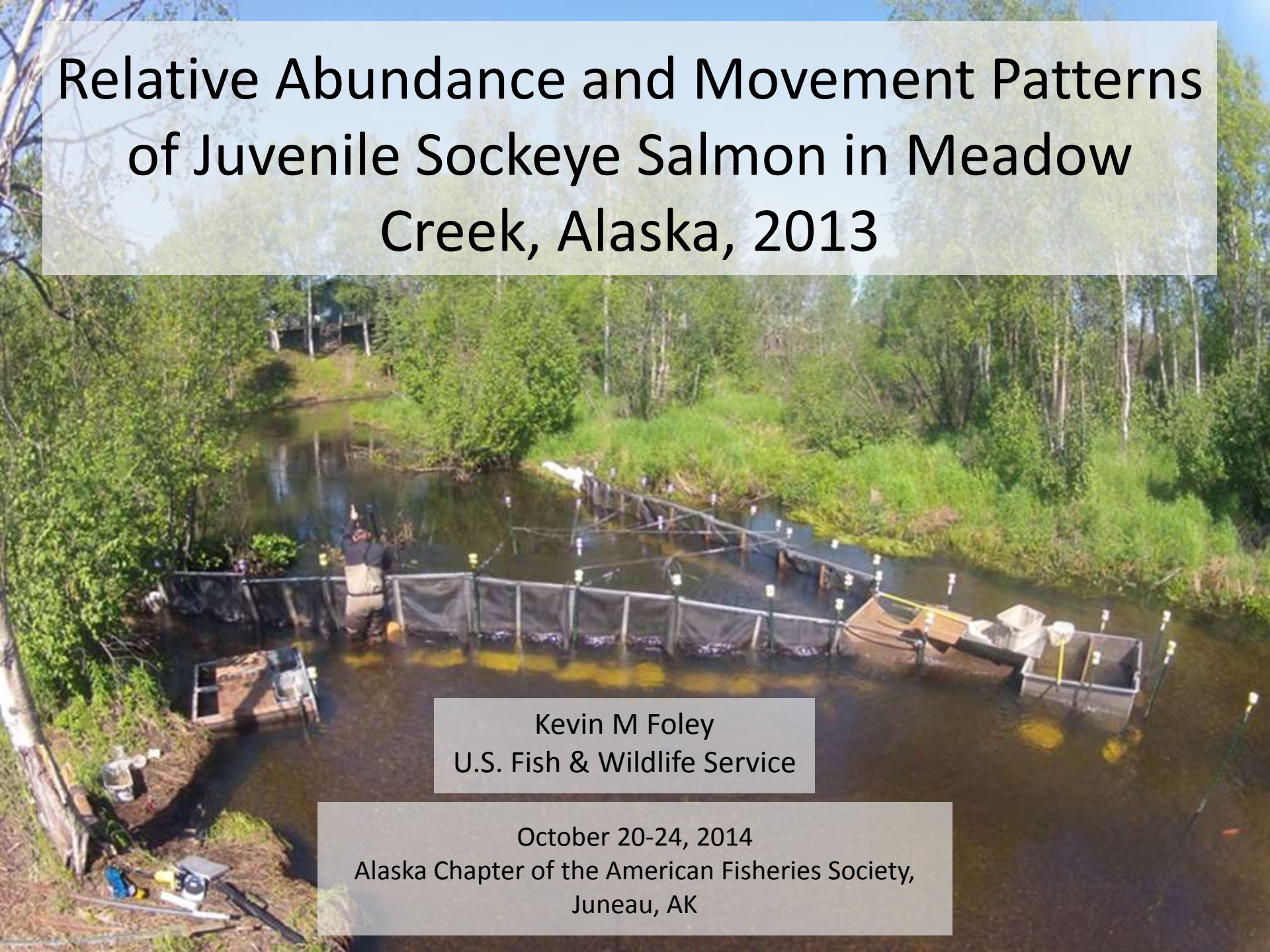
Relative Abundance and Movement Patterns of Juvenile Sockeye Salmon in Meadow Creek, Alaska, 2013



Kevin M Foley
U.S. Fish & Wildlife Service

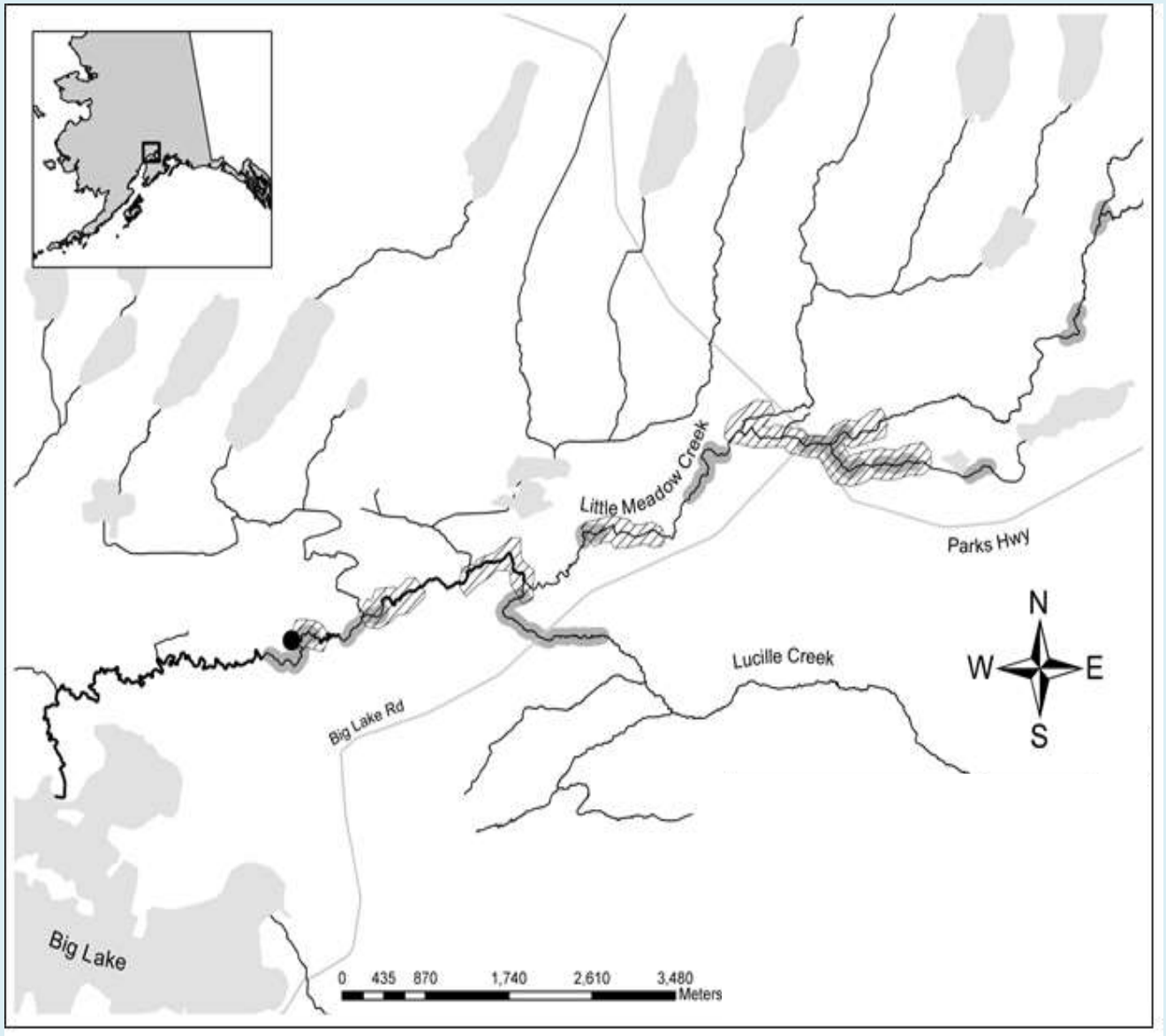
October 20-24, 2014
Alaska Chapter of the American Fisheries Society,
Juneau, AK

Meadow Creek Sockeye

- USFWS
  - Telemetry Sockeye Salmon
  - Spawning enclaves
  - Meadow &
    Little Meadow creeks ~ 50%
  - Big Lake


Photo: USFWS

Sockeye Spawning Enclaves



Sampling Infrastructure

- ADF&G (Fish Creek)
  - Adult weir
  - Smolt fyke


Photo: ADF&G

- USFWS
  - PIT tag antennas
  - Track movements


Photos: USFWS

Restoration and Conservation Efforts in the Mat-Su

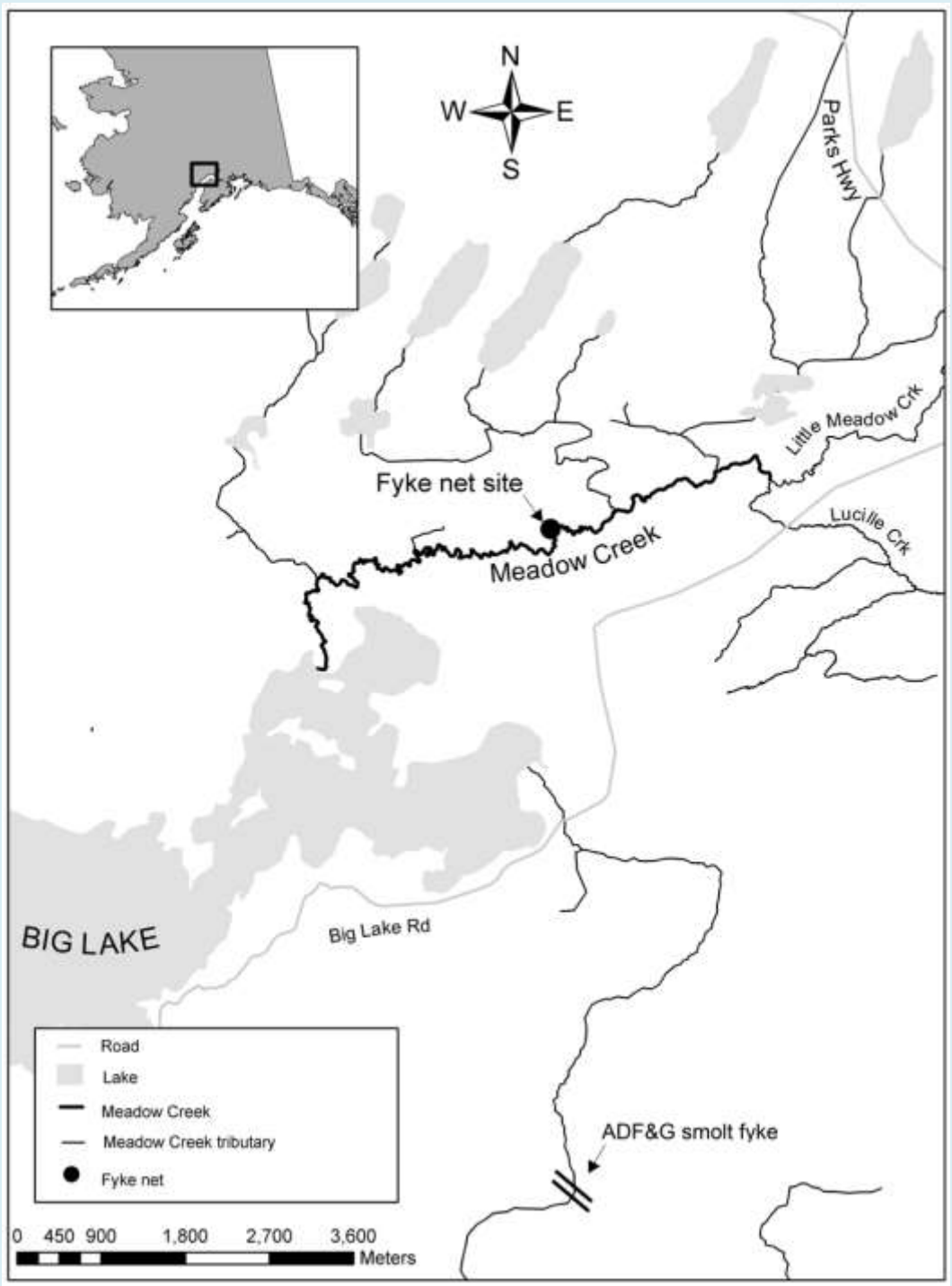
- Culvert replacement
- Fish passage design
- Big Lake watershed


Photo: USFWS


Photo: USFWS/Katrina Mueller

At Question for Sockeye Salmon

- Movements into Big Lake
- Differential movements by cohort
- Timing of emigration


N
W
E
S
Parks Hwy
Little Meadow Crk
Fyke net site
Meadow Creek
Lucille Crk
BIG LAKE
Big Lake Rd
Road
Lake
Meadow Creek
Meadow Creek tributary
Fyke net
ADF&G smolt fyke
0 450 900 1,800 2,700 3,600
Meters

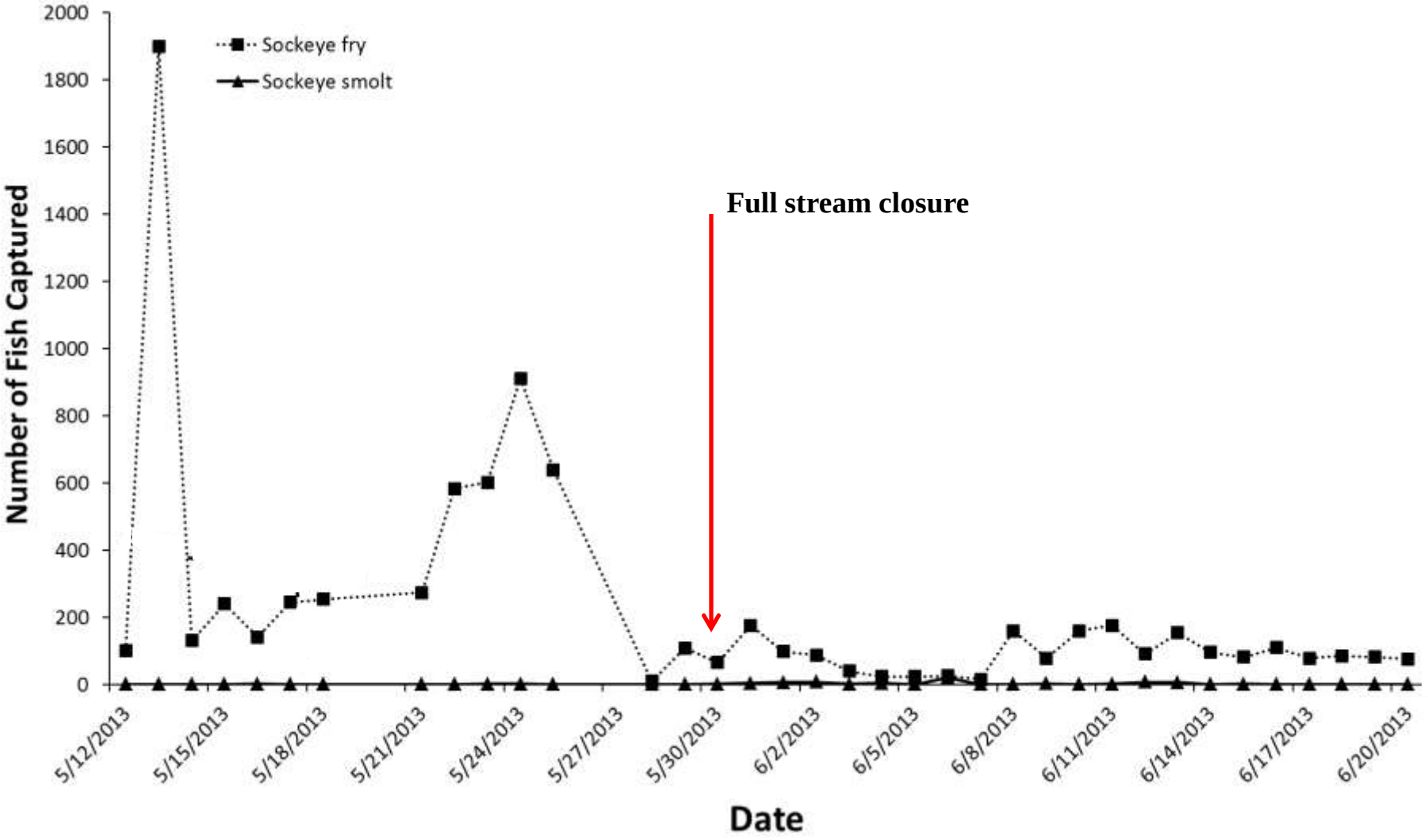
Modified Fyke Net

- Modified fyke net
  - Overlapping panels
  - Cleared every 2 h
  - Recorded FL and weight

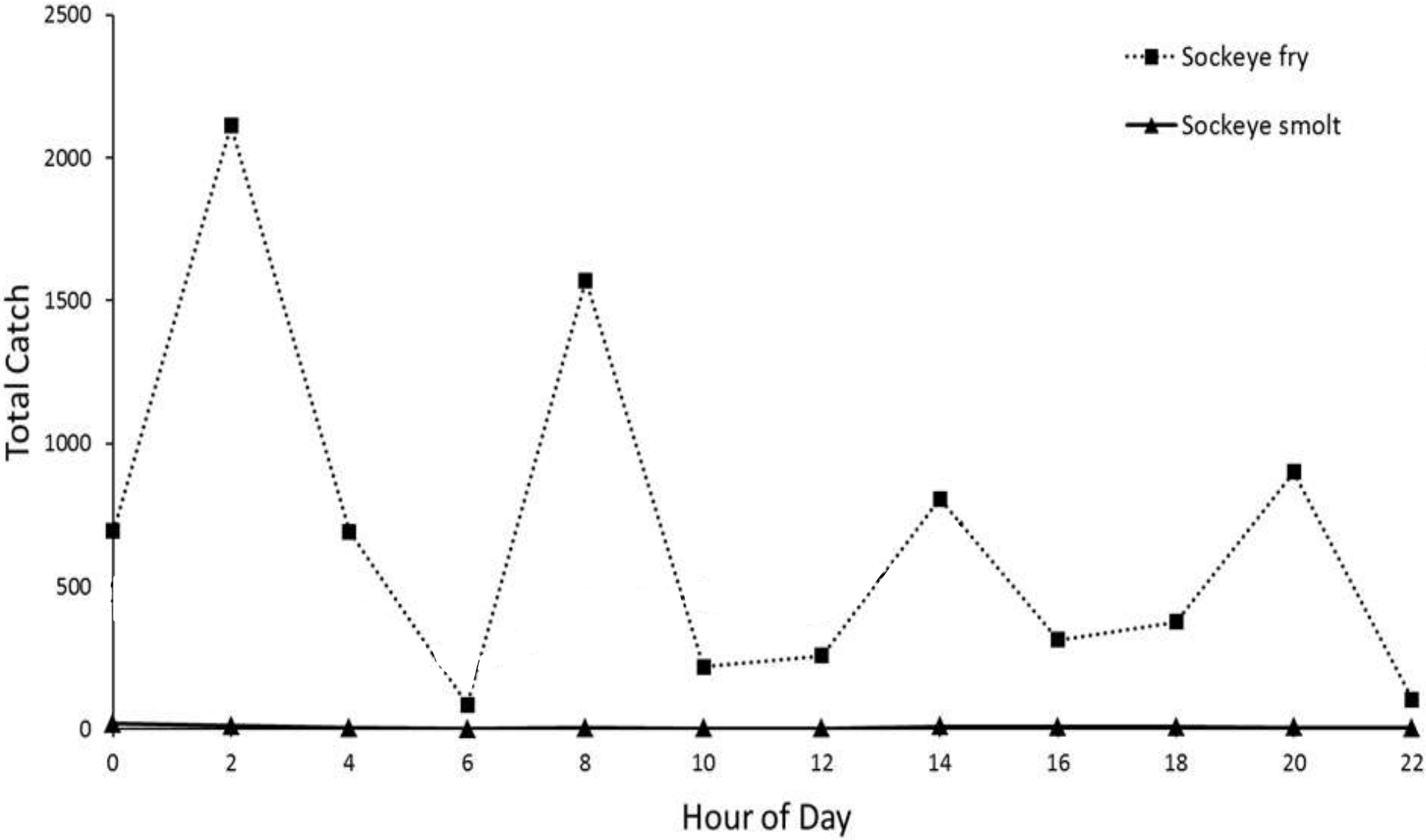
- Installed after ice-out
  - May 12th
  - Full closure May 30th

Photos: USFWS/Kevin Foley

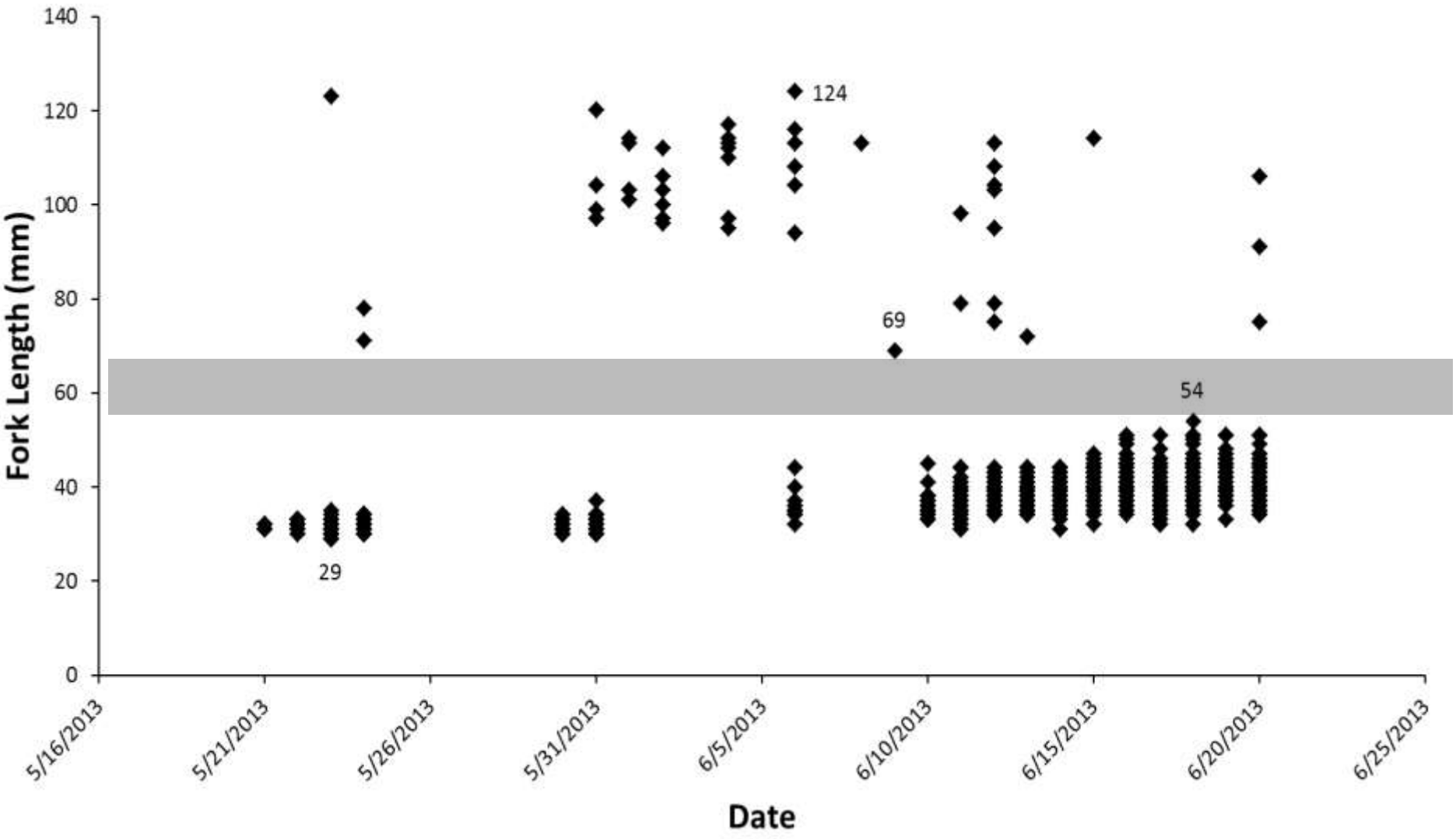
Daily Sockeye Catch



Hourly Sockeye Catch



Sockeye Salmon Fork Length



Total Sockeye Capture

Sockeye Salmon	Capture
Fry	7,255
Smolt	66

Total	7,321

Why Low Catch?

- Effectiveness of fyke net
  - Few Sockeye smolt captured
  - Capture proportion (<0.001%)

- Compare to Coho smolt
  - Approximately 10% capture proportion!

Why Low Catch?

- Peak run time?
  - Meadow Creek ~ June 6th
  - Fish Creek ~ May 31st

Stream	Peak	# Fish
Fish Creek	May 31st	~89,000
Meadow Creek	June 6th	~20

Why Low Catch?

- Peak run time?
  - Meadow Creek ~ June 6th
  - Fish Creek ~ May 31st

- Sockeye smolt move early?

Stream	Peak	# Fish	Arrival
Fish Creek	May 31st	~89,000	May 25th
Meadow Creek	June 6th	~20	n/a

The Fish Moved Early!

- Fyke net installed after ice-out
  - Fish moved under or with ice
  - Missed the mass movement into Big Lake

The Fish Moved Early!

- 100 yr flow event!
  - Truncated migration?

General Conclusions

- Alternate rearing areas are present

- Current fish passage designs are adequate

Acknowledgements

- Mat-Su Basin Salmon Habitat Partnership

Mat-Su Basin Salmon Habitat Partnership
working for thriving fish, healthy habitats, and vibrant communities in the Mat-Su Basin

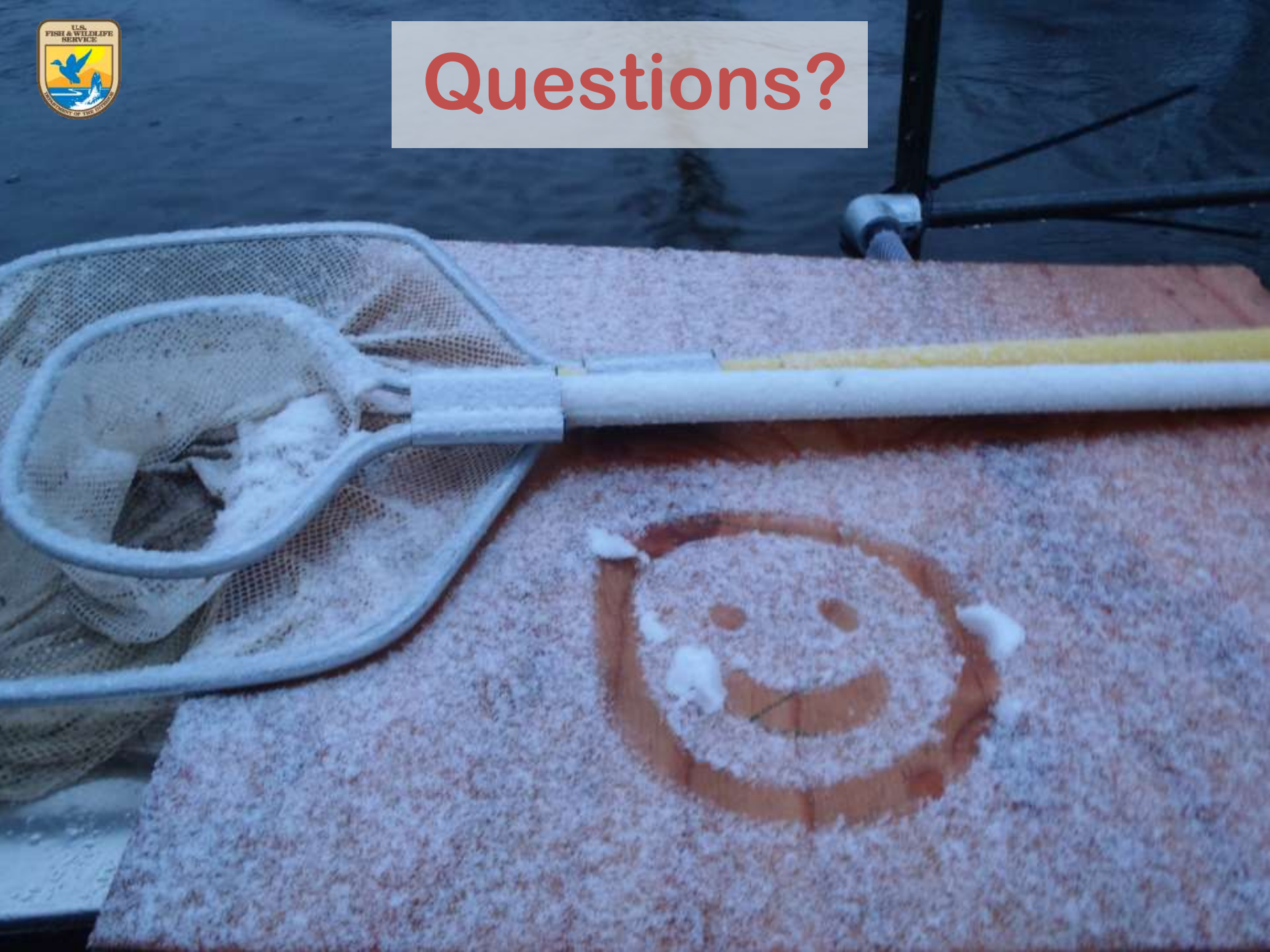
- Bob DeCino and Mark Willette – ADF&G

ALASKA DEPARTMENT OF FISH AND GAME

- Cook Inlet Aquaculture Association.

CIAA

- USFWS techs: Casey Balthrop, Jennifer Gregory, Sarah Laske, Danielle McClain, Greg Muller, Matt Olsen, Steve Schwartz, Casey Smith


Questions?