2022 Yukon River Summer Season

ADF&G – Summer Season Team

Deena Jallen – Summer Season Management Biologist

Sam Decker – Assistant Management Biologist

Fred West – Summer Season Research Biologist

Josh Clark – Assistant Research Biologist

USFWS – Subsistence Management Team

Holly Carroll - Yukon River Subsistence Fisheries Manager

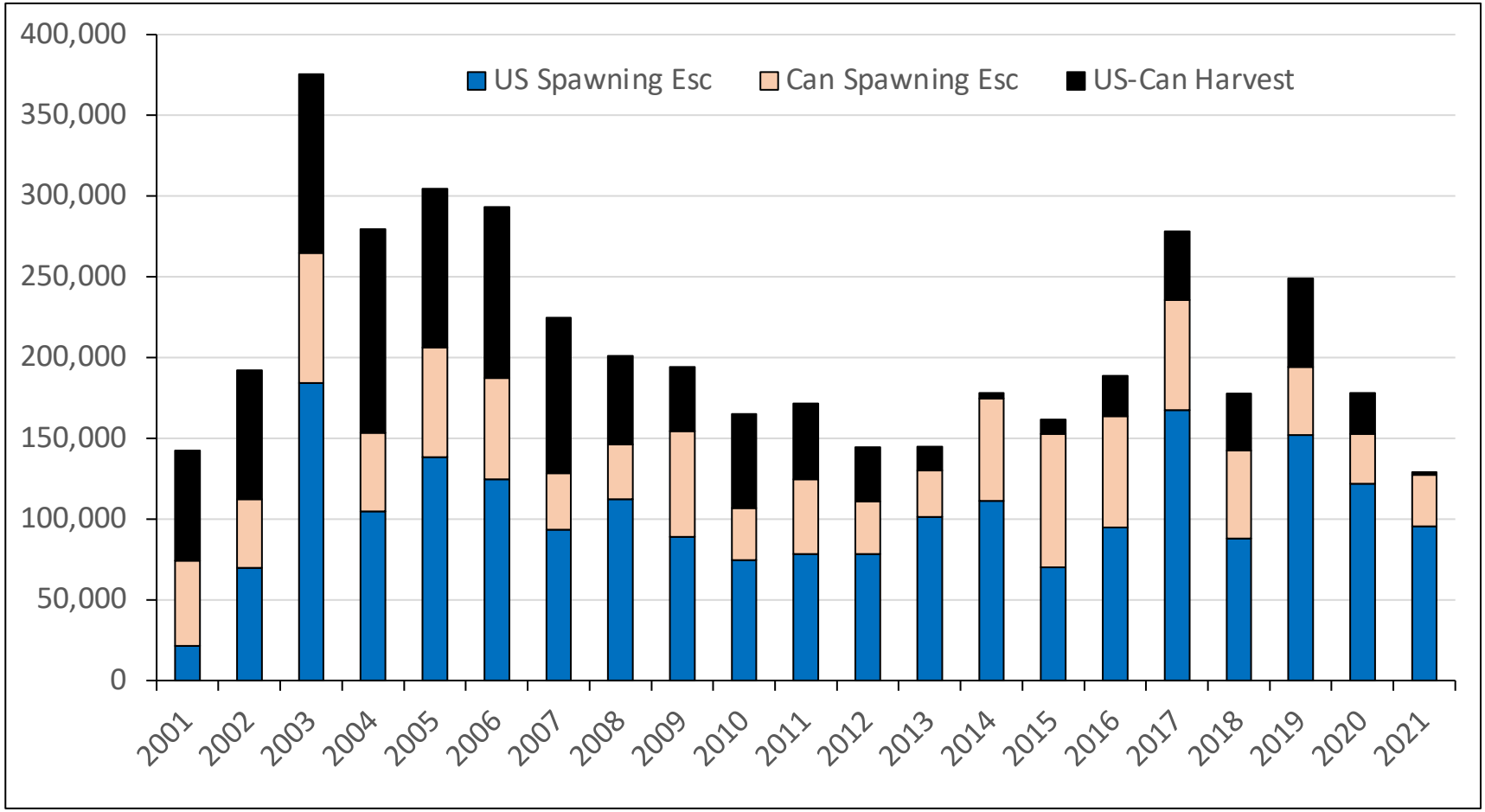
Gerald Maschmann - Assistant Fisheries Manager

Keith Ivy – Biologist/Assistant Fisheries Manager

YRDFA Preseason Meeting, Anchorage

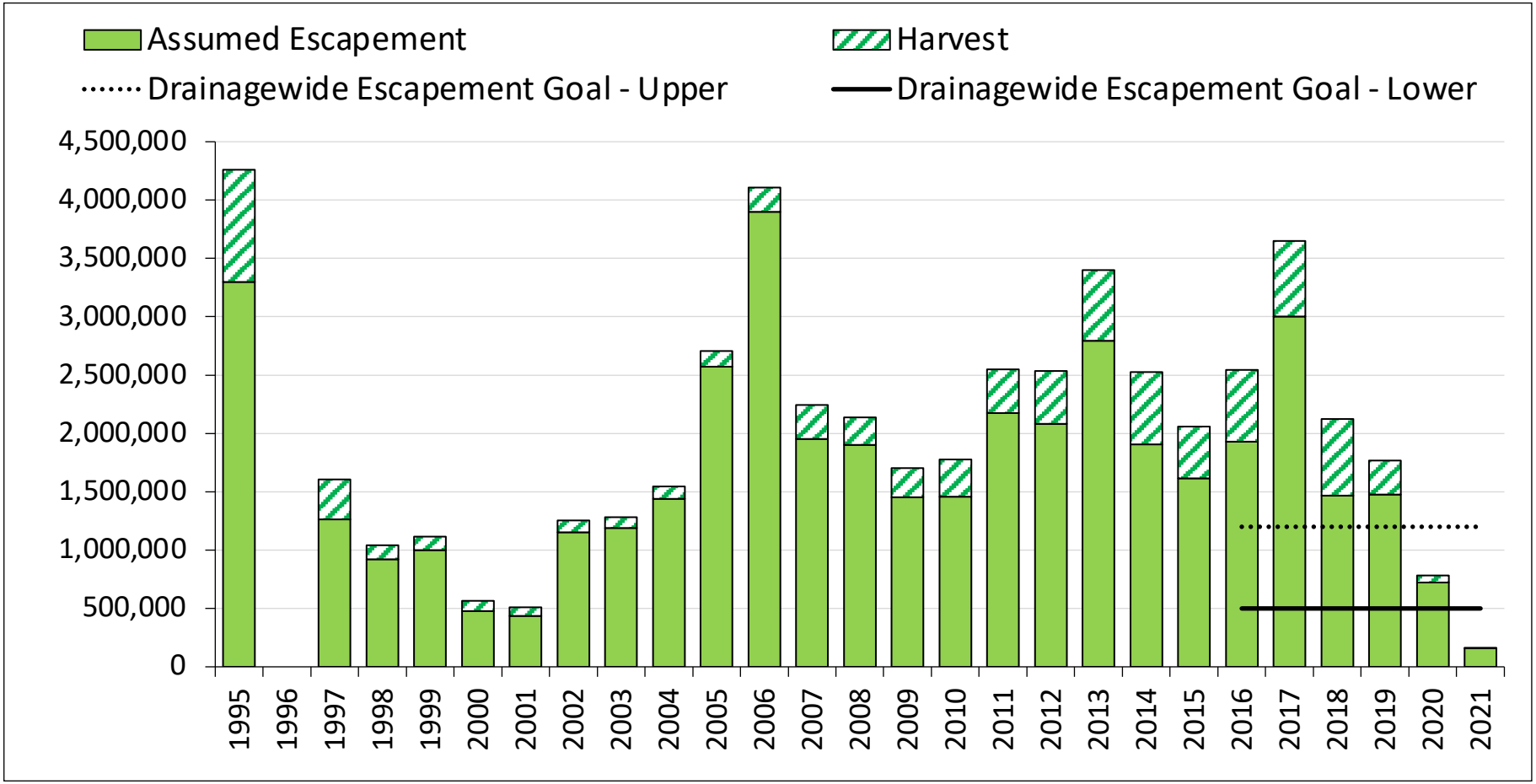
March 24, 2022

Chinook salmon drainagewide run size



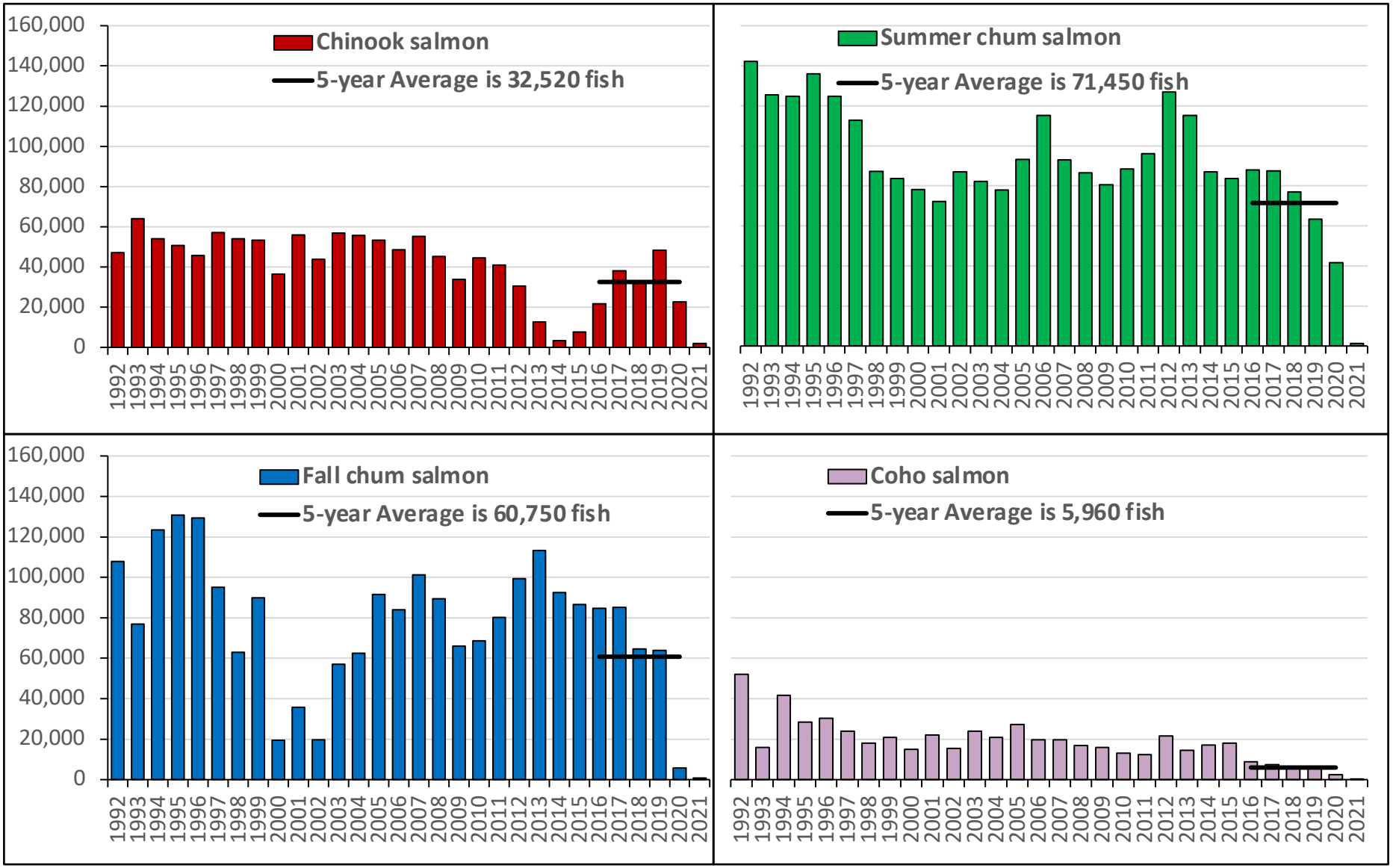
- Does not account for mortality
- No spawning escapement goals were met in 2021. Canadian border passage was ~32,000 fish which is under the lower end of the goal (42,500 fish)

Summer chum salmon drainagewide run size



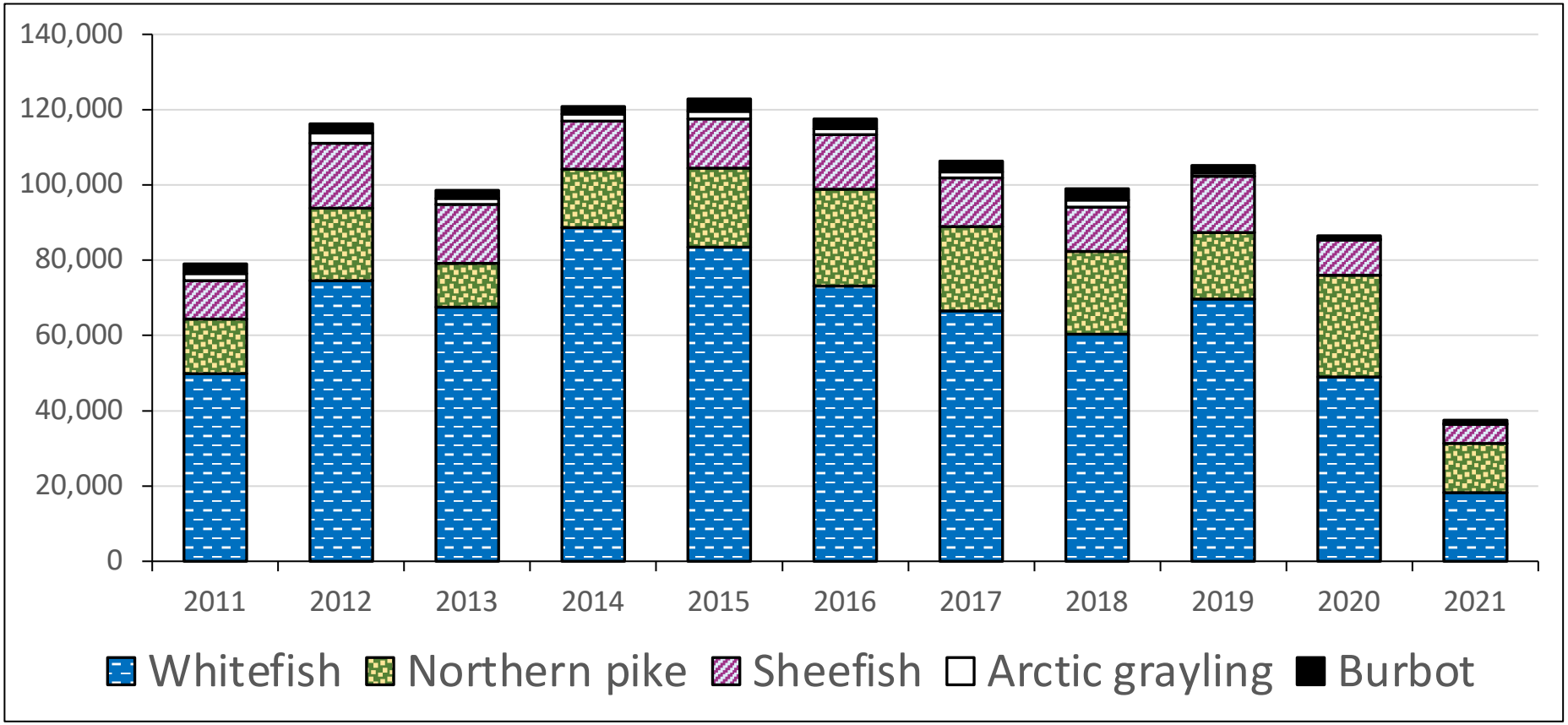
- 2021 run was the lowest on record and well below recent 10-year average of 2.2 million fish
- Parent years of age-4 and age-5 fish exceeded drainagewide escapement goal
  - Pilot Station counts were 1.9 million and 3.1 million in 2016 and 2017

Subsistence salmon harvests 1992-2021



2021 harvests: 1,950 Chinook, 1,250 summer chum, 700 fall chum, and 300 coho salmon

Nonsalmon subsistence harvests (2011 – 2021)



- Have heard a lot of concern about nonsalmon harvest
- Harvest of nonsalmon species was also low in 2021
- 2021 surveys don't include fish harvested later in the winter after the surveys. Those fish will be included in next years estimate

2022 Chinook salmon outlook

- Preliminary forecast is based on the JTC method that combines the Bering Sea juvenile trawl survey with sibling and Ricker models
- Canadian-origin Chinook salmon outlook
  - 41,000 to 62,000 fish
- Drainagewide Chinook salmon outlook
  - 99,000 to 150,000 fish
  - Based on average of 41% Canadian-origin at Pilot Station Sonar
  - Runs under 150,000 fish tend to not meet goals
  - 2021 drainagewide run was ~129,000 fish and no escapement goals were met

2022 Summer chum salmon outlook

- Preliminary forecast 330,000 fish
  - Much uncertainty around the forecast
  - Range: 162,000–542,000 fish
  - Drainagewide escapement goal: 500,000 – 1,200,000 fish
    - Run is anticipated to be below the drainagewide escapement goal
    - Subsistence fishing likely closed
    - No projected commercial surplus (commercial fishing closed)

2022 Summer Season Management Strategy

- **Based on the outlook and recent escapements, management will be similar to 2021. Fishermen should be prepared for salmon fishing closures.**
- Salmon and nonsalmon gear is open now under the ice and after breakup. Gillnets with 7.5-inch and smaller mesh may be used 24 hours a day, seven days a week.
- **Subsistence fishing for salmon will close** starting on June 2 in District 1 and the Coastal District to protect the trickle and first pulse of Chinook salmon.
  - Upriver districts and subdistricts and tributaries will close based on travel time.
- During salmon closures, fishing will remain open for **nonsalmon**.
  - 4-inch or smaller mesh gillnets restricted to 60-feet or less in length.
  - Other nonsalmon gear (spear, hook and line, fyke net, etc.)

Summer Season Management Strategy - Continued

- If the summer chum salmon run is projected to be above the drainagewide escapement goal of 500,000 fish we may be able to open fishing with selective gear types (beach seines, dip nets, live release fish wheels)

Additional research

Agency staff are collaborating to learn more about Yukon salmon:

- Examining difference between inseason estimates of Canadian-origin run size (at Pilot Station sonar) versus post season estimates of run sizes
- Salmon health, survival, and distribution in the marine environment
- Current data and past studies to prioritize and propose any necessary research in these areas that can improve our assessment and management
- Coordinating with experts on these topics from ADF&G, USFWS, NOAA, YRDFA, Tribes, DFO, JTC etc. to make collaborative, well-reviewed products such as publications and presentations

Additional Research

- Salmon shark (predator) tagging
- Investigations of inriver fish health and survival
  - Tissue samples from test fish mortalities to examine body condition, stress, and diseases
  - Egg thiamine levels
  - Kidney disease
  - Warm water temperatures and heat stress
  - Ichthyophonus investigation (year 1 of 3)
  - Chinook salmon migration and en route mortality (tagging study)


Photo: ADF&G


Photo: Alaska Fish Radio


Photo: Rapids Research

Exploring linkages between changing climate and Yukon River Chinook salmon productivity (slide 1 of 2)

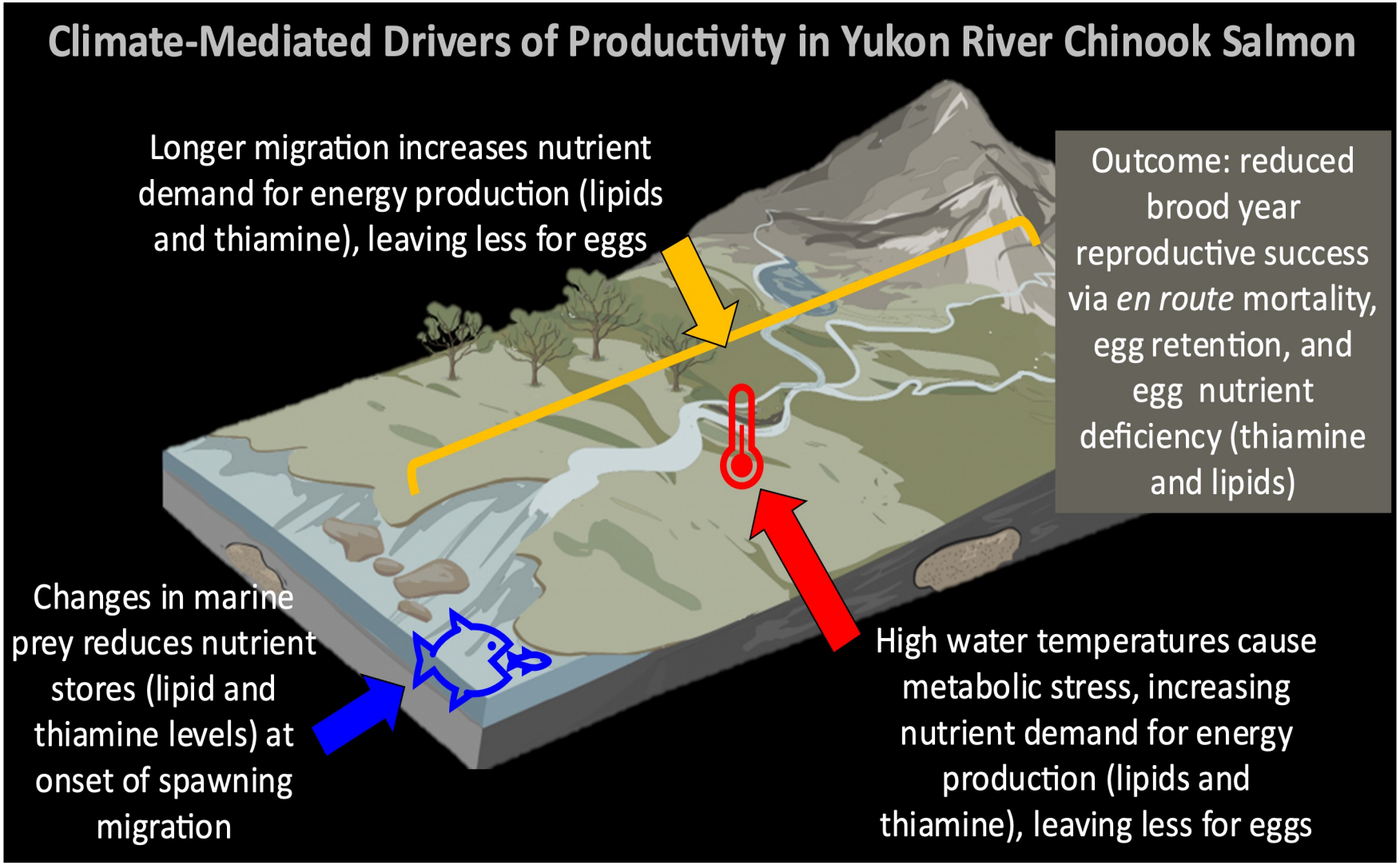


Diagram from Sabrina Garcia (ADF&G) and the Salmon Ocean Ecology Program (SOEP)

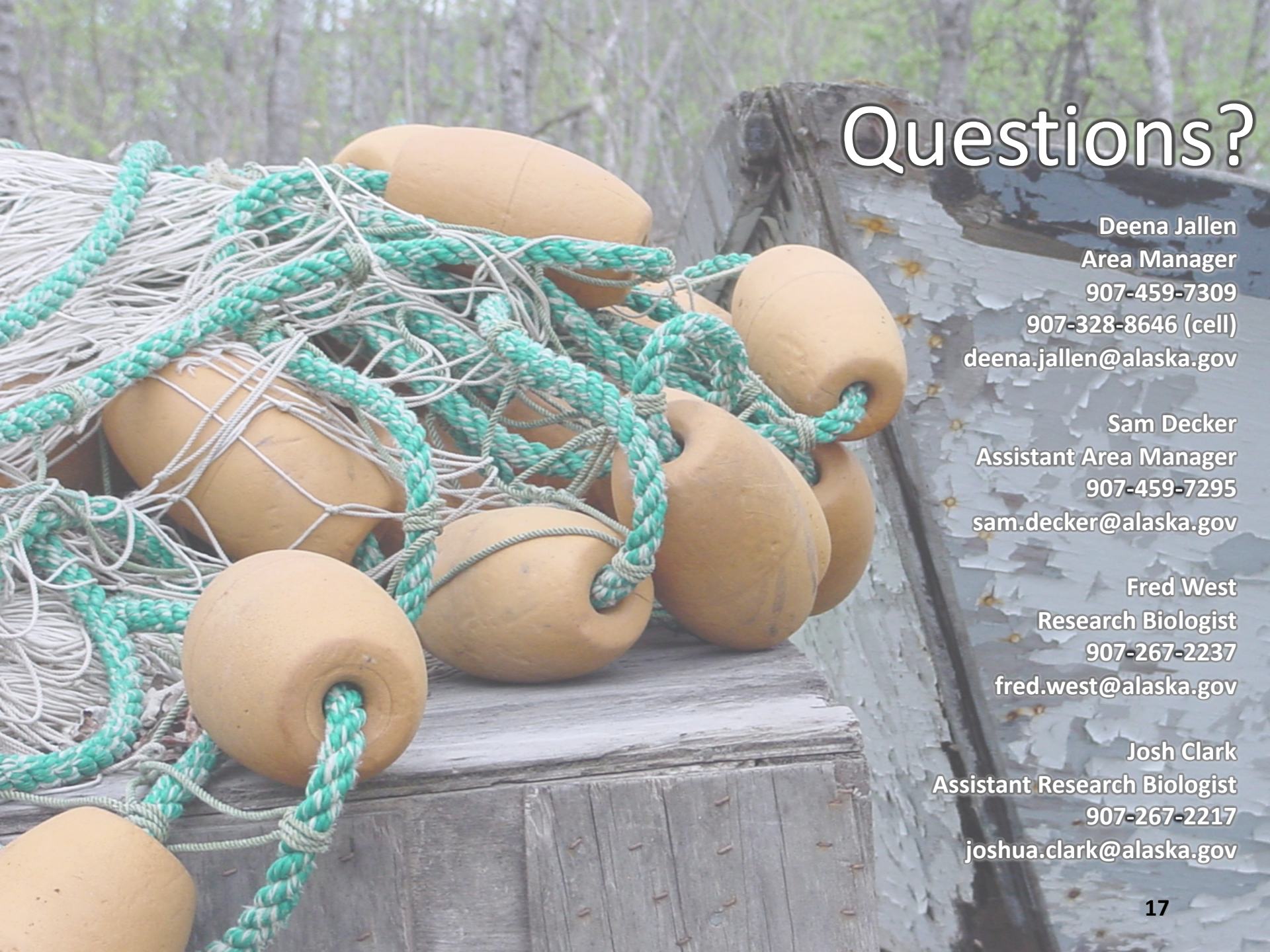
Exploring linkages between changing climate and Yukon River Chinook salmon productivity (slide 2 of 2)

- Project proposed to test the idea that Chinook salmon productivity is depressed due to changes in marine diet and heat stress
- Objectives:
  - Assess prey quality (ED, thiamine) from stomachs collected at LYTF
  - Assess thiamine and lipid content of females at onset of migration
  - Assess egg thiamine, egg lipid content, heat stress response, and egg retention of females at multiple spawning sites
  - Evaluate whether egg retention, egg lipid, and egg thiamine levels are higher in females with evidence of lipid deficiency, thiamine deficiency, heat stress, or a combination of all three variables
- Led by Katie Howard (ADF&G) with collaborators at USGS, NOAA, YRDFA, and Canada
- Heat stress component may be funded in 2023, preliminary set up and sampling is starting in 2022

Chinook salmon tagging

- Proposed to start in the 2023 season
- Better understand the difference between what has been observed inseason at Pilot Station sonar and at Eagle sonar
- Preliminary objectives:
  - Determine fate of Canadian-origin Chinook salmon to address the question of difference between estimates. Are tagged Canadian-origin fish reaching the border as expected. Is en route mortality occurring? If so, where?
  - Determine % of successful upstream migration by river section of all three stocks
    - Does one section of river see a higher level of mortality than expected?

Photos: ADF&G staff



Questions?

Deena Jallen
Area Manager
907-459-7309
907-328-8646 (cell)
deena.jallen@alaska.gov

Sam Decker
Assistant Area Manager
907-459-7295
sam.decker@alaska.gov

Fred West
Research Biologist
907-267-2237
fred.west@alaska.gov

Josh Clark
Assistant Research Biologist
907-267-2217
joshua.clark@alaska.gov