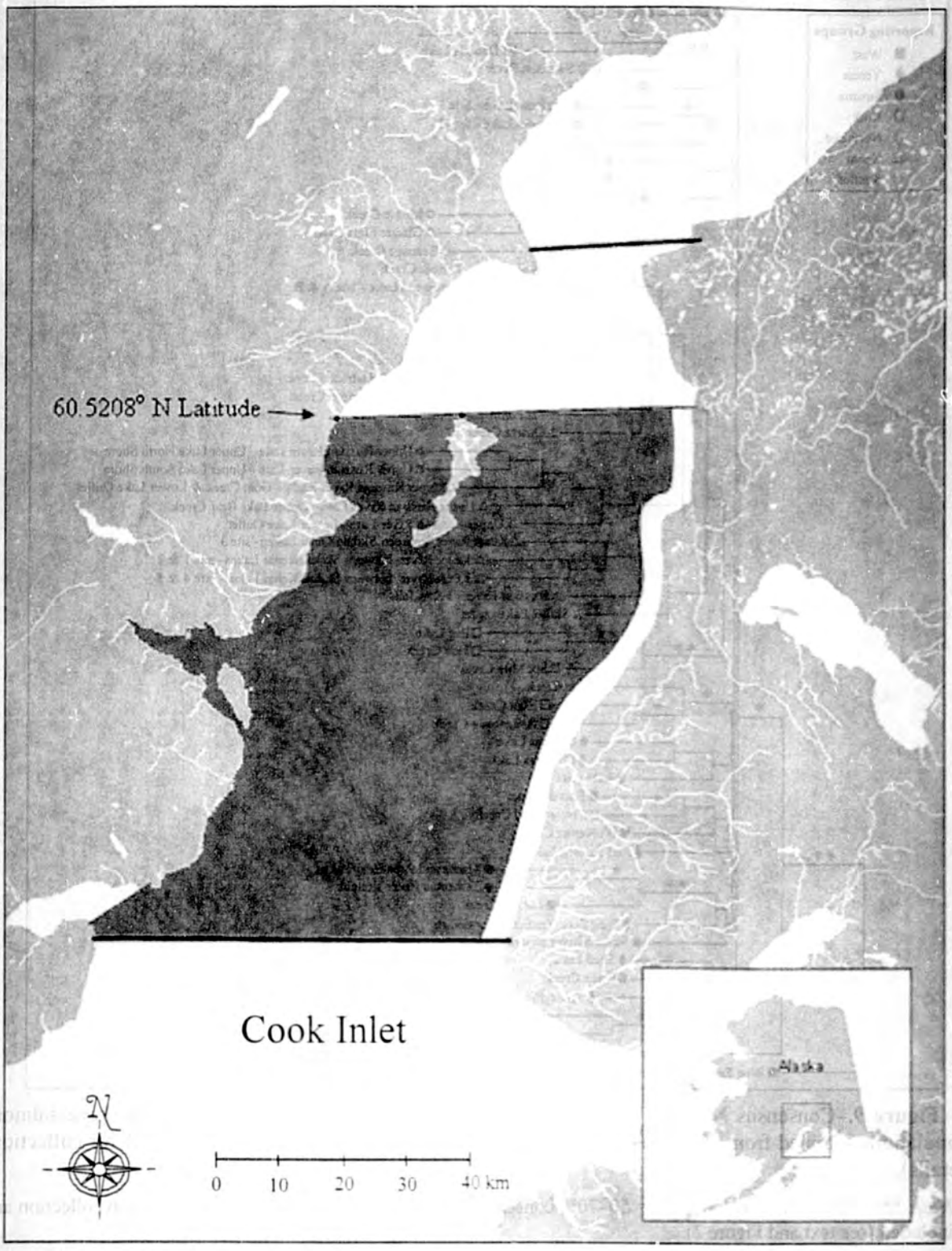

Figure 8.–Map of Central Cook Inlet showing management fishing boundaries for the area south of the longitudinal line that intersects with the north end of Kalgin Island and north of the southern limit of the Central District.

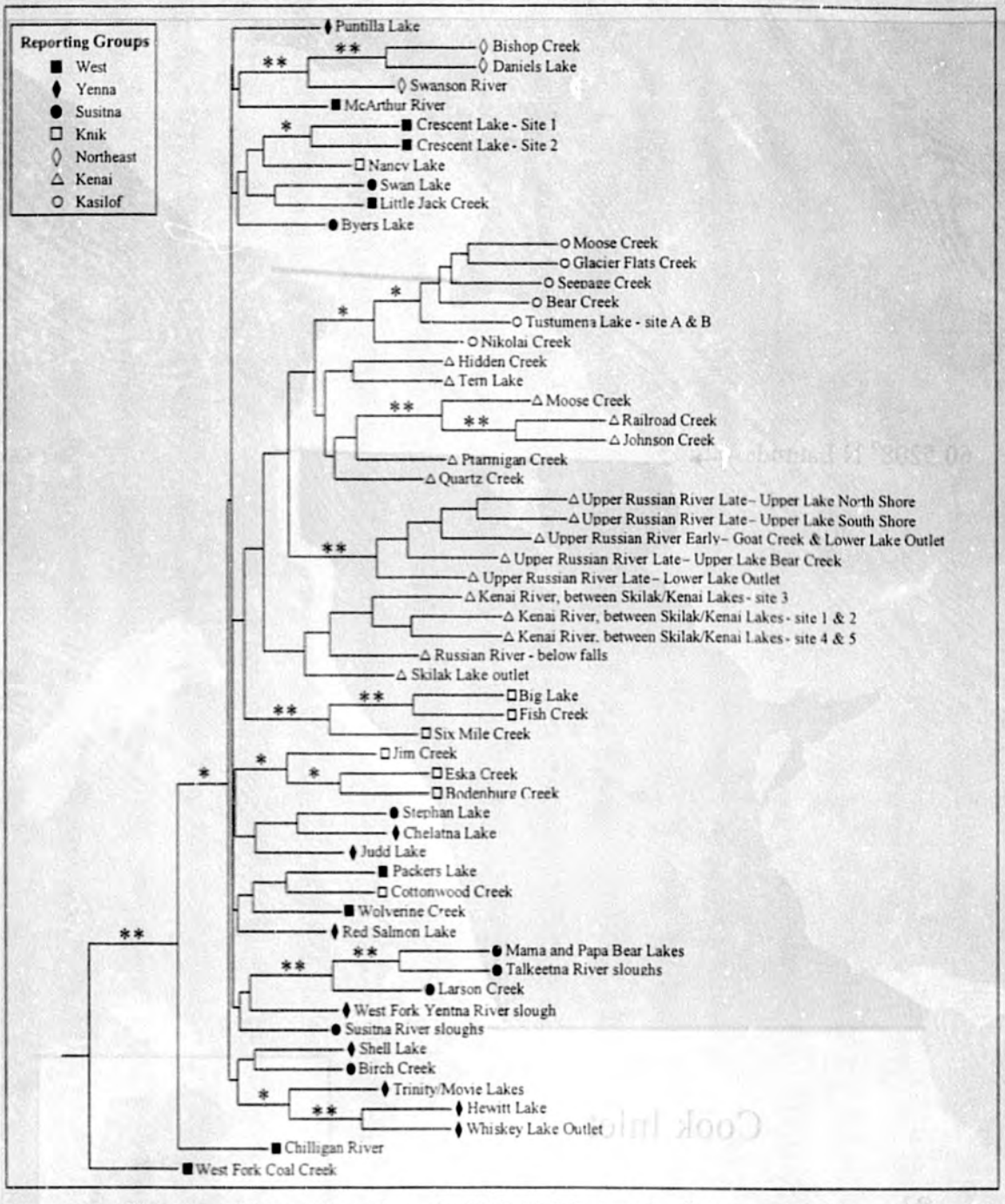

Figure 9.–Consensus N-J tree based on the Nei (1978) genetic distances between sockeye salmon populations sampled from spawning areas in drainages of Cook Inlet, Alaska (see Table 1 for collection details).

Note: ** = 70% consensus nodes; * = 50–70% consensus nodes. Reporting group symbols for each collection are included (see text and Figure 2).

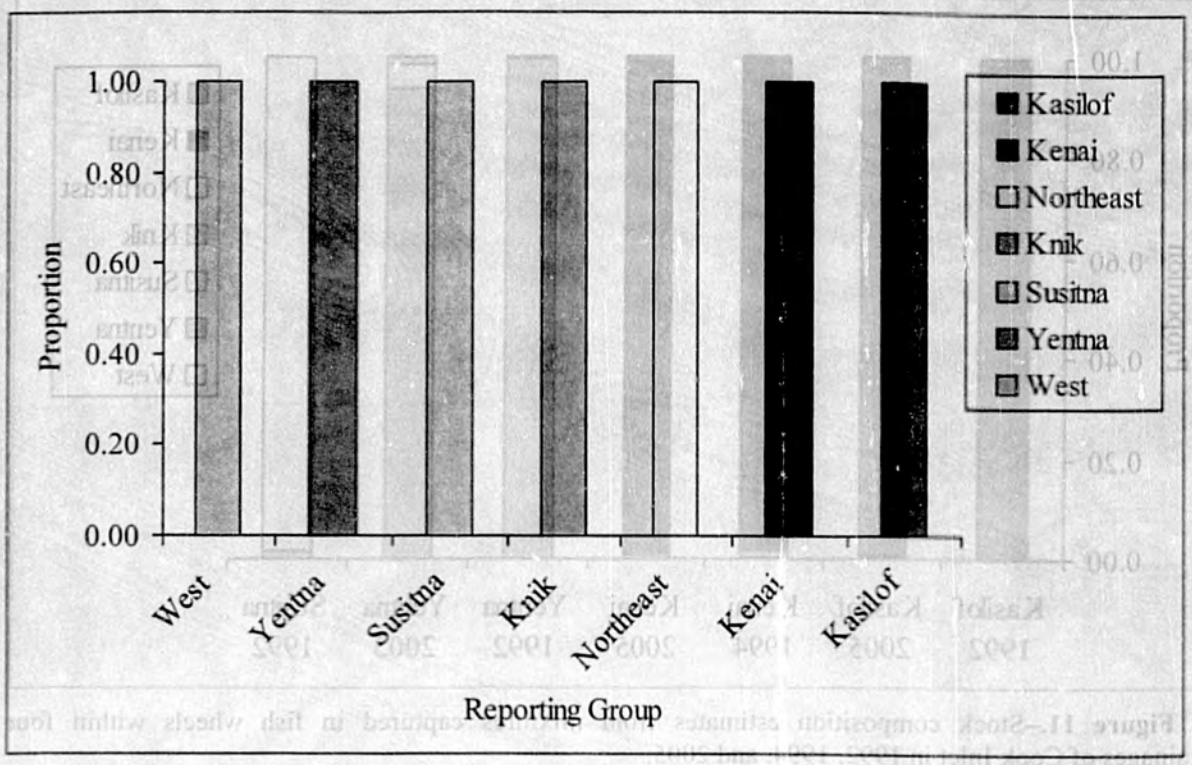

Figure 10.–Stock composition estimates from mixtures of 200 fish from each reporting group.

Note: New baselines were created to determine stock composition estimates for each reporting group, and these baselines excluded the 200 fish used in the mixtures.

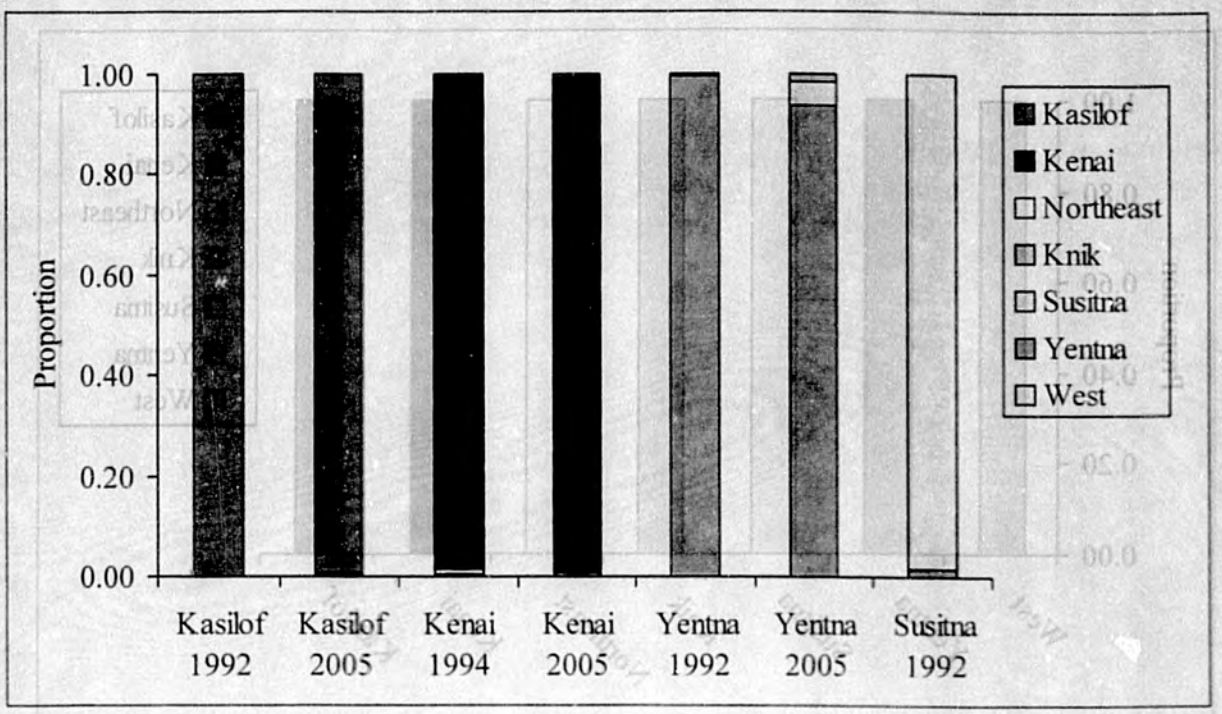

Figure 11.–Stock composition estimates from mixtures captured in fish wheels within four drainages of Cook Inlet in 1992, 1994, and 2005.

Note: BAYES with a SPAM prior was used to estimate the proportions.

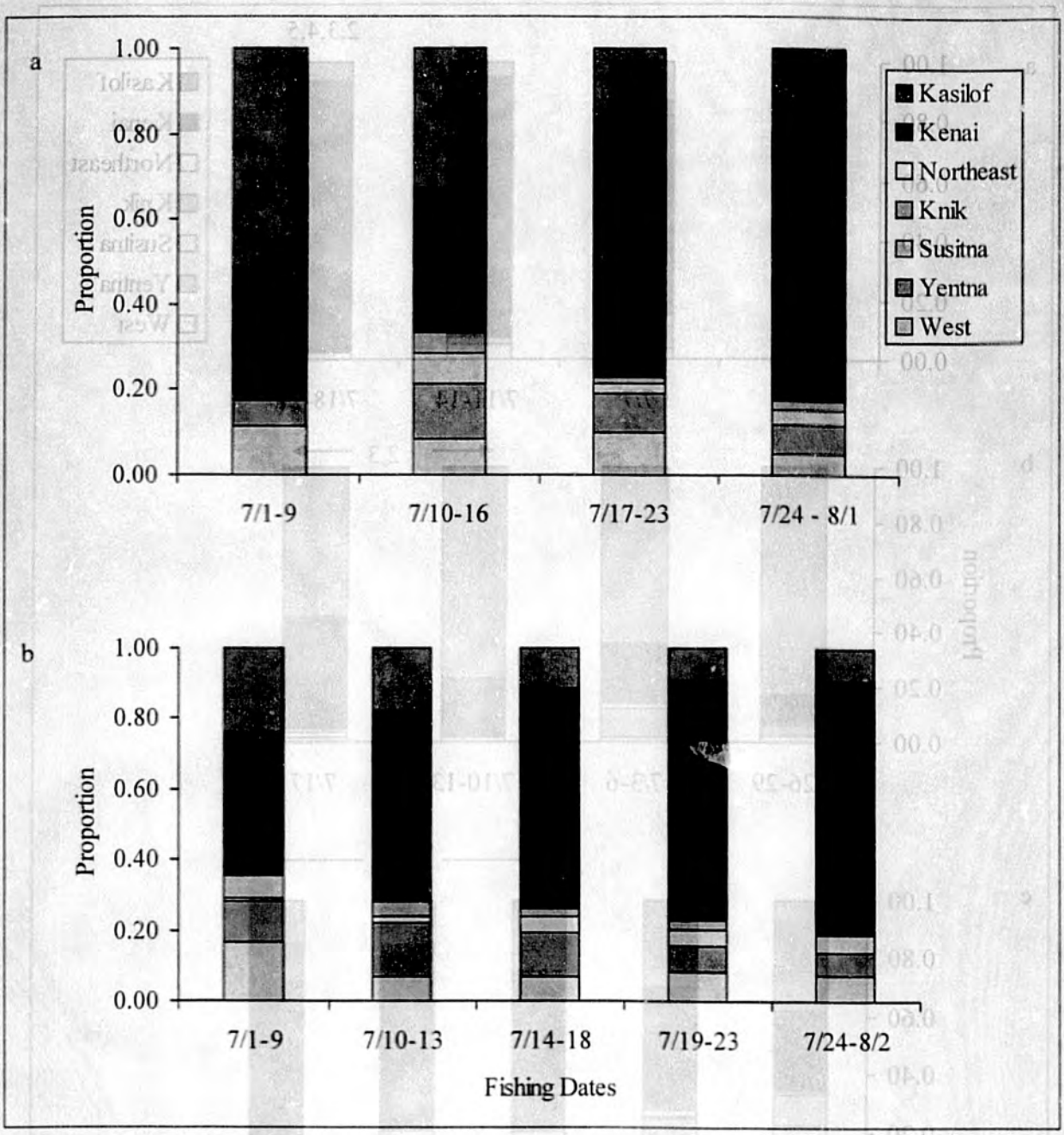

Figure 12.–Stock composition estimates for the Cook Inlet offshore test fishery taken in a) 2006, and b) 2007.

Note: BAYES with a SPAM prior was used to estimate the proportions.

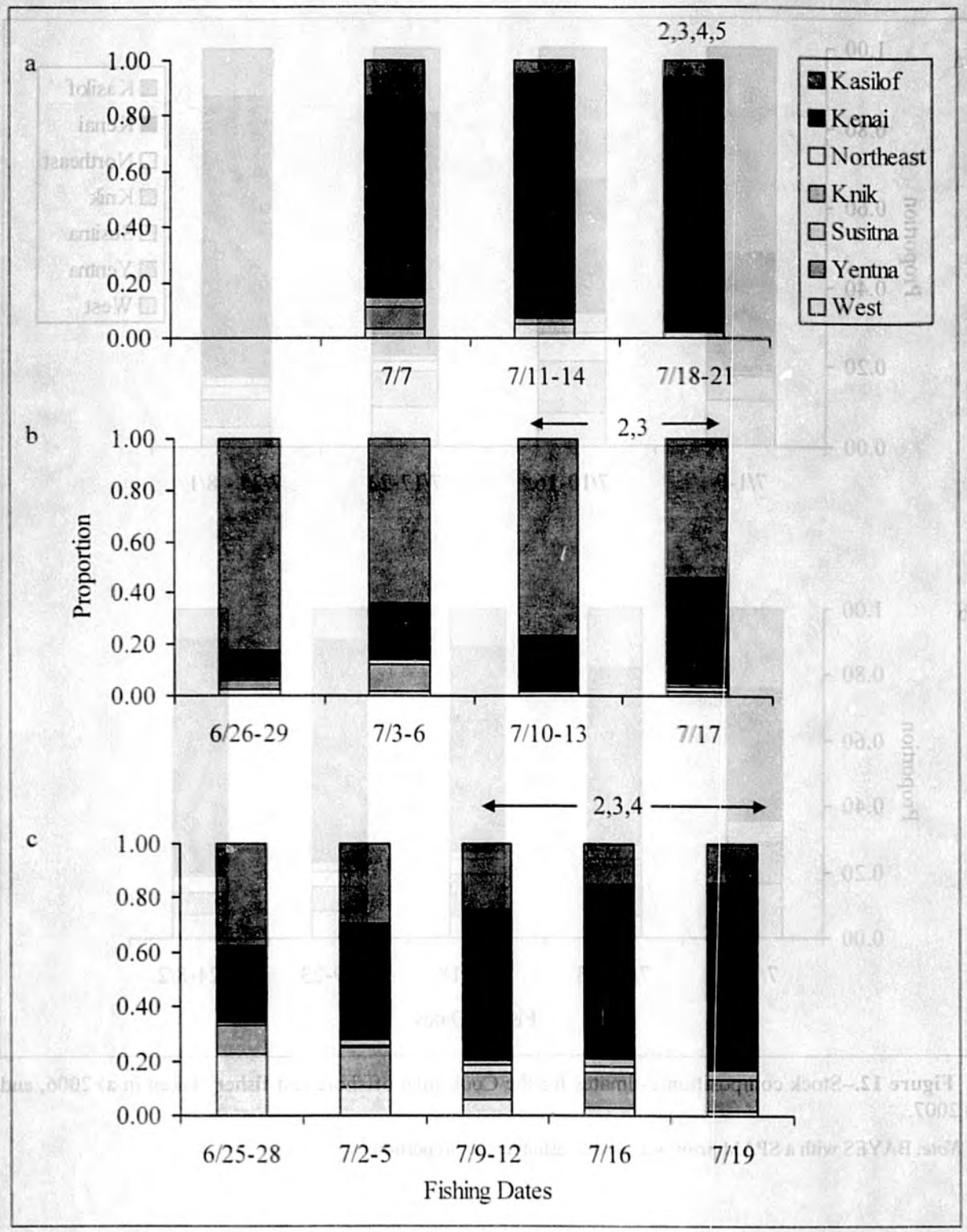

Figure 13.–Stock composition estimates for the Central District drift gillnet fishery from a) 2005, b) 2006, and c) 2007.

Note: Numbers above the bars indicate fisheries were restricted to particular areas: 2-Kasilof Corridor; 3-Kenai Corridor; 4-Area 1; 5-Area 2 (see Figures 1 and 4–8 and Table 2). BAYES with a SPAM prior was used to estimate the proportions.

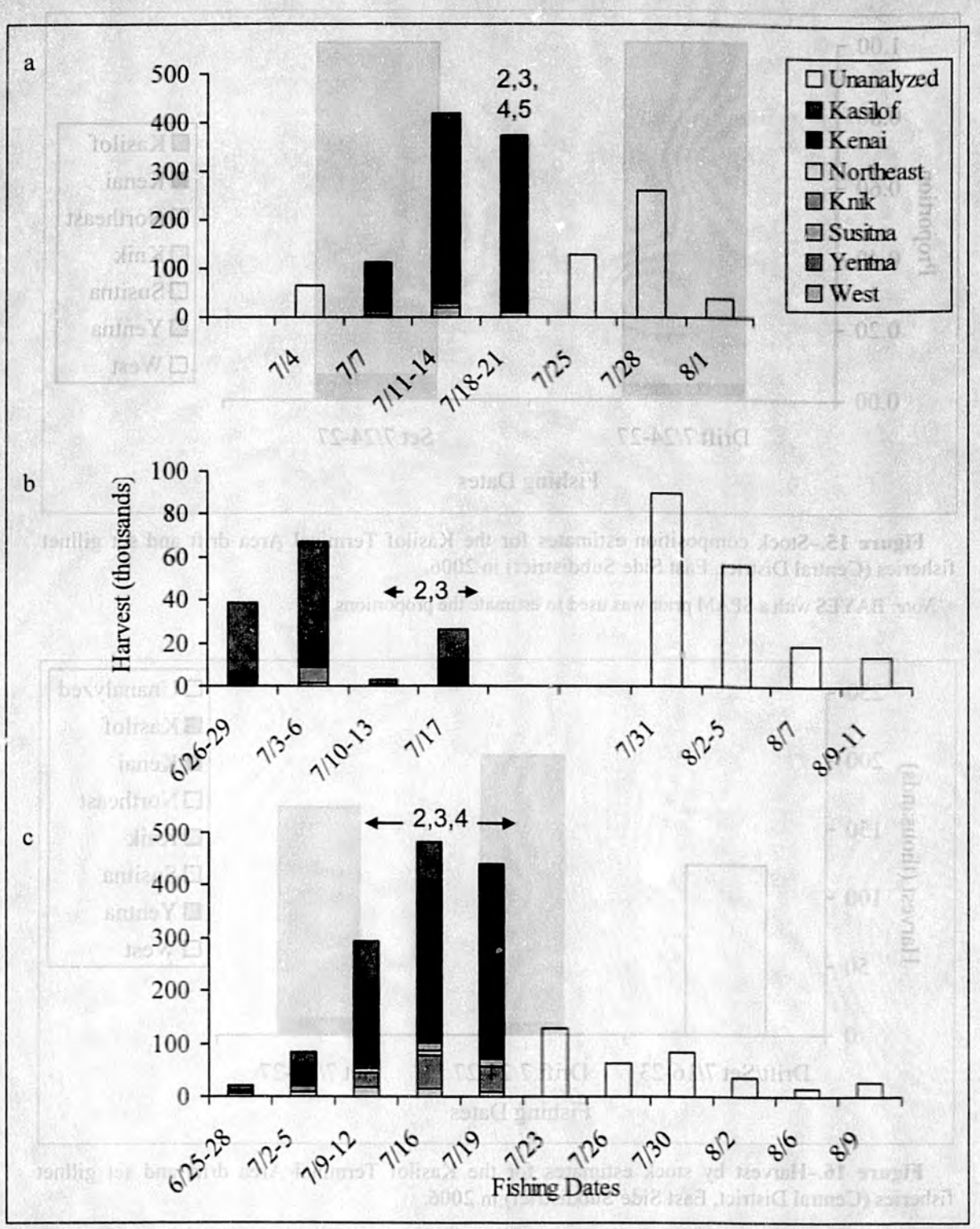

Figure 14.–Harvest by stock estimates for the Central District drift gillnet fishery from a) 2005, b) 2006, and c) 2007.

Note: Numbers above the bars indicate fisheries were restricted to particular areas: 2-Kasilof Corridor; 3-Kenai Corridor; 4-Area 1; 5-Area 2 (see Figures 1 and 4–8 and Table 2). BAYES with a SPAM prior was used to estimate the proportions.

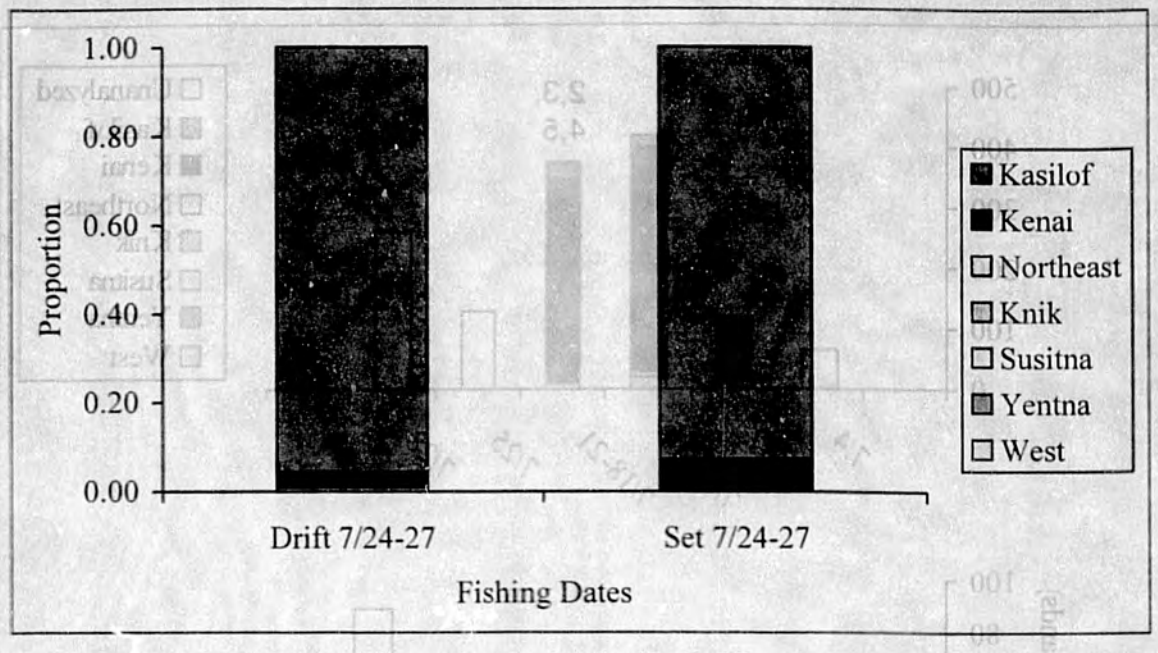

Figure 15.–Stock composition estimates for the Kasilof Terminal Area drift and set gillnet fisheries (Central District, East Side Subdistrict) in 2006.

Note: BAYES with a SPAM prior was used to estimate the proportions.

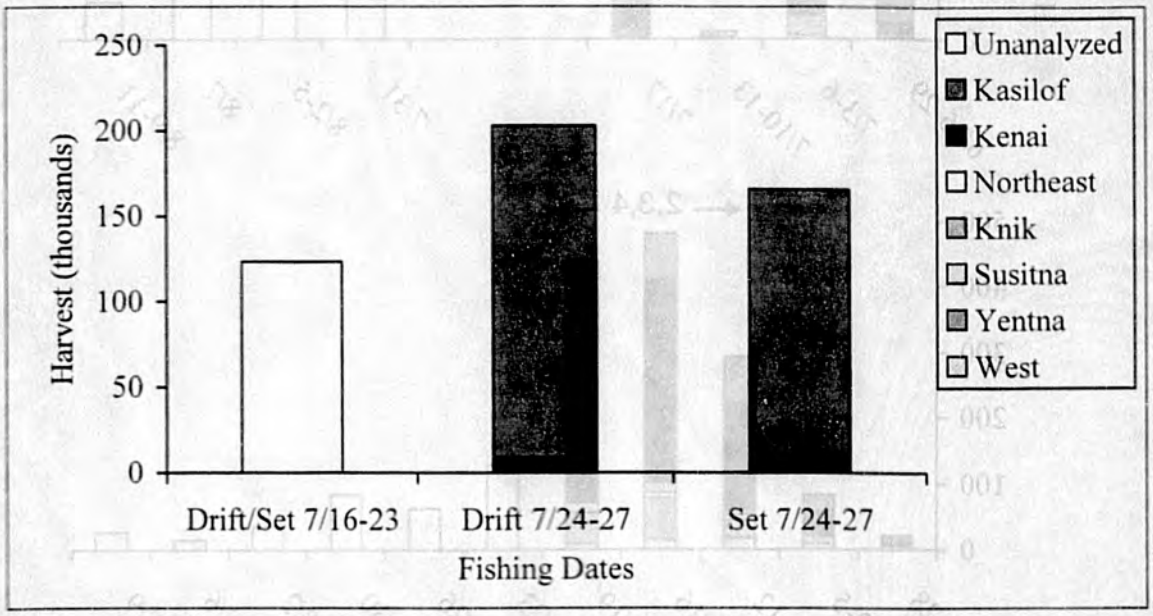

Figure 16.–Harvest by stock estimates for the Kasilof Terminal Area drift and set gillnet fisheries (Central District, East Side Subdistrict) in 2006.

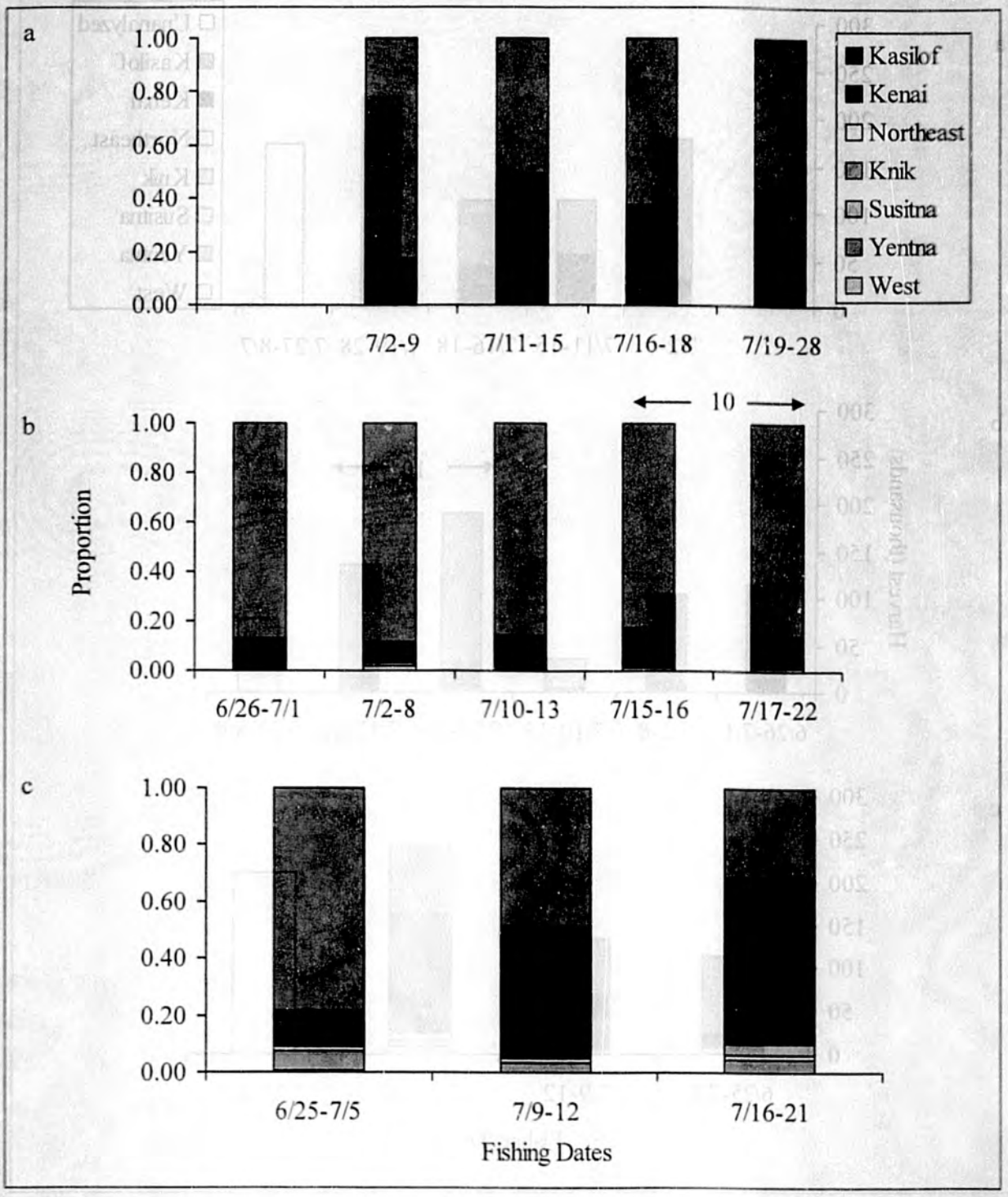

Figure 17.–Stock composition estimates for the Kasilof Section set gillnet fishery (Central District, East Side Subdistrict) from a) 2005, b) 2006, and c) 2007.

Note: Numbers above the bars indicate fishery restrictions during openings (10- Restricted to within 1/2 mile of shore: see Table 2). BAYES with a SPAM prior was used to estimate the proportions.

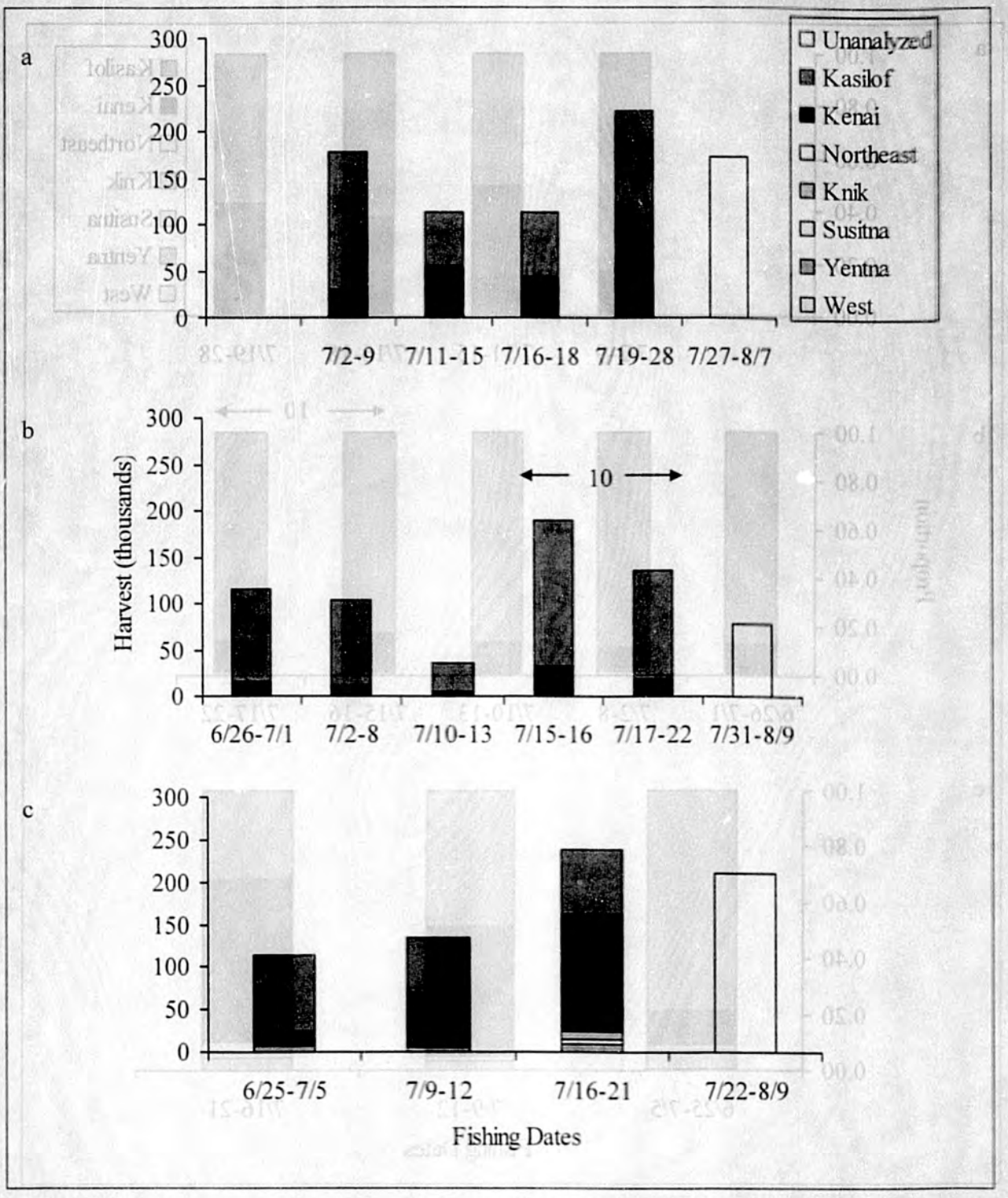

Figure 18.–Harvest by stock estimates for the Kasilof Section set gillnet fishery (Central District, East Side Subdistrict) from a) 2005, b) 2006, and c) 2007.

Note: Numbers above the bars indicate fishery restrictions during openings (10- Restricted to within 1/2 mile of shore: see Table 2). Fishing dates between subsections sometimes overlapped (see Table 2).

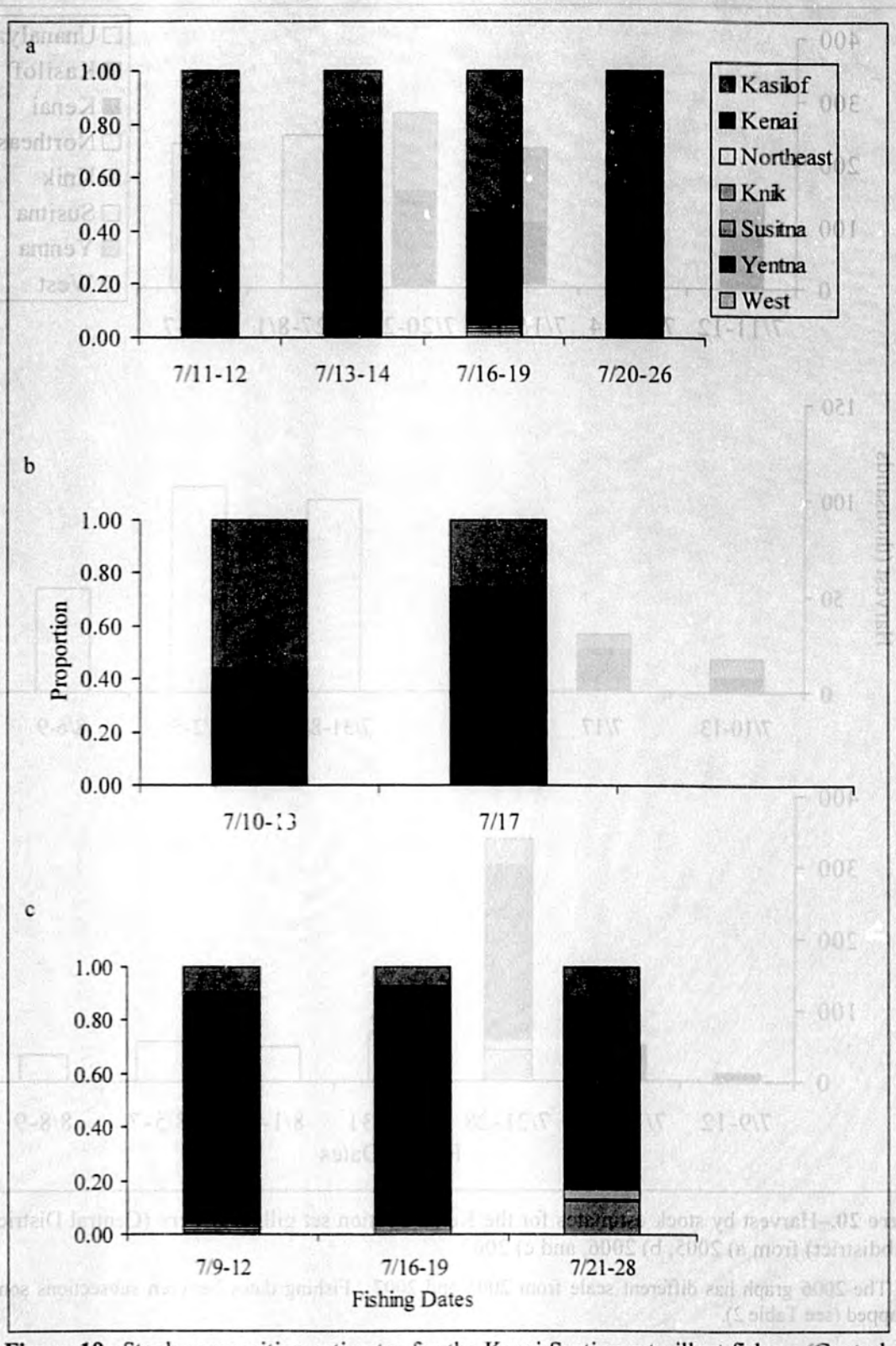

Figure 19.–Stock composition estimates for the Kenai Section set gillnet fishery (Central District, East Side Subdistrict) from a) 2005, b) 2006, and c) 2007.

Note: BAYES with a SPAM prior was used to estimate the proportions.

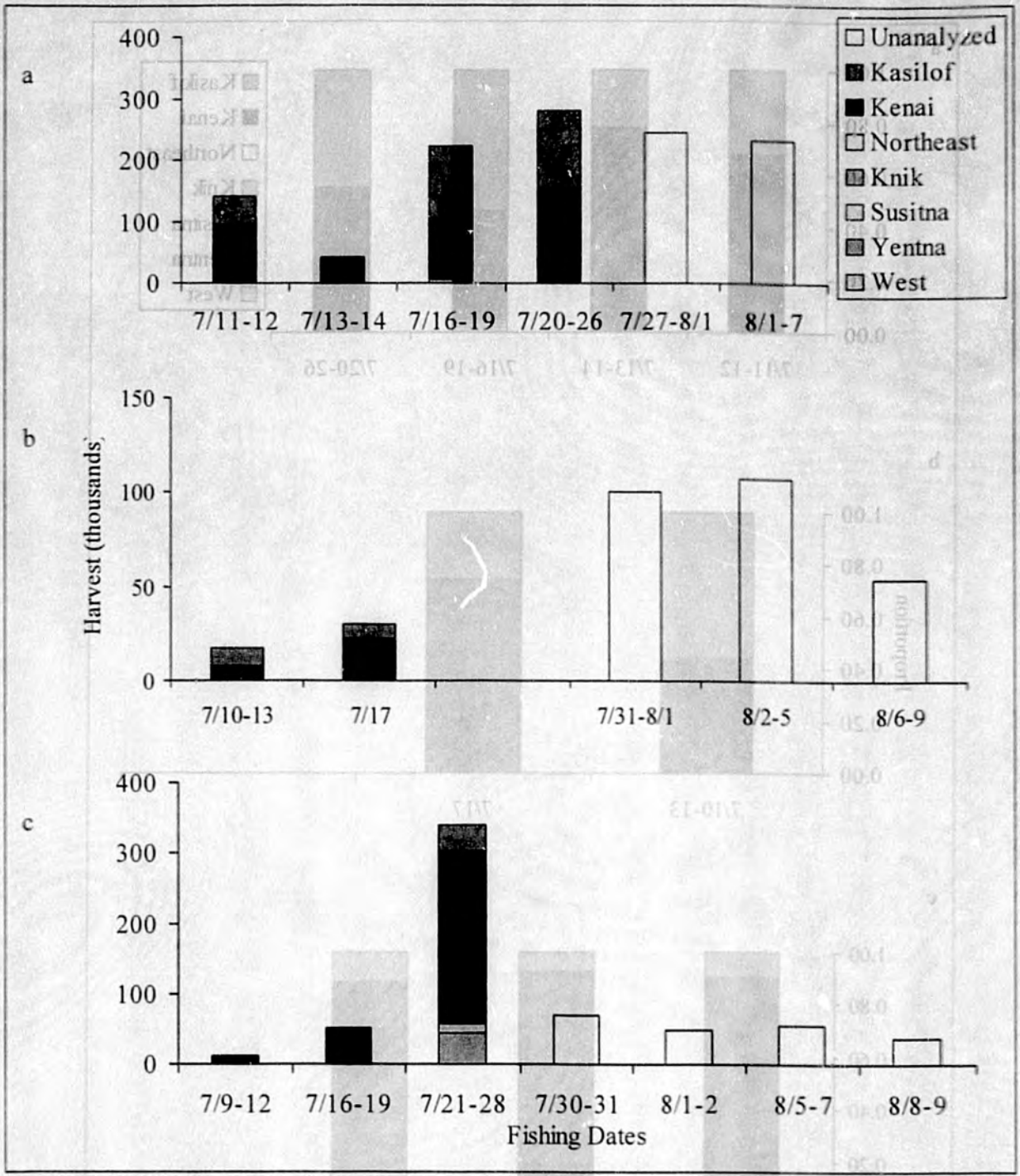

Figure 20.–Harvest by stock estimates for the Kenai Section set gillnet fishery (Central District, East Side Subdistrict) from a) 2005, b) 2006, and c) 2007.

Note: The 2006 graph has different scale from 2005 and 2007. Fishing dates between subsections sometimes overlapped (see Table 2).

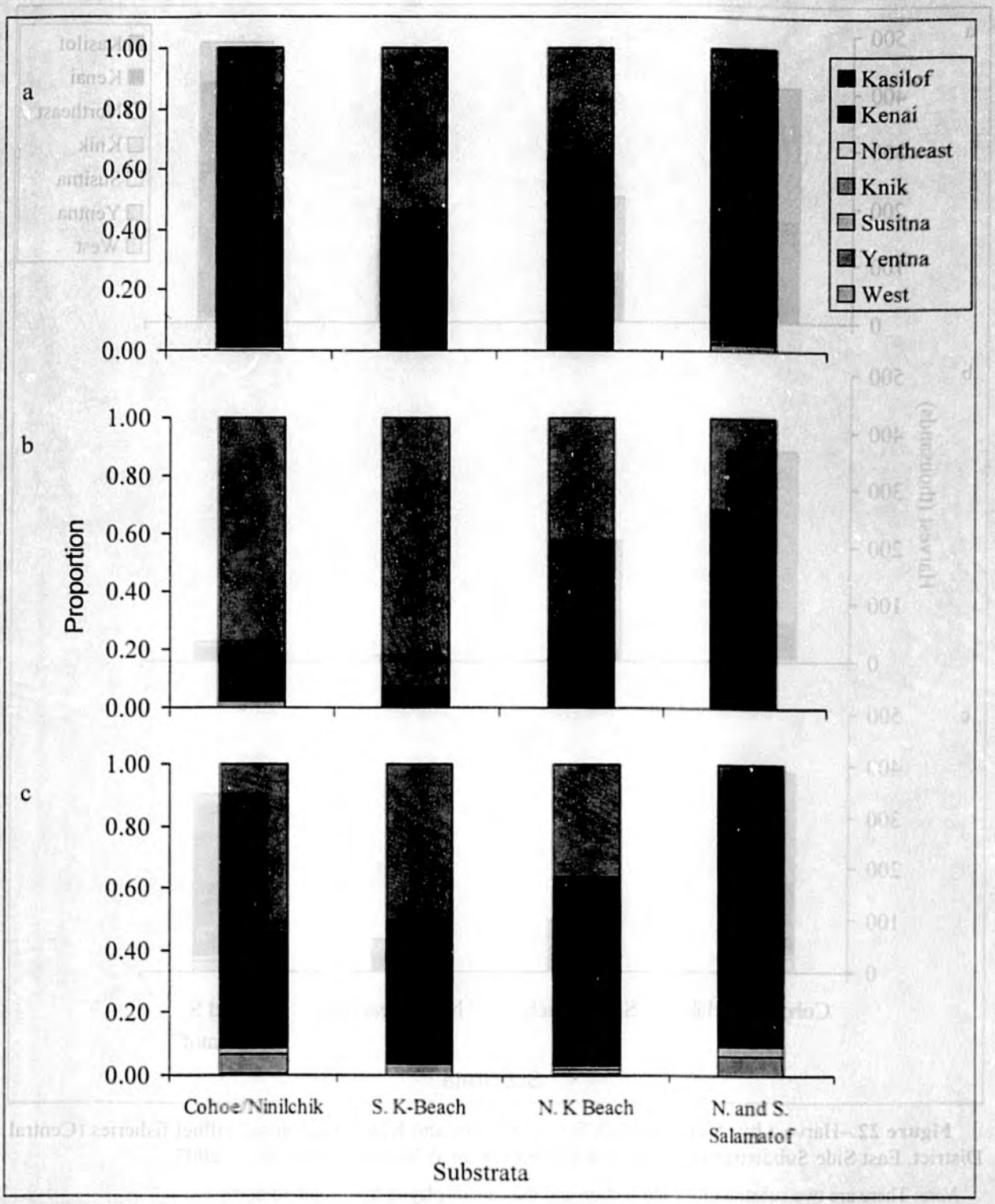

Figure 21.–Stock composition estimates for the Kasilof and Kenai Section set gillnet fisheries (Central District, East Side Subdistrict) divided into substrata from a) 2005, b) 2006, and c) 2007.

Note: There are two substrata for each section and they are displayed from south to north. BAYES with a SPAM prior was used to estimate the proportions.

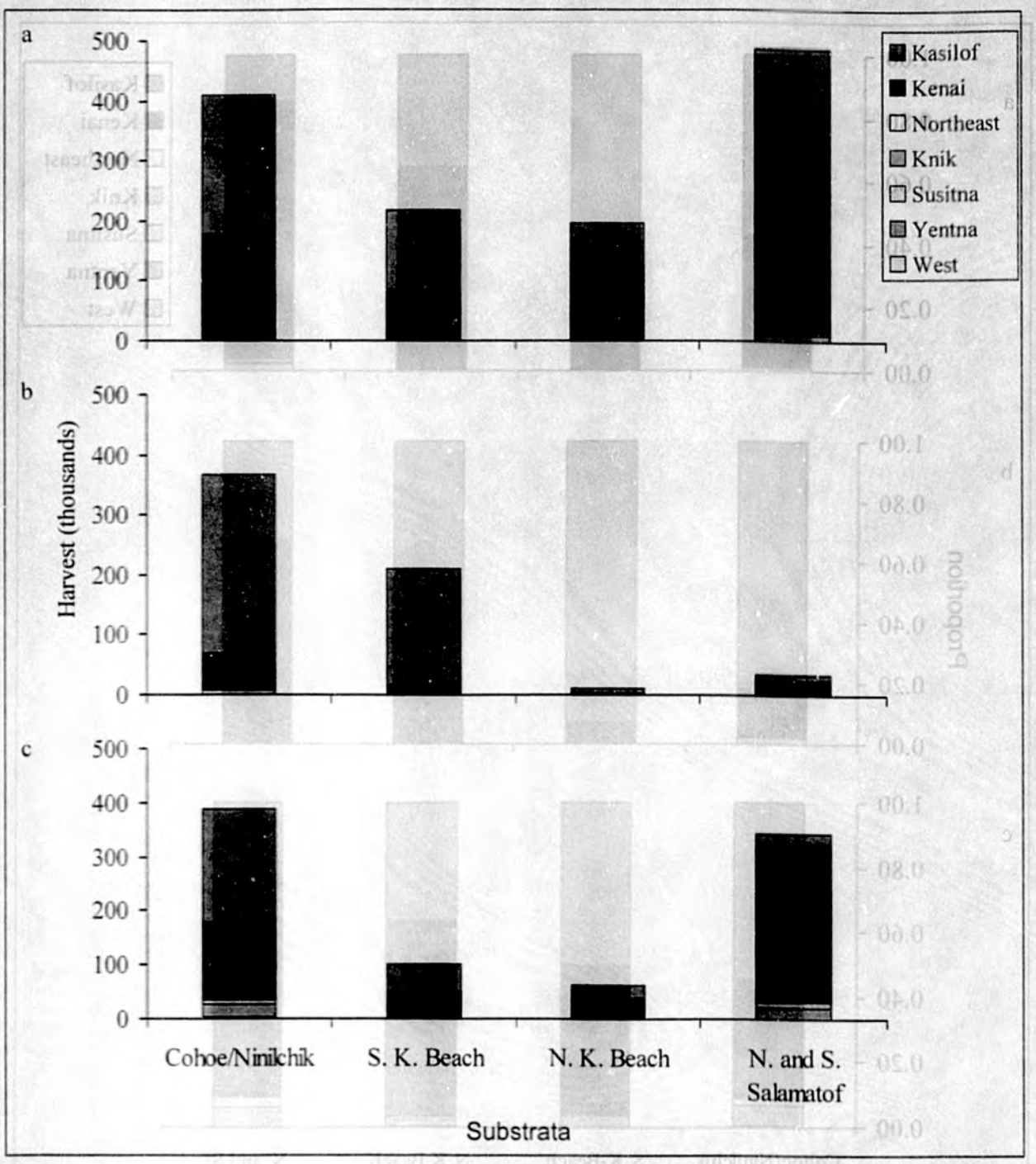

Figure 22.–Harvest by stock estimates for the Kasilof and Kenai Section set gillnet fisheries (Central District, East Side Subdistrict) divided into substrata from a) 2005, b) 2006, and c) 2007.

Note: There are two substrata for each section and they are displayed from south to north.

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF COMMERCIAL FISHERIES
NEWS RELEASE

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Date Issued: 4/14/2008

UPPER COOK INLET
2008 OUTLOOK FOR COMMERCIAL SALMON FISHING

SOCKEYE SALMON

A run of 5.6 million sockeye salmon is forecasted to return to UCI in 2008 with a harvest by all user groups of 3.9 million fish. The forecasted harvest in 2008 is about 0.2 million fish below the 20-year average harvest by all user groups. The sockeye salmon run forecast for the Kenai River of 3.1 million is 16% less than the 20-year average run of 3.7 million. Age-1.3 sockeye salmon typically comprise about 65% of the run to the Kenai River. The sibling model predicted a return of 2.6 million age-1.3 sockeye salmon to the Kenai River while the fry model predicted a return of 2.5 million age 1.3-sockeye salmon. Age-2.3 sockeye salmon typically comprise about 20% of the run to the Kenai River. A sibling model based upon the return of age-2.2 sockeye salmon in 2007 was used to forecast the return (286,000) of age-2.3 sockeye salmon to the Kenai River in 2008. The return of age-2.2 sockeye salmon in 2007 was 58% less than the 20-year average return for this age class. The predominant age classes in the 2008 run should be age-1.3 (85%) and age-2.3 (9%).

The sockeye salmon run forecast for the Kasilof River of 1.3 million is 33% greater than the 20-year average run of 968,000. Age-1.3 sockeye salmon typically comprise about 35% of the run to the Kasilof River. A sibling model based upon the return of age-1.2 sockeye salmon in 2007 was used to forecast the return (376,000) of age-1.3 sockeye salmon in 2008. The return of age 1.2-sockeye salmon last year was 57% greater than the 20-year average return for this age class. Age-1.2 sockeye salmon typically comprise about 30% of the run to the Kasilof River. A sibling model based upon an above average return of age-1.1 sockeye salmon in 2007 was used to forecast the return of age-1.2 sockeye salmon to Kasilof River. The sibling model predicted a return of 484,000 age-1.2 sockeye salmon. However, we are less confident in this forecast, because a smolt model predicted a return of only 252,000 age-1.2 sockeye salmon. Age-1.2 sockeye salmon migrated as smolts from the Kasilof River in 2006, when their estimated abundance was only 2.6 million, about

one-half of the 20-year average. The predominant age classes in the 2008 run should be age-1.2 (38%) and age 1.3 (29%).

The sockeye salmon run forecast for the Susitna River of 344,000 is 24% less than the 20-year average run of 453,000. The accuracy of the Susitna River forecast is uncertain due to the unknown amount of undercounting of the escapement which has recently been documented. The Board of Fish designated the Susitna River sockeye stocks as a stock of yield concern at the February 2008 meeting. The department has developed an "Action Plan" for management of those stocks. Proposed studies to determine the amount of undercounting with the Bendix Sonar are currently waiting funding in the legislature. The run forecast for Fish Creek of 53,000 fish is 67% less than the 20-year average run of 159,000. The sockeye salmon run forecast for Crescent River of 100,000 is 7% less than the 20-year average run of 108,000.

Forecast runs to individual freshwater systems are as follows:

System	Run	Goal
Crescent River	100,000	30,000–70,000
Fish Creek	53,000	20,000–70,000[a]
Kasilof River	1,286,000	150,000–250,000[b]
Kenai River	3,064,000	750,000–950,000[c]
Susitna River	344,000	90,000–160,000
Minor Systems	727,000	N/A

[a] Escapement goal includes up to 5,000 fish for broodstock for the hatchery program in Big Lake.

[b] The Kasilof River has an optimum escapement goal (OEG) of 150,000 to 300,000 to facilitate meeting the lower end of the Kenai River goal.

[c] The Kenai River is an abundance-based escapement goal; 750,000 to 950,000 is the appropriate inriver sonar goal for a 2 million to 4 million Kenai River sockeye salmon run.

[d] The escapement goal for the Yentna River is 90,000 to 160,000 sockeye salmon counted by sonar. In Kenai runs of over 4 million, there is a Yentna River OEG of 75,000 to 180,000 sockeye. The Yentna River is thought to account for approximately 50% of the total Susitna River run.

OTHER SPECIES' HARVEST PROJECTIONS

Very little information is available on which to base outlooks for the commercial harvests of the other salmon species. Using recent harvest trends and factoring in the expected intensity of the sockeye-based fishery, the following numbers represent our best estimate of the 2008 harvest:

Pink Salmon	380,000
Chum Salmon	100,000
Coho Salmon	200,000
Chinook Salmon	20,000

2008 REGULATORY CHANGES

There were many regulatory changes made by the Alaska Board of Fisheries during the February meeting that will be implemented during the 2008 season. The following summary is for informational purposes only and is not a comprehensive review. Regulation booklets are currently

being printed and will be available prior to the beginning of fisheries. Regulation language will be available from department offices prior to booklets being published.

One of the most important changes at the 2008 Alaska Board of Fisheries meeting was the clarification that managing to meet established escapement goals is the Department's primary objective.

Northern District Set Gillnet

- The Northern District king salmon fishery will open on the first Monday on or after May 25 and remain open for 12-hour (7:00 a.m. to 7:00 p.m.) fishing periods on Mondays through June 24, unless closed by emergency order. The area from an ADF&G regulatory marker located 1 mile south of the Theodore River to the Susitna River remains open for one period only, on the second regular Monday period, this year that period will be June 2.
- Susitna River sockeye salmon were found by the Board to be a stock of yield concern. An action plan was developed to conservatively manage the commercial fishery while research continues to better understand the productivity of this stock. This action plan allows the Northern District set gillnet fishery to fish with no more than one net per permit from July 20 through August 6, unless the Department determines that the Yentna River escapement goal will be achieved. If so, the gear restriction may be relaxed by emergency order.

Upper Subdistrict Set Gillnet Fishery

- From the beginning of the fishing season through July 7, or until the Kenai and East Forelands Sections set gillnet fisheries open, there is to be a weekly no-fishing window of 36-hours in duration. The Board directed the department to make this a fixed window in time, and to begin it sometime between 7:00 p.m. on Thursdays and 7:00 a.m. on Fridays. The maximum number of emergency order hours that may utilized during this time frame remains at 48-hours per week.
- Use of the Kasilof River Special Harvest Area (KRSHA) should now occur only on rare occasions. The Board directed the department to use its emergency order authority to fish in traditional areas with more time than allowed for in the management plans, if needed, to allow additional harvests if Kasilof River sockeye salmon escapements were likely to exceed the escapement goal. The KRSHA is to be used only in cases when fishing in traditional areas does not provide for meeting escapement objectives.

Central District Drift Gillnet Fishery

- The Board outlawed the use of spotter planes 1-hour before a fishery opens and while the fishery is being prosecuted.
- The Board passed a regulation allowing permit "stacking". This allows two drift gillnet permit holders to fish on one boat and be allowed to fish a total of 200 fathoms of gear instead of the normal limit of 150 fathoms. Prior to fishing, the boat must be registered (see 5 AAC 21.333).
- After the opening of the set gillnet fishery in the Upper Subdistrict, fishing with drift gillnets may not occur within 1.5 miles of the mean high tide mark of the Kenai Peninsula shoreline in that area of the Kenai and Kasilof Sections of the Upper Subdistrict south of the Kenai River, nor within 1 mile of the mean high tide mark of the Kenai Peninsula shoreline in that area of

the Kenai and East Forelands Sections of the Upper Subdistrict north of the Kenai River, whenever the set gillnet fishery in that area is closed.

Single strand fishing gear

- Beginning with the 2008 season, commercial fishermen in UCI may now fish their full allotment of gear using single strand (monofilament) mesh. No registration with the Department is required prior to using single strand mesh gear.

2008 FISHING STRATEGY

Based on the sockeye salmon run forecast to Cook Inlet for 2008, restrictions during regular periods other than those directed by the management plans, are not anticipated. In the drift gillnet fishery, mandated restrictions require the fishing periods on July 10 and July 14 be restricted to the Kenai and Kasilof Sections and Drift Gillnet Area Number One (Figure 2). In addition, in runs of between 2 and 4 million sockeye salmon to the Kenai River; two regular fishing periods between July 16 and July 31 will be restricted to the Kenai and Kasilof Sections of the Upper Subdistrict and Drift Areas One & Two (Figure 2). The date these two restrictions will occur on is dependant on how accurate the forecast is and how the season develops.

The use of the Kasilof Terminal fishery is unlikely in 2008.

Northern District Set Gillnet

- The Northern District king salmon fishery will be open for Monday periods between May 25 and June 24. In 2008 the fishery is scheduled to occur for five regular Monday periods, May 26, June 2, 9, 16 and 23. The area from an ADF&G regulatory marker located 1 mile south of the Theodore River to the Susitna River is open for one period only, on the second regular Monday period, this year that period will be on June 2. Fishing periods are from 7:00 a.m. to 7:00 p.m.
- During the regular season the number of nets from July 20 to August 6 will be reduced to a single net per permit until the escapement goal is projected to be achieved.

Central District Fisheries

Big River Fishery

The Big River Sockeye Salmon Management Plan was amended in 2005 to allow fishing in a portion of the Kalgin Island Subdistrict along the western shore from Light Point at 60° 29.00' N. lat., 151° 50.50' W. long. to the Kalgin Island Light on the southern end of the island at 60° 20.80' N. lat., 152° 05.09' W. long.

Upper Subdistrict Set Gillnet Fishery

Kasilof Section Prior to July 8

- The Kasilof Section opens on the first regular period on or after June 25, unless the department estimates that 50,000 sockeye salmon are in the Kasilof River prior to that date, at which time the commissioner may open the fishery, by Emergency Order (EO); however, the fishery may not open earlier than June 20.
- From the beginning of the fishery through July 7 the department may not allow more than 48 hours of additional fishing time per week (Sun through Sat) and will try to close the fishery

for 36 consecutive hours per week, which will begin between 7:00 p.m. on Thursdays and 7:00 a.m. on Fridays.

- Beginning July 8, or after the Kenai and East Forelands Sections open, the Kasilof Section will be managed in combination with the Kenai and East Forelands Sections.

Kenai, Kasilof and East Forelands Sections

After July 8, or after the Kenai and East Forelands Sections fishing season opens, the following fishing scenarios are possible depending on run strength to the Kenai River:

- If the Kenai assessment shows the run to be **less than 2 million Kenai sockeye salmon,** there will be no more than 24 hours of additional fishing time per week in the Upper Subdistrict and there are no mandatory window closures. If the Kenai and East Forelands Sections are not fished during regular or additional openings, the department may limit regular and additional periods in the Kasilof Section to within ½ mile of shore. After July 15, if the Kasilof escapement is projected to exceed 300,000 sockeye salmon, an additional 24-hours of fishing time per week is available within ½ mile of shore in the Kasilof Section.
- If the Kenai assessment is **between 2 and 4 million Kenai River sockeye salmon,** the Department may allow up to 51 hours of additional fishing time per week and will close the Upper Subdistrict for a 36-hour closed period, which will begin between 7:00 p.m. on Thursdays and 7:00 a.m. on Fridays. In addition there will be a second 24-hour closed fishing period per week to be implemented at the Department's discretion. If the Kenai and East Forelands Sections are not fished, the department may limit regular and extra periods in the Kasilof Section to within ½ mile of shore.
- If the Kenai assessment changes to a run of **more than 4 million Kenai River sockeye salmon**, the department may allow up to 84 hours of additional fishing time per week and will close the Upper Subdistrict set gillnet fishery for a 36 hour period, which will begin between 7:00 p.m. on Thursdays and 7:00 a.m. on Fridays. There are no other mandatory no-fishing windows at this run strength. If the Kenai and East Forelands Sections are not fished, the department may limit regular and extra periods in the Kasilof Section to within ½ mile of shore.
- The Upper Subdistrict set gillnet fishery will close no later than August 15 and all restrictions and additional time regulations from July carry over into August. From August 11-15 the fishery is open for regular periods only.

Central District Drift Gillnet Fishery

- The drift fishery opens the third Monday in June or June 19, whichever is later.
- From July 9 through July 15,
  - Drift gillnet fishing is restricted for two regular fishing periods to the Kenai and Kasilof Sections and Drift Area One described below.
- From July 16 through July 31,
  - In runs of less than 2 million sockeye salmon to the Kenai River there will be two regular 12-hour fishing periods restricted to the Kenai and Kasilof Sections of the Upper Subdistrict and Drift Area One;

- In runs of between 2 and 4 million sockeye salmon to the Kenai River; there will be two regular 12-hour fishing periods restricted to the Kenai and Kasilof Sections of the Upper Subdistrict and in Drift Areas One & Two;
- In runs of over 4 million sockeye salmon to the Kenai River, there are no mandatory restrictions.

- From August 16 until closed by emergency order,
  - Drift Areas Three & Four are open for regular periods (Figure 3);
  - Chinitna Bay may be opened by emergency order.

Drift Fishing Areas

(1) Drift Area One: includes those waters of the Central District south of Kalgin Island at 60° 20.43' N. lat. (Figure 2);

(2) Drift Area Two: includes those waters of the Central District enclosed by a line from 60° 20.43' N. lat., 151° 54.83' W. long. to a point at 60° 41.08' N. lat., 151° 39.00' W. long. to a point at 60° 41.08' N. lat., 151° 24.00' W. long. to a point at 60° 27.10' N. lat., 151° 25.70' W. long. to a point at 60° 20.43' N. lat., 151° 28.55' W. long. (Figure 2);

(3) Drift Area Three; includes those waters of the Central District within one mile of mean lower low water (zero tide) south of a point on the West Foreland at 60° 42.70' N. lat., 151° 42.30' W. long. (Figure 3);

(4) Drift Area Four; includes those waters of the Central District enclosed by a line from 60° 04.70' N. lat., 152° 34.74' W. long. to the Kalgin Buoy at 60° 04.70' N. lat., 152° 09.90' W. long. to a point at 59° 46.15' N. lat., 152° 18.62' W. long. to a point on the western shore at 59° 46.15' N. lat.,

153° 00.20' W. long., not including the waters of the Chinitna Bay Subdistrict (Figure 3).

SET NET REGISTRATION AND BUOY STICKERS

All Cook Inlet setnet fishermen are still 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. Set gillnet permit holders fishing in the Northern District or the Greater Cook Inlet area can register at Department offices in Soldotna, Homer, or Anchorage or by mail. Forms are available at area offices or on the department's homepage at http://www.cf.adfg.state.ak.us/region2/ucihome.php. Fishermen wishing to register in the Upper Subdistrict must register in the **Soldotna ADF&G office only,** and must purchase buoy stickers at the time of registering.

SEASON OPENING DATES

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

- *Big River Fishery:* June 2 and continuing through June 23 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.

- *Northern District King Salmon Fishery:* May 26. There will be up to five fishing periods, the remaining periods are scheduled on June 2, 9, 16 and June 23. In that area from one mile south of the Theodore River to the Susitna River, there is only one open period during this fishery, which will occur on June 2 in 2008.
- *Western Subdistrict Set Net Fishery:* June 16.
- *All remaining set gillnet fisheries except the Upper Subdistrict:* June 26.
- *Upper Subdistrict Set Net Fishery:* June 26 for the Kasilof Section (that portion south of the Blanchard Line) unless opened earlier by EO (if 50,000 sockeye are in the river before the June 26 opener), but will not open before June 20. The Kenai and East Forelands Sections (that portion north of the Blanchard Line) will open July 10. All sections of the Upper Subdistrict will close for the season on or before August 15.
- *Drift Gillnet Fishery*: June 19.

GENERAL INFORMATION

The UCI commercial fisheries information line will again be available by calling 262-9611. The most recent emergency order announcement is always available on the recorded message line and catch, escapement and test fishing information is included whenever possible. All emergency order announcements are also faxed to processors as quickly as possible and posted to the Upper Cook Inlet web page at http://www.cf.adfg.state.ak.us/region2/ucihome.php. For very general information, we invite you to visit the Commercial Fisheries web page on the Internet at http://www.cf.adfg.state.ak.us/. If you would like to receive emails of all UCI commercial fisheries emergency orders, please log onto the following site (http://csfish.adfg.state.ak.us/newsrelease/select.php?dist=SOL) and click on "Subscribe" and you will be automatically signed up to receive the emergency orders as soon as they are posted to the website.

If, during the summer, fishermen have information or questions concerning the commercial fishery, the Soldotna Commercial Fisheries Division 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.

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

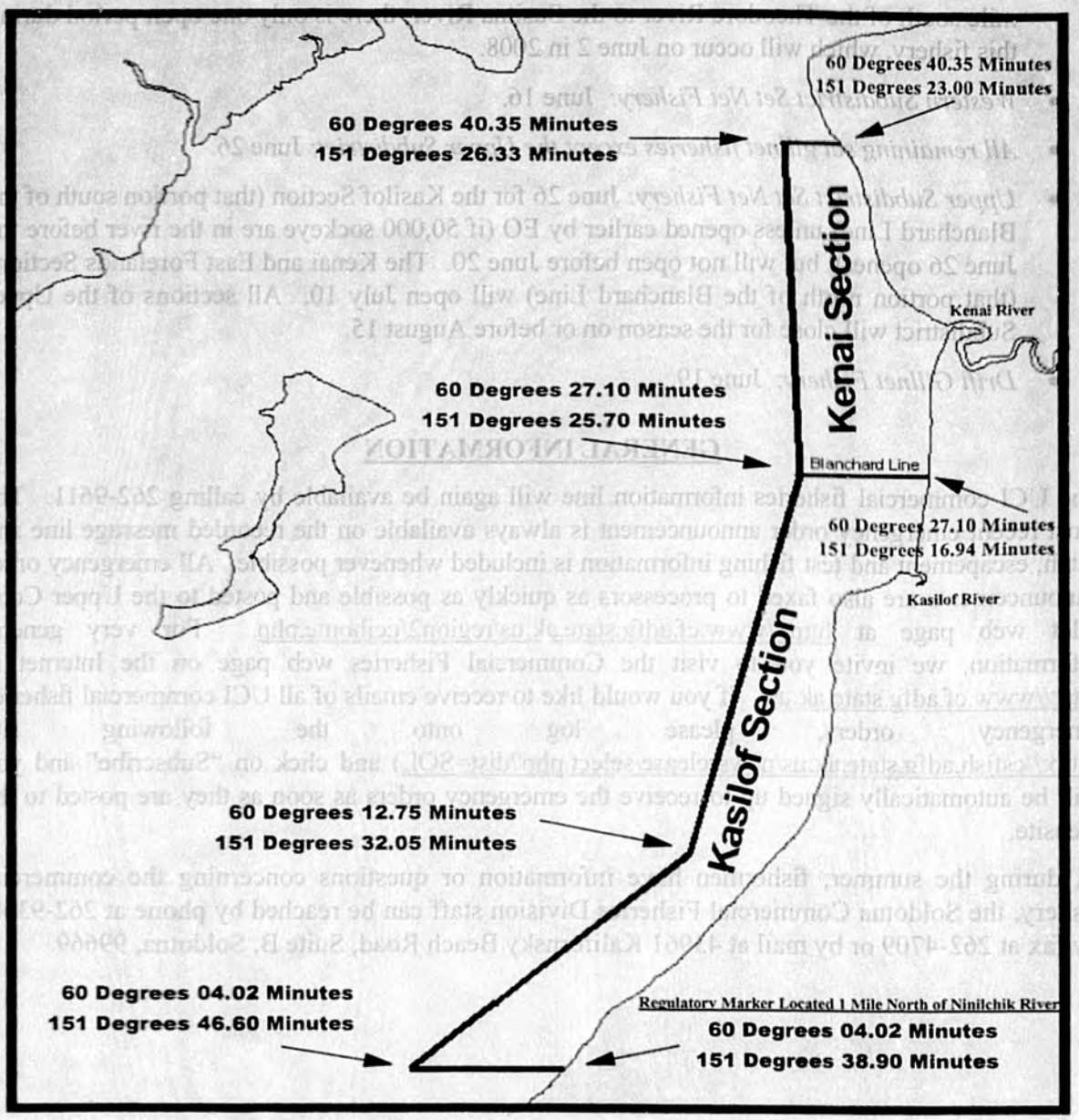

Figure 1. Map of the Kenai and Kasilof Sections with waypoint descriptions.

Drift Gillnet Area 1 & Area 2 Descriptions

AREA 2 DESCRIPTION	COORDINATES
1. Southwest Corner	60° 20.43' N. lat., 151° 54.83' W. long.
2. Northwest Corner	60° 41.08' N. lat., 151° 39.00' W. long.
3. Northeast Corner	60° 41.08' N. lat., 151° 24.00' W. long.
4. Blanchard Line Corridor Boundary	60° 27.10' N. lat., 151° 25.70' W. long.
5. Southeast Corner	60° 20.43' N. lat., 151° 28.55' W. long.

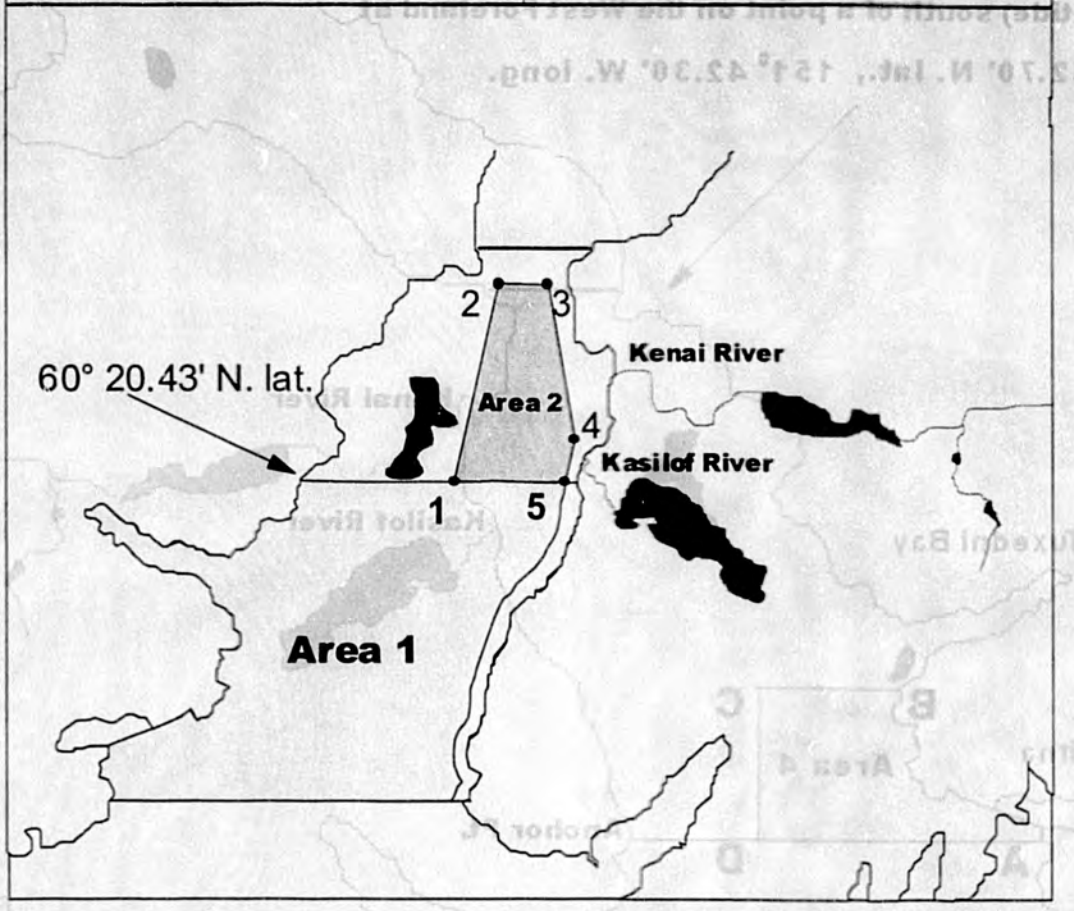

Figure 2. Map of drift gillnet fishing areas one and two.

AREA 4 LOCATION	COORDINATES
A. Southwest Corner	59° 46.15' N. lat., 153° 00.20' W. long.
B. Northwest Corner	60° 04.70' N. lat., 152° 34.74' W. long.
C. Northeast Corner (Kalgin Buoy)	60° 04.70' N. lat., 152° 09.90' W. long.
D. Southeast Corner	59° 46.15' N. lat., 152° 18.62' W. long.

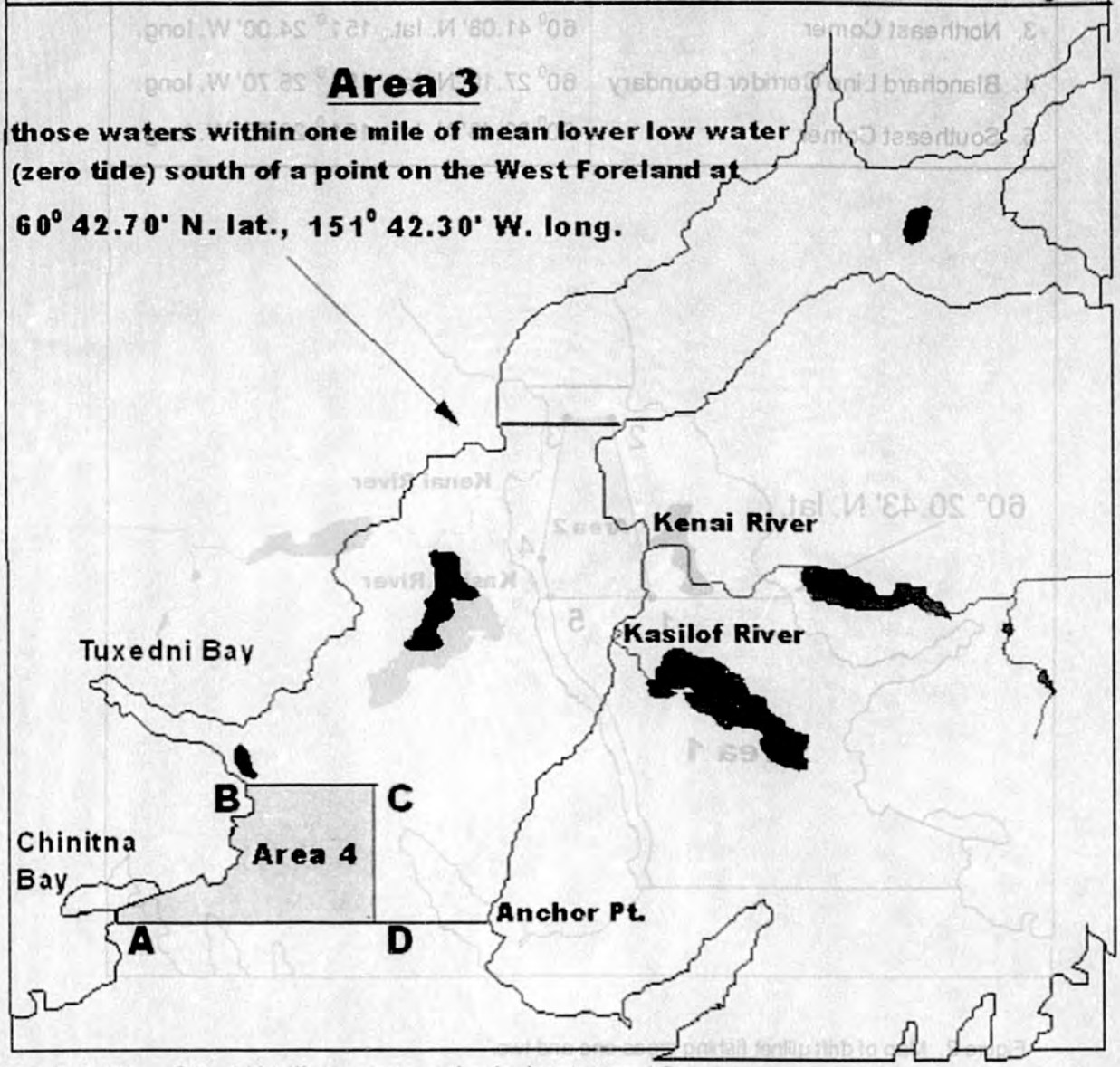

Figure 3. Map of the drift gillnet areas open beginning August 16.

ALASKA DEPARTMENT OF FISH & GAME

SUSITNA SOCKEYE SALMON ACTION PLAN

February 2008

SUSITNA RIVER SOCKEYE SALMON STOCK STATUS AND ACTION PLAN, 2008

INTRODUCTION

SYNOPSIS

In response to the guidelines established in the Sustainable Salmon Fisheries Policy (SSFP; 5 AAC 39.222), the Alaska Board of Fisheries has identified the Susitna River sockeye salmon stock as a stock of yield concern. For this determination, the estimated Susitna River commercial harvest for the most recent 5-year average was compared to the previous 10- and 20-year averages for the Central District drift and Northern District fisheries. Identification of Susitna River sockeye salmon as a stock of yield concern is based on the definition of "yield concern" contained in SSFP. A "yield concern" is defined as "a concern arising from a chronic inability, despite the use of specific management measures, to maintain expected yields, or harvestable surpluses, above a stock's escapement needs; a yield concern is less severe than a management concern, which is less severe than a conservation concern" [5 AAC 39.222 (f) (42)]. The policy defines "chronic inability" as "the continuing or anticipated inability to meet escapement thresholds over a four to five year period, which is approximately the generation time of most salmon species" [5 AAC 39.222 (f) (5)].

This report describes the existing management plans and Emergency Order authority that the department follows to conserve Susitna River sockeye salmon. In light of increased uncertainty of the department's ability to accurately assess escapements of sockeye salmon into the Susitna River, a research plan has been developed to improve the department's ability to assess sockeye salmon stocks within the drainage. With these ongoing studies, the department will have better information on the productivity and sustainability of the stock at the 2011 Upper Cook Inlet Board of Fisheries meeting.

STOCK ASSESSMENT

Since 1981 the Yentna River daily sonar estimates have been used as an indicator of sockeye salmon escapement into the Susitna River drainage. The sockeye salmon escapement in the Yentna River has been thought to be approximately one half of the total Susitna River sockeye salmon escapement based on a combination of 1981–1985 capture-recapture abundance estimates passing Sunshine (1982-1985; Susitna River rkm 116), and sonar abundance estimates passing Yentna (1981-1985; Yentna River rkm 7) and Susitna Station (1981; Susitna River rkm 116; Westerman and Willette 2006).

Based on Bendix sonar estimates since 1981, the number of Yentna River spawners has ranged from approximately 37,000 to 181,000 sockeye salmon. The sonar estimate of sockeye salmon escapement into the Yentna River has not met the current SEG range of 90,000 to 160,000 for 5 of the past 8 years.

Although sockeye salmon escapements are estimated via a Bendix sonar system, there is great uncertainty surrounding their accuracy and precision. The high variability observed between various methods of escapement assessment (i.e., ongoing Bendix estimates compared with recent

estimates from capture-recapture and DIDSON sonar projects; Yanusz et al. 2007) has added to the uncertainty regarding our previous assessments.

In the Central District drift gillnet fishery, the estimated commercial harvest of Susitna River sockeye salmon for the most recent 5-year average (2003–2007) is 59% of the previous 10-year (1993–2002) average and 49% of the previous 20-year (1983–2002) average. In the Northern District, the most recent 5-year average is 31% of the previous 10-year average and 22% of the previous 20-year average. Since the total Upper Cook Inlet (UCI) commercial harvest averages 2.9 million sockeye salmon and the age composition allocation model estimate of the Susitna sockeye salmon harvest is only 8.4% of the total, the department has low confidence in the accuracy of our estimate of the Susitna sockeye salmon harvest.

ESCAPEMENT GOAL HISTORY

An escapement goal of 200,000 sockeye salmon was established for the Susitna River in 1979. It was set using a return-per-spawner value of 4, and an assumption that the Susitna River could produce about 800,000 adult sockeye salmon. A review of the goal in 1989 based on euphotic volume of rearing lakes suggested the existing goal was valid. In 1986, the sonar site at Susitna Station was destroyed by a flood, and no alternative hydroacoustic site could be found on the mainstem of the Susitna. Therefore, hydroacoustic estimates from a Yentna River site were used to assess total Susitna River escapement. Based on comparisons of estimates for the Yentna and the Susitna Rivers over 5 years, 1981-1985, it was decided that an escapement of 100,000 to 150,000 sockeye salmon into the Yentna River should result in a total escapement of at least 200,000 sockeye salmon into the entire Susitna drainage (Fried 1994). This was based on the average proportion of the total Susitna River escapement, which entered the Yentna River (49%) during the 5 years studied, as well as the range of annual proportions (41-59%) for these 5 years.

In 2001, the biological escapement goal for the Yentna River was changed to a sustainable escapement goal of 90,000-160,000 sockeye salmon based on Yentna sonar data from 1981-2000, because reliable estimates of total return to the system were not available (Bue and Hasbrouck *Unpublished*). Escapement goal reviews since 2001 have resulted in no change recommended to this goal type or range (Hasbrouck and Edmundson 2007, Fair et al. 2007). In 2005, an optimal escapement goal of 75,000-180,000 Yentna River sockeye salmon was adopted by the Alaska Board of Fisheries contingent on the sockeye salmon run to the Kenai River being projected to exceed 4 million.

ACTION PLAN FOR ADDRESSING STOCK OF CONCERN

MANAGEMENT ACTIONS IN COMMERCIAL FISHERIES

Northern District Set Gillnet

In light of recent department data revealing concerns about the validity of Yentna River sockeye salmon enumeration data, it is the intent of the Board that Susitna River sockeye salmon stocks will be conservatively managed while the Department continues its studies in this drainage. Until the UCI BOF finfish meeting in 2011, Susitna River sockeye salmon will be managed as follows:

(1) From the beginning of the regular commercial salmon fishing season, which occurs on or after June 25, through July 19, the Northern District set gillnet fishery will fish no more than two regular 12-hour Monday and Thursday fishing periods per week.

(2) From July 20 through August 6, the Northern District set gillnet fishery will fish regular 12-hour Monday and Thursday fishing periods, but will be limited to no more than one 35-fathom set gillnet per permit. If it is determined by the Department that the Yentna River sockeye salmon [SEG or OEG] will be achieved during this time frame, the Department may increase the allowable fishing gear from one 35-fathom set gillnet per permit to two 35-fathom set gillnets per permit or the full complement of three set gillnets that are not more than 105 fathoms in aggregate length per permit.

(3) On the first regular fishing period after August 6, and thereafter, the Northern District set gillnet fishery will again return to a full complement of fishing gear of three set gillnets that are not more than 105 fathoms in aggregate length per permit, unless restricted or closed by emergency order.

Central District Drift Gillnet

The Central District drift gillnet fishery will be managed to conserve Susitna drainage sockeye salmon.

In the Central District drift gillnet fishery, there are two time periods in July where area restrictions are implemented by management plan to conserve northern bound salmon stocks. First, from July 9-15 the department must restrict the drift gillnet fishing fleet for two regular fishing periods to Area 1 (Figure 1) of the Central District (section A below), which is that area south of the south end of Kalgin Island, and to the Kenai and Kasilof Sections (the corridor).

From July 16-31 there are two regular period area restrictions to the drift gillnet fleet that are dependent upon the size of the Kenai River sockeye salmon run. For Kenai River sockeye salmon runs less than 2 million, the department must restrict the drift fleet to Area 1 (and the Kenai and Kasilof Sections); for runs of 2 million to 4 million, the drift fleet is restricted to Area 1 and Area 2 (and the Kenai and Kasilof Sections); and for runs greater than 4 million there are no mandatory restrictions. These restrictions apply to any two regular periods during this time frame.

The purpose of the July 9-15 restrictions are to allow for the passage of northern-bound sockeye salmon, while the July 16-31 restrictions are primarily for northern-bound sockeye and coho salmon.

MANAGEMENT ACTIONS IN SPORT FISHERIES

The sockeye salmon sport fishery in the Susitna River drainage will be prosecuted with a bag limit of 3 fish. If the Northern District set gillnet fishery is closed to conserve sockeye salmon, the Susitna River drainage sport fisheries will remain open unless the board directs otherwise. The Susitna River sport harvest is not used to determine spawning escapement or in the development of escapement goals.

RESEARCH PLAN

The department currently assesses Yentna River sockeye salmon escapement and commercial and sport harvests annually. The following research projects include current and proposed projects used to gather detailed information about sockeye salmon stocks in the Susitna River.

CURRENT SUSITNA RIVER DRAINAGE SOCKEYE SALMON RESEARCH PROJECTS

YENTNA RIVER SALMON ESCAPEMENT

Objectives: The primary objectives of this project are to estimate (1) the daily and cumulative escapement of sockeye salmon into the Yentna River, and (2) the age, length, and sex composition of those escapements.

Description: Fish passage into the Yentna River is estimated using side-looking (formerly referred to as side-scanning) Bendix sonar. Fish caught and sampled at companion fish wheels are used to apportion sonar counts to estimate species composition of fish passage (i.e., estimate abundance of sockeye salmon) and the age, length, and sex composition of the inriver sockeye salmon run.

COMPARING BENDIX AND DIDSON SONAR PASSAGE ESTIMATES IN THE YENTNA RIVER

Objective: The primary objective of this project is to compare the Bendix sonar estimates of migrating salmon in the Yentna River with estimates from a Dual frequency IDentification SONar (DIDSON).

Description: A DIDSON sonar is placed on both banks of the Yentna River to collect fish passage data independent of the existing Bendix sonar. Both types of sonar equipment are operated at the same time and ensonify the same/similar area of the river so that the passage data is directly comparable.

INRIVER ABUNDANCE AND SPAWNER DISTRIBUTION OF SUSITNA RIVER SOCKEYE SALMON

Objectives: The primary objectives of this study are to (1) estimate the inriver abundance of adult sockeye salmon migrating into the Susitna River with a capture-recapture experiment, and (2) identify sockeye salmon spawning areas in the Susitna River.

Description: In 2006-2008, a capture-recapture experiment is conducted to estimate sockeye salmon abundance in the entire Susitna River. Radio telemetry is used to estimate the spawning distribution throughout the watershed.

EVALUATION OF SOCKEYE SALMON PRODUCTION FROM LAKES IN THE SUSITNA RIVER WATERSHED

Objectives: The primary objectives of this study are to (1) evaluate limnological conditions in seven lakes considered important (major) to sockeye salmon production and compare current conditions to those observed in the 1980s and 1990s, (2) estimate the abundance and mean body size of juvenile sockeye salmon and other juvenile fishes rearing in each lake in the fall, (3) estimate the age composition of the juvenile sockeye salmon in each lake, and (4) evaluate the survival from potential egg deposition to fall fry and from fall fry to smolt.

Description: Estimates of smolt and fall fry abundance, and limnological characteristics such as water chemistry and zooplankton abundance by species are collected (Chelatna, Shell, Byers, Swan, Larson, Stephan, and Judd lakes). Analyses focus on determining carrying capacity of the lakes for sockeye salmon fry and assessing the adequacy of spawning escapements over time.

BIOLOGICAL COMPOSITION OF COMMERCIAL SOCKEYE SALMON HARVEST IN UPPER COOK INLET

Objective: The primary objective of this project is to estimate the age and sex composition of the commercial salmon harvest.

Description: Sockeye salmon harvested in various commercial fisheries in UCI are sampled using a stratified systematic sampling design. Area strata are determined *a priori* using established fishery districts and subdistricts. Temporal stratification is determined post season based on catch patterns in each fishery and the number of samples collected.

STOCK COMPOSITION OF THE UPPER COOK INLET SOCKEYE SALMON COMMERCIAL HARVEST

Objectives: The primary objectives of this study are to (1) estimate the stock composition of sockeye salmon harvested in major commercial fisheries in spatial/time strata, and (2) compare stock composition among substrata (i.e., fish processors for the drift gillnet fishery and beaches within each management subdistrict for the set gillnet fishery).

Description: This project uses new single nucleotide polymorphism (SNPs) genetic stock identification (GSI) methods to estimate stock-specific composition of the commercial harvest in UCI.

PROPOSED SUSITNA RIVER DRAINAGE SOCKEYE SALMON RESEARCH PROJECTS

A recent review of Division of Commercial Fisheries and Sport Fish Division programs in the Susitna River drainage identified the need for improved escapement, smolt, and habitat information for sockeye salmon. The following research programs are planned to gather further detailed information about sockeye salmon stocks in the Susitna River drainage:

SUSITNA RIVER SOCKEYE SALMON MAJOR SYSTEM ADULT WEIRS

Objective: The primary objective of this project is to estimate the abundance of sockeye salmon spawners entering 7 major rearing lakes in the Susitna River watershed.

Description: Adult weirs will be collaboratively operated by the Department and the Cook Inlet Aquaculture Association (CIAA) on 7 major sockeye salmon rearing lakes (Chelatna, Shell, Byers, Swan, Larson, Stephan, and Judd lakes) in the Susitna River watershed to estimate spawner abundance. The age, sex, and length composition of the adult sockeye salmon escapement will be estimated at each weir. Environmental conditions will be recorded daily (i.e., percent cloud cover, precipitation, and stream and air temperature). Sockeye salmon spawner abundance estimates will be used to (1) evaluate the accuracy of sockeye salmon passage estimates from the Yentna River sonar project, (2) help set escapement goals, and (3) estimate freshwater production of sockeye salmon in the watershed (in conjunction with smolt production project described below).

SUSITNA RIVER SOCKEYE SALMON ADDITIONAL SYSTEM ADULT WEIRS

Objective: The primary objective of this project is to estimate the abundance of sockeye salmon spawners entering 7 additional rearing lakes in the Susitna River watershed.

Description: Adult weirs will be collaboratively operated by the Department and CIAA on 7 additional sockeye salmon rearing lakes (Whiskey, Hewitt, Lockwood, Trapper, Red Shirt, Spink, and Trinity lakes) in the Susitna River watershed to estimate spawner abundance. The age, sex, and length composition of the adult sockeye salmon escapement will be estimated at each weir. Environmental conditions will be recorded daily (i.e., percent cloud cover, precipitation, and stream and air temperature). Sockeye salmon spawner abundance estimates will be used to (1) evaluate the accuracy of sockeye salmon passage estimates from the Yentna River sonar project, (2) help set escapement goals, and (3) estimate freshwater production of sockeye salmon in the watershed (in conjunction with smolt production project described below).

SUSITNA RIVER SOCKEYE SALMON MAJOR SYSTEM SMOLT PRODUCTION

Objective: The primary objective of this project is to estimate the abundance of sockeye salmon smolt emigrating from 7 major rearing lakes in the Susitna River watershed.

Description: The abundance of sockeye salmon smolt emigrating from 7 major sockeye salmon rearing lakes (Chelatna, Shell, Byers, Swan, Larson, Stephan, and Judd lakes) in the Susitna River watershed will be collaboratively estimated by the Department and CIAA. Fyke nets will be operated from late May through June at 6 of the lakes to provide a total smolt enumeration. At the remaining lake (Chelatna Lake), three inclined-plane traps will be operated from late May through August, and smolt population size will be estimated using standard mark-recapture techniques. Age, weight and length of smolts will be estimated from samples collected daily at each site. Smolt abundance estimates will be used to (1) forecast adult returns, and (2) estimate freshwater production of sockeye salmon in the watershed (in conjunction with adult escapement estimates).

SUSITNA RIVER SOCKEYE SALMON ADDITIONAL SYSTEM SMOLT PRODUCTION

Objective: The primary objective of this project is to estimate the abundance of sockeye salmon smolt emigrating from 7 additional rearing lakes in the Susitna River watershed.

Description: The abundance of sockeye salmon smolt emigrating from 7 additional sockeye salmon rearing lakes (Whiskey, Hewitt, Lockwood, Trapper, Red Shirt, Spink, and Trinity lakes) in the Susitna River watershed will be collaboratively estimated by the Department and CIAA. Fyke nets will be operated from late May through June at all of these lakes to provide a total smolt enumeration. Age, weight and length of smolts will be estimated from samples collected daily at each site. Smolt abundance estimates will be used to (1) forecast adult returns, and (2) estimate freshwater production of sockeye salmon in the watershed (in conjunction with adult escapement estimates).

SUSITNA RIVER FISH PASSAGE RESTORATION

Objective: The primary objective of this project is to restore and improve salmonid access to upstream spawning and rearing habitats in the lower Susitna River.

Description: Upstream access to historically occupied salmonid habitats will be evaluated in the lower Susitna River to facilitate removal of culvert barriers or other in-stream obstructions. As many as 10 upstream fish passage barriers will be identified, prioritized according to cost-benefit

analyses of fishery values and project costs, and upstream access improved and restored. During construction and after the fish passage restoration projects have been completed, an established monitoring protocol will be used to track individual restoration project performance.

LITERATURE CITED

Bue, B. G., and J. J. Hasbrouck. *Unpublished.* Escapement goal review of salmon stocks of Upper Cook Inlet. Alaska Department of Fish and Game, Report to the Alaska Board of Fisheries, November 2001 (and February 2002), Anchorage.

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Westerman, D. L., and T. M. Willette. 2006. Upper Cook Inlet salmon escapement studies, 2004. Alaska Department of Fish and Game, Fishery Data Series No. 06-49, Anchorage.

Yanusz, R., R. Merizon, D. Evans, M. Willette, T. Spencer, and S. Raborn. 2007. Inriver abundance and distribution of spawning Susitna River sockeye salmon Oncorhynchus nerka, 2006. Alaska Department of Fish and Game, Fishery Data Series No. 07-83, Anchorage.

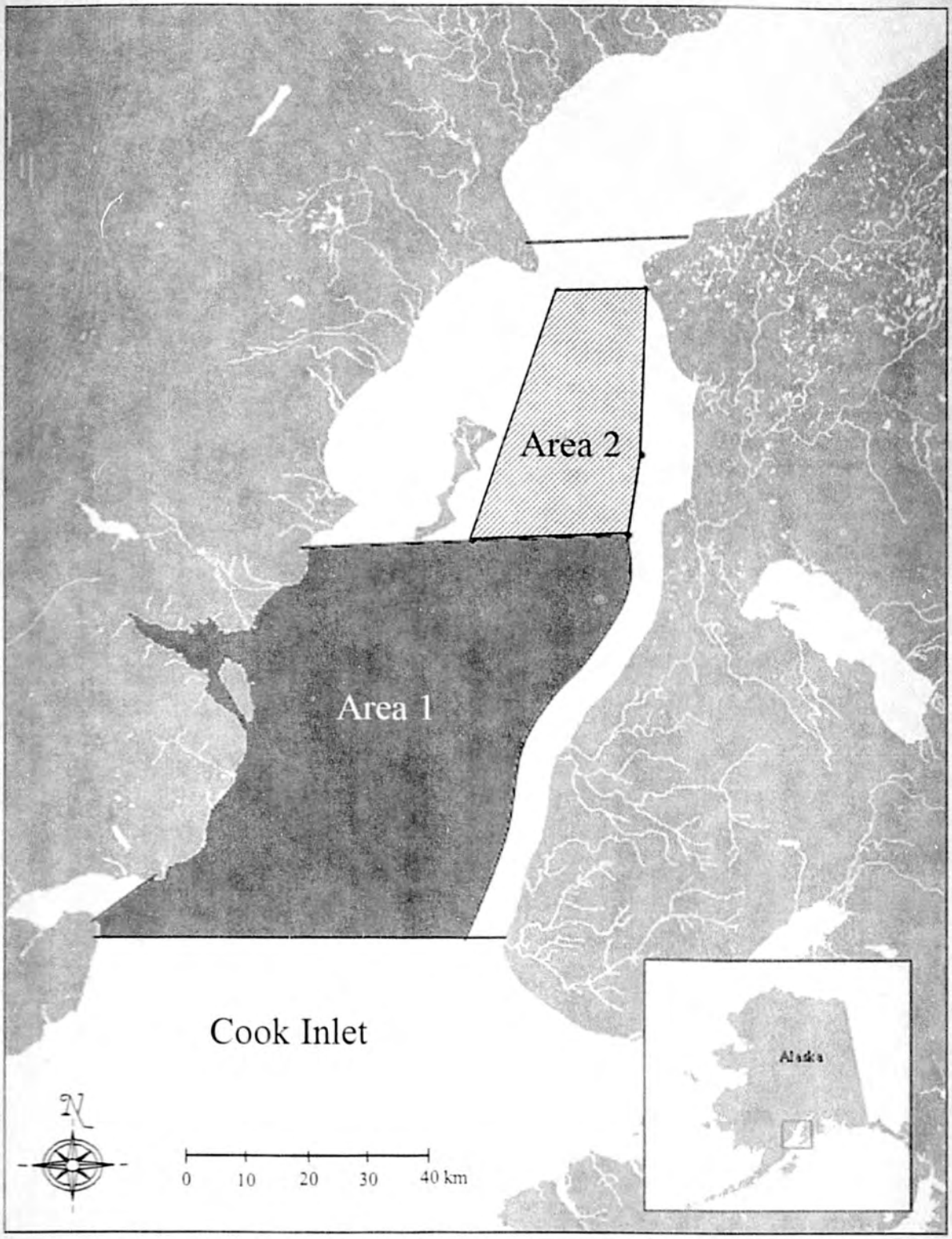

Figure 1.–Map of Central Cook Inlet showing management fishing boundaries for Area 1 and Area 2 for drift gillnet fisheries.

United Cook Inlet Drift Association

43961 K-Beach Road, Suite E • Soldotna, Alaska 99669 • (907) 260-9436 • fax (907) 260-9438 •
ucida@acsalaska.net

Date: May 6, 2008

Addressee: Representative Craig Johnson
716 W 4th Ave
Anchorage, AK 99501

Dear Representative Johnson:

In the Joint Resolution that created the Cook Inlet Salmon Task Force, there are several allegations made concerning salmon escapements, professional performance of the Administration, Department of Fish and Game (ADF&G) and ethical lapses by the Board of Fish (BOF). Additionally, in the Joint Resolution there are several concerns expressed about the need for comprehensive management strategies and biological data needs. We, as an Association, feel it necessary for all members of the Task Force to read, review and analyze the public record created at the 2008 Upper Cook Inlet (UCI) BOF hearings. We fully expect the Task Force to fully review the proposals, public testimony, staff reports, written and verbal, power point presentations, committee reports, advisory committee comments and deliberations. Considering that none of you were there, it is incumbent upon you to undertake this review prior to discussing any of the allegations raised or making recommendations.

We, as an industry, in good faith prepared and participated in the 2008 UCI BOF meeting. We spent several months preparing for, attending and participating in the BOF process at a cost of over $20,000. We had an expectation of fair hearings, as did other citizens, and we now also have a legal expectation of fair treatment and hearings from the Task Force.

There are several errors of data in the concurrent resolution and we expect these to be identified and corrected as you read the public record from the 2008 UCI BOF hearings. It seems that the concurrent resolution has to either substantiate the allegations or identify errors in drafting the resolution.

We intend to fully engage the Task Force with technical data and procedural issues. We feel it is appropriate, if possible, to put all presenters under oath. We intend to meet the legal requirements of law, regulations and policies as we engage the Task Force. We are firmly committed to achieving optimum (MSY) yields using the best scientific information, having fair allocations, maintaining efficiencies, protecting habitat and ensuring the economic health of the fishing communities.

Sincerely,

Roland Maw, PhD
UCIDA Executive Director

ams

cc:
Governor Sarah Palin
Board of Fisheries Members
Kenai Peninsula Mayor Williams
Kenai Peninsula Borough Assembly
Anchorage Mayor Begich
Matanuska-Susitna Mayor Menard
Kenai Mayor Porter
Soldotna Mayor Carey
Homer Mayor Hornaday
Seward Mayor Corbridge
Denby Lloyd
John Hilsinger
Charlie Swanton
Rep. Mike Chenault
Rep. Kurt Olson
Rep. Bryce Edgmon
Rep. Les Gara
Rep. Carl Gatto
Rep. David Guttenberg
Rep. Mike Hawker
Rep. Reggie Joule
Rep. Wes Keller
Rep. Bob Lynn
Rep. Mary Nelson
Rep. Bob Roses
Sen. Gene Therriault
Sen. Donny Olson
Sen. Fred Dyson
Sen. Lyman Hoffman
Sen. Bert Stedman
Baldwin & Butler, LLC
Kenai Peninsula Fishermen's Association
Cook Inlet Aquaculture Association
Cook Inlet Fisherman's Fund
United Fishermen of Alaska
Alaska Trollers Association
Cordova District Fishermen United
Inlet Fish Producers
Snug Harbor Seafoods
Ocean Beauty Seafoods
Kenai River Seafoods
Icicle Seafoods
Auction Block Company
Rep. John Coghill
Rep. Nancy Dahlstrom
Rep. Paul Seaton
Rep. Anna Fairclough
Rep. Berta Gardner
Rep. Max Gruenberg
Rep. John Harris
Rep. Lindsey Holmes
Rep. Scott Jiu Wo Kawasaki
Rep. Mike Kelly
Rep. Kevin Meyer
Rep. Jay Ramras
Rep. Ralph Samuels
Sen. Gary Stevens
Sen. Hollis French
Sen. Kim Elton
Sen. Albert Kookesh
Sen. Joe Thomas
Sherry Wright, A/C Coordinator

ALASKA STATE LEGISLATURE

SENATOR THOMAS H. WAGONER

- Member, Senate Resources Committee
- Member, Community & Regional Affairs
- Member, World Trade

Official Business

Session: January – May
State Capitol, #423
Juneau, AK 99801
Phone: 907-465-2828 Fax: 907-465-4779

Interim: May – December
145 Main Street Loop; Suite 226
Kenai, AK 99611
Phone: 907-283-7996 Fax 907--283-8127

May 13, 2008

Denby Lloyd, Commissioner
Department of Fish and Game

Dear Commissioner Lloyd:

As you know, the Legislative Cook Inlet Salmon Task Force will hold the first meeting on May 22 at 5:30pm at the Kenai Peninsula College in the Kenai/Soldotna area. I assume you will be present to represent the Department of Fish and Game. Additionally, I think it would be beneficial to have Mel Morris available at all hearings to represent the Board of Fisheries.

In preparing for the hearings I have been working with some of my constituents on relevant testimony and questions of your Department that would better prepare me for the hearings. Here are the four questions:

1) At the Board of Fisheries meeting in 2008, ADF&G staff presented data from tagging studies in Upper Cook Inlet that showed over 80% of Northern District coho, chum, pink and Chinook salmon enter the Northern District despite the Central District drift and set gill net fisheries. Would you please prepare for me tables showing what percentage of these stocks enter the Northern District streams based on the data collected to date from the tagging studies and other pieces of information that you may have.

2) What is the sport fish harvest on these stocks relative to their average run size? For example, at the 2008 BOF meeting, ADF&G presented data that indicated over 1 million coho salmon enters the Northern District and yet the sport fish harvest was less than 50,000 fish. Would you please provide this comparison of average annual run strength to average annual sport fish harvest for all species? If you do not have all the data to make this comparison please present the comparison for the years you have data.

3) How many sockeye salmon does ADF&G actually want to have spawned in the Yentna River drainage and the Northern District total? Prior to the 2008

ALASKA STATE LEGISLATURE

Board of Fisheries meetings ADF&G testified that the Yentna escapements were about 25% of the total Northern District escapements and the number of spawners desired was 90,000 to 160,000 actual fish spawning.

If this figure is not correct, what is the actual number of spawning fish ADF&G desires? I am not looking for an index number but the actual number of spawners regardless of counting method. It would appear to me that ADF&G should have this number readily available for the hearings. If not please provide an explanation of why not and what data are required to do so and when it will be available. Since the goal is an SEG I would assume that you do not need the same level of data required for a BEG. In addition, please provide the level of precision that will be increased as a result of delaying making a decision now.

4) How does ADF&G plan to count the number of fish to meet the goal established in question 2? If you use a counting method that is an index of escapement, please provide the factual data to establish that relationship. For example, sonar counts to weir counts. Is that relationship significant?

I would appreciate your immediate attention to the above questions and an answer back to my office prior to the May 22nd task force meeting.

Respectfully,

Senator Tom Wagoner

One 1 year info

STATE OF ALASKA

SARAH PALIN, GOVERNOR

DEPARTMENT OF FISH AND GAME

DIVISION OF COMMERCIAL FISHERIES
DIVISION OF SPORT FISH

P.O. BOX 115526
JUNEAU, AK 99811-5526
PHONE (CF): (907) 465-4210
PHONE (SF): (907) 465-4180

May 28, 2008

The Honorable Thomas Wagoner
Alaska State Senate
145 Main Street Loop, Suite 226
Kenai, AK 99611

Dear Senator Wagoner:

This letter is in response to your request for information on total salmon run size in Upper Cook Inlet (UCI), harvest by user group, and Susitna River sockeye salmon. This information is the best available, however in some cases the data is limited and not of the highest accuracy. Also, please recognize that there may be tremendous natural variation in run strength, harvest, and escapement from year to year. In other instances, such as the 2002 tagging study referenced under question 2, information is fairly accurate but projects of such magnitude rarely occur due to a lack of funding. Hopefully the information below will answer your questions.

1) ***Would you please prepare for me tables showing what percentage of these stocks (coho, pink, chum, and Chinook salmon) enter the Northern District streams based on the data collected to date from the tagging studies and other pieces of information that you may have.***

and

2) ***What is the sport fish harvest on these stocks relative to their average run size?***

The text below is cited from the abstract in the report *Willette, M. T, R. DeCino, R. and N. Gove. 2003. Mark recapture population estimates of coho, chum, and pink salmon runs into Upper Cook Inlet, 2002. Alaska Department of Fish and Game, Regional Information Report no. 2A03-20.* Tables 1 and 2 reflect salmon run information provided from this report.

"Total population sizes for each species were estimated from recoveries of passive integrated transponder (PIT) tags in commercial fishery harvests. Recoveries of radio telemetry tags were used to estimate the total escapement of coho salmon into all UCI streams for comparison to the

estimate derived from PIT tags. Radio telemetry tag data were also used to estimate coho salmon escapements into 33 streams and 5 areas around UCI. Our best PIT tag estimate of the total population size of coho salmon returning to UCI was 2.52 million (95% CI: 2.16-2.87 million). Given a commercial harvest of 0.25 million, the total escapement of coho salmon into all UCI streams was 2.27 million (95% CI: 1.91-2.62 million), and the harvest rate in the commercial fishery was about 10%. Our radio tag estimate of the total escapement of coho salmon into all UCI streams was 1.36 million (95% CI: 0.98-1.96 million). Thus, our PIT tagging experiment estimated a population size for coho salmon entering UCI streams that was higher than the estimate obtained from radio tagging. Although, the 95% confidence intervals around the two estimates overlapped slightly, the z-test statistic indicated the two estimates were significantly different. Of the total coho salmon escapement into all UCI streams, 56% (0.76 million) returned to the Susitna and Little Susitna River drainages, 19% (0.26 million) returned to streams along the west side of UCI, 17% (0.24 million) returned to streams along Knik Arm, 5% (0.07 million) returned to streams along Turnagain Arm, and 3% (0.04 million) returned to streams on the Kenai Peninsula. However, these estimates for Turnagain Arm and Kenai Peninsula streams do not include the entire escapement because we stopped tagging before the runs to these areas were complete.

Our PIT tag estimate of the total population size of pink salmon returning to UCI was 21.28 million (95% CI: 1.60-40.96 million). However, this estimate was of questionable value due to its very low precision resulting from problems with tag recovery. Therefore, we estimated a maximum exploitation rate on pink salmon in the commercial fishery by simply summing escapements that were actually enumerated in 3 streams. Given a commercial harvest of 0.45 million, the maximum exploitation rate in the commercial fishery was about 12%. However, the actual exploitation rate must have been much lower, because we did not include escapements into numerous other streams around UCI.

Our PIT tag estimate of the total population size of chum salmon returning to UCI was 3.88 million (95% CI: 3.30-4.47 million). Given a commercial harvest of 0.24 million, the total escapement of chum salmon into all UCI streams was 3.64 million (95% CI: 3.06-4.23 million), and the exploitation rate in the commercial fishery was about 6%."

Table 1. Mark-Recapture population estimates of coho, pink, and chum salmon runs into the Upper Cook Inlet in 2002.

Species	Estimated Run Size	Commercial Harvest	Estimated UCI Sport Fish Harvest	Estimated Escapement	Estimated Commercial Harvest Rate	Estimated Sport Harvest Rate
Coho	2,520,000	246,000	174,000	2,100,000	9.8%	6.9%
Pink	21,300,000	450,000	34,000	20,816,000	2.1%	0.2%
Chum	3,880,000	240,000	5,000	3,635,000	6.2%	0.1%

Never tagged After Aug 10

coho, chum, Pinks

Table 2. Mark-Recapture population estimates of the coho salmon run into the Northern District in 2002.

Species	Estimated Northern District. Run Size [a]	Estimated Commercial Harvest [b]	Estimated Northern District Sport Fish Harvest	Estimated Escapement	Estimated Commercial Harvest Rate	Estimated Northern District Sport Harvest Rate
Coho	997,000	138,000	99,000	760,000	13.8%	9.9%

[a] Run size based upon radio telemetry escapement estimate plus estimated harvests

[b] Northern District harvest estimated using escapement distribution determined by radio tagged coho salmon.

Table 3 represents the average Northern District king salmon run size for the years 1981 to 2003. Assumptions concerning these escapement estimates are described in the report: *Delaney, K. and D, Vincent-Lang. Unpublished. Current status and recommendations for the future management of the Chinook salmon stocks of Northern Cook Inlet. A report to the Alaska Board of Fisheries, Anchorage, Alaska, November 1992.*

Table 3. Average Northern District king salmon run size and harvest estimates from 1981-2003.

Estimated Northern Dist. Run Size	Estimated Commercial Harvest	Estimated Northern Dist. Sport Fish Harvest	Tyonek Subsistence Harvest	Estimated Escapement
134,000	4,700	28,000	1,300	100,000
Harvest Rates	3.5%	20.9%	1.0%	

3) How many sockeye salmon does ADF&G actually want to have spawned in the Yentna River drainage and the Northern District total? Prior to the 2008 Board of Fisheries meetings ADF&G testified that the Yentna escapements were about 25% of the total Northern District escapements and the number of spawners desired was 90,000 to 160,000 actual fish spawning.

The current sustainable escapement goal for the Yentna River sockeye salmon is 90,000 to 160,000 fish. There is an optimal escapement goal of 75,000 to 180,000 when sockeye salmon runs into the Kenai River exceed 4 million. These escapement goals were presented to the Board of Fisheries, and even given the current information, will be the goals for the 2008 season.

Evaluation of the current goal is further discussed in the answer to question 4. The sustainable escapement goal will be re-evaluated following the 2008 field season.

4) How does ADF&G plan to count the number of fish to meet the goal established in question 3? If you use a counting method that is an index of escapement, please provide the factual data to establish that relationship. For example, sonar counts to weir counts. Is that relationship significant?

ADF&G will be using the Bendix Sonar to estimate the fish passage into the Yentna River for 2008. However, ADF&G will continue research concerning the various methods of estimating escapement in 2008. This will include mark–recapture and radio telemetry studies. Such abundance estimates will allow: (1) estimation of the total annual run of Susitna River sockeye salmon when abundance estimates and genetics-based harvest allocation estimates are combined, (2) evaluation of the accuracy of the Yentna River sonar estimate, and (3) the proportion of Yentna River sockeye salmon in the entire Susitna River sockeye salmon escapement. Additionally, ADF&G is evaluating the current sockeye salmon escapement assessment tool, a Bendix single beam sonar system, with a more advanced and proven hydroacoustic system known as DIDSON (**D**ual frequency **ID**entification **SON**ar). Preliminary spawning abundance estimates based on mark–recapture and DIDSON studies suggest that traditional Bendix estimates are much lower than the actual escapements. As shown in the table below, the high variability that we have observed between the various methods has added considerably greater uncertainty to our previous assessments.

Tables 4 and 5 below provide information that was presented at the 2008 BOF meeting (Yanusz and Willette oral report, RC 4 Tab 7). A detailed written report on the 2006 results is published (Yanusz, R., R. Merizon, D. Evans, M. Willette, T. Spencer, and S. Raborn. 2007. Inriver abundance and distribution of spawning Susitna River sockeye salmon Oncorhynchus nerka, 2006. Alaska Department of Fish and Game, Fishery Data Series No. 07-83, Anchorage; http://www.sf.adfg.state.ak.us/FedAidPDFs/fds07-83.pdf) and a draft report describing 2007 results is in preparation.

Table 4. Estimates of sockeye salmon escapement in the Susitna River drainage, 2006.

2006 System Mark–Recapture	Weirs [a]	Bendix	DIDSON
Yentna Unknown [a]	126,000	93,000	160,000
Susitna 107,000 (95% CI 49,000 - 165,000)	60,000		
Sum	186,000		

[a] Because of difficulties with the project, a PIT tag estimate of escapement to the Yentna River for the period July 29, 2006 through August 18, 2006 (418,000 with 95% CI of 262,000 to 574,000) was not deemed accurate enough to present to the BOF.

Table 5. Estimates of sockeye salmon escapement in the Susitna River drainage, 2007.

2007 [b] System Mark–Recapture	Weirs	Bendix	DIDSON
Yentna 247,000	97,000	80,000	130,000
Susitna 85,000	60,000		
Sum	157,000		

[a] Weirs monitored escapement at a few select lakes and do not represent total river escapement.

[b] The 2007 estimates are preliminary.

ADF&G recognizes the need to re-evaluate the Yentna River sockeye salmon escapement goal in light of the new information available. This goal was originally developed in 1979 based on our understanding of sockeye salmon production in the Susitna drainage at that time and assumptions about the likely spawner-recruit relationship. During the 1980s the goal was changed to a Yentna River goal based on the distribution of spawners between the mainstem Susitna River and the Yentna River at that time. In the early 2000s, the goal was again amended to its current range by applying a percentile algorithm to the historical Yentna River Bendix sonar counts. A reassessment of the goal must take into account not only the changes in estimates of abundance, but also problems with species apportionment, the apparent change in distribution of fish between the mainstem Susitna and the Yentna, and a reassessment of the spawner recruit relationship. This will require a complex analysis that will take time to complete.

ADF&G is currently devising a timeline for when the critical pieces of information necessary for this re-evaluation of the Yentna River sockeye salmon escapement goal will be available. Essential information for this re-evaluation includes information from weirs, Bendix sonar, DIDSON, radio telemetry, limnology, mark-recapture, and genetic catch composition data through 2008. With these relevant sources of information in hand, ADF&G will meet to update and evaluate various alternative Yentna River sockeye salmon escapement goals.

Sincerely,

John Hilsinger
Director, Division of Commercial Fisheries

and

Charlie Swanton
Director, Division of Sport Fish

SCOMM
156:10

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REPRESENTATIVE CRAIG JOHNSON
HOUSE DISTRICT 28

September 29, 2009

Dear Members of the Joint Cook Inlet Salmon Task Force,

Attached for your review is a copy of the draft Joint Cook Inlet Salmon Task Force report. While the draft is not complete and unedited, it contains a great deal of meaningful new information. The current draft is nearly one hundred pages long and contains more than two hundred footnotes citing source materials and testimony presented to the Task Force during its hearings. It was prepared by a volunteer – at virtually no cost to the state.

I recently requested funding to complete work on this important report, but it's unclear at this point whether any funding will be authorized. Given that, I wanted to release the draft report for your review.

Two critical sections of the report still remain to be written. One would discuss the status and potential causes of apparent Northern District/Susitna salmon stock declines. Another section, already begun in this draft, would analyze the possibility of using the Commercial Fisheries Entry Commission's "buy-back" program or other means to assist the struggling Upper Cook Inlet commercial salmon fishing fleet which has been economically devastated in recent years.

Finally, it was my intention that the completed report would also include: 1) an executive summary; 2) a section discussing key policy considerations and recommendations for future legislative action or oversight on the issue leading up to the critical Board of Fisheries meeting on Cook Inlet in 2010; 3) numerous charts and graphs depicting key data presented in the report; and 4) standard technical sections including a table of contents, bibliography, etc.

Unfortunately, when the Task Force was formed, it was provided no staff or funding to accomplish its mission – or preparation of a final report. Nevertheless, the Task Force held five public meetings in various Cook Inlet communities and took testimony from the public with a wide range of groups involved in, or dependent on, the Cook Inlet salmon fisheries. Given the tight time constraints and sheer volume of information and testimony presented, it is inconceivable that the Task Force could have prepared a final report of this magnitude without the able volunteer assistance we received. Whether work on the draft will continue or not is now up to legislative leadership. In my opinion it would be unfortunate if this report is never finished.

Because while Cook Inlet salmon allocations and sustainability issues defy easy answers, I believe the Task Force did some important work on the subject. This draft – though incomplete – clearly reflects that effort. It's my sincere hope that release of the draft and the new information it contains will stimulate further discussion on the subject and encourage state leaders to continue to focus on an issue that is of critical importance to all Alaskans.

The draft report and all other documents received by the Task Force can be found on the Joint Cook Inlet Salmon Task Force website below:

http://www.housemajority.org/coms/jcis/jcis_background.php

Sincerely,

Craig Johnson

Representative Craig Johnson
Chair, Joint Cook Inlet Salmon Task Force

JOINT COOK INLET SALMON TASK FORCE

DRAFT REPORT TO THE ALASKA STATE LEGISLATURE

DRAFT 4/18/09

I. Introduction: Task Force Formation, Membership & Charge

With the passage of Senate Concurrent Resolution 21 (SCR 21), the Twenty-Fifth Alaska State Legislature established the Cook Inlet Salmon Task Force (Task Force). The Task Force was composed of ten legislators: five members from the State Senate appointed by the President of the Senate and five members from the State House appointed by the Speaker of the House. Representative Craig Johnson was appointed to Chair the Task Force and Senator Lyda Green was appointed to serve as Vice-Chair. Task Force members included Senators Huggins, McGuire, Wagoner and Wielechowski, and Representatives Doogan, Johansen, Neuman and Stoltze.

Per SCR 21, the Task Force was charged with the responsibility of examining a number of issues involving the management of salmon fisheries in Cook Inlet. Specifically, after emphasizing the importance of sport fishing and the Cook Inlet salmon sport fishery to Alaska's Southcentral population and economy, and after expressing serious concerns about the management of that fishery, SCR 21 instructed the Task Force to examine: 1) the conservation and allocation issues in salmon fisheries management of Cook Inlet; 2) the economic effect of Cook Inlet salmon and the maximum benefit of those salmon to the people of Alaska; and 3) the legal and constitutional issues of a buy-back program to reduce the number of commercial fishing permits in Cook Inlet. SCR 21 also mandated

that the Task Force submit a report of its findings to the Twenty-Sixth Alaska State Legislature, with the report to include a discussion of the short-term and long-term uses of Cook Inlet salmon consistent with the maximum benefit principle contained in art. VIII, sec. 2, of Alaska's Constitution; specific proposals to address conservation issues in the Northern Cook Inlet District; and options to reduce allocative conflict in Cook Inlet, including consideration of a commercial fishing permit buy-back program.

II. Duration

The duration of the Task Force and the time allotted for it to complete its mission was the period from the appointment of members in early May 2008 to its mandated termination date on February 1, 2009 – a period of only eight months. In addition, unforeseen impediments to meeting such tight deadlines arose when the governor called the legislature back for two legislative special sessions that required legislators to remain in Juneau for much of June and July. Nevertheless, over the course of the 2008 interim the Task Force held five public meetings to hear presentations and take public testimony on the issues identified in SCR 21. Meetings were held in Soldotna,[1] the Mat-Su,[2] Anchorage,[3] and Juneau.[4] During the course of the meetings, the Task Force heard presentations from several experts in Alaska fisheries management and took testimony from the public and a wide range of groups involved in the Cook Inlet salmon fisheries.

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[1] May 22, 2008, City of Soldotna Sports Center
[2] May 29, 2008, AT&T Sports Center
[3] June 25th and October 9th, 2008, Anchorage Legislative Information Office
[4] January 29th, 2009, Alaska State Capitol Building

The Task Force also received and reviewed a great deal of written testimony and documentation, including numerous studies. Those included submissions from State Department of Fish and Game managers; biologists; economists; representatives from the Alaska Board of Fisheries (BOF); the Alaska Seafood Marketing Institute (ASMI); the Alaska Commercial Fisheries Entry Commission; outdoor sportsmen's groups and sport fishing groups; commercial fishing groups; aquaculture associations; river guides and others involved in the Alaska sport fishing/tourism industry; fish processors; organizations concerned with fish habitat and environmental impacts; and representatives of local governments and local government-appointed fishery committees. In total, the Task Force compiled more than one thousand pages of documents and written testimony on the topics identified in SCR 21.[5]

III. Report Overview

Given the scope, importance and complexity of the issues involving Cook Inlet salmon management identified by SCR 21; and given the limited time the Task Force had available to review them, it would be imprudent – if not impossible – to draw firm conclusions regarding any of the issues examined by the Task Force. The task was especially difficult with regard to assessing the economic impact of Cook Inlet salmon, as major new studies containing recent data on the economic impact of sport and

[5] For a complete listing of Task Force meeting agendas, attendees, testifiers and written testimony, documents and reports submitted to the Task Force, as well audio tapes from the meetings, *see* the Joint Cook Inlet Salmon Task Force webpage which can be found at URL: http://www.housemajority.org/coms/jcis/jcis_background.php

commercial fishing were only completed at year's end, in December 2008.[6] Those studies were submitted to the Task Force at its final meeting on January 29th. Thus, members of the Task Force had insufficient time to review in detail the new economic data prior to the Task Force's mandatory termination on Feb 1st. In an attempt to comply with its mandate, however, the Task Force requested a comparative analysis of the new economic studies be conducted and presented by University of Alaska economist Gunnar Knapp,[7] who provided the Task Force with helpful information at its final meeting.[8] In addition, in preparing this Task Force report, there was significant additional time to review the two economic studies and confirm with the Alaska Department of Fish and Game (ADF&G) reliable UCI salmon harvest data.

Combined, the two new economic studies and ADF&G commercial harvest data allow for an accurate assessment of the current economic impact of Upper Cook Inlet salmon fisheries. That's significant, because much of the prior economic data, particularly with regard to sport fishing, was fifteen years old. As ADF&G points out on its Sportfish Division website:

> "Collectively, the results (of the new study combined with prior ADF&G studies) suggest that during the past fifteen years, the economic

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[6] Southwick Associates, Inc., et al., *Economic Impacts and Contributions of Sportfishing in Alaska, 2007*, Alaska Department of Fish and Game Professional Publication No. 08-01, December 2008. *See also* Northern Economics, Inc., *The Seafood Industry in Alaska's Economy*, January 2009

[7] Professor of Economics, Institute of Social and Economic Research (ISER), University of Alaska, Anchorage (UAA)

[8] Knapp, Gunnar, *Comparison of Recent Sport and Commercial Fisheries Economic Studies,* PowerPoint presentation to the Cook Inlet Salmon Task Force, January 29, 2009; revised February 3, 2009

> significance of sportfishing in Alaska has increased considerably, in terms of number of jobs, wages and salaries, and total economic contribution to the Alaska economy. Those who participate in sportfishing are likely to point out that the opportunity to go fishing in Alaska has a value that is often difficult to measure in dollars. However, sportfishing is also an important part of the Alaska economy and a vital source of income to many in small towns and cities throughout the state."[9]

Of equal significance, however, the Task Force recognized that every aspect of the conservation and management of these critical Alaska fisheries is complex and interdependent, therefore defying easy or immediate solutions. In addition, it became clear to Task Force members that on many Cook Inlet salmon fisheries management issues, there is insufficient scientific data on which to base definitive conclusions. That's especially true with regard to the status of sockeye salmon stocks in the Susitna Valley, where there is a need for immediate action and more information. The lack of available scientific data on that issue and the sheer complexity of most allocative or management issues involving Cook Inlet salmon fisheries preclude the Task Force from offering the Legislature definitive answers to many of the issues raised in SCR 21.

But such an admission does not suggest the Task Force failed in its mission to carefully examine those issues. To the contrary, the Task Force gathered a great deal of information which has been cataloged and made available to the public online, and took testimony from a wide range of experts, the public, and interested parties currently

[9] http://www.sf.adfg.state.ak.us/statewide/economics/

involved in Upper Cook Inlet salmon fisheries. That process and the discussions that ensued have significantly increased the amount of attention being focused on this critical Alaskan resource management issue. Hopefully the Task Force process and this report will generate continued meaningful policy discussion leading up to the 2011 Board of Fisheries Upper Cook Inlet meeting where salmon allocations will again be reviewed.

In addition, the Task Force process itself clearly conveyed to state fisheries managers the sense of urgency many legislators and members of the public feel regarding the need to re-address the fairness of Cook Inlet salmon allocations and quickly identify any potential problems with current management practices – especially as they relate to the sustainability of Northern District sockeye stocks. That issue requires immediate attention to determine both the extent of any problem and any steps that may be required to correct it. From the Task Force's review, it's an issue deserving of more attention – and action – than it's currently receiving by state fishery managers.

The Task Force process was also beneficial in that it provided a non-confrontational setting where the public and decision makers could interact and discuss key aspects of Cook Inlet salmon fisheries allocations and management practices. So while time constraints and lack of available scientific data made it impossible to draw concrete conclusions on many issues, many meaningful insights were gained.

In sum, this report provides meaningful new information on Cook Inlet salmon allocations and analysis of their economic impact on the region and Alaska. It also sheds light on a potentially dangerous situation with Northern District sockeye stocks. Finally, the report presents a solid analytical framework for future policy debates on Cook Inlet salmon allocations and the issues identified in SCR 21, while also offering suggestions on areas where there is the need for additional research and legislative action.

But what this report does not do – and should not do – is draw firm conclusions on many of the issues. To do so would be inappropriate. Because while members of the Task Force made a sincere effort to comprehend mountains of data and hours of testimony in a very short period, they no opportunity to deliberate. The purpose of this report is to inform the Legislature regarding what the Task Force did in relation to each issue it was charged with examining. Statements made in this report summarize the Task Force's examination of those issues, and draw reasonable conclusions where supported by verifiable, objective data. But the report should not be interpreted as the official position of any member, or the Task Force itself on any issue. The report highlights key data and discusses questions that were either raised or answered as various issues were considered. Given the complexity of the issues and the limited time available, the Task Force did not adopt any official recommendations. Suggestions for continued inquiry, policy discussion

and legislative follow-up are offered at the conclusion of the report.[10] Members were also invited to submit individual recommendations to be included as part of the report.

IV. Cook Inlet Salmon Fisheries: Managing for Resource Conservation, Fair Allocation and "Maximum Benefit"

Introduction

A primary impetus for formation of the Salmon Task Force was an increasing concern among legislators that current state Upper Cook Inlet salmon fisheries management practices fail to meet the Alaska Constitutional mandate that all state natural resources be managed and conserved to achieve "maximum benefit" for the people of Alaska.[11] Article VIII, Section 2 of the Alaska Constitution states:

> "The legislature shall provide for the utilization, development, and conservation of all natural resources belonging to the State, including land and waters, for the maximum benefit of its people."[12]

The Constitution further dictates that state fish and game resources are reserved to the people for their "common use"[13] and are to be utilized and managed on a "sustained yield principle, subject to preferences among beneficial uses."[14] In fact, Alaska is the only

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[10] The suggestions reflect the opinion of the Chair and not official recommendations of the Task Force
[11] *Constitution State of Alaska*, Art. VIII, Sec. 2
[12] *Ibid.*
[13] *Ibid.*, Art. VIII, Sec. 3, "Common Use: Wherever occurring in their natural state, fish, wildlife, and waters are reserved to the people for common use."
[14] *Ibid.*, Art. VIII, Sec. 4, "Sustained Yield: Fish, forests, wildlife, grasslands, and all other replenishable resources belonging to the State shall be utilized, developed, and maintained on the sustained yield principle, subject to the preferences among beneficial uses."

state that has a constitutional mandate that requires sustainability of its fish and wildlife resources.

One additional section of the Alaska Constitution specifically addresses management of state fisheries, establishing that there can be no "exclusive right or special privilege of fishery" created or authorized in the waters of the State.[15] That section expressly provides, however, that the language should not be construed to preclude the state from limiting entry into a fishery for the purpose of resource conservation, to protect the livelihood of fishermen and fishing families dependent upon the resource, or the development of aquaculture in the state.[16]

In general, the overarching policy goal of the framers of Alaska's Constitution with regard to resource management was clearly laid out in Section 1 of Article VIII which states:

> "It is the policy of the State to encourage the settlement of its land and the development of its resources by making them available for maximum use consistent with the public interest."[17]

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[15] *Ibid.*, Art VIII, Sec. 15, "No Exclusive Right of Fishery: No exclusive right or special privilege of fishery shall be created or authorized in the natural waters of the State. This section does not restrict the power of the State to limit entry into any fishery for the purposes of resource conservation, to prevent economic distress among fishermen and those dependent upon them for a livelihood and to promote the efficient development of aquaculture in the State. [Amended 1972]."
[16] *Ibid.*
[17] *Ibid.*, Art VIII, Sec. 1, "Statement of Policy"