

McNeil River Chum Salmon Stock Status and Action Plan, 2016

**RC-3, Tab 2:
McNeil Action Plan**

**RC-3, Tab 5:
McNeil Chum Oral Report**

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Photo: Ted Otis

Outline

- Key terms
- Stock of Concern (SOC) Designation Process
- Study Area: McNeil River State Game Sanctuary
- Status of McNeil River chum salmon
- Factors contributing to current status
- Fishery Management Plans (FMPs)
- McNeil River Action Plan
 - Goal
 - Management options



Definition of Key Terms

- Stock of Concern: Stock with a yield, management or conservation concern
- Management Concern: Chronic inability, despite management measures, to meet the escapement goal
- Chronic inability: 4-5 year period
- Action Plan: Board and Department develop goals and management actions to restore stock to historical productivity



Stock of Concern (SOC) Designation Process

1. Escapement Goal review indicates issue
2. Department recommends SOC status
3. Department develops Action Plan for BOF
4. BOF and Department review situation and determine if SOC status is warranted
5. BOF can amend or develop FMPs
6. Actions commensurate with concern level



Lower Cook Inlet Management Area

Lower Cook Inlet

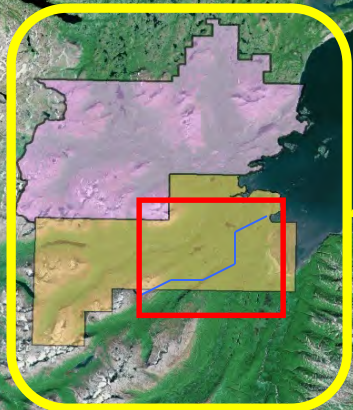
Homer

Kamishak Bay District

Barren Islands

Gulf of Alaska

Kodiak/Afognak Islands



McNeil Sanctuary: Established in 1967 by Alaska Legislature to provide permanent protection to brown bears and other fish and wildlife populations for scientific, aesthetic, and educational purposes.

McNeil River State Game Refuge

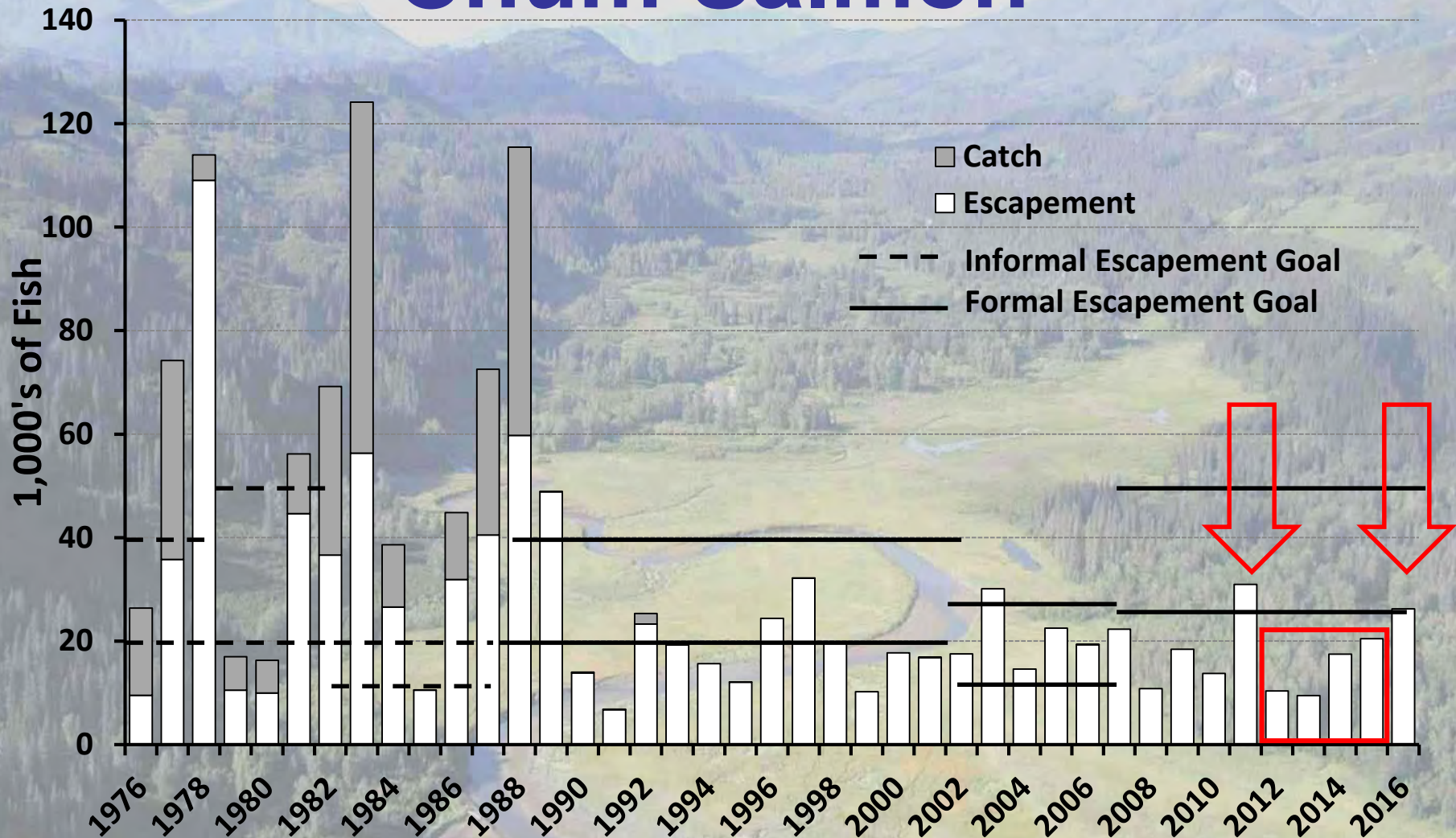
Kamishak Bay

McNeil River

McNeil River State Game Sanctuary



Status of McNeil River Chum Salmon



Contributing Factors

- McNeil Falls: Physical obstacle
- Bears at McNeil Falls: High predation rates
- Limited spawning habitat below falls
- Abundant spawning habitat above falls not consistently used
- Escapement goal set high to encourage use of above-falls spawning areas

McNeil Falls



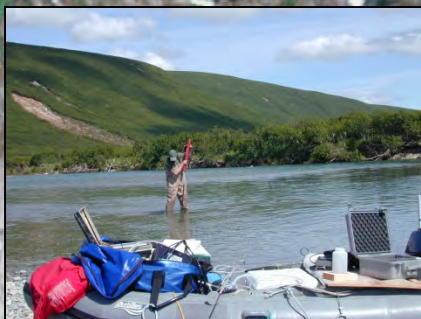
Photo: Larry Aumiller

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Legend

-  2005 Tag Recoveries
-  2006 Tag Recoveries



Spawning Distribution vs. Available Habitat

McNeil River



McNeil Falls

Below-the-Falls
>90% of escapement
~50% spawned
SL = 12.6 d

Above-the-Falls
<10% of escapement
>90% spawned
SL = 21.9 d

Lower Braids

Upriver Spawning Areas

Upper Braids

Middle Braids

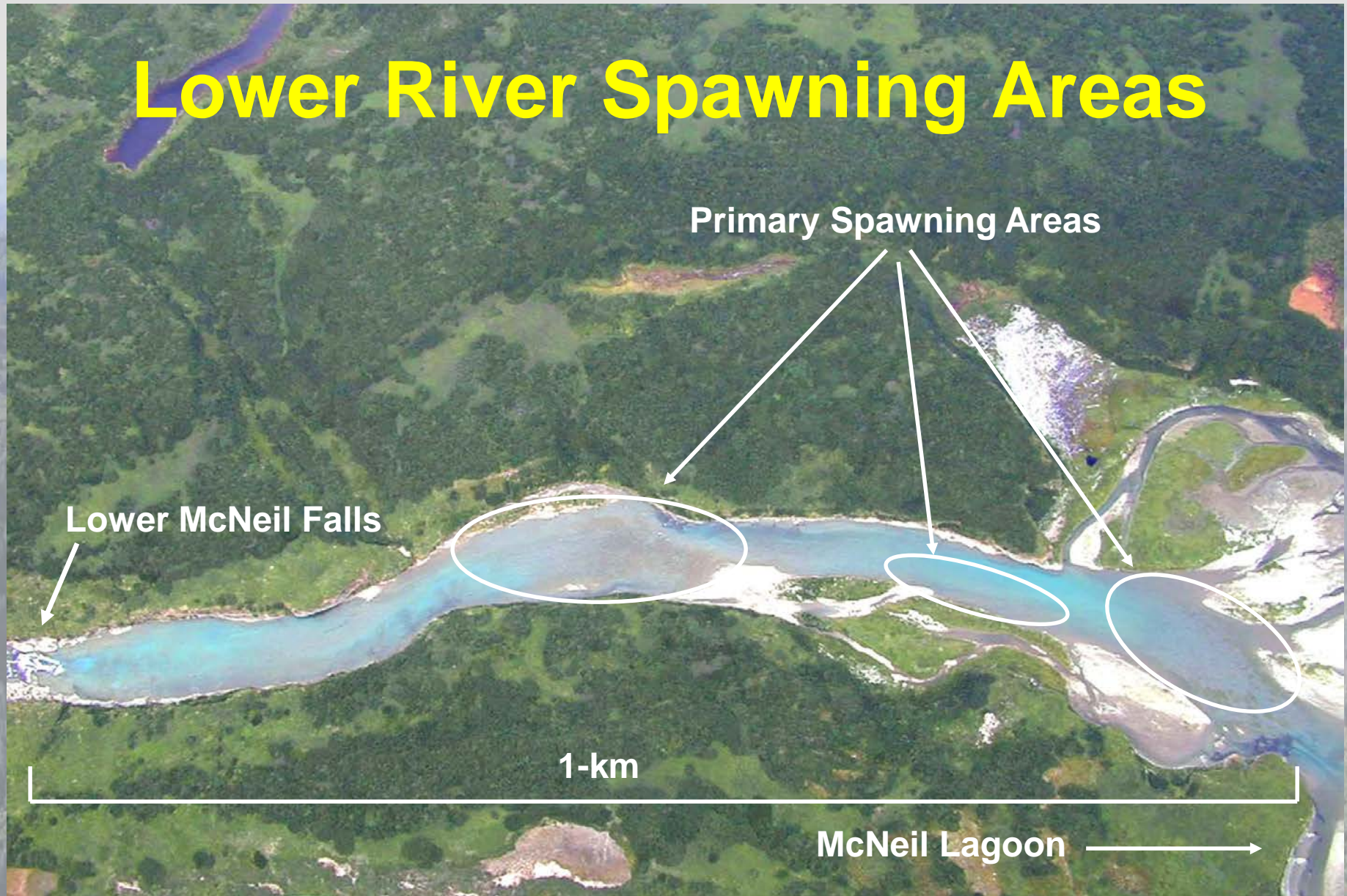


0 0.25 0.5 1 1.5 2 Miles

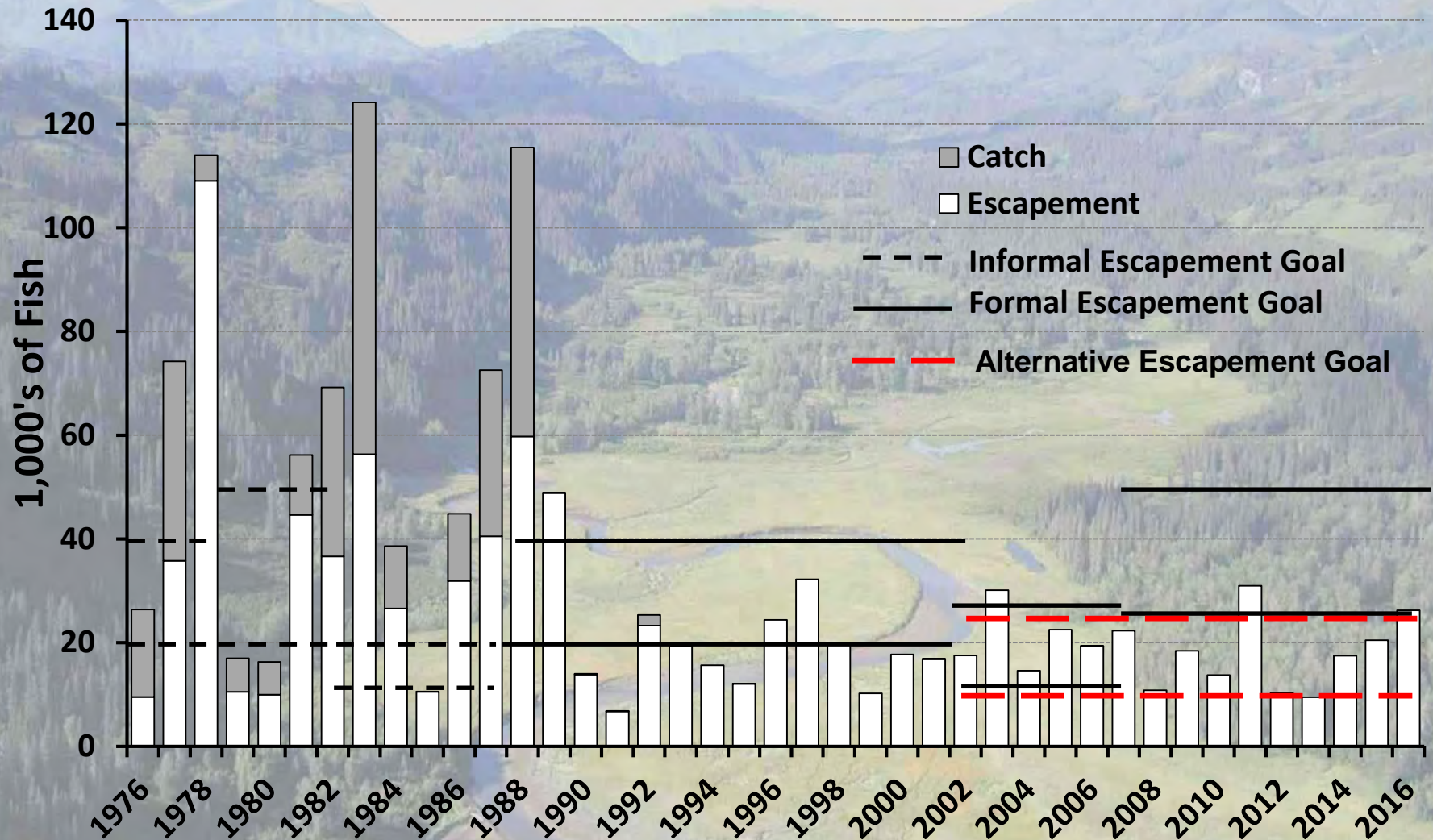
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Lower River Spawning Areas



Escapement Goal Alternatives



Fishery Management Plans (FMPs)

- Mikfik Creek-McNeil Lagoon FMP (1988)
 - Favor openings outside McNeil Lagoon
 - Openings inside Lagoon 2 hrs around high tide

McNeil Camp

McNeil River

McNeil Lagoon

- McNeil River Chum Salmon FMP (1993)
 - Goal: Maintain healthy population to provide fish for bear consumption and commercial harvest
 - Escapement monitoring, biological sampling

Image © 2016 DigitalGlobe

- Revisions needed?

Mikfik Creek

Google earth

Imagery Date: 6/18/2008 lat 59.118827° lon -154.259876° elev 32 ft eye alt 6554 ft



McNeil River Chum Salmon Action Plan

- Background: Sanctuary, Falls, bears, SEG, research conducted at McNeil River
- Goal: Rebuild and maintain the run so it achieves SEG, provides fish for bears, and opportunity for fishermen to harvest surplus
- Alternative Management Actions
 - Commercial Fisheries
 - Habitat Modifications
 - Natural Recovery

**McNeil River Action Plan
RC-3, Tab 2**



Action 1: Commercial Fisheries

Objective: Reduce commercial harvest

- Option A: Continue using EO authority to close McNeil and Paint River Subdistricts
 - Action: Use existing EO Authority (1994)
 - Benefits: Meets goal of reducing harvest while providing flexibility to manage for SEGs
 - Detriments:
 - Could preclude opportunity to fish on other abundant stocks in the area with overlapping run timing
 - Limited impact because commercial harvest is not the only factor limiting McNeil River chum salmon



Action 1: Commercial Fisheries

Objective: Reduce commercial harvest

- Option B: Close McNeil and/or Paint River Subdistricts by regulation
 - Action: Board takes regulatory action
 - Benefits: Meets goal of reducing harvest without need for issuing EOs
 - Detriments:
 - Reduces harvest opportunity on other area stocks
 - Removes manager's flexibility to manage inseason
 - Limited effect because commercial harvest is not the only factor limiting McNeil River chum salmon



Action 1: Commercial Fisheries

Objective: Reduce commercial harvest

- Option C: Close other subdistricts in Kamishak District
 - Action: Use EO authority or Board action
 - Benefits: May increase escapement by reducing potential interception in nearby subdistricts
 - Detriments:
 - Limits ability to manage other stocks for SEG
 - Lost fishing opportunities on other healthy stocks
 - Limited effect: large harvests are infrequent and generally occur after peak of McNeil chum run



Action 1: Commercial Fisheries

Objective: Reduce commercial harvest

- Option D: Close entire Kamishak District to commercial fishing during McNeil chum run
 - Action: Use EO authority or Board action
 - Benefits: May increase escapement by further reducing potential interception of McNeil chum
 - Detriments:
 - Limits ability to manage other stocks for SEG
 - Lost fishing opportunities on other healthy stocks
 - Limited effect because commercial harvest is not the only factor limiting McNeil River chum salmon



Action 2: Habitat Modifications

Objective: Increase chum salmon production

- Option A: Modify McNeil Falls to facilitate easier upstream migration by chum salmon
 - Action: Seek required permits
 - Benefits: May increase escapement upstream and boost stream-wide production
 - Detriments:
 - Project would be very expensive; limited funding
 - May disrupt the bear viewing program
 - Not a long-term solution if lack of upstream spawning is not limiting McNeil River chum salmon production



Action 2: Habitat Modifications

Objective: Increase chum salmon production

- Option B: Manage abundance of bears at McNeil Falls through hazing or other means
 - Action: Requires approval from ADF&G-WC, Board of Game (BOG), and the Legislature
 - Benefits: May increase spawning escapement and boost stream-wide production
 - Detriments:
 - Contradicts goals of legislative designation
 - Directly impacts bear viewing program



Action 3: Natural Recovery

Objective: Allow stock to recover naturally

- Option A: No Action
 - Action: Manage for current SEG (status quo)
 - Benefits:
 - Allows predator/prey dynamic at McNeil River to play out naturally
 - Consistent with statutory goals of MRSGS
 - Detriments:
 - Likelihood the SEG won't be met some years
 - Potential loss of harvest opportunities



Action 3: Natural Recovery

Objective: Allow stock to recover naturally

- Option B: Modify the Escapement Goal
 - Action: Department recommendation to set the SEG using Clark et al. (2014) approach
 - Benefits: Lower goal would preclude need for Stock of Concern status
 - Detriments:
 - Contradicts strategy to boost stream-wide production
 - Perpetuates trend of low production; conflicts with goals of the McNeil FMP and Action Plan; disregards ecosystem function



Summary

- McNeil River chum salmon meet the definition of a Stock of Management Concern
- Factors contributing to current stock status
 - McNeil Falls: Physical obstacle low in drainage
 - Bear density at falls: high predation, confines spawning to limited areas below falls
 - Inconsistent use of spawning areas above falls limits stream-wide chum production

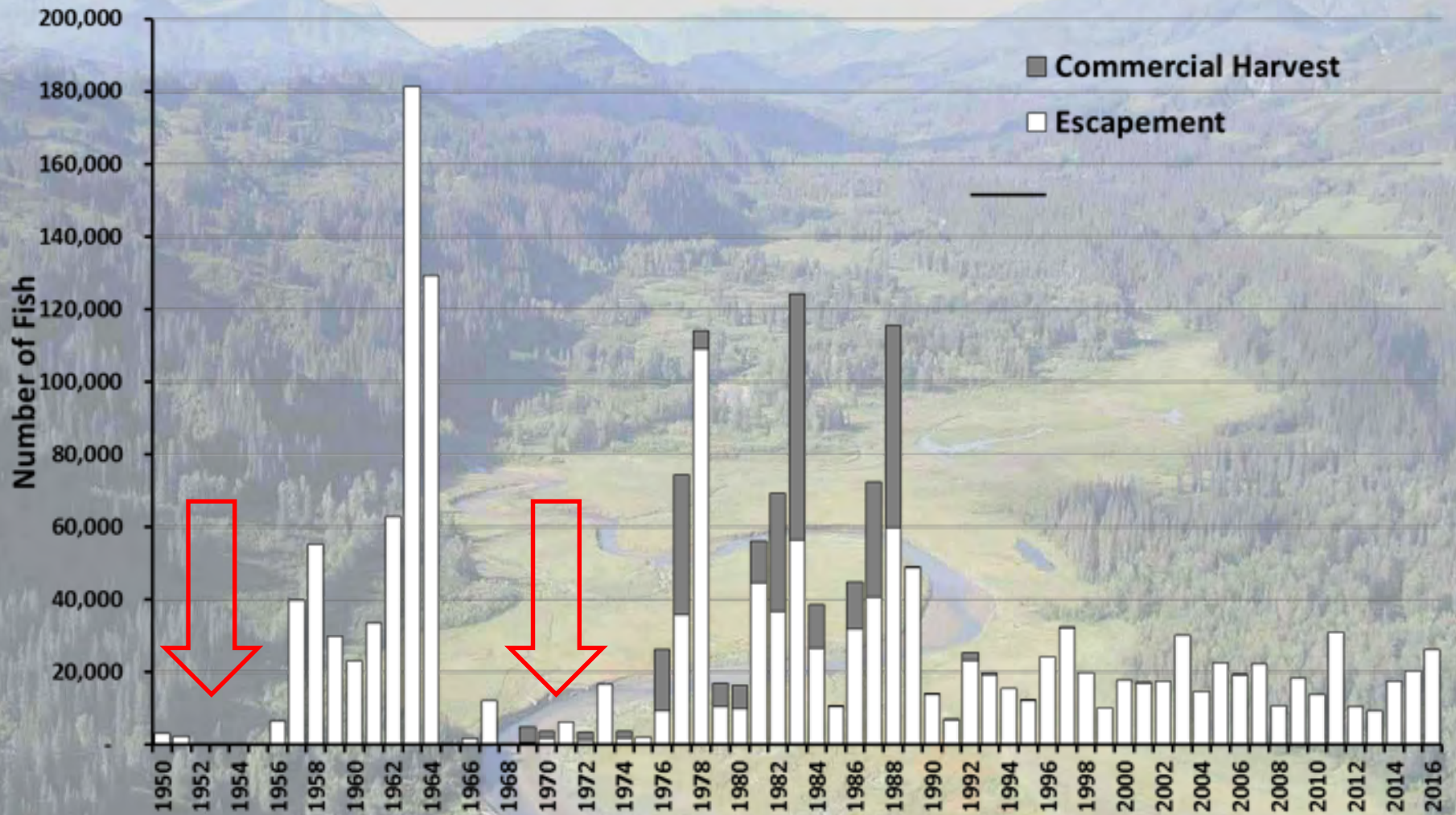
**McNeil River Action Plan
RC-3, Tab 2**



Summary

- Management Actions
 - Hasten recovery by implementing time/area closures of the seine fishery in Kamishak, or by modifying habitat and/or bear density at the falls
 - Allow the stock to recover naturally over time, while limiting directed commercial harvest

Summary



Questions?

Photo: Ted Otis