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IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF ALASKA

UNITED COOK INLET DRIFT ASSOCIATION and COOK INLET FISHERMEN'S FUND, Plaintiffs, v. NATIONAL MARINE FISHERIES SERVICE ET AL., Defendants.	Civil Action No.: 3:21-cv-00255-JMK **DECLARATION OF ERIK HUEBSCH**

I, Erik Huebsch, hereby declare and state as follows:

1. I make this declaration in support of the Plaintiffs' Remedy Brief in the above-captioned matter. I have personal knowledge of the matters stated below, and I am authorized and competent to make this declaration.

2. I am a commercial fisherman and live in Kasilof, a fishing community on the east coast of Cook Inlet. I own and operate a drift gillnet fishing boat and hold a limited entry permit that allows me to participate in the Cook Inlet drift gillnet salmon fishery. I fish predominately in Cook Inlet and have done so since 1977. Through my extensive experience as a commercial fisherman in Cook Inlet, I have become very familiar with the methods and data that are used to manage the Cook Inlet salmon fishery.

3. I am a member of the United Cook Inlet Drift Association ("UCIDA"), one of the plaintiffs in the above-captioned litigation. I am currently UCIDA's Vice President and serve on UCIDA's Board of Directors.

4. I am very familiar with the history and circumstances that led to this lawsuit, as described in my previous declaration submitted in support of Plaintiffs' Opening Brief.[1] I have also reviewed the Court's Order on Cross Motions for Summary Judgment ("Order"),[2] which vacated Amendment 14 and ordered supplemental briefing on the appropriate remedy.

5. The Court's Order was crucial for the survival of the Cook Inlet salmon fishery. If Amendment 14 had not been vacated, no viable commercial salmon fishery would have taken place in 2022. Although vacating Amendment 14 is a step in the right direction, it has returned Plaintiffs to the position they were in six years ago when the Ninth Circuit Court of Appeals ruled in their favor in *United Cook Inlet Drift Ass'n v.*

[1] *See* Dkt. 40.

[2] *See* Dkt. 67.

NMFS, 837 F.3d 1055, 1063 (9th Cir. 2016). Specifically, there is still no fisheries management plan ("FMP") for the Cook Inlet salmon fishery that complies with the Magnuson-Stevens Fishery Conservation and Management Act ("Magnuson Act" or "MSA"). The fishery is still not "governed by federal rules in the national interest" and remains "managed by [the State] based on parochial concerns."[3]

6. Currently, the State of Alaska is managing the upper Cook Inlet salmon fishery using the same management practices that it has used for the last 20 years or more (and that it used during the previous remand). These management practices are based on the State's priorities and concerns, not the Magnuson Act's National Standards or other requirements. Specifically, the State does not manage salmon stocks in Cook Inlet on the basis of Maximum Sustainable Yield ("MSY"), as the Magnuson Act and its regulations require. And achieving Optimum Yield (OY) on a continuing basis cannot be sustained if the stocks are not managed for MSY.

7. Alaska salmon stocks are typically managed through "escapement" goals. Escapement, quite literally, means allowing adult spawners to "escape" to their natal streams where they can spawn (and die) giving rise to another generation of salmon. Managing salmon for MSY through escapement goals means setting a range of escapement levels for specific stocks of salmon that, based on historical data, will result in the maximum number of returning adults (to then escape or be harvested) in the next generation. The fishery is then managed to achieve the harvest level that allows the

[3] *United Cook*, 837 F.3d at 1063.

escapement to fall within that ideal range. Since Statehood, management of the Cook Inlet salmon fishery has always relied on a regular fishing period schedule, with adjustments by "emergency order" to achieve desired harvest rates or achieve escapement goals. With salmon stocks, both overfishing and underfishing can have the same deleterious effect on future runs. Simply put, not enough spawners (due to overfishing) or too many spawners (due to underfishing) can both negatively affect future run sizes and future yields.

8. The use of a regular fishing schedule of two 12-hour fishing periods per week in Cook Inlet allows harvest on all stocks and species of salmon throughout their runs. The harvest over time allows the processing sector to process the fish in a relatively predictable and timely fashion. The regular fishing periods break up large schools of salmon, spreading out their entry patterns into rivers.

9. This schedule of fishing is also a vital tool in the management of the fishery. Salmon runs need to be assessed *before* they reach their spawning grounds. The silty glacial waters of Cook Inlet prevent the use of aerial surveys or most other methods to assess salmon run strength and timing. The State uses two data sources to track salmon returns: (1) a daily test boat to estimate the number, by species, of salmon moving into the fishing area; and (2) actual catch data from fishing periods gathered within 12-24 hours of the period closure. The combination of these two sets of data, analyzed in the context of historical models, is essential for managing the fishery.

10. If the run is materializing as expected, additional fishing time may be utilized inlet-wide or in specific areas targeting specific rivers. If the run is weaker than predicted, fisheries can be restricted to achieve desired escapements. Prior to 1996, area biologists made these necessary adjustments—by "emergency orders"—in Cook Inlet during the season. Fishing time was added or reduced, to increase or reduce harvest, as needed to meet escapement goals. However, after 1996, the State implemented a series of restrictions on the commercial fishery—such as restrictions on regular fishing periods, seasonal closures, the imposition of fishing "corridors" on the drift fleet, or other time and area restrictions for both drift and set gillnets—to purportedly reduce harvest, and increase escapement, of certain Susitna River sockeye salmon stocks. At that time, sonar counts of these fish in the Susitna River were low, especially in years of large pink salmon escapements. The State believed that restrictions, such as restricting the location of commercial drift gillnetting, would solve the problem.

11. However, in 2008, the State discovered that inaccurate sonar counters used in the Susitna River had been grossly *underestimating* actual sockeye returns since 1978. The sonar counter had only been counting one out of every three or four fish, at best, that swam past it. So while the state had been imposing fishing restrictions on commercial fishery with the purpose of increasing Susitna River escapement, that system was in fact already being repeatedly *overescaped*. Later, genetic studies performed by the State in Cook Inlet in 2012 and 2013 proved that the time and area restrictions on the commercial fishery like, such as the imposition of fishing corridors, do not selectively protect Susitna

River sockeye stocks. Despite all of this new information, none of the restrictions, including the fishing corridors, placed on the commercial fishery to solve the non-existent problem have been removed.

12. Additional changes made by the State in recent years were intended to prevent the commercial set and drift gillnetters from catching certain stocks of Chinook, sockeye, and coho salmon in an attempt to reallocate fish into certain rivers, such as the Kenai and Kasilof, surplus to escapement needs, in order to make as many fish available to sport fisheries as possible. The consequential increased sport fishery effort has caused serious in-river habitat degradation problems, such as hydrocarbon pollution, turbidity levels that exceed clean water standards, and miles of trampled riverbanks. And yet, the sport fishery cannot—by a wide margin—catch all of the surplus fish (or even a meaningful percentage of that surplus), which means that hundreds of thousands of fish are wasted in a given year by the State's continuing effort to overescape Cook Inlet rivers for the purpose of providing better sportfishing opportunity.

13. The State sets a variety of goals for salmon returning to Cook Inlet. Some of these State-set goals are escapement goals and some are not (*e.g.*, they are allocation goals), but none of them are intended to achieve MSY. These various goals are established for many salmon stocks in Cook Inlet, but some stocks do not have any goals.

14. The State establishes "Biological Escapement Goals" (BEGs) and "Sustainable Escapement Goals" (SEGs) for salmon stocks throughout Alaska. The State explains: "Biological Escapement Goals (BEGs) and Sustainable Escapement Goals

(SEGs) are the most important goals used for management. These two goals are established based on the number of salmon, by stock and river system, that need to escape to spawn to provide for sustained yields in the future. BEGs and SEGs are determined through ADF&G research programs." This statement is taken from the Alaska Department of Fish and Game's (ADF&G)webpage titled "Alaska Fisheries Sonar / Escapement Goals," which is available here http://www.adfg.alaska.gov/index.cfm?adfg=sonar.escapementgoals, and a true and correct copy of which is attached as **Exhibit 1**.

15. According to State regulations, the BEG "provides the greatest potential for maximum sustained yield." 5 AAC 39.222(f). BEGs are typically set for 90% of MSY. According to State regulations, SEGs reflect an escapement level that provides a "sustained yield over a 5 to 10 year period" and are "used in situations where a BEG cannot be estimated due to the absence of a stock specific catch estimate . . . ." *Id*.

16. The State also establishes "inriver run goals" for certain salmon stocks. According to State regulations, this goal "means a specific management objective for salmon stocks that are subject to harvest upstream of the point where escapement is estimated; the inriver run goal will be set in regulation by the board and is comprised of the SEG, BEG, or OEG, *plus specific allocations to inriver fisheries*." 5 AAC 39.222(f) (emphasis added). The "OEG" referenced in this definition is the "Optimum Escapement Goal," which reflects "[a] specific management objective for salmon escapement that considers biological *and allocative factors* and may differ from the SEG or BEG." 5

AAC 39.222(f) (emphasis added). OEGs are typically larger than SEGs or BEGs. By definition, an "inriver run goal" is larger than the SEG, the BEG, or the OEG. OEGs and inriver run goals do not, and are not intended to, maximize or optimize sustained *yield*. Many SEGs and BEGs established by the State for Cook Inlet stocks also do not reflect a level that maximizes sustained yield. The State uses inriver run goals and OEGs in Cook Inlet to, among other things, produce surplus fish for the salmon sport fishery, particularly on the Kenai and Kasilof Rivers.

17. In a letter dated August 31, 2010, the ADF&G Commissioner at that time, Denby Lloyd, provided an explanation, at the request of the North Pacific Fishery Management Council, for how the State's management of salmon stocks satisfies the requirements of National Standard 1 of the Magnuson Act. National Standard 1 requires that each U.S. fishery be managed to achieve Optimum Yield, which is achieved through management for the MSY. 50 C.F.R. § 600.310(b). MSY "is the largest long-term average catch or yield that can be taken from a stock or stock complex under prevailing ecological, environmental conditions and fishery technology characteristics (*e.g.*, gear selectivity), and the distribution of catch among fleets." *Id.* § 600.310(e)(1). A true and correct copy of that letter is attached to this declaration as **Exhibit 2.**

18. As Commissioner Lloyd explained in the letter, "[fo]r salmon, maximum sustained yield is achieved by fishing appropriately to maintain the spawning escapement at levels that provide potential to maximize surplus production." Ex. 2 at 9. The letter explains:

> Escapement goals are based on direct assessments of MSY escapement level (Smsy) from stock recruit analysis (i.e., BEG) or a reasonable proxy (i.e., SEG) (c.f. Munro and Volk, 2010). Escapement goals are specified as a range or a lower bound threshold. In general, escapement goal ranges produce 90% of MSY, and escapements are considered neutral within the range.

Ex. 2 at 11.

19. The letter concludes that "Alaska's salmon fisheries are managed to maintain escapement within levels that provide for MSY (Smsy), escapements are assessed on an annual basis, all appropriate reference points are couched in terms of escapement level, and status determinations are made based on the stock's level of escapements." Ex. 2 at 11. The State may manage to MSY for some salmon stocks, but the letter's conclusion is definitely *not* true for Cook Inlet salmon stocks, as they are managed today (and have been managed for years). The clearest evidence of this is the State's own data. Below, I show how the State's management of the Kenai River and Kasilof River sockeye salmon stocks intentionally does *not* manage for MSY, despite the State's stated intent in 2010 that it do so for *all* Alaska salmon stocks. These two stocks make up the large majority of the Cook Inlet sockeye salmon run.

20. The problems associated with ongoing State management and the need for interim relief in fishing season 2023 (should NMFS not timely approve and implement a compliant FMP and final rule) are easily illustrated by looking at the Kenai and Kasilof River sockeye salmon stocks. These are two of the most important commercial salmon fishing stocks in Cook Inlet, with the Kenai stock being Alaska's second largest stock

(after Bristol Bay) and one of the top sockeye runs in the world. By focusing on these two stocks, I do not mean to suggest that there are not problems with the State's management of other stocks in Cook Inlet. There are many problems. As discussed in our prior briefing, there are many stocks in Cook Inlet that have no escapement goals at all, and the pink salmon stocks (which return in the millions every other year) go largely unharvested under the State's mismanagement. Rather, I am focusing on the Kenai and Kasilof sockeye stocks because they illustrate the problems and show the ongoing harm that will occur in 2023 if a revised FMP is not completed. These stocks provide a straightforward way for the Court to provide some measure of interim relief if NMFS fails to timely complete a remand before next fishing season.

21. The State has established a SEG for Kenai River sockeye, which is currently 750,000 – 1,300,000 fish. However, the State has also established an inriver run goal for the Kenai River, which, in 2022, was 1,100,000 – 1,400,000 fish, and has been in approximately that range since 2011. The State intentionally manages this stock to *exceed* the inriver run goal, not meet the SEG. Indeed, the State routinely exceeds—often by enormous margins—the inriver run goal, thus ensuring lost harvestable surplus (above the SEG) every single year. In fact, the State has exceeded the high-end of the range of its in-river goal at least nine out of the last ten years. For example, in the most recent four years, the actual Kenai sockeye escapements were: 1,567,750 (2022); 2,441,825 (2021); 1,714,565 (2020); and 1,849,054 (2019). In these four years, the upper end of the bloated inriver run goal was exceeded by a range of approximately 167,000 to 1,000,000 sockeye

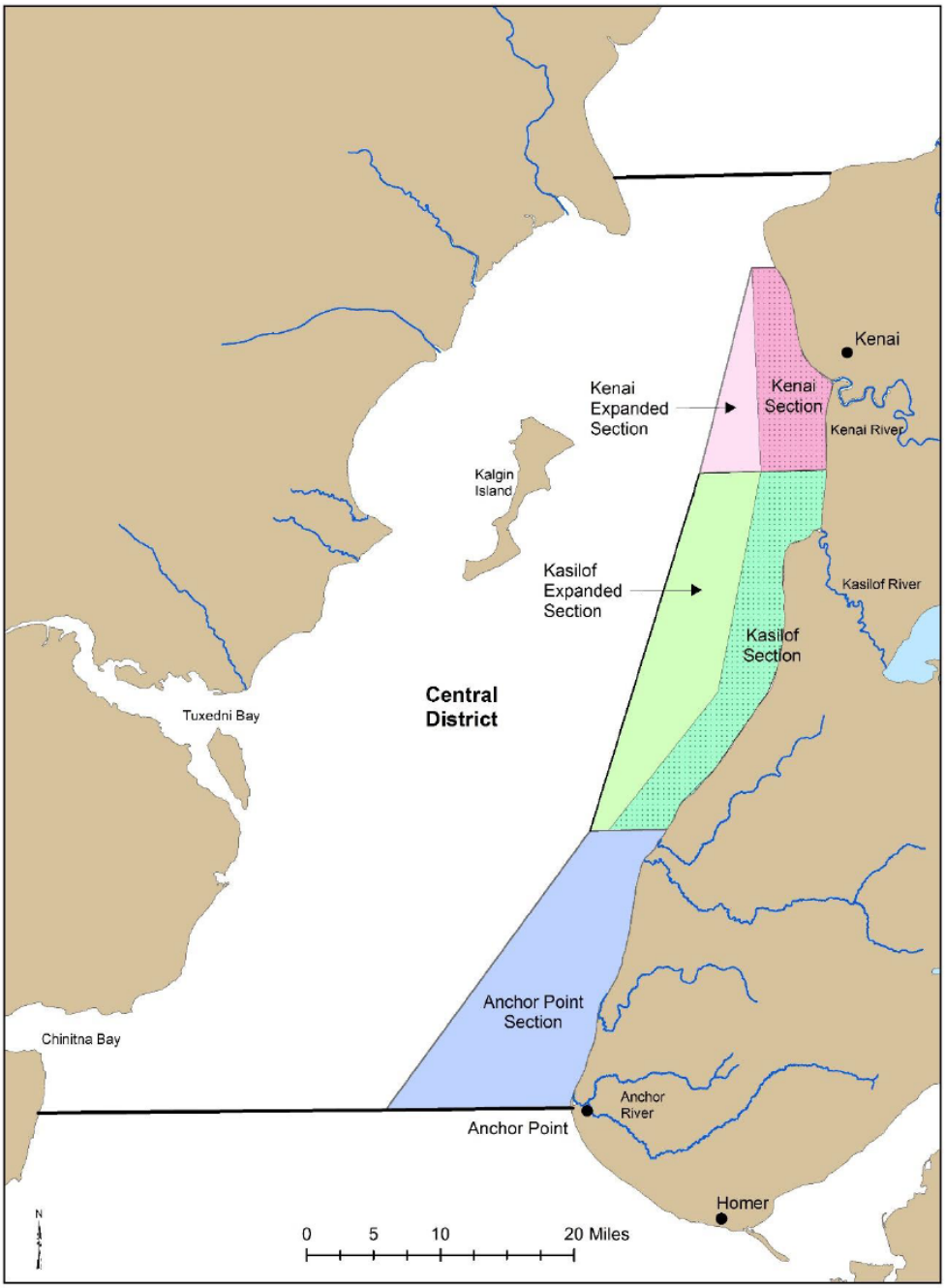
salmon in a single year—none of which were available to harvest. These data are presented on the State's website, a true and correct copy of which is attached as **Exhibit 3.**

22. Similar problems have occurred on the Kasilof River. The State set a BEG for Kasilof River sockeye of 140,000 – 320,000 fish. However, State decided not to manage to either its own "biological" goal or MSY and instead manages the fishery for the OEG. The State's OEG for Kasilof River sockeye is 140,000 – 370,000, and has been in approximately that range since 2011.

23. As with the Kenai River, the State has consistently failed to meet its own bloated OEG for Kasilof River sockeye virtually every year for many years. For example, in the most recent four years, the actual Kasilof sockeye escapements were: 971,604 (2022); 521,859 (2021); 545,654 (2020); and 378,416 (2019). In these four years, the upper end of the OEG was exceeded by a range of approximately 8,000 to 600,000 sockeye salmon in a single year—none of which were available to harvest. These data are presented on the State's website, a true and correct copy of which is attached as **Exhibit 4**.

24. The reason the State repeatedly misses its own (inflated) targets is relatively simple. The State no longer allows sufficient opportunity for fishing at times and locations where fish are present. Historically, all the regular fishing periods were on an inlet-wide basis, meaning fishing in state and federal waters. Fishing vessels operated a minimum of two days a week in state and federal waters June through August, and the

State would authorize additional fishing days as needed to ensure the surplus was harvested. But, as mentioned above, starting in the late 1990s, the State began to impose significant time and area restrictions on the fishery, requiring it to fish in various corridors. These corridors are depicted in the map below:



25. As explained above, these corridors serve no conservation purpose. The result of restricting the fleet to these corridors has made it virtually impossible for the commercial industry to harvest the available surplus in a manner consistent with MSY.

26. The State often affords many fishing "days" but those days are meaningless if they are restricted to corridors where no fish are located. When the State restricts the fleet into one or more of the sections or corridors, the fleet's ability to harvest fish is greatly reduced and harvest rates in the restricted areas are just a fraction of what they can be in an area-wide opening. Many fishermen won't even bother fishing if the opening is restricted because is not economical and they cannot even recover their fuel costs. In 2021, for example, the State allowed 26 fishing "days" during the summer, but only 6 of those days were inlet-wide. The rest of the 20 days were shunted into various corridors (mostly in state waters). The result, predictably, was a poor harvest (about 39% less than the already depressed 10-year average) and the State exceeding its inriver run goal for Kenai River sockeye by 1.2 million fish.

27. The State's misses are also clearly intentional. In 2022, the overescapement of sockeye into the Kenai and Kasilof Rivers was, in part, a result of a deliberate action prescribed in the pre-season March 24, 2022, Advisory Announcement from ADF&G titled "Upper Cook Inlet, 2022 Outlook for Commercial Fishing," a true and correct copy of which is attached as **Exhibit 5**. In that publication ADF&G stated, "Commercial fishery openings on weekends will not occur to facilitate movement of fish into the rivers for the personal use fishery." The "personal use" fishery did not harvest the surplus (and

could not do so) and the surplus was entirely wasted. This isn't managing to MSY. Hundreds of thousands of available fish—well over an inriver run goal that itself (by definition) is far above an amount that maximizes the sustainable yield—were intentionally disallowed from harvest by the commercial fishery.

28. Given this pattern (which has repeated for more than a decade), it is highly likely that absent judicial intervention the State will again allow overescapement of the Kenai River and Kasilof River sockeye stocks in 2023 far beyond MSY, far beyond its own "sustainable" and "biological" goals, and even beyond the high end of the State's inflated inriver run and OEG goals which have nothing to do with MSY and everything to do with *allocation* (to the sport fishery, which is incapable of harvesting anything close to the amount of fish made available by the State). *See* "inriver run" and OEG definitions above in paragraph 16.

29. These prior lost harvests due to overescapement have had a significant financial impact on my fishing business, as they have on many of UCIDA's other members. In the years discussed above, the State either restricted harvest during the regular fishing periods (*i.e.*, to narrow corridors where fish are not available in productive amounts) or failed to authorize additional harvests days and times necessary to harvest the available surplus. This lost fishing opportunity cannot be recovered. Once the fish gets to the river, it is lost permanently to commercial harvest. If NMFS is not able to complete a legally compliant FMP and implementing rule before fishing season 2023, my

fishing business (and that of many of UCIDA's members) is highly likely to suffer continuing irreparable harm from lost fishing opportunity.

30. The economic consequences to the commercial fishery of these lost harvest opportunities cannot be overstated. For example, in 2020, the State so severely restricted commercial fishing in Cook Inlet that the average commercial driftnet permit holder caught less than 800 sockeye *for the entire season.* Meanwhile, the State exceeded its inflated inriver run goal for the Kenai by approximately 500,000 sockeye and its OEG for the Kasilof by approximately 175,000 sockeye. The result was economically disastrous to the commercial fishing industry. Indeed, the Secretary of Commerce ultimately declared the 2020 Cook Inlet commercial salmon fishing season to be a "disaster" under the Magnuson Act. A true and correct copy of the disaster determination is attached to this declaration as **Exhibit 6**. This was, of course, a disaster of the State's own making. Had the State allowed the commercial fishery to catch the massive amount of surplus escapement, there would have been no disaster for the Cook Inlet commercial fishery.

31. The reality is that many participants in the commercial salmon fishing industry in Cook Inlet, of which I am a part, have been barely hanging on economically for the last several years. My income from salmon fishing is now less than 25% of what is has been historically, and that is typical of the industry as a whole. In 1996, there were 23 salmon processors in Cook Inlet. By 2019, that number had dwindled to four. By 2021, there were only two. Again, all as a consequence of the State's mismanagement of the Cook Inlet commercial salmon fishery.

32. This situation is untenable. Processors are going bankrupt and so are commercial fishermen. The State provides no true opportunity to harvest hundreds of thousands (or millions) of the available salmon surplus and there is not even enough opportunity make the expenses necessary to pay for a commercial fishing operation, which can cost several hundred thousand dollars for a boat and permit and also significant annual operating costs for fuel, insurance, nets, vessel maintenance, etc. This has resulted in many fishermen having to leave the fishery but not being able to sell and retain their capital investments. Both boat and permit prices for the Cook Inlet fishery have plummeted in the last decade. Cook Inlet salmon drift gillnet permits have sold in the past for over $200,000, and they are now worth around $30,000.

33. The wasted fish that exceed MSY-based escapement goals are a tremendous loss to the commercial fishing industry, UCIDA membership, and myself. The consequence of exceeding the MSY goals in just the Kenai and Kasilof Rivers this year was a lost opportunity for commercial fishermen and UCIDA members to harvest and sell about 7 million pounds of sockeye salmon, with an ex-vessel value of about $14 million dollars or about $28 million dollars in first wholesale value which represents the actual economic loss to the south-central Alaska economy. If the parochial and politically driven management practices of the State are allowed to continue during the remand process, then the irreparable harm to UCIDA's members will continue along with the gross mismanagement of Cook Inlet sockeye salmon stocks described above and the associated the economic harm.

34. An order from this Court requiring NMFS and the State to ensure that, at the very least, commercial fishermen including myself have a reasonable opportunity to harvest the available surplus in 2023 will help reduce this ongoing harm. This can be accomplished, I believe, by requiring NMFS and the State to allow for all the regular fishing periods on an inlet-wide basis in 2023, and requiring NMFS and the State to provide additional openings to ensure that the escapement on the Kenai River sockeye falls within the State's own sustainable escapement goal (SEG) and that the Kasilof River sockeye escapement falls within the State's own biological escapement goal (BEG). Meeting these goals is not a substitute for achieving MSY, as determined through the process of preparing a MSA-compliant FMP, but it would at least alleviate the hardship to myself and the rest of the commercial fishing industry in Cook Inlet until a compliant FMP and final rule are issued.

35. If these actions are not taken in the interim while the remand is ongoing, UCIDA members and seafood processors will continue to suffer irreparable harm. The State has given no indication that it intends to change its mismanagement of the Cook Inlet salmon stocks. Indeed, data available for the most recent years, as set forth above, demonstrate that it can be safely assumed that, in 2023, the State will again intentionally manage Cook Inlet stocks to *exceed* its bloated inriver run and OEG goals, resulting in hundreds of thousands (or more) fish unavailable for harvest by the commercial fleet and incapable of harvest by the sport fishery (*i.e.*, wasted). Should this continue, the

management of the Cook Inlet salmon fishery will continue to violate the Magnuson Act and harm UCIDA's members and UCIDA just as it has done repeatedly over the years.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on: September 6, 2022.

Erik Huebsch

CERTIFICATE OF SERVICE

I hereby certify that on September 6, 2022, I filed a true and correct copy of the foregoing document with the Clerk of the Court for the United States District Court, District of Alaska by using the CM/ECF system which will send notification of such filing to all counsel of record.

/s/ Jason T. Morgan
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FOR THE DISTRICT OF ALASKA

UNITED COOK INLET DRIFT ASSOCIATION and COOK INLET FISHERMEN'S FUND, Plaintiffs, v. NATIONAL MARINE FISHERIES SERVICE ET AL., Defendants.	Civil Action No.: 3:21-cv-00255-JMK

INDEX OF EXHIBITS TO DECLARATION OF ERIK HUEBSCH

EXHIBIT 1	Alaska Department of Fish and Game webpage: http://www.adfg.alaska.gov/index.cfm?adfg=sonar.escapementgoals
EXHIBIT 2	August 31, 2010 Alaska Department of Fish and Game Commissioner's Letter to the Executive Director of North Pacific Fishery Management Council regarding compliance with National Standard 1 of the Magnuson Act.
EXHIBIT 3	Kenai River (Late-Run Sockeye) Sockeye for 2022 (Inriver Goal and Sustainable Escarpment Goal data)
EXHIBIT 4	Kenai River (Late-Run Sockeye) Sockeye for 2022 (Biological Escapement Goal and Optimal Escapement Goal data)
EXHIBIT 5	March 24, 2022 Upper Cook Inlet, 2022 Outlook for Commercial Fishing
EXHIBIT 6	February 1, 2022 Secretary of Commerce Letter to Governor of Alaska regarding commercial fishery resource disaster impact.

CERTIFICATE OF SERVICE

I hereby certify that on September 6, 2022, I filed a true and correct copy of the foregoing document with the Clerk of the Court for the United States District Court, District of Alaska by using the CM/ECF system which will send notification of such filing to all counsel of record.

/s/ Jason T. Morgan
Jason T. Morgan, AK Bar No. 1602010

Alaska Department of Fish and Game

Alaska Fisheries Sonar
Escapement Goals

Fish and Numbers—four goals used to manage Alaska salmon stocks

BEGs and SEGs in a nutshell

Biological Escapement Goals (BEGs) and Sustainable Escapement Goals (SEGs) are the most important goals used for management. These two goals are established based on the number of salmon, by stock and river system, that need to escape to spawn to provide for sustained yields in the future. BEGs and SEGs are determined through ADF&G research programs.

Official Definitions:

Biological Escapement Goal (BEG): The escapement that provides the greatest potential for maximum sustained yield; BEG will be the primary management objective for the escapement unless an optimal escapement goal or inriver run goal has been adopted; BEG will be developed from the best biological information, and should be scientifically defensible on the basis of available biological information; BEG will be determined by the department and will be expressed as a range based on factors such as salmon stock productivity and data uncertainty; the department will seek to maintain evenly distributed salmon escapements within the bounds of the BEG (from 5 AAC 39.222(f)).

Sustainable Escapement Goal (SEG): A level of escapement, indicated by an index or an escapement estimate, that is known to provide for sustained yield over a 5 to 10 year period, used in situations where a BEG cannot be estimated due to the absence of a stock specific catch estimate; the SEG is the primary management objective for the escapement, unless an optimal escapement goal or inriver run goal has been adopted by the board, and will be developed from the best biological information; the SEG will be determined by the department and will be stated as a range that takes into account data uncertainty; the department will seek to maintain escapements within the bounds of the SEG (from 5 AAC 39.222(f)).

OEGs and Inriver Goals in a nutshell

While BEGs and SEGs are set by ADF&G, Inriver Goals and OEGs are established by the Board of Fisheries. Inriver Goals require ADF&G to leave enough returning salmon unharvested to meet the BEG or SEG and to make a certain number of salmon available for inriver harvests. The OEG can also add fish to the BEG or SEG for inriver fishermen, but may also add fish for escapement when there are uncertainties in the data used to establish a BEG or SEG. Not all of the salmon stocks that ADF&G manages have Inriver Goals or OEGs.

Official Definitions:

Optimal Escapement Goal (OEG): A specific management objective for salmon escapement that considers biological and allocative factors and may differ from the SEG or BEG; an OEG will be sustainable and may be expressed as a range with the lower bound above the level of Sustainable Escapement Threshold, and will be adopted as a regulation by the board; the department will seek to maintain evenly distributed escapements within the bounds of the OEG (from 5 AAC 39.222(f)).

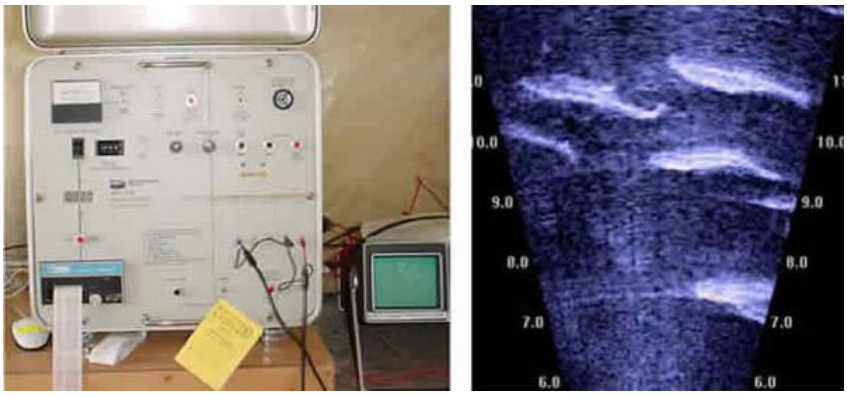
Inriver Goal: A specific management objective for salmon stocks that are subject to harvest upstream of where escapement is estimated; the inriver run goal will be set in regulation by the board and is comprised of the SEG, BEG or OEG, plus specific allocations to inriver fisheries; (from 5 AAC 39.222(f)).

How changes in sonar technology impact escapement goals

The impact of transitions in sonar technology at ADF&G sonar sites on escapement goals has been a source of confusion in some of Alaska's salmon fisheries. Between 2002 and 2011 many sonar sites transitioned from Bendix sonar systems to a newer sonar technology known as DIDSON. In comparative studies conducted between the two technologies ADF&G biologists found that in most rivers they could detect fish better using DIDSON and established new escapement goals to account for the improved counting method. In some cases the resulting escapement goal change was minor and in some cases it was significant. For more details see the bottom of this page or this comparison report (*PDF 9,584 kB*).

Sonar technology and converting escapement goals to new counting units

In rivers where DIDSON counts fish better than Bendix sonar, escapement goals have increased as ADF&G has converted historical and current escapement data from Bendix to DIDSON units. Goals increased as a result of sonar technology transitions do not put more fish into the river. Just as converting a 50-mile speed limit into an 80-kilometer speed limit does not increase the actual speed at which vehicles are allowed to travel—converting goals from Bendix to DIDSON units does not increase the actual number of fish allowed to escape into a river.



A Bendix echo counter (left) printed hourly fish counts on paper tape. DIDSON (right) produces ultrasound-like video images of fish. (See detailed explanation of how sonar goal transitions impacted Kenai and Kasilof escapment goals in 2011.)

STATE OF ALASKA

SEAN PARNELL, GOVERNOR

DEPARTMENT OF FISH AND GAME
OFFICE OF THE COMMISSIONER

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August 31, 2010

Mr. Chris Oliver
Executive Director
North Pacific Fishery Management Council
605 W. 4th Avenue, Suite 306
Anchorage, AK 99501-2252

Dear Mr. Oliver:

The enclosed discussion of the State of Alaska's (state) salmon management program is in response to your request for assistance in evaluating the program for North Pacific Fishery Management Council (Council) compliance with the requirements of National Standard 1 (NS1) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) to prevent overfishing while achieving optimum yield. Attachments referenced in our discussion are provided for use in the Council and agency review of the state system. These include the *Policy for the Management of Sustainable Salmon Fisheries* (5AAC 39.222) and the *Policy for Statewide Salmon Escapement Goals*.

The National Marine Fisheries Service (NMFS) promulgated implementing guidelines, by regulation (50 CFR § 600.310, January 16, 2009), to facilitate compliance with NS1 requirements under MSA. These guidelines outline a prescriptive approach to achieve NS1 objectives for fisheries that are managed by federal fishery management plans (FMPs), but also expressly contemplate an alternative approach for stocks with unusual life history characteristics like Pacific salmon. 50 C.F.R. § 600.310(h)(3). The Council's salmon FMP delegates salmon fisheries management to the State of Alaska, and the state believes the MSA provision for an alternative approach to meeting NS1 guidelines is intended to be used in circumstances such as management of Pacific salmon off Alaska.

Management of Alaska salmon fisheries calls for an alternative approach to that taken for other stocks under a federal fishery management plan for the following reasons:

1) unlike groundfish stocks, salmon are semelparous, reproducing once in the life cycle;
2) the harvestable surplus is entirely new recruits and the catch comprises almost exclusively mature salmon;
3) the productivity of a specific year class cannot be improved by limiting harvest in subsequent years;
4) foregone harvest cannot be recaptured in future years; and

5) since abundance cannot be estimated effectively in advance, in-season estimations of abundance using contemporaneous data, with appropriate management actions taken to assure escapement and optimum production in future years, is the most effective way to avoid the risk of overfishing.

Alaska's salmon fisheries management has a long and successful history of avoiding overfishing. Scientifically defensible salmon escapement goals and robust processes for in season management are central tenets of sustainable salmon management in Alaska. Contrary to the intent of the MSA, developing a quota system based on preseason forecasts in order to implement annual catch limits (ACLs) would result in greater risks of overfishing and failure to achieve optimum yield.

In recognition that applying ACL and accountability measure (AM) requirements to stocks covered by an international fishery agreement may unfairly impact the U.S. component of fisheries, the MSA and NS guidelines provide for an exception for those stocks. 16 U.S.C. § 1853(note); 50 C.F.R. § 600.310(h)(2)(ii). Management provisions of the international Pacific Salmon Treaty between the U.S. and Canada apply to Chinook salmon stocks harvested in state and federal waters off Southeast Alaska, and these stocks should be excepted from ACL and AM requirements. Chinook harvested off Southeast Alaska predominately originate from streams in the Pacific Salmon Treaty area which stretches from central Oregon through Canada to Cape Suckling, Alaska.

We encourage further information exchanges on this issue as the Council considers potential alternatives to comply with federal requirements, and look forward to ongoing coordination among fisheries scientists, salmon research and management biologists to ensure the Council is able to make appropriate, fully informed decisions.

Sincerely,

Denby S. Lloyd
Commissioner

Enclosures

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Enclosures

State of Alaska's Salmon Fisheries Management Program

Introduction

The Fishery Management Plan (FMP) for salmon fisheries in the Exclusive Economic Zone (EEZ) off Alaska's coast defers salmon management to the State of Alaska. Compliance with the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and National Standards (NS) guidelines requires the Regional Management Councils, with some exceptions, to establish a mechanism for specifying annual catch limits (ACLs) and accountability measures (AMs) to prevent overfishing of stocks that are covered under the FMP (MSA § 303(a)(15); 16 U.S.C. §1853(a)(15)). The North Pacific Fishery Management Council (Council) has requested the assistance of Alaska Department of Fish and Game (ADF&G) in evaluating the State of Alaska's salmon management program with regard to the requirements of the MSA. This document describes how the State of Alaska salmon management system is a successful and appropriate system for meeting MSA requirements to prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.

The Council generally applies catch quota based fishery management systems for managing groundfish fisheries in the EEZ off Alaska. Annual catch quotas, often allocated among different users, are specified for each stock. The quota is based on the assessment of the stock biomass and the application of a suitable exploitation rate. Stock Assessment and Fishery Evaluation (SAFE) documents, which detail stock assessment and final acceptable biological catch (ABC) recommendations, are prepared in the year prior to the fishing season using stock assessment data collected as recently as the year prior to the fishery. However, proposed ABC recommendations are made for one and two years prior to the fishery based on data gathered up to two or three years before the fishery is conducted. This minimum 2-year lag between data acquisition and the years for the proposed recommendations allows suitable time for the lengthy public and government review process required under Federal law. The final ABC recommendations are very often close to the proposed ABCs, which require 2-year population projections. This is generally appropriate because groundfish fisheries under Council jurisdiction primarily occur on long-lived stocks where new recruits are not a significant component of the stock biomass, and projection models tend to use consistent growth and natural mortality rates. Because projections are reasonably accurate and quotas are small compared to the stock biomass, there is little risk of overfishing imposed by erroneous projection of stock assessment information; an inherent risk in relying on early projections to establish catch quotas. Furthermore, groundfish stocks are iteroparous, so management can adapt over time with conservation action taken in a subsequent year to increase the productive biomass and increase the allowable catch to respond to overly conservative management thereby minimizing foregone harvest.

Alaska salmon fisheries pose a different case because

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Alaskan salmon fisheries are managed by allowing fishing in specific times and areas. With the exception of Chinook salmon in the Southeast Alaska troll fishery, Alaska salmon fisheries generally occur on maturing fish in areas terminal or near-terminal to natal spawning systems, where fish are concentrated and highly vulnerable. Although salmon are vulnerable to fishing for only a short time, run timing is consistent and predictable from year to year. Salmon are relatively short-lived and highly productive, with sustainable catch levels large relative to the spawning stock. Because salmon run sizes are highly variable and unpredictable, specifying a catch quota based on pre-season abundance forecasts is a much inferior approach to salmon management than actively managing for monitored in-season abundance.

During the federal management era prior to Alaska statehood, salmon fisheries were largely managed by fishing schedules and fishing areas defined in regulation pre-season. There were provisions for in-season adjustments, but these were ineffective and rarely implemented due to the need for secretarial review and lack of in-season assessment information. By the time in-season adjustments were implemented it was too late for effective conservation measures. The inability to curtail fishing during weak runs and extended periods of poor productivity led to the depletion of Alaskan salmon stocks at the time of Alaska statehood. With the exception of the Southeast Alaska troll fishery and the Area M June net fisheries, catch quota based fishery management systems have never been used in State management of Alaska salmon fisheries (catch quotas were abandoned for the Area M June fishery in about 2003). These two fisheries occur on distant stocks with catch quotas comprising a relatively small portion of the overall stock.

In the State fishery management era, the vast majority of salmon may be taken only in fishing periods established in-season by emergency order. Fishing is allowed to continue only if in-season assessment of run strength indicates harvestable surpluses. The level of fishing time allowed depends on the strength of the in-season run. Authority to open and close fisheries is delegated to local area managers by the Commissioner of Fish and Game. This enables timely and effective fishery management responses to in-season information. Under State management, stock assessments are focused on obtaining escapement estimates for stocks targeted in fisheries. At the time of statehood, escapement data were available only for Bristol Bay sockeye salmon, a few Kodiak sockeye systems, Chignik sockeye, and aerial surveys were utilized to assess pink salmon escapement in coastal areas throughout the Gulf of Alaska. Escapement enumeration programs have since been greatly expanded, with direct or appropriate indicator stock monitoring of escapements for most sockeye, Chinook, and pink salmon stocks targeted in Alaska salmon fisheries, as well as important chum salmon stocks in Arctic-Yukon-Kuskokwim (AYK) region. This management and stock assessment framework addresses the principal overfishing risk in managing salmon fisheries: allowing intense fishing during weak runs. Because occasional weak runs are inevitable, timely and accurate assessment of run strength avoids overfishing by implementing conservative fishing schedules conditioned on in-season abundance.

A fishery management system based on strict catch quotas and associated ACLs and AMs, implicit in the NS implementation, would be problematic for Alaska salmon fisheries. ACLs are inconsistent with the

State's salmon fisheries management system which has a long-term, successful history of avoiding overfishing. Their implementation would not be beneficial for meeting the goals and requirements of MSA to prevent overfishing.

National Standards Guidelines

National Standards 1 (NS1) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) requires that 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." Overfishing occurs whenever a stock or stock complex is subjected to a level of fishing mortality that jeopardizes the capacity of the stock or stock complex to produce maximum sustained yield (MSY) on a continuing basis. The MSA establishes MSY as the basis for fisheries management and requires that fishing mortality does not jeopardize the capacity of a fishery to produce MSY.

NS1 is implemented with the 2009 MSA Provisions; Annual Catch Limits; National Standards Guidelines; Final Rule, which specifies an OFL/ABC/ACL framework. A tier of reference points are defined: the overfishing limit (OFL) which corresponds with MSY; the acceptable biological catch (ABC) which cannot exceed the OFL; the annual catch limit (ACL); and the annual catch target (ACT). The difference between OFL and ABC depends on how scientific uncertainty is accounted for in the ABC control rule. The difference between ACL and ACT depends on management performance and uncertainty. For salmon, one can define reference points based on escapement, exploitation rate, or catch; however catch based reference points and associated targets generally cannot be safely determined pre-season, and assessment of compliance can only be assessed post-season.

For escapement based reference points in the OFL/ABC/ACL framework,

$$S_{OFL} < S_{ABC} = S_{MSY} \leq S_{ACL} < S_{ACT}$$

For exploitation rate- and catch- based reference points.

$$F_{OFL} > F_{ABC} = F_{MSY} \geq F_{ACL} > F_{ACT}$$

$$C_{OFL} > C_{ABC} = C_{MSY} \geq C_{ACL} > C_{ACT}$$

NS1 requires that each FMP specify objective and measurable criteria (status determination criteria - SDC) for identifying when stocks or stock complexes covered by the FMP are overfished. The guidelines for NS1 specify that status determination criteria must specify both a maximum fishing mortality threshold (MFMT) and a minimum stock size threshold (MSST). The fishing mortality threshold cannot exceed the MFMT or level associated with the MSY control rule. Exceeding MFMT for a period of 1 year constitutes overfishing. The MSST should be expressed in terms of spawning biomass or other measure of productive capacity, and should equal whichever of the following is the greater; one-half the MSY stock size, or the minimum stock size at which rebuilding to the MSY level would be expected to occur within 10 years. If the spawning stock size falls below the threshold for a year, the stock complex is considered overfished.

Due to their unique life history, implementation of the SDC as outlined in NS1 is problematic for salmon. Salmon are semelparous, short-lived (2-7 years), and generally vulnerable to exploitation only during

their spawning migration (except immature salmon are vulnerable to some extent as bycatch in groundfish fisheries and immature Chinook salmon are targeted in ocean troll salmon fisheries). Thus, depending on maturity schedules, only a small to moderate fraction of the stock is vulnerable to fishing in a given return year. The inter-annual abundance of salmon spawning populations is typically highly variable, due to variable year-class strength and variable maturation schedules, and fishing mortality rates are expressed as a fraction of the spawning stock. This is very different than fishing mortality rates on long-lived iteroparous populations, where all fully recruited age classes are considered vulnerable to fishing. Status determinations for salmon must account for multiple return years from a single brood.

There are also difficult problems with implementation of an exploitation rate or catch based OFL/ABC/ACL/ACT framework for salmon. Alaskan salmon fisheries are generally managed under a constant escapement harvest policy where exploitation rates and catch fluctuate with variation in salmon run strength , with escapement targets fixed in time. The MSY control rules for salmon fisheries are more safely implemented by targeting management actions to achieve a target escapement level rather than a target fishing mortality rate or a target catch level. It is possible to determine catch- based and exploitation rate- based management targets for salmon on a post season basis. Here $F_{MSY} = (1\text{-}S_{MSY}/R)$ and $C_{MSY} = F_{MSY} R$. Because salmon runs are highly variable and impossible to accurately forecast, catch based management targets would be very risky and routinely result in over-harvest in the commonly encountered situation of an unanticipated weak run. Catch based MSY control rules are not appropriate for salmon fisheries. MSY exploitation rates on salmon are, on average, very high relative to those for iteroparous populations. With the highly variable and unpredictable nature of salmon spawning abundance, it is very difficult and risky to implement a fixed MSY exploitation rate harvest policy. ACLs and associated ACTs as described in NS1, clearly focus on a catch based management system. Because of high risk associated with catch-based management targets, which are based on inherently inaccurate pre-season forecasts of salmon runs, these approaches are inferior to escapement based management for avoiding overfishing of salmon stocks.

Salmon Stock Assessment and Management

For salmon, maximum sustained yield is achieved by fishing appropriately to maintain the spawning escapement at levels that provide potential to maximize surplus production. Salmon populations exhibit compensatory and density dependent stock recruitment dynamics, driven by intra-specific competition for limited spawning and rearing habitat. In salmon populations, sustained yield is driven by increased production in response to fishing induced reductions in spawning escapement and concomitant increased survival accompanying decreased competition. Sustained yield in iteroparous populations is driven by fishing induced increased growth in biomass over biomass lost to natural maturity (i.e., yield per recruit). This concept has no relevance for salmon since the vast majority of fish are harvested at the end of their life.

Biological reference points for salmon populations are estimated based on long-term, stock specific assessment of recruits from parent escapement or long-term assessment of escapement. Estimating biological reference points for salmon populations requires direct assessment of the spawning stock. Biological reference points for iteroparous populations can and usually are estimated without direct stock-recruit assessment data. The salmon stock assessment programs employed by ADF&G are designed to monitor stock and age-specific catch and escapements. The program employs comprehensive sampling of

catch and escapements by age; comprehensive escapement monitoring using tower counts, weir counts, sonar counts , mark-recapture experiments, aerial counts, and foot counts; and routine monitoring and stock identification of catch using a variety of methods including, genetic stock identification (GSI) , coded wire tags , and otolith marks. These data enable the current season run (i.e., catch plus escapement) to be assigned to prior brood years (i.e., the return from stock specific parent escapement). Comprehensive implementation of the ADF&G salmon stock assessment programs, over time, provides stock- recruit data necessary for developing MSY based escapement goals. Since the catch and escapement monitoring programs are conducted in real-time, they provide in-season assessments of run strength necessary for managers to implement ADF&G's escapement based harvest polices. In fisheries, where escapement monitoring occurs distant from the fishery, test fisheries are employed to provide more real-time assessment.

The compensatory nature of salmon population dynamics is reflected in the Ricker stock recruit model (Figure 1). Appropriate biological reference points used as benchmarks in status determinations, and in setting escapement goals can be determined from the Ricker model parameters estimated by fitting the Ricker model to historical stock-recruit data (Ricker 1954). These include α, the productivity of the stock and the overfishing harvest rate ($U_{of} = 1- 1/\alpha$); the equilibrium escapement (S_{eq}); MSY escapement (S_{msy}), (typically between .35 and .45 of the equilibrium escapement), and the MSY harvest rate (U_{msy}). Escapement goals are typically set at the range of escapements that provides 90% or more of MSY. The approach of using the fitted Ricker stock-recruit model to set escapement goals is routinely used by ADF&G for stocks where stock specific runs can be estimated and there is sufficient contrast in the historical escapement data to reflect density dependence.

Biological reference points estimated for many salmon stocks demonstrate that salmon populations are extremely productive, with the limit return per spawner (α) averaging 3.7, 4.0, 3.7, 6.0, and 6.9 for pink, chum, coho, sockeye, and Chinook salmon, respectively. MSY exploitation rates (i.e., the average harvest rates employed to maintain constant escapement in the escapement goal range) are high, averaging 0 .53, 0.56, 0.63, 0.65, and 0.68 for pink, chum, coho, sockeye, and Chinook salmon, respectively. The overfishing exploitation rate (i.e., the fishing rate if continuously applied will deplete the stock) is also very high averaging 0.72, 0.74, 0.80, 0.81, and 0.83 for pink, chum, coho, sockeye, and Chinook salmon, respectively (Eggers and Clark in prep.).

Currently ADF&G has established 290 escapement goals (72 Chinook salmon stocks, 70 chum salmon stocks, 29 coho salmon stocks, 41 pink salmon stocks, and 78 sockeye salmon stocks) for stocks where escapements are routinely monitored (Munro and Volk 2010). Escapement goals have been established for target stocks in every salmon fishery that ADF&G manages. A variety of methods are used to estimate escapement goals. Most methods directly estimate MSY escapement range from stock productivity data as well as rearing and spawning habitat considerations. In the absence of stock-recruit information, many escapement goals are set based on the percentile method (Bue and Hasbrouck, (unpublished). For stocks with high contrast in historical escapement data, the escapement goal is the central 50 percentile range of historical escapements and for stocks with low contrast or low harvest rates, the escapement goal is the central 85 percentile of historical escapements. Eggers and Clark (in prep) show that the percentile method provides a reasonable and conservative proxy for MSY escapement goal ranges. Computer simulations demonstrate that results from the percentile method are virtually equal to the actual MSY escapement range (Eggers and Clark in prep.) if the stock is exploited in a manner that provides MSY

(Figure 2). The simulations also demonstrate that the 25 percentile of historical escapements is well above the lower bound of the MSY escapement goal range, except for situations where the stock is heavily exploited above the level that provides for MSY (Figure 2). For situations where the stock is exploited below MSY levels, the percentile method estimates escapements above the MSY escapement range (Figure 2).

A meta analysis of stock-recruit data from ADF&G salmon stocks (42 sockeye salmon stocks, 7 Chinook salmon stocks, 5 coho salmon stocks, 6 chum salmon stocks, and 7 pink salmon stocks) demonstrates that escapement goals estimated by applying the percentile method were consistent with or above MSY escapement ranges as well as the established ADF&G goals for stocks where the MSY escapement goal was estimable (Eggers and Clark in prep). There were several sockeye salmon stocks where the percentile method escapement goals appeared less conservative than the meta-analysis MSYs or the ADF&G established escapement goals. In these cases, there was a demonstrated lack of density dependence in the stock recruit data which precluded a statistically significant estimate of the MSY escapement level. In these cases, escapement goals were established based on yield analyses with escapement goals based on consistent and high levels of yield. The fact that the central 50 percentile escapement ranges were above the MSY escapement range for most stocks demonstrates that salmon are generally exploited below MSY. Fishing is constrained during weak runs and available surpluses with strong runs are rarely achieved due to conservative fishery management, market constraints, or limited fishing power.

State of Alaska's Salmon Status Determination

The State of Alaska stock assessment and fishery management system, as embodied in the *Escapement Goal Policy* (EGP, 5 AAC39.223) and *Policy for the Management of Sustainable Salmon Fisheries* (PMSSF, 5 AAC 39.222) is consistent with NS1. Escapement goals are based on direct assessments of MSY escapement level (S_{msy}) from stock recruit analysis (i.e., BEG) or a reasonable proxy (i.e., SEG) (c.f. Munro and Volk, 2010). Escapement goals are specified as a range or a lower bound threshold. In general, escapement goal ranges produce 90% of MSY, and escapements are considered neutral within the range. Because yield is relatively flat across escapements that constitute an escapement goal range, these ranges give managers the flexibility to moderate fishing to protect stocks of weak runs that are commonly exploited in mixed stock fisheries.

Alaska's salmon fisheries are managed to maintain escapement within levels that provide for MSY (S_{msy}), escapements are assessed on an annual basis, all appropriate reference points are couched in terms of escapement level, and status determinations are made based on the stock's level of escapements. Three levels of concern are defined in the PMSSF– yield, management, and conservation. The level of concern relevant to status determination is the management concern. A management concern results from a continuing or anticipated inability to maintain escapements within the escapement goal range or above the threshold. Thus, the lower range or threshold of escapement goals is consistent with NS1 minimum stock size threshold and a determination of a management concern is equivalent to a determination of an overfished state in NS1. Overfishing is defined in the PMSSF as a level of fishing that results in a management or conservation concern. With the determination of a management concern, ADF&G and the Board of Fisheries are required to develop an action plan to address the concern. This may include measures to restore and protect salmon habitat, identification of salmon stock rebuilding goals and

objectives, implementation of specific management actions needed to achieve rebuilding goals and objectives, and development of performance measures appropriate for monitoring and gauging the effectiveness of the action plan.

ADF&G reviews salmon escapement goals and stock status for each salmon management area on a 3-year cycle, which is consistent with Board of Fisheries cycle of regulatory review of salmon fisheries by management area. Escapement goal and stock status reviews are prepared prior to the Board of Fisheries review. These documents for Southeast Alaska include DerHovanisian et al (2005), Eggers and Heinl (2008), Heinl et al (2008), Eggers et al. (2008), McPherson et al. (2008), Shaul et al.(2008); Prince William Sound includes Evenson et al. (2005) , Lower Cook Inlet includes Otis and Szarzi (2007), Upper Cook Inlet includes Bue and Hasbrouck (2001), Fair et al. (2007), Kodiak includes Nelson et al (2005), Chignik includes Witteveen et al. (2007), Alaska Peninsula includes Nelson et al. (2006), Bristol Bay includes Baker et al., (2005), and the Arctic-Yukon-Kuskokwim Region includes Brannian et al. (2007) and Molyneux and Brannian (2006).

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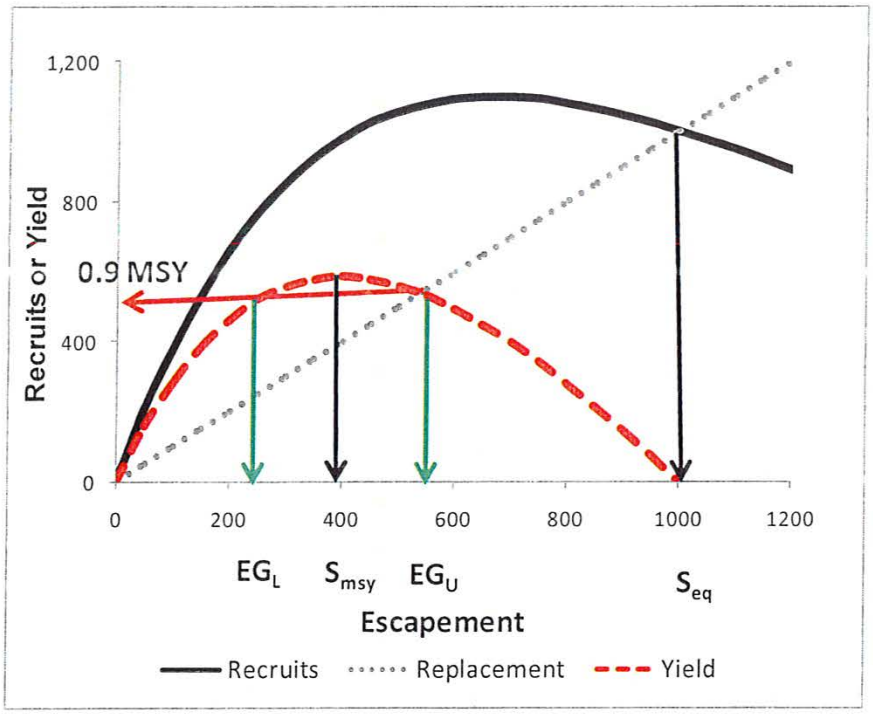

$$R = \alpha S exp(-\beta S)$$

$$Y = R - S$$

$$S_{msy}: (1 - \beta S_{msy})\alpha \exp(-\beta S_{msy}) = 1$$

$$S_{eq} = \ln(\alpha)/\beta$$

$$R_{msy} = \alpha S_{msy} \exp(-\beta S_{msy})$$

$$MSY = R_{msy} - S_{msy}$$

$$EG_L, EG_U: \alpha EG_{L\ or\ U} \exp(-\beta EG_{L\ or\ U}) \geq 0.9MSY$$

$$U_{msy} = MSY/R_{msy}$$

$$U_{of} = 1 - \frac{1}{\alpha}$$

Figure 1. Biological reference points associated with the Ricker stock-recruit model (R) and Ricker yield (Y) model, included are maximum sustained yield (MSY) escapement (S_{msy}), recruits at MSY escapement (R_{msy}), equilibrium escapement (S_{eq}), the lower end (EG_L) and upper end (EG_U) of escapement goal range, the MSY harvest rate (U_{msy}, the slope of line tangent to R at S_{msy}), and the overfishing harvest rate (U_{of}, the slope of line tangent to R at the origin)

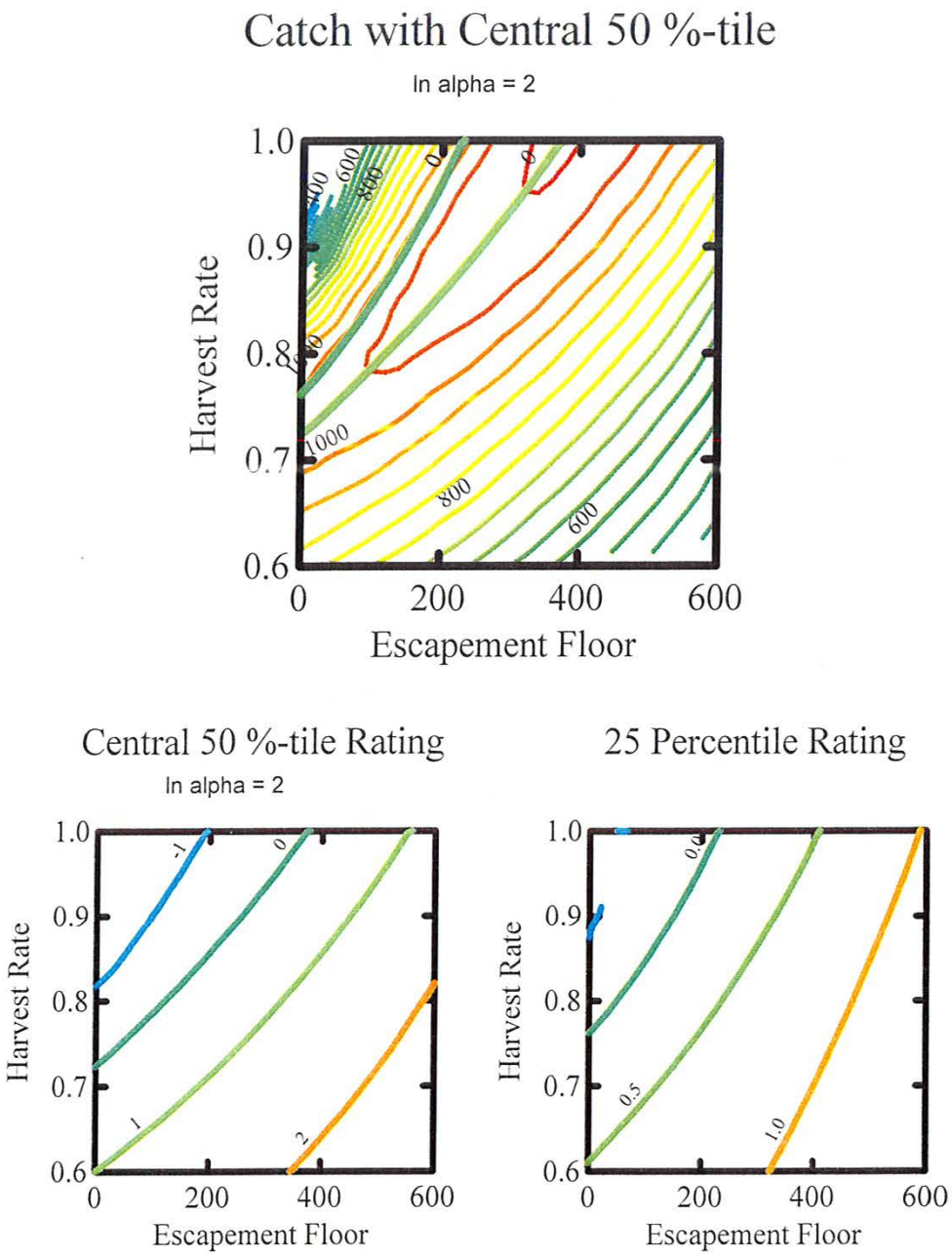

Figure 2. Comparison of escapement goals based on the "percentile method" and actual MSY escapement goal range based on simulations of yield over space of possible harvest policies (escapement floor with constant harvest rate for runs above the escapement floor, with constant harvest rate policy on the y-axis, and constant escapement policy on the upper x-axis). Upper panel: Catch and line of zero rating of the central 50 percentile range, and the 25 percentile lower escapement goal (note that negative, positive, and zero rating is lower than, greater than ,and equal to the MSY escapement goal range, respectively). Lower left panel: Rating of central 50 percentile escapement range of historical escapements. Lower right panel: Rating of and the lower escapement range based on 25 percentile of historical escapement (note that a negative, positive and zero rating is lower than, greater than, and equal to lower MSY escapement goal, respectively).

https://www.adfg.alaska.gov/sf/FishCounts/index.cfm?ADFG=main.displayResults 110%

Stocking

KENAI RIVER (LATE-RUN SOCKEYE) SOCKEYE FOR 2022

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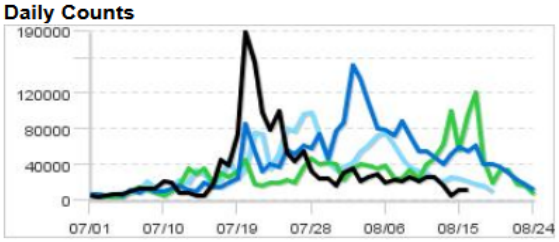
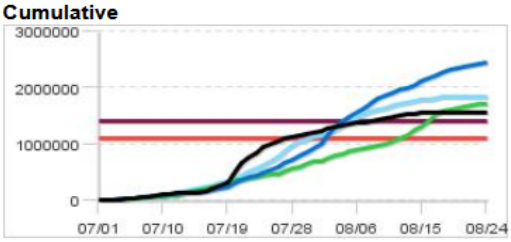
Location: **Kenai River (late-run sockeye)**
Species: **Sockeye**
Method: **Sonar**

The selected years are color-coded in the graphs below:
2022 **2021** **2020** **2019**

Daily Counts



Cumulative



Description: The DIDSON (sonar) is used to estimate passage of late-run sockeye salmon at river mile 19 of the Kenai River. The department manages Kenai River late-run sockeye salmon to achieve a sustainable escapement goal (SEG), and also follows inriver management targets established by the Alaska Board of Fisheries. The primary inseason management target for late-run Kenai River sockeye salmon is the inriver goal. These inriver goals vary year to year depending on the estimated run size in the Kenai River. The sockeye salmon sonar enumeration process uses a fish wheel to determine the proportions and counts of pink, coho, and chum salmon each day.

Inriver Goal for Sockeye in 2022: 1,100,000 - 1,400,000 (Graphed above)
Sustainable Escapement Goal for Sockeye: 750,000 - 1,300,000

55 records returned for the years selected. Dashes indicate days with no count.
[Export results in Excel format or JSON format]

Date 2022	Count 2022	Cumulative 2022	Cumulative 2021	Cumulative 2020	Cumulative 2019	Notes for 2022
Aug-24	-	1,567,750	2,441,825	1,714,565	1,849,054	
Aug-23	-	1,567,750	2,429,603	1,707,857	1,849,054	
Aug-22	-	1,567,750	2,411,499	1,691,345	1,849,054	
Aug-21	-	1,567,750	2,388,169	1,673,568	1,849,054	
Aug-20	-	1,567,750	2,356,733	1,639,109	1,849,054	
Aug-19	-	1,567,750	2,319,069	1,604,367	1,849,054	
Aug-18	-	1,567,750	2,277,734	1,584,315	1,838,923	
Aug-17	-	1,567,750	2,236,215	1,538,056	1,822,160	
Aug-16	11,353	1,567,750	2,174,478	1,417,025	1,804,014	6,481 pink salmon and 2,969 coho salmon counted. Final day of counting.
Aug-15	12,872	1,556,397	2,118,634	1,320,259	1,781,794	4,794 pink salmon and 448 coho salmon counted
Aug-14	6,190	1,543,525	2,058,778	1,262,949	1,756,886	6,898 pink and 2,500 coho

https://www.adfg.alaska.gov/sf/FishCounts/index.cfm?ADFG=main.displayResults 110%

cking

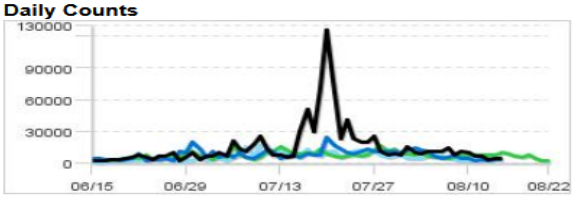
Kasilof River (sockeye) Sockeye for 2022

Bookmark this page | New Search

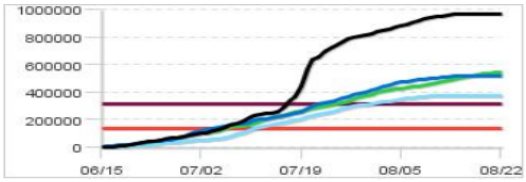
Location: **Kasilof River (sockeye)**
Species: **Sockeye**
Method: **Sonar**

The selected years are color-coded in the graphs below:
2022 **2021** **2020** **2019**

Daily Counts



Cumulative



Description:

The Kasilof River sockeye salmon sonar project is located approximately 8 river miles upstream from the river mouth, just upstream of the Sterling Highway bridge. Sockeye salmon travel time to this site from Cook Inlet ranges from approximately 12-hours to 36-hours.The sockeye salmon sonar enumeration process uses a fish wheel to determine the proportions and counts of pink, coho, and chum salmon each day.

Beginning in 2011, ADF&G will be counting escapement at in the Kasilof River using DIDSON rather than the old Bendix sonar. To provide for comparison of counts among years, all historical escapement counts in this database have been converted from Bendix to DIDSON-equivalent units.

Biological Escapement Goal for Sockeye in 2022: 140,000 - 320,000 (Graphed above)
Optimal Escapement Goal for Sockeye: 140,000 - 370,000

Date 2022	Count 2022	Cumulative 2022	Cumulative 2021	Cumulative 2020	Cumulative 2019	Notes for 2022
Aug-22	-	971,604	521,859	545,654	378,416	
Aug-21	-	971,604	521,859	542,717	378,416	
Aug-20	-	971,604	521,859	539,961	378,416	
Aug-19	-	971,604	521,859	535,546	378,416	
Aug-18	-	971,604	521,859	527,412	378,416	
Aug-17	-	971,604	521,859	521,681	378,416	
Aug-16	-	971,604	521,859	514,475	378,416	
Aug-15	5,418	971,604	521,859	505,354	378,416	Final day of counting
Aug-14	4,489	966,186	517,959	495,372	378,416	408 pink salmon counted
Aug-13	4,127	961,697	514,157	487,276	378,416	1,119 pink salmon counted
Aug-12	7,116	957,570	511,399	479,067	378,416	
Aug-11	7,460	950,454	507,031	470,711	376,184	290 pink salmon and 97 coho salmon counted
Aug-10	10,728	942,994	503,737	462,547	373,520	

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For Immediate Release: **March 24, 2022**

UPPER COOK INLET
2022 OUTLOOK FOR COMMERCIAL SALMON FISHING

Sockeye Salmon Forecast

In 2022, a run of approximately 4.97 million sockeye salmon is forecast to return to Upper Cook Inlet (UCI)[1] with an estimate of 2.97 million available for harvest (commercial, sport, personal use, and subsistence). The commercial fishery harvest is estimated to be approximately 1.4 million sockeye salmon, which is 1.3 million fish less than the 20-year average annual commercial sockeye salmon harvest of 2.7 million fish.

The sockeye salmon total run forecast for the Kenai River is approximately 2.90 million fish. The Kenai run forecast[1] is weak based on historical total run estimates from 1986 to present. The 2022 sockeye salmon forecast is 794,000 less (21%) than the 20-year average run of 3.70 million, and similar to the 5-year average of 2.92 million. In 2022, the predominant age classes are projected to be age-1.2 (12%) and age-1.3 (71%). The preseason forecast for Kenai River sockeye salmon has underestimated the total run by an average of 4% over the past 5 years with a range of -50% to 39%.

The Kasilof River sockeye salmon run forecast[1] is approximately 941,000 fish which is 51,000 less (5%) than the 20-year average but is 168,000 greater (22%) than the 5-year average. The Kasilof preseason forecast has overestimated the total run by an average of 10% over the past 5 years with a range of -31% to 10%. The predominant age classes in the 2022 run forecast are age-1.2 (33%), age-1.3 (43%), and age-2.2 (21%).

The Susitna River sockeye salmon run forecast[1] is 310,000 fish, which is 55,000 fish less (15%) than the 10-year average of 365,000 fish. This forecast was derived using mean return per spawner by age class and mark–recapture estimates of spawner abundance for brood years 2006–2018. The predominant age classes in the Susitna River sockeye salmon run forecast are age-1.2 (25%) and age-1.3 (50%).

The Fish Creek sockeye salmon run forecast[1] for 2022 is 89,000 fish. This forecast is approximately 3,000 fish greater (3%) than the 20-year average run of 86,000 fish and is approximately 5,000 fish

[1] 2022 UCI sockeye salmon forecast
https://www.adfg.alaska.gov/static/applications/dcfnewsrelease/1355244301.pdf

or 5% less than the recent 5 year average of 94,000 fish. The predominant age classes in the 2022 Fish Creek run forecast are estimated to be age-1.2 (57%) and age-1.3 (27%). The 10-year MAPE for the Fish Creek sockeye salmon run forecast is 76%.

2022 Sockeye Salmon Forecasts and Escapement Goals

System	Forecast	Goals[a]
Kenai River [b,c]	2,902,000	1,100,000–1,400,000
Kasilof River [b,d]	941,000	140,000–320,000
Susitna River	310,000	
Larson Lake	N/A	15,000–35,000
Chelatna Lake	N/A	20,000–45,000
Judd Lake	N/A	15,000–40,000
Fish Creek	89,000	15,000–45,000
Unmonitored Systems [e]	725,000	N/A
Total	4,967,000	

[a] Goals listed here are as follows: Kenai River: Inriver; Kasilof River: Biological Escapement Goal (BEG); Susitna River: SEG (weir goals); and Fish Creek: Sustainable Escapement Goal (SEG).

[b] Kenai River goal is DIDSON-based; Kasilof river is Aris-based.

[c] Kenai River SEG is 750,000–1,300,000 sockeye salmon.

[d] Kasilof River optimal escapement goal (OEG) is 140,000–370,000 sockeye salmon.

[e] Unmonitored systems are estimated to be 15% of monitored systems.

2022 Fishing Strategies

Northern District Set Gillnet Salmon Fishery Overview and Management

- The 2022 Deshka River preseason Chinook salmon forecast of 11,435 fish[2] suggests harvest will need to be limited to achieve the sustainable escapement goal (SEG) of 9,000–18,000 fish. Based on this forecast and recent low Chinook salmon production throughout the Susitna Drainage, the department issued an Emergency Order (EO # 2-KS-2-05-22 and 2-KS-2-06-22) prohibiting retention of Chinook salmon in all units of the Susitna River drainage and the Little Susitna River.
- As regulated by the *Northern District King Salmon Management Plan* (NDKSMP), the 2022 directed Chinook salmon commercial fishery in the Northern District (ND) will be restricted to 6-hour fishing periods in all subdistricts in response to the EO limiting the start of the 2022 Deshka River sport fishery to no retention. For the 2022 season, the commercial fishing periods affected by this restriction will be May 30 and June 6, 13, and 20. Escapement of Chinook salmon into the Deshka River will be closely monitored. If the run is stronger than expected and retention of Chinook salmon is allowed in the Deshka River sport fishery, reestablishing 9 or 12 hour openings in the directed Chinook salmon commercial fishery may occur.

[2] https://www.adfg.alaska.gov/Static-sf/fishing_reports/PDFs/2022_deshka_outlook.pdf

- Beginning Monday, June 27, the ND set gillnet fishery will be managed per provisions found in the *Northern District Salmon Management Plan* (NDSMP). This plan provides for two 12-hour weekly fishing periods and follows standard regulatory gear stipulations.
- While Susitna River sockeye salmon were removed from stock of yield concern status at the 2020 Board of Fisheries meeting, restrictive actions to commercial fisheries that harvest this stock were retained in regulation. According to the NDSMP. the legal complement of gear in the ND set gillnet fishery may be reduced to either one or two nets per permit from July 20 through August 6 to conserve Susitna River sockeye salmon. However, in that portion of the General Subdistrict south of the Susitna River, options for gear reduction are limited to two nets per permit after July 30.
- The fishery will be closed for the season by EO when catch and effort cease ~ October 1.

Central District Set Gillnet Fisheries in Chinitna Bay, Western, Kustatan, and Kalgin Island Subdistricts of the Set Gillnet Salmon Fisheries Overview and Management

- Chinitna Bay, Western, Kalgin Island, and Kustatan subdistrict management will generally follow regulatory fishing periods and schedules, except for that portion of the Western Subdistrict south of Redoubt Point, where fishing is often allowed three days per week based on increasing harvest rates of Crescent River sockeye salmon.
- The Kalgin Island Subdistrict may also be given up to one extra fishing period per week if the Packers Lake sockeye salmon assessment shows that the escapement goal is projected to be achieved.
- The fisheries will be closed for the season by EO when catch and effort cease ~ October 1.

Upper Subdistrict set gillnet (ESSN) and Central District Drift Gillnet fisheries Overview

ESSN fishery

- The 2022 preseason estimate for the total run of Kenai River late-run sockeye salmon is 2.9 million fish. If the Kenai River late-run Chinook salmon optimal escapement goal (OEG) is projected to be achieved, without sport fishery restrictions, inseason management of the ESSN fishery will fall under the *Kenai River Late-Run Sockeye Salmon Management Plan* (KRLSSMP). For sockeye salmon runs 2.3–4.6 million fish, the KRLSSMP stipulates ADF&G shall meet the SEG range of 750,000–1,300,000 and achieve an inriver goal of 1.1 to 1.4 million fish. By regulation, Mon/Thurs regulatory fishing periods are allowed with an additional 51 hours of EO time available each week. A 36-hour Thurs-Fri closure window and a 24-hour Monday to Wednesday closure window will be applied.
- The 2022 Kenai River late-run Chinook salmon forecast projects a total run of 16,004 large (>75cm mid eye to tail fork) fish[3]. The OEG for Kenai River late-run Chinook salmon is 15,000–30,000 large fish. If the run returns as forecasted, this run will rank the 6th lowest since 1985,

[3] https://www.adfg.alaska.gov/static/fishing/pdfs/sport/byarea/southcentral/2022KenaiLateRunOutlook.pdf

though larger than the 2021 preliminary estimated total run of 12,665 large fish. Based on the forecasted run size average harvest rates in both sport and commercial fisheries, the Kenai River late-run Chinook salmon large fish OEG may not be met without a reduction in sport and commercial harvest of this stock. On January 26, 2022, the department issued EO No. 2-KS-1-09-22 restricting the Chinook salmon sport fishery to catch-and-release only in the Kenai River beginning July 1, 2022. If the Kenai River sport fishery is restricted to either no bait or no retention, then management of the ESSN fishery from June 20 through August 15 falls under provisions found in the *Kenai River Late-Run Chinook Salmon Management Plan* (KRLKSMP). The paired restrictions include fishing hour reductions, and mandatory gear restrictions. Additionally, all fishing periods under the KRLKSMP may now be restricted to within 600 feet of shore, but hours fished do not count toward weekly hourly restrictions. When the sport fishery is restricted to no bait and no retention, all commercial set gillnet fishing time provided the ESSN fishery will occur only via EO. ESSN commercial fishing periods are open for no more than 24 hours per week, with a 36-hour continuous closure per week beginning between 7:00 p.m. Thursday and 7:00 a.m. Friday. In addition to all fishing time coming via EO only in the ESSN fishery, the Alaska Board of Fisheries has also mandated gear restrictions during all ESSN fishing periods when the Kenai River Chinook salmon sport fishery is restricted. These mandatory gear restrictions are in effect from the beginning of the season through July 31 in the entire Upper Subdistrict set gillnet fishery.

Central District Drift Gillnet Fishery

- The Exclusive Economic Zone (EEZ) within UCI will be closed to all commercial salmon fishing in 2022. A chart displaying the EEZ boundary is available from NOAA[4].
- The department manages the UCI drift gillnet fleet primarily under the guidance of the *Central District Drift Gillnet Fishery Management Plan* (CDDGFMP; 5 AAC 21.353*)*. The purpose of this management plan is to ensure adequate escapement of salmon into Northern Cook Inlet drainages and to provide the department with management guidelines.
- The drift gillnet fishery opens the third Monday in June or June 19, whichever is later.
- Drift gillnet openings generally follow regulatory Monday/Thursday fishing periods; 7:00 a.m. to 7:00 p.m.
- Drift gillnet fishery openings are stipulated in the CDDGFMP by date and sockeye salmon abundance.
- Additional fishing time may be added based on sockeye salmon abundance.

[4] https://www.charts.noaa.gov/OnLineViewer/16661.shtml

Inseason Management of the ESSN and Central District Drift Gillnet Fisheries

ESSN Fishery

Kasilof Section Prior to July 8

- The fishing season in the Kasilof Section (Figure 1; statistical areas 244-21, 244-22, and 244-31) opens on the first regulatory period on or after June 25, except that, if 30,000 fish are estimated to be in the Kasilof River any day on or after June 20, the fishery shall open on that day. With restrictions announced for the Kenai River sport Chinook salmon fishery, the *Kasilof River Salmon Management Plan* (KRSMP) is no longer in effect. Management of the Upper Subdistrict, including the Kasilof Section, will begin with paired restrictions found in the KRLKSMP. Commercial fishing periods are open for no more than 24 hours per week, and all commercial set gillnet fishing time provided to this subdistrict will occur only via EO.
- If the Kenai River OEG for late run large king salmon is projected to not be achieved, and the Kenai River sport fishery for king salmon is closed, the ESSN fishery will close as per the KRLKSMP.

North Kalifornsky Beach (NKB) Statistical Area July 1 to July 8th

- The NKB statistical area (Figure 1; statistical area 244-32) may be open within 600 feet of mean high tide any time after July 1 if the Kasilof Section is open and the Kenai and East Foreland sections are closed.
- From July 1 to July 8, all NKB openings shall be restricted to within 600 feet of shore and limited to nets with a mesh size restriction of no more than 4.75 inches and no more than 29 meshes deep.

Kasilof, Kenai, and East Forelands Sections After July 8

- Commercial fishery openings on weekends will not occur to facilitate movement of fish into the rivers for the personal use fishery.
- The Kenai and East Forelands sections fishing season opens on or after July 8.
- Management of the ESSN fishery will be based on the projected escapement of Kenai River late-run large Chinook salmon, and Kenai and Kasilof river sockeye salmon passage levels. From July 8 to August 15, if the Kenai River late-run Chinook salmon sport fishery remains restricted, then management of the Upper Subdistrict set gillnet fishery will follow provisions in the KRLKSMP with Mon/Thurs regulatory fishing periods no longer in effect. Commercial fishing periods are open for no more than 24 hours per week with a mandatory 36 hour Thurs-Fri closure, and all commercial fishing time will occur only by EO.
- All fishing periods restricted by the KRLKSMP shall include gear restrictions as per 5 AAC 21.359 (e)(3)(G), and fisheries restricted to within 600 feet of shore may be allowed in all statistical areas, without time restriction.
- If the Kenai River OEG for late run large king salmon is projected to not be achieved, and the Kenai River sport fishery for king salmon is closed, the ESSN fishery will close as per the KRLKSMP.
- The department will formally reassess the UCI sockeye salmon run after July 20.

- From August 1 to August 15, management of the ESSN fishery is based upon meeting Kenai and Kasilof river sockeye salmon escapement objectives and the Chinook salmon OEG in the Kenai River. If the Chinook salmon sport fishery is restricted on July 31, the ESSN fishery will be restricted to a maximum of 36 hours of fishing time per week, by EO only, with no mandatory Friday no-fishing window. Subsequently, if at any time before August 15 the Chinook salmon OEG is achieved in the Kenai River, the restrictive provisions of the KRLKSMP will be lifted and the management of the ESSN fishery will follow the KRLSSMP. This would entail regulatory Mon/Thurs fishing periods and up to 51 hours of optional EO fishing time at run sizes > 2.3 million Kenai River sockeye salmon (except after August 11 when only Mon/Thurs regulatory fishing periods are allowed).
- The ESSN fishery closes no later than August 15. However, the season may close any time after July 31 if during two consecutive fishing periods the sockeye salmon harvest is less than one percent of the season total. The "one-percent rule" applies separately to the Kasilof Section and the Kenai/East Foreland sections and all fishing periods after July 31 will be used for the one-percent calculation.

Central District Drift Gillnet Fishery

- The 2022 run size for Kenai River late run sockeye salmon is projected to be 2.9 million fish, which leads to the following management provisions in the drift gillnet fishery:
- The Exclusive Economic zone within UCI will be closed to all commercial salmon fishing in 2022. A chart displaying the EEZ boundary is available from NOAA. These closed waters will be in effect for all drift gillnet openings in UCI in 2022.
- **Prior to July 8**,
    - Regulations specify 12-hour District Wide regulatory Mon/Thurs fishing periods.
    - Extra time may be allowed District Wide
- **From July 9 through July 15**,
    - Commercial fishery openings on weekends will not occur to facilitate movement of fish into the rivers for the personal use fishery.
    - Drift gillnet fishing is restricted for both regulatory fishing periods to the Expanded Kenai and Expanded Kasilof sections (Figure 2), and Drift Gillnet Area 1 (Figure 3). For Kenai River sockeye salmon runs > 2.3 million, one additional fishing period may be opened in the Expanded Sections and Area 1.
    - All additional fishing time is allowed only in the Expanded Kenai and Expanded Kasilof sections.
- **From July 16 through July 31**,
    - For runs 2.3–4.6 million Kenai River sockeye salmon, fishing during one regulatory period per week will be opened in one or more of the following areas: the Expanded Kenai, Expanded Kasilof, the Anchor Point Sections, and Drift Gillnet Area 1. The remaining regulatory period will be restricted to one or more of the following: Expanded Ken/Kas sections and Anchor Point section of the Upper Subdistrict.

Any additional time shall be restricted to the Expanded Kenai Section, the Expanded Kasilof Section, and the Anchor Point Section.

- **From August 1 through August 15**,
    - Regulatory Mon/Thurs fishing periods will be restricted to one or more of the following: Expanded Kenai Section, Expanded Kasilof Section, Anchor Point Section, or Drift Gillnet Area 1. Any additional fishing time outside regulatory fishing periods will be dependent upon meeting sockeye and coho salmon escapement objectives but is limited to the Expanded Kenai or Kasilof and Anchor Point sections.
    - Two one-percent rules apply to drift gillnet fishing in August. If the entire ESSN fishery is closed per its own one-percent rule, or if the department determines that less than one-percent of the season total drift gillnet sockeye salmon harvest has been taken per fishing period, for two consecutive fishing periods by drift gillnets, then regulatory fishing periods will be restricted to Drift Gillnet Areas 3 and 4.
    - The department is using all open periods regardless of the area(s) open to fishing to calculate the drift gillnet one-percent rule.
- **From August 16 until closed by EO**,
    - Drift Areas 3 and 4 are open for regulatory periods.
    - Chinitna Bay may be opened by EO only, based upon chum salmon escapement objectives being met or when the chum salmon run is complete.
- Drift fisheries close for the season by EO, when effort ceases, which is generally mid- to late-September.

Season Opening Dates

Season opening dates in 2022 for the various fisheries around the inlet are as follows:

- *Northern District king salmon fishery:* May 30. The area from the wood chip dock to the Susitna River remains closed for the directed Chinook salmon fishery in 2022.
- *Big River fishery:* June 1 and continuing through June 24, unless the 1,000 Chinook salmon harvest limit is reached prior to that date. Weekly fishing periods are Mondays, Wednesdays, and Fridays from 7:00 a.m. to 7:00 p.m.
- *Western Subdistrict set gillnet fishery:* June 16.
- *Drift gillnet fishery*: June 20.
- *All remaining set gillnet fisheries, except the ESSN fishery:* June 27.
- *ESSN fishery:*
    - June 25 for the Kasilof Section (that portion south of the Blanchard Line). However, the fishery shall open any day on or after June 20 if 30,000 sockeye salmon are estimated to be in the Kasilof River.

- The NKB stat area 244-32 may open from July 1 when the Kasilof section is open to commercial fishing, and is restricted to within 600 feet of shore with nets 29 meshes or less in depth and with mesh less than 4 ¾ inches
- The Kenai and East Forelands sections (that portion of the Upper Subdistrict north of the Blanchard Line) will open on Friday, July 8. By regulation, the ESSN fishery closes on Monday, August 15, 2022.

Set Gillnet Registration and Buoy Stickers

All Cook Inlet setnet fishermen are required to register prior to fishing for one of three areas of Cook Inlet: 1) the Upper Subdistrict of the Central District; 2) the Northern District; or, 3) all remaining areas of Cook Inlet (Greater Cook Inlet). Once registered for one of these three areas, fishermen may fish only in the area for which they are registered for the remainder of the year. No transfers will be permitted. Dual set gillnet permit holders are required to register both permits in the same registration area. Set gillnet permit holders fishing in the Northern District or the Greater Cook Inlet area can register at ADF&G offices in Soldotna, Homer, or Anchorage or by mail. Forms are available at area offices or on the department's Upper Cook Inlet commercial fishing homepage at: http://www.adfg.alaska.gov/index.cfm?adfg=commercialbyareauci.salmon#/management.

Fishermen wishing to register in person for the Upper Subdistrict must register in the **Soldotna ADF&G office** and must purchase buoy stickers at the time of registering. Electronic registration and buoy sticker purchasing may be completed online. Permit holders will need to create an ADF&G profile to access the new registration/sticker application.

General information and Contact Numbers

The UCI commercial fisheries information line will again be available by calling 262-9611. The most recent EO announcement is always available on the recorded message line and catch, escapement and test fishing information is included whenever possible. The same recording may be accessed at http://www.adfg.alaska.gov/index.cfm?adfg=commercialbyareauci.main and clicking on the UCI Commercial Fisheries Information Recording player.

All EO announcements are also faxed or emailed to processors as quickly as possible and posted at http://www.adfg.alaska.gov/index.cfm?adfg=commercialbyareauci.salmon. If you would like all EOs and News Releases emailed to you as soon as they are released, you can subscribe at this website for that service. For very general information, the Commercial Fisheries web page is found at http://www.adfg.alaska.gov/index.cfm?adfg=fishingCommercial.main.

If, during the summer, fishermen have information or questions concerning the commercial fishery, the Soldotna Division of Commercial Fisheries staff can be reached by phone at 262-9368, by fax at 262-4709, or by mail at 43961 Kalifornsky Beach Road, Suite B, Soldotna, 99669.

UCI Commercial Fisheries Area Management Biologist

Brian Marston office 907-260-2907; cell 907-420-7740

brian.marston@alaska.gov

UCI Commercial Fisheries Assistant Area Management Biologist

Alyssa Frothingham office 907-260-2916

alyssa.frothingham@alaska.gov

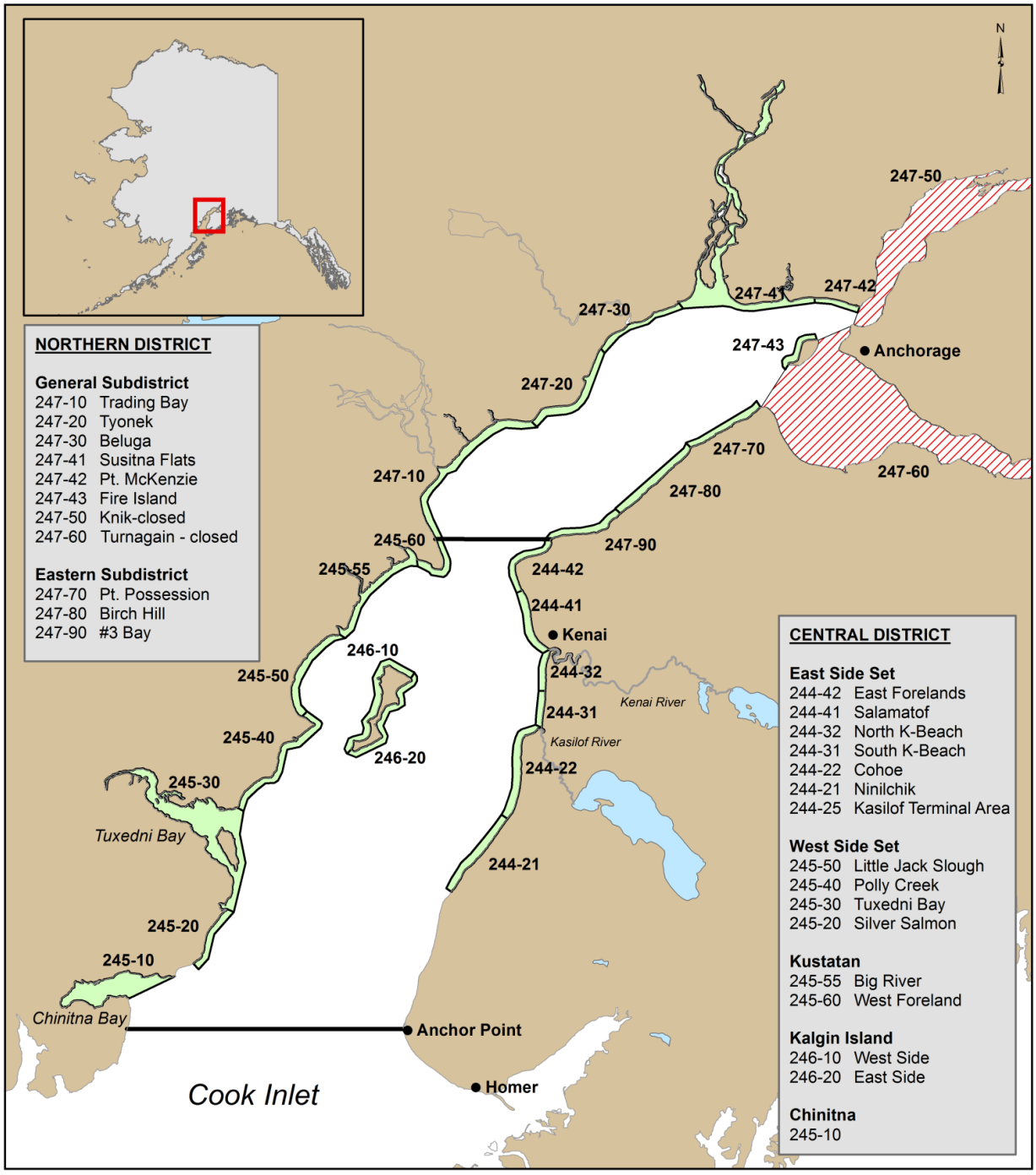

Figure 1. – Upper Cook Inlet commercial set gillnet statistical areas. The North Kalifornsky Beach (NKB) statistical area is 244-32.

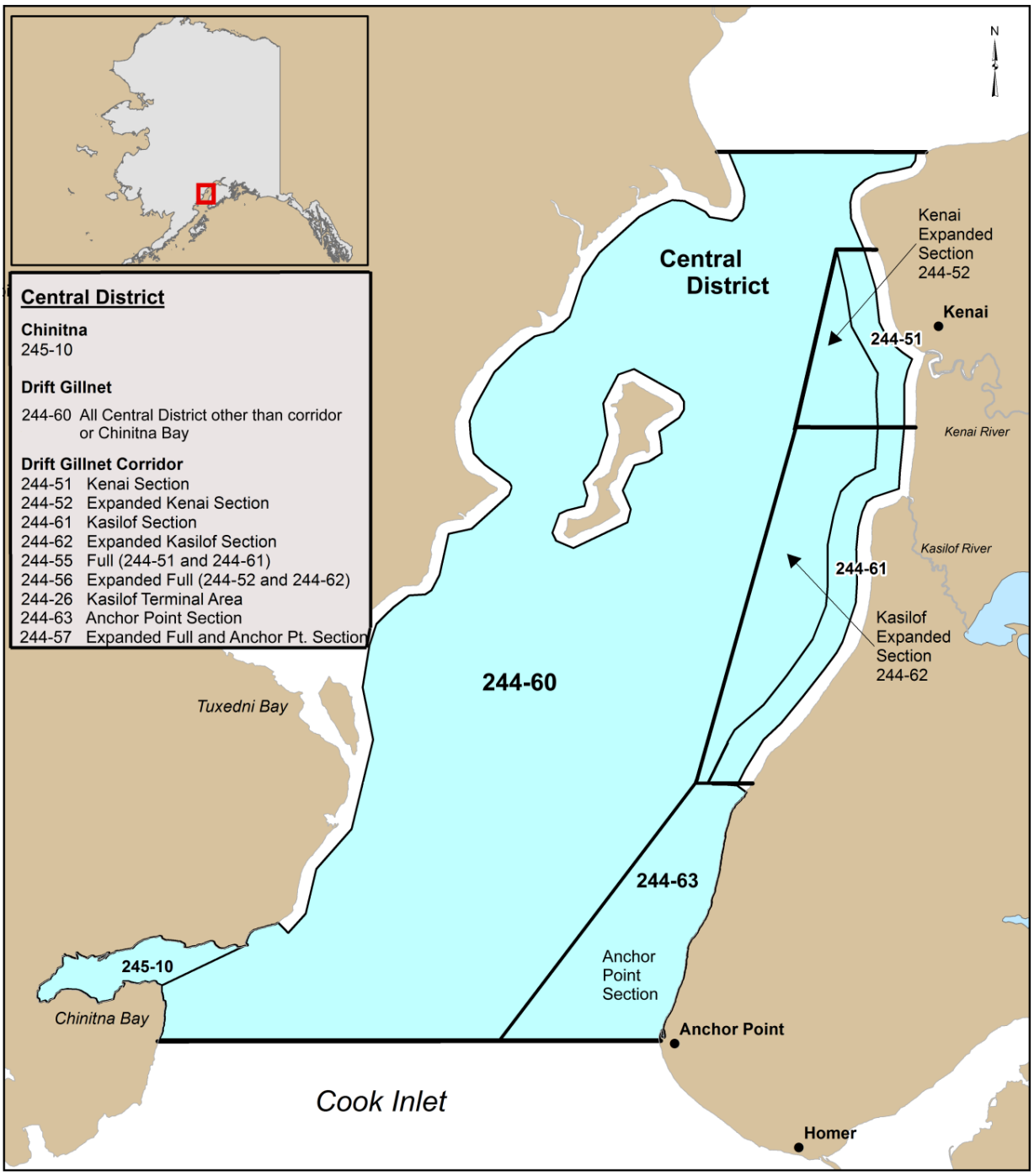

Figure 2. – Map of drift gillnet statistical areas.

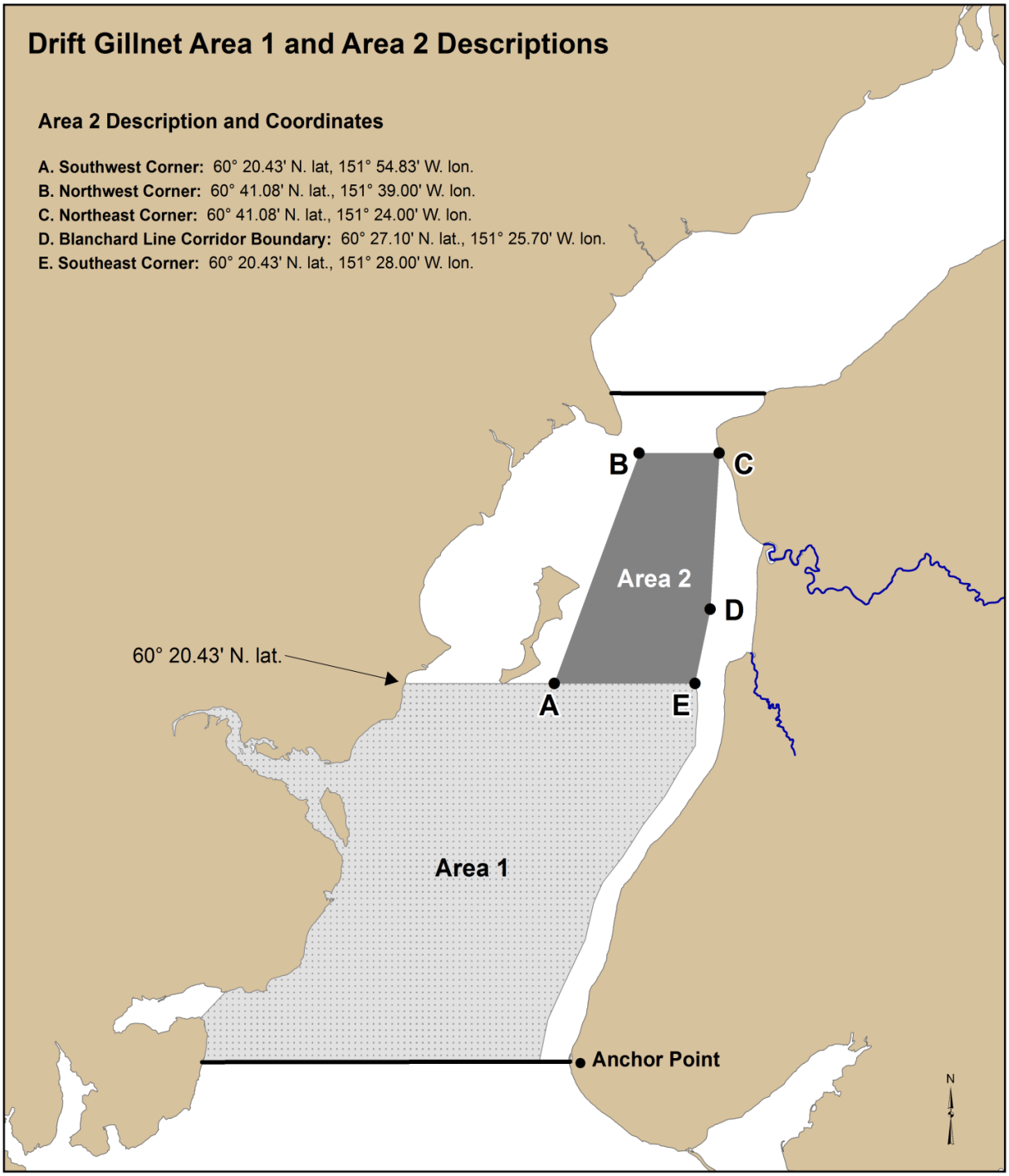

Figure 3.– Map of drift gillnet areas 1 and 2.

Latitude and Longitude are based on the North American Datum of 1983 (NAD 83), equivalent to the World Geodetic System 1984 (WGS 84).

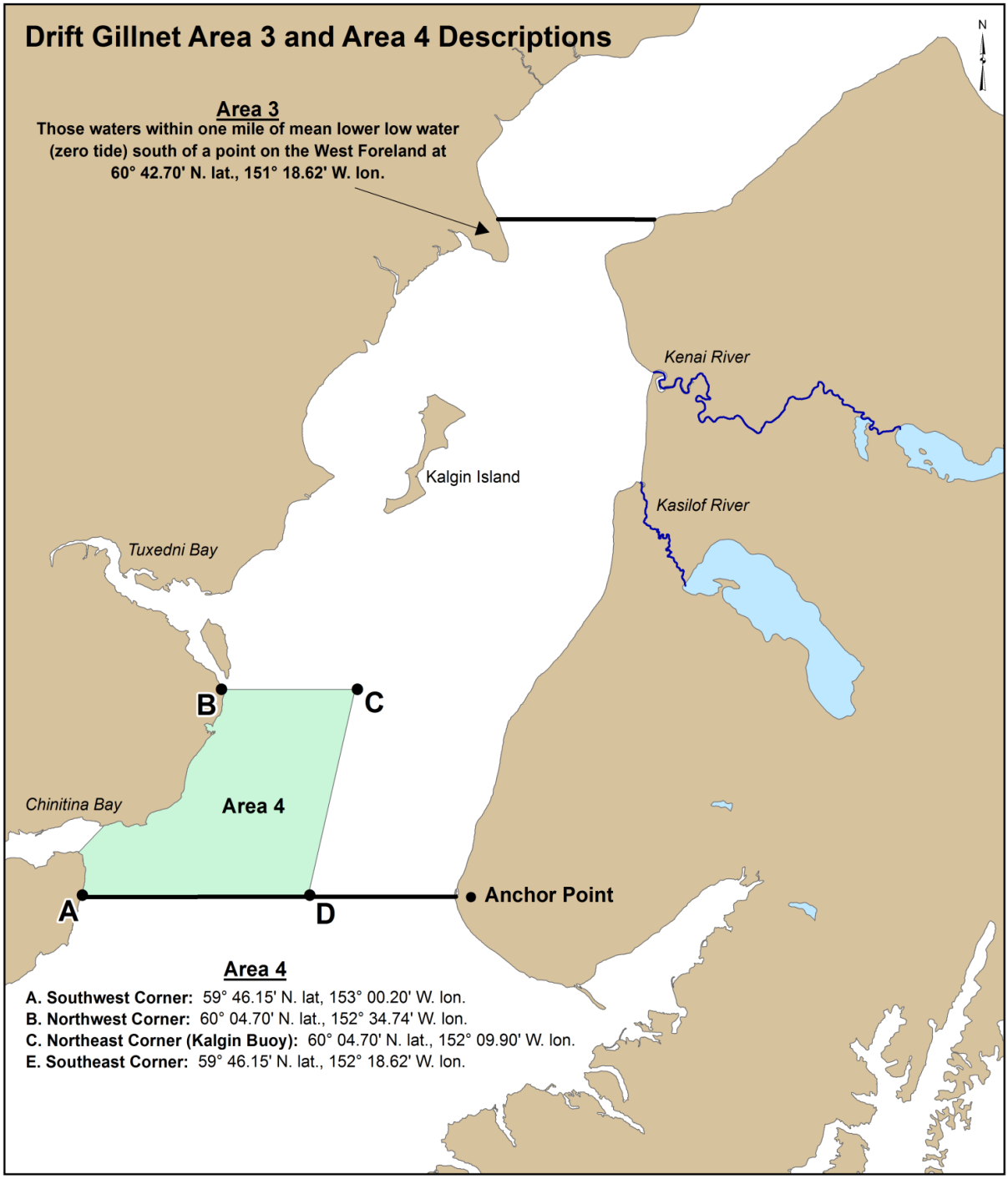

Figure 4.– Map of the drift gillnet areas 3 and 4; open after August 15.

Latitude and Longitude are based on the North American Datum of 1983 (NAD 83), equivalent to the World Geodetic System 1984 (WGS 84).

UNITED STATES DEPARTMENT OF COMMERCE
Secretary of Commerce
Washington, D.C. 20230

February 1, 2022

The Honorable Mike Dunleavy
Governor of Alaska
P.O. Box 110001
Juneau, AK 99811

Dear Governor Dunleavy:

Thank you for your March 2021 and September 2021 letters requesting a determination of a commercial fishery failure due to a fishery resource disaster for the following fisheries:

- 2018 Upper Cook Inlet East Side Set Net and 2020 Upper Cook Inlet salmon fisheries;
- 2018 Copper River Chinook and sockeye salmon fisheries, 2020 Prince William Sound salmon fisheries, and 2020 Copper River Chinook, sockeye, and chum salmon fisheries;
- 2019/2020 Eastern Bering Sea Tanner crab;
- 2020 Pacific cod in the Gulf of Alaska;
- 2020 Alaska Norton Sound, Yukon River, Chignik, Kuskokwim River, and Southeast Alaska Salmon Fisheries; and
- 2021 Yukon River salmon fishery.

The National Oceanic and Atmospheric Administration's National Marine Fisheries Service evaluated information for the impacted fisheries and provided a recommendation. After reviewing the information and associated recommendation, I have found that your request for a commercial fishery failure due to a fishery resource disaster for the fisheries listed above meets the requirements under section 312(a) of the Magnuson-Stevens Fishery Conservation and Management Act and section 308(b) of the Interjurisdictional Fisheries Act.

This positive determination now makes these fisheries eligible for fishery disaster assistance. Using funds that Congress has already appropriated for fishery disasters, the Department of Commerce will allocate disaster assistance for these fisheries in the near future.

Should you have further questions, please contact J.D. Grom, Senior Advisor for Legislative and Intergovernmental Affairs, Performing the Duties of the Assistant Secretary for Legislative and Intergovernmental Affairs, at (202) 322-7494 or JDGrom@doc.gov.

Sincerely,

Gina M. Raimondo