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

Purse seining in Kodiak, 1960s
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

473 Populations
6 Regional Reporting Groups
17 Total Reporting Groups
Genetic Baseline: Cook Inlet

Other Cook Inlet
Susitna
Kenai
Kasilof

Chelatna Lake
Knik Arm
Turnagain Arm
Cook Inlet
Kasilof River
Kenai River
Fish Creek
Larson Lake
Judd Lake
Crescent River
Yentna River
Susitna River
Genetic Baseline

Percent Correctly Allocated

Reporting Group

West of Chignik
Black Lake
Chignik Lake
Upper Station / Akalura
Ayakulik / Frazer
Karluk
Uganik
Northwest Kodiak
Afognak
Eastside Kodiak
Saltery
Other Cook Inlet
Susitna
Kenai
Kasilof
PWS
South of Cape Suckling
Karlik-Sturgeon Stock-Specific Harvest

2014
- June 1-27
- June 28-July 25
- July 26-August 29

2015
- June 1-July 3
- July 4-August 1
- August 2-29

2016
- June 1-27
- June 28-July 25
- July 26-August 29

Regional Reporting Group
- West of Chignik
- Kodiak
- Cook Inlet
- PWS
- South of Cape Suckling

Subregional Reporting Group
- Black Lake
- Chignik
- U Station
- Ayvakik
- Karluk
- Uganik
- North: Afognak
- Eastside
- Salyer
- Other
- Susitna
- Kenai
- Kaslof

Karluk-Sturgeon Stock-Specific Harvest
Ayakulik-Halibut Bay Stock-Specific Harvest

2014
- June 1-27
- June 28-July 25
- July 26-August 29

2015
- June 1-July 3
- July 4-August 1
- August 2-29

2016
- June 1-27
- June 28-July 25
- July 26-August 29

Regional Reporting Group
- West of Chignik
- Chignik
- Kodiak
- Cook Inlet
- PWS
- South of Cape Suckling

Subregional Reporting Group
- Black Lake
- Chignik Lake
- Akahar
- Ayakulik
- Ketrolik
- Ugak
- Northwest Afognak Eastside
- Saltery
- Others
- Susitna Kenai

Ayakulik-Halibut Bay

Map showing the areas of Alaska mentioned in the report.
Alitak Stock-Specific Harvest

- **2014**
  - June 28-July 25
  - July 26-August 29

- **2015**
  - June 1-July 3
  - July 4-August 1
  - August 2-29

- **2016**
  - June 1-27
  - June 28-July 25
  - July 26-August 29
Igvak Stock-Specific Harvest

No estimates available for 2014

2015
- July 4-August 1

2016
- June 1-27
- June 28-July 25
KMA Stock Composition

June 1-August 29
46.7% 2014
55.2% 2015
62.4% 2016
KMA Stock-Specific Harvest

June 1-August 29

46.7%  2014
55.2%  2015
62.4%  2016
Example Plot

Harvest per Sampling Area

Stock-specific Harvest per Sampling Area

Stock-specific Harvest
2014 Early Stratum
2014 Middle Stratum
2014 Late Stratum
2014 Post Sampling

[Map of sampling areas on Kodiak Island with legend for reporting groups and harvest data.]
2015 Early Stratum
2015 Middle Stratum
2015 Late Stratum
2015 Post Sampling
2016 Early Stratum
2016 Middle Stratum
2016 Late Stratum
2016 Post Sampling

[Map of KODIAK ISLAND with various districts and areas highlighted in different colors.]

[Graph showing harvest (1,000s) with different reporting groups listed on the y-axis and sampling areas on the x-axis.]
2014 Annual
2016 Annual
<table>
<thead>
<tr>
<th>Year</th>
<th>Early</th>
<th>Middle</th>
<th>Late</th>
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<td></td>
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<tr>
<td>2015</td>
<td>Early</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>Early</td>
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</tr>
</tbody>
</table>
Temporal Stratum
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?