

2022 Yukon River Summer Season Summary

Deena Jallen – Summer Season Management Biologist

Fred West – Summer Season Research Biologist

ADF&G – Yukon River Summer Season

Panel Meeting - Anchorage

December 7

Public Session Agenda Item #5



2022 Preseason Outlook

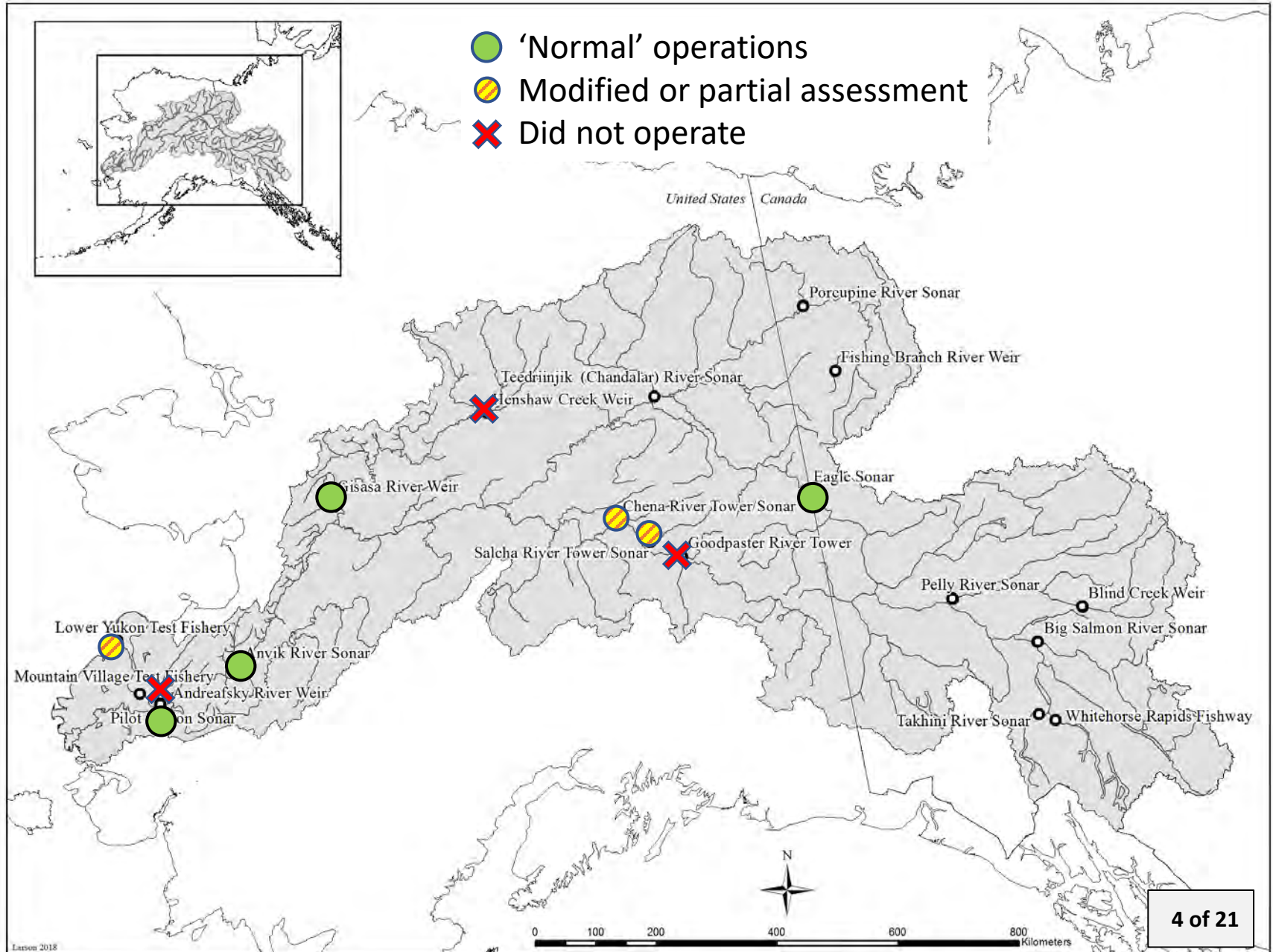
- Canadian-origin Chinook salmon:
 - 41,000 – 62,000 fish
- Drainagewide Chinook salmon:
 - 99,000 – 150,000 fish
- 2022 outlook smaller than outlooks for 2021
 - 2021 run didn't meet escapement goals in Alaska
- Closures necessary on the front end of the run

- Summer chum salmon
 - 300,000 fish
 - 162,000 – 542,000 fish
 - Below drainagewide escapement goal unless comes back at top of outlook range

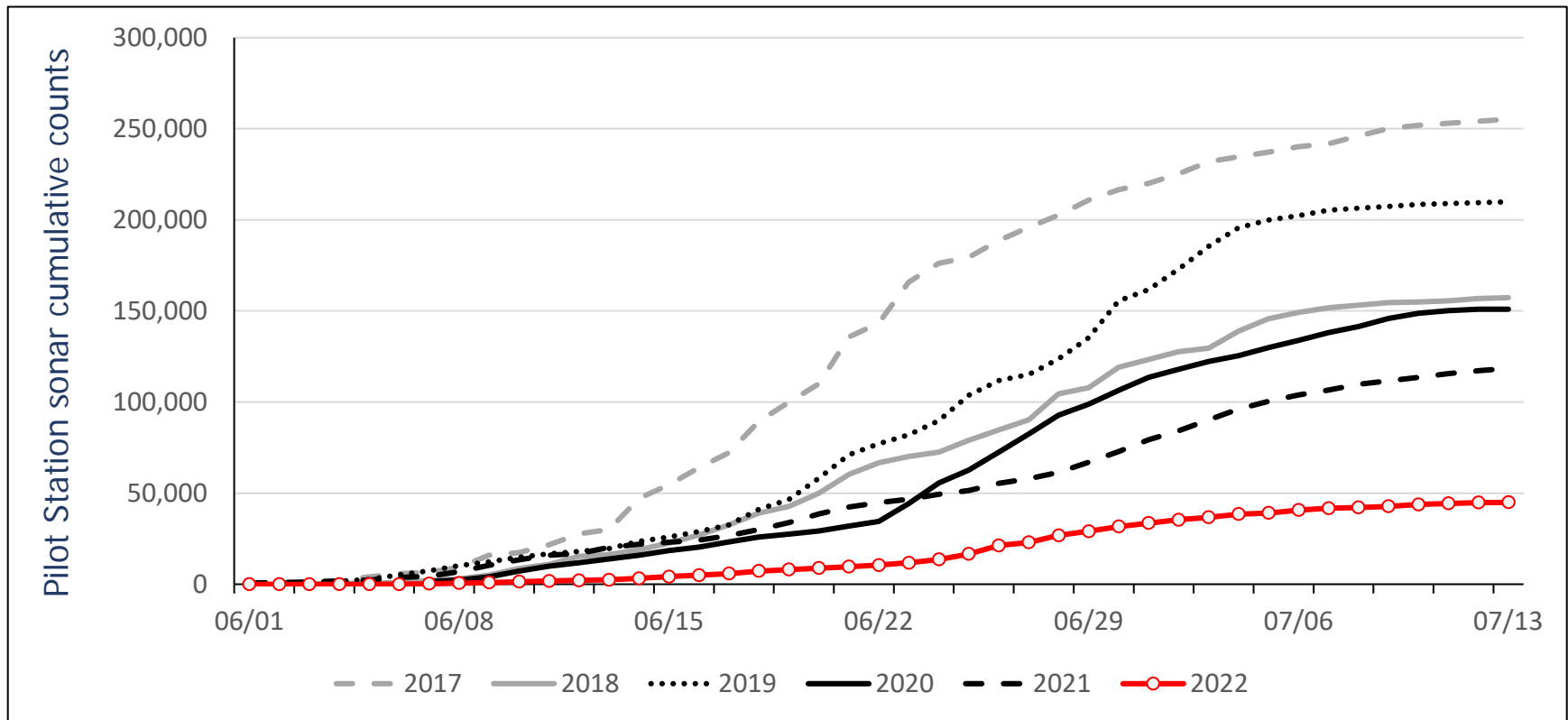
2022 Panel Recommendations and Management Strategy

- Preseason management strategy developed consistent with Yukon River Panel recommendations for 2022
 - Endeavor to achieve escapement of Canadian-origin Chinook salmon within IMEG range (42,500 – 55,000 fish)
 - Close subsistence fishing as the Chinook salmon run enters the river
 - Reduce length of 4-inch or smaller mesh whitefish nets to 60 feet
 - Consider impacts from extreme environmental conditions on management measures and harvest opportunities
- Fishery outlook and strategy discussed at preseason teleconference and mailed to households in the Outlook flier.
 - Included information about nonsalmon species harvest to address concerns about harvest levels.

2022 Assessment Projects in Alaska

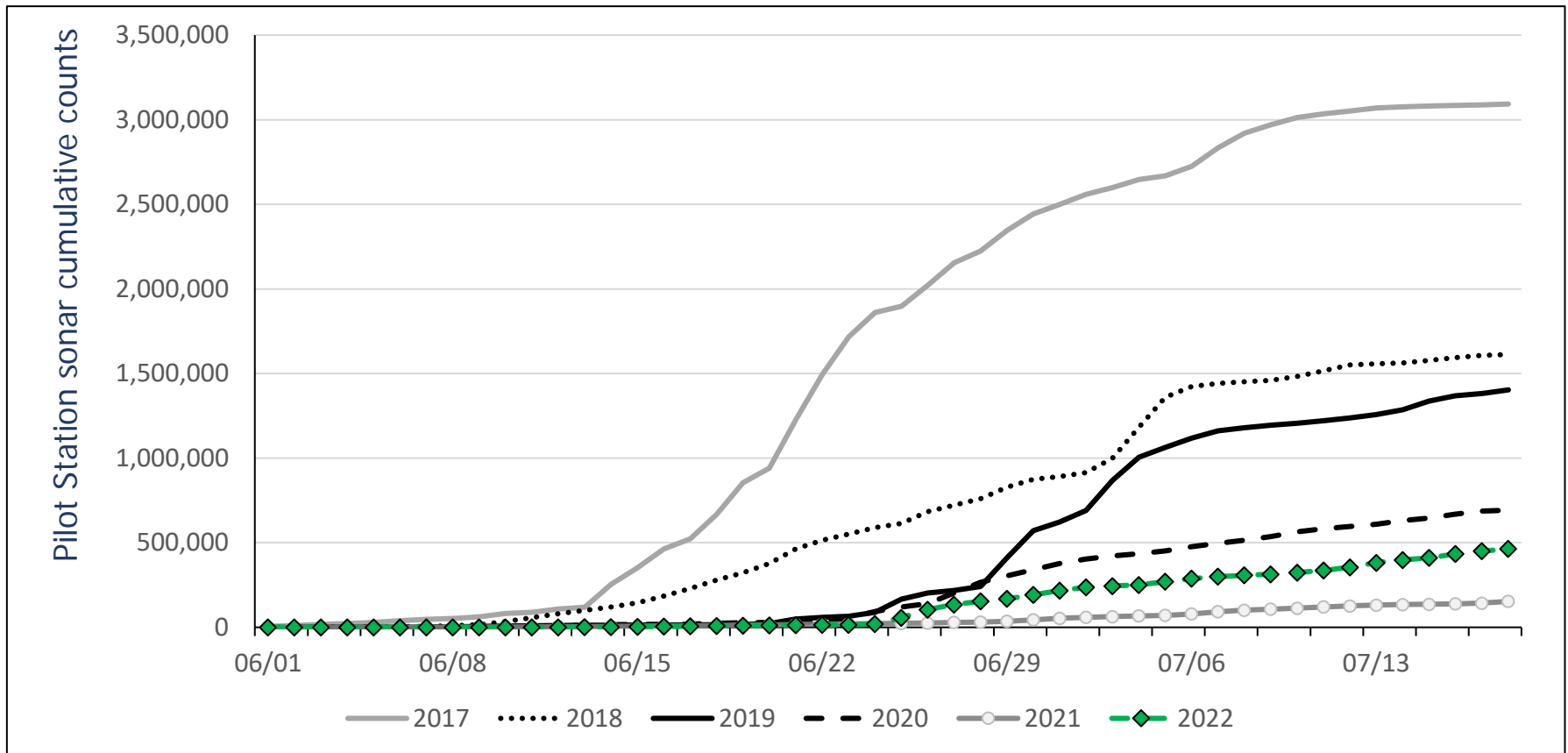


Pilot Station sonar: Chinook salmon passage



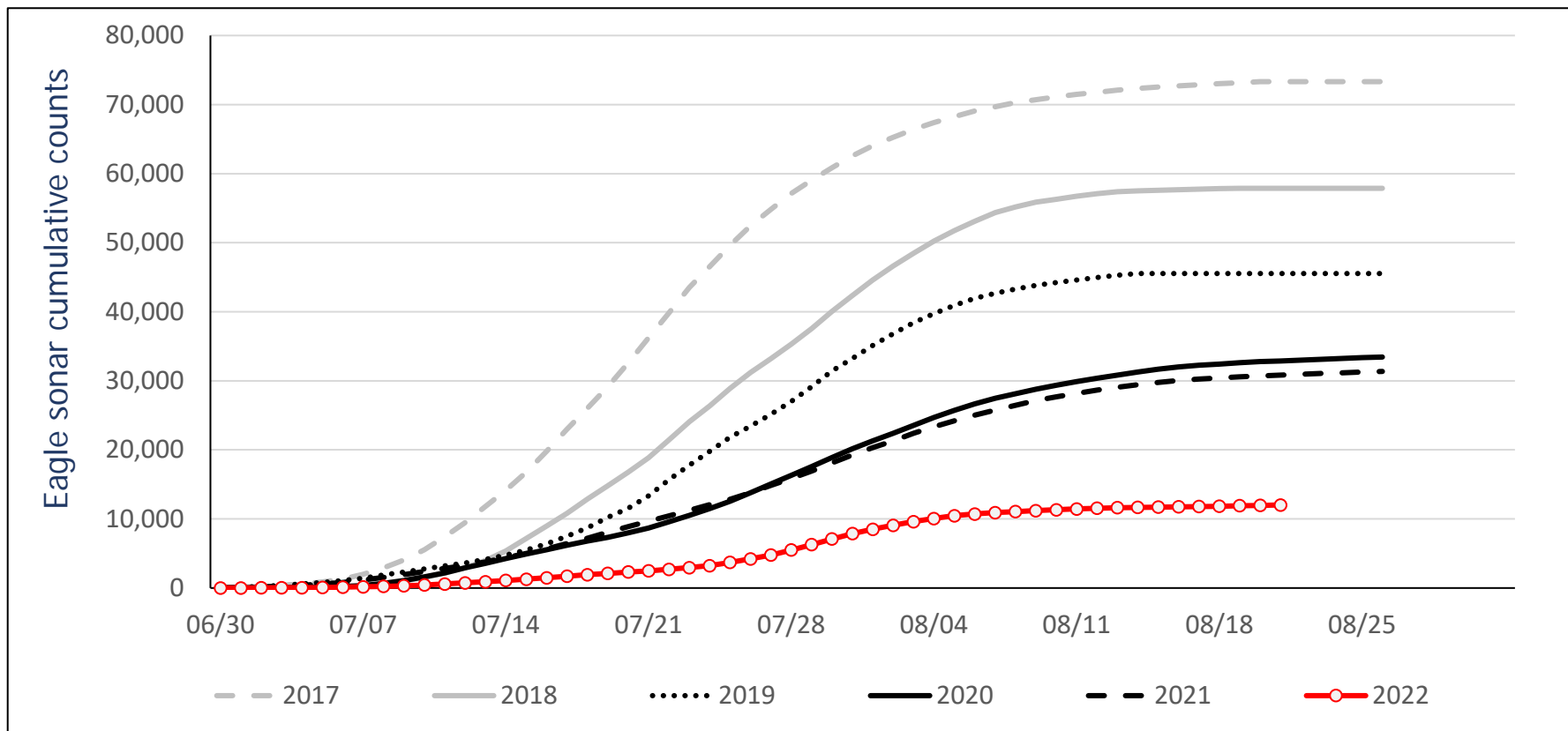
- Low abundance, late entry of Chinook salmon
- Inseason projection at the average midpoint (June 24) showed a late, weak run with no harvestable surplus
- Run timing about 4 days later than average based on Pilot Station midpoint passage
- Season total counts (48,439) were the lowest on record and well below recent 5-year average

Pilot Station sonar: Summer chum salmon passage



- Low abundance, late entry of summer chum salmon
- Second lowest counts in history of Pilot Station sonar operations (2021 counts were lowest)
- Season total count of 463,806 fish

Eagle sonar: Chinook salmon passage

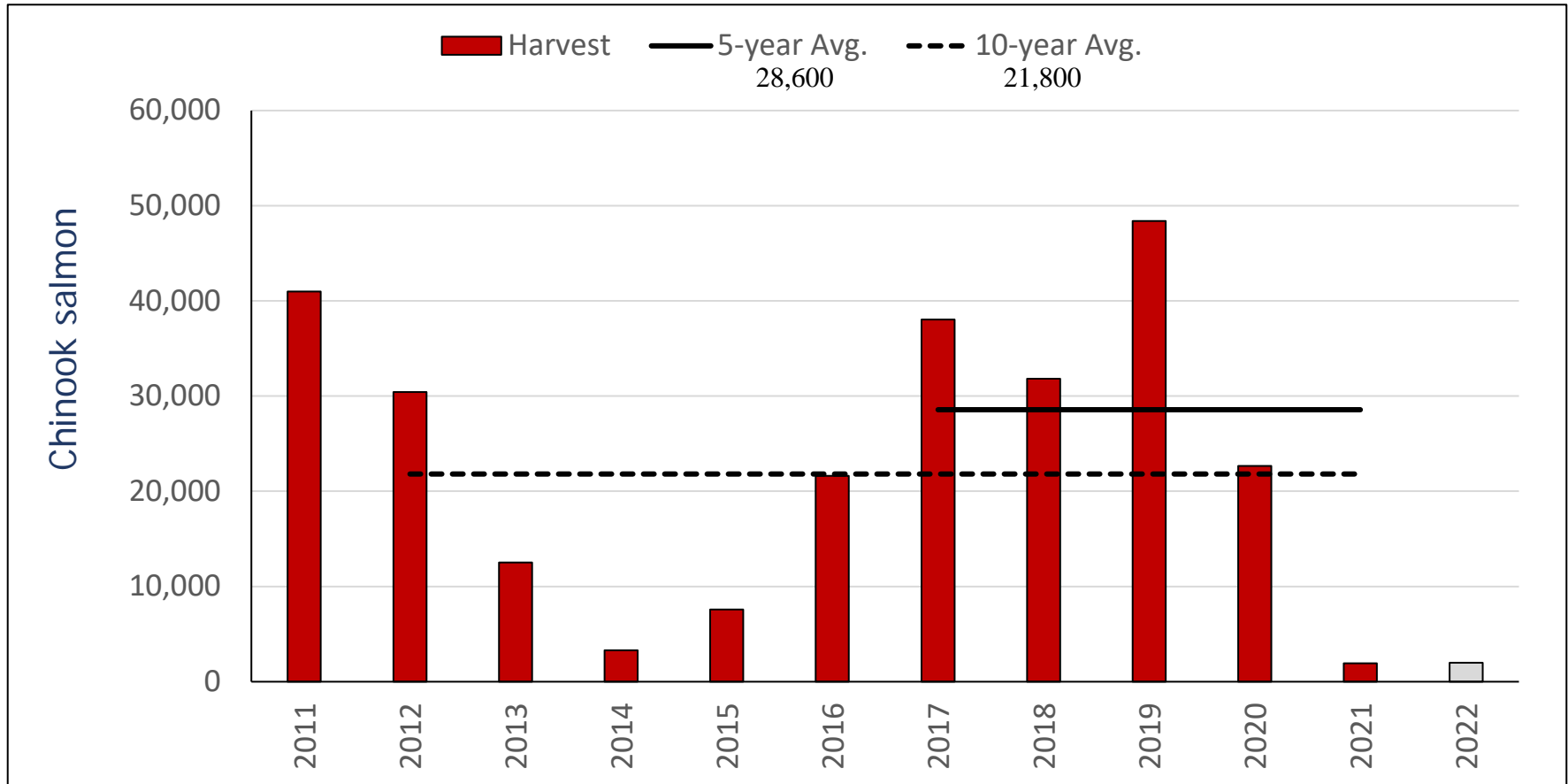


- At the midpoint of the run for late years (July 28) the cumulative counts were 5,500 fish and the run was projected to not meet the border passage goal
- Season total count of 12,025 fish

2022 Management Actions

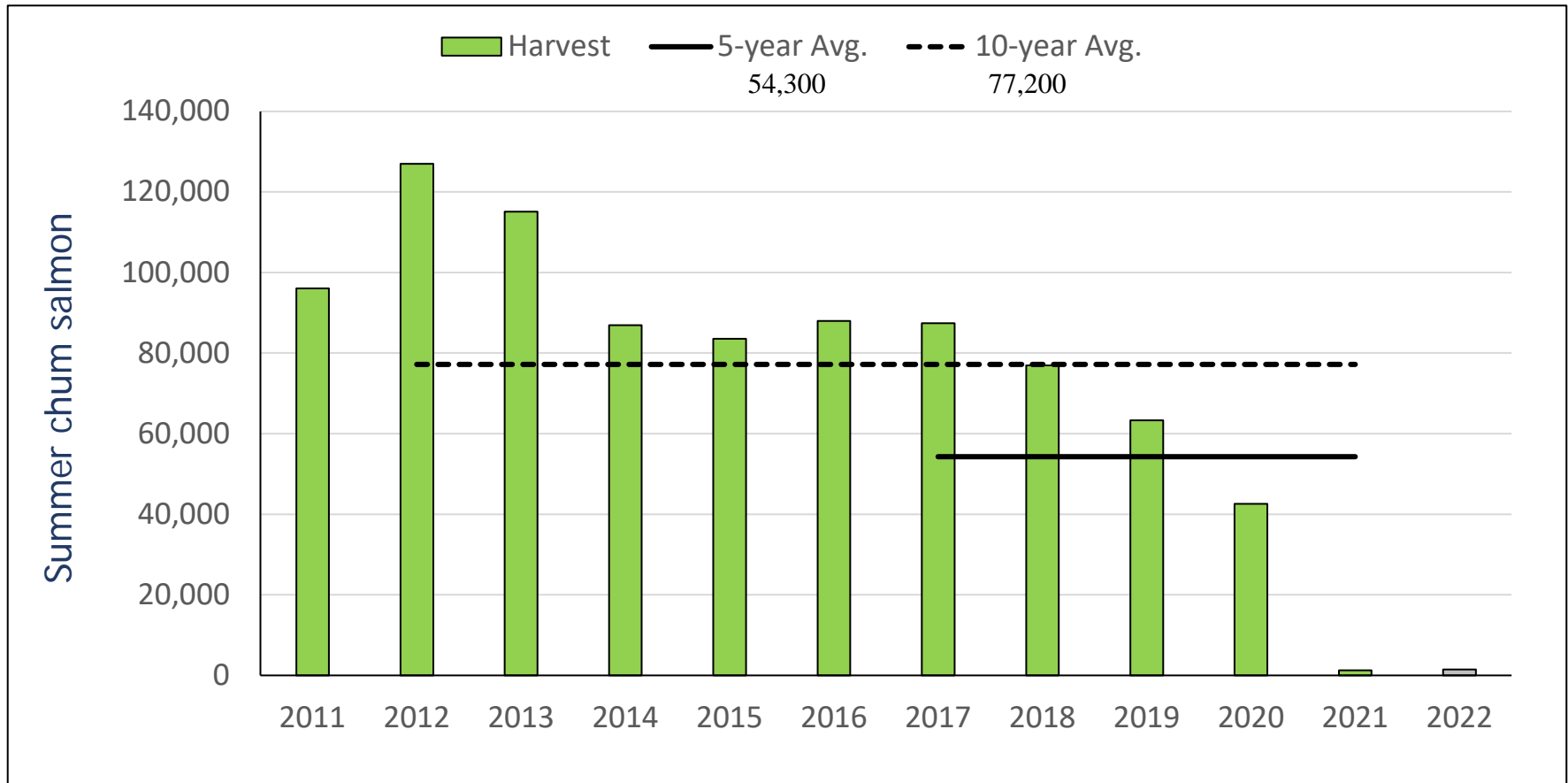
- Fishing closed on June 2 in District 1 and in the Coastal District
 - Closures included South Coastal Area (communities of Hooper Bay, Scammon Bay, and Chevak) which typically only have gear restrictions
- All Yukon Area districts and tributaries closed based on salmon travel timing and remained closed all season
- Low summer chum salmon abundance did not allow for selective gear fisheries to open
- 4-inch or smaller mesh gear for nonsalmon species restricted to 60 feet or less in length
- Selective gear (dip net, beach seine, hook and line) allowed for sockeye and pink salmon
- Other gear allowed for nonsalmon all season (fyke net, hook and line, spear, etc.)

Recent Subsistence salmon harvests – Chinook salmon



- Expect 2022 harvests to be similar to 2021 harvests of ~2,000 Chinook salmon. Much of the harvest was from test fisheries in Districts 1 and 2
- 2022 Test fish: 570 Chinook salmon
- Test fish totals include Chinook salmon mortalities from Ichthyophonous sampling

Recent Subsistence salmon harvests – Summer chum salmon



- Expect 2022 harvests to be similar to 2021 harvests of ~1,250 summer chum salmon. Much of the harvest was from test fisheries in Districts 1 and 2
- 2022 Test fish: ~1,320 summer chum salmon
 - Test fish totals include Chinook salmon mortalities from Ichthyophonous sampling

2022 Summer chum salmon Escapement

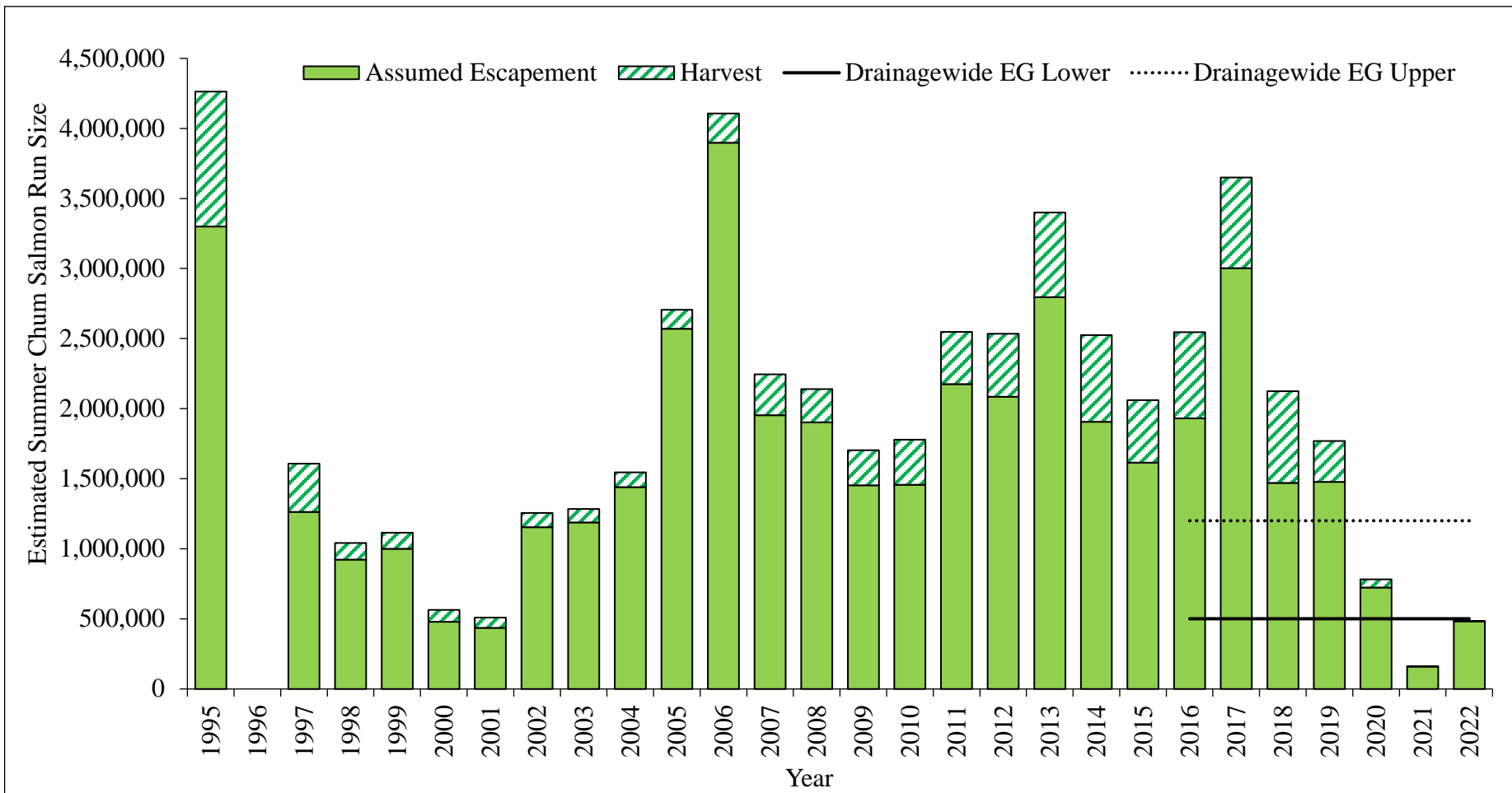
Project	Current Goal	Median	2022 Estimate
Drainagewide	500,000–1,200,000	1,582,900	483,000 *
Anvik Sonar	350,000-700,000	455,900	45,580
Gisasa River Weir	-	44,500	3,300
Chena River Tower	-	7,200	900 **
Salcha River Tower	-	23,484	1,982 **

*Pilot Station Sonar (July 18 total) and estimated 20,000 Andreafsky River fish

** Visual count

- Summer chum salmon drainagewide total incorporates Andreafsky river passage and harvest information above and below the sonar
 - Andreafsky River weir did not operate; 20,000 fish is based on historic contribution. Aerial surveys were poor
 - Subsistence harvests will be available later this winter
 - No commercial harvests in 2022
- Counts below historic medians

Summer chum salmon drainagewide run size



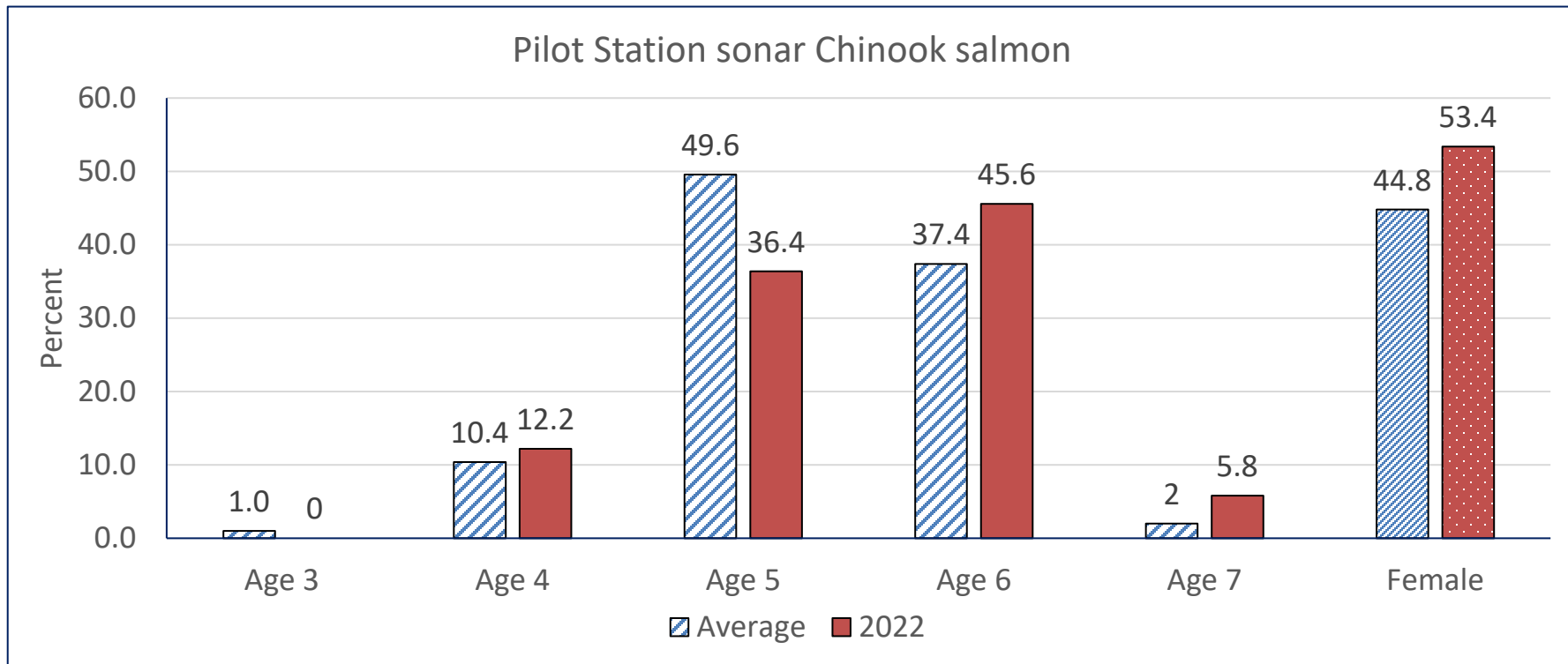
- Below recent 10-year average of 1.9 million fish
- Parent years of age-4 and age-5 fish met drainagewide escapement goal
 - Pilot Station counts were 3.1 million and 1.6 million in 2017 and 2018

2022 Chinook salmon Escapement

Project	Current Goal	Average	2022 Estimate
Eagle Sonar	42,500 – 55,000	54,043	12,025
Gisasa River Weir	–	2,038	503
Chena River Tower	2,800 – 5,700	5,890	355
Salcha River Tower	3,300 – 6,500	8,163	1,130

- East Fork Andreafsky Weir did not operate due to forest fires and high water
- All escapement estimates were below goals and below averages
- The amount of incidental harvest between the Eagle sonar site and the U.S./Canada border will be available later this winter and will be used to calculate border passage

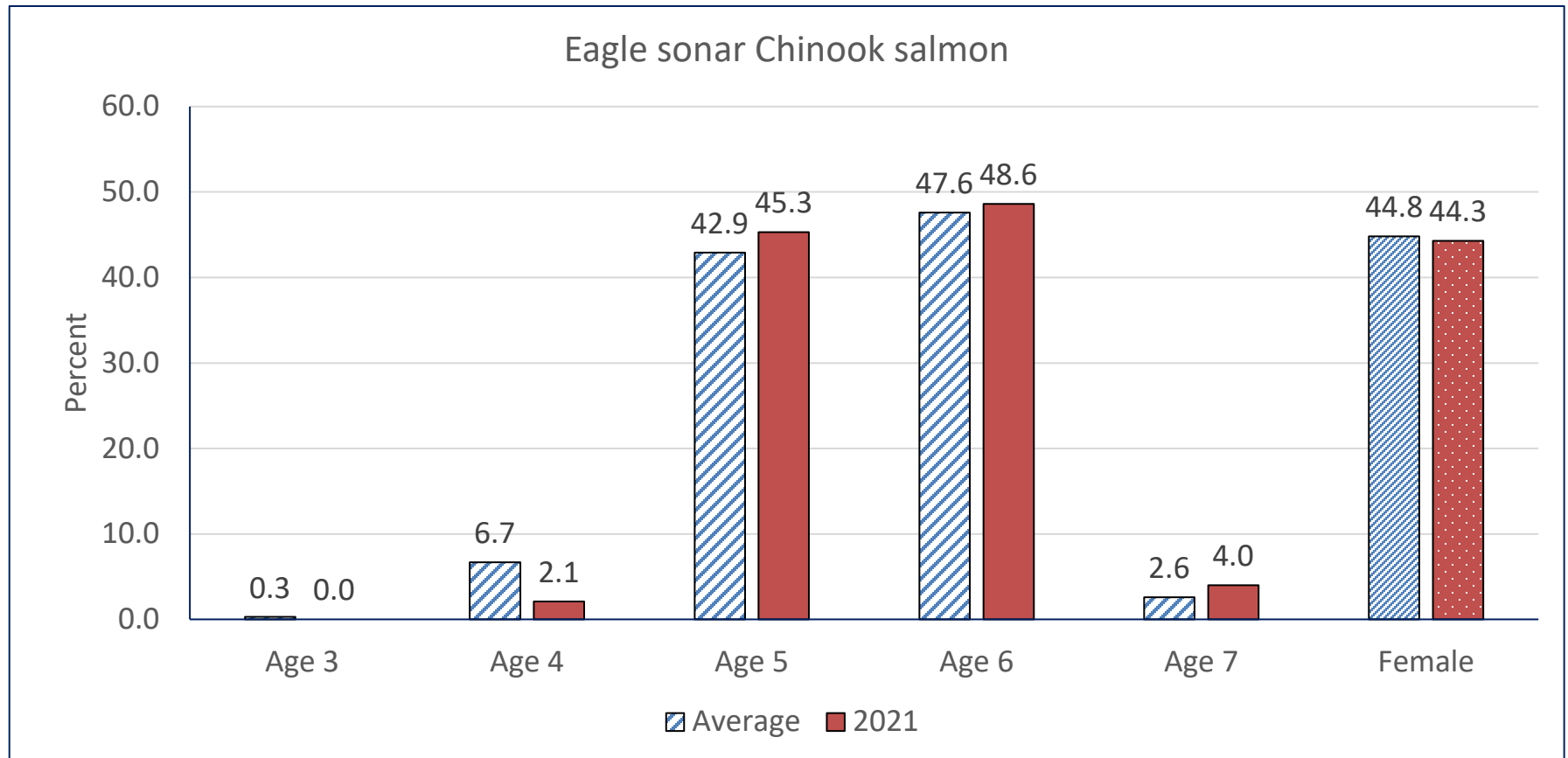
Chinook salmon Age & Sex Composition Pilot Station Sonar



- More 6- and 7-year-olds than average (2012-2021)
- Percent of females higher than average



Chinook salmon Age & Sex Composition Eagle Sonar

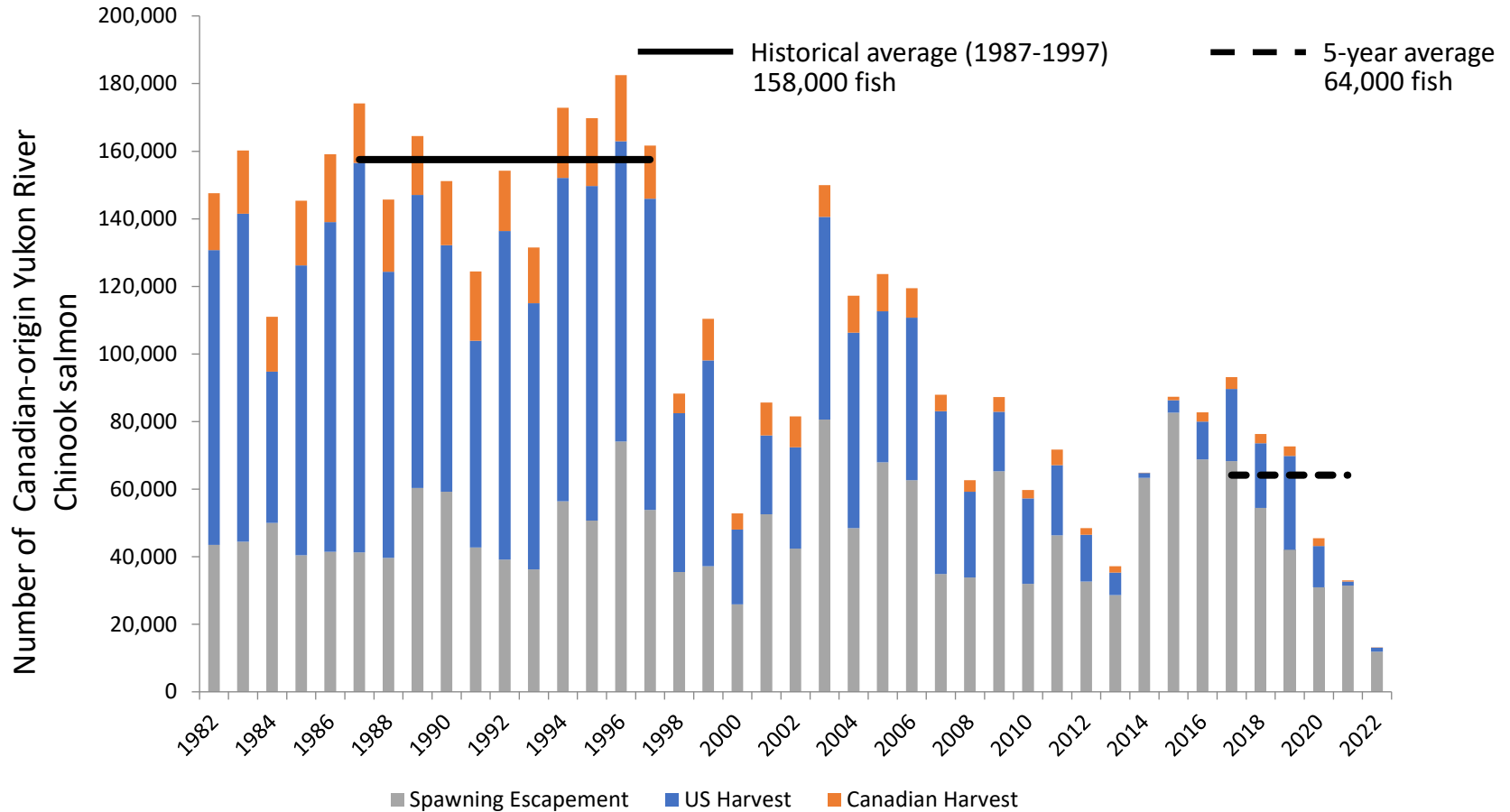


- 5-, 6-, and 7-year-old fish above average (2012-2021)
- Percent females slightly below average

Total Canadian-origin Chinook Salmon Run

AK harvest (CDN origin) + CDN harvest + escapement = Total CDN run

1,214 (BASED ON 2021) + 100 + 11,887 = 13,201



- Total Canadian-origin run size estimated to be 13,201 Chinook salmon
- Below the recent 5-year average of 64,000 fish

Canadian-origin run difference between Pilot Station and Eagle

Canadian-origin Chinook salmon estimate at Pilot Station sonar	Point Estimate 22,000	CI * +/-3,600
Estimated harvest above Pilot (Canadian-origin)	<1,000	~ +/- a few
Fish expected at the border	21,000	+/- 3,600
Eagle sonar count Chinook salmon	Point Estimate 12,025	+/- 196
Difference	Difference 8,975	+/- 3,300

* CI: Confidence Interval

- Despite estimating over 21,000 Canadian-origin Chinook salmon in the lower river, we only saw 12,025 fish at Eagle sonar
- There was a difference of approximately 9,000 fish between our inseason estimate and the Eagle sonar count of the Canadian-origin run

Assessment and local knowledge

- Sonar counts are the best they can be, but have uncertainty associated with estimates
 - Apportionment methods have been refined continuously at the projects
 - Pilot Station sonar has over and underestimated the run in the past, with no consistent bias either way to be corrected for. Since 2005, based on passage and genetic proportions (beyond confidence bounds):
 - 2009, 2011, 2015: Eagle sonar estimate + harvest was **higher** than the estimate at Pilot Station Sonar
 - 2013 and 2017: Eagle sonar estimate + harvest was **lower** than the estimate at Pilot Station Sonar
 - 2019 to 2022: Eagle + harvest **lower** than PSS, possibly due to Ichthyophonus or other en route mortality factors
 - No indications of technical issues or problems with assessment in 2022
- Fishermen reports confirmed low abundance
 - Usual spawning areas were empty
 - Observations and remarks on predator and scavenger activity (bears, wolves, belugas, pike, etc.)

Summary

- Difference between estimates of Chinook salmon at Pilot Station sonar and Eagle sonar indicate a loss of fish between assessment points
- Summer chum salmon run returned within forecasted levels but no goals were met and run was below average
- Summer chum parent years were strong, indicating a loss between spawners and returns
- Salmon fishing was closed the entire summer season in all districts
- Nonsalmon fishing opportunity remained open all season
- Tremendous loss of salmon from diets and traditions
- Expect that post season harvest estimates will show some salmon harvested from early season, late season, and incidentally in nonsalmon gear



Photos: ADF&G staff



Research to address river management uncertainty

- ADF&G, USFWS, NOAA, YRDFA, Tribes, DFO, JTC etc. are coordinating with experts on a variety of topics. Results will be shared as published papers, presentations, project proposals, etc.

Current area of focus include:

- Marine environment, salmon survival and distribution (SOEP)
- Difference between inseason estimates of Canadian-origin run size (at Pilot Station sonar) versus post season estimates of run sizes
- Ichthyophonus and en-route mortality
- Chinook salmon radio telemetry (starts summer 2023)
- Salmon health: egg samples, stomach contents, intestines (parasites), fat meter, muscle biopsy (samples being analyzed)
 - Paralytic Shellfish Poisoning: salmon livers from LYTF were sent to Bruce Wright (Knik Tribe); all samples were non-detect



Acknowledgements:

**Communities of Alakanuk, Emmonak, St. Mary's,
Pilot Station, Anvik, Tanana, Rampart, and Eagle
Tanana Chiefs Conference
U.S. Fish & Wildlife Service
Yukon Delta Fisheries Development Association
Yukon River Drainage Fisheries Association
Yukon River Intertribal Fish Commission**

ADF&G Summer Season Team Contacts

**Deena Jallen – Area Manager
deena.jallen@alaska.gov**

**Fred West – Research Biologist
fred.west@alaska.gov**

**Sam Decker – Assistant Area Manager
sam.decker@alaska.gov**

**Josh Clark – Assistant Research Biologist
joshua.clark@alaska.gov**

**USFWS Subsistence Fishery Manager
Holly Carroll: holly_carroll@fws.gov**

