#### Genetic Stock Composition of the Commercial Harvest of Sockeye Salmon in Kodiak Management Area, 2014–2016: Separating Cook Inlet into Four Groups



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# Topics to be covered:

- 1. Background
  - KMA Salmon Fishery
  - Kodiak Genetics Study
- 2. Genetic Baseline Testing
  - Split Cook Inlet Reporting Group
- 3. Genetic Mixed Stock Analysis Results
  - Stock-Specific Harvest
    - By Area
    - By Time
- 4. Interpretation

# Background: KMA Salmon Fishery

- Kodiak Salmon Fishery
  - Sockeye, pink, chum, coho
- Late 70s, BOF mgmt plans (e.g. Westside, Alitak, Igvak)
- Maintain traditional fishing opportunities and allocations
- Mixed stock fisheries (local and non local)
  - Previous sockeye studies



# **Background: Kodiak Genetics**



- 6 Areas
- 3 Temporal
  - > Early (June)
  - Middle (July)
  - Late (Aug)
- 3 Years (2014-16)
- 45K samples
- 18K genotyped
- Board of Fisheries
  - Kodiak (Jan)UCI (Feb)

#### **Genetic Baseline**



# Genetic Baseline: Cook Inlet



#### **Genetic Baseline**



Reporting Group

#### **Results-Example**



#### Uganik-Kupreanof Stock-Specific Harvest 200 Loke Gmill 2014 June 1-27 150 June 28-July 25 □ July 26-August 29 Bechur of Lake 100 50 Number of Fish Harvested (Thousands) \*\*\* \*\*\* \*\*\* 200 2015 June 1-July 3 150 July 4-August 1 August 2-29 100 Uganik-Kupreanof 50 0 200 2016 June 1-27 150 June 28-July 25 July 26-August 29 100 50 0 Black Chignik U. Station Ayakulik Karluk Uganik Northwest Afognak Eastside Saltery Other Susitna Kenai Kasilof Lake Lake Akalura Frazer Kodiak Kodiak Cook Inlet 0 5 10 20 West of Chignik Kodiak Cook PWS South of 30 Cape Suckling Kodiak Chignik Inlet

#### **Regional Reporting Group**



Island

#### Uyak Stock-Specific Harvest



<sup>10</sup> 

#### Karluk-Sturgeon Stock-Specific Harvest



#### Ayakulik-Halibut Bay Stock-Specific Harvest



#### Alitak Stock-Specific Harvest



<sup>13</sup> 



#### **KMA Stock Composition**



<sup>15</sup> 

#### KMA Stock-Specific Harvest



<sup>16</sup> 

## **Example Plot**







Stock-specific Harvest per Sampling Area

Sampling Area

Ayakulik	Karluk.	Uyak-	Uganik.
sibut Bay	Sturgeon		upreanof



Stock-specific Harvest

17

Kasilof PWS South of Cape Suckling

500·

400

Areas

gvak

Alitak

#### 2014 Early Stratum



#### 2014 Middle Stratum





#### 2014 Late Stratum





#### 2014 Post Sampling



#### 2015 Early Stratum



Harvest

#### 2015 Middle Stratum





#### 2015 Late Stratum





#### 2015 Post Sampling



#### 2016 Early Stratum



#### 2016 Middle Stratum



Harvest

#### 2016 Late Stratum



500 ·

Harvest

(1,000s)

20

100

200

200

300

28

Sampling Area

#### 2016 Post Sampling



#### 2014 Annual





## 2015 Annual





## 2016 Annual



2014	2014	2014
Early	Middle	Late
and a second sec	2015 Middle	2015 Late
2016	2016	2016
Early	Middle	Late



# Interpreting Results

- First information of genetic stock composition of the harvest
- Inferences outside the study years, areas, or temporal periods
  - Production regime
  - Ocean conditions
  - Prosecution of fisheries
    - Pink salmon

# Questions?