit in Alaska that receives greater use by recreational fishermen. Since 2010, participation has fallen sharply because many salmon fisheries have been either closed or severely restricted because of weak returns. During 2012, fishermen spent just 160,100 angler-days fishing Mat-Su waters, the lowest participation on record. The economic value of sport fishing is closely linked to participation levels.

The number of fish harvested from Mat-Su waters is clearly associated with the area's substantial reduced in fishing effort. From 1977 to 2011 an average of 195,500 fish of all species were harvested. In 2012, a historic low of only 77,300 fish were harvested. The harvest of Chinook salmon, which is the focus of many anglers, dropped from a historic annual average of over 22,000 fish to about 3,000 during recent years.

4.2 Personal Use & Subsistence Fisheries

Personal use fisheries have a long and dynamic history in UCI but current fisheries were generally established in 1996. Since then popularity and participation have steadily increased. Personal use fisheries for salmon are open to Alaska residents and occur in portions of the Kenai River, Kasilof River, Fish Creek, and the Beluga River. Fishing methods include dip nets from boat and/or bank (Kenai, Kasilof, Fish Creek, and Beluga) and set gillnets (Kasilof). Fisheries occur during June and/or July. Openings are regulated by dates (Kenai, Kasilof) or escapement (Fish Creek). Harvest has averaged 97% sockeye with small numbers of other salmon species. Combined harvest of sockeye reached a record 630,400 in 2011. Over 30,000 household permits are now fished annually with a peak effort of 43,799 household-days in

2013. The vast majority of participation in the Kenai and Kasilof personal use fisheries comes from residents of areas outside the Kenai Peninsula including the Mat-Su as other regional personal use opportunities are quite limited. The Fish Creek fishery opens only occasionally. The Beluga River fishery is very small.

The Upper Yentna subsistence salmon fishery takes place outside the Anchorage/Mat-Su/Kenai Nonsubsistence Area. This subsistence salmon fishery makes use of a community fishwheel located in the Upper Yentna River drainage. The fishery takes place during specific hours of the day from July 15 through August 7 by permit only. Educational and cultural permit fisheries also occur in limited select locations annually.

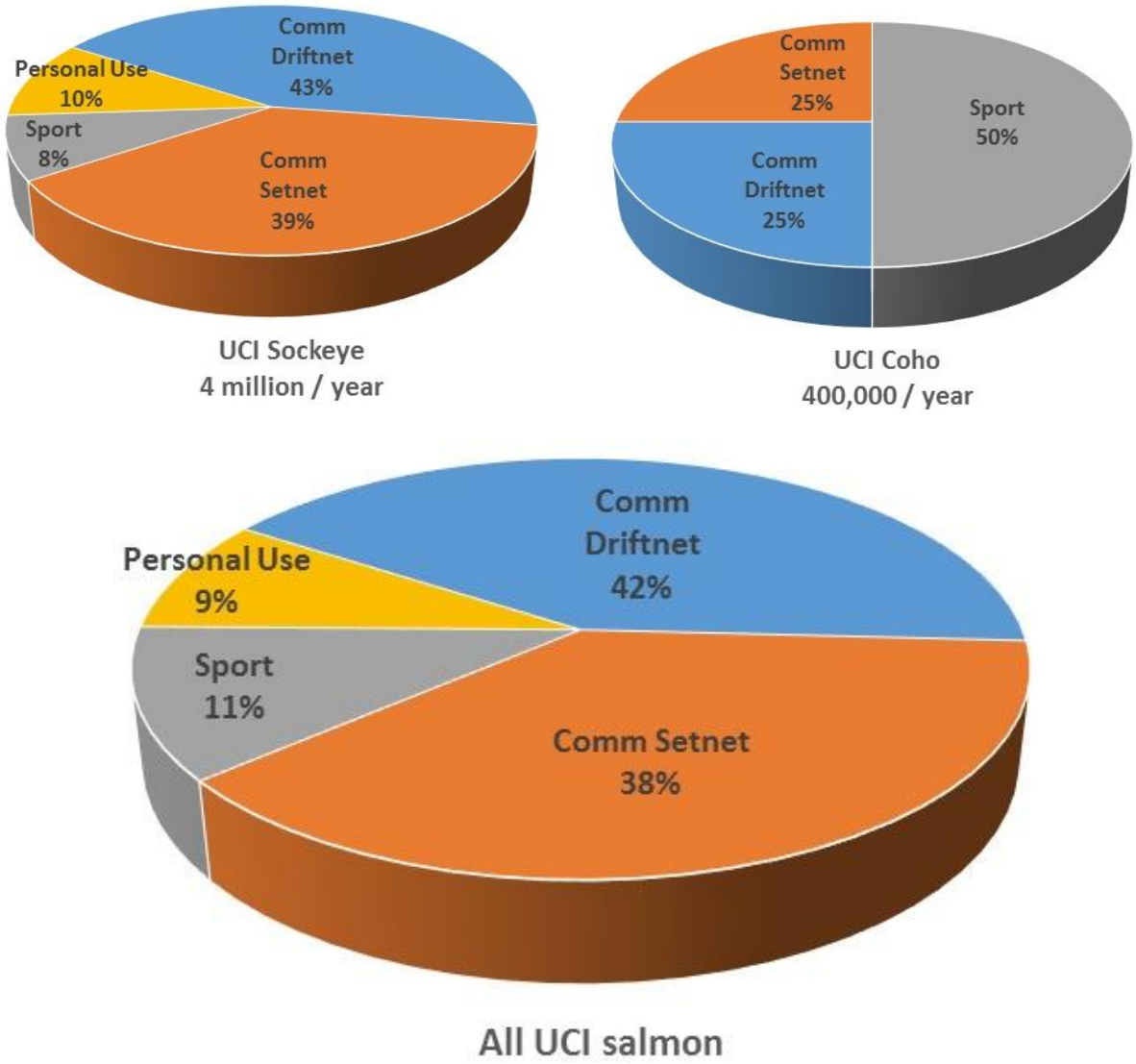


Figure 2. Recent harvest shares of Upper Cook Inlet salmon among commercial, sport and personal use fisheries, 2003-2012.

4.3 Commercial Fisheries

Commercial fisheries for UCI salmon are dominated by the Central District drift gillnet and Upper Subdistrict (Kenai Peninsula shoreline) set gillnet fisheries. The Central District fisheries occur primarily from late June through early August when sockeye are present. Sockeye account for, by far, most (95%) of the harvest. A number of smaller, more localized fisheries also occur in portions of Cook Inlet including the Northern District, and subdistricts of the Central District (Western, Kustatan and Kalgin Island).

The drift gillnet fishery is the primary commercial harvester of sockeye, coho, pink and chum salmon bound back to the Mat-Su. The fleet is generally limited to offshore waters of the Central District where they often fish the current rips and eddies with good effect. The drift fleet harvest mixed stocks of salmon including fish bound for the Kenai, Kasilof, Susitna, and other areas. This fishery typically accounts for roughly half of the annual UCI commercial sockeye harvest. Total harvest of coho in UCI is distributed among commercial and sport fisheries but the drift gillnet fishery takes a significant portion of the front end of the coho run destined for Northern District streams. Coho salmon comprise an increasing proportion of the commercial drift harvest after July. This fishery also historically harvested the largest numbers of pink and chum salmon. The Upper Cook Inlet Drift Association (UCIDA) is the industry group that represents the drift fleet.

A total of 569 drift gillnet permits and 736 set gillnet permits are registered in Cook Inlet as of 2012, although not all permits are fished each year.

The Northern District commercial set gillnet fishery, while harvesting significantly smaller numbers of salmon of Mat-Su origin than the commercial fisheries in the Central District, has the unique distinction of being the only commercial fishery in UCI that is allowed to target king salmon. This in spite of significant restrictions placed on sport fisheries. The Northern District set gillnetters can also target and harvest a significant number of coho salmon bound for the Mat-Su area.

The UCI commercial fishery comprises less than 5% of the annual Alaska salmon harvest, although economic values are clearly significant to the local region.

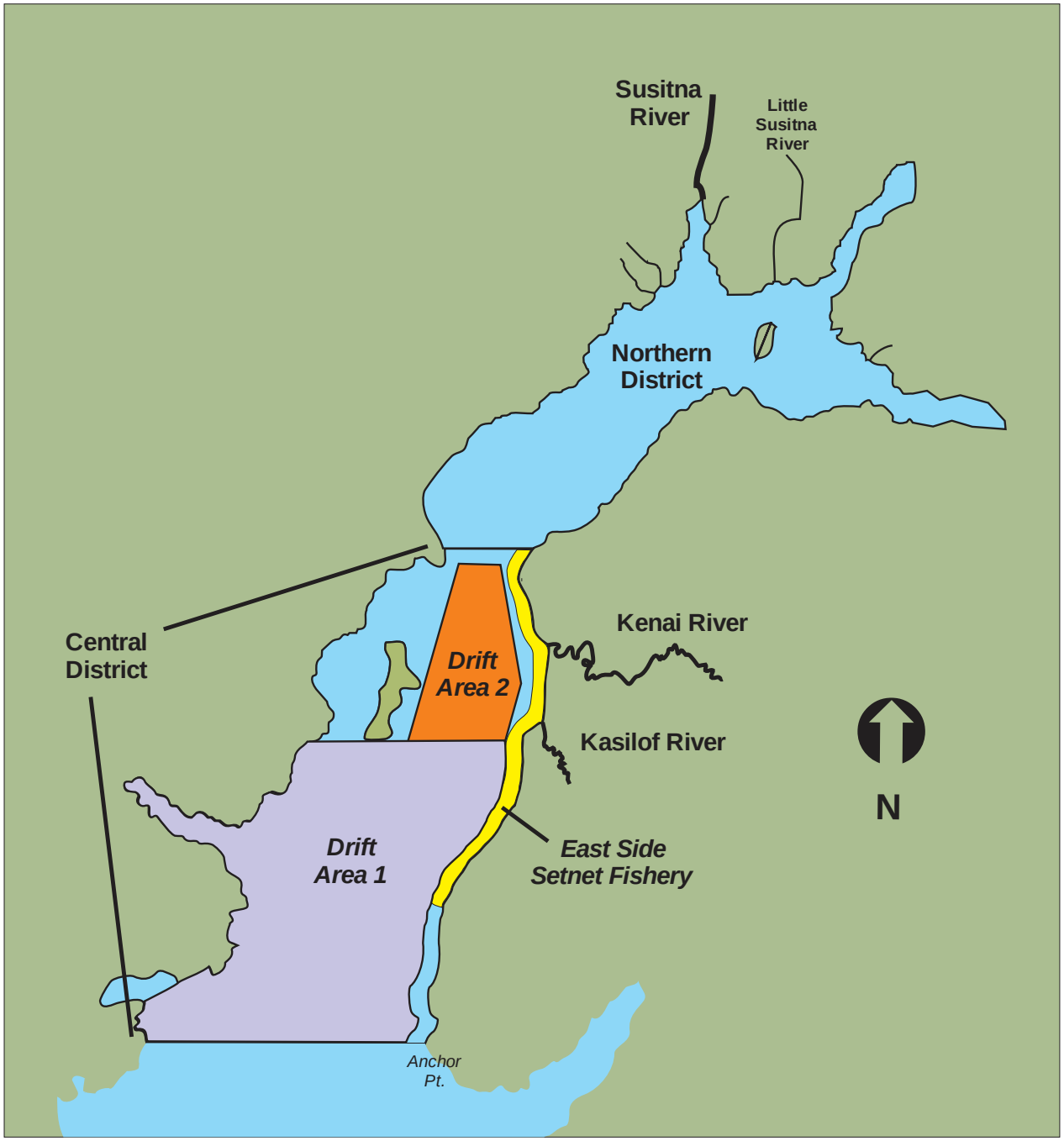


Figure 3. Upper Cook Inlet commercial fishing districts.

5 SALMON CONSERVATION & SUSTAINABILITY

Salmon stocks originating in the rivers and streams of the Matanuska-Susitna Borough have experienced significant declines in numbers over the past 20 years.

Significant declines in abundance have occurred over the last 10 to 20 years for Mat-Su coho, sockeye, king, and chum salmon. The reasons for these declines vary from species to species. Factors include excessive interception in the UCI commercial salmon fisheries, freshwater habitat conditions and environmental conditions affecting survival in the ocean.

Declining salmon abundance led participation in Mat-Su sport fisheries to a 37-year low in 2012. Improvements have been noted in 2014 for coho, but much is left to be done.

5.1 Stocks of Concern

Eight of the State's fourteen formally-designated "Stocks of Concern" in 2014 occur in northern Cook Inlet. All are within or in close proximity to the Borough. Stock of Concern designations identify problems with declining harvestable surpluses (yield concern), chronic failures to meet escapement goals (management concern) or critical low levels where sustainability cannot be assured (conservation levels). Designations are made by the Board of Fisheries based on recommendations by ADF&G according to the State's Policy for Management of Sustainable Salmon Fisheries. Once so labeled, the BOF and ADF&G will, as appropriate, collaborate in the development and periodic review of an action plan in an effort to improve yields or escapements.

Salmon Stocks of Concern in Cook Inlet, 2014

Species	System	Level of concern	Established
Sockeye	Susitna-Yentna	Yield	2008
Chinook	Chuitna	Management	2011
Chinook	Theodore	Management	2011
Chinook	Lewis	Management	2011
Chinook	Alexander	Management	2011
Chinook	Willow	Yield	2011
Chinook	Goose	Management	2011
Chinook	Sheep	Management	2013

5.2 Coho Salmon

Coho salmon returns to Mat-Su streams have fluctuated widely over the last 20 years with numbers during 2010 and 2012 approaching the historic lows which occurred during the late 1990s (Figure 4). A marked increase in coho numbers was observed in 2013 and particularly in 2014. Sport fishing for coho salmon this year in the Mat-Su was the best in a long time.

In 2014, ADF&G coho salmon spawning escapement numbers for Little Susitna River exceeded the escapement goal minimum for only the second time in the past 6 years, with the highest coho escapement count (24,211) since 2006. Sport coho salmon fishing was very good on Little Susitna River throughout the 2014 season with decent numbers of coho salmon available during July, and strong numbers of coho through the entire month of August and into early September as measured by ADF&G's salmon counting weir in the lower river. The Little Susitna River sport fishery completed the entire season without any inseason regulation restriction. The fishery enjoyed a late (August 16) liberalization that increased the coho sport bag limit from 2 to 3 fish and pumped up public participation. Fish Creek enjoyed its highest coho salmon escapement count since 2002, and coho salmon sport fishing opportunity was liberalized by two inseason emergency orders that increased the bag limit to 3 coho per day and increased the number of days per week anglers could fish for salmon. Both Fish Creek liberalizations occurred during the month of August.

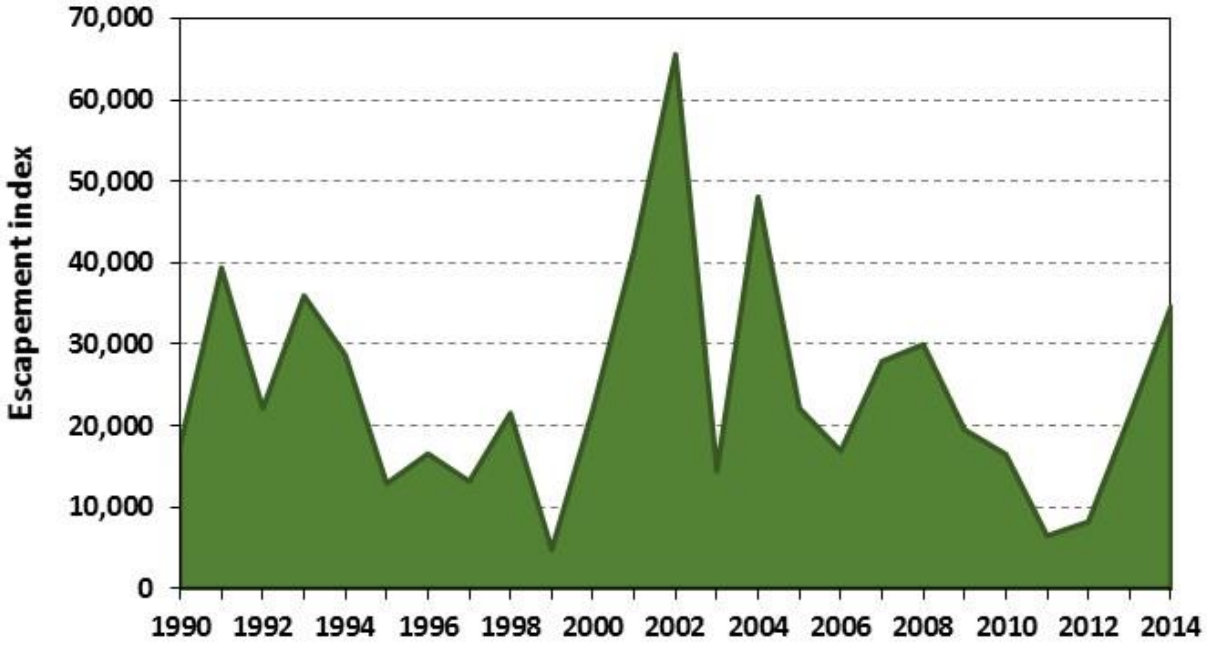


Figure 4. Escapement index for northern Cook Inlet coho salmon (total of index counts from Little Susitna River, Jim Creek, and Fish Creek).

While Little Susitna River and Fish Creek showed marked coho salmon improvements during 2014, other Mat-Su fisheries showed mixed results. The Susitna River drainage had consistent numbers of coho salmon available throughout the season. However, the coho escapement of 11,578 measured at Deshka River weir was considerably below the recent ten year average of 21,639. In the upper Knik Arm, Jim Creek failed to meet its coho salmon escapement goal despite 2014 restrictions to the sport fishery adopted by the Board of Fisheries. 2014 was the fourth year out of five that the goal for Jim Creek was not attained.

Commercial harvest significantly impacts the return of coho to their river of origin in the Mat-Su, particularly for the front end of the run in July and early August. The drift net commercial gillnet fishery is historically the largest harvester of coho salmon of northern Cook Inlet origin. For many years, the drift gillnet fleet has caught substantial amounts of northern-bound coho while they are targeting Kenai sockeye in July or while fishing for coho in early August.

Coho salmon abundance is also affected by habitat conditions in freshwater and marine survival conditions. Naturally-variable environmental patterns in both freshwater and the ocean can produce substantial fluctuations in coho numbers from year to year because most coho in the return consist of a single age class (4 year olds). Despite claims to the contrary, human induced factors in freshwater are not believed to be significant for most Mat-Su coho because the large majority of the production area is virtually pristine. Northern pike predation is believed to be much less significant for coho than for sockeye because of the wide coho distribution in relation to that of invasive pike. Beaver dams may block passage of adult coho but are also believed to create favorable juvenile rearing habitat.

The marked increase in numbers of coho salmon returning to the Mat-Su in 2013 and 2014 followed significant changes in the Drift Gillnet Fishery Management Plan by the Board of Fisheries at the 2014 Upper Cook Inlet meeting. 2014 was the first time regulations significantly enforced the longstanding intent of the management plan, by providing a meaningful conservation corridor for coho and other salmon to swim north. These changes were one of the primary objectives of the Commission leading up to and during the meeting of the Board of Fisheries in February 2014. Changes to commercial fishing regulations for the UCI drift gillnet fishery were adopted by Board of Fisheries by unanimous vote. In 2014, coho salmon bound back to the Mat-Su provided for a successful sport fishery, and yet at the same time, the commercial drift gillnet fishery had an excellent year. In fact, the 2014 commercial salmon harvest was the ninth highest total ex-vessel value for the UCI commercial fishery since 1960.

5.3 Sockeye Salmon

Numbers of Susitna sockeye have been on a downward trend for two decades (Figure 5). These numbers include sockeye enumerated in ADFG assessment projects and harvested in Central District drift net and Northern District set net fisheries. Susitna sockeye were designated a stock of yield concern in 2008 and continue to suffer from a chronic failure to meet established escapement goals. Two of the three monitored Susitna River systems failed to achieve minimum escapement goals in 2014 (Table 1). However, some bright spots were noted in 2014. Fish Creek was opened to personal use dipnetting for sockeye for the first time in three years. Fish Creek is the only Mat-Su system, other than those within the Susitna drainage, to have an escapement goal.

The Susitna sockeye stock is tremendously diverse, consisting of dozens of small populations returning to lakes, rivers, streams and sloughs throughout the region. These populations are much less productive than the large Kenai and Kasilof sockeye stocks which sustain some of the highest fishery exploitation rates in the world. A number of Susitna sockeye populations have been severely impacted by the expansion of invasive pike throughout lower elevation portions of the watershed.

The Susitna sockeye, already weakened by pike, and a less productive a stock overall , is undermined further by historical commercial fishing rates. Rather maintaining historical exploitation levels on Susitna sockeye, as commercial fishing interests advocate, pike predation should be the impetus for a more precautionary harvest strategy. The combination of reduced productivity, predation and overfishing perpetuates more serious conservation concerns.

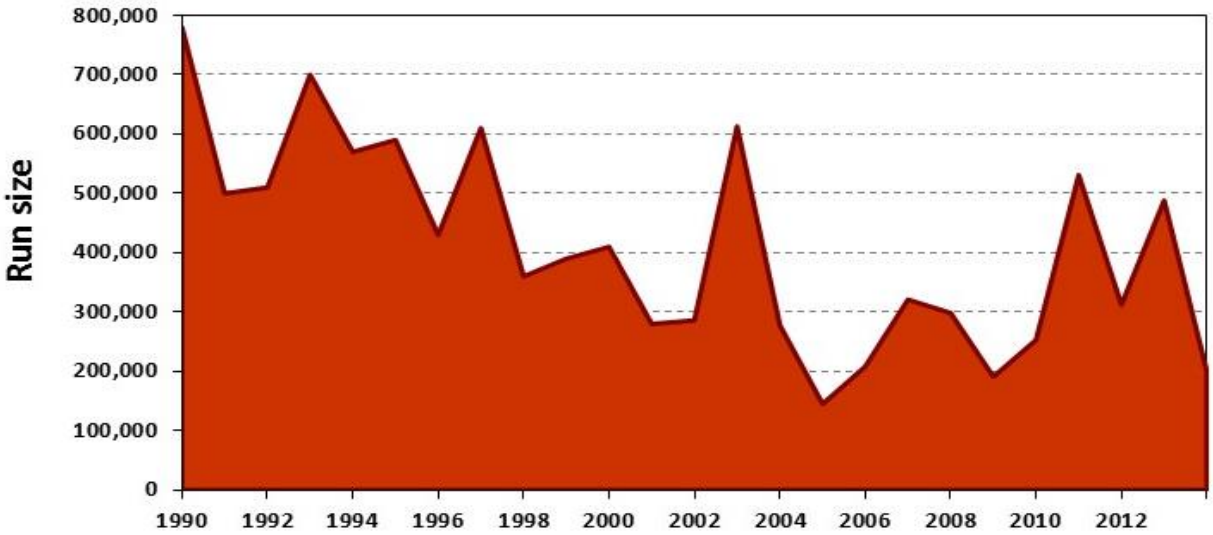


Figure 5. Historical Susitna sockeye run to upper Cook Inlet.

Table 1. Recent estimates of sockeye escapement into Northern Cook Inlet freshwater (Shields & Dupuis 2013, ADFG fish count database). Escapements less than established goals are highlighted.

	Rivers			Populations with escapement goals[3]				
Year	Susitna[1]	Yentna[2]	Total	Chelatna	Judd	Larsen	Total	Fish
Pike?	some	some	some	Yes	Yes	No	--	Yes
2006	418,000	166,700	585,000	18,433	40,633	57,411	116,477	32,566
2007	328,000	125,100	453,000	41,290	58,134	47,736	147,160	27,948
2008	304,000	131,800	436,000	73,469	54,304	35,040	162,813	19,339
2009	219,000	99,000	318,000	17,865	43,153	41,929	102,947	83,477
2010	190,000	99,000	289,000	37,784	18,361	20,324	76,469	126,829
2011	314,000	101,000	415,000	70,353	39,997	12,413	122,763	66,678
2012	142,000	60,000	202,000	36,577	18,303	16,708	71,588	18,813
2013		144,000		70,555	14,021	21,810	106,386	18,912
2014				26,212	22,416	12,040	60,668	43,915

[1] *Mark-recapture estimates above Sunshine at Susitna River mile 80.*
[2] *Didson estimates. Numbers from 2009-2013 are midpoints of reported confidence ranges.*
[3] *Weir counts.*

5.4 Chinook (King) Salmon

Chinook salmon numbers in Northern Cook Inlet have declined to historic low levels in the last ten years as part of a state-wide decline in abundance for this important species. The Susitna drainage has historically supported the fourth largest population of Chinook salmon in the state. Before the recent decline in number, the sport fishery for Chinook salmon was one of the largest in the state, and the most important sport fishery in the Mat-Su in terms of angler-days of sport fishing effort and direct expenditures by anglers.

Despite severe sport fisheries restrictions in 2014, six of seven Chinook stocks of concern again failed to achieve the minimum escapement objectives. The ADF&G issued a series of preseason Emergency Orders on February 19, 2015 describing the limited opportunity that will be offered for sport fishing for Chinook salmon in 2015. In summary, retention of Chinook salmon will only be allowed on the Deshka River, the Little Susitna River and in a portion of the Yentna River drainage not including the Talachulitna River. Further, in most areas, fishing for Chinook salmon is only allowed on limited specific days of the week.

Poor marine survival due to environmental conditions on the high seas is believed to be the most influential causal factor in the decline of Chinook salmon populations. Relatively few are harvested in UCI marine waters, however the Northern District set gillnet fishery is still allowed to harvest a limited number in a targeted commercial fishery. Predation by invasive northern

pike likely affects survival in a limited number of Susitna tributaries, particularly Alexander Creek.

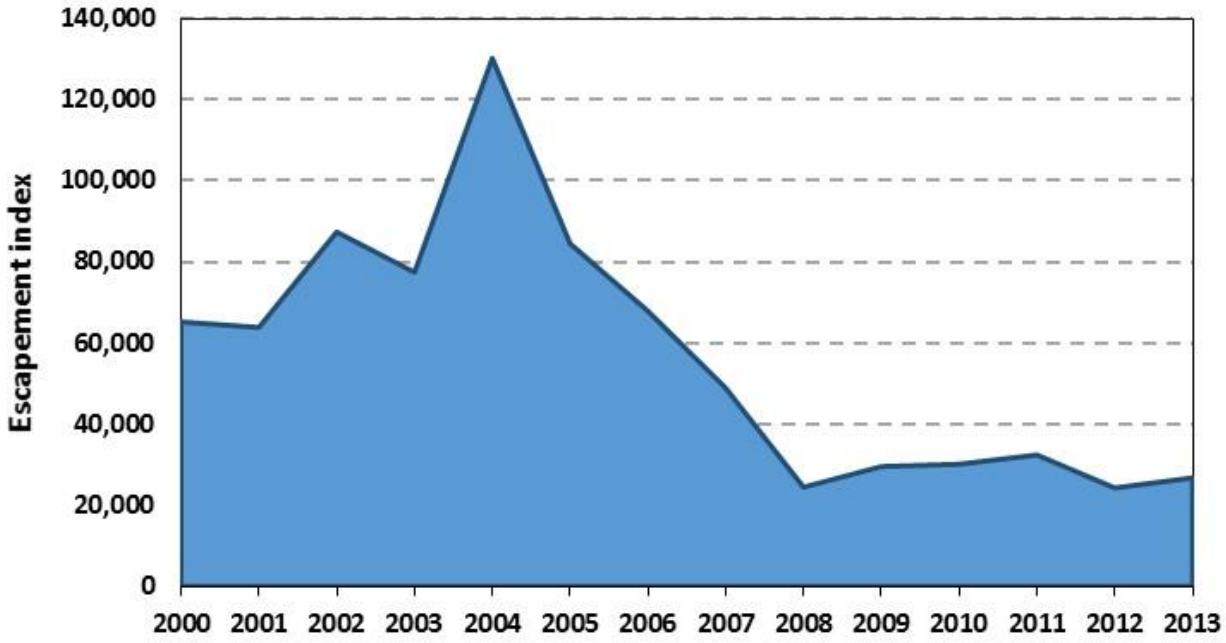


Figure 6. Escapement index for Northern Cook Inlet king salmon (total of index counts from Susitna and Knik Arm streams).

5.5 Chum and Pink Salmon

Very little quantitative stock assessment has taken place on stocks of chum and pink salmon of Mat-Su origin. Populations of chum and pink salmon originating in the Mat-Su move through the UCI marine waters at approximately the same time as sockeye and coho salmon. Chum salmon are harvested by the commercial fishery in variable numbers, and are more influenced by the amount of commercial fishing time directed at sockeye salmon than any other factor. Pink salmon runs are much greater in even than odd years throughout all of Cook Inlet. Small numbers of chum and pink salmon are harvested in sport fisheries. There are no escapement goals established for chum or pink salmon stocks in the Mat-Su.

6 FISHERY MANAGEMENT

The Fish and Wildlife Commission believes that the fishery management system in Upper Cook Inlet has been out of step with the economic and cultural realities of today.

Management of Upper Cook Inlet salmon has continued to be driven by commercial fisheries in the Central District of UCI despite significant changes in regional demographics, and large economic value and participation in sport and personal use fisheries. Sustainability of Mat-Su salmon runs and the success of sport and personal use fisheries are placed at risk by exploitation in mixed stock commercial fisheries that target the larger more robust sockeye salmon runs of the Kenai Peninsula.

The Commission has actively supported the development and implementation of effective fishery management plans and strategies for all state and federally managed fisheries that harvest salmon originating in the Mat-Su. The Commission has an effective working relationship with ADF&G, providing regular input on research and management policies and strategies and facilitating the exchange of ideas and knowledge with Mat-Su residents.

The Commission has for years supported a more balanced allocation of the harvest of salmon that originate in northern Cook Inlet to provide for escapement and a successful sport fishery. To this end, Commission members, Borough staff and the residents of the Mat-Su actively participated in the 2014 UCI meeting of the Alaska Board of Fisheries to support changes in the Drift Gillnet Fishery Management Plan. The goal of these efforts was to increase the number of sockeye salmon that reach the spawning grounds in northern Cook Inlet. With respect to coho, the goal was to facilitate implementation of the 35 year-old Board of Fisheries regulatory directive, "*to manage the commercial fisheries in such a manner as to minimize the harvest of coho salmon bound for the rivers and streams of the Northern District to provide sport fishermen a reasonable opportunity to harvest these salmon over the entire run*." Until recently, implementation of this clear directive has not been happening.

6.1 2014 UCI Board of Fisheries Meeting

Changes to the commercial drift gillnet fishery management, adopted by unanimous vote of the Board of Fisheries in 2014, are a substantive advance in reducing interception of northern stocks.

The Alaska Board of Fish held its meeting on Upper Cook Inlet in January and February 2014. The Matanuska-Susitna Borough Fish and Wildlife Commission took the following comprehensive message to the Board: we believe that the UCI fishery management system, which continues to be driven by commercial fisheries in the Central District, is out of step with the economic and cultural realities of today. The current management system jeopardizes the sustainability of specific stocks and ignores the significant economic impacts from participation in the sport fisheries of the Matanuska-Susitna Borough.

Through the BOF process, the Commission has pursued implementation of the 35 year-old regulatory directive to minimize and provide an allocation of coho salmon large enough to support a successful sport fishery. The sustainability of specific Mat-Su salmon runs and the sport fisheries that these fish support are continually placed at risk by high levels of exploitation in mixed stock commercial fisheries that target larger more robust Cook Inlet salmon runs.

The Board made fundamental changes to drift gillnet fishery management in response to a proposal by the Commission. These changes should substantially improve delivery of coho and sockeye to northern Cook Inlet streams. Mat-Su representatives supported this proposal with extensive involvement at the Board meeting.

The revised drift gillnet plan built upon the “conservation corridor” concept adopted into the management plan in 2011 through the combined efforts of the Matanuska-Susitna Borough Fish and Wildlife Commission and the Kenai River Sportfishing Association (KRSA). This concept establishes a terminal fishing area along the east side of the inlet (expanded Kenai and Kasilof sections) in an attempt to focus harvest on abundant Kasilof and Kenai sockeye and increase passage of northern sockeye and coho through the Central District. Revisions were based upon new information on fishery effectiveness and catch composition in the terminal harvest area in the three years since adoption. In summary, the new regulations require the drift gillnet fleet to fish more often in coastal waters closer to the Kenai and Kasilof Rivers since the largest populations of UCI sockeye salmon are bound back to those two systems. When commercial fishermen pursue sockeye closer to their “home” drainages, the sockeye and coho salmon migrating north have a better chance of reaching their spawning grounds. Targeting sockeye in more discrete near-shore harvest zones is also how Bristol Bay, the world’s most famous salmon fishery, has been managed for decades. The Commission thinks it’s a good idea to emulate that successful model in the UCI Central District.

Plan revisions include a combination of both liberalizations and restrictions. Changes generally:

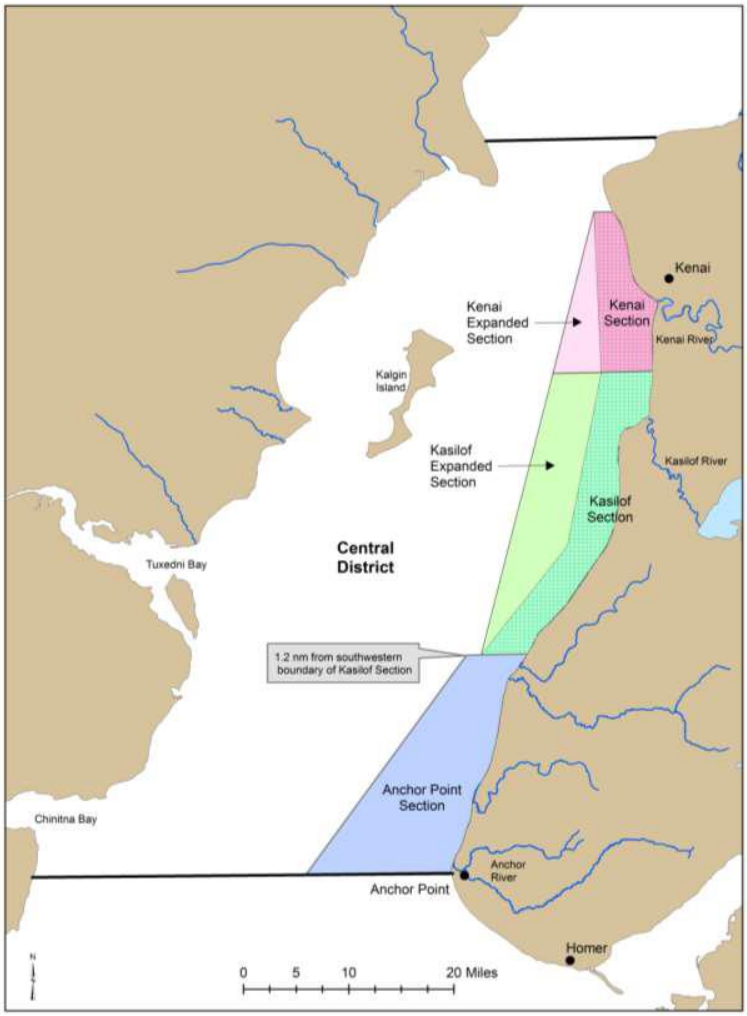
a) expand use of terminal fishing areas throughout July to reduce harvest of Susitna sockeye and northern coho,

b) move the commercial fishery south of Kalgin Island from July 9-15 to focus harvest on Kasilof and Kenai sockeye,

c) eliminate district-wide and northern Central District (area 2) openers after July 15 under most, but not all conditions, to protect northern-bound sockeye and coho, and

d) close the drift commercial season based on declining sockeye catches (the 1% rule) to facilitate an orderly transition from a commercial fishing focus on sockeye to allowing the slightly later running northern coho passage through to rivers and streams and provide for successful sport fisheries in the Borough.

Terminal Harvest Areas off Kenai and Kasilof Rivers



ADFG 2014

These changes represent a formal acknowledgement of the mixed species and stock nature of the drift net fishery and a substantive advance in reducing interception of northern stocks. These changes follow management strategies successfully employed by ADF&G in 2013 to move more sockeye and coho northward. Codifying this strategy in the management plan should help ensure that similar measures continue to be implemented in the future.

6.2 2014 UCI Fisheries

Management plan changes increased returns of coho salmon to the Mat-Su, produced excellent coho sport fisheries, and provided financially successful commercial drift gillnet fisheries in 2014.

Management plan changes produced significant positive results in 2014. Sport fishing for coho salmon in the rivers and streams of the Mat-Su improved substantially from recent years. The effect of plan changes on the commercial harvest of Kenai and Kasilof sockeye by the Drift Gillnet fleet was minimal with the fishery enjoying one of its more profitable years. However, escapement of Susitna sockeye salmon into two of the three monitored systems was less than needed to meet escapement goals.

If achieving escapement goals, providing for successful sport and personal use fisheries, and if success in commercial fisheries can be measured by the ex-vessel value of the commercial fishery, the drift fishery in particular, then 2014 was a far cry from failure. The management plans governing the UCI commercial fisheries, as amended by the Alaska Board of Fisheries in 2014 are working, not broken.

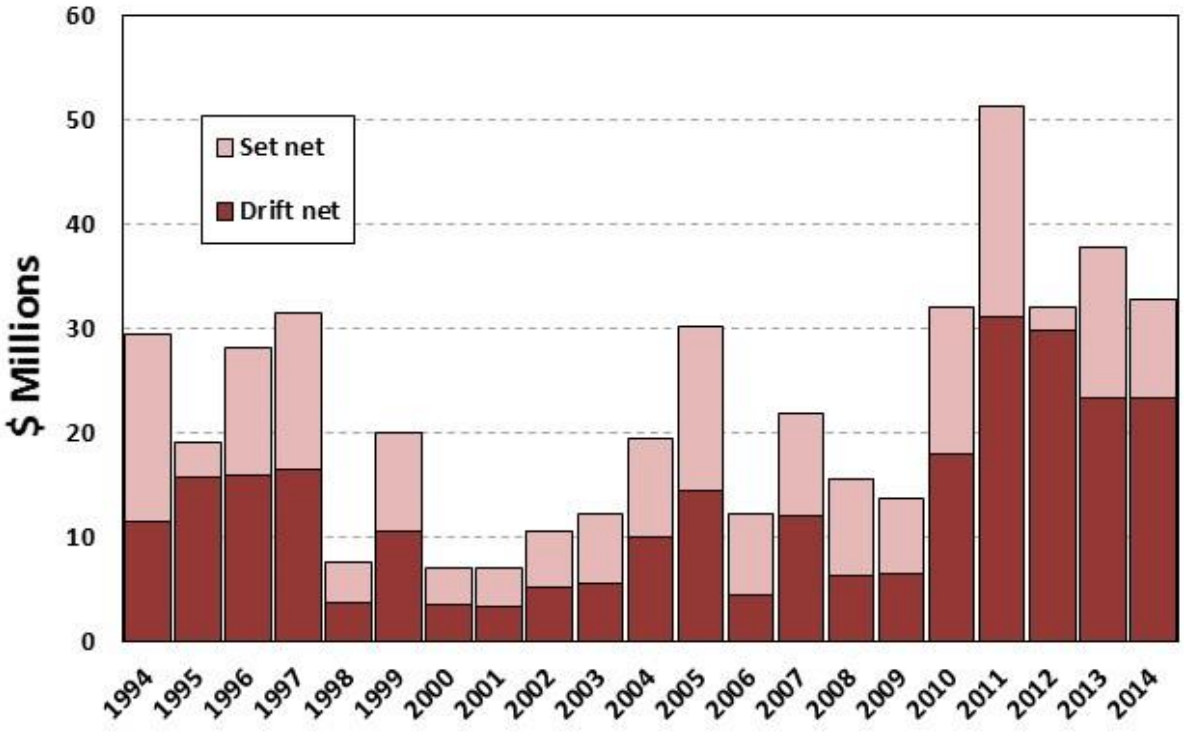


Figure 7. UCI Commercial fishery ex-vessel values for sockeye.

7 HABITAT PROTECTION & RESTORATION

Sustainability and management of the Mat-Su's tremendous salmon resources and stewardship of critical freshwater fish habitat is a primary focus of the Matanuska-Susitna Borough's and its Fish and Wildlife Commission's efforts.

7.1 Mat-Su Habitat Efforts

The Mat-Su is tending to its freshwater. Here are highlights of habitat activities in the Mat-Su from 2005 to 2013:

- Mat-Su Basin Salmon Habitat Partnership (Partnership) was one of the first fish habitat partnerships in the country to receive national recognition and financial support.
- 7,000 acres of high-value salmon habitat have been protected.
- $1.8 million has been awarded to the Partnership (more than 55 members) for habitat projects since 2006 from the National Fish Habitat Partnership.
- In 2014, the number of culverts replaced for salmon passage reached 100, restoring well over 100 miles of fish habitat at a cost of $8 million.
- The Partnership has hosted seven annual Salmon Symposiums that bring together agencies, tribes, businesses and others to collaborate on habitat projects.

The National Fish Habitat Partnership recognized the Matanuska-Susitna Borough in November 2014 as a national leader in fish habitat conservation. It is the third national award credited to the Mat-Su area in recent years. Through dedicated efforts, the Matanuska-Susitna Borough received an appropriation of State Capital Funds for local fisheries and fish protection. Funding was identified for passage improvements, a sportfishing economic assessment and salmon research.

Additional funds have been provided by the legislature in the ADF&G budget for salmon research, restoration, and enhancement in the Susitna River drainage and Upper Cook Inlet.

Mat-Su salmon are also the focus of a number of new initiatives and resources including a statewide Chinook Salmon Research Plan being implemented by ADFG; and a large-scale salmon, habitat, and ecosystem assessment effort for Susitna-Watana Hydropower evaluations, which is overseen by the Alaska Energy Authority. These efforts are in addition to ADF&G assessment and management programs and projects. Note, the future of Susitna-Watana Hydropower projects is in question as this is written due to state budget reductions.

7.2 Mat-Su Basin Salmon Habitat Partnership

The Mat-Su Basin Salmon Habitat Partnership is a diverse and dedicated group of over 50 individuals and organizations who are proactively addressing salmon habitat issues in the Mat-Su. From the beginning, the Partnership has been united by a common vision where thriving fish, healthy habitats and vibrant communities can co-exist in the Mat-Su. Guided by a Strategic Action Plan, efforts and successes have been wide ranging. Partners have improved knowledge about the habitats that Mat-Su salmon need during their life cycle, conserved productive intact habitat, strategically restored important habitats that have become degraded or are connected from downstream habitat and provided opportunities for education, collaboration and information sharing.

With funding from the National Fish Habitat Partnership, the Mat-Su Salmon Partnership has provided $1.8 million for 55 salmon habitat projects in the Mat-Su since 2006, with millions more in matching funds and volunteer contributions from private and public sources. The Partnership has hosted seven annual Salmon Science and Conservation Symposiums with over 25 presenters and more than 100 attendees each year. This event fosters collaboration and communication on the latest science, conservation and restoration of fish habitat in the Mat-Su, as well as healthy dialogue amongst diverse stakeholders.

The 7th annual Mat-Su Salmon Symposium in November of 2014 was attended by over 150 people including the Mayors of the Mat-Su Borough and City of Palmer, as well as Mat-Su College, Palmer high school and Palmer middle school students. There were over 30 oral and poster presentations on a wide range of Mat-Su salmon topics, with keynote addresses by Dr. Kate Myers of the University of Washington and Dr. Mary Colligan of the U.S. Fish and Wildlife Service.

7.3 Culverts

The Mat-Su Borough is home to the most important transportation routes within the State of Alaska including the Parks Highway joining Anchorage and Fairbanks, the Glenn Highway joining Anchorage with Canada and the “lower 48” and approximately half of the total miles of the Alaska Railroad. Add to these major thoroughfares the many hundreds of local borough and subdivision roads within the fastest growing region in the state, and it is clear that salmon passage through the road culverts is of primary importance.

In 2014, the number of culverts replaced for salmon passage reached 100, restoring well over 100 miles of fish habitat at a cost of $8 million. Keep in mind; these culverts are well to the east of major salmon-producing rivers.

7.4 Invasive Northern Pike

In the early 1950's, a pilot illegally transported pike from the Minto flats in the Yukon drainage, south across the Alaska Range into Bulchitna Lake in the Yentna River drainage. Over time, several high water events flooded the lake containing pike, providing open access to the Susitna River drainage. These circumstances led to the establishment of viable populations of pike throughout the Susitna River drainage.

Since their initial introduction, pike have become established throughout most of the Susitna River drainage and lakes and creeks draining into Knik Arm and western Cook Inlet. Over half of the Susitna River Basin contains suitable habitat for pike, specifically those systems low in the drainage where slow flowing shallow waters are prevalent and aquatic vegetation abundant. These areas can also be important rearing habitats for salmon, along with rainbow trout, Arctic char, Arctic grayling, Dolly Varden, burbot, and whitefish reside in these systems and share these habitats with pike for at least part of their life cycles.

In response, the ADF&G developed a "Management Plan for Invasive Northern Pike" in Alaska in 2008. This plan called for development of strategies aimed at controlling the expanding populations of northern pike in the important salmon producing watersheds of Northern Cook Inlet.

As a result of the plan, all-out warfare against pike has occurred at Alexander Creek, one of the most troublesome pike areas. Since 2011, more than 15,000 pike have been removed. According to ADF&G in 2014, juvenile salmon were once again common throughout the flowing waters of the drainage and the pike harvest in Alexander Creek was down to a point where floaters and residents were actually complaining that they couldn't catch pike.

When attempting to access the harm to salmon populations in the Mat-Su caused by northern pike predation, it is critical to examine not only the total distribution of pike but to look closely at the effect of pike predation within the major salmon producing drainages. Alexander Creek stands out as an example of a watershed where pike predation has been devastating. However overall, pike predation has little if any impact on many productive systems.

7.5 Beavers

Blockage of waterways to salmon passage by beavers constructing impoundments also presents a challenge to optimizing salmon production in many of the slower flowing drainages within Mat-Su watersheds. At the same time, the impoundments created by beaver dams have been documented as providing valuable overwintering habitat for juvenile coho salmon and various resident species. Similar to invasive northern pike, the degradation of salmon production attributable to blockage of waterways by beavers is limited to those lower elevation drainages where slow moving water and backwater sloughs are common.

8 SCIENCE & THE DEVELOPMENT OF BETTER MANAGEMENT TOOLS

Science informs resource management decisions by identifying alternatives, tradeoffs, risks, and uncertainties but decisions are ultimately based on socially constructed values and expectations of the stakeholders at the policymaking table.

8.1 What is the Best Available Science?

The Commission has come under fire from some in the commercial sector for confusing science with allocation and being out of touch with the role of the best science in the development of fishery management plans for sustainable fisheries. These claims are false and self-serving. The following description of the use of the best available science was published in *Fisheries,* Volume 31, Number 9, September 2006. The Commission endorses the conclusions articulated in this article.

"Science means different things to different people. Science may be viewed simply as a body of organized knowledge or as a rigorous, standardized way of collecting information. Science may be more broadly viewed as a way of knowing things or creating knowledge, where what is defined as knowledge is based on a mix of observation, intuition, experimentation, hypothesis testing, analysis, and prediction. Each of these views of science is valid. Each recognizes implicitly that multiple conceptions of science exist. Each is crucial to understanding the controversy associated with defining best available science. However, these subtle differences in how science is perceived can lead to major differences in how it is used to develop policies and implement management decisions.

Although most nonscientists recognize science as a source of information, many do not appreciate the range of scientific approaches or the importance of debate, dissent, skepticism, and personal opinion involved in the process of producing scientific knowledge. Interpretations of scientific findings by nonscientists range widely because of the many personal contexts and frames of reference that nonscientists have in relation to their understanding of science.

Unfortunately, many policymakers, regulators, and judges have unrealistic expectations of science. They expect science to produce uncontested, value-free, universally applicable knowledge that is accessible to everyone, scientist and nonscientist alike.

Although the scientific process is designed to minimize the influence of values, values can never be entirely eliminated. Nevertheless, adherence to a methodology that minimizes subjectivity throughout the process of knowledge development is perhaps the greatest

distinction between the scientific and nonscientific arguments employed in support of policy decisions.

Science provides a basis for measuring changes in the environment, for understanding how ecosystems operate, and for predicting how a change in environmental conditions might affect ecosystem operation. However, science cannot provide a basis for choosing human goals with respect to the management of these systems. Goal setting, an integral part of policymaking, is a value-based process.

A common misconception of nonscientists is that science can provide objective answers to the thorny question, "How should we manage this ecosystem or resource?" Such questions can be answered only by reconciling the socially constructed values and expectations of the stakeholders at the policymaking table. Scientists may, of course, participate in goal setting, but they should neither be expected nor claim to be completely objective under those circumstances. In contrast, science can inform society about the consequences of its management goals and actions, which may lead to revised goals and actions, but goal setting itself is outside the realm of science.

The best available science can be defined and acquired for any resource or environmental issue, including the most controversial ones, so that fully informed decisions are possible. However, for this to take place it is essential that scientists, policymakers, and the public be aware of the factors affecting the development and limitations of science and its implementation.

The results of a sound scientific process need not be infallible to be the best available. Scientific information and the conclusions it supports will always be subject to multiple interpretations, but greater transparency in the process will go far in addressing skepticism and averting controversy. High-quality science adheres to the well-established scientific process. The soundness of any science is enhanced if associated values, assumptions, and uncertainties are clearly explained."

So know that you are hearing only one side of an argument, when you hear statements such as:

- "pseudo-science" is the basis for decision making,
- "allocative agendas, disguised as conservation, prevail over science" at the Board of Fisheries,
- "just let the biologists decide how to best manage the fisheries",
- accusations claiming that studying DNA markers or the utilization of acoustic tagging to identify migration patterns is allocation disguised as science,

These outcries are symptomatic of self-serving efforts primarily by advocates of UCI commercial fisheries to preserve the status quo in UCI salmon fisheries in the face of significant uncertainty around population dynamics of salmon populations and progressively changing regional economics and culture.

8.2 Research, Monitoring and Evaluation Plan

As previously noted, the Mat-Su Borough has received an appropriation of State Capital Funds for local fisheries and fish protection. Funding was identified for passage improvements, a sportfishing economic assessment and salmon research. Additional funds have been provided by the legislature in the ADF&G budget for salmon research, restoration and enhancement in the Susitna River drainage and Upper Cook Inlet.

Collectively, these appropriations, projects and programs provide a convergence of opportunity and critical mass to further substantive progress in assessment, improvement and management of Mat-Su salmon resources. The Commission has identified the need to prepare a comprehensive salmon research, monitoring and evaluation plan to guide application of their dedicated funds in a complementary and effective manner. The planning process is also expected to inform and leverage related efforts by other parties and foster working partnerships and program effectiveness by involving key stakeholders.

The *Mat-Su Salmon Research, Monitoring and Evaluation for Upper Cook Inlet* (RM&E) planning process is designed to provide essential guidance on needs and priorities for Mat-Su salmon. No such plan or guidance document currently exists. The Commission strongly believes that a sound scientific foundation is essential for effective protection and management of sustainable salmon runs and fisheries. RM&E projects and programs are the bricks by which the scientific foundation is laid. The Commission feels that it makes no more sense to implement a complex and costly RM&E program without a comprehensive plan, than it does to try to build a house without a blueprint.

Research, monitoring and evaluation needs for Mat-Su salmon were identified and prioritized by participants in a facilitated workshop held in Wasilla during January 2015. Participants represented a wide range of influence and expertise including the Mat-Su Fish and Wildlife Commission, Alaska Department of Fish and Game, U.S. Fish and Wildlife Service, Cook Inlet Aquaculture Association, sport, commercial and personal use fishery participants, and non-governmental organizations. The Borough will solicit proposals in 2015 for projects that address identified priority needs.

The funding for this research project came from the Alaska State Legislature through a $2.5 million capital grant to the Matanuska-Susitna Borough in 2013 (FY2014). Part of the grant funds ($900,000) have already been used to match federal funds and local road service area funds to complete culvert replacement projects to improve fish passage. In 2014, a research firm was contracted through a competitive bid process to coordinate the fish research planning process prior to soliciting and funding field research projects.

Significant research, monitoring and evaluations projects are currently underway on Mat-Su salmon runs, fisheries and habitats through efforts of the Mat-Su Fish and Wildlife Commission, Mat-Su Basin Salmon Habitat Partnership, ADF&G and others. Current state budget circumstances will require even more careful scrutiny of current and future projects to ensure that limited resources are focused on the most important and cost effective activities. Cutbacks in current state funding of programs including the Chinook Initiative and the Susitna-Watana fish studies only heighten the need for critical consideration of specific needs and priorities.

Participants at the Mat-Su Salmon Research, Monitoring and Evaluation workshop, January 2015, Wasilla.

9 RELATED ISSUES

The following sections address issues that are subject to discussions and arguments raised by various parties in the continuing UCI fishery debates.

9.1 Board of Fisheries

The Board of Fisheries process, while not always pretty, is far from broken.

Alaska's world-best salmon fisheries are a testament to the effectiveness of the Alaska Board of Fisheries (BOF) regulatory process. The Board is charged by state statute with conservation and development of fishery resources (AS 16.05.251), and is responsible for adopting regulations and management plans. Members of the Board are chosen by the Governor and confirmed by the legislature on the basis of interest in public affairs, good judgment, knowledge, and ability in the field of action of the board and with a view to providing diversity of interest and points of view.

To the Board falls the difficult responsibility of allocating fishery resources among competing users. This authority is clearly identified in Alaska Statute 16.05.251 (e) which states, "The Board of Fisheries may allocate fishery resources among personal use, sport, guided sport, and commercial fisheries." In Cook Inlet, allocation decisions can be particularly challenging due to the complexity of mixed species and stock fisheries and needs of a broad spectrum of users. A deliberate effort has always been made to balance interests on Alaska's Board's of Fish and Game.

The BOF directs one of the most open regulatory processes in Alaska, if not the nation. Fishery regulations can be proposed by anyone. Information and testimony is invited on every proposal during a series of public meetings scheduled in each region of the state. Effects of every proposal are evaluated by the ADF&G. Every proposal then receives due consideration according to established policies and is voted upon by the Board. While cumbersome at times, the Board process provides an open and transparent process for addressing the ever evolving challenges of UCI salmon fishery management.

Beginning in 1975, when the Board of Fisheries separated from the Board of Fish and Game, specific efforts have been made to balance interest, specifically to create geographical and commercial gear type diversity. In addition to geographic and commercial gear type balance, one seat was assumed to represent sport fishing. During these early years, six seats on the seven member Board of Fish were held by commercial fishermen and one seat by a sport fishing representative.

The 1980's saw vast increases in salmon populations and with these increases came serious debates over the expansion of mixed stock commercial fisheries that intercepted salmon bound back to their native streams in other regions of the state. The harvest of Bristol Bay sockeye and chum bound back for the Arctic-Yukon-Kuskokwim in the commercial seine fishery in the False Pass-Shumigan Island area is the best example of this but there are numerous others. The 1980's also saw the adoption of the State's current Subsistence Priority law and the progressive increase in participation and economic value of sport fishing across the state but particularly in Cook Inlet. During these years, five seats were held by commercial fishing representatives but now an effort was made to balance representation from mixed stock intercept fisheries with representation from more terminal fisheries. Two seats were held by sport fishing representatives with one of these from Cook Inlet and one seat was held by a representative of the subsistence community. It was not uncommon for the subsistence representative to also hold a limited entry salmon permit.

The Balance of 5-2-1 remained consistent until the mid-1990's when the representation became more diverse and clear commercial fishing interests held no more than four seats and more recently only three. Sport and personal use representation has recently been assessed to hold three seats with the final seat held by a representative of the subsistence community. Geographic diversity remains important as does commercial gear type although now to a lesser degree.

The BOF is charged with the development and allocation of the state's fishery resources, resources that generate billions of dollars of economic activity for the state. Whenever the economic stakes are this high and interests are competing aggressively for shares, a clear balance of representation within the BOF is critically important. Balance over the years has shifted as the importance of issues has changed.

The BOF process is not broken. At least one commercial fishing group has claimed that the Board makes decisions contrary to the best available science, allocates the salmon resource away from commercial fish interests in the guise of conservation, adopts management plans that create risk to established escapement goals and panders to non-commercial interests. These claims are patently false.

Attacks on the BOF process appear motivated by a desire to hold onto the vast majority share of the allocation of UCI salmon in the face of conservation issues and the dramatically changing demographics within the UCI region. The Board has recognized these changes by gradually reducing the historical commercial allocation to increase escapements and provide reasonable opportunities for sport, guided-sport and personal use fisheries.

Since 1975, over 70% of all Board members have been commercial fishermen (predominately from areas outside of Upper Cook Inlet). Commercial fishing interests controlled at least the four votes necessary for passage of a proposal at least 85% of the time. It has only been since the mid 1990's that the membership of the Board has been moving toward a true balance of interests. At present, the balance of interests is once again in question.

The Commission believes that much of the recent complaints about the BOF are simply due to the fact that the commercial industry no longer has almost total control of the process that they held for over 20 years. The cry for new members, a new process or a professional board that operates more like that of the North Pacific Fisheries Management Council, is similarly motivated by the desire to make it much more difficult for non-commercial interests to participate. It should be telling that most, if not all, of the complaints against the BOF come from UCI commercial fishing interests.

Complex fisheries like those in UCI demand complex management plans. Commercial interests have used the challenges of developing management plans for UCI salmon as evidence that the process can no longer cope with the complexity. We submit that the fact the Board does succeed in developing management plans for UCI salmon is evidence enough that the process is far from broken. We are continually impressed with the demonstrated ability of Board members to weigh complex technical information and recognize competing interests and tradeoffs. We are eternally thankful for the often-thankless efforts required by each and every BOF member to support a fair and effective process.

9.2 Constitutional Mandate for Sustainable Salmon Management

The management of salmon in Upper Cook Inlet is consistent with Constitutional provisions for sustained yield to achieve maximum benefit for Alaskans.

State control of fishery management was one of the driving values in Alaska statehood – so much so that it is explicitly articulated in the Alaska Constitution. Article VIII, Section 2: "The legislature shall provide for the utilization, development, and conservation of all natural resources belonging to the State, including land and waters, for the maximum benefit of its people." The Constitution further dictates that state fish and game resources are reserved to the people for their common use and are to be utilized and managed on a sustained yield principle, subject to preferences among beneficial uses.

Various parties have asserted that current state UCI salmon fisheries management practices fail to meet the Constitutional mandate for maximum benefit or sustained yield. Arguments for constitutional failure often involve the substitution of the fishery term, "maximum sustained

yield" for the actual words found in the State Constitution, "maximum benefit". The difference here is significant.

Yield is a fishery science term that simply refers to the number of fish that are caught and killed as a result of prosecuting fisheries. Maximum Sustained Yield (MSY) refers to the maximum number of dead fish that can be caught on average over time while sustaining fish populations. A maximum yield objective implicitly favors a commercial fishery where value is determined by pounds of dead fish. This management objective is favored by commercial fishermen, but obviously leaves much to be desired for those who use the fishery resource upstream of the commercial fishery. However, the Alaska Constitution does not mandate maximum sustained yield, but maximum benefit.

Maximum benefit in diverse fisheries depends on more than just simple numbers of dead fish. These include maximum production, referring to the number of fish in a population, or maximum economic return, which considers the respective values of fish caught in all fisheries in aggregate. Each of these other objectives would require a different escapement approach than that required to pursue MSY, and each would likely result in greater numbers of fish entering the rivers, a higher probability of achieving escapement goals and more successful sport and personal use fisheries.

The management of UCI salmon is obviously consistent with Constitutional provisions for sustained yield to achieve maximum benefit for Alaskans. The choice between maximum yield, maximum production or maximum value is a policy decision delegated by the Legislature to the Alaska Board of Fisheries. The standard allows for value judgments on desired optimum harvest and escapement levels, rather than a management system designed purely to maximize yield measured in terms of pounds of dead fish. A variety of related management strategies will meet the Constitutional threshold of resource conservation.

Article VIII, Section 15 of the Constitution states that "No exclusive right or special privilege of fishery shall be created or authorized in the natural waters of the State." Fish resources are reserved to the people for common use including subsistence, commercial, sport and personal use fishers. In 2005, some Cook Inlet commercial fishermen actually sued the Board of Fisheries for compensation for a decline in the market value of their limited entry permits due to regulatory actions alleged to reduce their catch in favor of other fisheries. The Alaska Supreme Court rejected this argument because the commercial fishery does not enjoy an exclusive right to the fish.

9.3 Sustainable Salmon Policy

The Policy for Management of Sustainable Salmon Fisheries defines the state of the art in modern scientific management of salmon based on Alaska's long history of success.

This state policy provides essential guidance for the conservation of salmon and salmon habitat, protection of customary, traditional and other uses, and the sustained economic health of Alaska's fishing communities. Guidance is in the form of a regulatory framework that includes principles and criteria for sustainable management and implementation steps. Principles and criteria include:

- Protect wild salmon and habitats to ensure sustained yields.
- Manage for escapement ranges that sustain production and maintain normal ecosystem functioning.
- Apply effective management systems which regulate human activities.
- Encourage public support and involvement.
- Manage conservatively commensurate with uncertainty.

The policy was adopted as regulation 5 AAC 39.222 in 2000 through a joint effort by the ADF&G and the BOF.

Certain parties have maintained that adoption of the Sustainable Salmon Policy is responsible for a decline in UCI commercial harvest, but this assertion is false. The reality is that commercial fishery harvest patterns vary considerably from year to year in response to a complex of factors including ocean conditions, freshwater productivity, and allocation among sport, personal use and subsistence fisheries.

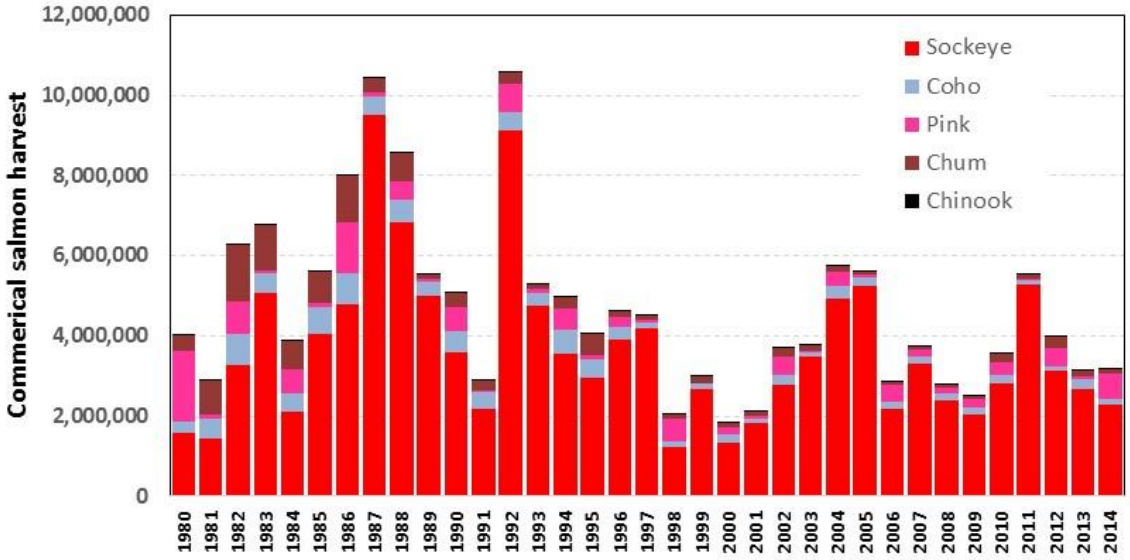


Figure 8. UCI commercial salmon fishery harvest by species.

9.4 Mixed Stock Management

Production concerns for northern Cook Inlet stocks such as sockeye will require reductions in historical levels of commercial exploitation in order to avoid long-term conservation problems.

Upper Cook Inlet salmon fisheries present a classic mixed stock management problem. This problem is at the root of much of the conflict among user groups there today. Large harvestable surpluses of the productive Kenai and Kasilof sockeye stocks cannot be commercially harvested without also taking large numbers of the less productive Susitna sockeye as well of coho and Kenai Chinook salmon important to sport fisheries. Current fishing strategies that maximize yield of Kenai and Kasilof sockeye will overfish the weaker Susitna sockeye stock and substantially reduce in-river sport fishing opportunity for coho and Kenai Chinook.

Kenai and Kasilof sockeye are two of the most productive salmon stocks on the planet. They rear in large, stable lakes which provide excellent conditions for sockeye. The Kenai run has averaged 3.6 million fish per year over the last 20 years with runs ranging from 1.8 to 6.2 million over that period. The 20-year average of Kasilof sockeye is about 1.0 million per year with runs ranging from 0.6 to 1.7 million. While Bristol Bay produces many more sockeye than Cook Inlet, none of the Bristol Bay sockeye stocks are substantially more productive than the Kenai and Kasilof on a per spawner basis. In contrast, the Susitna sockeye stock is much smaller and less productive. The total run has averaged about 350,000 per year over the last 20 years, ranging from about 200,000 to 600,000 over that period.

Productivity is a measure of salmon produced in future runs (recruits) per spawner. Kenai and Kasilof sockeye typically return about four adults for each spawner at escapements consistent with maximum sustained yield. This means that three out of every four returning sockeye can be harvested on average which equates to an annual exploitation rate of 75 percent. In fact, Kenai and Kasilof sockeye are being harvested at about 80 percent which is the highest rate of any sockeye in Alaska with the exception of the Egegik stock in Bristol Bay (83 percent). Despite these very high fishing rates, no Kenai and only one Kasilof sockeye escapement has ever failed to replace itself, which means that practically every spawning escapement to date has produced a substantial harvestable surplus.

Productivity of Susitna sockeye has not been measured but is obviously much lower than that of Kenai and Kasilof sockeye. We know from genetic stock identification studies that Susitna sockeye are currently harvested at about 20-40 percent per year. Despite these relatively moderate exploitation rates, Susitna sockeye numbers have declined by about half since the 1980s. Current escapements are clearly not replacing themselves. Monitoring data from the

sonar counter in the Yentna River and weirs in many historically-productive sockeye lakes has confirmed that many of these populations have declined, some to critically low levels.

Productivity of Susitna sockeye has likely always been less than that of Kenai/Kasilof sockeye because of natural habitat differences. Kenai and Kasilof sockeye consist of a few populations that spawn in different areas but rear together primarily in one of three large lakes. Susitna sockeye are comprised of at least 40 small populations which spawn and rear in different lakes, rivers, streams, and sloughs throughout the system. These diverse habitats typically produce sockeye with varying levels of success. For instance, small lakes may be less productive for sockeye than large lakes, rivers and streams less than lakes, and so on. Production problems are also exacerbated by the complex population structure of Susitna sockeye. Each Susitna population is demographically and genetically distinct. When escapement and productivity is not adequate to support a local population, sockeye from other areas do not come in to fill the void. If a Kenai or Kasilof spawning population is low, it just leaves more room in the big lake for other spawning populations to benefit.

Productivity of many Susitna sockeye populations has been further reduced by problems in freshwater, most notably, invasion of non-native pike. Pike were illegally introduced in the 1950s and have now spread into many areas of the Susitna basin. Sockeye declines have been observed in many lakes following pike invasion, particularly the smaller, shallower systems that are good habitat for pike. Declines in some areas are so severe that status of Susitna sockeye might reasonably be downgraded to a stock of conservation concern.

UCI commercial fishery managers and advocates have argued that freshwater production problems of sockeye absolve them of the responsibility to limit exploitation rates on Susitna sockeye because higher escapements will not produce significant fishery benefits. This is true only from a narrow prism where success is measured strictly in terms of total pounds of sockeye harvested and sold. Large Susitna sockeye escapements will indeed not produce large harvestable surpluses because of low productivity. Foregoing significant harvest of Kenai/Kasilof sockeye to avoid Susitna sockeye would result in a net loss in commercial harvest if more focused fishing strategies could not be identified.

However, protection of Susitna sockeye spawning escapements is essential if long term sustainability of these stocks is of concern. For many depleted Susitna sockeye populations, there is currently no harvestable surplus. These populations are being overfished below levels of maximum sustained yield. Any level of fishing will drive the weakest populations to low levels where their long-term viability may be impaired to the point of a conservation concern. Some marginal populations that might otherwise persist in the absence of fishing could be extirpated by a combination of fishing and freshwater production problems.

Freshwater production problems of Susitna sockeye are an imperative for limiting harvest, not an excuse for continued overfishing. Salmon production reflects the combined effect of natural and manmade factors in both fresh and marine waters, including fishery exploitation. A combination of reduced freshwater productivity and significant fishery exploitation rates is a recipe for stock extinction. This is exactly the problem which has led to listing of salmon stocks throughout the lower 48 under the U.S. Endangered Species Act (ESA).

A large share of the management burden for Susitna sockeye must inevitably fall on the Central District drift gillnet fishery. Virtually all of the Susitna sockeye harvest occurs in this fishery with smaller amounts in Central and Northern District set gillnet fisheries. Very little harvest of Susitna sockeye occurs in sport or personal use fisheries except for the Fish Creek/Big Lake population on the Knik arm. Kenai and Kasilof sockeye harvest is more distributed among commercial drift net fisheries in the Central Inlet, commercial set net fisheries along the east side beaches, and personal use and sport fisheries in the rivers.

Cook Inlet mixed stock fishery issues are not limited to sockeye. Substantial numbers of coho and late-run Chinook salmon are harvested in commercial drift and set net fisheries which are predominately targeting sockeye. Sockeye comprise by far the highest value in the commercial harvest – typically 90-95 percent of the commercial ex-vessel value. While commercial coho and Chinook exploitation rates are nowhere near as high as those of sockeye, intensive commercial fisheries during peak periods of sockeye return in July can substantially reduce numbers of coho and Chinook delivered to personal use and sport fisheries fishing in their shadow. Effects are most significant around the peak of the commercial fishery. Thus, any consideration of mixed stock fishery strategies must inevitably weigh the consequences to coho and Chinook as well as sockeye.

For many years, UCI commercial fishery advocates have warned of dire consequences of "overescapement" of sockeye which may result from fishery restrictions to ensure escapement of weaker stocks and provide opportunity for in-river fisheries. Commercial fisheries generally define "overescapement" as any upriver migration of salmon that exceeds spawning goals set by the ADF&G. Density-related fish production capacity is indeed a fundamental tenet of classical salmon fishery management theory. Large escapements can exceed the productive capacity of the system, increasing competition of juvenile sockeye, reducing juvenile size at migration, lowering survival, and reducing adult returns and fishery yields.

However, "overescapement" of Kenai and Kasilof sockeye has proven to be a problem that exists more in theory than in practice at current escapement levels. Successive large Kenai sockeye escapements from 2004-2006 led to forecasts of large declines in returns based on historical models. Instead, these escapements continued to produce large runs including the

largest in the last 20 years. In the Kasilof, a series of large escapements produced more rather than fewer sockeye to the point where the escapement goal was raised. So while large sockeye escapements into the Kenai and Kasilof Rivers may pose lost harvest opportunity for commercial fishermen, no damage to the ecosystem or the future fishery resource has occurred. In the final analysis, "overescapement" arguments appear largely an effort to establish a biological rationale for allocative strategies that favor strong stock management which maximizes harvest of Kenai and Kasilof sockeye, with less regard for effects on other species and stocks.

Mixed stock fishery problems are not unique to Cook Inlet. Salmon managers have been grappling with this issue throughout the northern hemisphere for decades and practices have evolved over time. Early salmon fisheries were invariably driven by the strongest, most-productive stocks. Resulting declines led scientists and managers to recognize the negative impacts of strong-stock management on the abundance and sustainability of diverse stocks. More precautionary strategies were gradually adopted to maintain healthy fisheries for all affected stocks. Mixed stock fishery problems and weak stock management strategies are particularly acute in highly depleted stocks including those listed under the ESA as threatened or endangered with extinction.

Alaska has recognized the challenges and risks inherent in mixed stock fisheries with the adoption in 1993 of an explicit policy for management of mixed stock fisheries. The policy directs that "conservation of wild salmon shall be accorded the highest priority." Further, "when it is necessary to restrict fisheries on stocks where there are known conservation problems, the burden of conservation shall be shared among all fisheries in close proportion to their respective harvest on the stock of concern." In Cook Inlet, this policy is still in the process of being effectively translated into fishery management plans and practice.

The science on the tradeoffs between strong and weak stock management in mixed stock fisheries of Cook Inlet ultimately helps define the effects and risks of alternative management strategies. The science does not tell us where to exactly aim in the balance between protection of weak stocks and maximum yield of the strong ones. An ideal management strategy will strike some balance between the extremes. Where it lands is ultimately a policy call which optimizes the biological risks and allocative tradeoffs among competing interests and objectives. Management in Cook Inlet has long been heavily weighted for strong Kenai and Kasilof sockeye stocks. If the fish truly come first, and maximizing total harvest is secondary, then precautionary management strategies for weak stocks such as Susitna sockeye must be an increasingly important part of the equation.

9.5 Commercial Harvest of Mat-Su Coho

The UCI Commercial drift gillnet fleet catches substantial amounts of northern-bound coho as "bycatch," while they are actually targeting Kenai sockeye.

The Central District drift net commercial gillnet fishery is historically the largest harvester of coho salmon of Northern Cook Inlet origin. Since 2000, the drift fleet fishery has harvested and average 103,000 coho per year versus 65,000 in the Susitna/Knik sport fishery. Another 36,000 coho are harvested on average in the Northern District set gillnet fishery.[1]

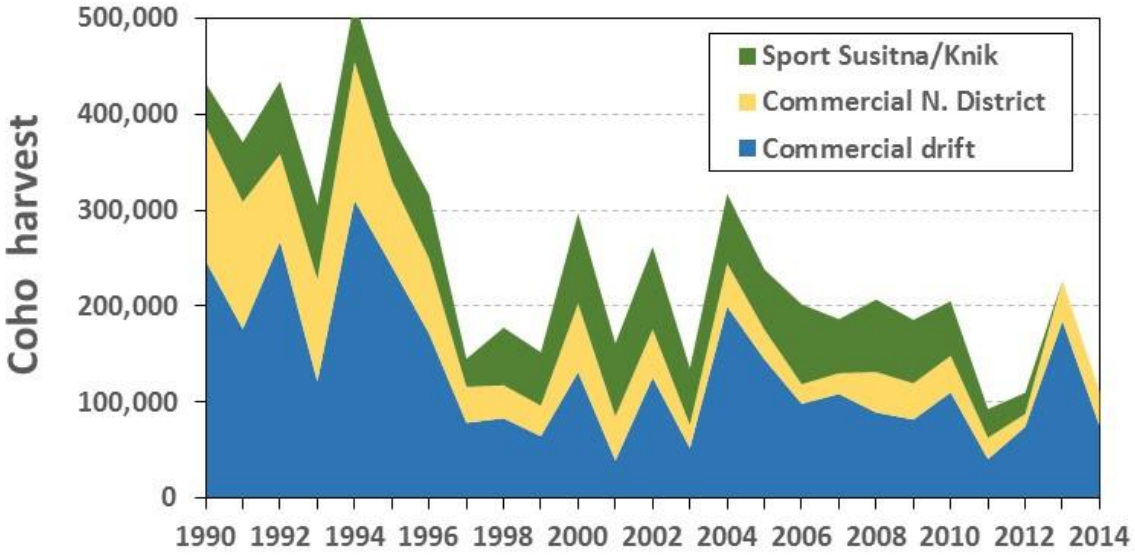


Figure 9. Harvest of coho salmon in Central District commercial drift net, Northern District commercial set net and northern inlet sport fisheries. (Sport data not available for 2013-2014).

While coho salmon currently support the most important and economically valuable sport fishery in the Mat-Su, this species comprised just 3% of the ex-vessel value to the UCI the commercial fishery from 2005-2014. During this same period, the total ex-vessel value of salmon to all commercial fisheries varied from a low of $14 million in 2006 to a high of $53 million in 2011 (average of $30 million). Despite the more terminal fishing strategy implemented in 2014, the 2014 ex-vessel value of coho salmon was 10% greater than the 10 year average of $690,000. An industry that can operate with this level of economic variation can certainly accommodate management strategies that help assure that escapement goals in the Mat-Su are achieved and that a successful sport fishery for coho is a high probability.

[1] *While genetic data is not yet available for coho, the drift and set net harvest is believed to consist primarily of northern inlet stocks. Kenai Peninsula fish are much later timed. West Cook Inlet sockeye also comprise a portion of the drift fishery catch. Northern inlet coho may also be harvested in east side and Kalgin Island/West Cook Inlet set net fisheries.*

Commercial fishing advocates have pointed to recent population studies indicating surplus coho salmon bound for the Susitna drainage as evidence that commercial fishing effort should be expanded. However, since the mid 1970's the Board of Fisheries has prioritized harvests of coho salmon for recreational fisheries. Thus, if there is a significant surplus of coho salmon returning to the Susitna drainage then, consistent with the intent of the Alaska Board of Fisheries to provide these fish for the recreational fishery, sport fishing bag and possession limits should be increased back to the historical norm of three coho salmon per day throughout the drainage or even five per day if sustainable management allows.

Commercial fishery advocates have also argued that their fishery should not be limited for coho because the commercial harvest is small in relation to abundance – a rate of 10% was claimed as fact in a report to the legislature. This claim was based on a highly subjective and questionable interpretation of the available information.

The 10% claim was based on a 2002 study that tagged fish in the inlet before they entered the fishery area then sampled for tagged fish at fish processors and weirs or tracked radiotagged fish in streams (Willette et al., 2003, ADF&G Regional Information Report). This study produced a range of estimates and, based on this range, estimated a commercial harvest rate of 10-20% of the total UCI coho run. However, these estimates were based on a complex series of mark-recapture models and assumptions regarding sample sizes and representative samples which were admittedly violated. Many of these same violations were similar to those used by the same parties to question other similar studies that produced much less favorable results (e. g. 2013 UCI acoustic telemetry study).

The 10% estimate of commercial harvest rate does not appear to be corroborated by other data. For instance, hatchery coho exploitation rates were estimated to be 20-70% in 1993-1998 based on coded wire tags although historical fishing effort was substantially higher. Historical rates for fishing efforts comparable to the 30,000 hours (number of deliveries times fishing hours) observed in 2002 ranged from 15-40%. More recent population estimates for coho abundance in the Susitna are also much smaller (190,000 -220,000 in 2010-2012) than comparable population estimates from 2002 data (1.1 million).[2] It is unclear how much of these differences might be due to annual variation in abundance and how much is an artifact of estimation errors.

[2] Willette et al. (2003) estimated total UCI coho abundance at 2.52 million in 2002 based on PIT tag recoveries in the commercial fishery. An estimated 250,000 were harvested in commercial fisheries leaving an escapement of 2.27 million. These numbers are the basis for the 10% exploitation rate estimate. Radio tags indicated that approximately 49% of the escapement entered the Susitna River which would be equivalent to a run size of 1.1 million. Willette et al. also independently estimated Susitna coho abundance based radiotags alone – this estimate of 663,000 was substantially lower than the PIT tag estimate but still much greater than other recent estimates.

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More importantly, all of these numbers grossly underestimate the impact of commercial harvest on the front end of the coho run which is destined primarily for Mat-Su area streams. Commercial harvest may indeed be relatively modest in relation to the total run of coho to streams throughout UCI. However, coho return over a protracted period from July through August. The 2002 study showed that Susitna coho return in the early part of the run which moves through the inlet during the peak of commercial fishing effort in July for Kenai sockeye. Commercial exploitation rates on Susitna fish are likely much higher than on the aggregate UCI coho run. Large commercial coho catches during July reduce returns of significant numbers to the Susitna on the front end of the run and effectively delay the start of the coho sport fishery. Sport anglers enjoy better success when fisheries are managed based on maximum abundance instead of maximum sustained yield. Harvests in recreational fisheries that do not approach MSY indicate successful management for optimum sport fishery benefits, not failure as claimed by UCI commercial fishing interests.

Finally, coho escapements in the Mat-Su region have consistently failed to meet established goals over the last 10 years. Coho numbers are counted in only a handful of the hundreds of northern Cook Inlet streams to which they return. Assessments are primarily concentrated on Knik Arm streams. UCIDA has criticized assessments of coho status and commercial fishery impacts by the Commission as inaccurate because streams where coho are assessed may not be representative of the basin due to human-caused habitat degradation. However, some of the 2002 mark-recapture estimates of commercial exploitation rates used to argue for limited coho impact were based on the same monitored streams.

The simple fact is that escapement goals must be met - 100,000 coho per year are being intercepted in the commercial drift net fishery and a large percentage of those fish are destined for Mat-Su streams. Past efforts to provide additional commercial exploitation in marine waters where mixed stocks of coho, including those from the streams of Knik Arm where production has been low, made UCI salmon management challenging and has resulted in a history of Mat-Su coho escapement goals not being met on a consistent basis.

9.6 Pink & Chum -the relationship to Sport Fishing for Coho in the Mat-Su

Pink and Chum salmon cannot be commercially harvested in large numbers from Upper Cook Inlet without, at the same time, killing large numbers of northern bound coho salmon.

Commercial fishing advocates continually point out that there is a harvestable surplus of pink and chum salmon escaping their nets but they fail to explain the reality of commercial fishing for pinks and chums. The reality is that pink and chum salmon are inextricably mixed with coho salmon returning to Cook Inlet rivers and streams.

The ex-vessel value to the UCI commercial fishery of these species pales in comparison to that of the far more valuable sockeye salmon. From 1994-2013, the average ex-vessel value of coho, chum and pink salmon combined to the commercial fisheries of Upper Cook Inlet was only 6% compared to an annual average contribution of 92% for sockeye. Pink and chum salmon together comprised just 3% of the ex-vessel value in 2014. Additionally, in spite of the more terminal fishing strategies implemented beginning in 2011, the years 2011, 2012 and 2013 rank numbers 6th, 2nd, and 4th respectively in total dollars of ex-vessel value for coho, chum and pink salmon combined over that 20 year period.

The economic value of putting enough coho salmon into the rivers and streams of the Mat-Su to provide for a successful sport fishery, dwarfs the much smaller and highly variable economic contribution of maximizing commercial harvests of pinks and chum. Furthermore, there is a fundamental lack of information on the status of pinks and chums of Mat-Su origin. The science needed to develop fishing strategies that enable commercial gillnet fishers to fish for pinks and chums, without substantial bycatch of coho, is not available.

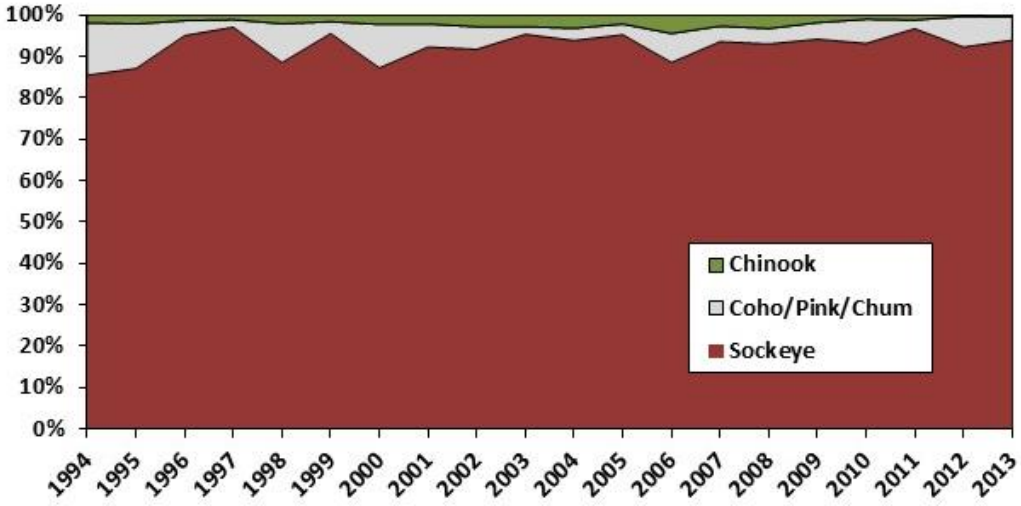

Figure 10. Commercial ex-vessel value of salmon in Upper Cook Inlet by species.

9.7 Economic Values

The essential question of fishery economics in Cook Inlet is not which fishery is more valuable but rather how to optimize the combined net value of the commercial, sport, personal use, and subsistence fisheries.

The economic importance of UCI commercial salmon fishery has long been recognized but the value of the sport and personal fisheries has been documented only relatively recently. All salmon fisheries are vital to the regional economy, although relative values of commercial, sport and personal use fisheries vary between different areas of the Cook Inlet.

An economic study by the State of Alaska in 2007 attributed $730 million in annual expenditures to sport fishing in Cook Inlet. A study commissioned by the Mat-Su Borough in 2009 estimated that anglers spent between $63 million and $163 million in the Borough on goods and services primarily used for sport fishing. In comparison, an economic study funded by UCIDA and conducted by Northern Economics estimated that the Cook Inlet commercial fishing industry contribution $350 million to the regional economy in 2013.

The essential question of fishery economics in Cook Inlet is not which fishery is more valuable but rather how to optimize the value of all fisheries in aggregate. Salmon, when in state waters, belong to the people and Alaska's constitutional mandate directive is to manage for maximum benefit to the State. All fisheries are important to the economic health of the Cook Inlet Region but no one economic study gives clear answers to the actual important public policy questions.

Since neither the sport fisheries of the Mat-Su Borough nor the commercial fisheries that take place in the marine waters of Upper Cook Inlet are going away, the question is not one of, "all or none". Maximizing harvest of salmon in commercial fisheries and hoping that sport and personal use fisheries can survive on the incidental escapement from those fisheries is not the way to provide for maximum benefit. Seeking fishing strategies that provide for escapement, in the case of sockeye and a successful sport fishery for coho is the proper course of action.

Healthy sport fisheries for Chinook and coho salmon are undoubtedly the most important economic drivers for the Mat-Su. Public policy makers must address whether the marginal loss of harvest opportunity to the drift gillnet fishery, that results from putting enough sockeye and coho salmon into the rivers and streams of the Northern District, is worth it to achieve escapement goals and provide for successful sport fishing.

History tells us that the magnitude of expected loss resulting from reconfiguration of the drift gillnet fishery, in the manner selected by the Board of Fisheries in 2014, is no more than 5-10%

of the year's total ex-vessel value. Variation in ex-vessel value has ranged from less than $8 million to more than $53 million annually over the past 25 years.

The ex-vessel value is far less than the economic contribution of a successful sport fishery for coho salmon in the Mat-Su. If the results from 2014 are indicative of what can be expected in the future, the answer is resoundingly, yes!

9.8 Personal Use Fishery Opportunity

Over 30,000 household currently participate in the Cook Inlet personal use fishery on the Kenai Peninsula but opportunities are limited in Mat-Su waters.

The clear intent behind the creation of personal use salmon fisheries is spelled out in 5 AAC 77.001 of Alaska codified fishery regulations. In summary, the intent acknowledges that implementation of the state's subsistence law changed things in a manner that precludes a large number of individuals from efficiently harvesting fish for their personal use. In recognition, the regulation states that "it is necessary to establish a fishery classified as personal use". Personal use fisheries are to be established when they do not jeopardize the sustained yield of a resource and either does not negatively impact an existing resource use or is in the broad public interest. The largest and most popular personal use fisheries in the UCI region take place on the Kenai Peninsula targeting sockeye salmon bound for the Kenai and Kasilof rivers.

The only personal use fishing opportunity currently available within the Mat-Su Borough is located at Fish Creek, outlet to the Big Lake drainage. The Fish Creek Personal Use Salmon Fishery is governed by the Upper Cook Inlet Personal Use Salmon Management Plan. Under this plan ADF&G is directed to open the fishery only if ADF&G projects the escapement of sockeye salmon to be greater than 50,000 fish. The fishery has opened only 10 of the last 19 years. When opened, harvest of sockeye salmon has ranged from a low of 436 to a high of 23,705. After remaining closed in 2012 and 2013, the Fish Creek Personal Use salmon fishery was opened in 2014. Without this fishery, Mat-Su residents must drive five hours to Kenai or Chitna to participate in a personal use fishery.

9.9 Role of Hatcheries

Hatchery stocking of salmon can be important for providing salmon fisheries under certain conditions but benefits, costs and risks much be carefully evaluated.

Declining Mat-Su salmon abundance has generated increased stakeholder interest in the potential for hatcheries to restore or supplement depleted returns. The legislature responded to the growing interest in stocking by appropriating $2 million to ADF&G for northern Cook Inlet Chinook salmon enhancement. The Mat-Su Borough Fish and Wildlife Commission believes that stocking of salmon can be an important tool in sustaining fisheries in the Mat-Su. However, careful safeguards are essential to protect naturally-producing wild stocks. Further, evaluations of enhancement project success need to consider cost-benefits of sustaining a salmon fishery through stocking. Returning adult Chinook salmon may fall in the range of $50 to $75 per fish if ADF&G assumptions are correct. If assumptions are not met, cost can rise to the point where the project is a failure for that reason alone. The Commission believes that stocking is too often promoted as the answer to declines in numbers of wild stocks and the solution to restrictions being placed on fisheries.

The Commission supports select projects underway in the Mat-Su at the present time. The following description of the stocking programs for Chinook and coho salmon in Mat-Su locations is quoted directly from the Alaska Department of Fish and Game Statewide Stocking Plan and can be found at:

http://www.adfg.alaska.gov/static/fishing/pdfs/hatcheries/15region2.pdf

> "Harvest opportunities for Chinook salmon on Southcentral Alaska's road system are limited and already at near saturation. Many Northern Cook Inlet (NCI) streams have populations of wild Chinook salmon that are too small to sustain a recreational fishery, while others have been impacted by urbanization and only produce small numbers of fish. Increased fishing effort and reduced natural production in the late 1980's and early 1990's have led to restrictions on several NCI Chinook salmon fisheries resulting in decreased Chinook salmon fishing participation. The primary purpose of this program is to maintain or increase Chinook salmon fishing opportunities in NCI while reducing angling pressure on the areas wild stocks. Enhancement is a tool we can use to potentially create more angling opportunity. We are attempting to supplement Willow Creek's natural run of Chinook salmon with hatchery fish without significantly altering historical Chinook salmon age and sex compositions. Chinook salmon returns from smolt stocked into Eklutna Tailrace will help reduce impacts on the areas wild Chinook salmon populations."

"Chinook salmon are released into Deception Creek, a tributary of Willow Creek, to enhance the return to Willow Creek. Each Chinook salmon smolt released into Deception Creek is marked with an adipose finclip. Hatchery released fish are identified by the finclip during brood collection and carcass surveys. Eggs used to produce smolt released into Deception Creek are obtained from naturally produced (adipose fin present) Chinook salmon. Eggs used to product smolt released into other terminal fisheries may be obtained either from naturally produced or hatchery produced (adipose fin missing) Chinook salmon."

Since inception in 1983, the contribution to the Willow Creek sport fishery by the stocking program in Deception Creek has been about 50% of the harvest. Emergency Orders issued in February 2015 have closed the sport fishery for Chinook salmon in much of NCI including Willow Creek to protect wild stocks of Chinook salmon. Hatchery produced smolt will continue to be released in hopes of enhancing future sport fishing opportunity.

"Currently, sport fishing for Chinook salmon at the Eklutna Tailrace is a popular recreational activity. This is a terminal fishery, and all returning Chinook salmon will be harvested. The Chinook salmon broodstock source for Eklutna Tailrace is Ship Creek origin. The first 106,991 Chinook salmon smolts were released at Eklutna Tailrace in May 2002. No hatchery broodstock will be developed for this project, as we will use fish from Deception Creek on an annual basis. Angler access to this area is fully developed, and ADFG maintains the site. Additionally, ADFG provides dumpster pick-up, a fish cleaning table, portable latrines, and contracts out for patrols and litter pick-up.

In 2014, the number of smolts released at Eklutna Tailrace 395,322 and the number of smolts released at Deception Creek was 211,812. Assuming low survival rates (1%) stocking levels have been increased for the best potential of achieving the existing return goal of adult Chinook. Stocking levels are scheduled at 400,000 smolt for Eklutna Tailrace and 212,000 for Deception Creek.

Objectives

Willow Creek:

1) Produce a return of an additional 4,000 adult Chinook salmon to Willow Creek, while assuring that about 1,750 Chinook salmon spawn naturally, as assessed by aerial survey.
2) Generate 10,000 angler-days of fishing opportunity during the three 3-day weekends directed at stocked Chinook salmon in Willow Creek.

Eklutna Tailrace:

1) Produce a return of 4,000 adult Chinook salmon to Eklutna Tailrace.
2) Generate 10,000 angler-days of sport fishing effort at Eklutna Tailrace where none previously existed.

Actions

1) Stock 212,000 thermally marked Chinook salmon smolt in 2015 and 200,000 thermally marked Chinook salmon smolt in 2015-2019, 100% of which will be adipose fincliped, in Deception Creek (a tributary of Willow Creek).
2) Stock 400,000 thermally marked Chinook salmon smolt in Eklutna Tailrace in 2015 and 400,000 thermally marked Chinook salmon smolt in Eklutna Tailrace in 2015-2019.

Evaluations

1) Sport fishing effort will be estimated through the Statewide Harvest Survey (SWHS) for both Willow Creek and Eklutna Tailrace.
2) A weir at Deception Creek will be used to take eggs for future smolt releases (July 1-August 15).
3) Ground and helicopter surveys will provide an index of natural spawning in Willow Creek during peak spawning (July 15-August 15). This will help determine if enough surplus fish are available to support egg-take goals. A carcass survey in Willow Creek and Deception Creek will provide an estimate of the hatchery contribution in the spawning escapement."

In addition to stocking of Chinook salmon in Willow Creek and the Eklutna Tailrace, 120,000 thermally marked coho salmon smolt from adults captured at Ship Creek in Anchorage (Little Susitna River stock of origin) are released annually at Eklutna Tailrace. The objective of this release is to produce a return of 7,500 adult coho salmon at the site and generate 6,000 angler-days of sport fishing for coho salmon.

In addition to the hatchery enhancement efforts described above, the Matanuska-Susitna Borough has provided financial support for a small, experimental enhancement project for Chinook salmon in Moose Creek, a Mananuska River tributary. Cook Inlet Aquaculture Association conducts assessments of sockeye salmon abundance at Judd Lake, Chelatna Lake and Larson Lake as well as numerous other salmon passage efforts throughout the Susitna Drainage.

9.10 Magnuson-Stevens Act

Management of salmon in the Upper Cook Inlet is consistent with the national standards set forth in the Magnuson-Stevens Act (MSA).

The Magnuson–Stevens Fishery Conservation and Management Act, commonly referred to as the Magnuson–Stevens Act, is the primary law governing marine fisheries management in United States federal waters. The law is named after Warren G. Magnuson, the former U.S. senator from Washington state, and Ted Stevens, the former senator from Alaska.

MSA was originally enacted as the Fishery Conservation and Management Act of 1976 and has been amended many times over the years. Two of the most important elements of the MSA are establishment of the Exclusive Economic Zone (EEZ) commonly known as the 200 mile limit and National Standards for Fishery Conservation and Management.

Establishment of the 200 mile limit prohibited foreign fishing fleets from participating in fisheries within that zone. This action alone is widely credited with providing great benefit to Alaska's salmon fisheries, although over the course of the subsequent 38 years the domestic trawl and longline fishing fleets have grown to fully utilize EEZ fisheries resources. Interception of salmon bound back to the Mat-Su in EEZ fisheries is clearly an issue but not discussed within the scope of this status report.

In spite of the State's compliance with the MSA, UCI commercial fishing interests continue to claim that the management of UCI salmon fisheries is inconsistent with the requirements set forth in the MSA. The basis for their claims are that,

1) the resident-only requirement for participation in Alaska personal use and subsistence fisheries is discriminatory,
2) the state fails to manage for Optimum Sustained Yield (OSY) by mandating arbitrary opening and closing dates and adopting escapement goals that fail to meet OSY standards and fails to utilize the best available science when promulgating regulations, and
3) the state fails to prevent harm to essential fish habitat.

These claims are false and self-serving. The complaints are made in an effort to end run the state BOF process into a federal process that has historically been heavily weighted toward commercial fisheries and is far less accessible to the public.

Since 2006, the Upper Cook Inlet Drift Association (UCIDA) has been one of the Plaintiffs in a series of ongoing suits against the National Oceanic and Atmospheric Association (NOAA)

seeking NOAA to require development of a federally approved management plan (FMP) for the UCI salmon fisheries. If successful, the federal plan would dictate management directives to the State. UCIDA has gone to great lengths of late to paint this extensive legal action and the desire for a federal management plan as a necessary tool for conservation.

In reality, UCIDA clearly states their desired intention in court documents by claiming that Alaska resident-only salmon fisheries in state waters, such as the UCI personal use fisheries, are discriminatory against UCIDA's non-resident members. UCIDA claims such discrimination violates a MSA national standard that prevents discrimination of residents of different states. However, this claim ignores the fact that MSA standards apply only to federal waters, and many states across the nation have resident-only fisheries in state waters, of which none have been found to violate this national standard in MSA.

Specific to Alaska, there are state resident-only fisheries, including those for salmon and shellfish (subsistence and personal use) in state waters, and federal resident-only fisheries (subsistence) for salmon and halibut in state and federal waters. Halibut are regulated under an International Treaty between the United States and Canada, and fall outside the requirement of MSA national standards and fishery management plans that prohibit resident-only fisheries in federal waters. To date, UCIDA has not filed a federal lawsuit challenging the federally managed Alaska resident-only halibut subsistence fisheries in federal waters of Alaska, even though some of its non-resident members also fish in the halibut commercial fishery.

Make no mistake about the motivation for this legal action. UCIDA's desire is to harvest as much of the surplus production in UCI of all species of salmon as possible. The attempt to use the national standards in MSA to invalidate state and federal authorized Alaska resident-only personal use and subsistence fisheries in state and federal waters would severely restrict Alaska residents' ability to harvest fishery resources, especially UCI salmon.

The claim that UCIDA's non-resident members (less than 300) are discriminated against in UCI salmon fisheries is a slight-of-hands distraction and is aimed at shutting down the popular UCI personal use and subsistence fisheries (utilized by more than 30,000 Alaskan households). All the more telling is the fact that UCIDA's resident and non-resident members can take home for consumption an unlimited number of salmon harvested with their commercial salmon permit. Through the years, from proposals submitted by UCIDA and their members to the Alaska Board of Fisheries, UCIDA's objection to the level of access to fresh fish for the freezer that personal use fisheries gives Alaskans has been well documented. However, salmon harvested in personal use fisheries are a common property resource owned by the people of Alaska and the Alaska Board of Fisheries was well within their legal mandate when they established the personal use fisheries.

NATIONAL STANDARDS FOR FISHERY CONSERVATION AND MANAGEMENT

(1) Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.

(2) Conservation and management measures shall be based upon the best scientific information available.

(3) To the extent practicable, an individual stock of fish shall be managed as a unit throughout its range, and interrelated stocks of fish shall be managed as a unit or in close coordination.

(4) Conservation and management measures shall not discriminate between residents of different States. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (A) fair and equitable to all such fishermen; (B) reasonably calculated to promote conservation; and (C) carried out in such manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

(5) Conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources; except that no such measure shall have economic allocation as its sole purpose.

(6) Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.

(7) Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.

(8) Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.

(9) Conservation and management measures shall, to the extent practicable, (A) minimize bycatch and (B) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch. [3]

(10) Conservation and management measures shall, to the extent practicable, promote the safety of human life at sea.

[3] *UCIDA is very sensitive about the harvest of northern bound coho being characterized as bycatch because of this section.*

All regulatory and legal action to date has been in favor of continued state management of Alaska salmon fisheries. Federal courts, federal agencies and the primary federal fishery regulatory body (North Pacific Fishery Management Council) are in agreement that the state's regulatory and management actions are in compliance with the national standards of MSA, that UCI salmon stocks are being managed in a sustainable manner and that state management seeks to optimize the value of the fishery resources. The global fishery certification program, through the Marine Stewardship Council (MSC), certifies that commercial harvests of salmon in Upper Cook Inlet are regulated and managed in a sustainable manner. Clearly, the contrarian claims made by UCIDA and other UCI commercial fishing interests are false.

UCIDA's claims that the state fails to manage for Maximum Sustainable Yield (MSY) in its salmon management. MSA defines yields not in terms of MSY but in terms of "optimum yield" or OY, which takes MSY calculations into account, but also other factors that can reduce the OY below that of MSY for some species or stocks in mixed species or stock fisheries. OY is defined in terms of that which will provide the greatest overall benefit to the Nation, particularly with respect to food production and recreational opportunities, taking into account the protection of marine ecosystems. OY is to be prescribed as such on the basis of the MSY from the fishery, as reduced by any relevant economic, social, or ecological factors, and in the case of an overfished fishery, provides for rebuilding to a level consistent with producing the MSY in such fishery.

One factor in yield determinations that contributes to the OY being set below the MSY in a fishery management plan is the benefits of recreational opportunities. These opportunities reflect the quality of both the recreational fishing experience and non-consumptive fishery uses such as ecotourism, fish watching, and recreational diving. Benefits also include the contribution of recreational fishing to the national, regional, and local economies and food supplies. Optimum Yield benefits are the very ones that UCIDA seeks to overturn through its federal court case seeking to invalidate Alaska's resident-only fisheries. Nowhere in the national standards or anywhere else in the MSA is MSY mandated as the sole yield criteria for compliance.

Relative to essential fish habitat, the State of Alaska has the most restrictive salmon habitat protection laws of any state in the country. Title 16, AS 16.05.841-871 of the Alaska Statutes essentially requires any activity of any kind, taking place below the high water mark of waters that support salmon, be conducted only through the acquisition of a permit issued for the specific activity by ADF&G. This statute was adopted shortly after Statehood and remains unchanged to this day. No other state subject to the national standards of the MSA governs activities conducted in waters supporting populations of salmon this restrictively. All Mat-Su waters supporting salmon are subject to Title 16 permitting.

10 GLOSSARY

AC – Advisory Committee

ADF&G – Alaska Department of Fish and Game

BOF – Board of Fisheries

Broodstock – adult salmon removed to a hatchery for spawning to support artificial propagation.

EEZ – Exclusive economic zone

Ex-vessel value – Price paid to commercial fishers for harvest typically based on pounds and dollars per pound.

FMP – Fishery Management Plan

MSA – Magnuson-Stevens Act

MSY - Maximum Sustained Yield

KRSA – Kenai River Sportfishing Association

OY or OSY - Optimum Yield or Optimum Sustained Yield. The terms are often used interchangeably.

Overescapement – Variously defined as an upriver migration of salmon that exceeds spawning goals set by the Alaska Department of Fish and Game or an escapement that fails to replace itself.

Terminal fishery – a fishery at the terminus of a returning salmon run near the mouth of a natal river or rivers.

UCI – Upper Cook Inlet including central and northern fishery districts.

UCIDA – Upper Cook Inlet Drift Association. Commercial fisher organization.