

# **Oral Report to the Alaska Board of Fisheries**

## **Review of Salmon Escapement Goals in the Prince William Sound Management Area, 2017**



**By**

**Stormy Haught,  
CF**

**James Savereide  
SF**

**RC 3**

**Oral Report:  
Tab 4**

**Written Report:  
Tab 1**





## **Presentation Objectives**

- Introduce escapement goal policies
- Explain review process
- Review existing escapement goals
- Describe general methods
- Highlight the key points



# **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:**

- 1) Biological Escapement Goal (BEG):
  - a) Escapement that provides the greatest potential for maximum sustained yield – expressed as a range based on productivity and data uncertainty
- 2) Sustainable Escapement Goal (SEG):
  - b) Escapement that is known to provide for sustained yield over a 5 to 10 year period – accounts for data uncertainty
- 3) BEGs = ranges; SEGs = range or lower bound



## **Approach and Process for Review Team**

- Three-year interval, review available information for stocks
- Determine appropriate goal type, methods, and analysis
- Perform analysis, assess goal range, review by team
- Develop report for directors of divisions of Commercial Fisheries and Sport Fish
- Report presented to BOF; Post-meeting memo signed by directors



# **Existing PWSMA Salmon Escapement Goals**

## **Chinook Salmon: 1 stock**

Copper River

## **Chum Salmon: 5 stocks**

Coghill, Eastern, Northern, Northwestern, Southeastern districts

## **Coho Salmon: 2 stocks**

Bering River, Copper River Delta

**Pink Salmon: 16 stocks** (even- and odd-year brood lines) Coghill, Eastern, Eshamy, Montague, Northern/Unakwik, Northwestern, Southeastern, Southwestern

## **Sockeye Salmon: 5 stocks**

Upper Copper River, Copper River Delta, Bering River, and Coghill Lake, and Eshamy Lake



# Chinook Salmon – Copper River

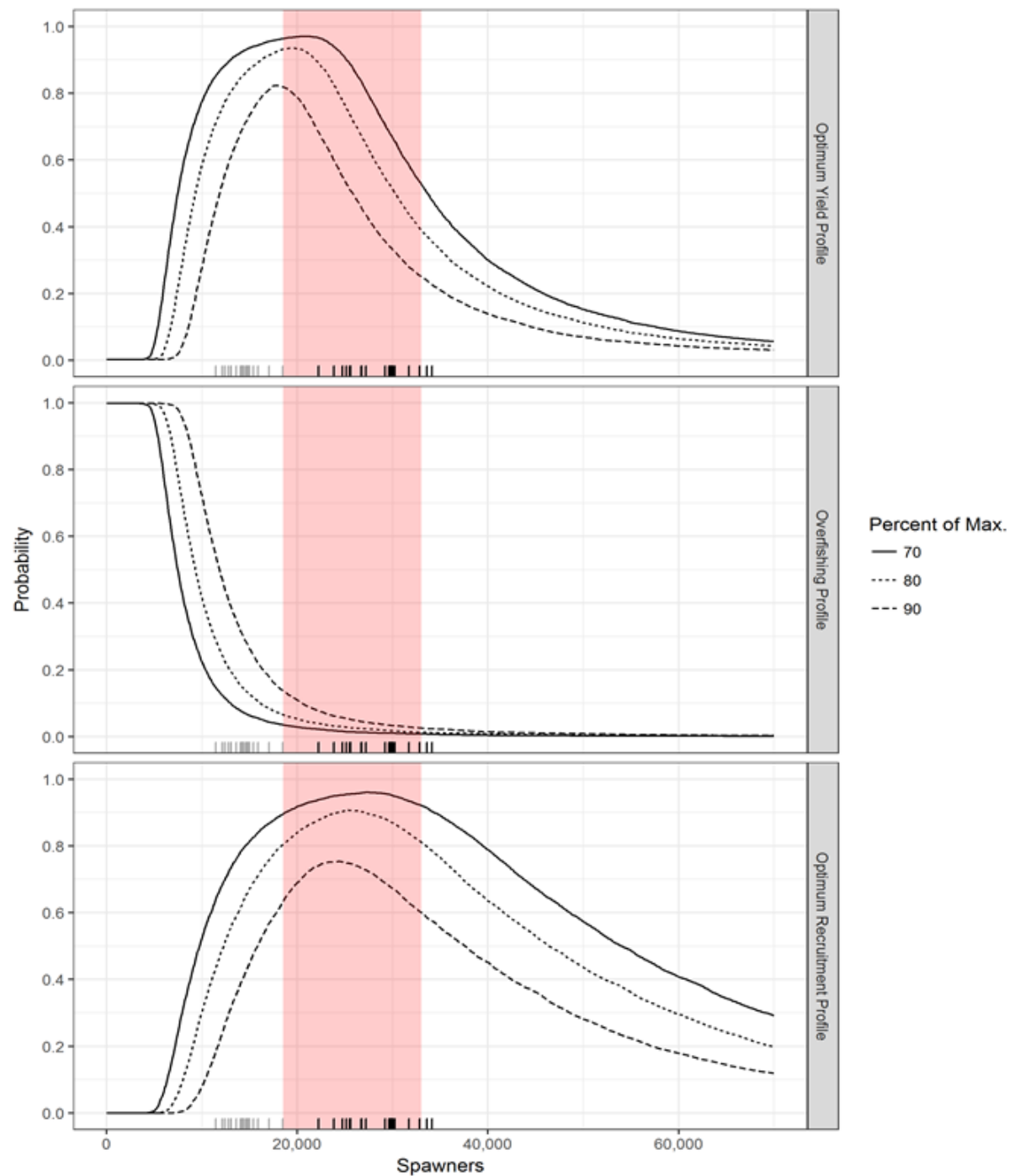
- Current LB SEG: 24,000
- Recommended SEG: 18,500 - 33,000





## Chinook Salmon – Copper River

- Current LB SEG: 24,000
- Recommended SEG: 18,500 - 33,000







## Chinook Salmon – Gulkana River

- No EG established
- No EG recommended





## Chum Salmon

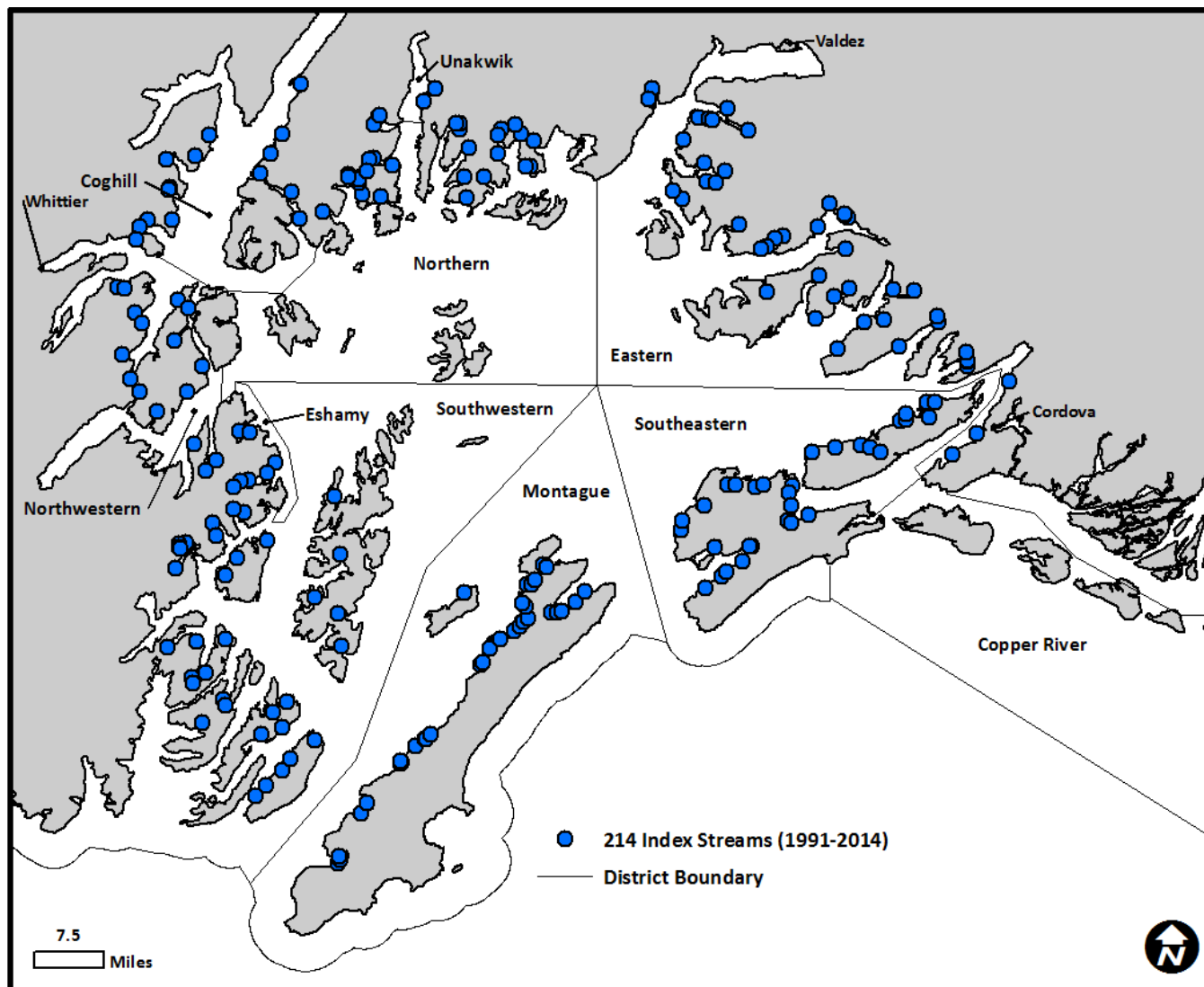
### Recommend changing SEGs for all districts:

- Change in assessment methodology: Reduced set of aerial index streams
- Include only streams with 3 or more surveys per year
- Review of annual harvest rate



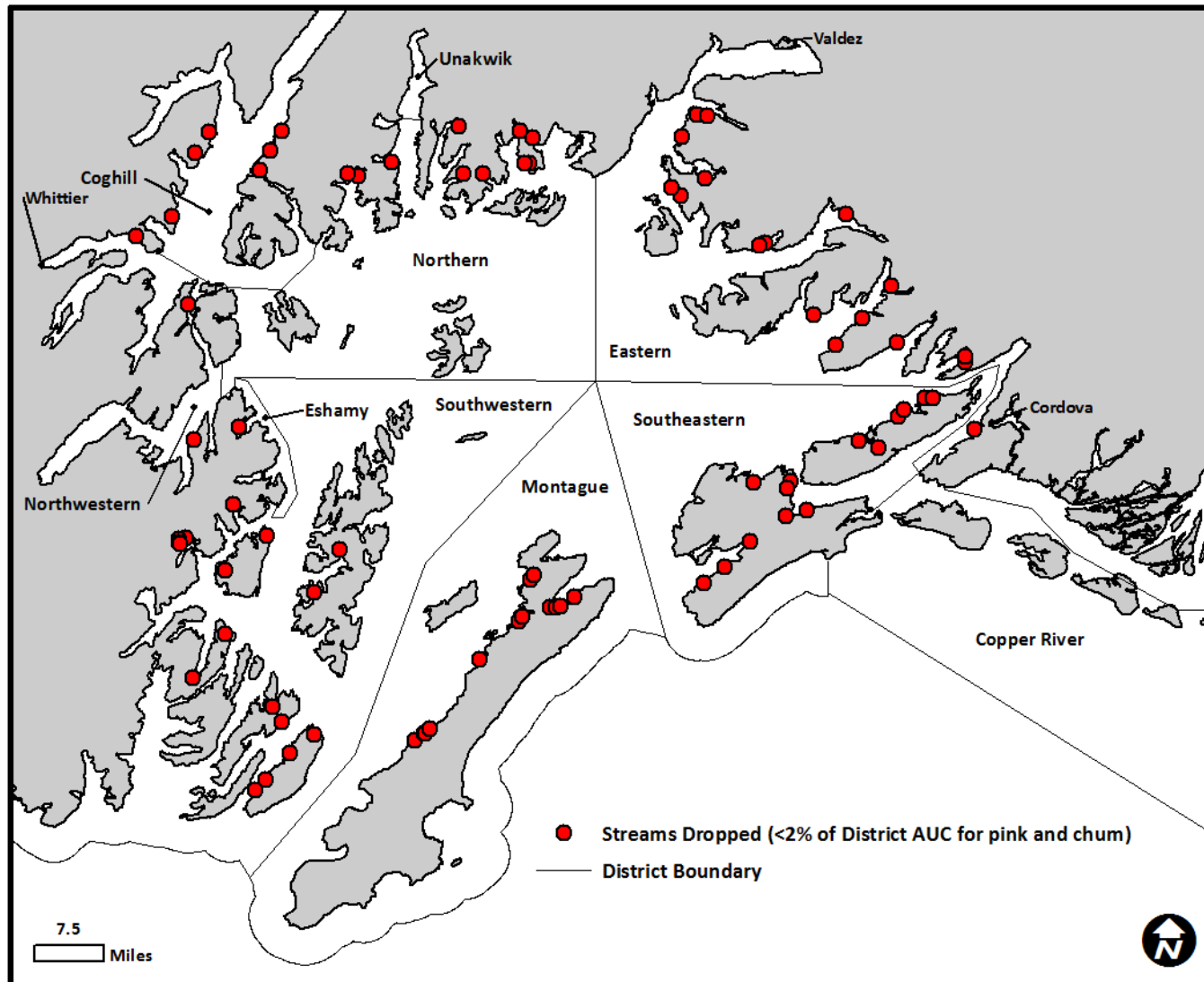
# Chum Salmon

- Number of aerial survey index streams reduced due to budget shortfalls



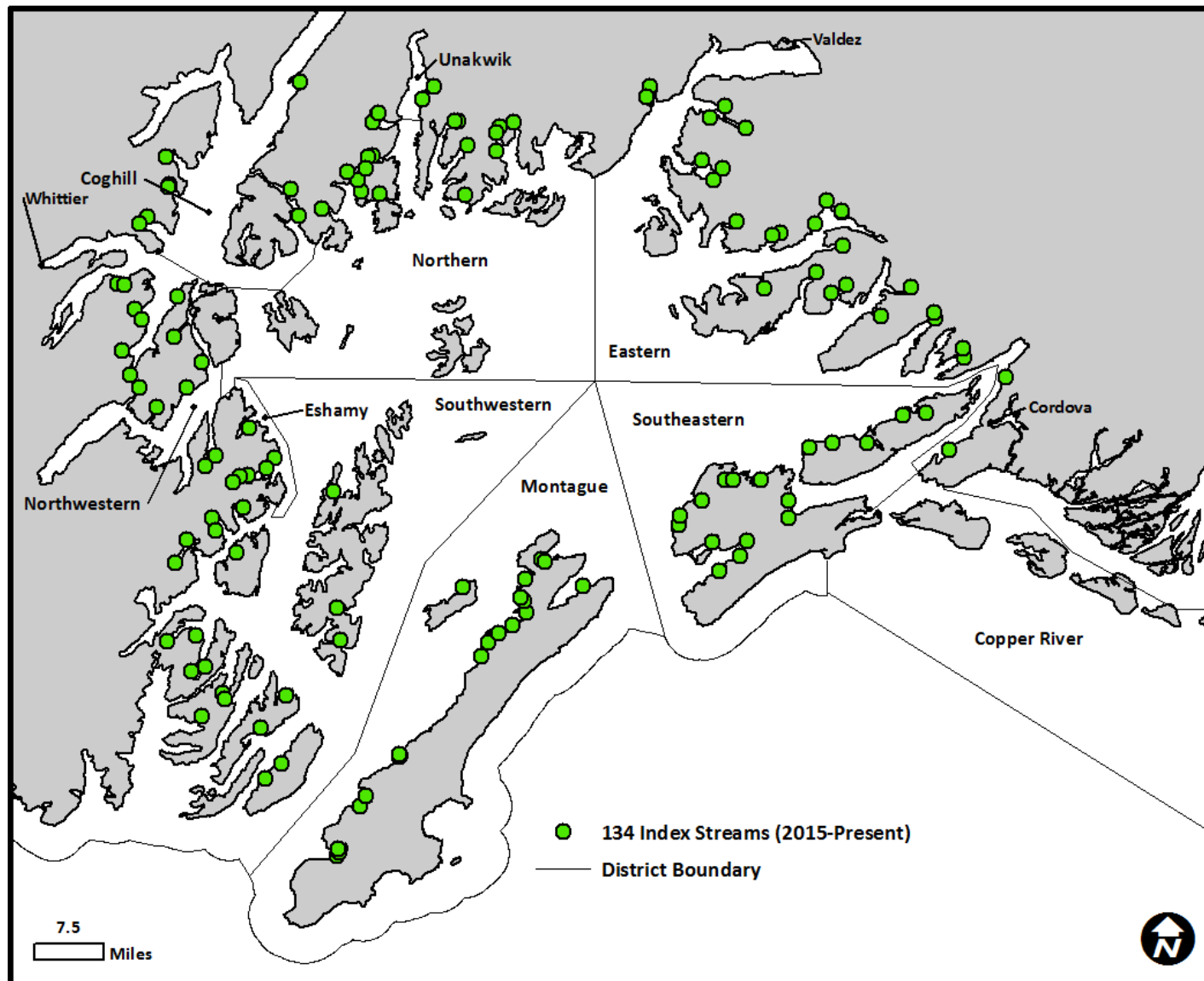
## Chum Salmon

- Index streams removed using 2% rule: Streams with less than 2% of district escapement for **both** chum and pink salmon were dropped
- 80 streams eliminated from aerial survey program



## Chum Salmon

- 134 index streams flown 2015-present

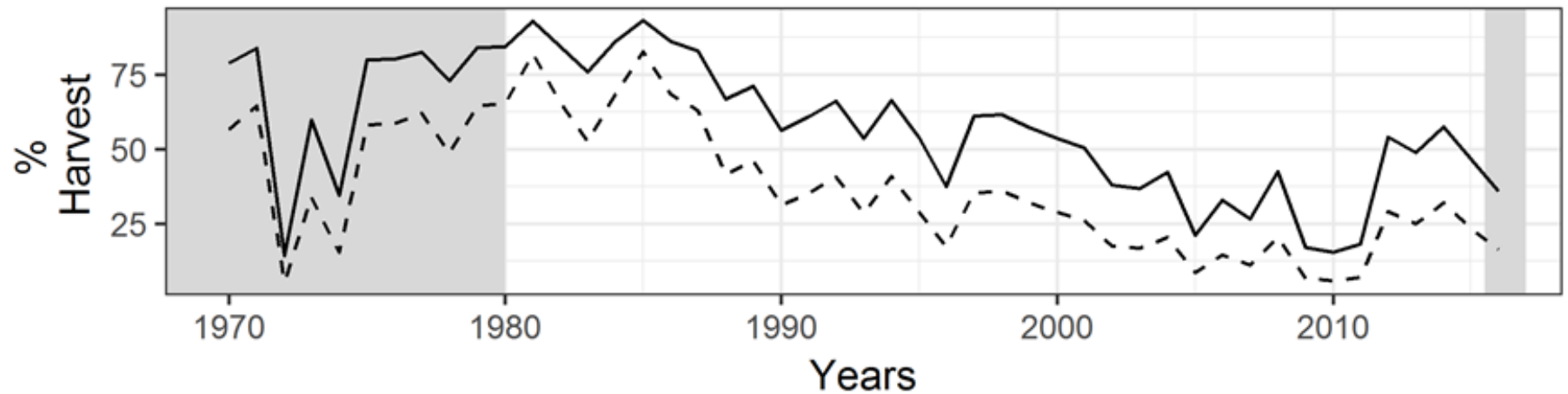






## Chum Salmon

- Low estimate of harvest rate= ~36%





## Chum Salmon

- Tier-1: 20<sup>th</sup> and 60<sup>th</sup> percentiles (high contrast, high measurement error)

### Eastern District

Current LB SEG: > 50,000

Recommended: > **79,000**

### Northern District

Current LB SEG: > 20,000

Recommended: > **28,000**

### Coghill District

Current LB SEG: > 8,000

Recommended: > **10,000**

### Northwestern District

Current LB SEG: > 5,000

Recommended: > **7,000**

### Southeastern District

Current LB SEG: > 8,000

Recommended: > **11,000**

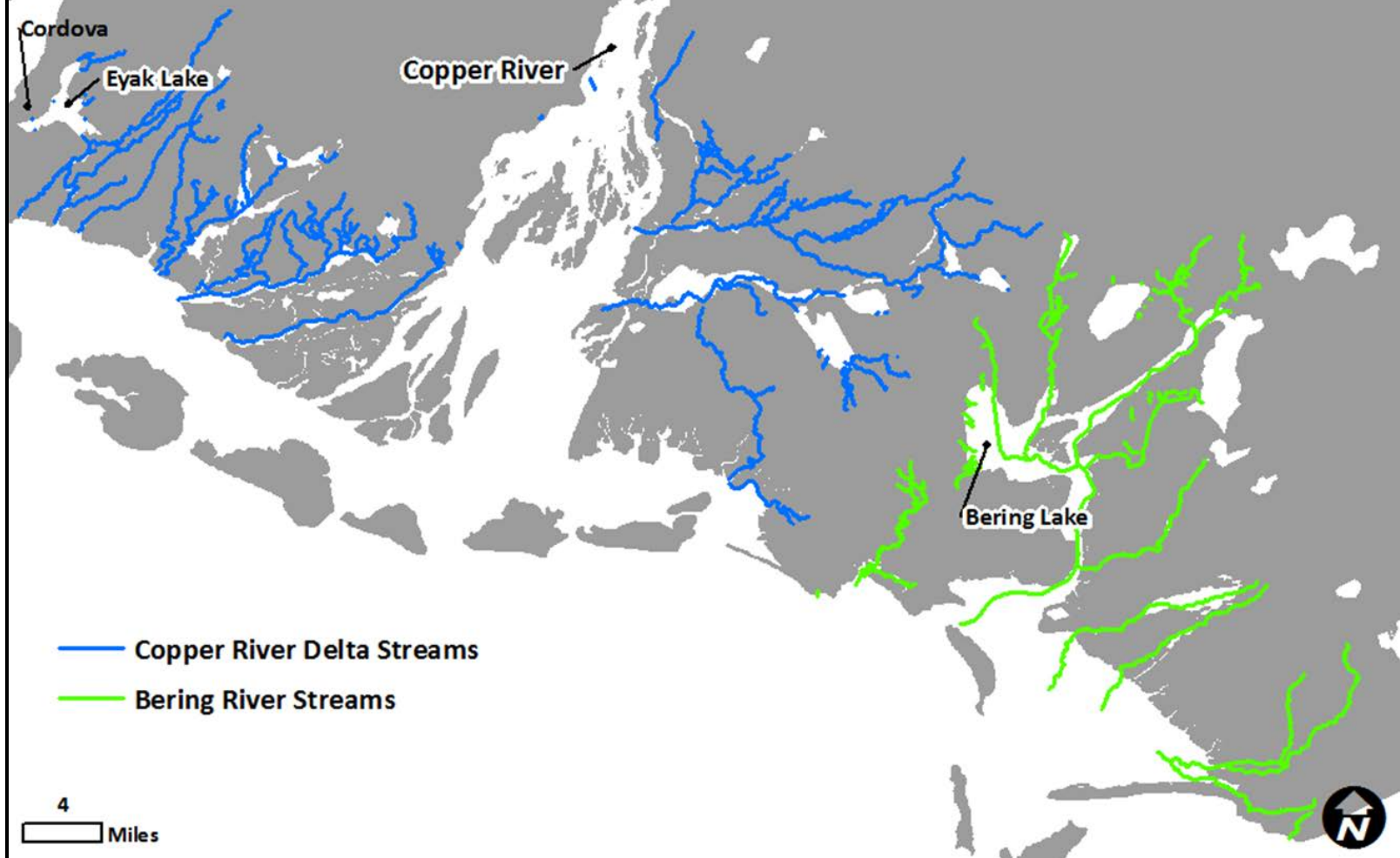
Coho salmon – No change

Copper River Delta

SEG: 32,000 – 67,000

Bering River District

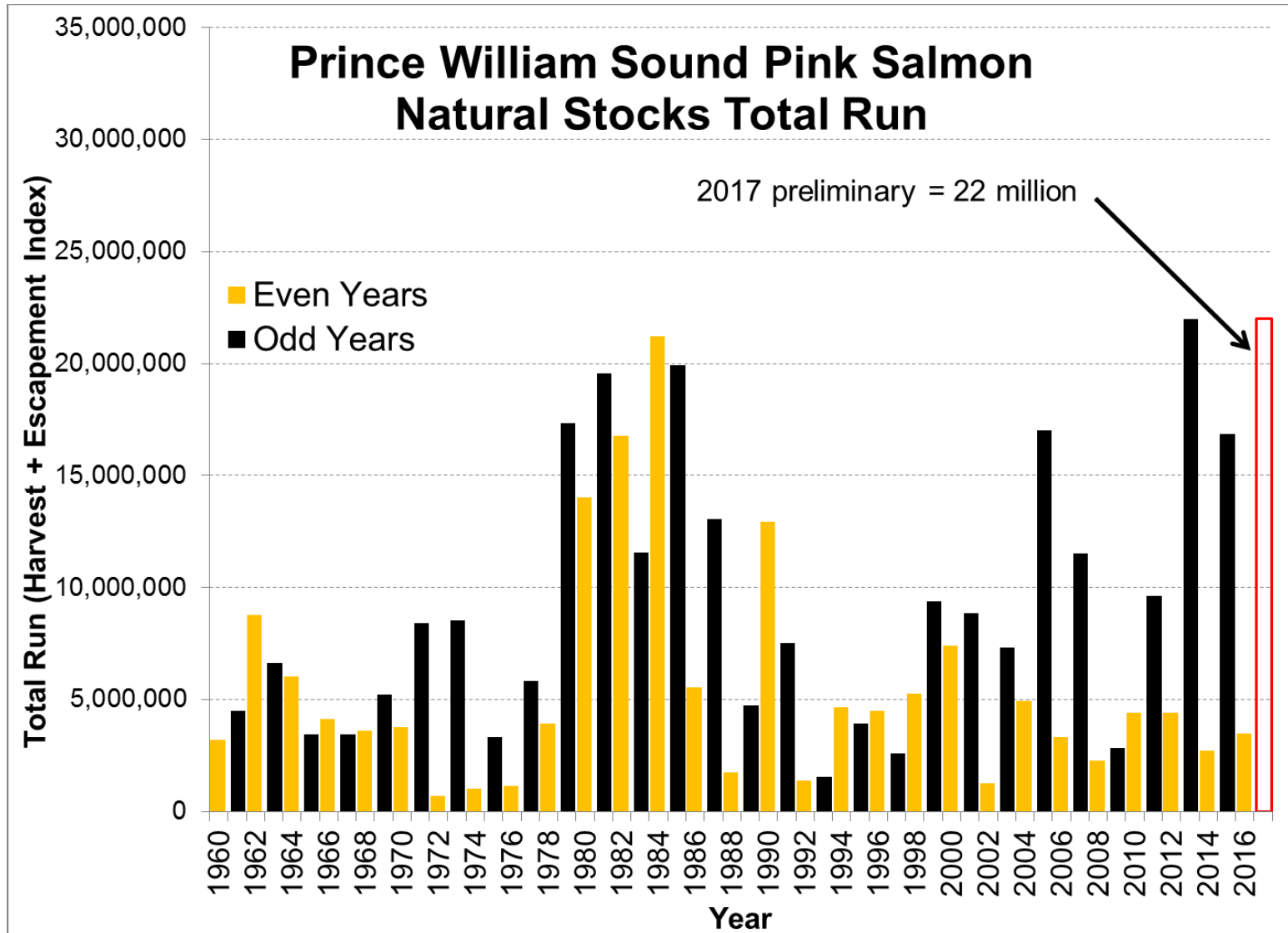
SEG: 13,000 – 33,000



## Pink Salmon

Recommend changing SEGs for all districts **both** even- and odd-year broodlines

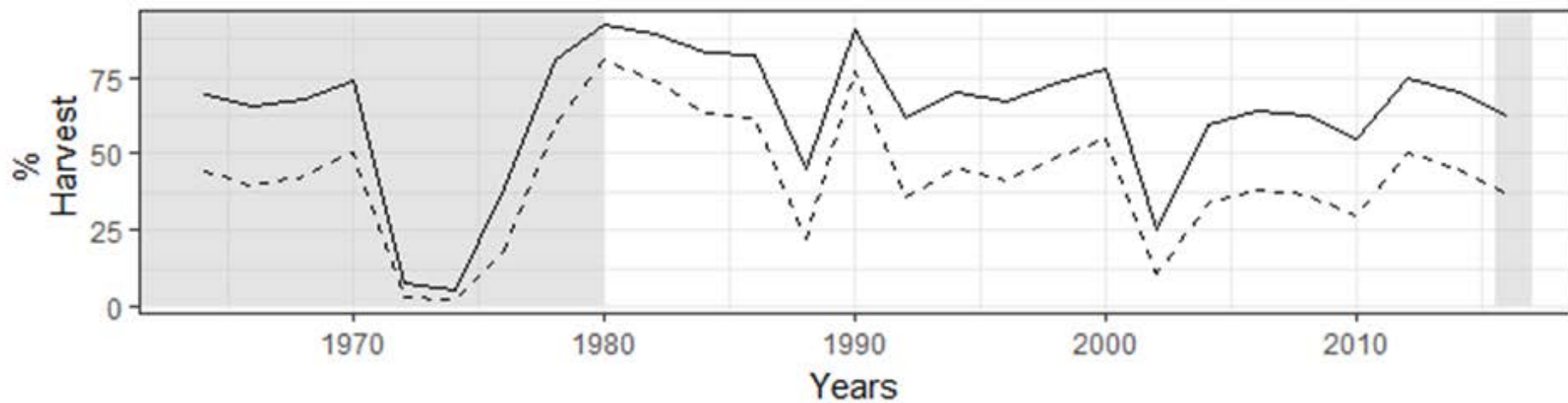
- Change in assessment methodology: 214 to 134 index streams
- Large recent odd-year broodline returns





## Pink salmon: even-year broodline

- Low estimate of harvest rate = ~39%(1996–2014).







## Pink salmon: even-year broodline

- Tier-1: 20<sup>th</sup> and 60<sup>th</sup> percentiles (high contrast, high measurement error)

### Eastern District

Current SEG: 250,000 – 580,000

Recommended: **203,000 – 328,000**

### Northern/Unakwik districts

Current SEG: 140,000 – 210,000

Recommended: **96,000 – 127,000**

### Coghill District

Current SEG: 60,000 – 150,000

Recommended: **37,000 – 110,000**

### Northwestern District

Current SEG: 70,000 – 140,000

Recommended: **52,000 – 93,000**

### Eshamy District

Current SEG: 3,000 – 11,000

Recommended: **1,000 – 4,000**

### Southwestern District

Current SEG: 70,000 – 160,000

Recommended: **62,000 – 105,000**

### Montague District

Current SEG: 50,000 – 140,000

Recommended: **36,000 – 72,000**

### Southeastern District

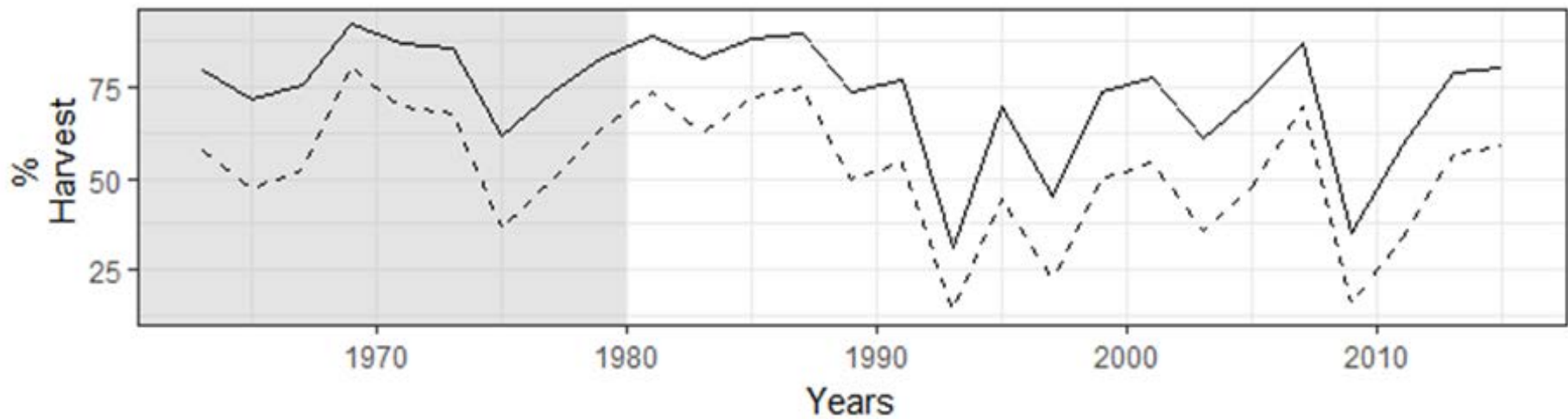
Current SEG: 150,000 – 310,000

Recommended: **88,000 – 153,000**



## Pink salmon: odd-year broodline

- High contrast, high measurement error,
- Low estimate of harvest rate = ~44%(1997-2015).





## Pink salmon: odd-year broodline

- 25<sup>th</sup> and 75<sup>th</sup> percentiles (suggested in Clark et al. 2014)

### Eastern District

Current SEG: 310,000 – 640,000  
Recommended: **346,000 – 863,000**

### Northern/Unakwik districts

Current SEG: 90,000 – 180,000  
Recommended: **111,000 – 208,000**

### Coghill District

Current SEG: 60,000 – 250,000  
Recommended: **54,000 – 233,000**

### Northwestern District

Current SEG: 50,000 – 110,000  
Recommended: **64,000 – 144,000**

### Eshamy District

Current SEG: 4,000 – 11,000  
Recommended: **5,000 – 31,000**

### Southwestern District

Current SEG: 70,000 – 190,000  
Recommended: **112,000 – 231,000**

### Montague District

Current SEG: 140,000 – 280,000  
Recommended: **143,000 – 330,000**

### Southeastern District

Current SEG: 270,000 – 620,000  
Recommended: **286,000 – 515,000**



## Sockeye salmon – No change

### Upper Copper River

SEG: 360,000 – 750,000

### Copper River Delta

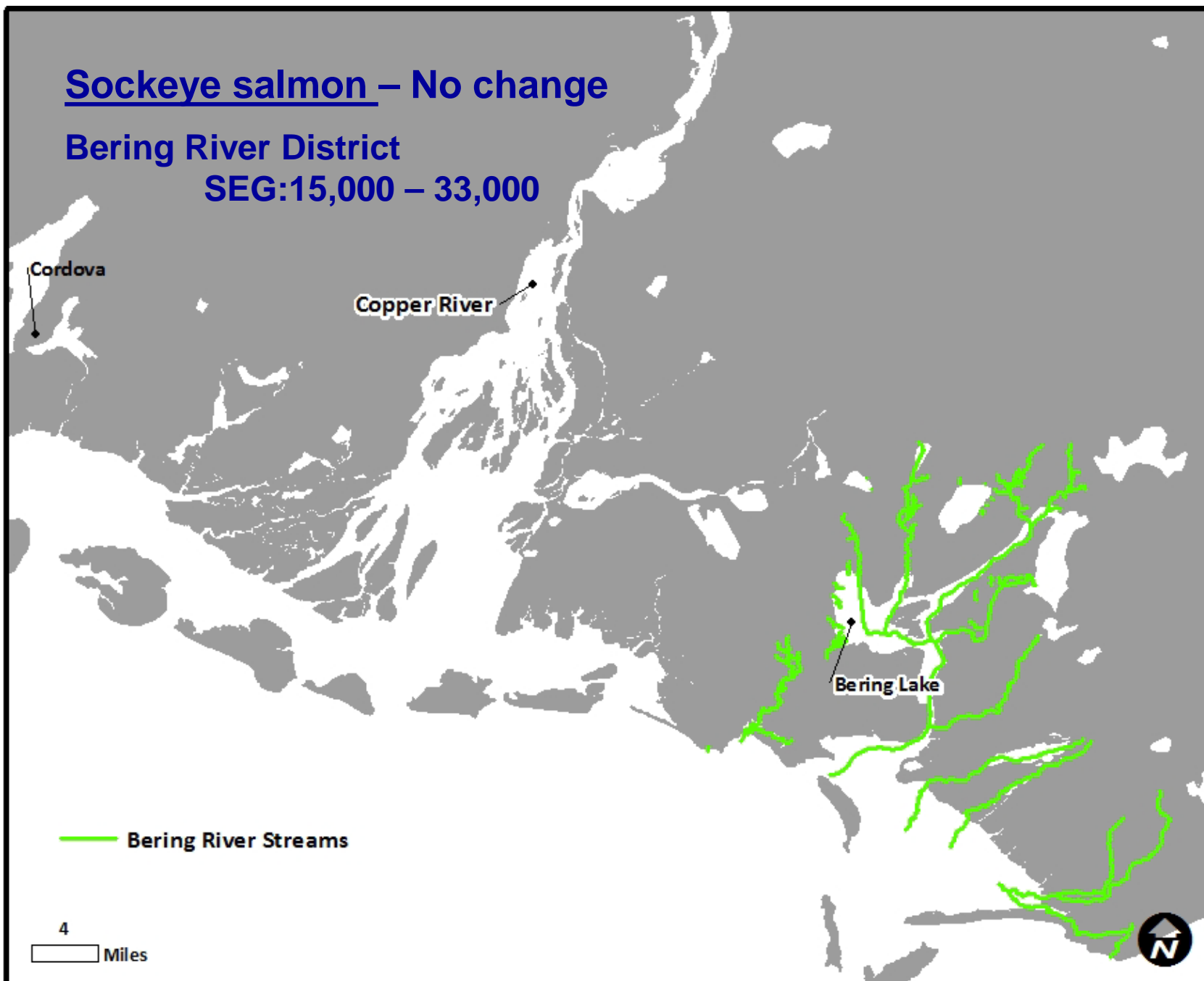
SEG: 55,000 – 130,000



## Sockeye salmon – No change

Bering River District

SEG:15,000 – 33,000







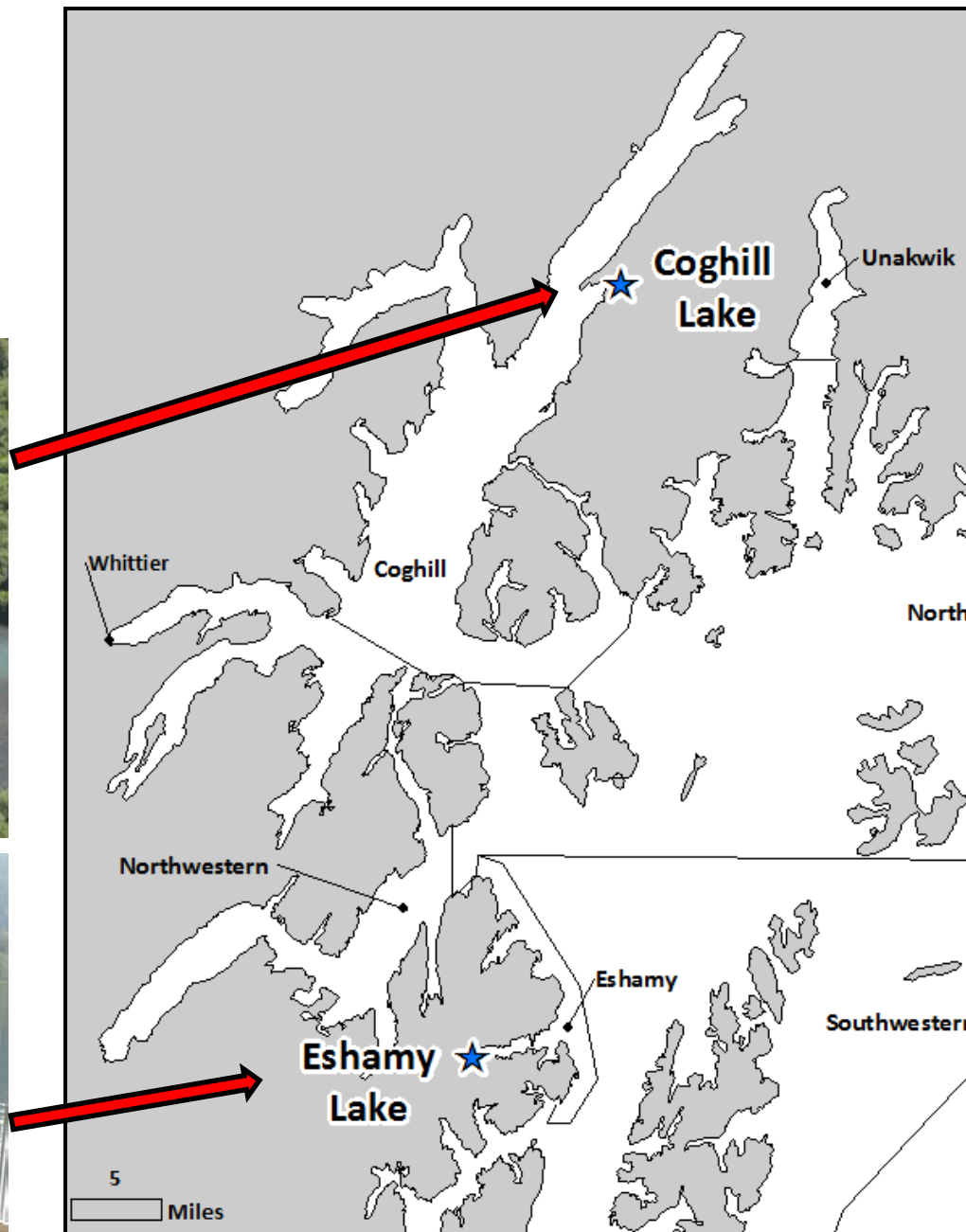
## Sockeye salmon – No change

Coghill Lake

SEG: 20,000 – 60,000

Eshamy Lake

BEG: 13,000 – 28,000





# Questions?

