

Regional Information Report No. 4K19-09

Chignik Management Area Commercial Salmon Fishery Harvest Strategy, 2019

by

Dawn M. Wilburn

April 2019

Alaska Department of Fish and Game

Divisions of Commercial Fisheries



Symbols and Abbreviations

The following symbols and abbreviations, and others approved for the *Système International d'Unités* (SI), are used without definition in the following reports by the Divisions of Sport Fish and of Commercial Fisheries: Fishery Manuscripts, Fishery Data Series Reports, Fishery Management Reports, and Special Publications. All others, including deviations from definitions listed below, are noted in the text at first mention, as well as in the titles or footnotes of tables, and in figure or figure captions.

| | | | | | |
|---|--------------------|--|---|---|-------------------------|
| Weights and measures (metric) | | General | | Mathematics, statistics | |
| centimeter | cm | Alaska Administrative Code | AAC | <i>all standard mathematical signs, symbols and abbreviations</i> | |
| deciliter | dL | all commonly accepted abbreviations | e.g., Mr., Mrs., AM, PM, etc. | alternate hypothesis | H_A |
| gram | g | all commonly accepted professional titles | e.g., Dr., Ph.D., R.N., etc. | base of natural logarithm | e |
| hectare | ha | at | @ | catch per unit effort | CPUE |
| kilogram | kg | compass directions: | | coefficient of variation | CV |
| kilometer | km | east | E | common test statistics | (F, t, χ^2 , etc.) |
| liter | L | north | N | confidence interval | CI |
| meter | m | south | S | correlation coefficient | |
| milliliter | mL | west | W | (multiple) | R |
| millimeter | mm | copyright | © | correlation coefficient (simple) | r |
| | | corporate suffixes: | | covariance | cov |
| Weights and measures (English) | | Company | Co. | degree (angular) | $^\circ$ |
| cubic feet per second | ft ³ /s | Corporation | Corp. | degrees of freedom | df |
| foot | ft | Incorporated | Inc. | expected value | E |
| gallon | gal | Limited | Ltd. | greater than | > |
| inch | in | District of Columbia | D.C. | greater than or equal to | \geq |
| mile | mi | et alii (and others) | et al. | harvest per unit effort | HPUE |
| nautical mile | nmi | et cetera (and so forth) | etc. | less than | < |
| ounce | oz | exempli gratia | e.g. | less than or equal to | \leq |
| pound | lb | (for example) | | logarithm (natural) | ln |
| quart | qt | Federal Information Code | FIC | logarithm (base 10) | log |
| yard | yd | id est (that is) | i.e. | logarithm (specify base) | log ₂ , etc. |
| | | latitude or longitude | lat or long | minute (angular) | ' |
| Time and temperature | | monetary symbols (U.S.) | \$, ¢ | not significant | NS |
| day | d | months (tables and figures): first three letters | Jan, ..., Dec | null hypothesis | H_0 |
| degrees Celsius | $^\circ\text{C}$ | registered trademark | ® | percent | % |
| degrees Fahrenheit | $^\circ\text{F}$ | trademark | ™ | probability | P |
| degrees kelvin | K | United States (adjective) | U.S. | probability of a type I error (rejection of the null hypothesis when true) | α |
| hour | h | United States of America (noun) | USA | probability of a type II error (acceptance of the null hypothesis when false) | β |
| minute | min | U.S.C. | United States Code | second (angular) | " |
| second | s | U.S. state | use two-letter abbreviations (e.g., AK, WA) | standard deviation | SD |
| Physics and chemistry | | | | standard error | SE |
| all atomic symbols | | | | variance | |
| alternating current | AC | | | population sample | Var |
| ampere | A | | | sample | var |
| calorie | cal | | | | |
| direct current | DC | | | | |
| hertz | Hz | | | | |
| horsepower | hp | | | | |
| hydrogen ion activity (negative log of) | pH | | | | |
| parts per million | ppm | | | | |
| parts per thousand | ppt, ‰ | | | | |
| volts | V | | | | |
| watts | W | | | | |

REGIONAL INFORMATION REPORT 4K19-09

**CHIGNIK MANAGEMENT AREA COMMERCIAL SALMON FISHERY
HARVEST STRATEGY, 2019**

by

Dawn M. Wilburn

Alaska Department of Fish and Game, Division of Commercial Fisheries, Kodiak

Alaska Department of Fish and Game
Division of Sport Fish, Research and Technical Services
333 Raspberry Road, Anchorage, Alaska, 99518-1565

April 2019

The Regional Information Report Series was established in 1987 and was redefined in 2007 to meet the Division of Commercial Fisheries regional need for publishing and archiving information such as area management plans, budgetary information, staff comments and opinions to Alaska Board of Fisheries proposals, interim or preliminary data and grant agency reports, special meeting or minor workshop results and other regional information not generally reported elsewhere. Reports in this series may contain raw data and preliminary results. Reports in this series receive varying degrees of regional, biometric and editorial review; information in this series may be subsequently finalized and published in a different department reporting series or in the formal literature. Please contact the author or the Division of Commercial Fisheries if in doubt of the level of review or preliminary nature of the data reported. Regional Information Reports are available through the Alaska State Library and on the Internet at: <http://www.adfg.alaska.gov/sf/publications/>.

*Dawn M. Wilburn,
Alaska Department of Fish and Game, Division of Commercial Fisheries,
351 Research Ct, Kodiak, AK, 99615,*

and

*Coauthor
Alaska Department of Fish and Game, Division of Commercial Fisheries,
Address, USA*

This document should be cited as:

Wilburn, D. M. 2019. Chignik Management Area commercial salmon fishery harvest strategy, 2019. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 4K19-09, Kodiak.

The Alaska Department of Fish and Game (ADF&G) administers all programs and activities free from discrimination based on race, color, national origin, age, sex, religion, marital status, pregnancy, parenthood, or disability. The department administers all programs and activities in compliance with Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, Title II of the Americans with Disabilities Act (ADA) of 1990, the Age Discrimination Act of 1975, and Title IX of the Education Amendments of 1972.

If you believe you have been discriminated against in any program, activity, or facility please write:

ADF&G ADA Coordinator, P.O. Box 115526, Juneau, AK 99811-5526

U.S. Fish and Wildlife Service, 4401 N. Fairfax Drive, MS 2042, Arlington, VA 22203

Office of Equal Opportunity, U.S. Department of the Interior, 1849 C Street NW MS 5230, Washington DC 20240

The department's ADA Coordinator can be reached via phone at the following numbers:

(VOICE) 907-465-6077, (Statewide Telecommunication Device for the Deaf) 1-800-478-3648,

(Juneau TDD) 907-465-3646, or (FAX) 907-465-6078

For information on alternative formats and questions on this publication, please contact:

ADF&G, Division of Sport Fish, Research and Technical Services, 333 Raspberry Rd, Anchorage AK 99518 (907) 267-2375

TABLE OF CONTENTS

| | Page |
|---|-------------|
| LIST OF TABLES..... | ii |
| LIST OF FIGURES..... | ii |
| LIST OF APPENDICES..... | ii |
| ABSTRACT..... | 1 |
| INTRODUCTION..... | 1 |
| GEAR DESCRIPTION..... | 2 |
| CLOSED WATERS..... | 2 |
| REPORTING REQUIREMENTS..... | 2 |
| EMERGENCY ORDERS AND NEWS RELEASES..... | 3 |
| 2019 SALMON FORECAST AND ESCAPEMENT GOALS..... | 3 |
| Total Run..... | 3 |
| Early Run (Black Lake)..... | 4 |
| Late Run (Chignik Lake)..... | 4 |
| Other Salmon Species..... | 4 |
| Chinook Salmon..... | 4 |
| Coho Salmon..... | 4 |
| Pink Salmon..... | 4 |
| Chum Salmon..... | 5 |
| 2019 CHIGNIK SALMON MANAGEMENT..... | 5 |
| 2019 Board of Fisheries Regulatory Changes..... | 5 |
| June..... | 5 |
| Transition Period..... | 6 |
| July..... | 7 |
| August and September..... | 8 |
| 2019 SUBSISTENCE SALMON FISHERY..... | 9 |
| REFERENCES CITED..... | 10 |
| TABLES AND FIGURES..... | 11 |
| APPENDIX A: NEWS RELEASE INSTRUCTIONS..... | 21 |
| APPENDIX B. 2019 CHIGNIK SOCKEYE SALMON FORECAST..... | 27 |

LIST OF TABLES

| Table | Page |
|---|-------------|
| 1. Chignik River sockeye salmon interim escapement objectives, in numbers of fish, 2019..... | 12 |
| 2. Chignik Management Area statistical areas prior to 2016 and current statistical areas..... | 13 |

LIST OF FIGURES

| Figure | Page |
|---|-------------|
| 1. Map of the Alaska Peninsula and the relative locations of the Chignik, Kodiak, and Alaska Peninsula Management areas..... | 15 |
| 2. Map of the Chignik Management Area commercial fishing district boundaries and statistical areas. | 16 |
| 3. Map of the Inner (273-93) and Outer Castle Cape (273-95) subsections of the Western District..... | 17 |
| 4. Map of upper Chignik Lagoon and the location of Pillar Rock, Mensis Point, Humes Point, Mallard Duck, and Schooner Bay marker locations and the location of the Chignik weir. | 18 |
| 5. Map of “Jack’s Box” in the Chignik Bay and Central districts. | 19 |
| 6. Map of the “Cape Ikti Line” in the Western and Perryville districts..... | 20 |

LIST OF APPENDICES

| Appendix | Page |
|--|-------------|
| A. User instructions for the Division of Commercial Fisheries fishery announcements news release system..... | 22 |
| B. 2019 Chignik sockeye salmon forecast. | 28 |

ABSTRACT

This document provides stakeholders with general information regarding how the Alaska Department of Fish and Game (ADF&G) will manage the 2019 Chignik Management Area (CMA) commercial salmon fishery. The CMA is managed to achieve escapement goals for local salmon stocks and allow fisheries on the harvestable surplus of fish. The 2019 total sockeye salmon *Oncorhynchus nerka* forecasted run for the Chignik River watershed is 1,739,000 fish with an expected harvest of 827,000 sockeye salmon in the CMA. Fishing periods are established by emergency order.

In June, fishing periods will be dependent on the strength of the Black Lake sockeye salmon run. The first commercial fishing period may occur after approximately 20,000 sockeye salmon have escaped or are expected to escape into the Chignik River. The Eastern District must open concurrently with the Chignik Bay and Central districts and the Inner Castle Cape Subsection of the Western District during the month of June. Until July 5, the Western and Perryville districts may open concurrently with fishing periods in the Chignik Bay and Central districts and the Inner Castle Cape Subsection of the Western District, although the Perryville District is limited to three 48-hour fishing periods.

Fishing periods from July 6 through July 31 in the Eastern, Western, and Perryville districts will depend on the strength of the Chignik River sockeye salmon runs as well as the strength of the local pink and chum salmon runs. Beginning in August, ADF&G will manage the Chignik Bay and Central districts based on sockeye salmon run strength but may act to protect local pink, chum, and coho salmon runs. Management of the Eastern, Western, and Perryville districts after July will be based on its evaluation of the local pink *O. gorbuscha*, chum *O. keta*, and coho *O. kisutch* salmon runs; however, areas may be restricted or closed to minimize sockeye salmon harvest if the Chignik Lake sockeye salmon run weak.

Key words: Chignik, sockeye salmon, *Oncorhynchus nerka*, Chinook, *O. tshawytscha*, pink, *O. gorbuscha*, chum, *O. keta*, coho, *O. kisutch*, Chignik Management Area, CMA, 2019 management plan, subsistence fishing, commercial fishery, SEG

INTRODUCTION

This document provides stakeholders with the basic framework of how the Alaska Department of Fish and Game (ADF&G) will manage the 2019 Chignik Management Area (CMA; Area L) commercial salmon fishery. The CMA encompasses all coastal waters and inland drainages of the northwest Gulf of Alaska between Kilokak Rocks and Kupreanof Point (Figure 1). For management purposes, the CMA is divided into 5 fishing districts: Eastern, Central, Chignik Bay, Western, and Perryville. Each district is further divided into statistical reporting areas (Figure 2).

The 2019 CMA commercial salmon fishery will be managed by ADF&G in accordance with the guidelines established in the *Chignik Salmon Management Plan* (5 AAC 15.357). The goal of this management plan is to allow traditional fisheries on CMA salmon stocks while achieving escapement goals for Black Lake and Chignik Lake sockeye salmon *Oncorhynchus nerka* as well as local stocks of pink *O. gorbuscha*, chum *O. keta*, coho *O. kisutch*, and Chinook salmon *O. tshawytscha*. Complete details of this plan are found in the *2016–2019 Alaska Peninsula, Atka-Amlia Islands, Aleutian Islands and Chignik Areas Commercial Salmon Fishing Regulations* booklet (ADF&G 2016) available from regional Alaska Department of Fish and Game offices, or online at: <http://www.adfg.alaska.gov/index.cfm?adfg=fishregulations.commercial>. The updated 2019–2021 regulations should be published and available at the same online location by June 1, 2019.

GEAR DESCRIPTION

Purse and hand purse seines are the only legal commercial salmon fishing gear within the CMA. Legal seine gear must be between 100 and 125 fathoms in length in the Chignik Bay District and between 100 and 225 fathoms in length in all other districts. No seine may be less than 3 fathoms, or more than 375 meshes in depth. Up to 25 meshes of chafing gear with a maximum mesh size of 7 inches may be used. Additionally, no lead may be more than 75 fathoms in length. In the Eastern, Central, Western, and Perryville districts, the aggregate length of seine and lead cannot be more than 225 fathoms in length. Complete seine specifications are listed in 5 AAC 15.332.

CLOSED WATERS

Specific closed water areas within the CMA are described in 5 AAC 15.350 and are determined using the global positioning system (GPS; 5 AAC 15.206). For general regulations on closed waters, please refer to 5 AAC 39.290. Where regulatory markers are posted, it is illegal to take salmon for commercial purposes on the stream ward side of the markers (5 AAC 39.290 (b)).

REPORTING REQUIREMENTS

Tender and processor reporting requirements are detailed in the CMA commercial fishing regulations (5 AAC 15.355). Processors are required to notify ADF&G prior to the start of processing or buying operations in the CMA. Once buying operations have begun, processors must report the previous day's commercial harvest information to ADF&G staff by 10:00 AM daily, by e-mail, telephone, or radio (SSB or VHF). Earlier reporting is appreciated and helps to manage an orderly fishery. The preferred method of catch reporting is to e-mail an Excel spreadsheet (template provided by ADF&G) to the Chignik Area Management Biologist (dawn.wilburn@alaska.gov) and Chignik Assistant Area Management Biologist (ross.renick@alaska.gov). Failure to report daily catch information in a timely manner is a violation of commercial fishing regulations (5 AAC 39.130). In order to process the harvest information and use it for management decisions, catch reports must include the estimated number and total pounds of salmon harvested by species from each statistical area. Timely and accurate catch information from all CMA fishing districts allows for informed and consistent management actions. Without timely and accurate information, a more conservative management approach may be adopted, and less fishing time allowed. Information needs, reporting formats, and timetables may be obtained by contacting the Chignik management staff in Kodiak during the winter (907-486-1806) or at the Chignik weir (907-512-6731) from May through September.

It is the legal responsibility of the commercial fishermen, tenders, processors, and all buyers to ensure that all information on a fish ticket is complete and accurate. Prior to completing the ticket, permit holders, tender operators, and/or processors must make sure that the correct statistical area and harvest information has been entered and that all information on the fish ticket is complete, legible, and accurate. If multiple statistical areas were fished, fishermen must ensure that they have assigned and recorded the correct percentage of fish delivered from each of those statistical areas on the fish ticket. Fishermen may retain finfish from lawfully taken commercial catch for personal use (home pack), including for use as bait in a commercial fishery (5 AAC 39.010). However, commercially caught salmon retained for personal use must be recorded on the fish ticket and may not be sold or bartered. It is the fishermen's responsibility to

secure a market for all catch before harvesting fish. The waste of salmon is prohibited by Alaska Statute (AS 16.05.831 and 5 AAC 93.310), and this rule will be strictly enforced.

The CMA statistical areas were restructured in 2016. Due to the creation of new statistical areas and reassignment of numbers, it is imperative that the most recently updated statistical charts be used when filling out fish tickets (March 2016). These statistical charts will be available at the ADF&G offices in Chignik and Kodiak. Industry personnel can also obtain a chart by contacting the Chignik Area Management Biologist (dawn.wilburn@alaska.gov).

EMERGENCY ORDERS AND NEWS RELEASES

Fishing periods will be established by emergency order (EO) based on both ADF&G's assessment of the strength and health of the salmon runs and the availability of a harvestable surplus of fish. News releases will be issued prior to fishery openings to notify the fishermen and processors. When possible, a 24-hour notice will be given before opening or closing commercial fishing periods. News releases will be broadcast over VHF channel 6. If you wish to receive news releases by e-mail or fax, please access the centralized ADF&G News Release System at <http://www.adfg.alaska.gov/index.cfm?adfg=cfnews.search> (accessed March 2019) and subscribe to the Chignik salmon seine fishery. Detailed instructions are in Appendix A of this document. Catch, escapement, and other fishery information will be broadcast over VHF channel 6 at 9:15 AM and 5:15 PM daily. The Chignik Weir Report e-mail (catch, escapement, and other fishery data) will be sent out daily during the commercial salmon fishing season. Please contact ADF&G staff by e-mail (dawn.wilburn@alaska.gov) or by phone (907-512-6731 or 907-486-1830) to be placed on the e-mail distribution list.

Beginning approximately June 1, an automated information line (907-486-1839) will be activated to provide callers with recent escapement and harvest information as well as any current news releases.

2019 SALMON FORECAST AND ESCAPEMENT GOALS

Preseason salmon forecasts provide fishermen and processors with the expected run strength of Chignik River watershed sockeye salmon for planning purposes. ADF&G also uses these forecasts to formulate a preseason management strategy; however, the fishery is primarily managed based on harvest and escapement data that is collected and evaluated daily. This data provides inseason indicators of actual run strength and includes information from weir counts/sampling, aerial surveys, test fisheries, and total catch and fishery performance trends over time. ADF&G will aim to achieve escapement within the range of the established escapement goals; however, inseason adjustments may be made to management objectives if there is concern over quality of the run.

Total Run

The 2019 total sockeye salmon run for the Chignik River watershed is forecasted to be 1,739,000 fish (range 380,000 fish to 3,185,000 fish; Appendix B1; Brenner et al. 2019). The total projected commercial harvest for 2019 is 1,001,000 sockeye salmon, of which 827,000 are expected to be harvested in CMA.

Early Run (Black Lake)

The total early-run forecast is approximately 829,000 sockeye salmon (range 0 fish to 1,747,000 fish; Appendix B1; Brenner et al. 2019). The Chignik early-run harvest is projected to be approximately 429,000 fish. The early-run biological escapement goal (BEG) range is 350,000–450,000 sockeye salmon (Table 1; Schaberg et al. 2019). The early run typically peaks in late June and returns primarily to Black Lake and its tributaries.

Late Run (Chignik Lake)

The total late-run forecast is approximately 909,000 sockeye salmon (range 380,000 fish to 1,438,000 fish; Appendix B1; Brenner et al. 2019). The late-run sustainable escapement goal (SEG) range is 200,000–400,000 sockeye salmon (Schaberg et al. 2019). To increase the opportunity for late-season subsistence harvest, an additional inriver run goal (IRRG) is added to the lower bound of the late-run goal. At the 2019 Alaska Peninsula/Aleutian Islands/Chignik Finfish Board of Fisheries meeting, the IRRG was reduced from 75,000 to 20,000 sockeye salmon, resulting in a total late-run escapement goal range of 220,000–400,000 sockeye salmon (Table 1). The 2019 Chignik sockeye salmon forecast was developed when the IRRG was 75,000 fish and forecasted a harvest of 571,000 late-run Chignik River sockeye salmon. With the adjustment to the IRRG, the new forecasted harvest for late run sockeye salmon is 599,000 fish.

OTHER SALMON SPECIES

There are no forecasts produced for other salmon species in the CMA. For historical harvest information, please refer to the *Chignik Management Area Salmon Annual Report, 2018* (Wilburn 2018).

Chinook Salmon

Chinook salmon harvest in the CMA is mostly dependent upon the amount of commercial fishing time for sockeye salmon in July. There is no targeted Chinook salmon harvest in the CMA. The Chignik River Chinook salmon escapement goal is 1,300–2,700 fish (Schaberg et al. 2019).

Coho Salmon

The coho salmon commercial harvest may vary depending on the commercial fishing effort directed on local pink salmon and chum salmon runs in the Eastern, Central, Western, and Perryville districts. Market conditions late in the season may also limit commercial salmon fishing effort when coho salmon are prevalent in Chignik Lagoon. There is no established escapement goal for coho salmon in the CMA.

Pink Salmon

Historically, the Western District has provided the largest proportion of the annual pink salmon commercial harvest.

The CMA odd-year escapement goal for pink salmon is an areawide SEG range of 260,000–450,000 fish (Schaberg et al. 2019). This SEG range was developed based on peak aerial surveys of 8 index systems distributed throughout 4 of the 5 fishing districts in the CMA. Prior to 2016, ADF&G surveyed 49 index streams in order to monitor CMA pink salmon runs and to calculate an escapement estimate based on peak aerial surveys. While the 8 index systems will be

monitored in order to provide an escapement index, the other 41 previously monitored streams will continue to be monitored to assess quality and spatial distribution of the runs.

Chum Salmon

Historically, the Central and Western districts have provided the largest proportion of the annual chum salmon commercial harvest.

The CMA escapement goal for chum salmon is an areawide SEG range of 45,000–110,000 fish (Schaberg et al. 2019). This SEG range was developed based on peak aerial surveys of 6 index systems distributed throughout 4 of the 5 fishing districts in the CMA. Prior to 2016, ADF&G surveyed 42 index streams in order to monitor the CMA chum salmon runs and to calculate an escapement estimate based on peak aerial surveys. While the 6 streams will be monitored in order to provide an escapement index, the other 36 previously monitored streams will continue to be monitored to assess quality and spatial distribution of the runs.

2019 CHIGNIK SALMON MANAGEMENT

2019 BOARD OF FISHERIES REGULATORY CHANGES

At the February 2019 Alaska Peninsula/Aleutian Islands/Chignik Finfish Board of Fisheries (BOF) meeting, regulations were adopted that altered the *Chignik Area Salmon Management Plan* (5AAC 15.357). The changes that occurred are described below.

1. The number of sockeye salmon required to meet the IRRG for the late sockeye salmon run was reduced from 75,000 fish to 20,000 fish. Of the 20,000 IRRG sockeye salmon, 10,000 fish are required to pass the weir in August, in addition to minimum escapement objectives, while the remainder are required to escape during the month of September.
2. The Western District, excluding the Inner Castle Cape Subsection, may open concurrently with the Chignik Bay and Central districts, and Inner Castle Cape Subsection of the Western District from June 1 through July 5. Previously the Western District, excluding the Inner Castle Cape Subsection, was limited to two 48-hour fishing periods during this time frame.
3. The Perryville District may open concurrently with the Chignik Bay and Central districts and Inner Castle Cape Subsection of the Western District from June 1 through July 5 for up to three 48-hour fishing periods with a minimum closure of at least 48 hours between each fishing period. Previously, the Perryville District could not open to commercial fishing prior to July 6.
4. Management of the Eastern, Western and Perryville districts after July 31 is based on the evaluation of local pink, chum, and coho salmon runs or the strength of the Chignik Lake sockeye salmon run. This amendment changed the word “and” to “or” prior to “the strength of the Chignik Lake sockeye salmon run.”

JUNE

By regulation, beginning June 1, the first commercial salmon fishing period may occur when 20,000 sockeye salmon have escaped into the Chignik River, or if it is determined that a strong buildup of sockeye salmon exists in Chignik Lagoon and 20,000 sockeye salmon are expected to escape into the Chignik River (5 AAC 15.357 (b)(1)). The purpose of this regulation is to allow subsistence fishing opportunity prior to the commercial fishing season and to avoid a large

buildup of salmon in the lagoon. Fishing periods for the majority of June are based upon achieving the Black Lake sockeye salmon escapement objectives (Table 1).

The Chignik Bay, Central, and Eastern districts and the Inner Castle Cape subsection of the Western District must open and close concurrently by regulation during June (5 AAC 15.357 (c)(1); Figure 2 and 3). The Western and Perryville district may also open concurrently with the Chignik Bay and Central districts as well as the Inner Castle Cape Subsection of the Western District from June 1 through July 5 however, fishing time in the Perryville District will be limited to a maximum of three 48-hour fishing periods. Additionally, each fishing period in the Perryville District must be separated by a 48-hour closure. The first fishing period in June will likely occur in the Chignik Bay, Central, and Eastern districts and the Inner Castle Cape Subsection of the Western District only. Based on the assessment of harvest and escapement during the first period, ADF&G may extend fishing area to the Western and/or Perryville districts if an extension is warranted.

Within Chignik Lagoon, ADF&G will primarily use the Humes Point and the Mensis Point markers to designate closed waters (Figure 4). Alternating between Humes Point and Mensis Point allows ADF&G to control escapement of sockeye salmon entering the Chignik River. The Pillar Rock and Chignik River weir markers may be used during periods of high escapement and/or limited harvest capacity by the fleet (Figure 4). If estimated cumulative sockeye salmon escapement is projected to exceed the upper bound of the early-run escapement goal, closed waters may be reduced in the Mallard Duck Bay and Schooner Bay areas of Chignik Lagoon during the month of June to provide additional opportunities to target sockeye salmon.

ADF&G test fishing may begin in early June to assess salmon buildup in Chignik Lagoon. Test fishing may occur on several days in early June depending on test fish vessel catch rates and escapement levels (Stumpf 2017). Subsequent commercial fishing periods during June will be based on the evaluation of interim escapement objectives (Table 1), commercial and subsistence catches, and additional test fishing results. Additional test fisheries may also occur in the Chignik Lagoon or other areas of the CMA if necessary to generate revenue to fund management operations in the CMA. Details of these test fisheries will be released via the Fish and Game news release system.

TRANSITION PERIOD

Several methods have been used over the years to differentiate stock composition during the transition from predominately Black Lake to Chignik Lake sockeye salmon. During the 2019 transition period, the Black and Chignik lakes daily stock composition will be estimated in season by applying an average stock proportion curve developed from genetics data collected during the 2010–2018 seasons.

For post-season stock composition assignment, genetic sampling will occur during the peak of the traditional overlap period (June 24–July 20). A total of 6 stratum samples of 190 sockeye salmon will be collected approximately every 5 days. After the first 4 temporal stratum samples are collected, they will be shipped to the Gene Conservation Lab (GCL) in Anchorage where they will be analyzed upon receipt. The fifth and sixth temporal stratum samples will be sent to the GCL upon completion of each sampling. Once available (after the fourth, fifth and sixth samples), the Chignik area manager will release the results via ADF&G's online news release system (Appendix A), daily VHF announcements, and through the daily Chignik Weir Report e-mail. The results of the inseason genetic samples will be available to management to consider

after the fourth sample but will not be applied to the run transition model until after the transition is complete. Results will be utilized for the following purposes; post season adjustments to the 2019 early and late run estimates, post season run reconstruction and further adjustments to the average stock proportion curve for future years. In season, management will monitor multiple indicators of run transition timing and strength such as age, sex, and length composition, genetic analysis of run composition (when available), escapement, and harvest vs. effort, over the entire run.

During the peak of the transition period, the Chignik Bay and Central districts, as well as the Inner Castle Cape Subsection of the Western District will be managed to harvest surplus early-run sockeye salmon without jeopardizing the late-run sockeye salmon escapement objectives. Management actions may include restricting or liberalizing fishing time and/or area. Commercial fishing in the Eastern, Western and Perryville districts may be restricted until the strength of the Chignik River watershed sockeye salmon late run can be determined.

JULY

During July, the Chignik Bay and Central districts (Figure 2) will be managed primarily based on Chignik River watershed sockeye salmon run strength. ADF&G may, however, adjust closed waters in Chignik Lagoon based on Chignik River watershed Chinook salmon escapement goals (1,300–2,700 fish; Schaberg et al. 2019). If Chinook salmon escapement during early July is weak and the escapement goal is unlikely to be met, fishing area in the Chignik Lagoon may be restricted to improve escapement by removing commercial fishing pressure from areas where Chinook salmon hold before entering the Chignik River (5 AAC 15.357(C)); Figure 4). If necessary, the commercial salmon fleet may be required to return Chinook salmon greater than 28 inches in length to the water quickly and with minimal handling in the Chignik Bay District.

The Eastern District (Figure 2) will be primarily managed for pink and chum salmon during July. The first commercial salmon fishing period after the transition period in the Eastern District can occur as early as July 9 and is likely to be at least 48 hours in duration. Extensions to this fishing period will depend on pink and chum salmon fishery harvest as compared to historical catch records, local pink and chum salmon escapements, and Chignik River watershed sockeye salmon escapement levels. The entire district will be opened to commercial salmon fishing only if Chignik River watershed sockeye salmon interim escapement objectives are expected to be met and a harvestable surplus of sockeye salmon is anticipated.

If the Chignik late-run sockeye salmon escapement is lower than expected, fishing periods in terminal areas in the Eastern District may be announced via EO to target pink and chum salmon. In these cases, the commercial salmon fishery in the Eastern District may close on short notice if substantial numbers of sockeye salmon are harvested. Closed waters may be expanded around individual streams if pink and chum salmon escapements are not sufficient in those areas, or closed waters may be reduced if escapement is sufficient and there is a large harvestable surplus of fish.

Commercial fishing periods in the Western and Perryville districts (Figure 2) beginning July 6, may be allowed if Chignik River interim escapement objectives are expected to be met and surplus Chignik River sockeye salmon are available for harvest. Depending on expected Chignik River sockeye salmon run strength, those portions of the Chignik Bay and Central districts known as “Jack’s Box” may also be opened concurrently with the Western and Perryville districts (Figure 5). Fishing periods beginning around mid-July will depend on pink and chum

salmon fishery harvest as compared to historical catch records, local pink and chum salmon escapements, and Chignik River watershed sockeye salmon escapement levels.

Before the 2016 season, several new inner bay statistical areas were created in the Eastern, Central, Western, and Perryville districts (Table 2; Figure 2). One purpose of these new statistical areas is to provide more detailed harvest and effort information from the selected bays. To provide early harvest opportunity on pink and chum salmon, ADF&G may conduct a 48-hour inner bay fishery as early as July 6, in the new statistical areas of the Western and Perryville districts as well as the Kujulik Bay Section of the Central District. If a sockeye salmon fishery is already occurring at this time (which would also mean that the bays are already open), the date of the inner bay fishery may be pushed back to as late as July 15. Areas may not open if the CMA is experiencing low water and dry river mouths. After July 15, other 48-hour fishing periods may occur; however, management will be primarily escapement based for pink and chum salmon and may also consider the amount of fishing time already occurring in the districts.

If surplus Chignik River sockeye salmon are not expected to be available for harvest, the commercial fisheries in the Western and Perryville districts may occur north of the Cape Itki line beginning in mid-July to target local pink and chum salmon while avoiding Chignik River-bound sockeye salmon (Figure 6). If pink and chum salmon escapement is adequate in Ivanof Bay, the Inner Ivanof Bay statistical area will likely be open as well (Figure 2). In the case of substantial numbers of sockeye salmon being harvested while fishing north of the Cape Itki line, ADF&G will restrict fishing further into the remaining inner bay statistical areas. Specific areas may also be closed if pink and chum salmon escapements are not sufficient. If there is a large harvestable surplus of fish available and escapement is adequate, closed waters in these areas may also be reduced.

AUGUST AND SEPTEMBER

In August and September, the Chignik Bay and Central districts, and the Inner Castle Cape Subsection of the Western District (Figure 2) will be managed based on Chignik River watershed sockeye salmon run strength. ADF&G plans to operate the Chignik River weir through approximately August 24 for the 2019 commercial salmon season.

Beginning September 15, commercial fishing periods in the Chignik Bay and Central districts are limited to a maximum of 48 hours per week and will be based on the evaluation of the sockeye salmon run strength and the Chignik Lake late-season sockeye salmon subsistence needs (5 AAC 15.357(b)(4)). Management options beginning September 15 include the following:

- allowing the maximum fishing time of 48 hours per week to be divided into 1, 2, 3, or 4 commercial fishing periods, depending upon estimated sockeye and/or coho salmon escapements (for example, the fishing time could be distributed over 4 days with 12-hour fishing periods per day within a floating 7-day period);
- a weekly fishing schedule of less than 48 hours, if the sockeye and/or coho salmon run strength is determined to be weak or the September IRRG is not being met; or
- a complete closure.

During August and September, the Eastern, Western and Perryville districts (Figure 2) will be managed based on local pink, chum, and coho salmon abundance or the strength of the sockeye salmon late run (5 AAC 15.357(c)(3)). Fishing times and areas will be based on ADF&G's

inseason assessment of the local salmon stocks run strength. If local salmon stocks are abundant and the Chignik River sockeye salmon late run is weak, the Eastern, Western and Perryville districts may be restricted to fishing areas to minimize the harvest of sockeye salmon. Such restrictions could include closing portions of the districts, fishing north of the Cape Itki line, or inner bay fisheries. District-wide openings are unlikely to occur unless Chignik River sockeye salmon interim escapement objectives (including the IRRG) are expected to be met and overall pink and chum salmon abundance is sufficient to meet escapement objectives.

2019 SUBSISTENCE SALMON FISHERY

This section of the document briefly covers state subsistence regulations only. For more information on federal subsistence fishing regulations, contact the Federal Office of Subsistence Management.

All state subsistence salmon fishermen must obtain a Chignik Area subsistence salmon permit issued by the ADF&G for the 2019 season (5 AAC 01.015; Appendix C1). The permits will be available at the Chignik Weir Field Office and from several local vendors. Catch information obtained from subsistence permits is compiled annually and used to assess regional subsistence salmon fisheries. Subsistence fishing regulations are available online at: <http://www.adfg.alaska.gov/index.cfm?adfg=fishregulations.commercial>.

An Alaska resident who obtains a state subsistence permit and who does not hold a commercial salmon fishing license (CFEC permit) may subsistence fish for salmon at any time. Commercial salmon license holders may subsistence fish for salmon during the commercial fishing season at any time except for 12 hours preceding and 12 hours following a commercial salmon fishing period (5 AAC 01.485).

Subsistence salmon fishing is permitted in the Chignik River. The Chignik River, beginning 100 yards below the weir, is open to subsistence salmon fishing year-round. However, salmon may not be taken upstream from the weir to the outlet of Chignik Lake from July 1 to August 31 (5 AAC 01.475(1)). Subsistence fishing in this area is prohibited to protect spawning Chinook salmon. All fishing is prohibited 100 yards upstream and downstream of the weir while it is operational.

The Chignik Lake tributaries of Clark River and Home Creek, starting from their confluence with Chignik Lake upstream one mile, are open to subsistence salmon fishing (5 AAC 01.475(2)). The BOF amended the subsistence regulations to include these tributaries for the purposes of providing additional harvest opportunities for subsistence users.

Subsistence users are reminded that purse seine gear is not allowed for taking of subsistence salmon in Chignik Lake (5 AAC 01.470(a)). Additionally, any gillnet that is fixed, anchored, or otherwise held in place may not obstruct more than one-half of the width of any stream open to subsistence fishing. All subsistence salmon fishing gear must be marked with a buoy listing the first initial, last name, and address of the person operating the gear (5 AAC 01.010(h)). Subsistence users must carry their subsistence fishing permit with them while fishing. The adipose fin must be removed from all subsistence-caught salmon immediately after harvest.

REFERENCES CITED

- ADF&G (Alaska Department of Fish and Game). *In prep.* 2019–2022 Alaska Peninsula, Atka-Amlia Islands, Aleutian Islands, and Chignik Areas Commercial Salmon Fishing Regulations. Alaska Department of Fish and Game, Division of Commercial Fisheries, Juneau.
- ADF&G (Alaska Department of Fish and Game). 2019. 2019–2020 Subsistence and Personal Use Statewide Fisheries Regulations. Available from <http://www.adfg.alaska.gov/index.cfm?adfg=fishregulations.commercial> (Accessed April 2016).
- Brenner, R. E., A. R. Munro, and S. J. Larsen, editors. 2019. Run forecasts and harvest projections for 2019 Alaska salmon fisheries and review of the 2018 season. Alaska Department of Fish and Game, Special Publication No. 19-07, Anchorage.
- Schaberg, K. L., M. B. Foster, and A. St. Saviour. 2019. Review of salmon escapement goals in the Chignik Management Area, 2018. Alaska Department of Fish and Game, Fishery Manuscript Series No. 19-02, Anchorage.
- Stumpf, L. K. 2017. Chignik Lagoon sockeye salmon test fishery operational plan, 2017. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Operational Plan ROP.CF.4K.2017.01, Kodiak.
- Wilburn, D. W., and R. L. Renick. 2018. Chignik Management Area salmon annual management report, 2018. Alaska Department of Fish and Game, Fishery Management Report No. 18-32, Anchorage.

TABLES AND FIGURES

Table 1.–Chignik River sockeye salmon interim escapement objectives, in numbers of fish, 2019.

| Date | Black Lake | | Chignik Lake | | Combined | |
|---------------------------|------------|-----------|--------------|-----------|----------|-----------|
| | Lower | Upper | Lower | Upper | Lower | Upper |
| 5-Jun | 12,000 | – 17,000 | | | 12,000 | – 17,000 |
| 10-Jun | 45,000 | – 55,000 | | | 45,000 | – 55,000 |
| 15-Jun | 95,000 | – 125,000 | | | 95,000 | – 125,000 |
| 20-Jun | 150,000 | – 230,000 | 1,000 | – 2,000 | 151,000 | – 232,000 |
| 25-Jun | 215,000 | – 320,000 | 3,000 | – 5,000 | 218,000 | – 325,000 |
| 30-Jun | 270,000 | – 360,000 | 6,000 | – 12,000 | 276,000 | – 372,000 |
| 5-Jul | 300,000 | – 390,000 | 12,000 | – 30,000 | 312,000 | – 420,000 |
| 10-Jul | 330,000 | – 410,000 | 20,000 | – 50,000 | 350,000 | – 460,000 |
| 15-Jul | 340,000 | – 430,000 | 40,000 | – 85,000 | 380,000 | – 515,000 |
| 20-Jul | 350,000 | – 440,000 | 70,000 | – 140,000 | 420,000 | – 580,000 |
| 25-Jul | 350,000 | – 448,000 | 110,000 | – 200,000 | 460,000 | – 648,000 |
| 30-Jul | 350,000 | – 450,000 | 140,000 | – 250,000 | 490,000 | – 700,000 |
| 4-Aug | | | 160,000 | – 290,000 | 510,000 | – 740,000 |
| 9-Aug | | | 170,000 | – 320,000 | 520,000 | – 770,000 |
| 14-Aug | | | 180,000 | – 335,000 | 530,000 | – 785,000 |
| 19-Aug | | | 190,000 | – 350,000 | 540,000 | – 800,000 |
| 24-Aug | | | 200,000 | – 360,000 | 550,000 | – 810,000 |
| 29-Aug | | | 208,000 | – 375,000 | 558,000 | – 825,000 |
| 31-Aug | | | 210,000 | – 380,000 | 560,000 | – 830,000 |
| September | | | 220,000 | – 400,000 | 570,000 | – 850,000 |
| Escapement Goals | | | | | | |
| Black Lake | 350,000 | – 450,000 | | | | |
| Chignik Lake ^a | 220,000 | – 400,000 | | | | |

^a The late-run escapement objective includes the late-run sockeye salmon sustainable escapement goal (SEG; 200,000–400,000 fish) plus an additional 20,000 sockeye salmon inriver run goal (IRRG; 10,000 fish in August and 10,000 fish in September) to meet late season subsistence needs. The IRRG is added to the lower bound escapement objectives beginning in August.

Table 2.–Chignik Management Area statistical areas prior to 2016 and current statistical areas.

| Area | Statistical area | |
|-----------------------------|------------------|--------|
| | Prior to 2016 | 2016 |
| <u>Perryville District</u> | | |
| Ivanof Bay Section | | |
| Inner Ivanof Bay | N/A | 275-41 |
| Ivanof Bay | 275-40 | 275-42 |
| Humpback Bay Section | | |
| Inner Humpback Bay | N/A | 275-51 |
| Humpback Bay | 275-50 | 275-52 |
| Perryville Section | | |
| Perryville Area | 275-60 | 275-60 |
| <u>Western District</u> | | |
| Mitrofanina Section | | |
| Coal Cape Area | 273-70 | 273-70 |
| Ivan Bay | N/A | 273-71 |
| Fishrack Bay | N/A | 273-73 |
| Mitrofanina Island | 273-74 | 273-74 |
| Mitrofanina Bay | 273-72 | 273-75 |
| Dorner Bay Section | | |
| Dorner Bay | N/A | 273-81 |
| Outer Kuiukta Bay | 273-80 | 273-85 |
| Windy Bay | 273-82 | 273-82 |
| Inner Kuiukta/Portage Bay | 273-84 | 273-84 |
| Castle Cape Section | | |
| Castle Cape/Cape Itki | 273-90 | 273-90 |
| Inner Castle Cape | 273-93 | 273-93 |
| Outer Castle Cape | 273-95 | 273-95 |
| <u>Chignik Bay District</u> | | |
| Chignik Lagoon | 271-10 | 271-10 |
| <u>Central District</u> | | |
| Outer Chignik Bay Section | | |
| Chignik Bay | 272-20 | 272-20 |
| Hook Bay | 272-30 | 272-30 |
| Nakchamik Island | 272-40 | 272-40 |

-continued-

Table 2.–Page 2 of 2.

| Area | Statistical area | |
|-------------------------------------|------------------|--------|
| | Prior to 2016 | 2016 |
| <u>Central District (continued)</u> | | |
| Kujulik Section | | |
| Inner Kujulik Bay | N/A | 272-51 |
| Kujulik Bay | 272-50 | 272-53 |
| Kumlik Section | | |
| Cape Kumlik | 272-62 | 272-62 |
| Sutwik Island | 272-64 | 272-64 |
| <u>Eastern District</u> | | |
| Big River Section | | |
| Aniakchak Bay | 272-60 | 272-60 |
| Inner Amber Bay | N/A | 272-71 |
| Amber Bay | 272-70 | 272-74 |
| Nakalilok/ Yantarni Bay Section | | |
| Inner Yantarni Bay | N/A | 272-73 |
| Yantarni Bay | 272-72 | 272-75 |
| Inner Nakalilok Bay | N/A | 272-82 |
| Nakalilok Bay | 272-80 | 272-81 |
| Chiganagak Section | | |
| Inner Chiganagak Bay | N/A | 272-91 |
| Chiganagak Bay | 272-90 | 272-93 |
| Agripina Section | | |
| Port Wrangell | 272-92 | 272-92 |
| Inner Agripina Bay | N/A | 272-95 |
| Agripina to Kilokak | 272-96 | 272-97 |

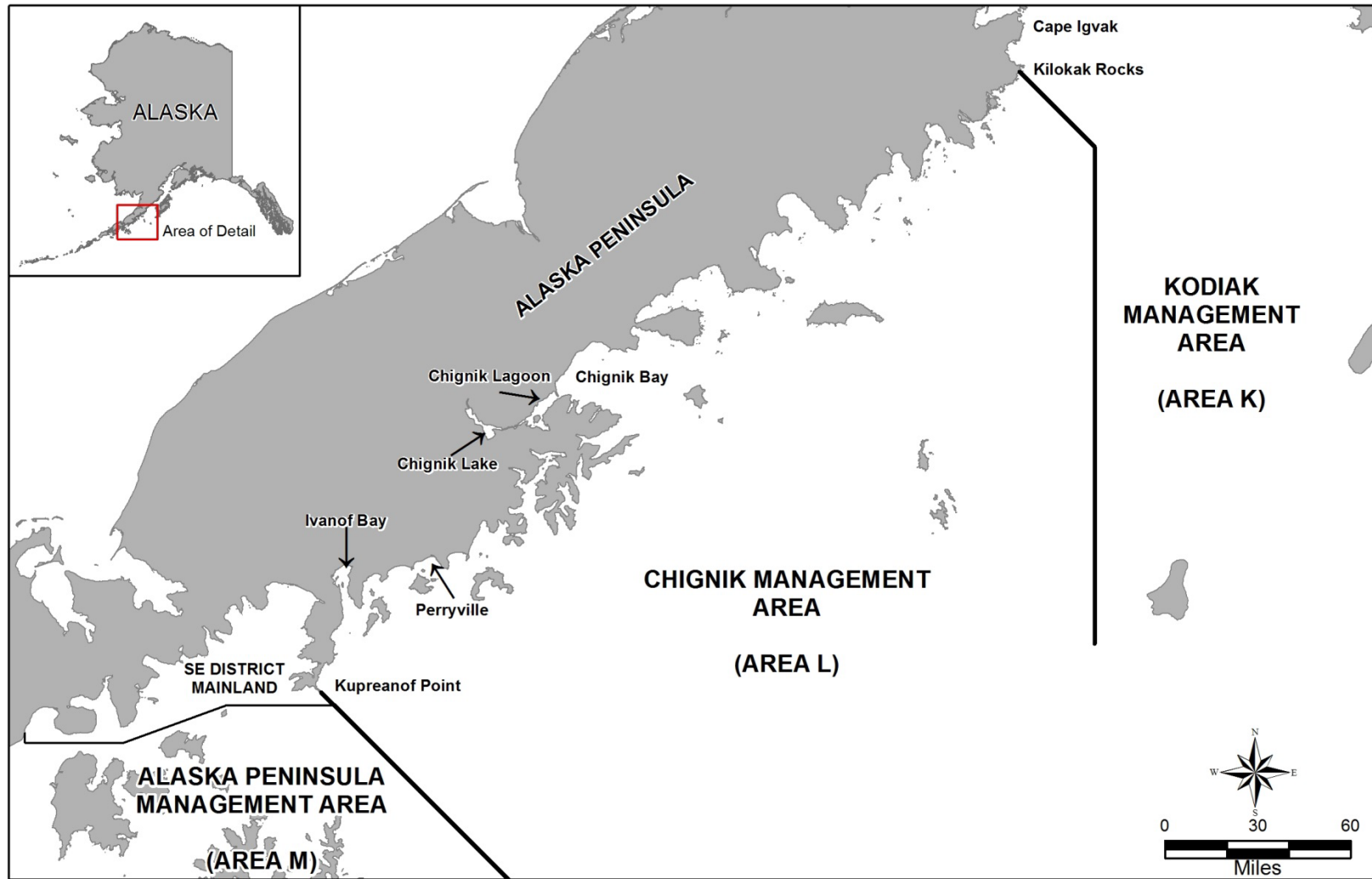


Figure 1.—Map of the Alaska Peninsula and the relative locations of the Chignik, Kodiak, and Alaska Peninsula Management areas.

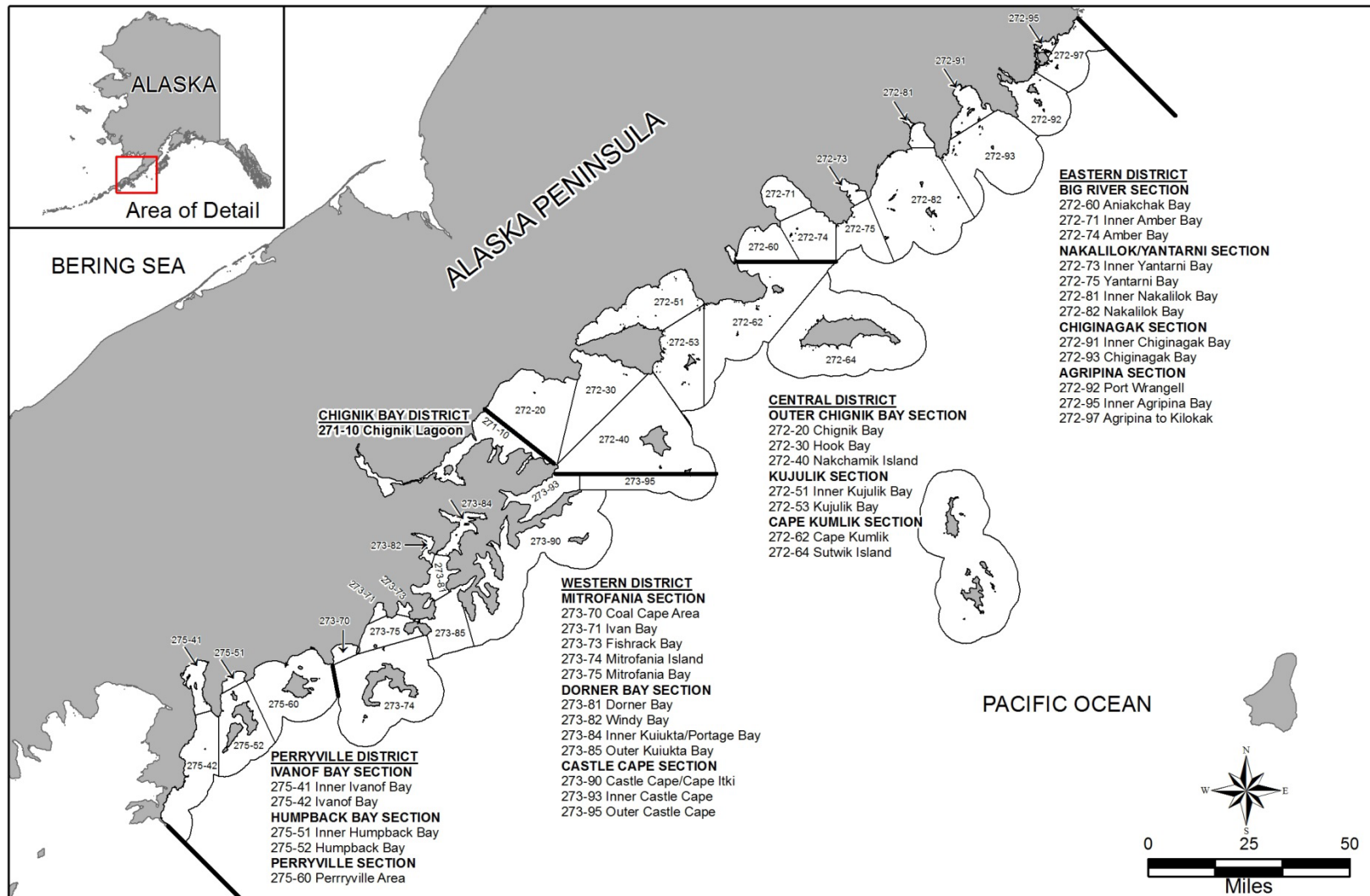


Figure 2.—Map of the Chignik Management Area commercial fishing district boundaries and statistical areas.

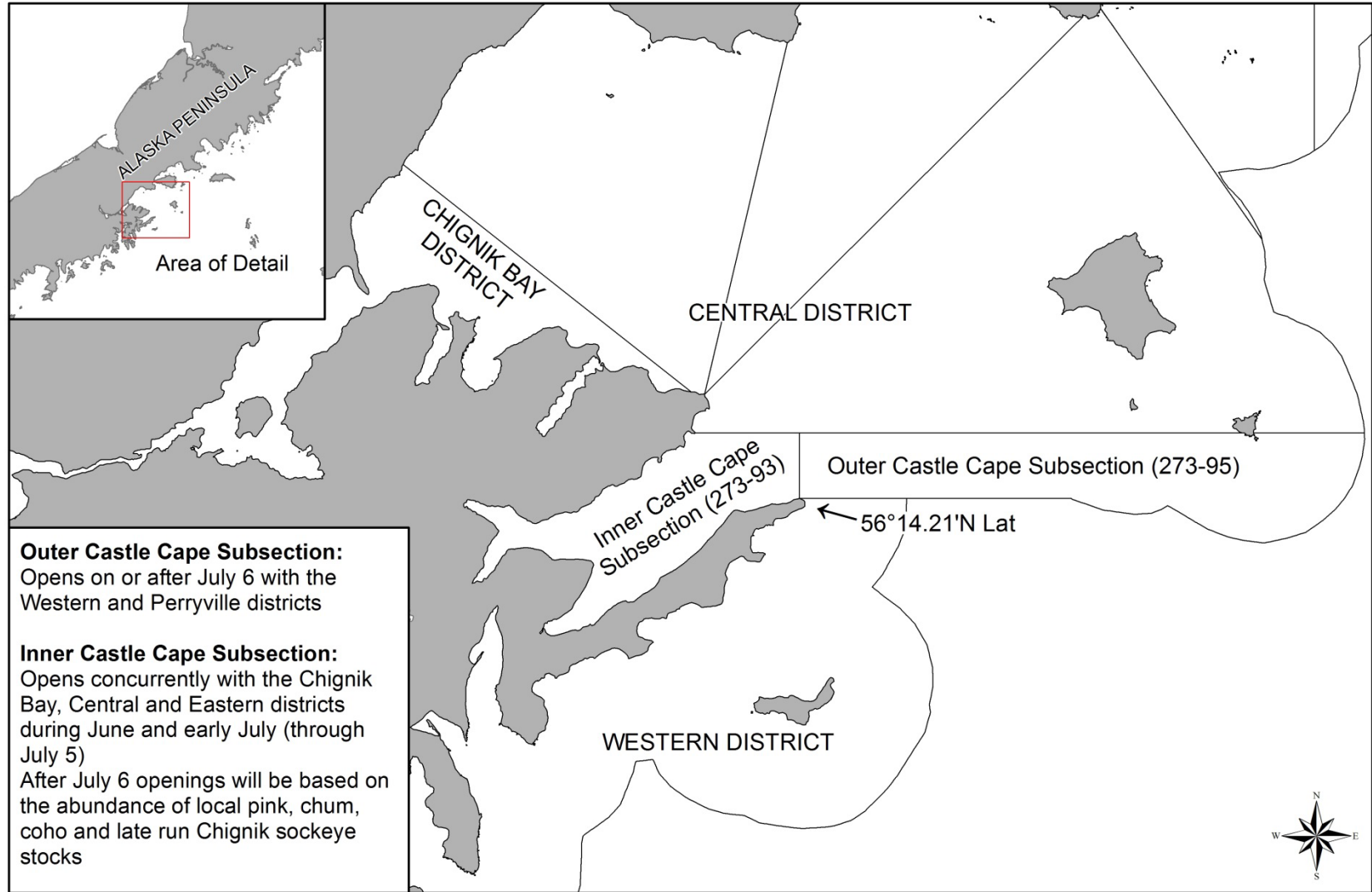


Figure 3.—Map of the Inner (273-93) and Outer Castle Cape (273-95) subsections of the Western District.

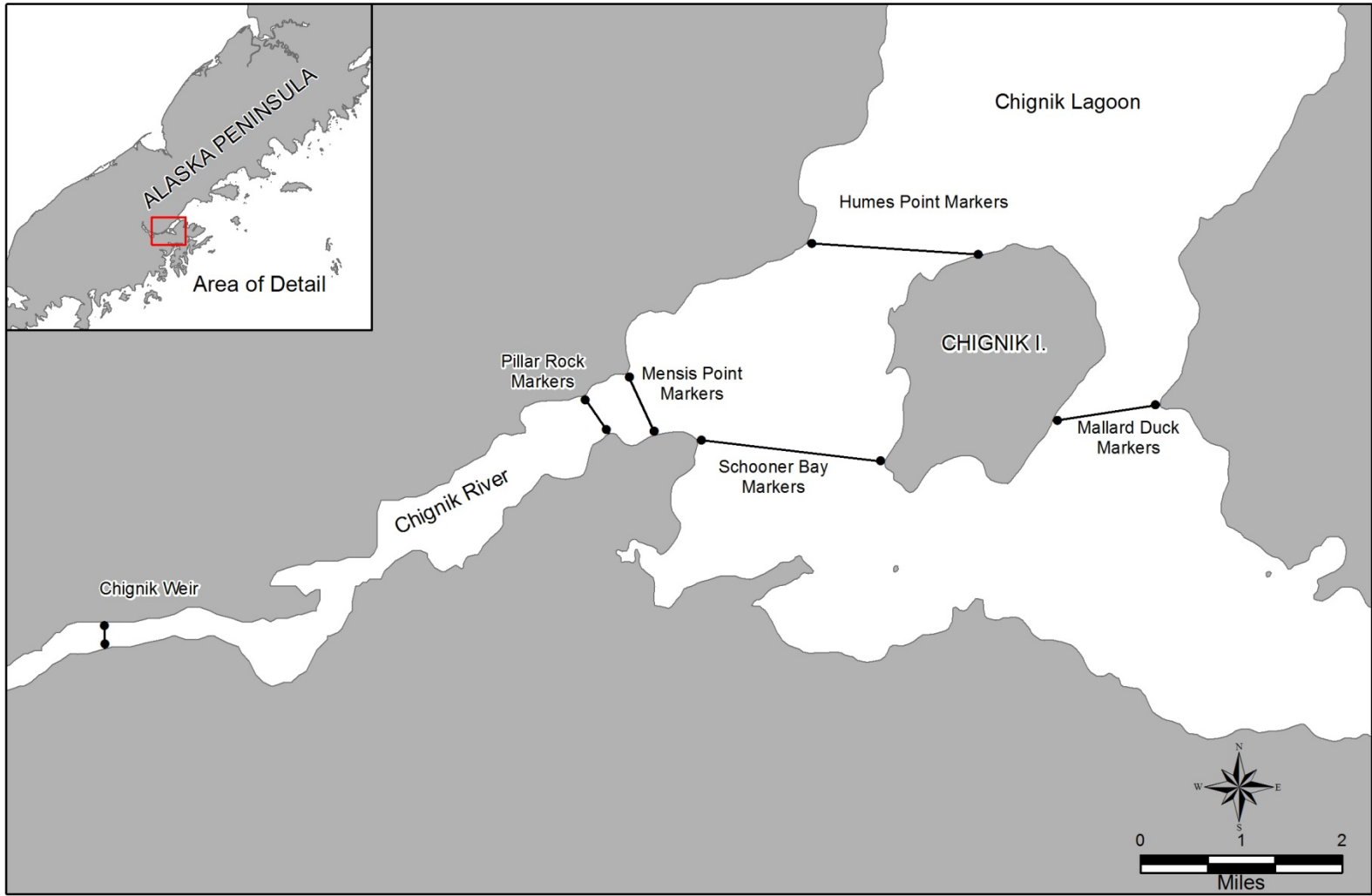


Figure 4.—Map of upper Chignik Lagoon and the location of Pillar Rock, Mensis Point, Humes Point, Mallard Duck, and Schooner Bay marker locations and the location of the Chignik weir.

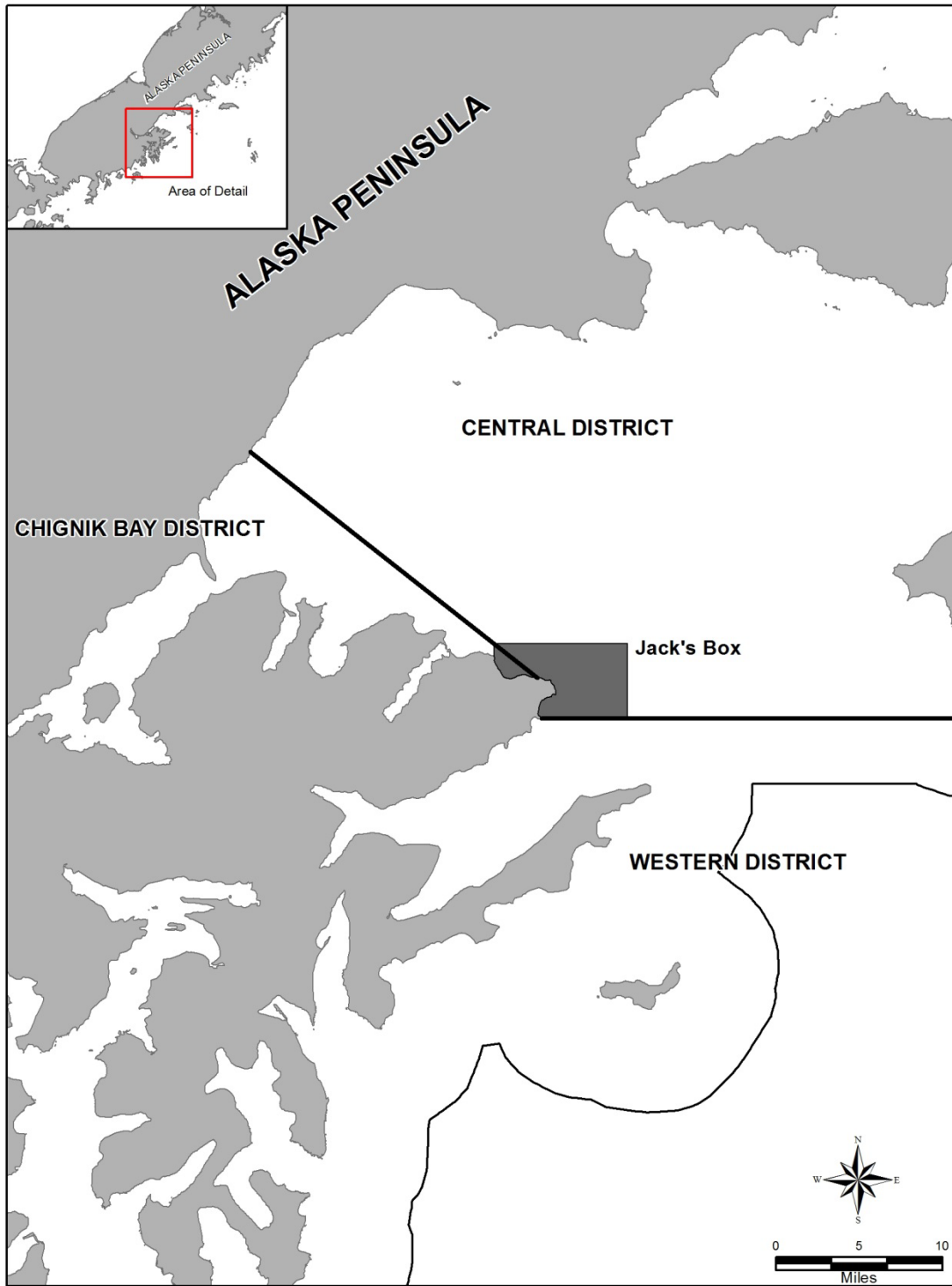


Figure 5.—Map of “Jack’s Box” in the Chignik Bay and Central districts.

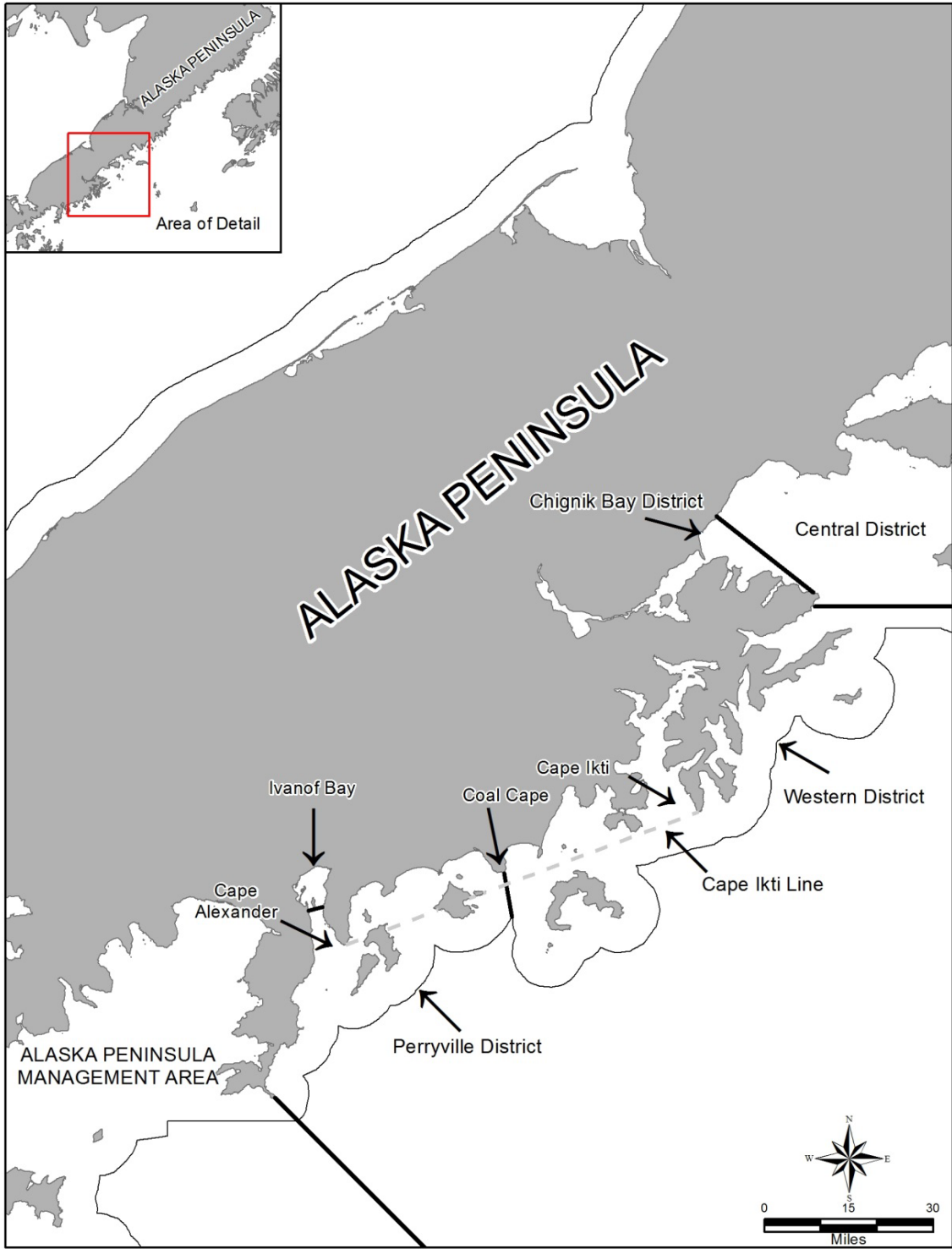


Figure 6.—Map of the “Cape Ikti Line” in the Western and Perryville districts.

APPENDIX A: NEWS RELEASE INSTRUCTIONS

Appendix A.–User instructions for the Division of Commercial Fisheries fishery announcements news release system.

**USER INSTRUCTIONS FOR NEW DIVISION OF COMMERCIAL FISHERIES
FISHERY ANNOUNCEMENTS NEWS RELEASE SYSTEM**

May 23, 2011



-continued-

On May 23, 2011, a new system for publishing news releases announcing commercial fishery openings, closings, fishing areas, times, etc. became available on the Alaska Department of Fish and Game website. This system also publishes non-regulatory fishery updates that convey information about specific fisheries and allows users to find announcements about subsistence fishing and those personal use fisheries managed by the Division of Commercial Fisheries.

The new system replaces several older systems used by the division to publish fishing announcements and fishery updates to the web and allows a single-entry portal for state-wide searching and the creation of e-mail subscriptions.

As of May 31, 2011, all news releases are now issued through this single system. The public may now subscribe to electronic notification via e-mail for specific fisheries that may be of interest. All fishery news releases and announcements from that date forward will appear in the system as they are issued. If the public has subscribed to any news those news releases are delivered to the user’s e-mail inbox as they are issued.

This system can be located on the Alaska Department of Fish and Game website, a visitor to the site should look for the “News and Events” icon which can be found by clicking on the “Home” or “Fishing” menus at the top of any webpage on the site. A “News and Events” icon is located on these pages and clicking on this icon takes the user to the “News and Events” page. By clicking “Regulation Announcements, News Releases, Emergency Orders” and then the “Commercial Fishing” icon, the user will bring up the application for finding news releases, emergency orders, and fishery updates. The user can also go directly to this application by copying the following link into their browser. It might be a good idea to bookmark this link for ease of returning to the site for subsequent visits.

<http://www.adfg.alaska.gov/index.cfm?adfg=cfnews.main>

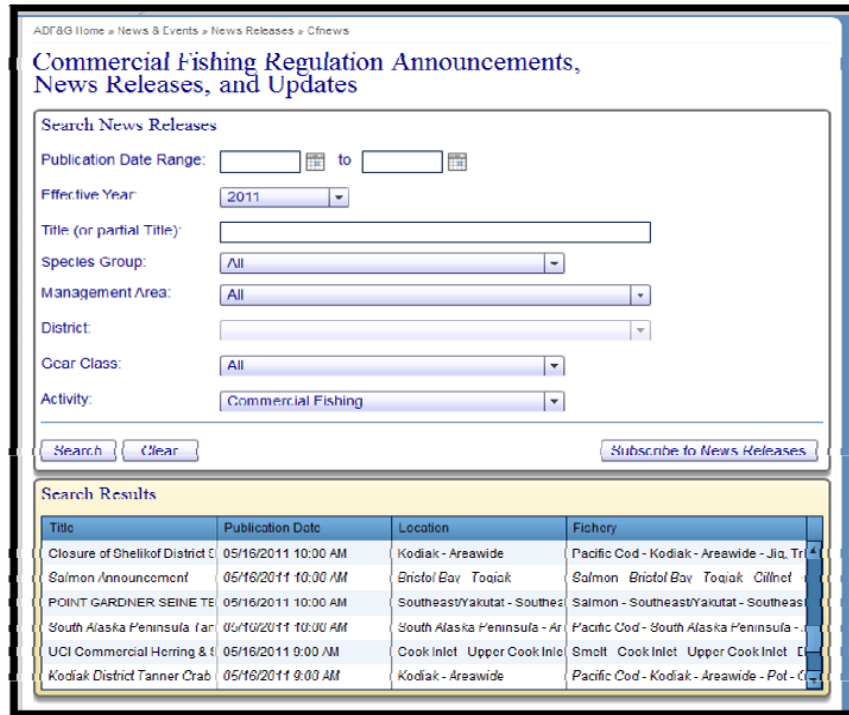


-continued-

USING THE NEW SYSTEM – Searching for News Releases:

The new Commercial Fishing Regulation Announcements, News Release, and Updates web page allows you to select the news releases of interest by using the search screen. Drop down menus are available for all selection categories, to assist in filtering the search of News Releases. Using the drop-down menus, you can narrow your search and the results of that search.

It is possible to view a list of all releases issued by the commercial fisheries division in an entire year or, as is usually the case, search for a specific fishery, like the Bristol Bay salmon fishery or Kodiak black rockfish fishery. To select the entire set of releases, every drop-down menu should have “all” selected, except for year, which should be set for the current year, 2011. Press the “Search” button and the results will be displayed within the “Search Results” box. The following screen shot shows the selection criteria and search results for all news releases and updates.



To search for news releases specific to the Bristol Bay salmon fishery, the user selects 2011 as the year, salmon as the species, Bristol Bay as the management area, all for district, and activity as commercial fishing. Then push the “Search” button and the results are displayed in the “Search Results.” A screen print of this selection is provided below. It would also be possible to search for a specific district in Bristol Bay by also selecting one of the “District” options within a specific management area.

To view a particular news release that is displayed in the Search Results section, the user will double click on that item in the list and it will open as a PDF document. The user will need to have Acrobat Reader installed on your computer to display and print the document.

ADF&G Home » News & Events » News Releases » CNews

Commercial Fishing Regulation Announcements, News Releases, and Updates

Search News Releases

Publication Date Range: to

Effective Year:

Title (or partial Title):

Species Group:

Management Area:

District:

Gear Class:

Activity:

Search Results

| Title | Publication Date | Location | Fishery |
|--------------------------|--------------------|----------------------|---|
| Bristol Bay Eastside # 1 | 05/17/2011 9:30 AM | Bristol Bay - Egegik | Salmon - Bristol Bay - Egegik - Gillnet - C |
| BB TEST 8 | 05/17/2011 8:40 AM | Bristol Bay - Egegik | Salmon - Bristol Bay - Egegik - Gillnet - C |
| BB eastside | 05/17/2011 7:35 AM | Bristol Bay - Egegik | Salmon - Bristol Bay - Egegik - Gillnet - C |
| BB east side test | 05/17/2011 7:32 AM | Bristol Bay - Egegik | Salmon - Bristol Bay - Egegik - Gillnet - C |
| BB east side # 2 | 05/17/2011 7:24 AM | Bristol Bay - Egegik | Salmon - Bristol Bay - Egegik - Gillnet - C |
| BB eastside # Xx | 05/17/2011 7:12 AM | Bristol Bay - Egegik | Salmon - Bristol Bay - Egegik - Gillnet - C |

-continued-

Subscribing to News Releases:

After making a news release selection, it is possible to subscribe and receive, via e-mail, future news releases for the specific fishery selected, by pushing the “Subscribe to News Releases” button at the right lower corner of the search screen. The subscription web page will display, as shown below.

ADF&G Home » News & Events » News Releases » C/news

Commercial Fishing Regulation Announcements, News Releases, and Updates

Subscribe to News Releases Via Email

* Indicates a required field

Species Group:

Gear Class:

Activity:

Management Area: *

District:

Email Format:

Email Address: *

Confirm Email Address: *

Simply type in an e-mail address in the box provided and then confirm this e-mail address in the box provided for confirming e-mail addresses, push the “Subscribe” button, and the subscription process is finished. News releases for the fisheries selected by the user will begin to appear in the user’s mailbox as they are published by ADF&G staff.

The user may return to the search screen by pushing the “Search for News Releases” button in the lower right-hand corner of the subscription screen. When you subscribe to all News Releases for a specific category, as defined by the drop-down menu, this subscription is limited to the selection you created. If you wish to subscribe to news releases for other fisheries you will need to repeat the process described above for each subscription desired.

A user may unsubscribe to any subscription by clicking on the link “Unsubscribe” that is included within each e-mail sent to a subscriber.

**APPENDIX B. 2019 CHIGNIK SOCKEYE
SALMON FORECAST**

**Forecast Area: Chignik
Species: Sockeye Salmon**

Preliminary Forecast of the 2019 Run

| | | Forecast Estimate (thousands) | Forecast Range (thousands) |
|-------------------------|-------------------------------|----------------------------------|-------------------------------|
| Total Production | | | |
| Early Run (Black Lake) | Total Run Estimate | 829 | 0–1,747 |
| | Escapement Goal ^a | 400 | 350–450 |
| | Harvest Estimate ^b | 429 | |
| Late Run (Chignik Lake) | Total Run Estimate | 909 | 380–1,438 |
| | Escapement Goal ^a | 338 | 275–400 |
| | Harvest Estimate ^b | 571 | |
| Total Chignik System | Total Run Estimate | 1,738 | 380–3,185 |
| | Harvest Estimate ^b | 1,000 | |
| | Chignik Area | 827 | |
| | SEDM Area | 56 | |
| | Cape Igvak Section | 117 | |

Note: Column numbers may not total or correspond exactly with numbers in text due to rounding.

^a Harvest represents the midpoint of the escapement goal. An inriver run goal of 75,000 sockeye salmon is added to the lower bound of the late-run escapement goal.

^b Includes anticipated harvests of Chignik-bound fish in Southeastern District Mainland and Cape Igvak fisheries.

Forecast Methods

Simple linear regression models using age-class relationships were used to forecast the 2019 early- and late- Chignik sockeye salmon runs. Each regression model was assessed with standard regression diagnostic procedures. Prediction intervals (80%) for the regression estimates were calculated using the variances of the regression models. Age class returns not estimated with statistical models utilized pooled medians with data from 1995 to the present; median prediction intervals were calculated from the 10th and 90th percentiles of the data.

For the early run, prior year ocean-age-2 returns predicted log transformed ocean-age-3 returns using data from the 1995 outmigration year to the present. Prior year early-run ocean-age-1 returns predicted log transformed ocean-age-2 returns (outmigration years 1998 to present). For the late run, prior year ocean-age-2 sockeye salmon returns predicted ocean-age-3 returns using data from the 2000 outmigration year to the present. Prior year ocean-age-1 early- and late-run returns were combined to predict late-run ocean-age-2 returns (outmigration years 1988 to present).

The early- and late-run regression and median estimates were summed to estimate the total Chignik River sockeye salmon run for 2019. The prediction interval range was calculated as the square root of the sum of the squared 80% prediction intervals for each age class forecasted. The combined early- and late-run 80% prediction interval was calculated by summing the lower and upper prediction bounds of the two runs.

-continued-

Forecast Discussion

The 2019 Chignik sockeye salmon early run is forecasted to be 829,000 fish, which is 512,000 fish less than the 10-year average run of 1.34 million and almost 565,000 fish more than the 2018 early run of 264,000 fish. The early run is predicted to be composed of approximately 84% ocean-age-3 and 16% ocean-age-2 fish. The late run is forecasted to be 909,000 fish, which is approximately 128,000 fish less than the 10-year average run of 1.04 million fish and 634,000 fish more than the 2018 late run of 276,000 fish. The 2019 late run is predicted to be composed of approximately 85% ocean-age-3, 13% ocean-age-2, and 1% ocean-age-1 and -4 fish. The 2019 total Chignik sockeye salmon run is expected to be 1.74 million fish, which is approximately 641,000 fish less than the 10-year average of 2.38 million and roughly 1.20 million fish more than the 2018 total run of 540,000 fish.

The projected 2019 early-run total harvest estimate of 429,000 fish is based on achievement of the mid-point of the early-run escapement goal range. The projected late-run harvest estimate of 1.00 million fish is based on achieving the mid-point (338,000 fish) of the late-run goal, which includes the inriver run goal of 75,000 fish added to the lower bound (200,000 fish) of the escapement goal. Sockeye salmon harvest estimates for both runs include fish harvested in the Chignik Management Area, Chignik-bound fish harvested in the Cape Igvak Section of the Kodiak Management Area, and in the Southeastern District Mainland of the Alaska Peninsula Management Area.

The wide confidence intervals around the point estimate of the 2019 forecasts reflect the uncertainty inherent in the forecast models. The early run is typically more variable than the late run, resulting in wider confidence intervals for the early run. Exploratory analysis using other sibling relationships and environmental variables corroborated this formal forecast. Similar methods have been used for forecasting the early and late runs since 2004. Due to the range of variation in the relationships used in these forecasts and their historical accuracy, our confidence in them is fair.

Heather Finkle, Finfish Research Biologist, Westward Region
Sarah Power, Commercial Fisheries Biometrician