

Oral Report to the Alaska Board of Fisheries



Review of Salmon Escapement Goals in Upper Cook Inlet



By

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and

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RC-4

Oral Report:

Tab 6

Written Report:

RC-4, Tab 1

Presentation Objectives

- Policies
- Key terms
- Methods
- Recent escapement performance
- 2020 Recommendations

Escapement Goal Policies

- **Policy for the Management of Sustainable Salmon Fisheries (SSFP; 5 AAC 39.222)**
- **Policy for Statewide Salmon Escapement Goals (5 AAC 39.223)**
- **Adopted to ensure salmon stocks are conserved, managed, and developed using the sustained yield principle**

Two important terms defined in the SSFP:

Biological Escapement Goal (BEG):

- *“escapement that provides the greatest potential for maximum sustained yield”*
- *“expressed as a range based on factors such as salmon stock productivity and data uncertainty”*

and Sustainable escapement goal (SEG):

- *“a level of escapement, indicated by an index or an escapement estimate, that is known to provide for sustained yield over a 5 to 10 year period, used in situations where a BEG cannot be estimated or managed for”*
- *“will take into account data uncertainty and be stated as either a "SEG range" or "lower bound SEG”*

Current UCI Escapement Goals

Chum salmon: 1 stock

Clearwater Creek

Sockeye salmon: 9 stocks

Fish and Packers creeks; Chelatna, Judd, and Larson lakes; and Kasilof, Kenai, and Russian (early- and late-run) rivers

King salmon: 21 stocks

Alexander, Campbell, Clear, Crooked, Goose, Lake, Little Willow, Montana, Peters, Prairie, Sheep, and Willow creeks; and Chuitna, Chulitna, Deshka, Kenai (early- and late-run), Lewis, Little Susitna, Talachulitna, and Theodore rivers

Coho salmon: 4 stocks

Fish and Jim creeks; and Little Susitna and Deshka rivers

Sockeye Salmon – Changes


Russian River late-run

SEG: 30,000 - 110,000

 44,000 – 85,000

Kasilof River

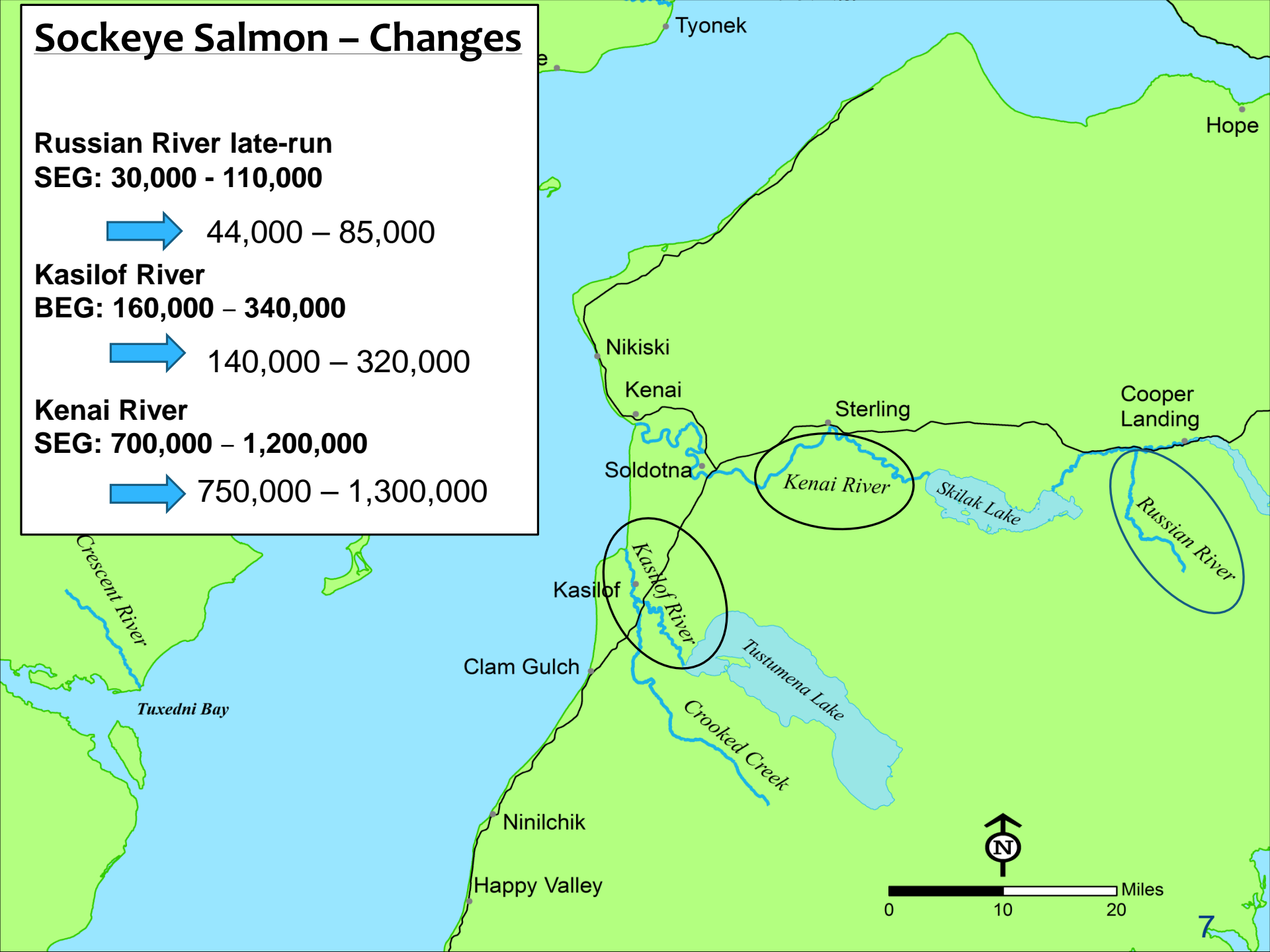
BEG: 160,000 – 340,000

 140,000 – 320,000

Kenai River

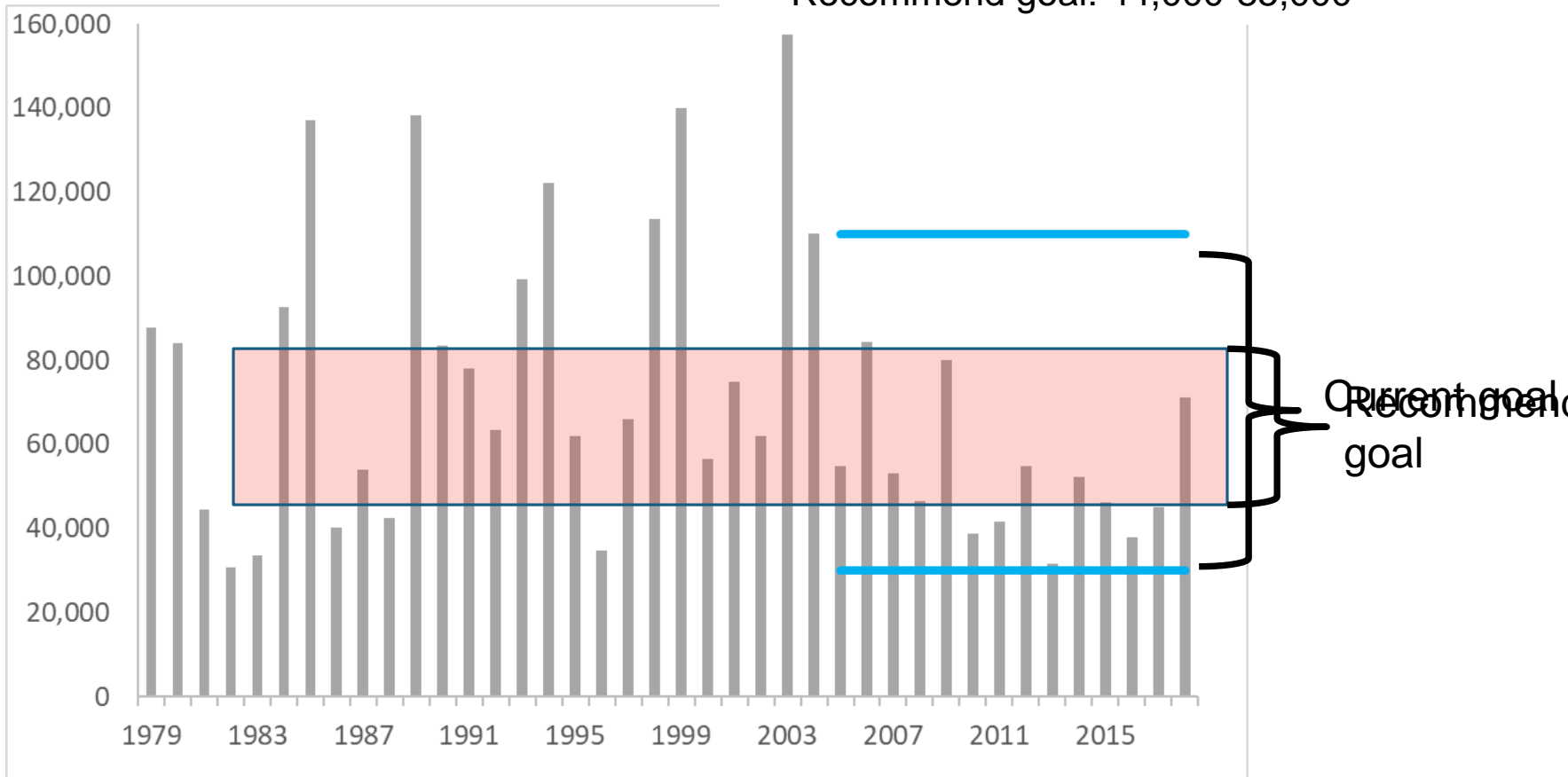
SEG: 700,000 – 1,200,000

 750,000 – 1,300,000

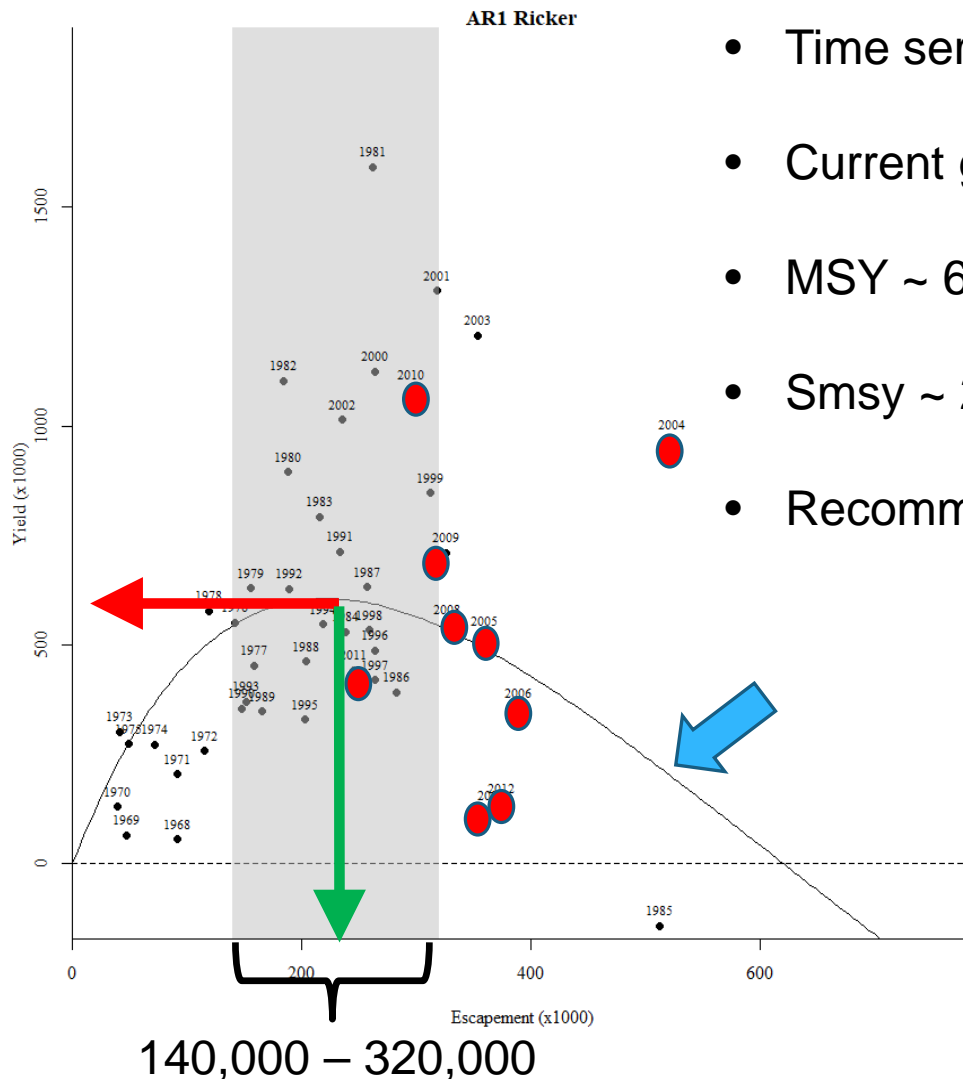


Late-run Russian River sockeye salmon

- Current goal: 30,000-110,000
- Current goal was established 2005
- Time series increased to 40 years
- Recommendation based on 25-75%
- Recommend goal: 44,000-85,000



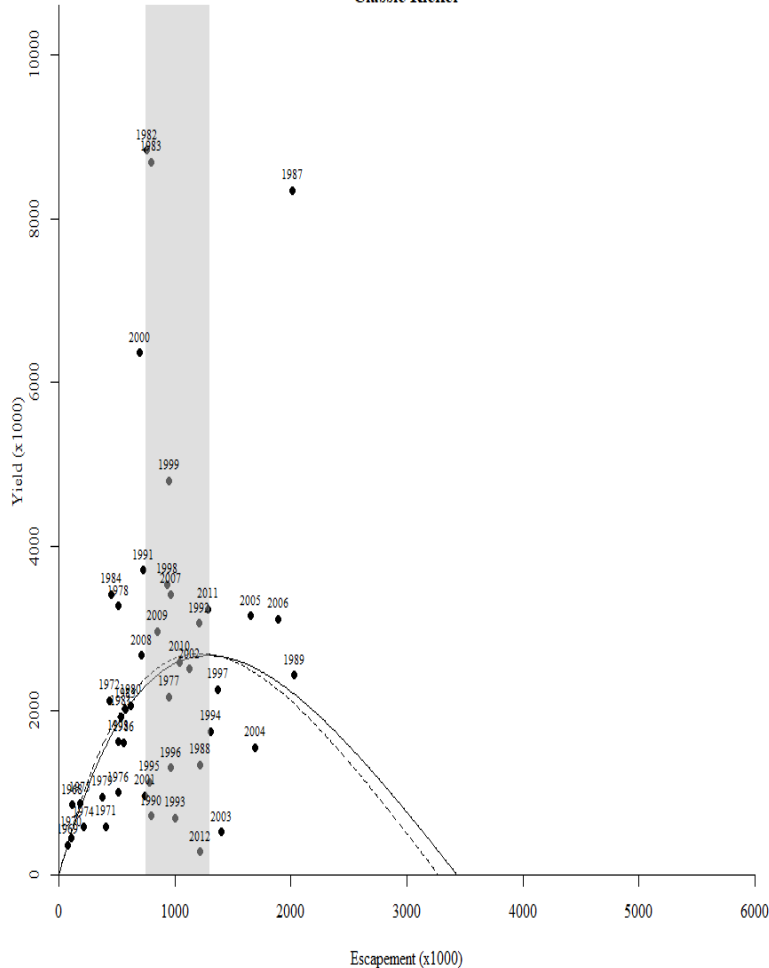
Yield profile for Kasilof River sockeye salmon



- Time series increased to 27 years
- Current goal: 160,000 – 340,000
- MSY ~ 605,000
- Smsy ~ 220,000
- Recommended goal: 140,000 – 320,000

Kenai River late-run sockeye salmon

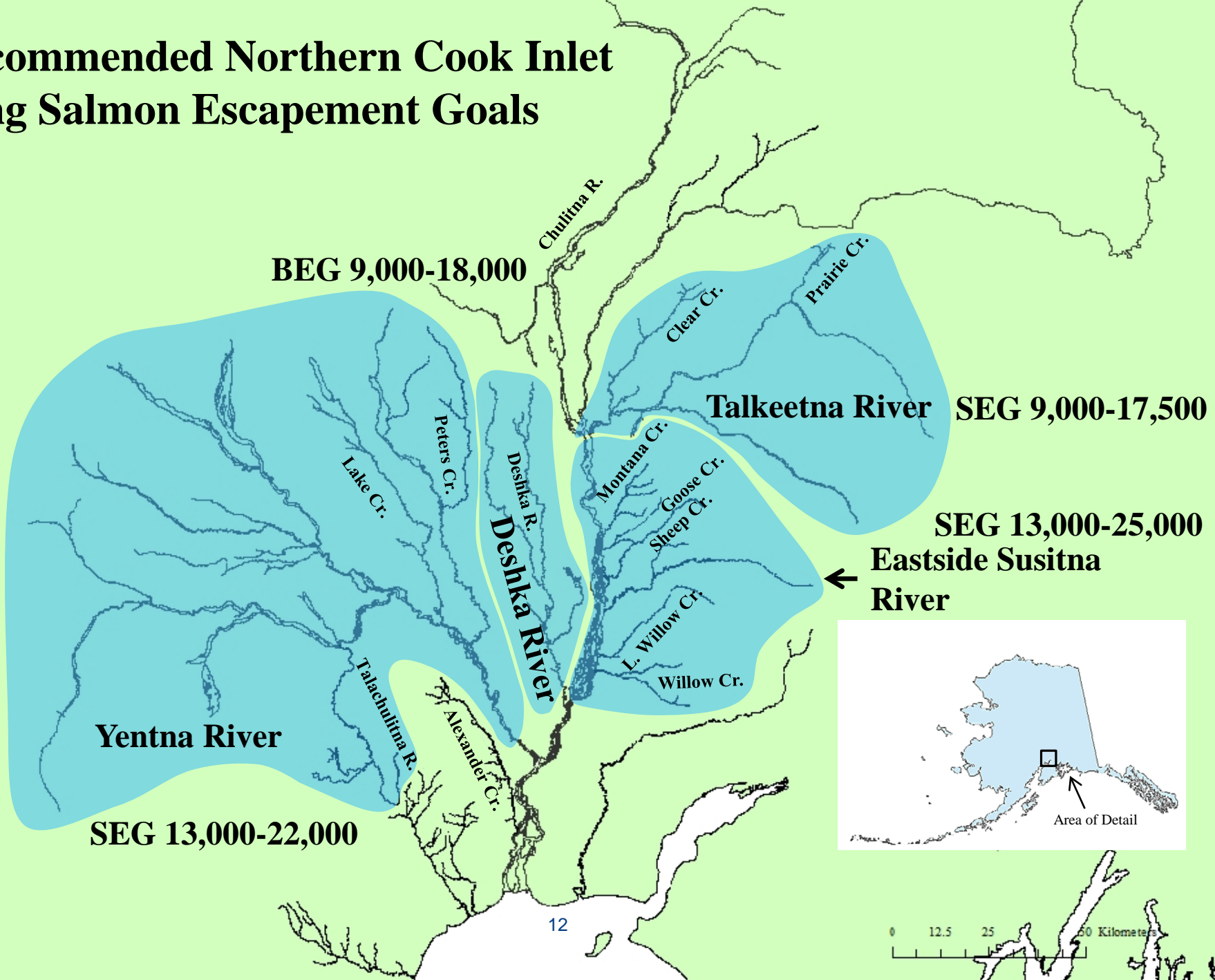
Classic Ricker



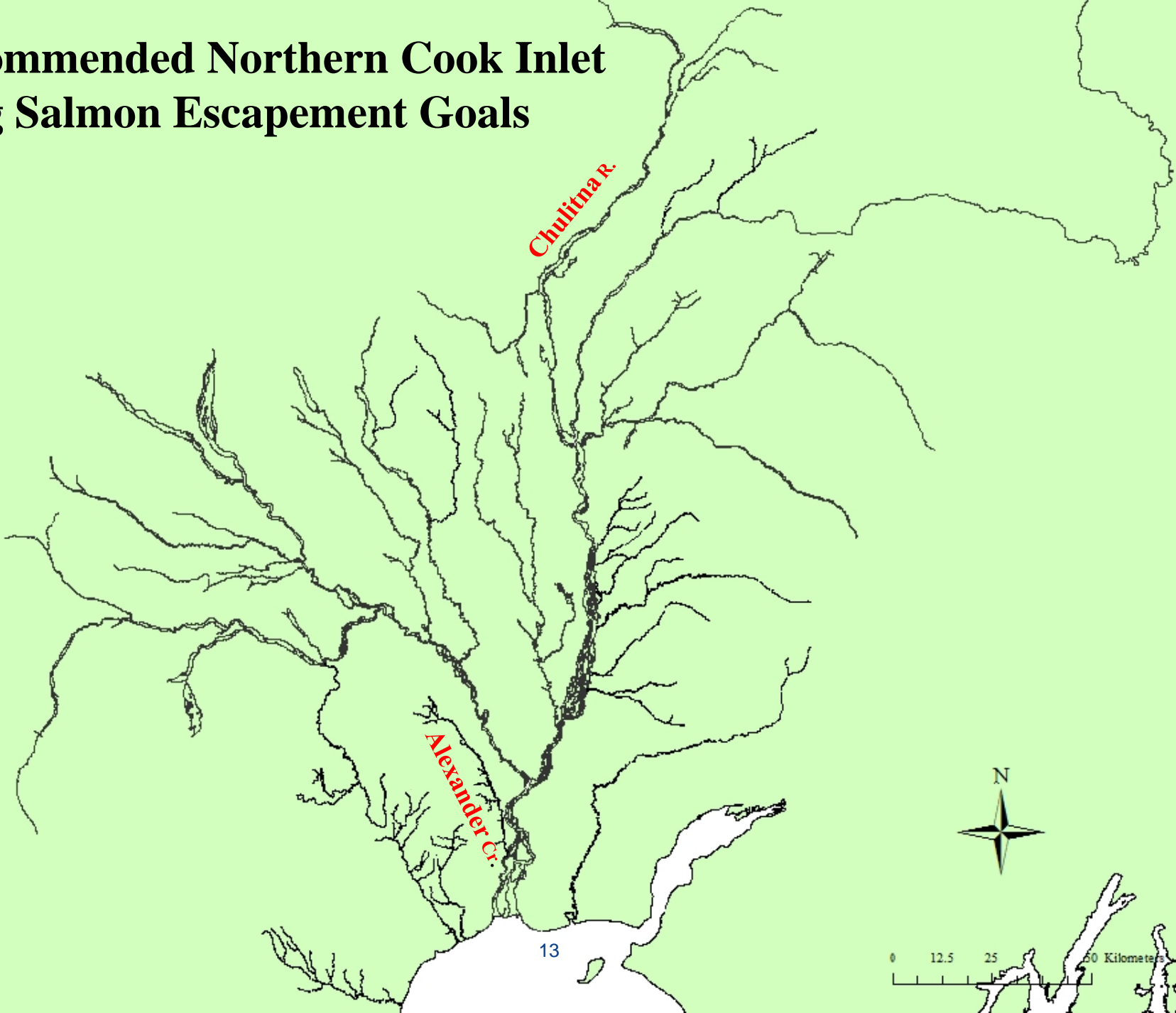
- Current goal: 700,000 – 1,200,000
- Fit 6 models
- Selected traditional Ricker-model
- All brood years to date have replaced themselves
- Ran 2 time series (1968 – 2012, 1979 – 2012)
- Escapement bounds producing 90% of MSY
 - 830,000 – 1,822,000 (1968 – 2012 time series)
 - 774,000 – 1,716,000 (1979 – 2012 time series)
- Recommended goal: 750,000 – 1,300,000



Recommended Northern Cook Inlet King Salmon Escapement Goals



Recommended Northern Cook Inlet King Salmon Escapement Goals



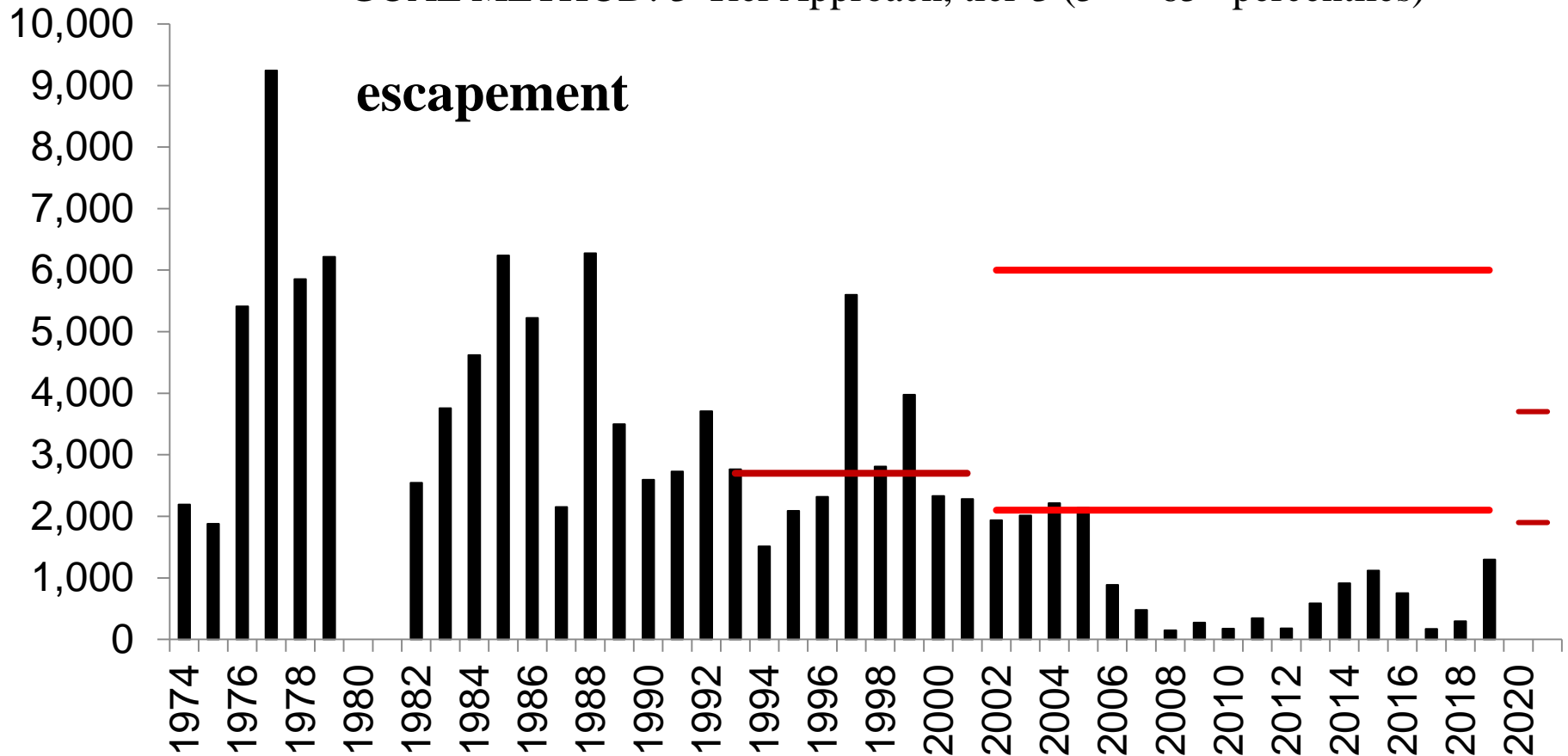
Single aerial survey SEG for Alexander Cr king salmon

CURRENT: 2,100 – 6,000

RECOMMENDED: 1,900 – 3,700

DATA: 1974-2005 aerial surveys, harvest rate <.40, contrast 6.1

GOAL METHOD: 3-Tier Approach, tier-3 (5th – 65th percentiles)



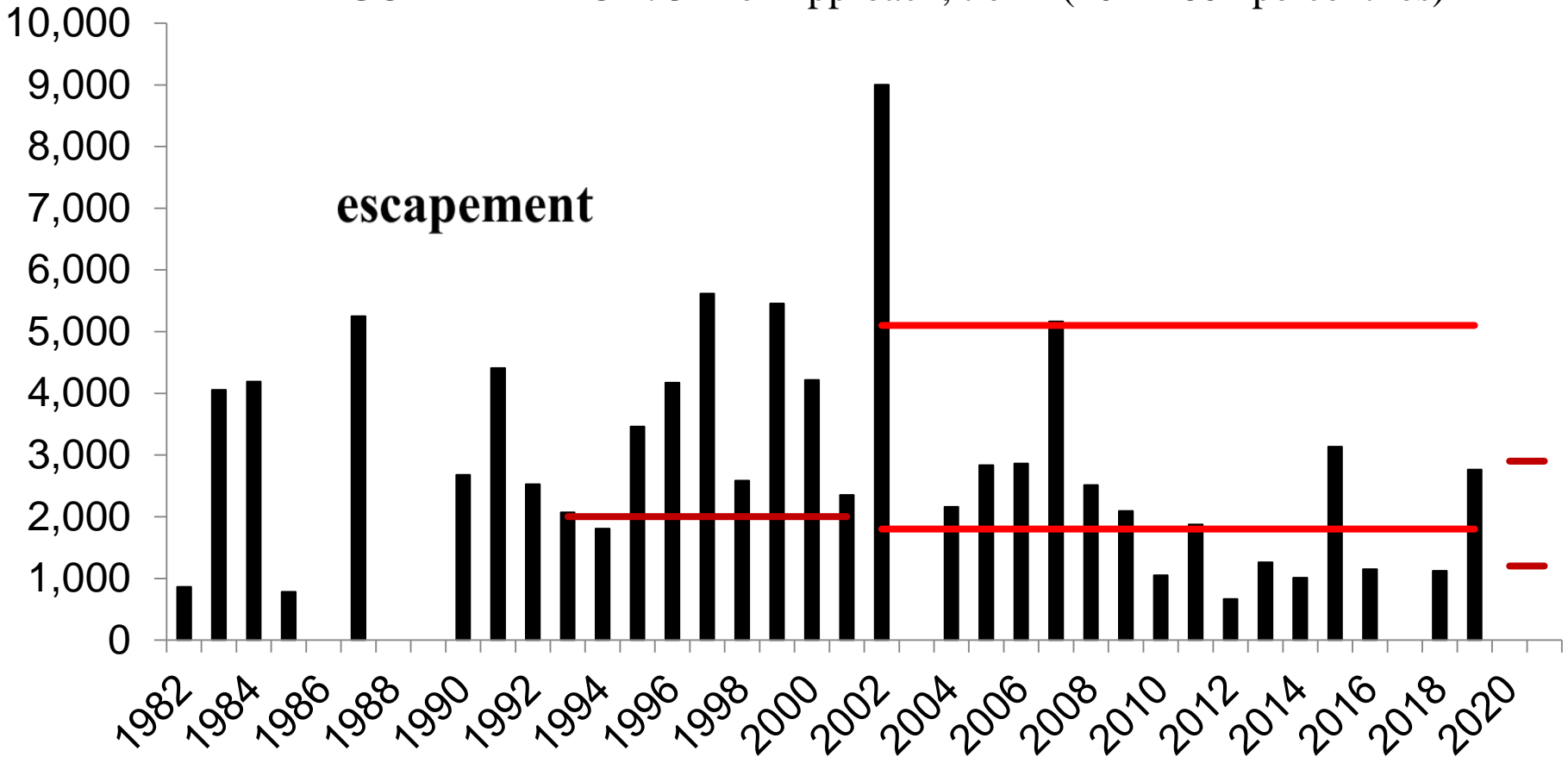
Single aerial survey SEG for Chulitna River king salmon

CURRENT: 1,800 – 5,100

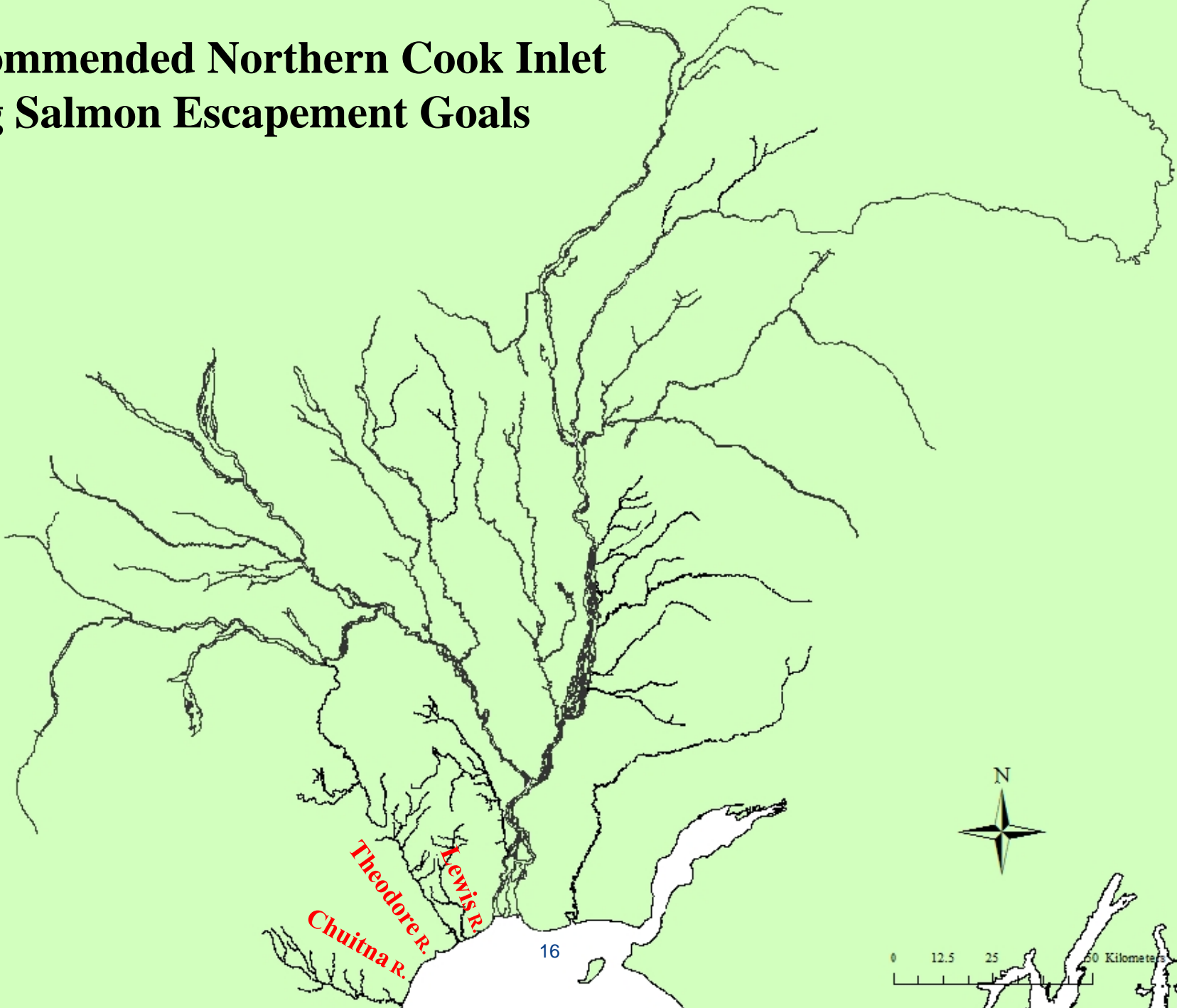
RECOMMENDED: 1,200 – 2,900

DATA: 1982-2018 aerial surveys, harvest rate <.40, contrast 13.5

GOAL METHOD: 3-Tier Approach, tier-1 (20th – 60th percentiles)



Recommended Northern Cook Inlet King Salmon Escapement Goals



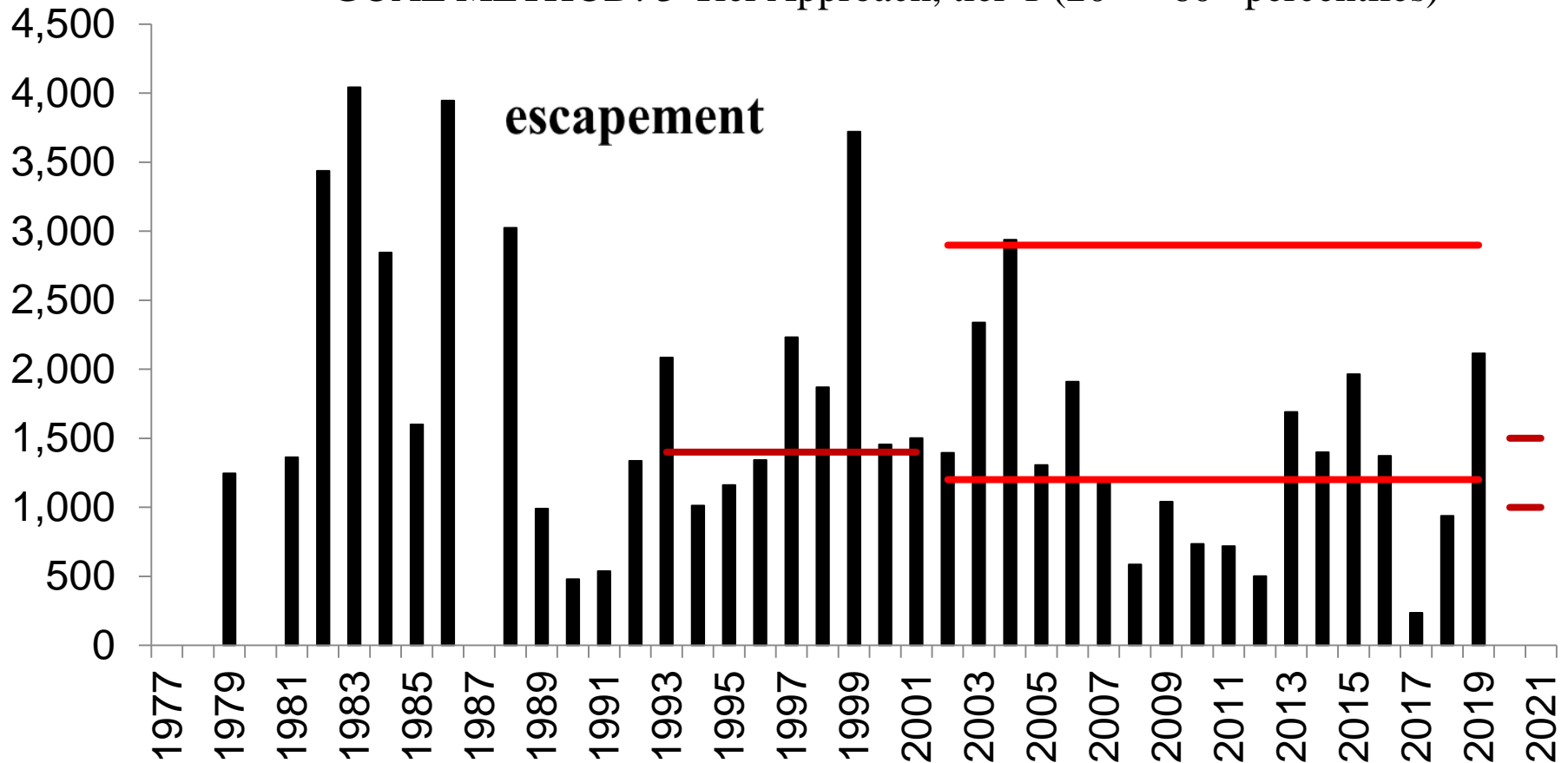
Single aerial survey SEG for Chuitna River king salmon

CURRENT: 1,200 – 2,900

RECOMMENDED: 1,000 – 1,500

DATA: 1979-2015 aerial surveys, harvest rate <.40, contrast 17.2

GOAL METHOD: 3-Tier Approach, tier-1 (20th – 60th percentiles)



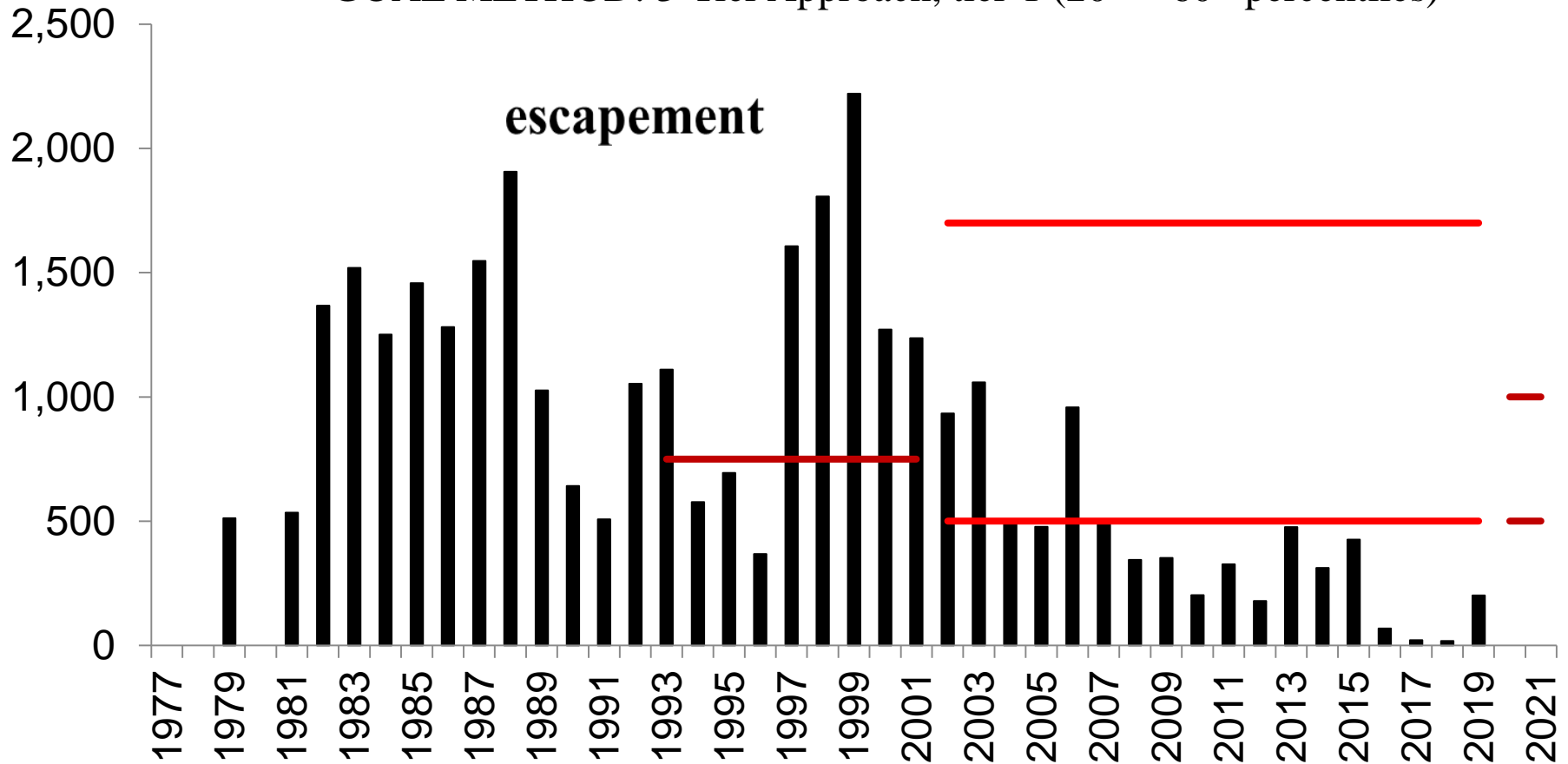
Single aerial survey SEG for Theodore River king salmon

CURRENT: 500 – 1,700

RECOMMENDED: 500 – 1,000

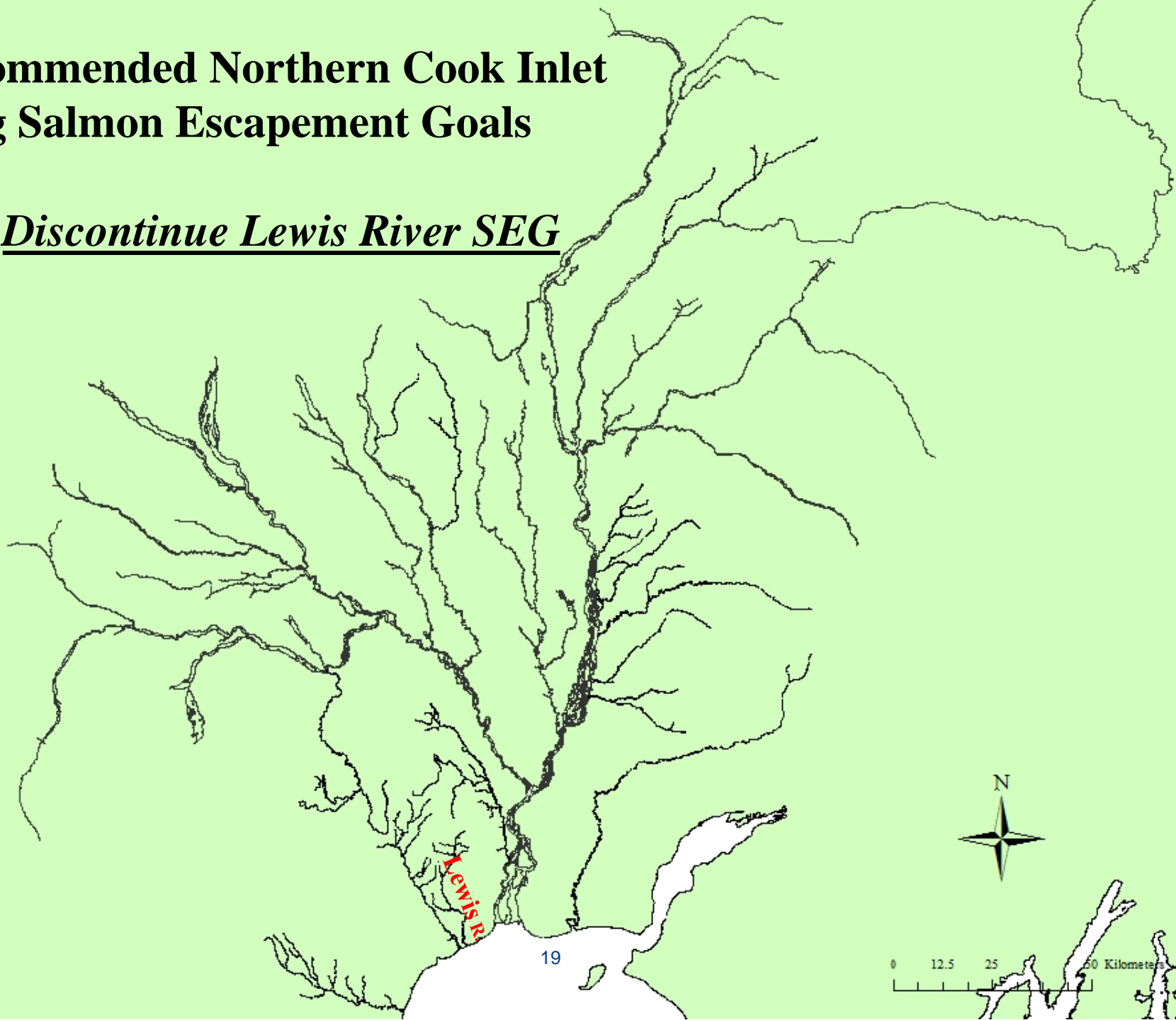
DATA: 1979-2015 aerial surveys, harvest rate $<.40$, contrast 123.3

GOAL METHOD: 3-Tier Approach, tier-1 (20th – 60th percentiles)

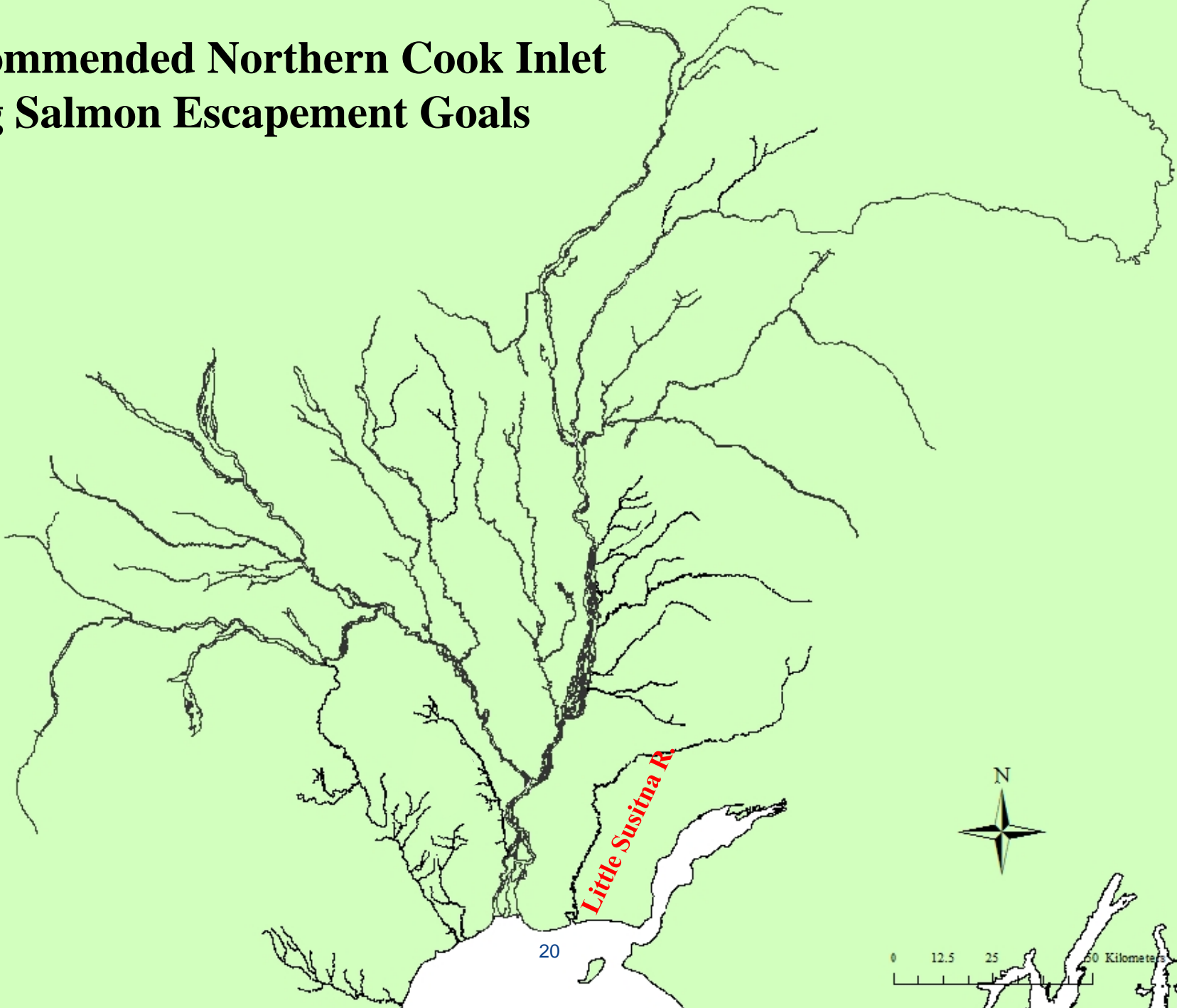


Recommended Northern Cook Inlet King Salmon Escapement Goals

Discontinue Lewis River SEG



Recommended Northern Cook Inlet King Salmon Escapement Goals



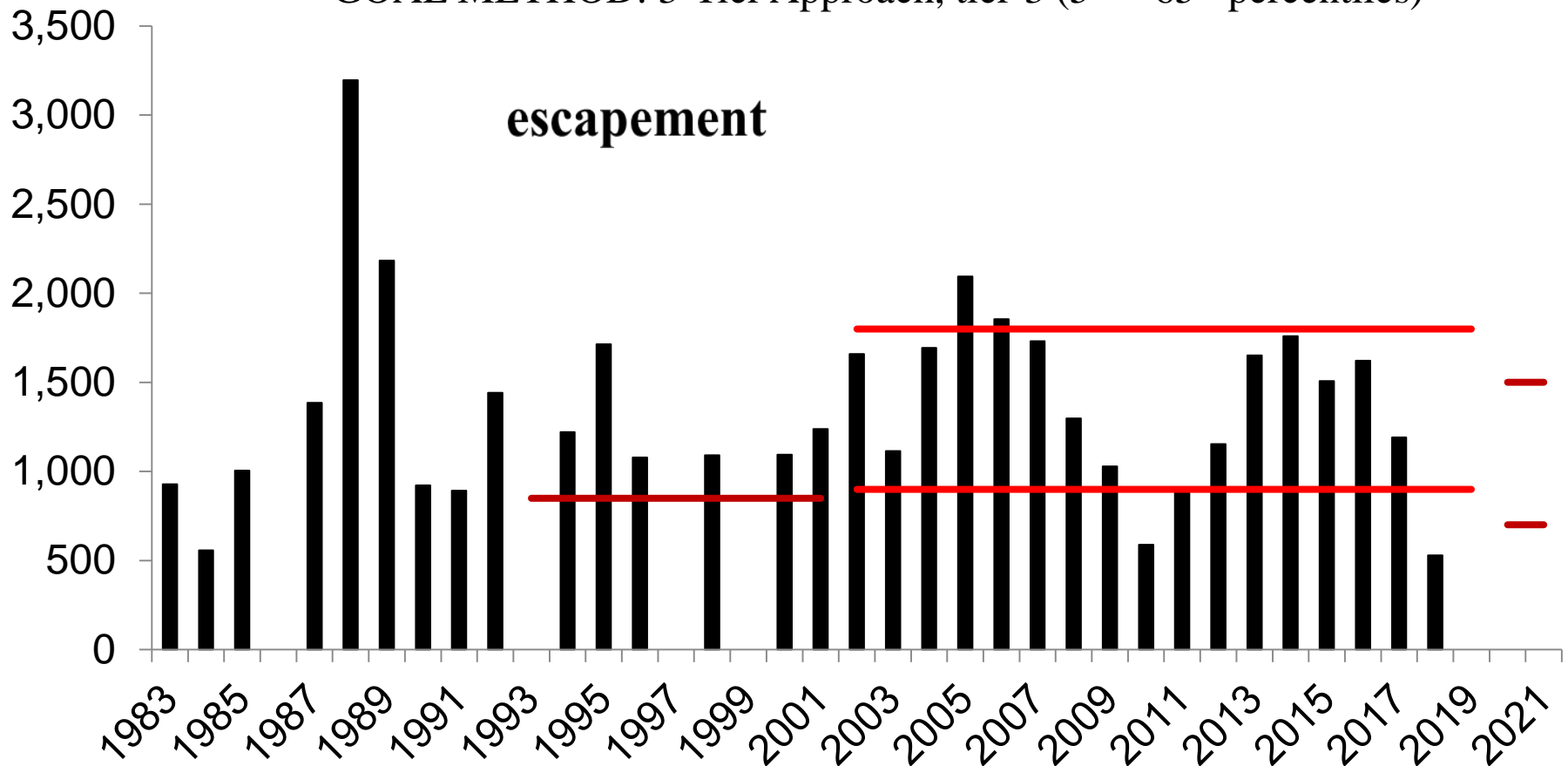
Single aerial survey SEG for Little Susitna River king salmon

CURRENT: 900 – 1,800

RECOMMENDED: 700 – 1,500

DATA: 1983-2017 aerial surveys, harvest rate <.40, contrast 6

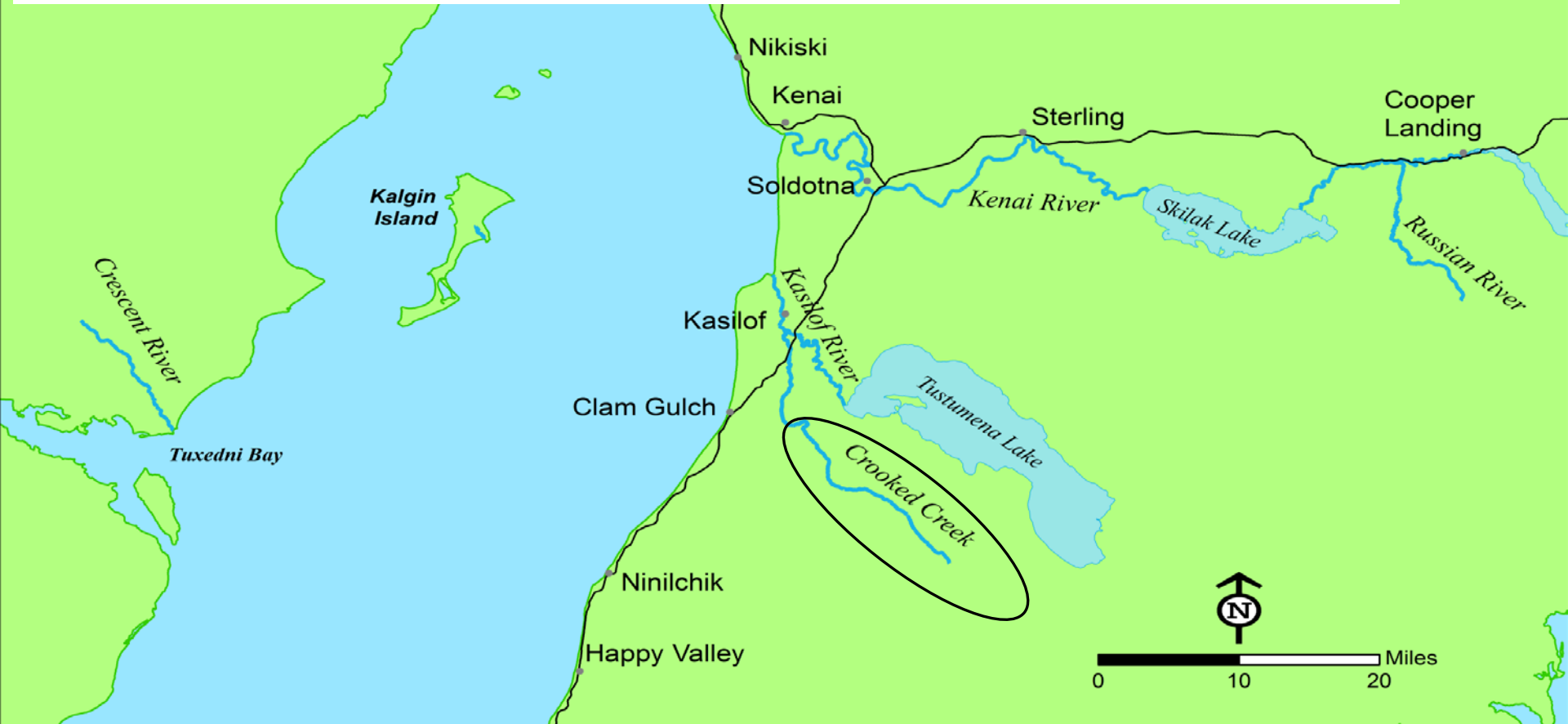
GOAL METHOD: 3-Tier Approach, tier-3 (5th – 65th percentiles)



Crooked Creek king salmon

SEG: 650 – 1,700 naturally-produced ocean age 2 and older (current)

SEG: 700 – 1,400 naturally-produced ocean age 2 and older (recommended)



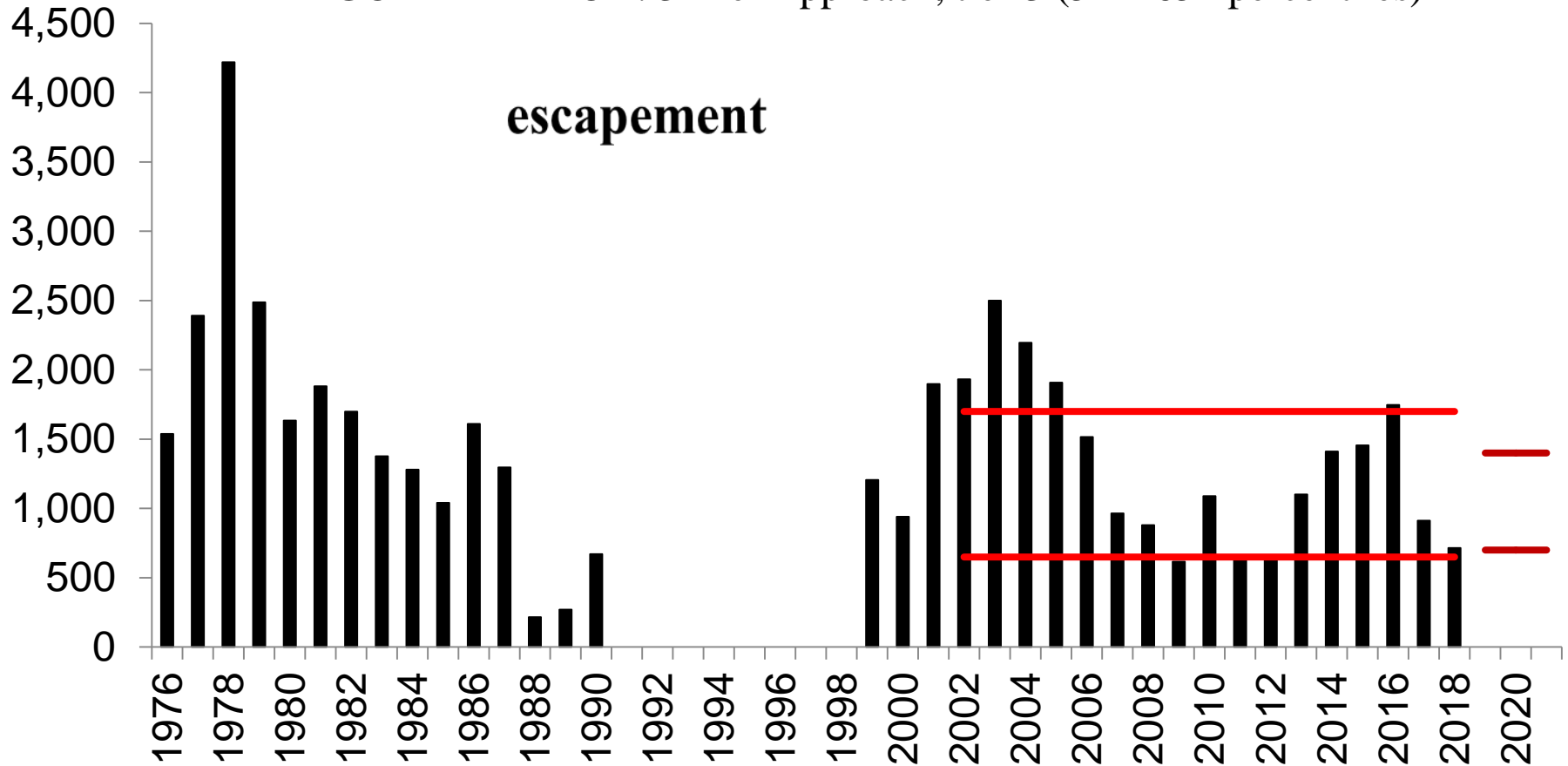
Weir-based SEG for Crooked Creek king salmon

CURRENT: 650 – 1,700

RECOMMENDED: 700 – 1,400

DATA: 2004 - 2018 weir, harvest rate <.40, contrast 3.6

GOAL METHOD: 3-Tier Approach, tier-3 (5th – 65th percentiles)

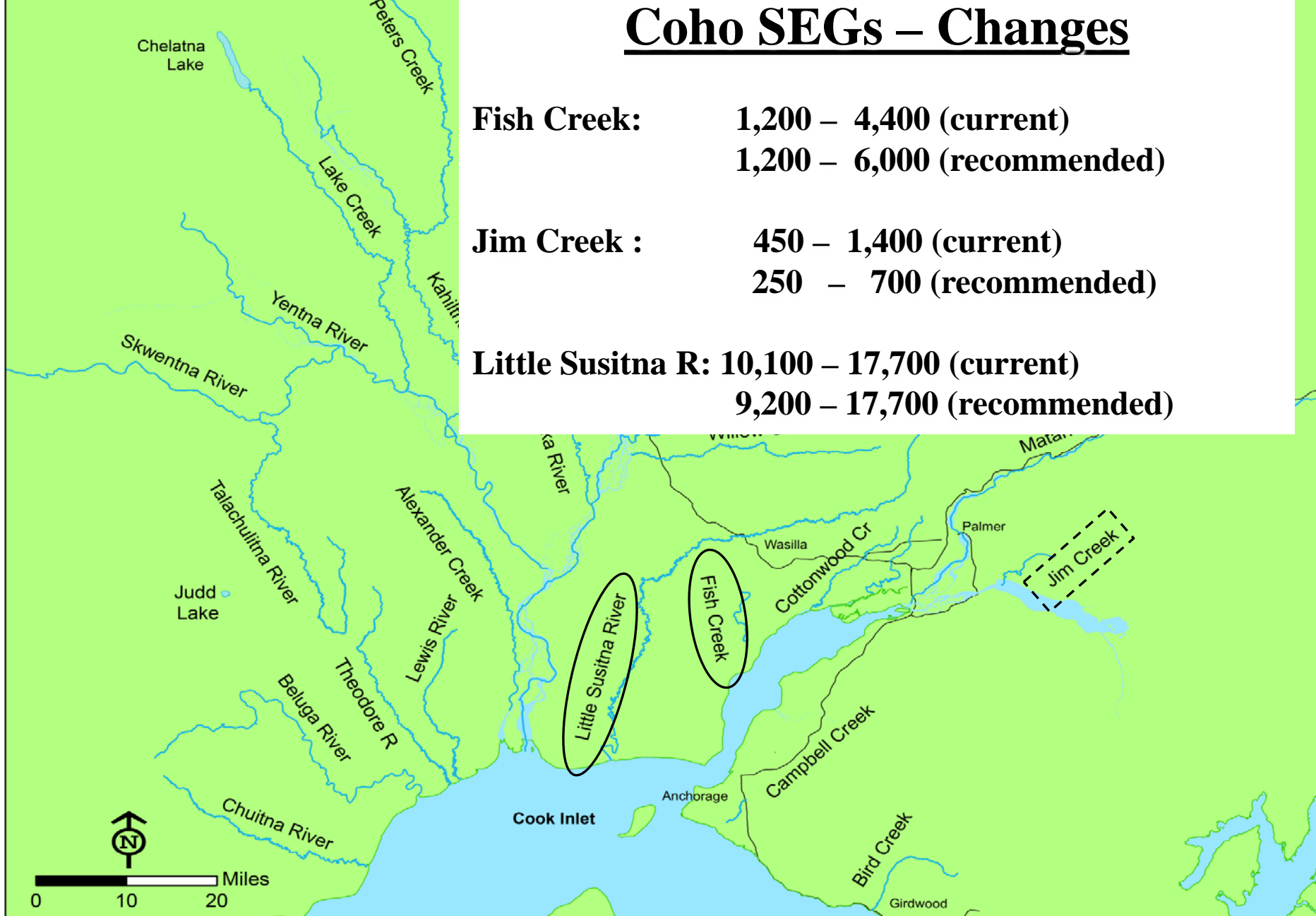


Coho SEGs – Changes

Fish Creek: 1,200 – 4,400 (current)
 1,200 – 6,000 (recommended)

Jim Creek : 450 – 1,400 (current)
 250 – 700 (recommended)

Little Susitna R: 10,100 – 17,700 (current)
 9,200 – 17,700 (recommended)



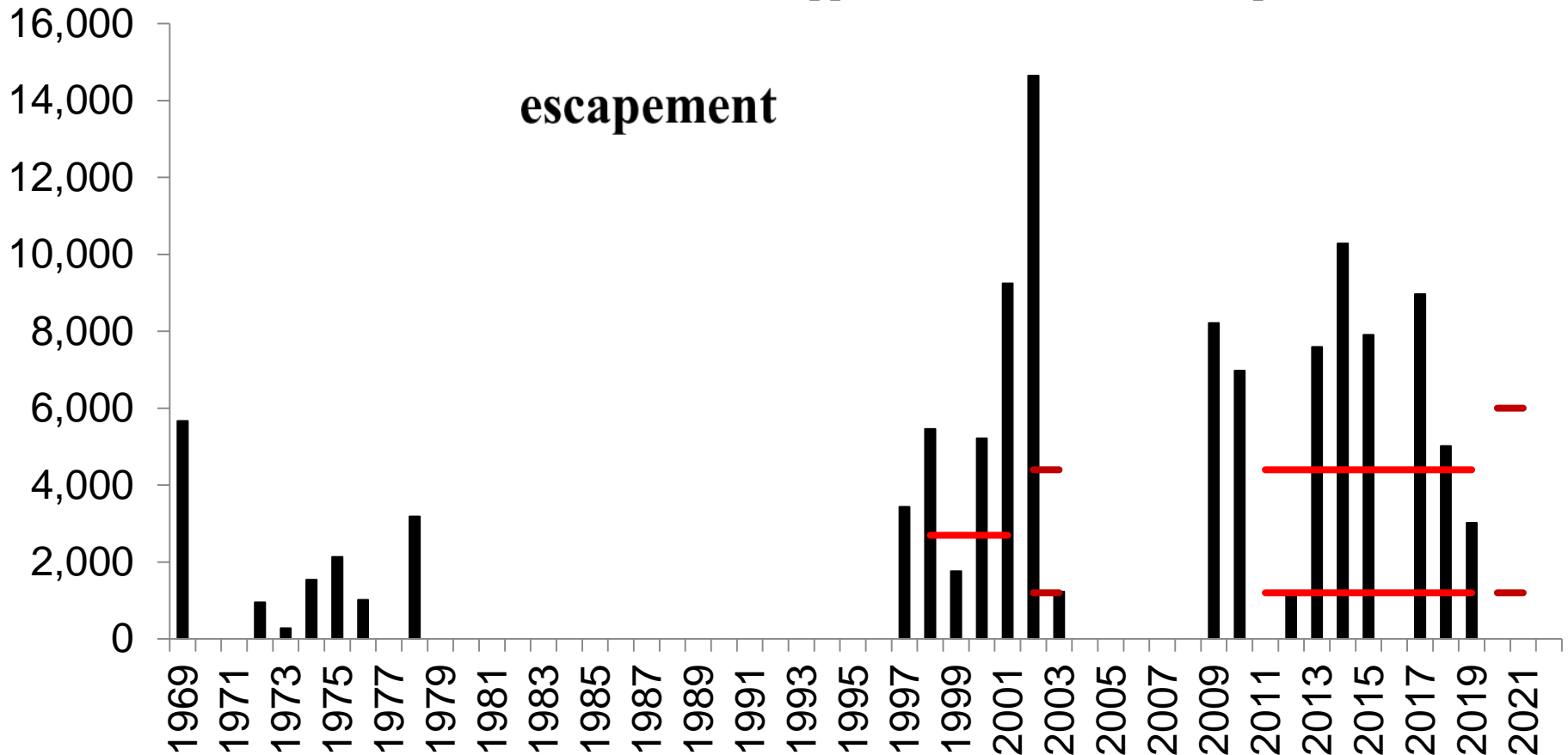
Weir-based SEG for Fish Creek coho salmon

CURRENT: 1,200 – 4,400

RECOMMENDED: 1,200 – 6,000

DATA: mix of years between 1969-2018 weir, harvest rate <.40, contrast 52.3

GOAL METHOD: 3-Tier Approach, tier-2 (15th – 65th percentiles)



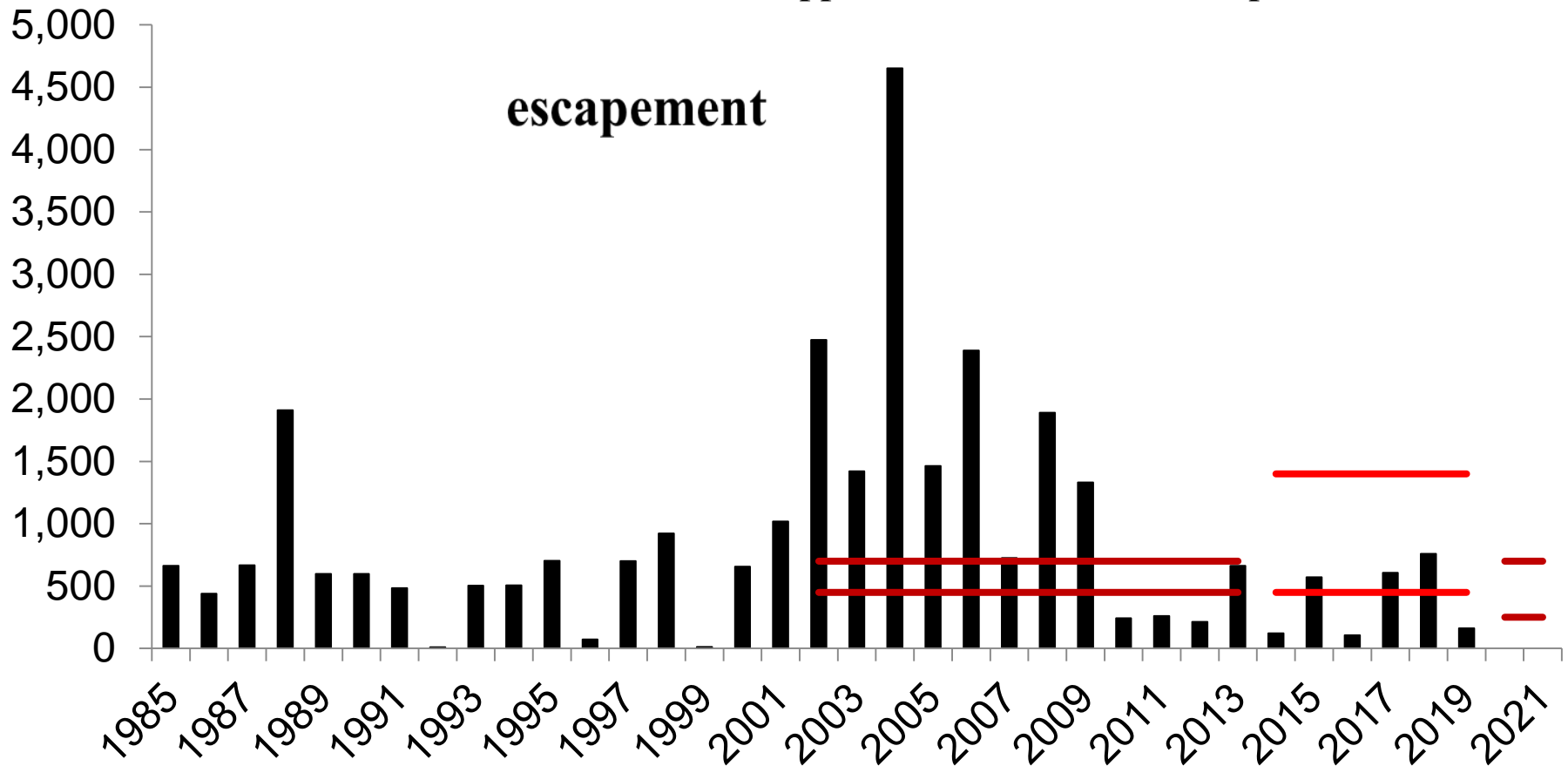
Foot survey SEG for Jim Creek coho salmon

CURRENT: 450 – 1,400

RECOMMENDED: 250 – 700

DATA: 1985–2018 foot survey, harvest rate <.40, contrast 422.9

GOAL METHOD: 3-Tier Approach, tier-1 (20th – 60th percentiles)



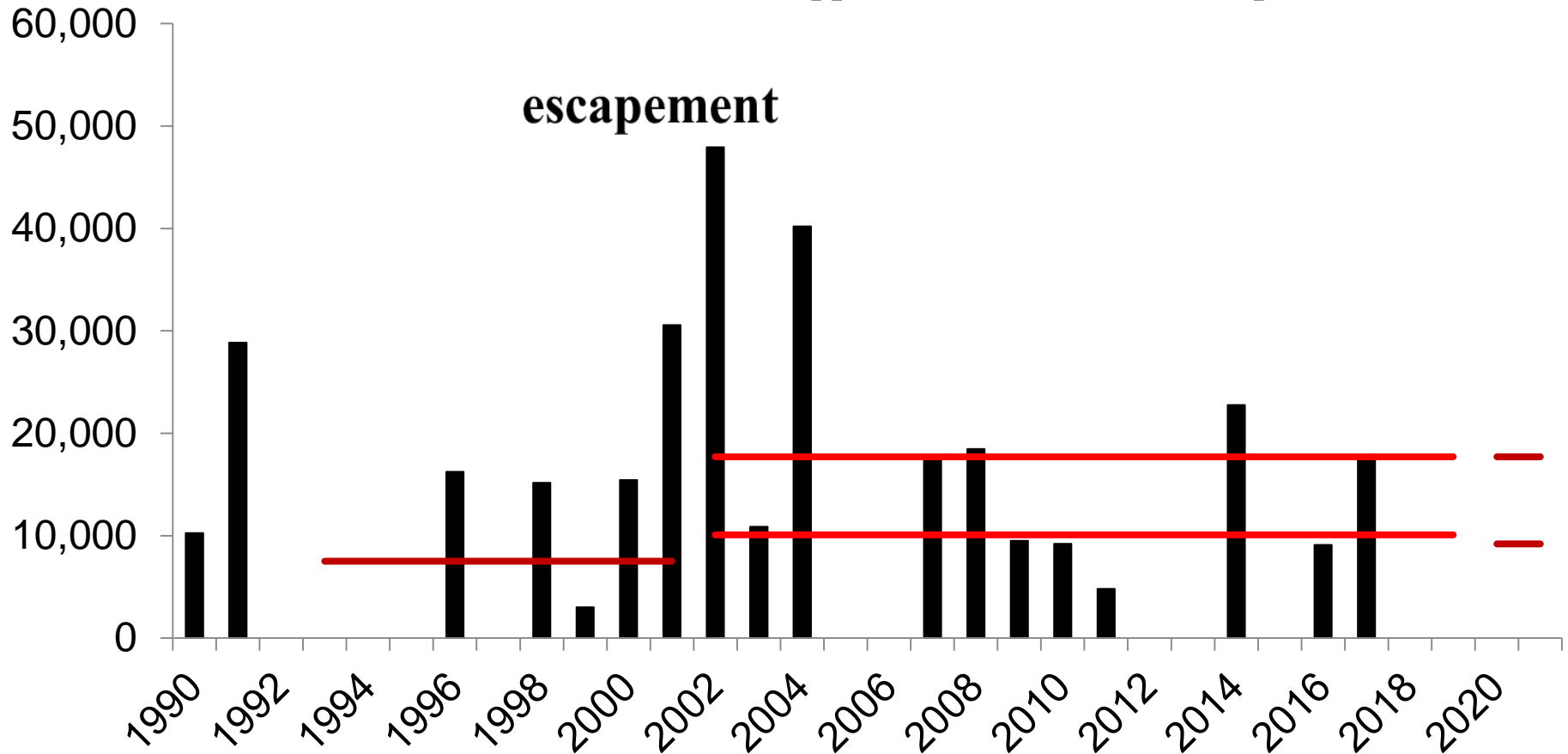
Weir-based SEG for Little Susitna River coho salmon

CURRENT: 10,100 – 17,700

RECOMMENDED: 9,200 – 17,700

DATA: most years between 1990-2017 (weir and SWHS), harvest rate <.40, contrast 15.9

GOAL METHOD: 3-Tier Approach, tier-2 (15th – 65th percentiles)



Review Summary

No changes to 12 Goals

- * Clearwater Creek chum
- * Deshka River coho
- * Chelatna Lake sockeye
- * Fish Creek sockeye
- * Judd Lake sockeye
- * Larson Lake sockeye
- * Packers Creek sockeye
- * Russian River early-run sockeye
- * Little Susitna River (weir) king
- * Kenai River Early-run king
- * Kenai River Late-run king
- * Campbell Creek king

Change range of 13 goals

- * Fish Creek coho
- * Little Susitna River coho
- * Jim Creek coho
- * Kasilof River sockeye
- * Kenai River sockeye
- * Russian River late-run sockeye
- * Alexander Creek king
- * Chuitna River king
- * Crooked Creek king
- * Deshka River king
- * Little Susitna River (aerial) king
- * Little Willow Creek king
- * Theodore River king

Review Summary

Create 3 new goals

- Eastside Susitna king
- Talkeetna River king
- Yentna River king

Discontinue 11 goals

- Clear Creek king
- Goose Creek king
- Lewis River king
- Lake Creek king
- Little Willow Creek king
- Montana Creek king
- Peters Creek king
- Prairie Creek king
- Sheep Creek king
- Talachulitna River king
- Willow Creek king

Questions?

