



## MEMORANDUM

TO: Nick Sagalkin  
Regional Supervisor  
Division of Commercial Fisheries  
Westward Region

DATE: November 5, 2018

THRU: Jeff Wadle  
Regional Finfish Management Supervisor  
Division of Commercial Fisheries  
Kodiak

FROM: James Jackson  
Area Management Biologist  
Division of Commercial Fisheries  
Kodiak

The following is a brief overview of the 2018 Kodiak Management Area (KMA; Figure 1) commercial salmon season.

The commercial fishing effort in 2018 was below average compared to recent years. Of the 593 eligible commercial salmon permits, 293 (49%) made commercial landings. By gear type, a total of 151 purse seine, 2 beach seine, and 140 set gillnet permit holders made deliveries in 2018. Participation rates for purse seine, beach seine, and set gillnet permits were all below the previous 10-year averages (Table 1).

Table 1. Commercial salmon fishery 2018 limited entry permit activity and 10-yr. averages, by gear type, in the KMA, 2018.

| Gear Type   | 2018 Permits |        |                     | 2008-2017 Average Permits |        |                     |
|-------------|--------------|--------|---------------------|---------------------------|--------|---------------------|
|             | Available    | Fished | % of permits fished | Available                 | Fished | % of permits fished |
| Purse Seine | 375          | 151    | 40%                 | 375                       | 164    | 44%                 |
| Beach Seine | 30           | 2      | 7%                  | 31                        | 3      | 10%                 |
| Set Gillnet | 188          | 140    | 74%                 | 188                       | 149    | 79%                 |
| Total       | 593          | 293    | 49%                 | 594                       | 316    | 53%                 |



Figure 1.–Map of the commercial salmon fishing districts in the KMA.

The 2018 commercial harvest (not including personal use or ADF&G Test Fishery) in the KMA was 3,893 Chinook salmon, 1,820,319 sockeye salmon, 438,046 coho salmon, 5,946,840 pink salmon, and 463,814 chum salmon. The total KMA harvest (including KRAA cost recovery) of 8,668,580 salmon was well below the 2018 forecast as well as the previous 10-year average of approximately 21,563,216 salmon (Table 2).

Table 2.–2018 commercial salmon harvest for KMA compared to the previous 10-year average and the 2018 harvest forecast.

|                | Chinook | Sockeye   | Coho    | Pink       | Chum      | Total      |
|----------------|---------|-----------|---------|------------|-----------|------------|
| 2018 Harvest   | 3,893   | 1,820,319 | 438,046 | 5,946,840  | 463,814   | 8,668,580  |
| 2008-2017 Avg. | 13,726  | 2,295,184 | 296,287 | 18,109,553 | 848,458   | 21,563,216 |
| 2018 Forecast  | 8,000   | 2,609,500 | 400,200 | 8,700,000  | 1,017,000 | 12,734,700 |

Note: harvest numbers do not include harvest from the ADF&G test fisheries or personal use but includes cost recovery.

The estimated exvessel value of the 2018 fishery was approximately \$27.2 million. This was well below the 10-year average exvessel value of \$37.8 million (Table 3).

Purse seine fishermen accounted for the majority of the total harvest (in number of fish) and their earnings averaged \$147,345 per fished permit. Set gillnet earnings averaged \$34,982 per permit fished while beach seine earnings were confidential in 2018.

Table 3.—Estimated commercial salmon harvest and value, by gear type, in the KMA, 2008 - 2018.

| Year                   | Total Catch <sup>a</sup> | Total Value <sup>b</sup> | Average Exvessel Value |          |              |
|------------------------|--------------------------|--------------------------|------------------------|----------|--------------|
|                        |                          |                          | Purse Seine            | Gillnet  | Beach Seine  |
| 2008                   | 10,127,638               | \$25,806,691             | \$143,819              | \$43,202 | \$0          |
| 2009                   | 28,338,446               | \$33,698,297             | \$174,566              | \$44,918 | <sup>c</sup> |
| 2010                   | 10,291,590               | \$24,269,085             | \$130,009              | \$25,728 | <sup>c</sup> |
| 2011                   | 18,228,922               | \$44,247,720             | \$225,633              | \$31,155 | \$13,750     |
| 2012                   | 19,032,409               | \$44,988,487             | \$219,164              | \$52,084 | \$16,367     |
| 2013                   | 30,145,552               | \$59,391,598             | \$304,526              | \$55,673 | \$24,487     |
| 2014                   | 13,995,803               | \$42,806,102             | \$183,451              | \$61,504 | \$23,796     |
| 2015                   | 34,353,663               | \$34,381,769             | \$163,566              | \$29,953 | <sup>c</sup> |
| 2016                   | 5,031,781                | \$14,509,665             | \$66,243               | \$25,972 | \$7,111      |
| 2017                   | 29,979,854               | \$53,847,957             | \$272,508              | \$65,532 | \$19,352     |
| 2018                   | 8,618,171                | \$27,183,654             | \$147,345              | \$34,982 | <sup>c</sup> |
| Recent 10-year Average |                          |                          |                        |          |              |
| 2008–2017              | 19,952,566               | \$37,794,737             | \$188,349              | \$43,572 | \$16,840     |

<sup>a</sup> Number of fish: Does not include hatchery cost recovery, test fisheries, or personal use harvests.

<sup>b</sup> Exvessel values based on inseason price estimates and do not include postseason adjustments.

<sup>c</sup> Confidential data.

## 2018 Commercial Harvest Summary

### Chinook Salmon

There are no directed Chinook salmon commercial fisheries in the KMA but incidental commercial harvest occurs during targeted sockeye and pink salmon fisheries. The Karluk and Ayakulik river systems both support small populations of Chinook salmon. By regulation, non-retention of Chinook salmon was implemented for the seine fleet area wide from June 1 through July 5. Due to poor Chinook salmon runs to Karluk and Ayakulik, non-retention of Chinook salmon was extended for the seine fleet from July 6 until the end of the season along the Westside of Kodiak from the latitude of Cape Kuliuk to the latitude of Low Cape. The 2018 commercial harvest of Chinook salmon in the KMA totaled 3,893 fish which was below the previous 10-year average (13,726 fish) and below the 2018 forecast (8,000 fish; Table 2).

### Sockeye Salmon

The 2018 commercial harvest of sockeye salmon totaled 1,820,319 fish. The harvest was below the recent 10-year average (2,295,184 fish) and the preseason forecast (2,609,500 fish; Table 2).

Early season management for much of the Westside of Kodiak Island is driven by Karluk early-run sockeye salmon. Periodic fishing time was allowed along much of the Westside of Kodiak until the

management focus turned to pink salmon. A total of 167,652 sockeye salmon were harvested in early-season Westside areas opened based on Karluk early-run sockeye salmon. Westside sockeye salmon numbers include an estimated contribution of 57,792 sockeye salmon from the enhanced Spiridon Lake sockeye salmon run.

Late-season management for much of the Westside of Kodiak is driven by the Kodiak Island pink salmon fishery and Karluk late-run sockeye salmon. The majority of the pink salmon runs to the Westside of Kodiak Island were weak and fishing time was restricted in July and early August. The Karluk late-run sockeye salmon run was very strong and the majority of the Westside was open continuously from August 16 through the end of the season. A total of 1,107,852 sockeye salmon were commercially harvested in late-season Westside areas opened based on local pink and chum salmon as well as Karluk late-run sockeye salmon. Westside sockeye salmon numbers include an estimated contribution of 90,831 sockeye salmon from the enhanced Spiridon Lake sockeye salmon run.

The Ayakulik sockeye salmon run was moderate allowing for three fishing periods during early-run sockeye salmon management. A total of 98,796 sockeye salmon were harvested in areas managed based on Ayakulik early-run sockeye salmon. The strength of the Ayakulik late-run sockeye salmon was also moderate. However, the Ayakulik pink salmon run was very weak and only two fishing periods in July and two in August were allowed. Approximately 19,299 sockeye salmon were harvested in areas managed based on Ayakulik late-run sockeye salmon. A total of 118,095 sockeye salmon were harvested from Westside sections opened based on Ayakulik returns, which was below the 2018 forecast of 193,500 fish.

Frazer Lake and Upper Station early-run sockeye salmon runs were adequate enough to allow for commercial salmon openings in the traditional fishing areas (i.e. seine and gillnet sections of the Alitak District). The Alitak District early-run sockeye salmon harvest was approximately 81,002 fish, below the projected harvest of 116,000 fish. A large amount of jacks (1-ocean male sockeye salmon) returned to the Frazer River system in 2018 (60,037 jacks). In order to achieve an adequate sex ratio, the fishery in the Alitak District was restricted in July to escape more female sockeye salmon.

Upper Station late-run sockeye salmon run came in stronger than expected and liberal fishing time was permitted. The total harvest of the Alitak District late-run sockeye salmon was approximately 196,526 fish, which was above the forecasted harvest of 107,000.

***Cape Igvak Salmon Management Plan:*** This regulatory management plan (5 AAC 18.360) allocates up to 15% of the total Chignik-bound sockeye salmon harvest to KMA fishermen in the Cape Igvak Section. Based on regulations, ninety percent (90%) of all sockeye salmon caught prior to July 25 in the Cape Igvak Section are considered to be Chignik-bound.

Both Chignik sockeye salmon runs were extremely weak and the allocative and biological criteria were never met to allow fishing in the Cape Igvak Section. No sockeye salmon were harvested in the Cape Igvak Section through July 25 which was below the preseason forecast of approximately 67,500.

***North Shelikof Strait Sockeye Salmon Management Plan:*** From July 6 to July 25, this regulatory management plan (5 AAC 18.363) places harvest limits on areas along the northern Shelikof Strait to limit interception of sockeye salmon that are considered Cook Inlet-bound. During the period that this

management plan is in effect, KMA fisheries are managed based on local pink and chum salmon runs. If it appears that the sockeye salmon harvest will meet or exceed limits set by the management plan, then fisheries are to be restricted to inshore “Shoreward Zones” only, and offshore “Seaward Zones” are closed (Figure 2).

A department biologist was present on the grounds to determine the sockeye salmon catch and to facilitate orderly and short notice closures if the harvest limits are met. A Seaward Zone closure was implemented in the North Shelikof Unit at 8:00 p.m. July 25 when it was estimated that the cumulative sockeye salmon harvest had approached the 15,000 fish limit. The total July 6 to July 25 harvest in the North Shelikof Unit was 16,066 sockeye salmon, which included both the Shoreward and Seaward Zone harvests. A Seaward Zone closure did not take place in the Southwest Afognak Section and the harvest cap of 50,000 was never exceeded. A total of 831 sockeye salmon were harvested in the Southwest Afognak Section between July 6 and July 25.

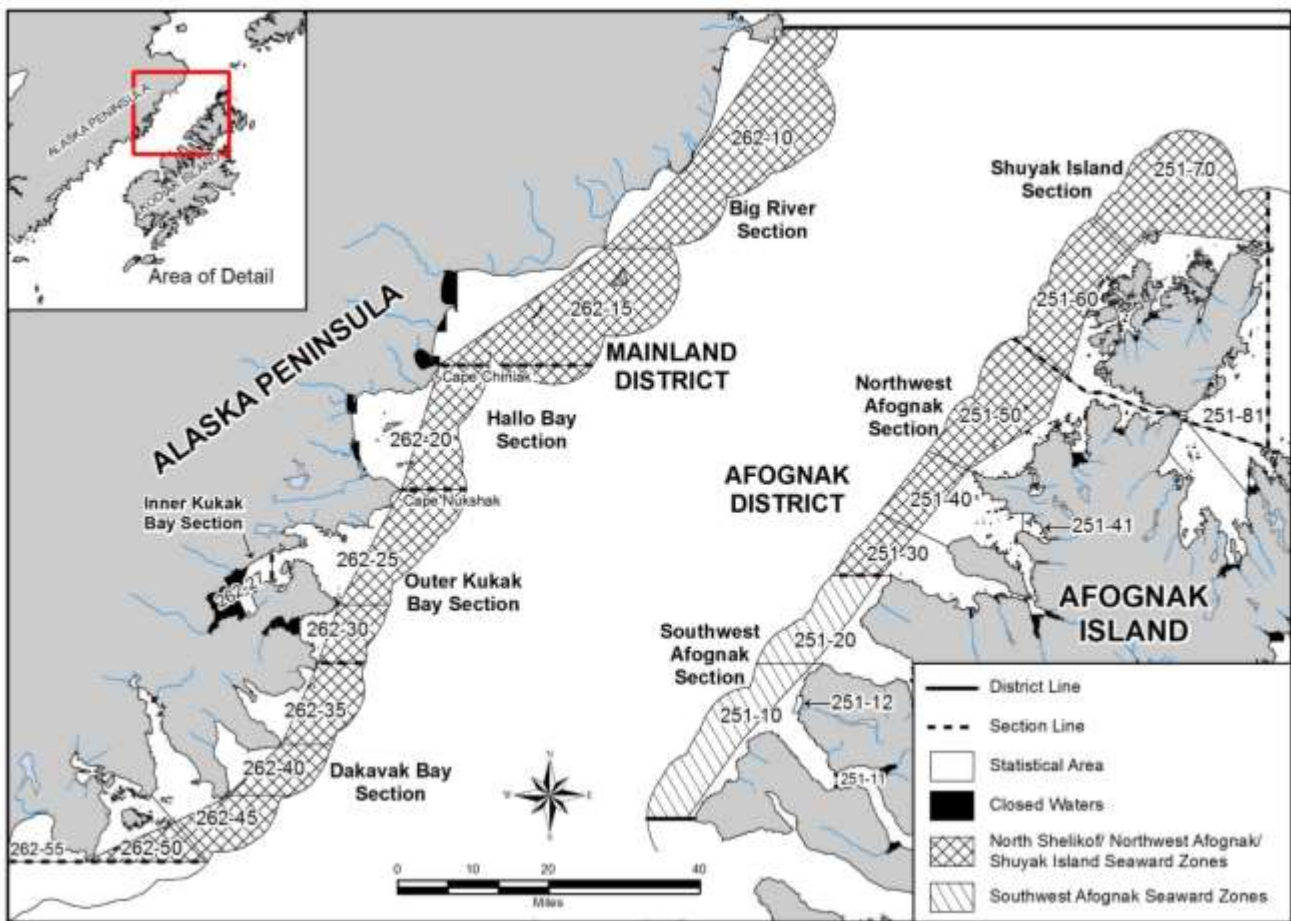


Figure 2.–Map of the North Shelikof Management Area.

**Terminal and Special Harvest Areas:** Some fisheries occur in areas where salmon enhancement projects create surplus production.

There was below average effort and harvest in the Foul Bay Special Harvest Area (SHA) with 5,626 sockeye salmon harvested.

In the Spiridon Bay SHA (Telrod Cove), and the Spiridon Bay Section, 75,420 sockeye salmon were harvested. This includes cost recovery fish harvested by Kodiak Regional Aquaculture Association. The harvest in the Spiridon Bay SHA and the Spiridon Bay Section represents only a portion of the total harvest of Spiridon enhancement fish, the remainder is harvested in traditional fisheries along the Westside of Kodiak. It is estimated that approximately 73,203 Spiridon enhancement fish were harvested outside of Telrod Cove and the Spiridon Bay Section, bringing the total Spiridon enhancement sockeye salmon harvest to 148,623 fish, which was well below the forecast of 274,000 fish.

The Kitoi Bay Hatchery harvest was 25,381 sockeye salmon, which was below the forecast of 49,000 fish. This includes the commercial harvest of both enhanced and wild salmon from the Inner Kitoi Bay, Outer Kitoi Bay, Duck Bay, and Izhut Bay sections. Additional enhanced sockeye salmon may have been harvested in adjacent sections, but stock separation data are not available.

### **Coho Salmon**

The commercial coho salmon harvest of approximately 438,046 fish was similar to the forecast (400,200 fish) and above the previous 10-year average (296,287 fish; Table 2). The majority of the coho salmon were caught in the Westside Kodiak and Kitoi Bay fisheries.

### **Pink Salmon**

The 2018 pink salmon harvest of 5,946,840 fish was below the forecast (8,700,000 fish) and well below the previous 10-year average harvest of 18,109,553 fish (Table 2).

The wild stock pink salmon harvest was approximately 2,762,720 pink salmon harvested in the KMA (5,916,000 forecast). The majority of the pink salmon were harvested on the Westside and Alitak District of Kodiak. Westside pink salmon fisheries (Raspberry Cape to Ayakulik) accounted for approximately 1,659,000 pink salmon and the Alitak District harvested approximately 780,000 pink salmon.

The Kitoi Bay Hatchery pink salmon run was stronger than expected with approximately 3,200,000 pink salmon harvested in sections near the hatchery (2,100,000 forecast). Kitoi-bound pink salmon were likely harvested along the west and east sides of Kodiak and Afognak islands. Likewise, additional wild stock salmon were likely harvested in areas associated with Kitoi Bay Hatchery. However, the department does not have a stock separation program for pink salmon and is unable to differentiate stocks. There was no cost recovery fishery near the hatchery in 2018.

### **Chum Salmon**

Most of the KMA wild chum salmon are harvested during the directed pink and chum salmon fisheries in July. Due to the weak pink salmon returns and the extended closures, the 2018 KMA chum salmon harvest of 463,814 fish was well below the 2018 forecast (1,017,000 fish). Additionally, the Kitoi Bay Hatchery chum salmon harvest of 166,041 chum salmon was below the forecast of 263,000 fish, but above the 10-year average of approximately 134,000 fish.

## **2018 Escapement Summary**

Fish counting weirs were operated on 8 systems in 2018, including the Karluk, Ayakulik, Upper Station, Dog Salmon, Litnik, Buskin, Saltery, and Pasagshak systems. Four observers also flew 28 aerial surveys, and several observers conducted foot and skiff survey escapement estimates.

### **Chinook Salmon**

The total Chinook salmon escapement (5,378) was below the previous 10-year average (Table 4). Escapement goals for Chinook salmon have been developed for the Karluk and Ayakulik rivers, and escapements are estimated using fish counting weirs (Table 5).

The Chinook salmon escapement through the Karluk River weir (3,155 fish; Table 5) was within the biological escapement goal (BEG) range of 3,000 to 6,000 fish. Chinook salmon escapement through the Ayakulik River weir (2,149 fish; Table 5) was below the BEG range of 4,800 to 8,400 fish; however, the Ayakulik River weir was out due to high water during much of the Chinook salmon run.

### **Sockeye Salmon**

Sockeye salmon runs in many systems in the KMA were average. The major sockeye salmon systems of the KMA met their established escapement goals although several smaller systems (Buskin, Malina, Pasagshak, and Afognak) did not achieve their escapement goals. The entire KMA estimated sockeye salmon escapement of (1,501,385 fish; Table 4) was above the previous 10-year average of 1,275,371 fish (Table 4).

### **Coho Salmon**

The only established coho salmon escapement goals occur in the Northeast Kodiak and Eastside Kodiak districts for the following systems: American (400 fish), Olds (1,000 fish), Buskin (4,700 to 9,600 fish) and the Pasagshak rivers (1,200 fish). At the time of this report the final estimated escapement numbers have not been calculated.

Coho salmon enter systems in the fall after most of the weirs have been removed. From limited foot surveys on streams conducted near the city of Kodiak and the Islands of Afognak and Shuyak, coho salmon escapement was well above average. However, due to warm and dry weather conditions in September many of the runs were later than usual.

### **Pink Salmon**

The KMA pink salmon escapement of 5,154,242 fish was above the previous 10-year average of 4,207,128 fish (Table 4). Pink salmon escapement goals have been established as aggregate goals for the entire Kodiak Archipelago and the Mainland District. The escapement for the Kodiak Archipelago (4,873,842 fish) was near the upper end of the escapement goal range of 2.0 to 5.0 million fish (Table 5); however, 47% of the total archipelago's pink salmon escapement (2,275,207 fish) returned to just the Karluk River. The Mainland District pink salmon escapement of 280,400 fish was below average but within the established escapement goal range (250,000 to 1,000,000 fish; Table 5).

### **Chum Salmon**

The overall KMA chum salmon escapement of 342,745 fish was below the previous 10-year average (363,734 fish; Table 4). A peak indexed escapement goal based on 17 streams in on the Kodiak

Archipelago has been established. The 2018 peak indexed escapement of 126,300 fish was above the goal of 101,000 fish.

Table 4. Total salmon escapements in the KMA for all species in 2018, compared to average escapement from 2008 to 2017.

| Species | 2018 KMA Escapement <sup>a</sup> | 2008-2017 Average KMA Escapement |
|---------|----------------------------------|----------------------------------|
| Chinook | 5,378                            | 5,866                            |
| Sockeye | 1,501,385                        | 1,275,371                        |
| Coho    | 175,012                          | 83,154                           |
| Pink    | 5,154,242                        | 4,207,128                        |
| Chum    | 342,745                          | 363,734                          |

<sup>a</sup> 2018 escapement estimates are the sum of all weir, aerial survey, and foot survey estimates. These are minimum estimates, and are incomplete due to limited dates of weir operation and poor survey conditions. This includes escapement from all streams surveyed including many non-index streams that are not measured against established escapement goals.



Table 5. Salmon peak escapements and escapement goals by species, in the KMA, 2018.

| Species        | Stream<br>District/System (stock) | Stream<br>Number                   | Escapement Goal  |                  | 2018 Peak<br>Escapement <sup>a</sup> |
|----------------|-----------------------------------|------------------------------------|------------------|------------------|--------------------------------------|
|                |                                   |                                    | Lower            | Upper            |                                      |
| <b>Chinook</b> |                                   |                                    |                  |                  |                                      |
|                | Karluk                            | 255-101                            | 3,000            | 6,000            | 3,155                                |
|                | Ayakulik                          | 256-201                            | 4,800            | 8,400            | 2,149                                |
|                |                                   | <b>Total</b>                       | <b>7,800</b>     | <b>14,400</b>    | <b>5,304</b>                         |
| <b>Sockeye</b> |                                   |                                    |                  |                  |                                      |
|                | Malina                            | 251-105                            | 1,000            | 10,000           | 500                                  |
|                | Afognak                           | 252-342                            | 20,000           | 50,000           | 17,601                               |
|                | Karluk                            | 255-101                            |                  |                  |                                      |
|                | Early run                         |                                    | 150,000          | 250,000          | 198,877                              |
|                | Late run                          |                                    | 200,000          | 450,000          | 434,402                              |
|                | Ayakulik                          | 256-201                            |                  |                  |                                      |
|                | Early run                         |                                    | 140,000          | 280,000          | 189,008                              |
|                | Late run                          |                                    | 60,000           | 120,000          | 77,325                               |
|                | Upper Station                     | 257-304                            |                  |                  |                                      |
|                | Early run                         |                                    | 43,000           | 93,000           | 61,732                               |
|                | Late run                          |                                    | 120,000          | 265,000          | 235,669                              |
|                | Frazer Lake                       | 257-403                            | 75,000           | 170,000          | 201,161                              |
|                | Buskin/Lake Louise                | 259-211                            | 5,000            | 8,000            | 4,284                                |
|                | Pasagshak                         | 259-411                            | 3,000            |                  | 2,019                                |
|                | Saltery                           | 259-415                            | 15,000           | 35,000           | 22,845                               |
|                |                                   |                                    | <b>832,000</b>   | <b>1,731,000</b> | <b>1,455,424</b>                     |
| <b>Pink</b>    |                                   |                                    |                  |                  |                                      |
|                | Mainland District                 |                                    | 250,000          | 1,000,000        | 280,400                              |
|                | Kodiak Archipelago                |                                    | 2,000,000        | 5,000,000        | 4,873,842                            |
|                |                                   | <b>Total</b>                       | <b>2,250,000</b> | <b>6,000,000</b> | <b>5,154,242</b>                     |
| <b>Chum</b>    |                                   |                                    |                  |                  |                                      |
|                |                                   | Kodiak <sup>b</sup><br>Archipelago | 101,000          |                  | 126,300 <sup>b</sup>                 |
|                |                                   | <b>Total</b>                       | <b>101,000</b>   |                  | <b>126,300 <sup>b</sup></b>          |

<sup>a</sup> 2018 escapement estimates are the sum of all weir, aerial survey, and foot survey estimates. These may be minimum estimates only, and are incomplete due to limited dates of weir operation, and poor survey conditions.

<sup>b</sup> The Kodiak Archipelago peak index escapement goal is based on 17 Kodiak Archipelago streams and does not represent actual the KMA chum salmon escapement.