

Chinook Salmon Subsistence Harvests in Alaska: Recent Patterns and Trends



K'iytin: backbones

Presented by:

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Alaska Chinook Salmon
Symposium

Anchorage, Alaska
October 22, 2012

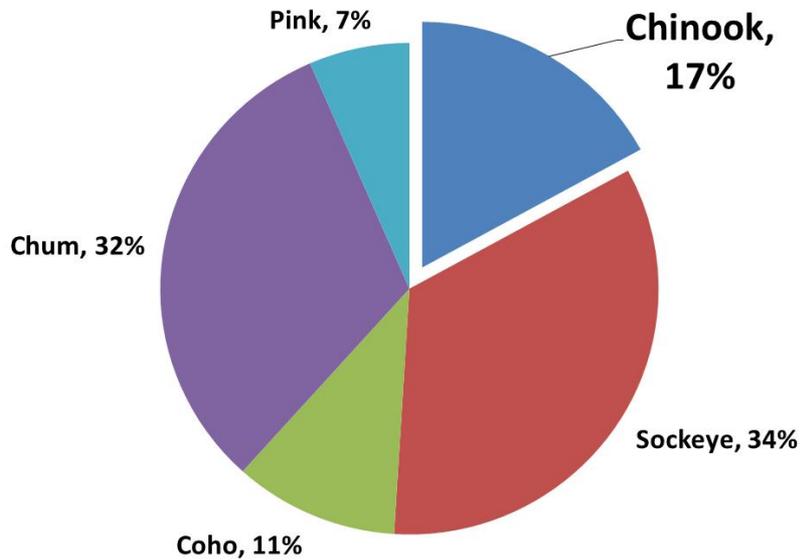
Presentation Goals



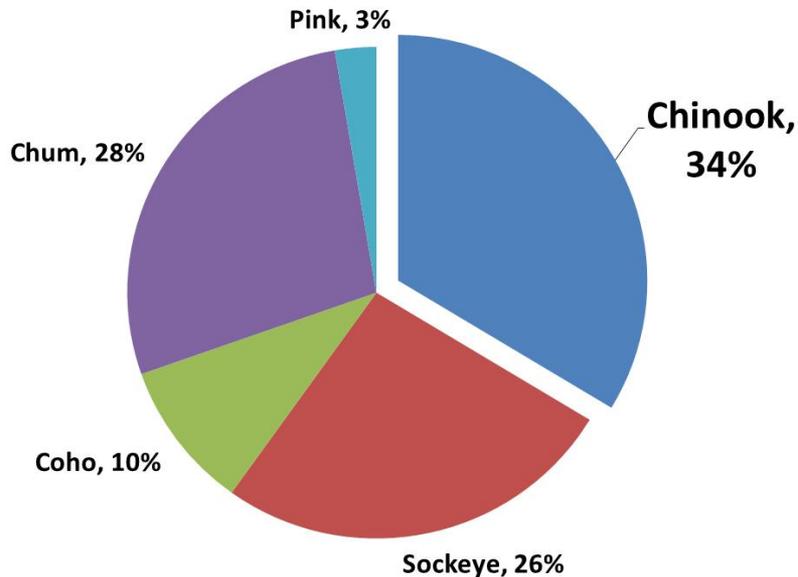
- Discuss general statewide patterns
- Focus on recent (20-year) patterns and trends for indicator stocks
- Describe subsistence harvest assessment methods
- Introduce contributions of traditional knowledge (TEK, LTK)
- Identify some data gaps



**In number of salmon
(annual average about 1 million fish)**



**In usable pounds of salmon
(annual average about 6 million pounds)**



Alaska Subsistence Salmon Harvests, Composition by Species, Annual Average, 1994 - 2010

Chinook Salmon: Ethnographic Patterns



Used traditionally, and named by cultural groups, everywhere within range. Examples:

- Tlingit: *t'a*
- Dena'ina Athabascan: *tiq'aka'a*
- Aleut: *chavichax*
- Central Yup'ik (Yukon): *kiagtak*
- Inupiaq: *qaluaqpuk*
- Biologists: *Oncorhynchus tschawytscha*



Chinook Salmon: Supporting Traditions



Nikolai, upper Kuskokwim River



Fish camp, Yukon River near Eagle

Chinook Salmon: Bonding Families and Generations



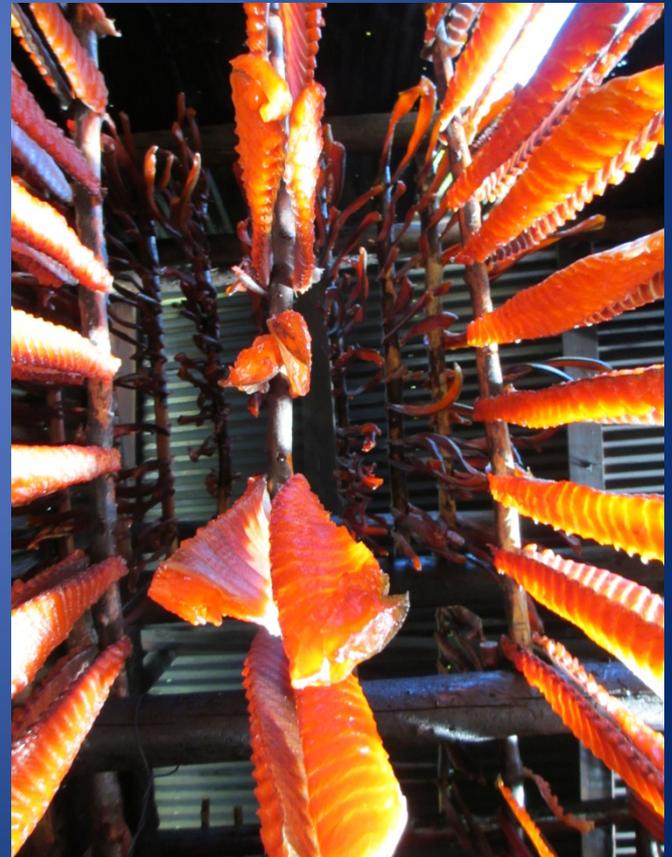
Fish camp near Tyonek, upper Cook Inlet

Chinook Salmon: A Large Portion of the Food Supply

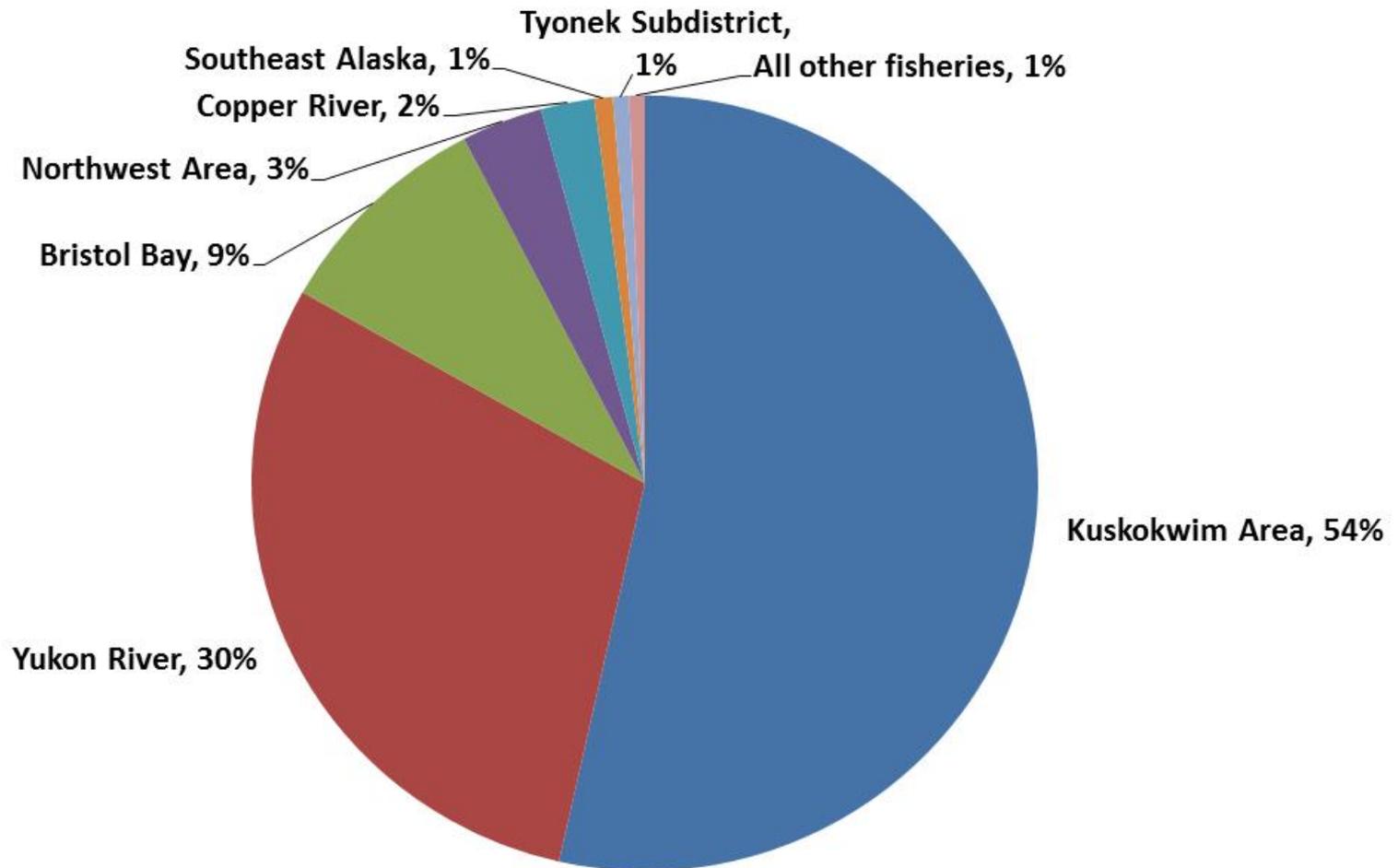


Statewide = about 12% of rural Alaska subsistence harvest

Chinook Salmon: Skills and Artistry

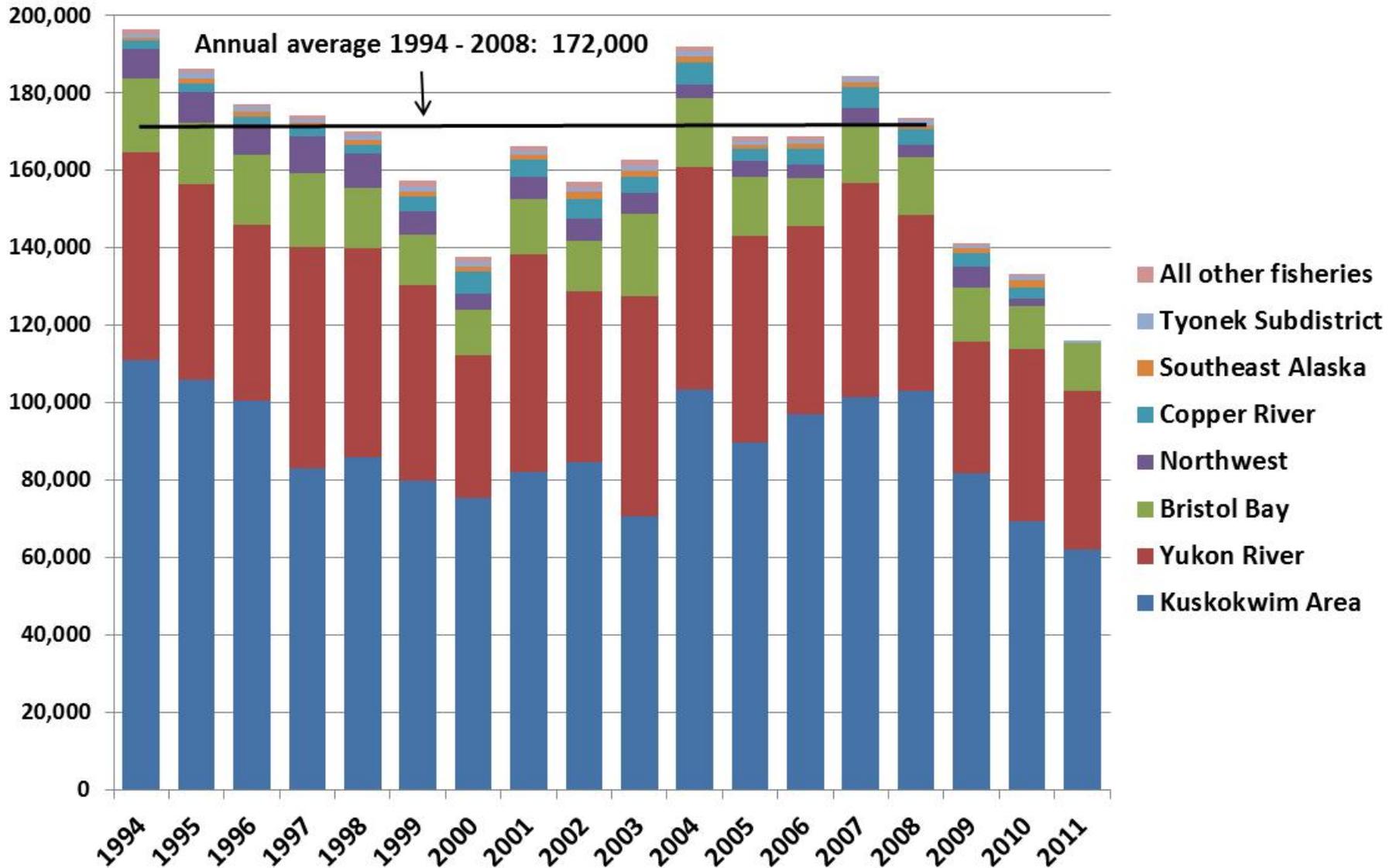


Percentage of Average Annual Subsistence Harvest of Chinook Salmon by Management Area (1994 - 2010)



Annual average = 167,500 Chinook salmon

Chinook Salmon Subsistence Harvests, 1994 - 2011 by Management Area



12 “Indicator” Chinook Salmon Stocks

- 2 – **Yukon and Kuskokwim** = 84% of subsistence harvest
- 3 others – **Nushagak, Susitna (Tyonek), Copper** = average annual subsistence harvests more than 1,000 fish
- 7 remaining – **Chignik, Karluk, Kenai, Chilkat, Taku, Stikine, Unuk** = average annual subsistence harvests less than 200 fish

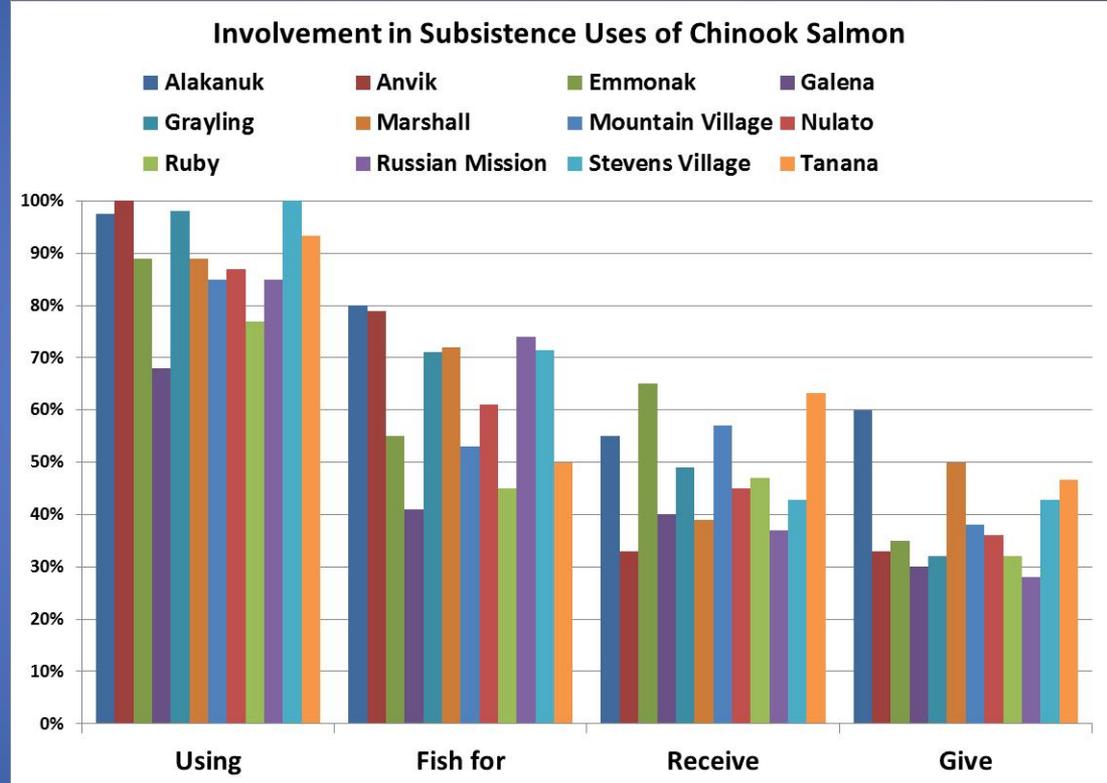
Amount Reasonably Necessary for Subsistence: “ANS”

- Required by Alaska statute (AS 16.05.258(b))
- Established in regulations by the Alaska Board of Fisheries (BOF)
- Of 12 indicator stocks, only 4 have specific Chinook ANS findings:
 - Yukon: 45,500 – 66,704
 - Kuskokwim River: 64,500 – 83,000
 - Chignik: 100 – 150
 - Susitna (Tyonek Subdistrict): 700 – 2,700

Yukon River Chinook Salmon

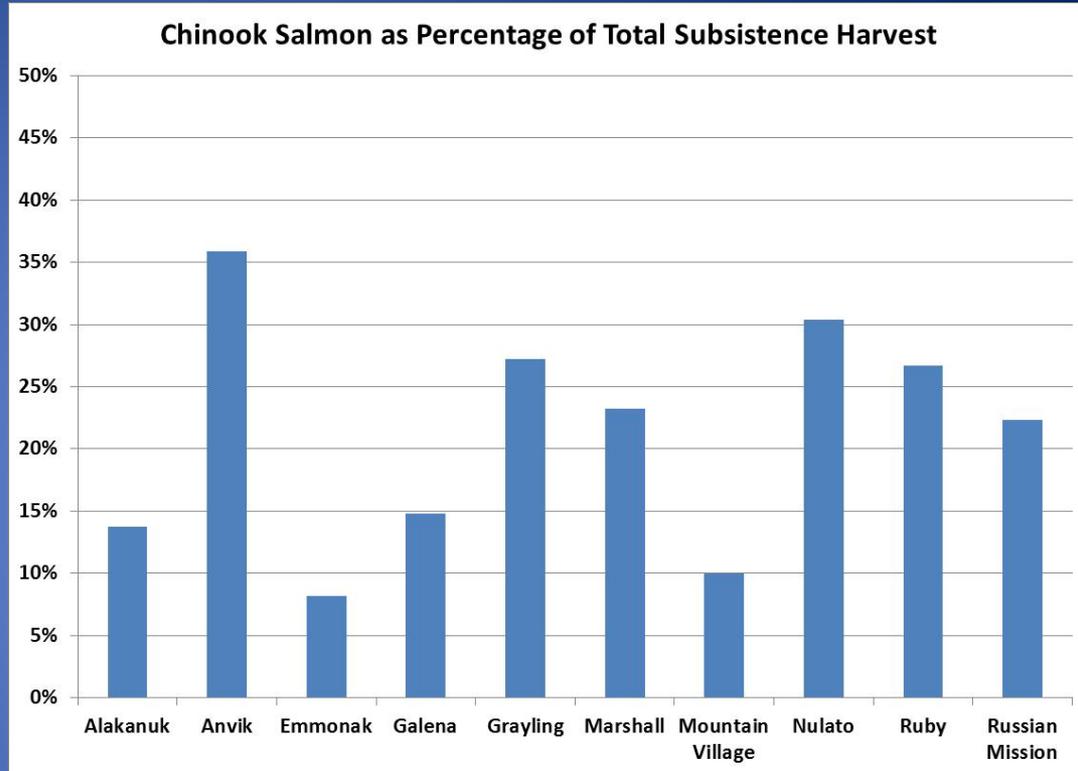


Drifting for kings, Kaltag



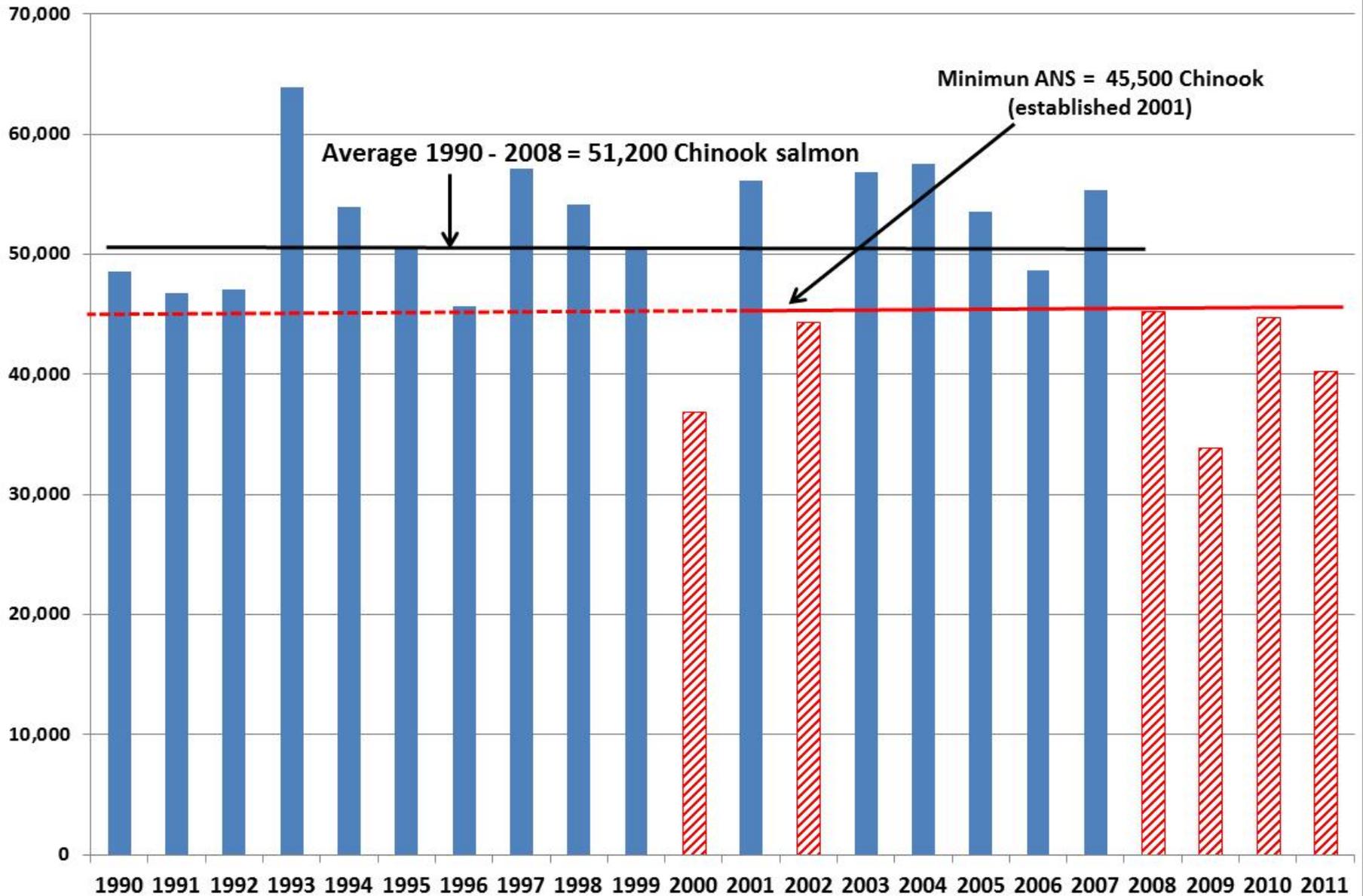
Most households use, fish for, and share Chinook salmon

Yukon River Chinook Salmon

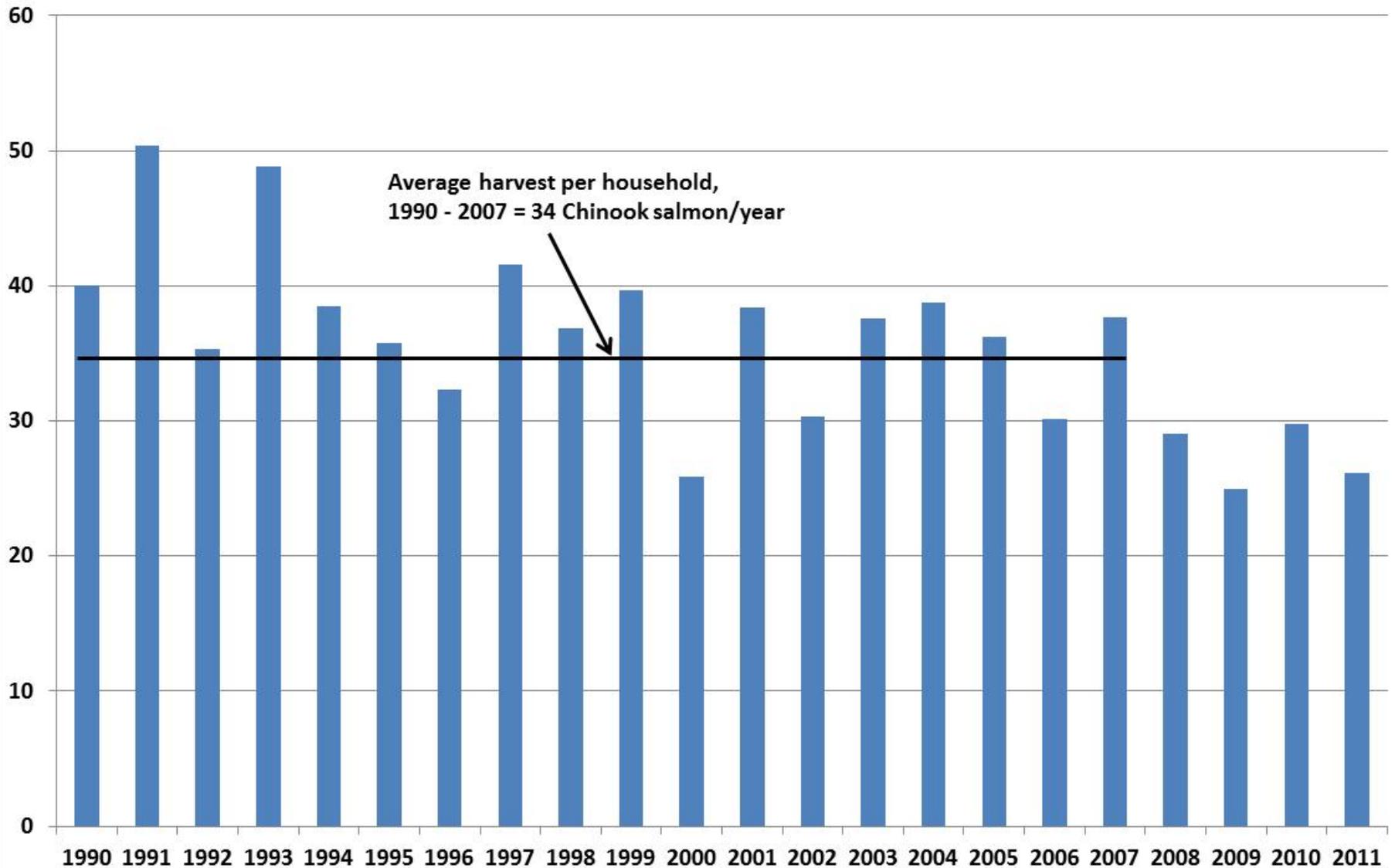


Chinook salmon provide a large portion of the total food supply

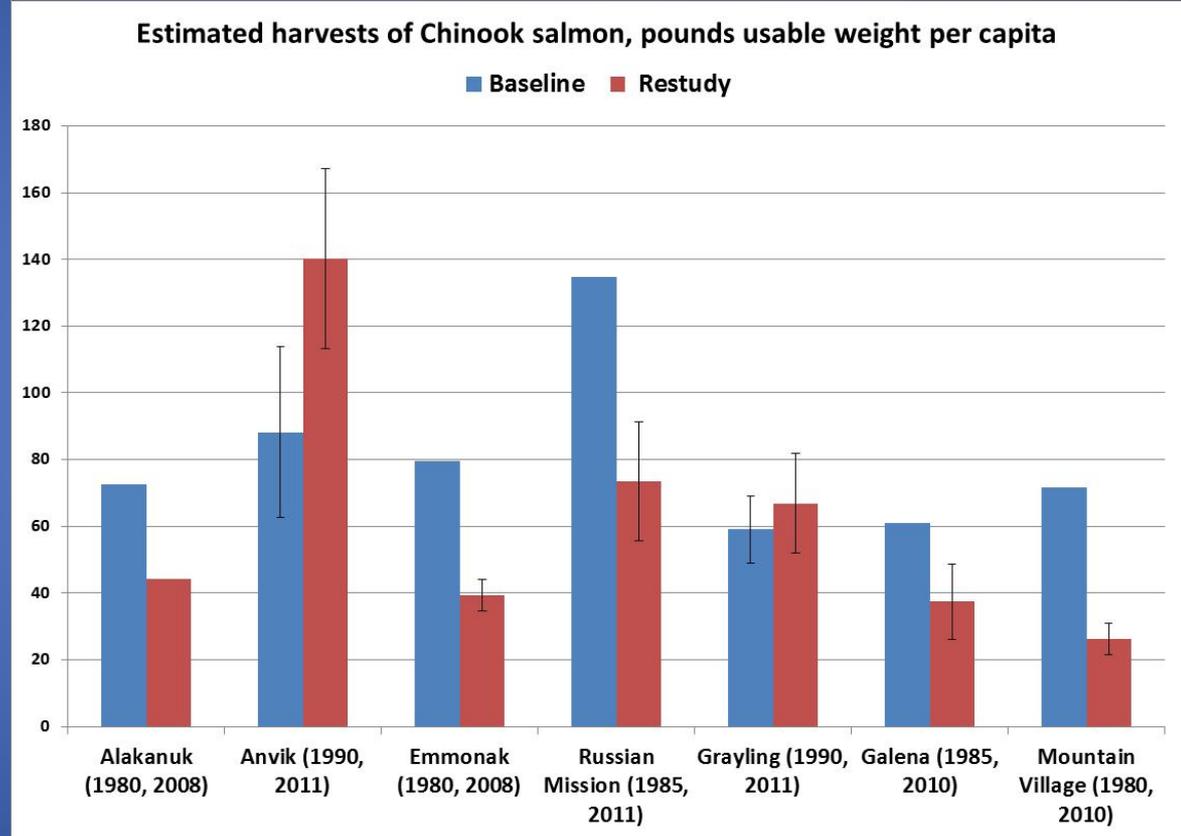
Yukon River Subsistence Chinook Harvests, 1990 - 2011



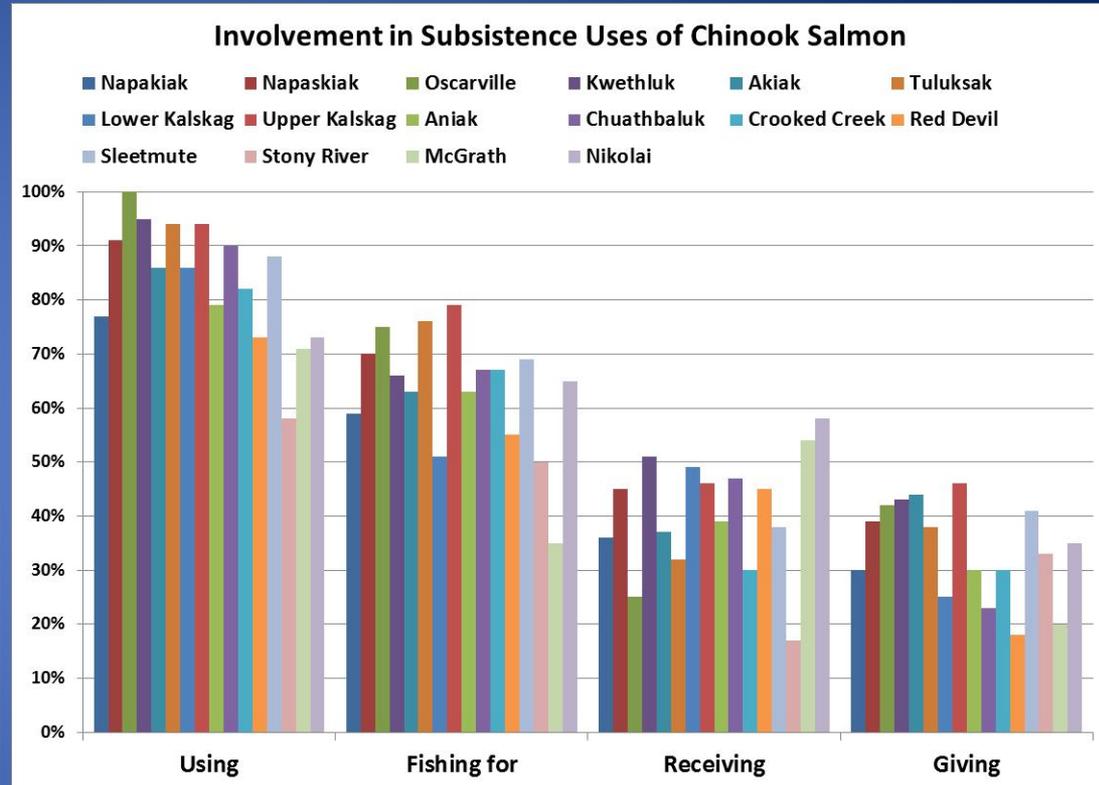
Yukon River Subsistence Chinook Salmon: Average Harvest per Fishing Household, 1990 - 2011



Changes in Chinook Salmon Harvest, Pounds Usable Weight per Capita



Kuskokwim River Chinook Salmon

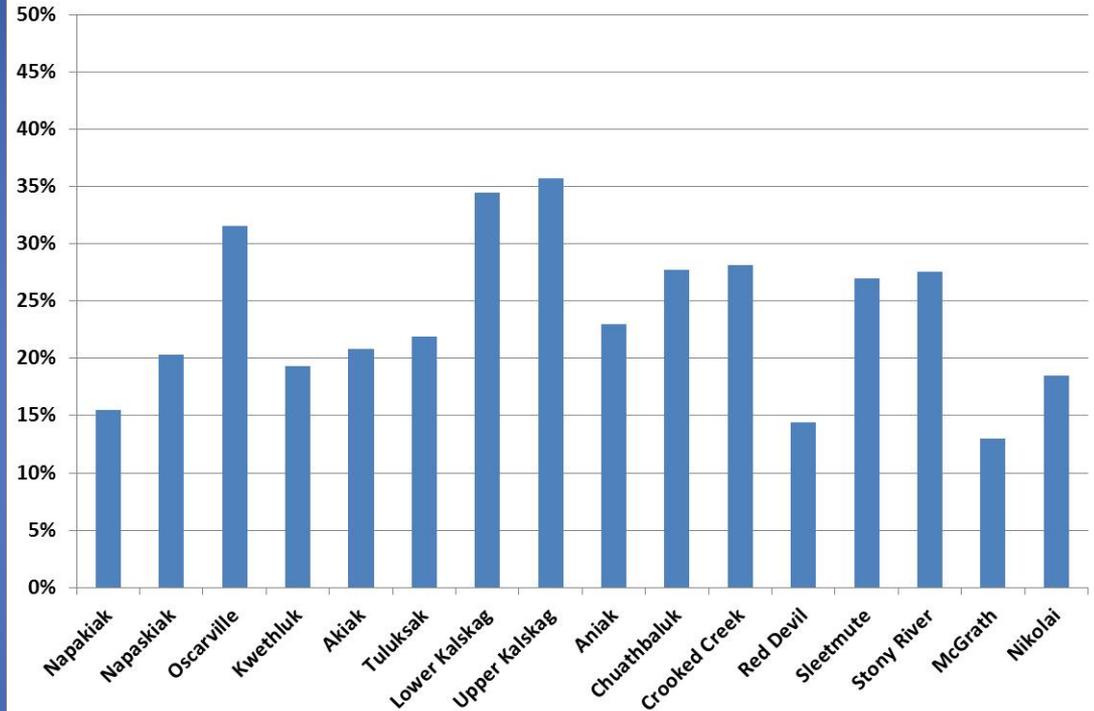


Most households use, fish for, and share Chinook salmon

Kuskokwim River Chinook Salmon



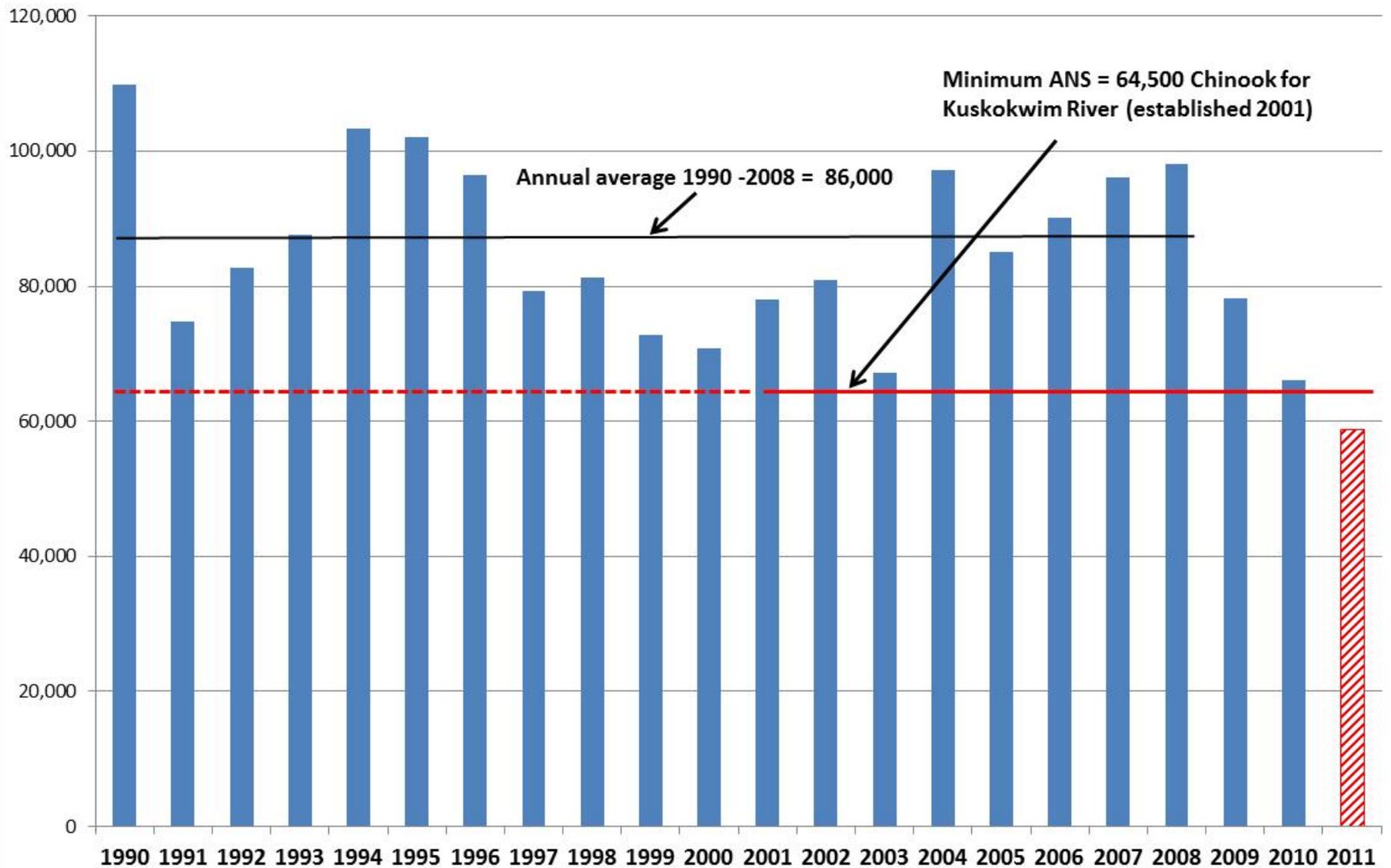
Chinook Salmon as a Percentage of Total Subsistence Harvest



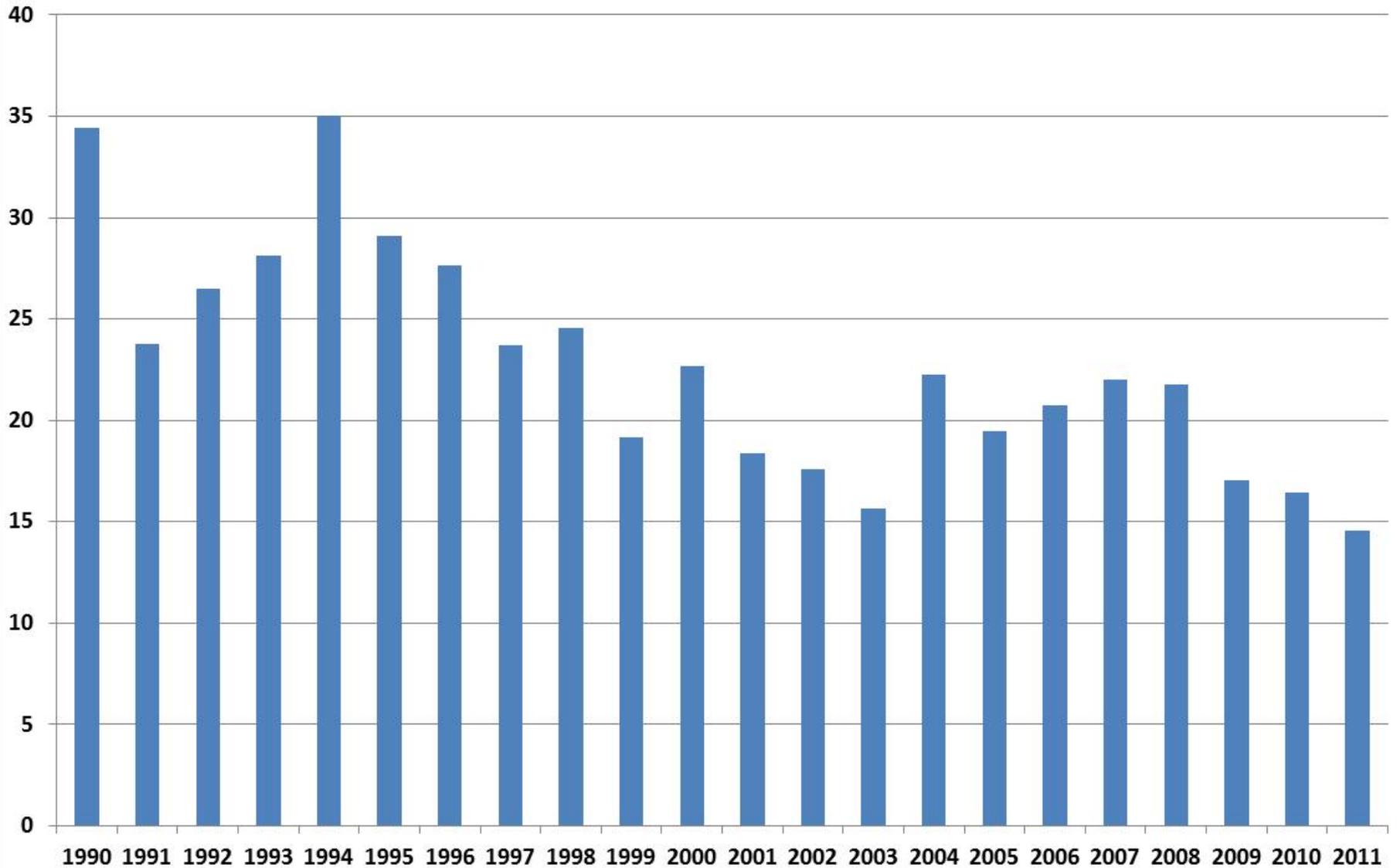
Chinook salmon provide a large portion of the total food supply

King salmon and other fish, Nikolai

Kuskokwim River Chinook Salmon Subsistence Harvests 1990 - 2011



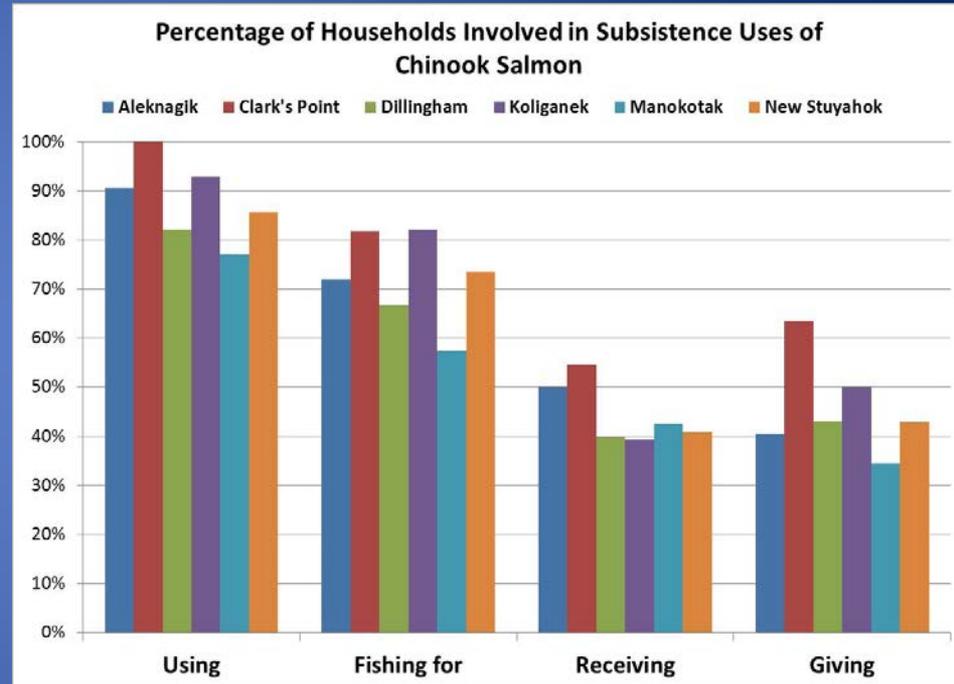
Kuskokwim Area Subsistence Chinook Salmon: Average Harvest per Household



Nushagak River Chinook Salmon



Lewis Point Fish Camp,
Nushagak River

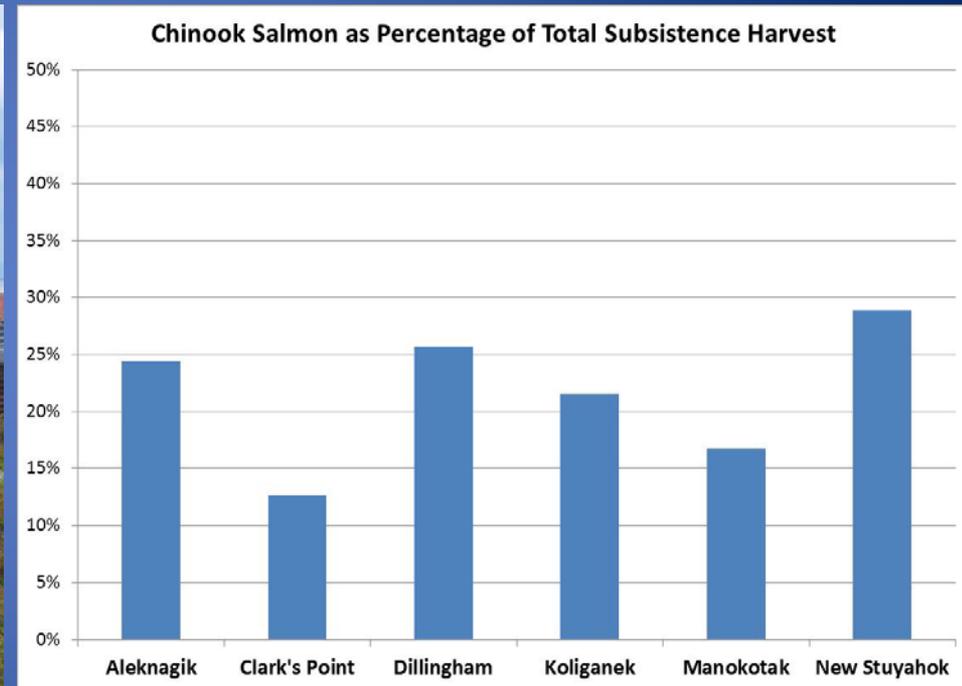


Most households use, fish for,
and share Chinook salmon

Nushagak River Chinook Salmon

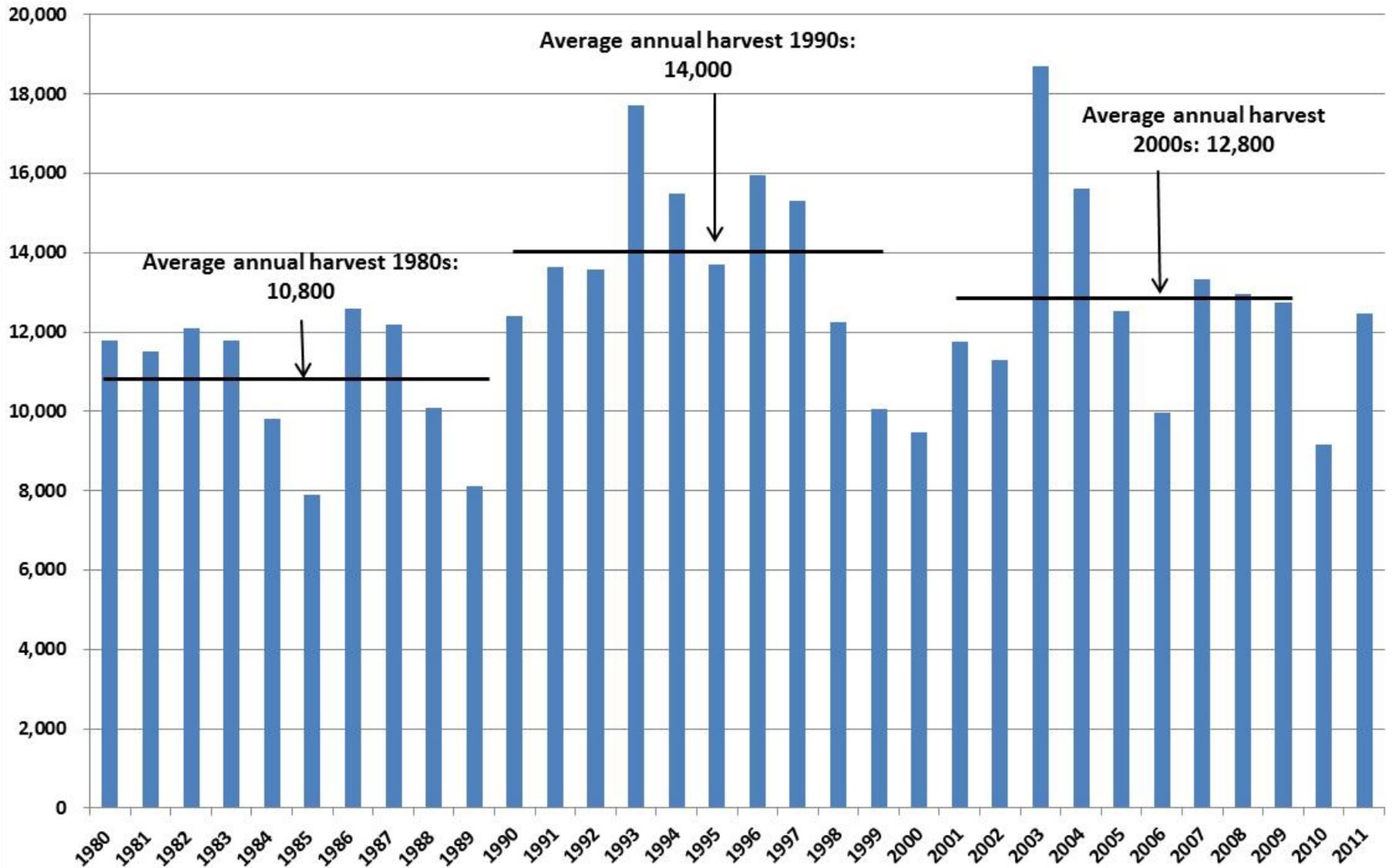


Salmon drying at Lewis Point

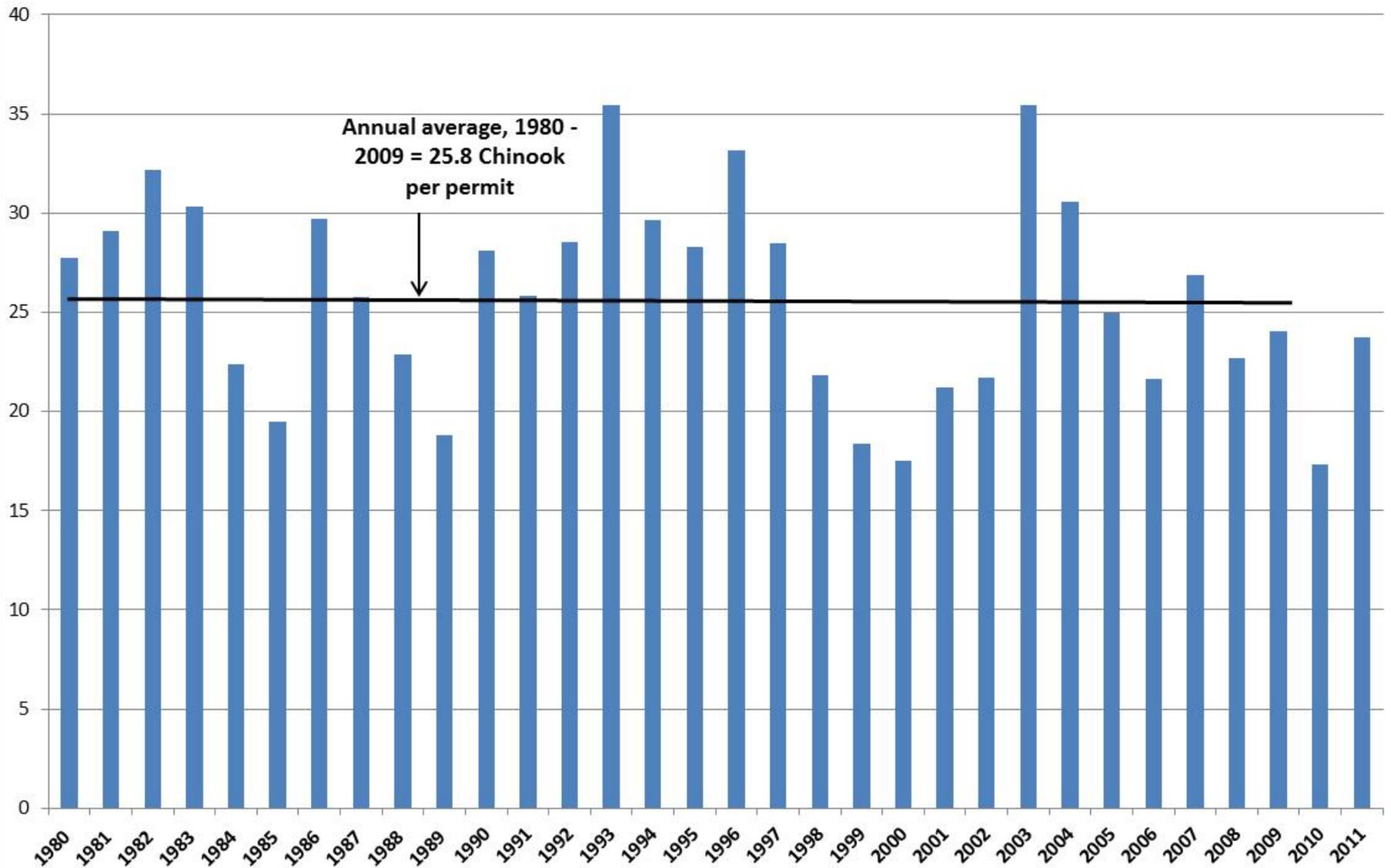


Chinook salmon provide a large portion of the total food supply

Nushagak District Subsistence Chinook Salmon Harvests, 1980 - 2011



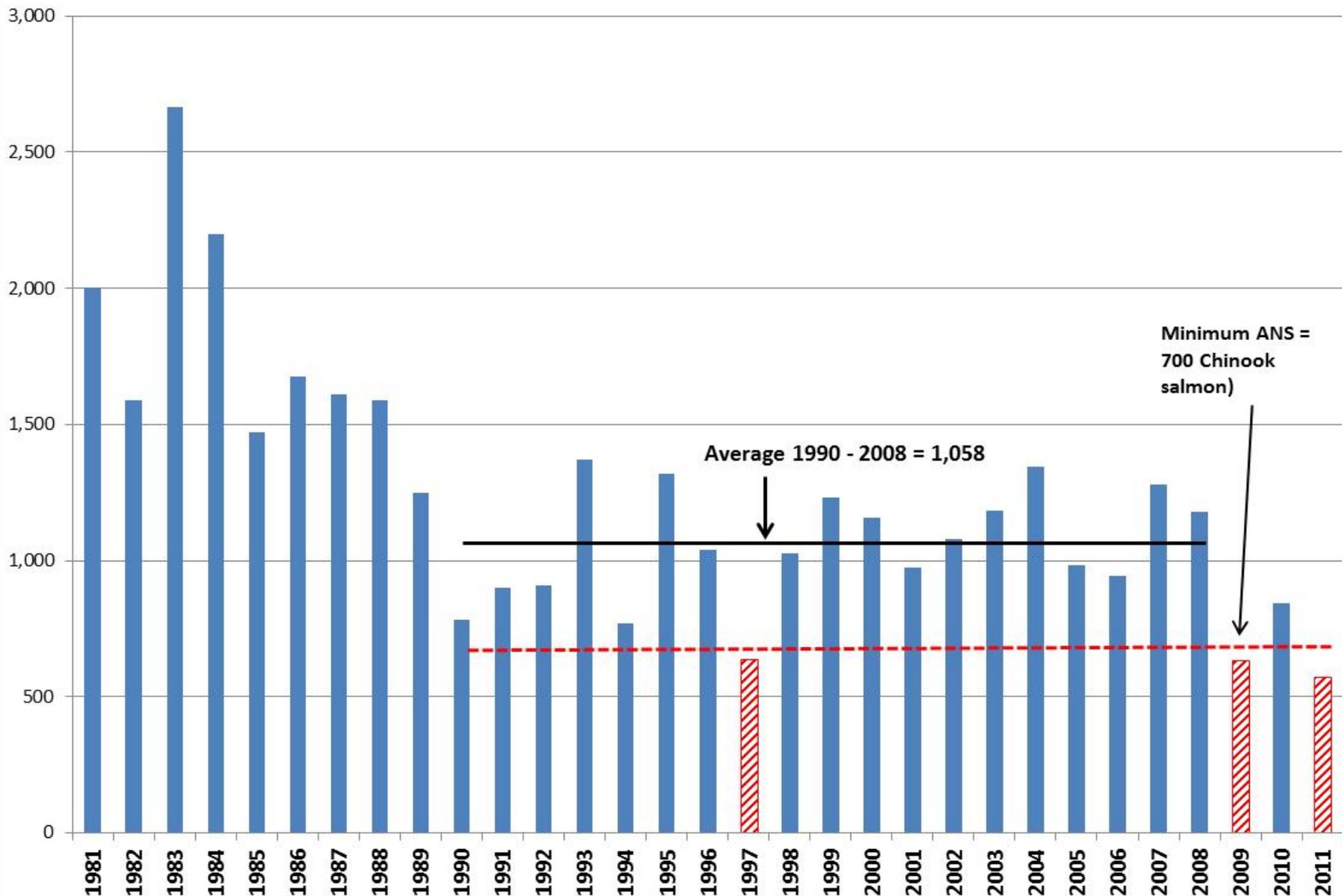
Nushagak District Subsistence Chinook Harvest per Permit, 1980 - 2011



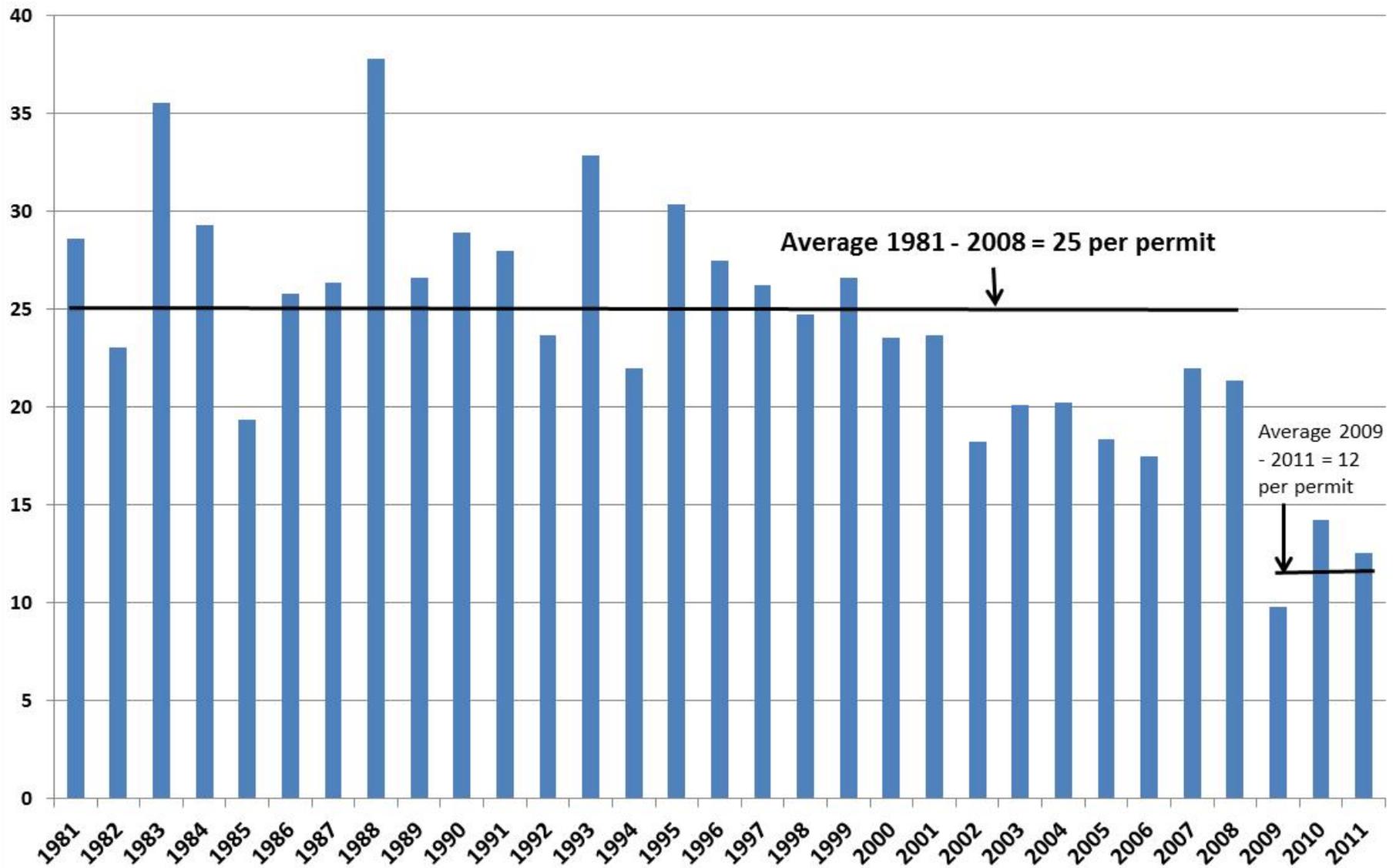
Susitna/Tyonek Subdistrict Chinook Salmon



Tyonek Subdistrict Subsistence Chinook Salmon Harvests

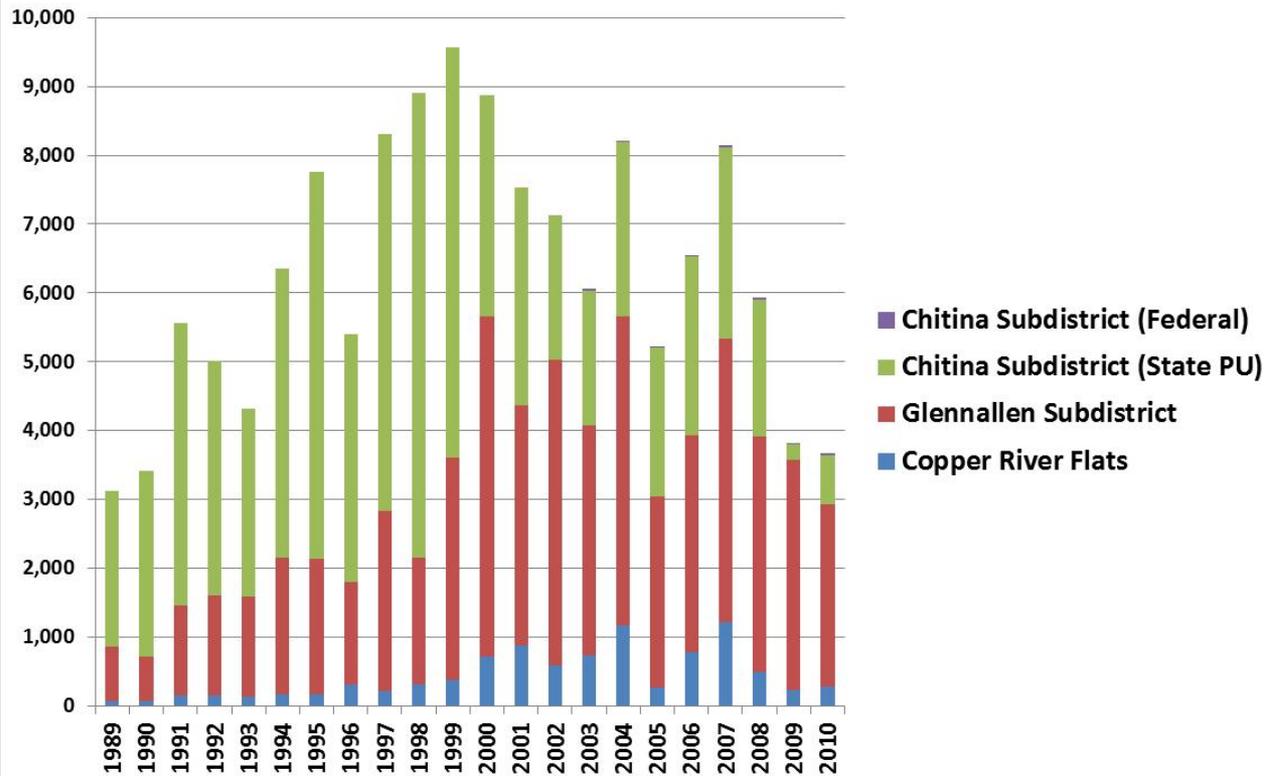


Tyonek Subdistrict: Chinook salmon harvests per returned permits (Tyonek residents only)



Copper River Chinook Salmon

Copper River Subsistence and Personal Use Chinook Salmon Harvests, 1989 - 2010



- Primarily sockeye fisheries (95%)
- Long-term average = 6,700 Chinook
- 48% taken in PU fishery
- PU Chinook harvests have declined
- Long-term average in subsistence fisheries = 3,100 Chinook

Southeast Alaska Chinook Salmon



Chilkat River subsistence Chinook salmon

- Reported subsistence salmon harvest = 83% sockeye
- Chinook = 2%; 1,100 annual harvest, 1990 – 2010
- Most taken at Yakutat
- Chilkat: < 200/year
- Taku, Stikine, Unuk: <100/year

Other “Indicator” Stocks



Chignik River king salmon, and berry pie

- **Chignik River:** recent 10-year annual average = 150 Chinook
- **Karluk River:** < 100 annual average
- **Kenai River:** no subsistence harvests (nonsubsistence area); PU harvest = 1,400 annual average (2007 – 2009)

Harvest Assessment Methods



- Permits
- Post-season household surveys
- Harvest calendars

↑
↙ Tools of the trade

STATE OF ALASKA
DEPARTMENT OF FISH & GAME
DIVISION OF SUBSISTENCE and DIVISION OF COMMERCIAL FISHERIES

Year _____

Return form to:
Division of Subsistence, ADF&G, PO Box 1030, Dillingham, AK 99576

SUBSISTENCE SALMON FISHING PERMIT Permit No. _____

I, _____, of _____
(Name) (Permanent Mailing Address)

am applying for a subsistence fishing permit for my household in accordance with current regulations and hereby swear the information contained on this application is a true statement as witnessed by my signature below; and that I have been an Alaska resident for the last calendar year.

Length of residency in the State of Alaska: _____ Phone No. _____

Number of year-round residents in household: _____

Names of household members who will assist in operation of subsistence net:

1 _____ 3 _____ 5 _____

2 _____ 4 _____ 6 _____

Drainage to be fished: Naknek Kvichak Egegik Ugashik
Nushagak Togiak Other _____

Primary fishing location (specific): _____

Number of fathoms allowed at this site: 10 25 Gear type: _____

Applicant's signature _____ Date _____

TO BE COMPLETED BY ISSUING OFFICER ONLY

The above-named person and designated household members are authorized to fish for salmon for subsistence purposes in the Bristol Bay Area during the period _____ to _____ according to current laws and regulations of the State of Alaska.

Under authority of this permit the following fish may be taken:

Sockeye _____ Pinks _____ Kings _____

Cohos _____ Chums _____ Spawn-out salmon _____

***NOTE:** Commercially-caught salmon may also be utilized for subsistence purposes and should be reported on the back of this form as well as a Commercial Fish ticket.

Authorizing Officer

Date

- NOTE: 1. Only one subsistence salmon fishing permit may be issued to each household per year. People using the net/site and not of this household are required to have their own permit and file a separate report of their harvest.
2. Fish caught for subsistence uses may not be sold or allowed to enter commercial use.
3. An accurate record of fish taken under authority of this permit must be returned to the Alaska Department of Fish and Game office when the permit expires. Failure to return subsistence catch records is grounds for denial of future permit privileges.
4. Please return this permit as soon as you are through fishing.

(revised 3/20/2007)

Bristol Bay Subsistence Permit: Obverse

Kuskokwim Area Post Season Survey

Date of Survey _____
 Person Interviewed _____
 Relation to HH _____
 Interviewer _____

HHID # _____

Community: _____

2012 Kuskokwim Area Post-Season Subsistence Salmon Harvest Survey CONFIDENTIAL INFORMATION

1. We would like to make sure we have the correct name and address for your household.

Head of Household _____ Significant Other _____
 Mailing Address _____ Telephone _____
 Permanent Note _____

2. How many people live in your household? _____

3. Did anyone in your household subsistence fish or commercial fish? Yes ___ No ___

("Harvest" includes catching or cutting salmon) **IF YES**, COMPLETE ALL OF PART I. **IF NO**, go to PART II.

Adult household member declined to be interviewed. [] Reason given: _____

PART I. HOUSEHOLDS THAT CAUGHT SALMON

4. Do you have a catch calendar to turn in? Yes ___ No ___ Already sent in ___ (Are all fish harvested on calendar?)

5. How many total salmon did you or your fishing group harvest this year? (Group may include other households)

CHINOOK _____ SOCKEYE _____ CHUM _____ COHO _____ PINK _____

6. How many households do you fish with? _____ (Names) _____

7. Where did you go salmon fishing? How many (enter species) did YOUR HOUSEHOLD keep?

(Only include fish caught by this household, not the group. Also include fish kept from commercial.)

Kusko mouth up to include Bethel (K1) Above Bethel up to include Aniak (K2) Above Jacksmith Bay up to mouth (K4)

Below Jacksmith Bay (K5) Nelson Is. above Kolvinnarak River (N) Nelson Is. below Kolav River to Kusko mouth (S)

Crooked Cr. ↓ Sleetmute ↓ Holitna R. ↓ Stony R. ↓ McGrath ↓ Above McGrath Other _____

Area _____ CHINOOK _____ SOCKEYE _____ CHUM _____ COHO _____ PINK _____

Area _____ CHINOOK _____ SOCKEYE _____ CHUM _____ COHO _____ PINK _____

Total (two areas) CHINOOK _____ SOCKEYE _____ CHUM _____ COHO _____ PINK _____

You said you kept XXX number of (enter species) for your households (see above). Is this how many you needed, or would you usually like to catch more or less? If you did not meet your goals, why do you think that is?

CHINOOK _____ SOCKEYE _____ CHUM _____ COHO _____
 WHY? _____ WHY? _____ WHY? _____ WHY? _____

8. What is your household's main type of salmon fishing gear? (In order of importance: 1= primary, 2=secondary, etc)

SET NET _____ DRIFT NET _____ FISH WHEEL _____ HOOK & LINE _____ DIPNET _____ OTHER _____

9. Did anyone in your household commercial fish this year? Yes ___ No ___

If yes, did your household keep any (enter species) for subsistence use?

CHINOOK _____ SOCKEYE _____ CHUM _____ COHO _____ PINK _____

10. Did your household "lose" any salmon? (example: bears, birds, weather, spoilage, diseased) Yes ___ No ___

(If fish was not fit for humans but was fed to dogs, then it was not "lost." Report fish fed to dogs under question 17.)

CHINOOK _____ SOCKEYE _____ CHUM _____ COHO _____ PINK _____

Reason(s) for loss: _____

11. Did your household give away any salmon? (names, species, and numbers) Yes ___ No ___

PART II. ALL HOUSEHOLDS

12. Did anyone give you salmon? Yes ___ No ___ Code: S=Subsistence, C=Commercial, T=Test Fish

Code: _____ Fishermen/Project (Name) _____

CHINOOK _____ SOCKEYE _____ CHUM _____ COHO _____ PINK _____

Code: _____ Fishermen/Project (Name) _____

CHINOOK _____ SOCKEYE _____ CHUM _____ COHO _____ PINK _____

13. How many salmon does your household usually like to have or receive?

CHINOOK _____ If less, why? _____

SOCKEYE _____ If less, why? _____

CHUM _____ If less, why? _____

COHO _____ If less, why? _____

14. Did your household catch any other fish besides salmon? Yes ___ No ___

(From last September/October to now.)

HUMPBACK WHITEFISH _____ BROAD WHITEFISH _____ CISCO _____ SHEEFISH _____ LUSH _____

PIKE _____ BLACKFISH _____ GRAYLING _____ SMELT _____ CHAR _____ RAINBOW TROUT _____

HERRING _____

15. How many dogs does your household have? _____ (if zero go to number 18)

16. Do you feed whole salmon to your dogs? Yes ___ No ___ Only Feed Scraps _____

17. How many whole salmon were put up for dogs this year by species (numbers should represent whole fish, not scraps):

CHINOOK _____ SOCKEYE _____ CHUM _____ COHO _____ PINK _____

18. Additional Comments: _____

THANK YOU! THIS INFORMATION IS USED TO DOCUMENT THE SUBSISTENCE SALMON HARVEST WITHIN THE KUSKOKWIM AREA AND AIDS IN THE MANAGEMENT OF THIS IMPORTANT RESOURCE.

Surveyor Comments:

Official Use - This area is to be filled in by Surveyor.

HOUSEHOLD'S TOTAL SUBSISTENCE SALMON CATCH (Totals from question *7 or zeros if non-fisher)

CHINOOK _____ SOCKEYE _____ CHUM _____ COHO _____ PINK _____

Complete Survey _____ Partial Survey _____ No Survey _____

Kuskokwim Area Subsistence Harvest Calendar

June 2012

SUNDAY

MONDAY

TUESDAY

WEDNESDAY

THURSDAY

FRIDAY

SATURDAY



SUNDAY				MONDAY				TUESDAY				WEDNESDAY				THURSDAY				FRIDAY		SATURDAY					
																1	2										
																King _____	King _____										
																Chum _____	Chum _____										
																Sockeye _____	Sockeye _____										
																Coho _____	Coho _____										
3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
King _____																											
Chum _____																											
Sockeye _____																											
Coho _____																											



Fish camp

TEK: Traditional Ecological Knowledge; LTK: Local and Traditional Knowledge



- Time depth
- Focused on localities
- Contexts
- Habitat
- Timing
- Abundance
- Condition
- Also: promotes collaboration



Gaps and Data Needs



- Timing and effort data
- In-season assessments by fishers
- Post-season assessments by fishers
- Patterns and trends analysis
- TEK and LTK studies

Conclusions About Alaska Chinook Salmon Subsistence Fisheries



- Chinook salmon are among **the most important subsistence resources** in Alaska
- Two fisheries – **Yukon and Kuskokwim** – **account for over 80%** of annual subsistence harvest
- **Subsistence harvests are down since 2008**; due mostly to declines in Yukon, Kuskokwim, and Cook Inlet fisheries
- **ANS not achieved** 2008 – 2011 for Yukon, 2011 for Kuskokwim, 2009 & 2011 for Susitna (Tyonek)
- **Gaps exist** in annual monitoring of subsistence fisheries and in documentation of TEK/LTK

Thank You!

