

A new Chinook Salmon genetic baseline for Cook Inlet, Alaska: Opening doors to new analyses

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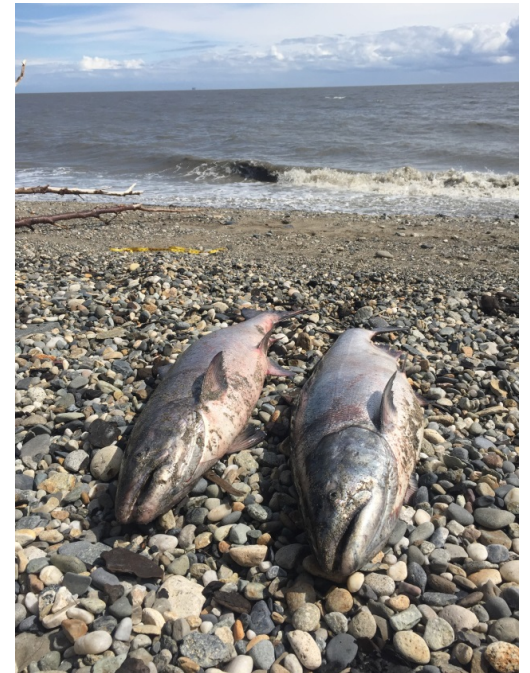
Outline

- Background: Why study Chinook Salmon in Cook Inlet?
- Old baseline: old and new assessment
- New baseline
- Current and future applications



Why study Chinook Salmon in Cook Inlet?

- Important to commercial, sport, and subsistence fisheries



Why study Chinook Salmon in Cook Inlet?

- Important to commercial, sport, and subsistence fisheries
- Recent declines
- Need for stock-specific harvest information
 - Total run = catch + escapement

Where are different stocks being caught?

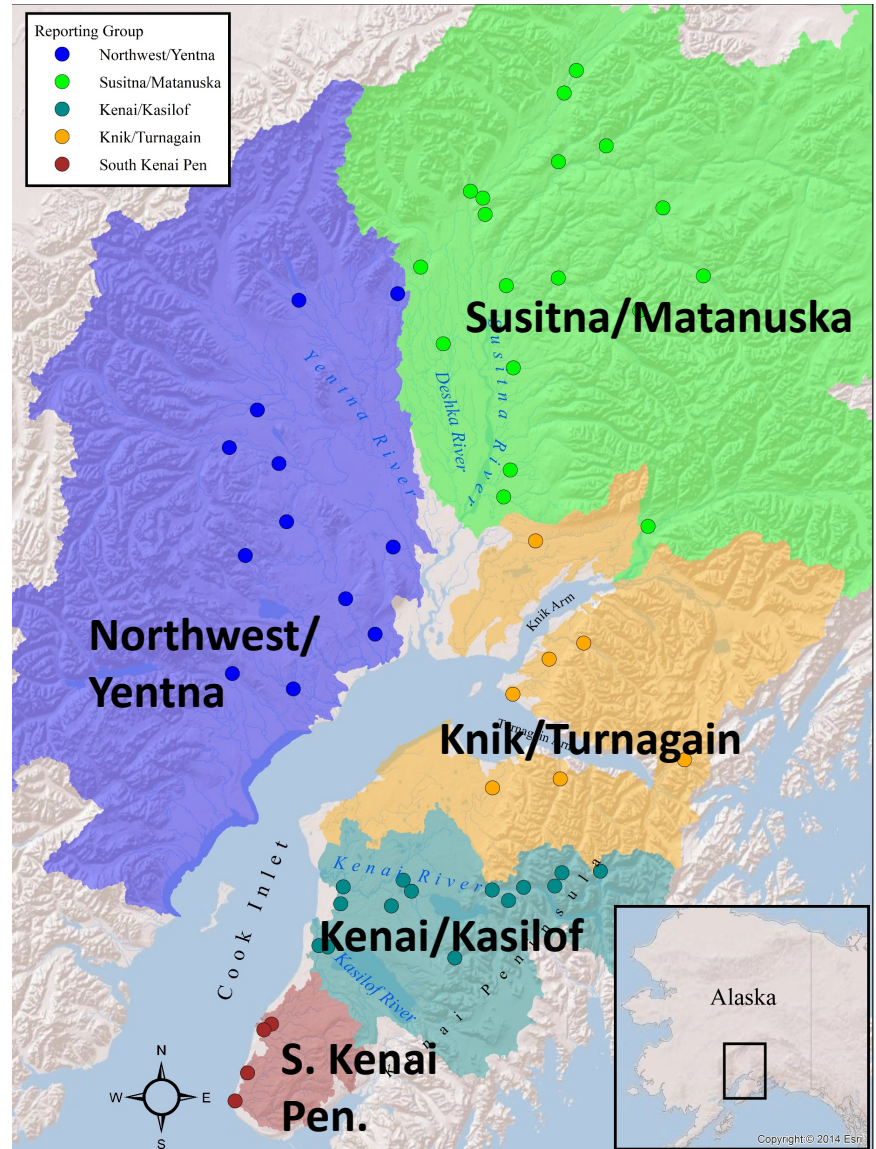
Genetics as a tool to estimate:

- Harvest by stock
- In-river run sizes
- Hatchery contributions
- Outmigration by stock



Old genetic baseline

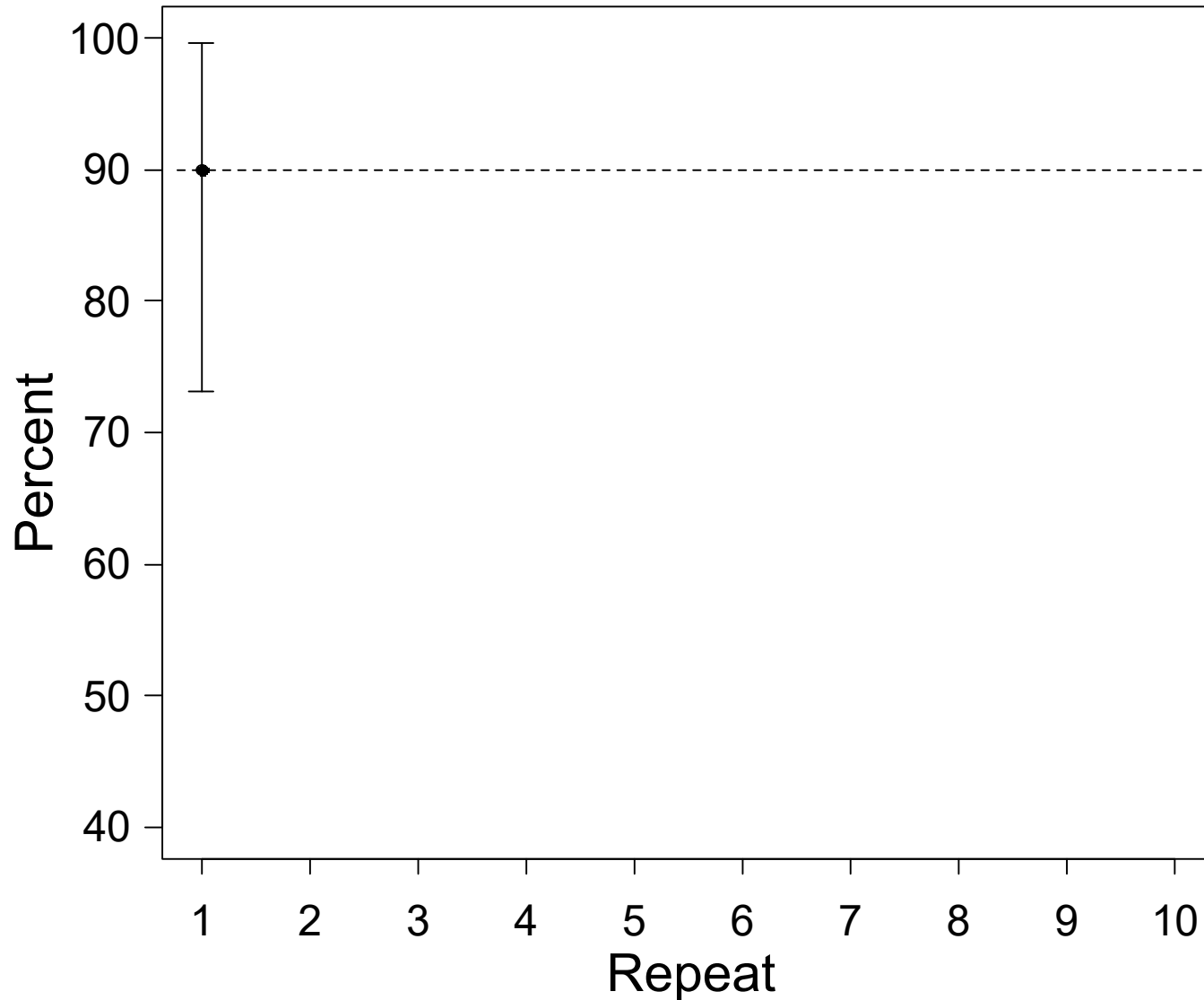
- 55 populations
- Reporting groups tested
 - Groups of populations that can be genetically distinguished
 - Reporting groups for Northern Cook Inlet issues
- 5 reporting groups identified
 - *Northwest/Yentna*
 - *Susitna/Matanuska*
 - *Knik/Turnagain*
 - *Kenai/Kasilof*
 - *South Kenai Peninsula*



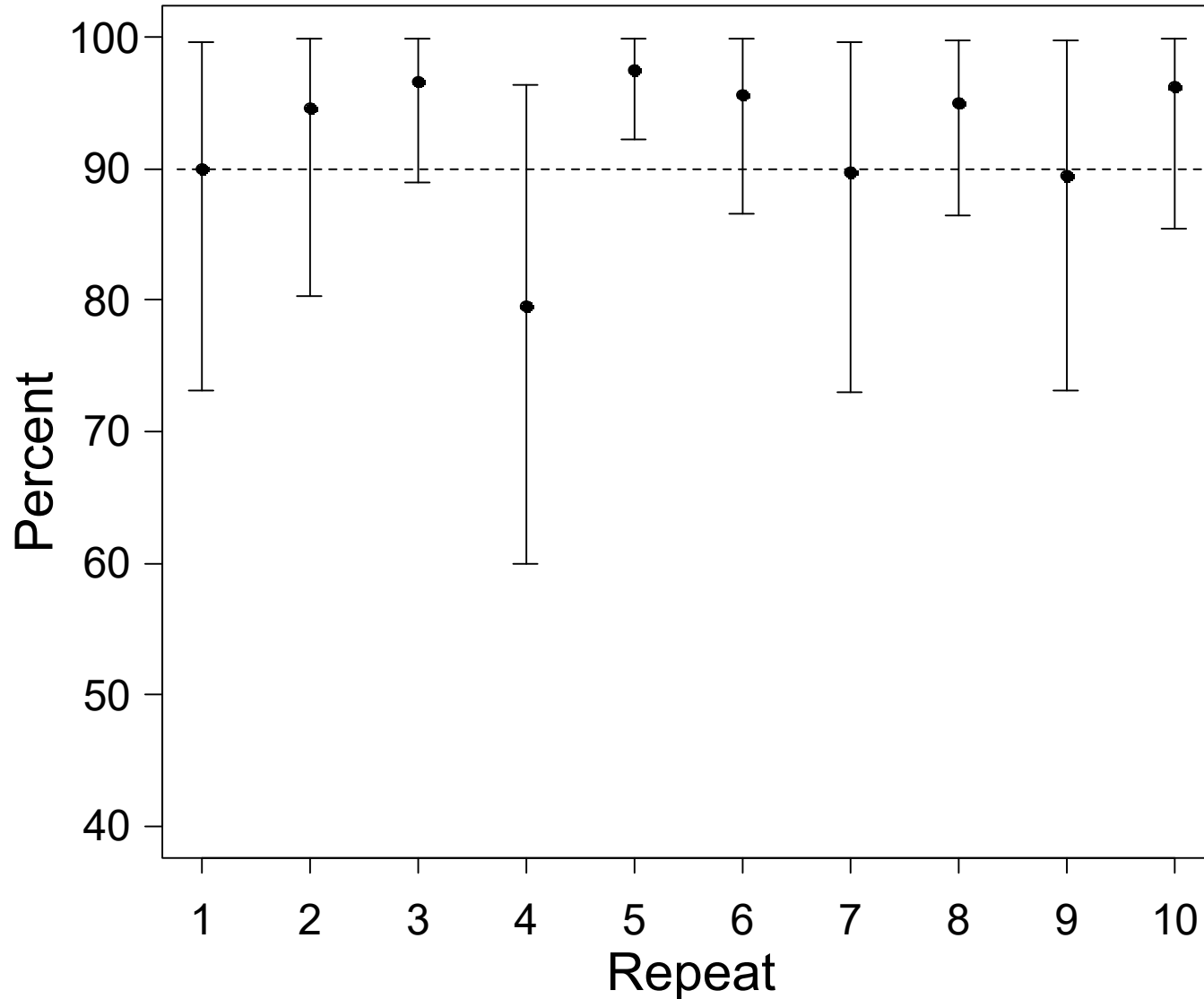
Old baseline: Good information, but with limits

- Important questions:
 - Northern District Commercial
 - Tyonek Subsistence
- Constraints:
 - Could not distinguish between Northwest Cook Inlet and Yentna River stocks
 - Some genetic distinctions were poor, so confidence intervals were large

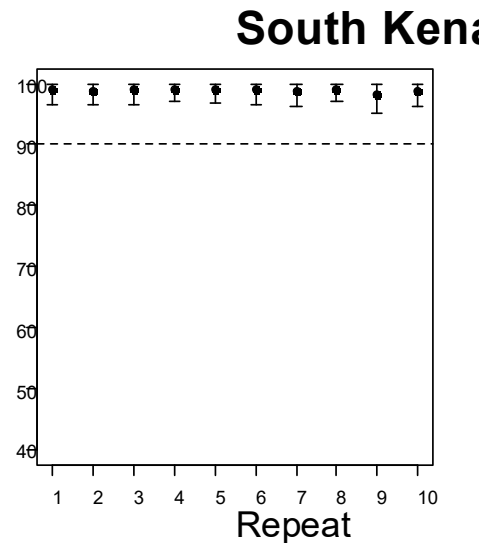
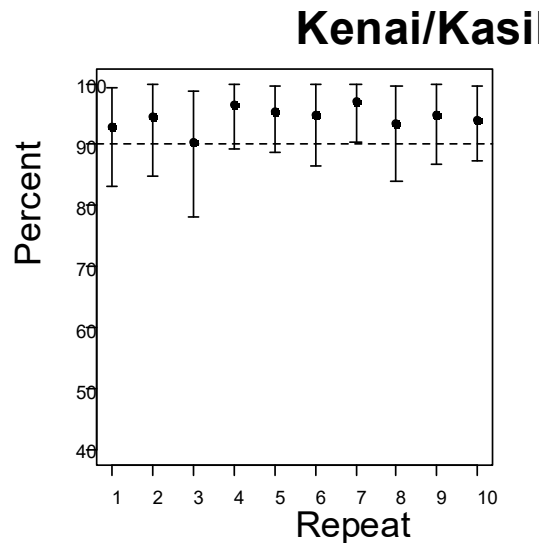
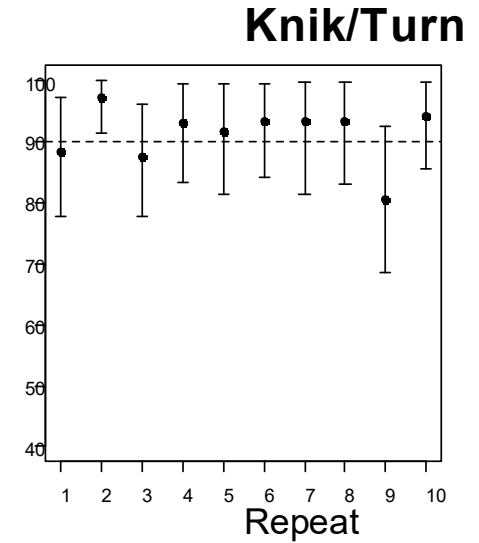
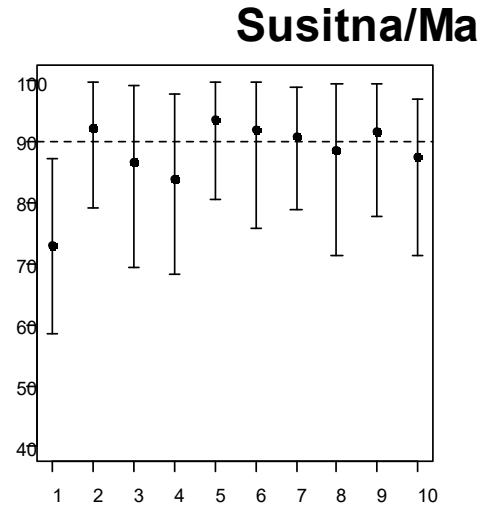
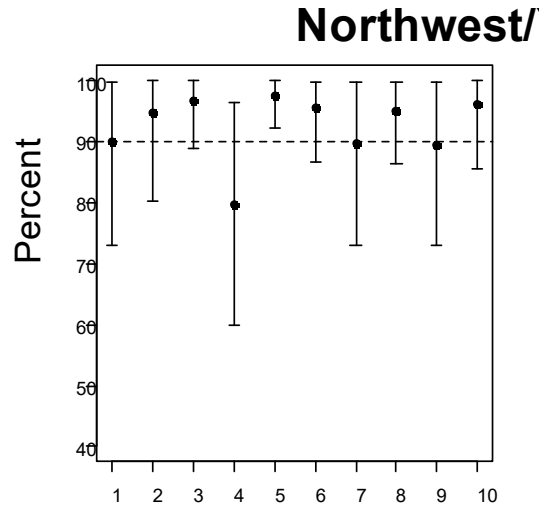
Old baseline, old assessment Northwest/Yentna



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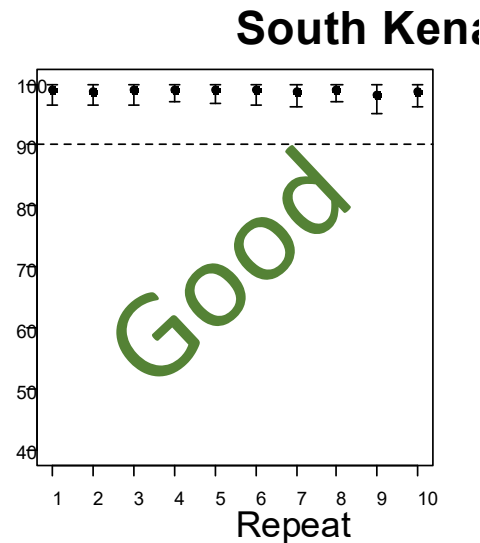
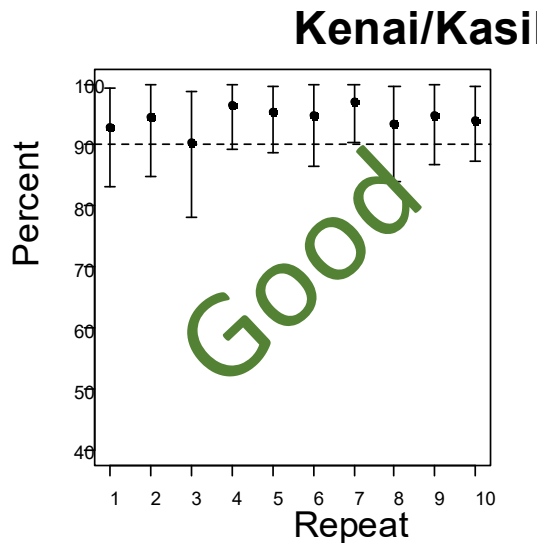
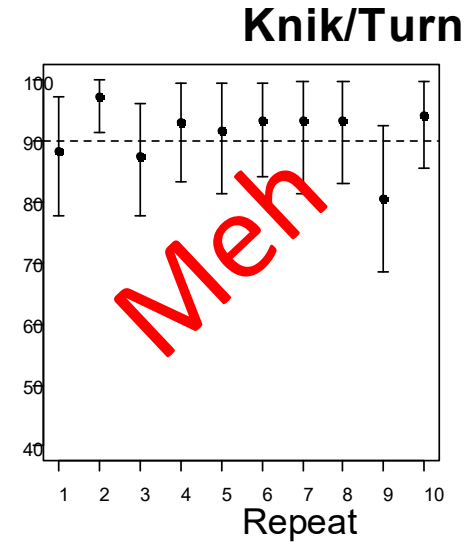
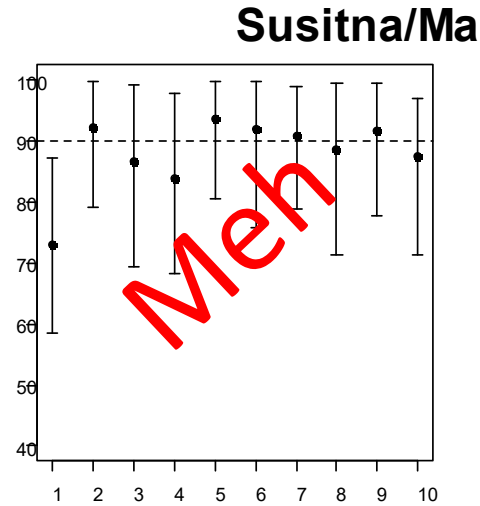
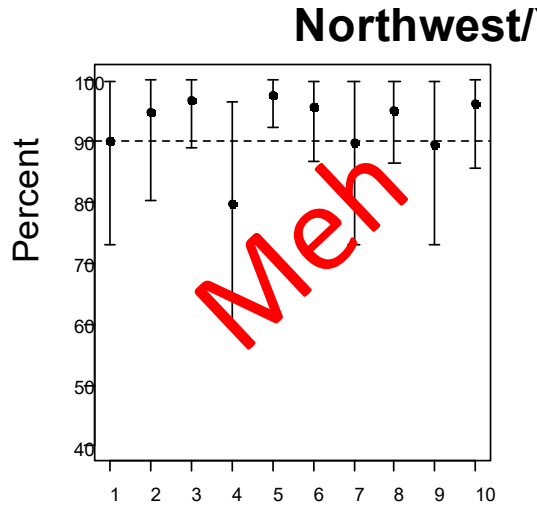


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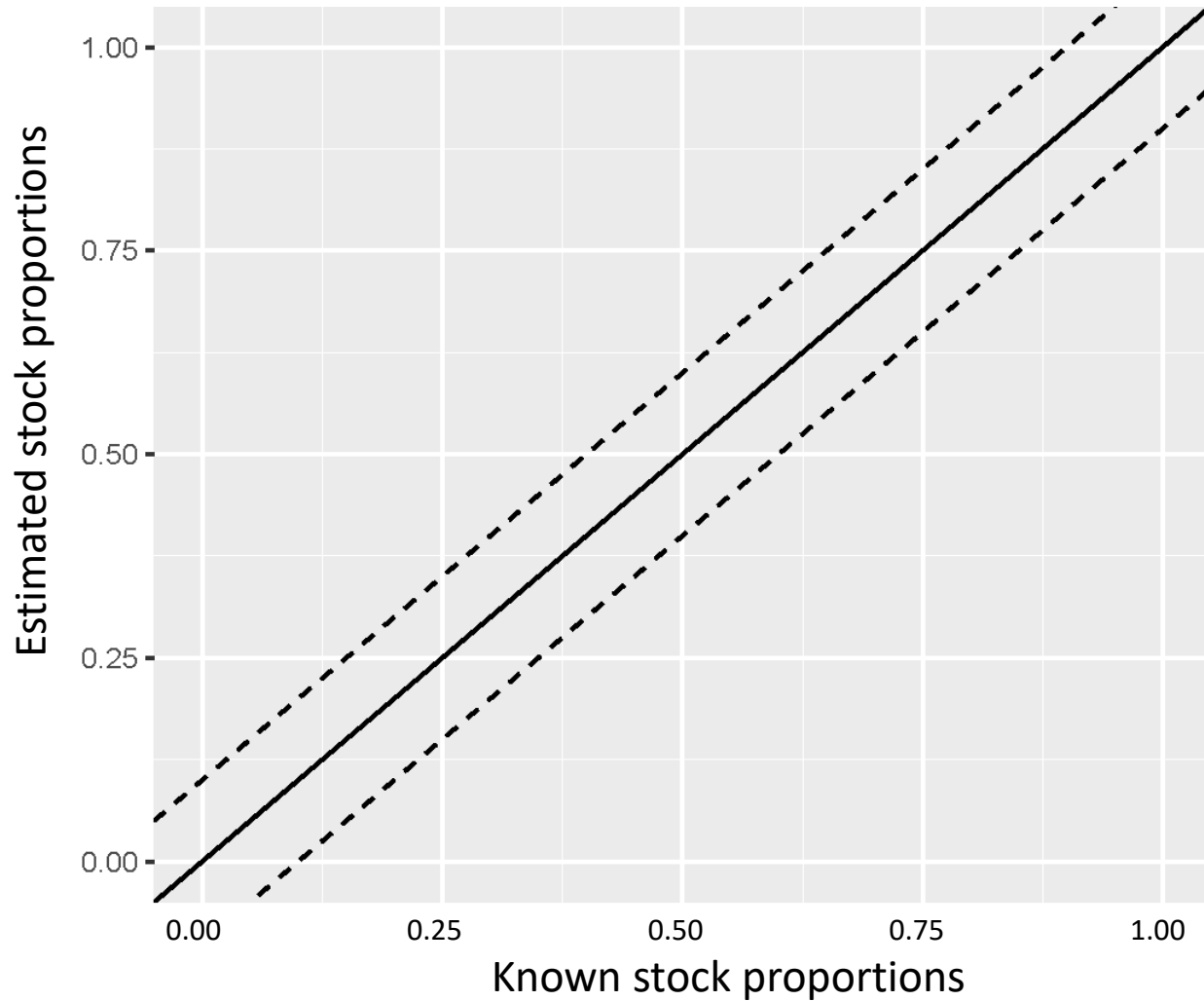
Some groups perform better than others

Old baseline, old assessment

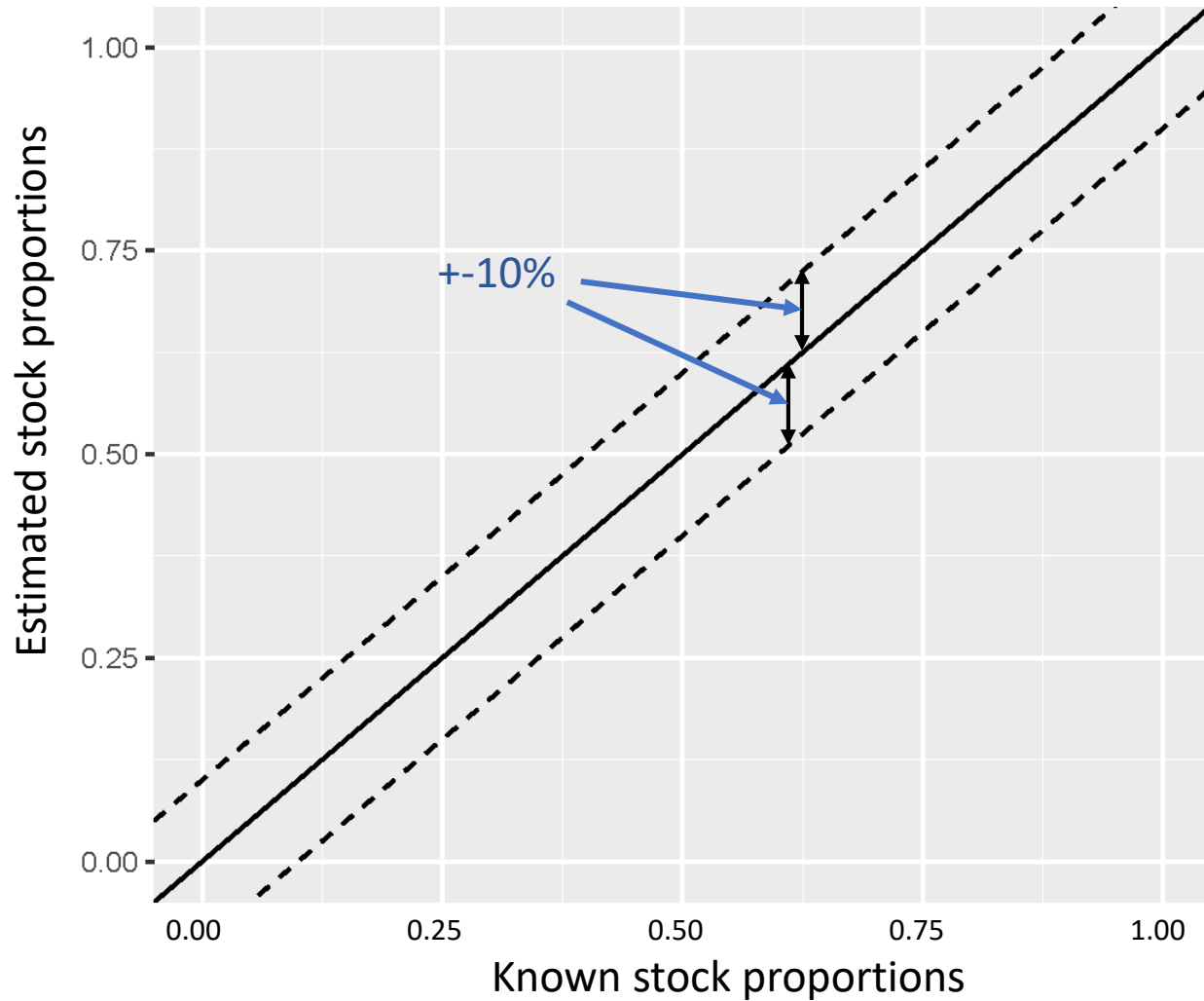


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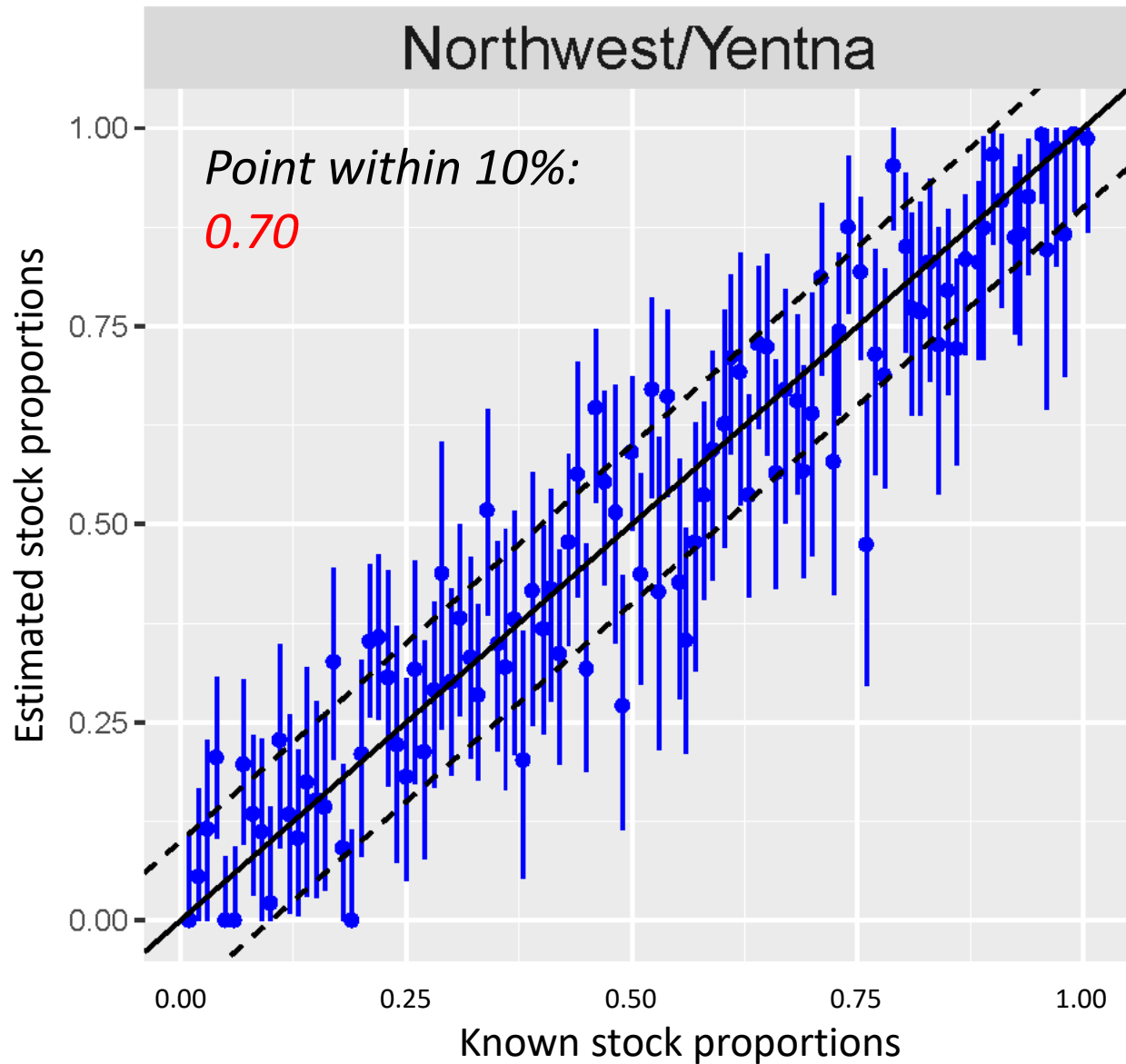
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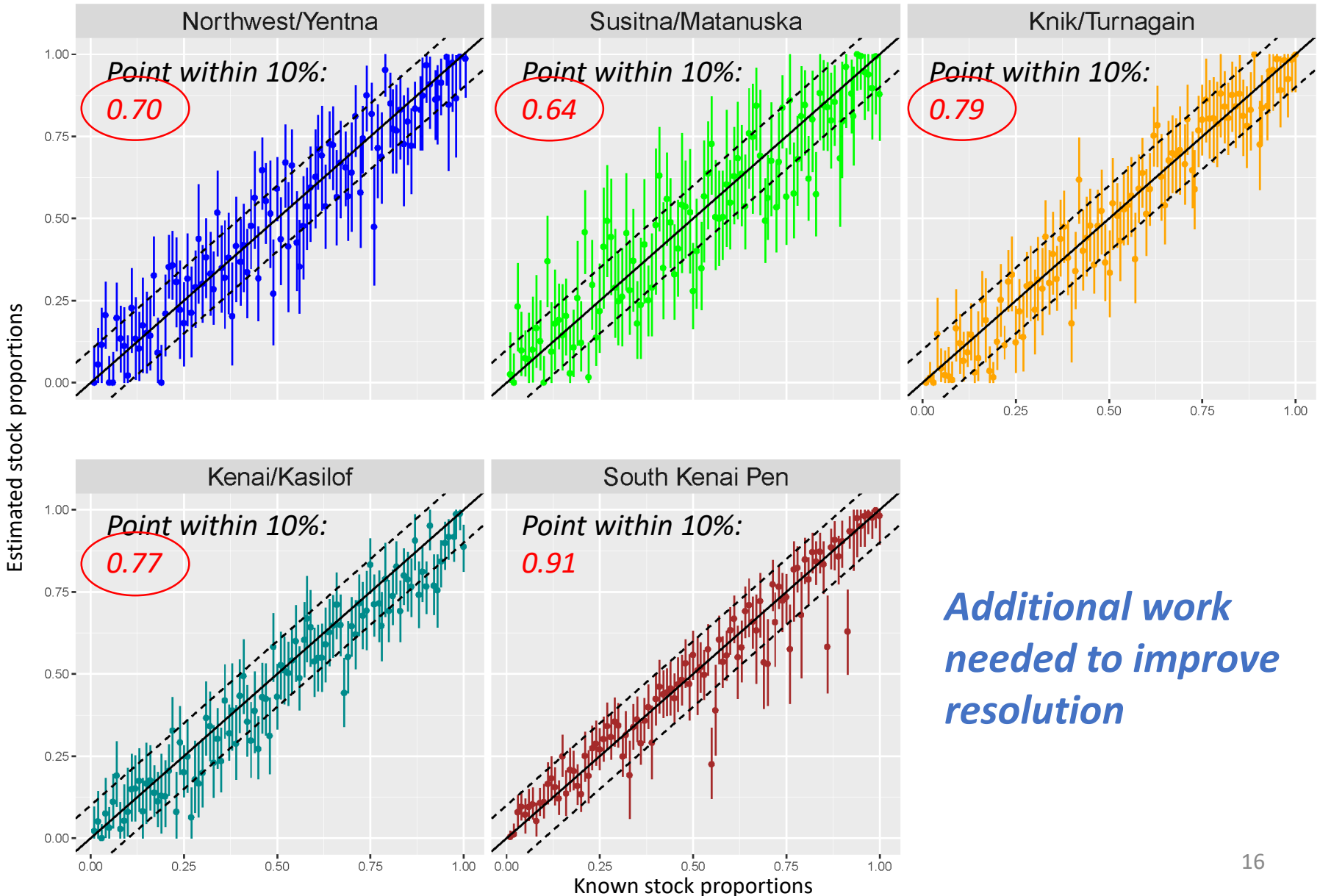
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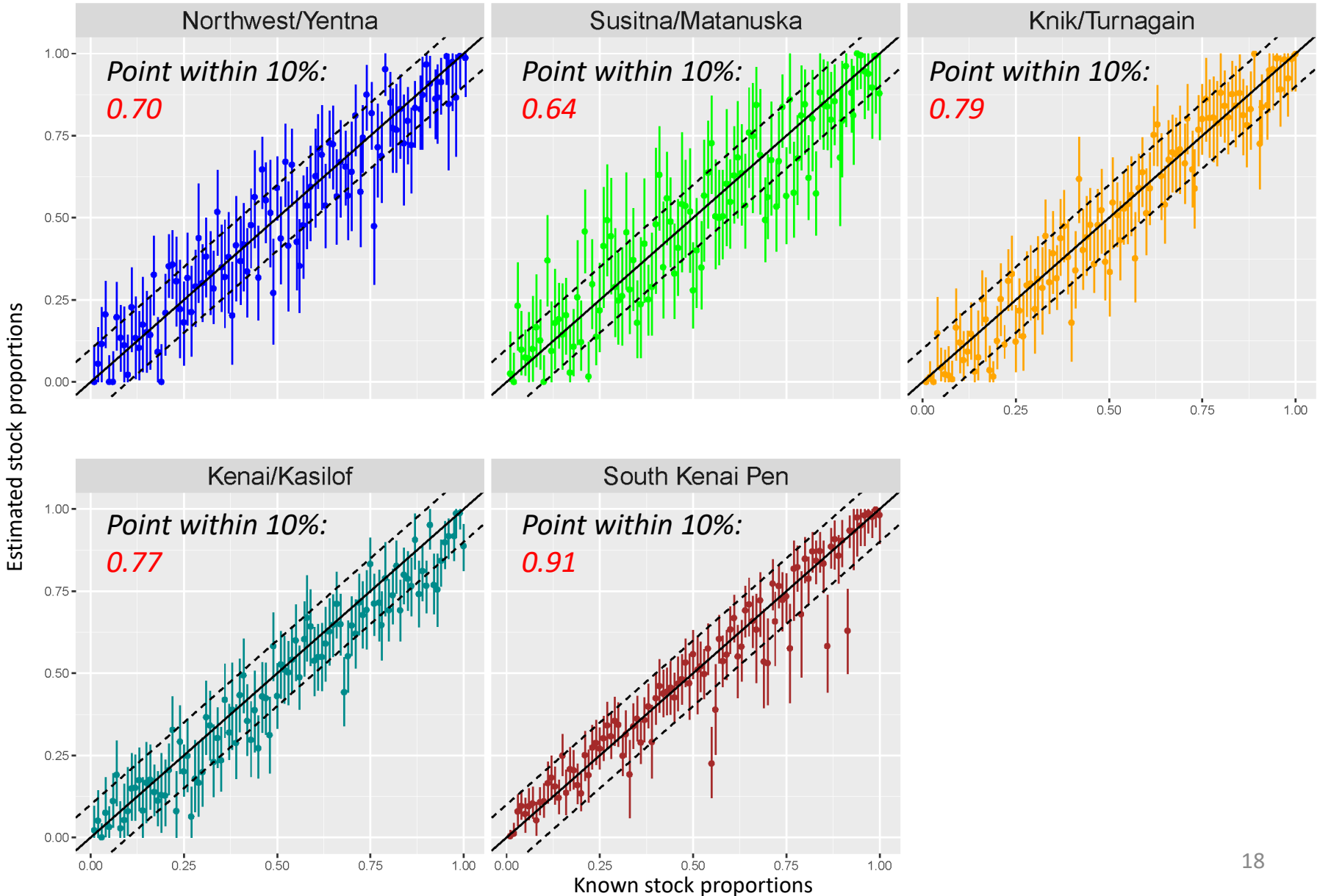
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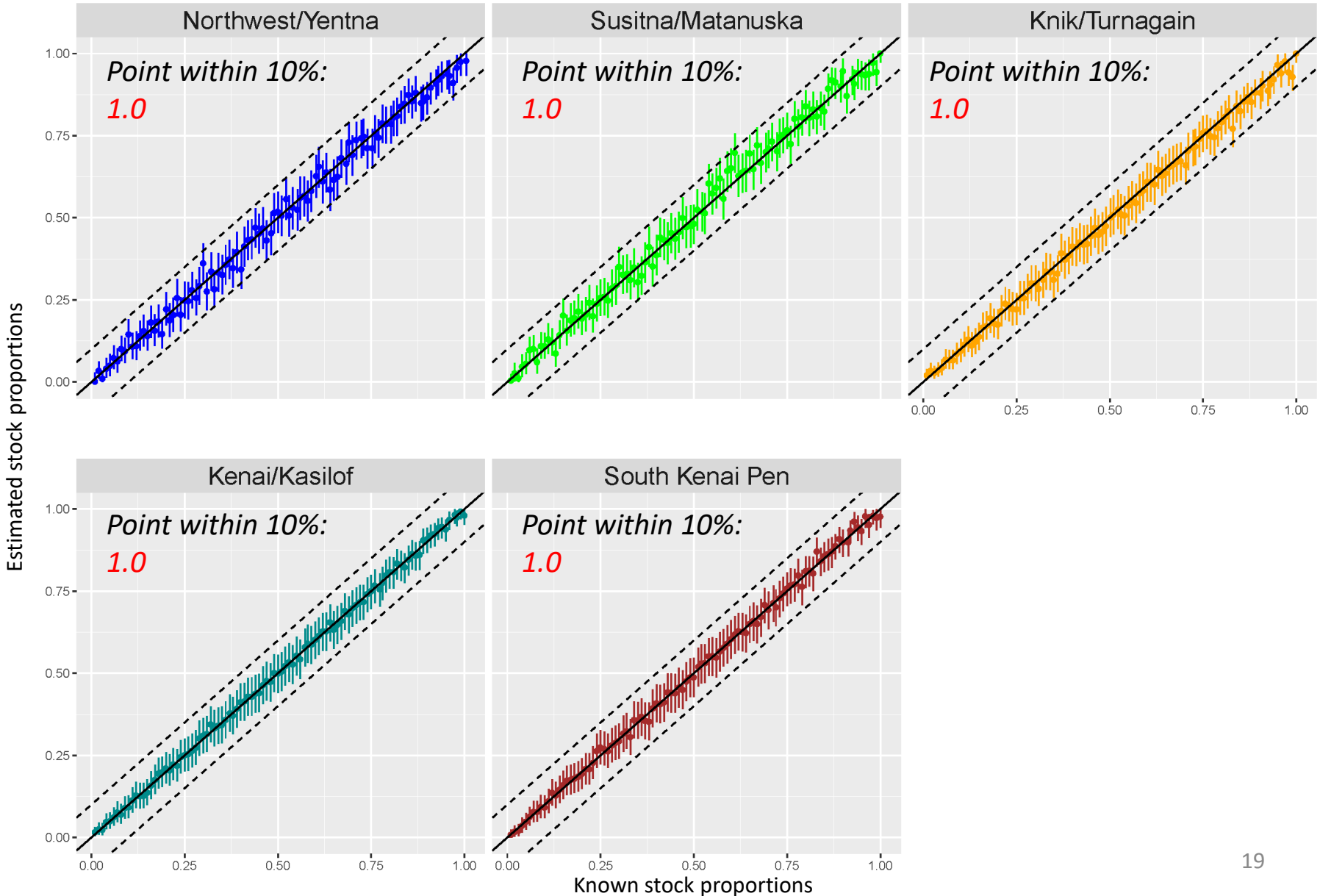
Big push to increase capability

- Issues
 - Distinguish West from Susitna (incl. Yentna)
 - Tighter estimates needed to extrapolate further
- Approach
 - Discover thousands of new markers
 - Identify markers that distinguished between West and Yentna
 - Other reporting groups expected to benefit

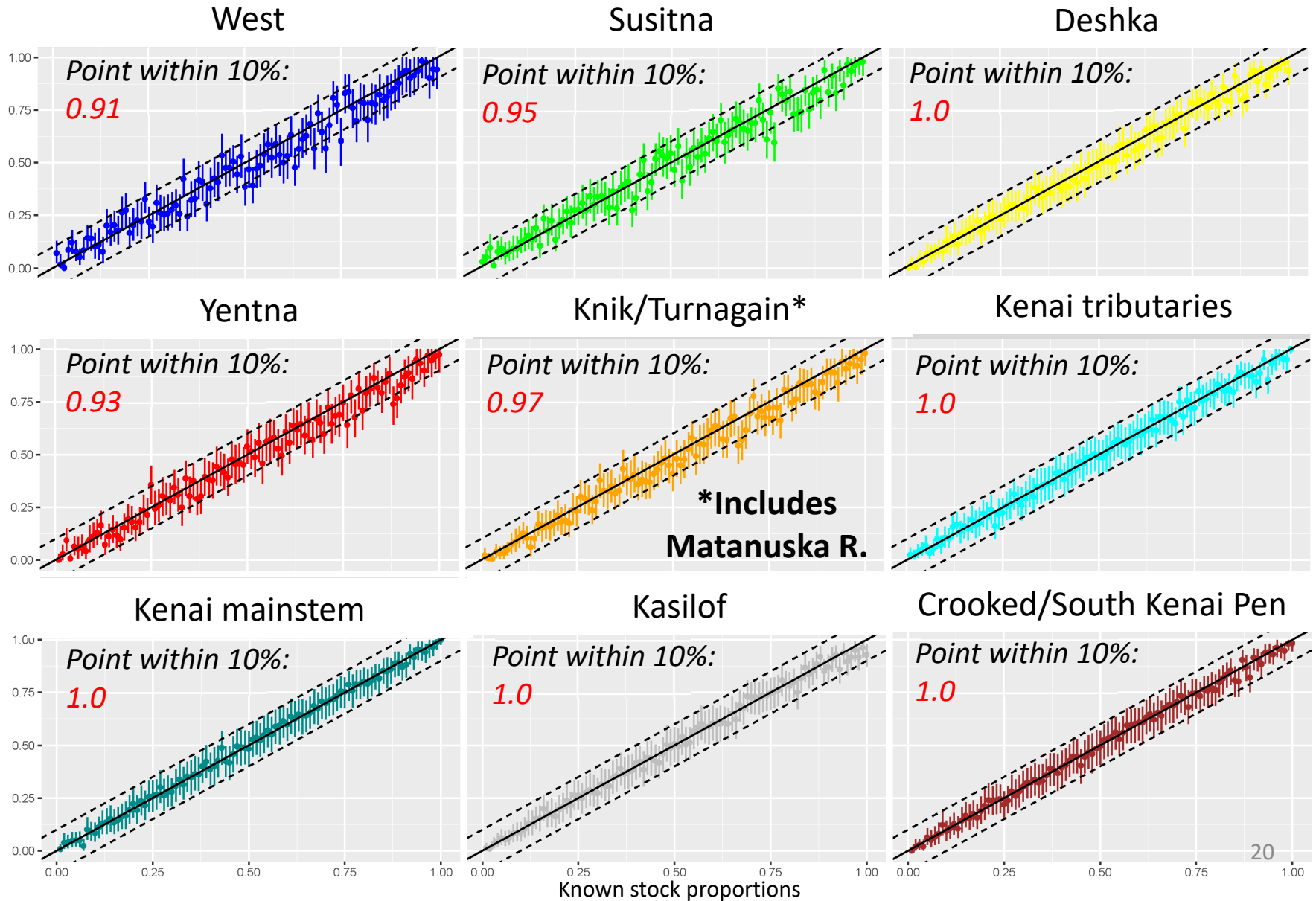
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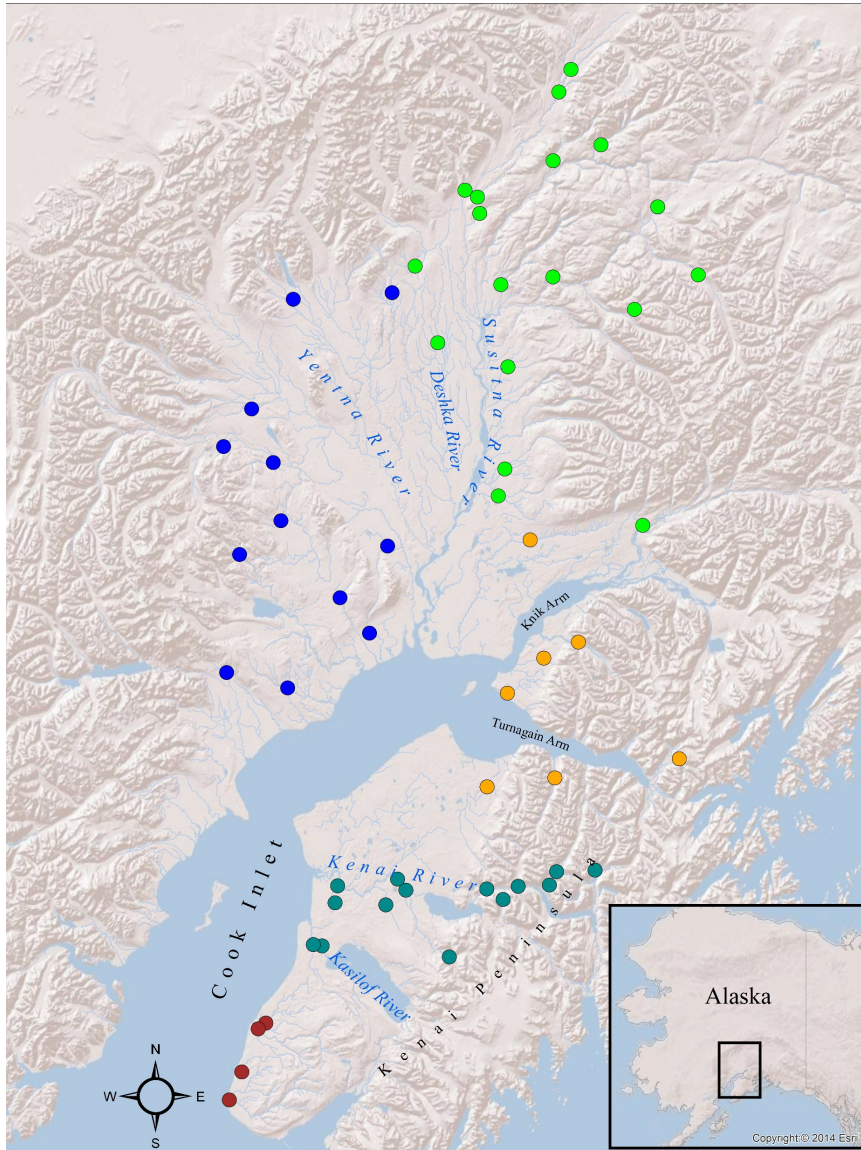
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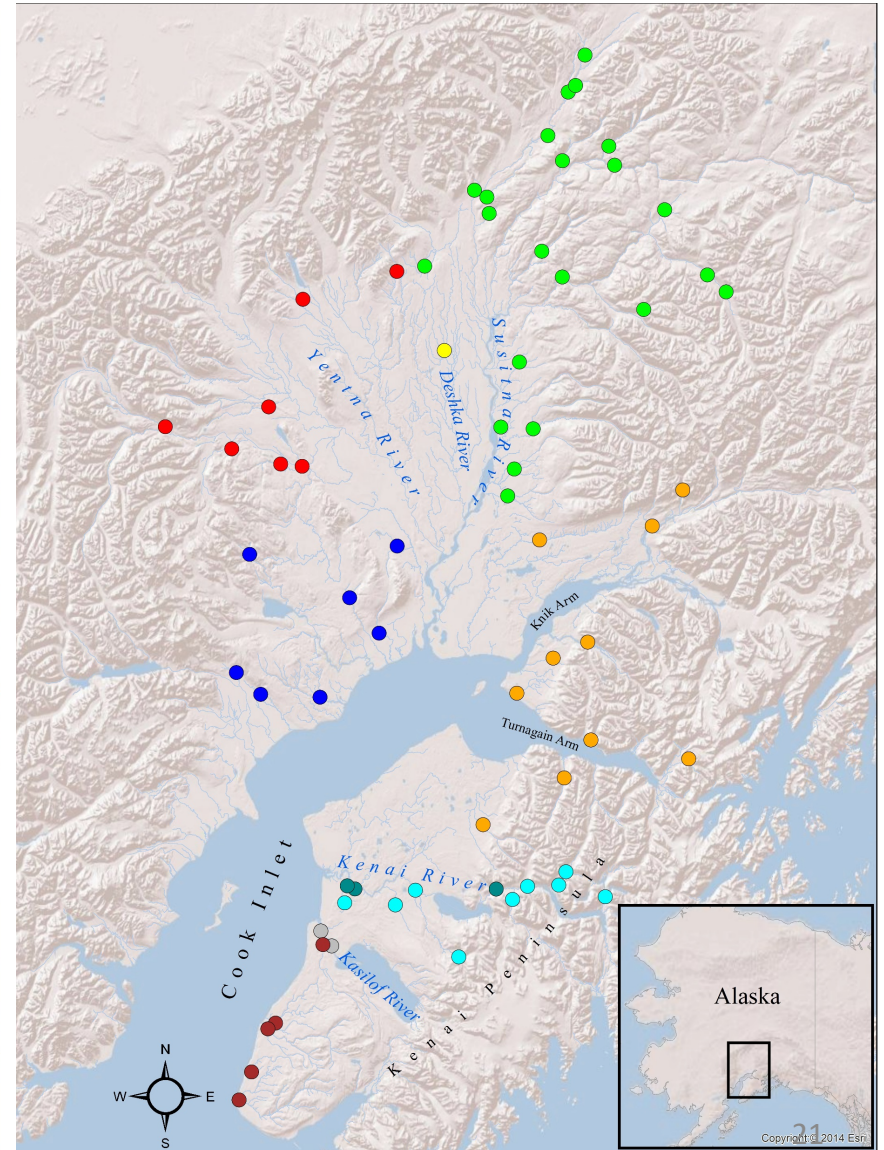
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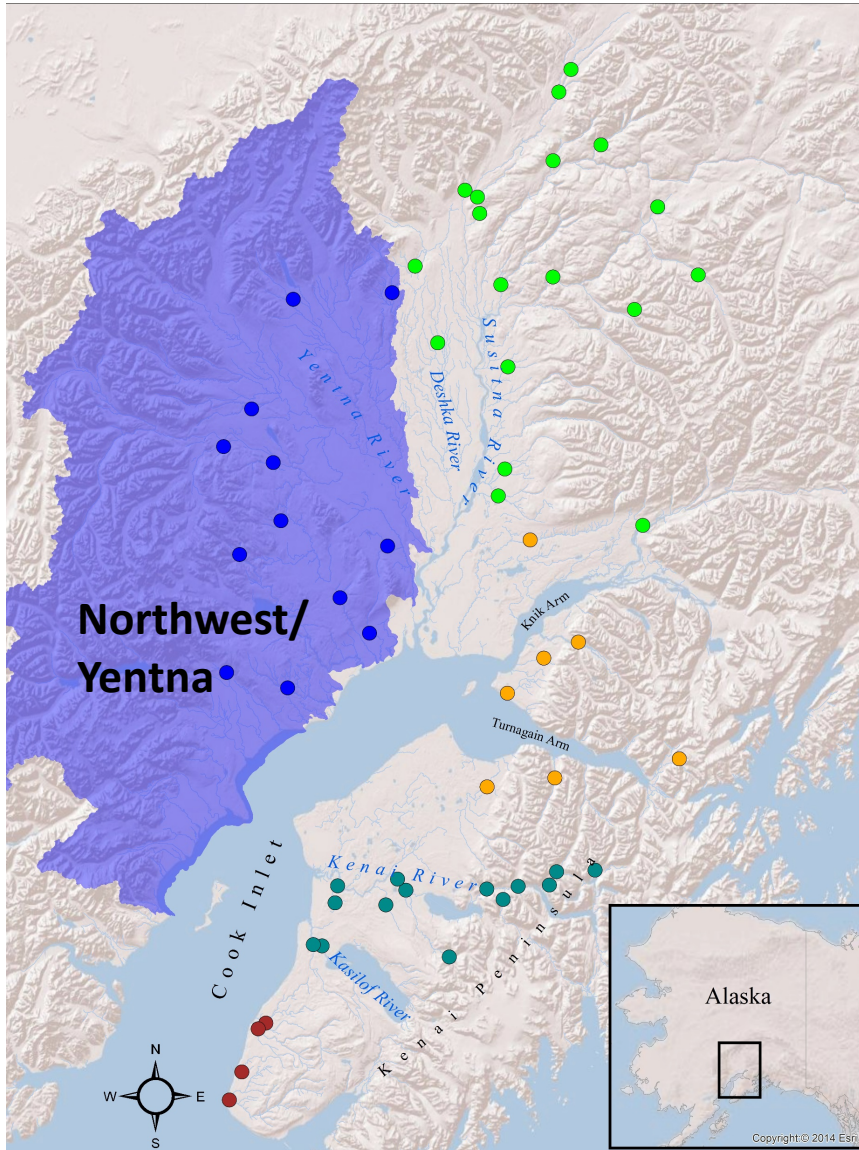
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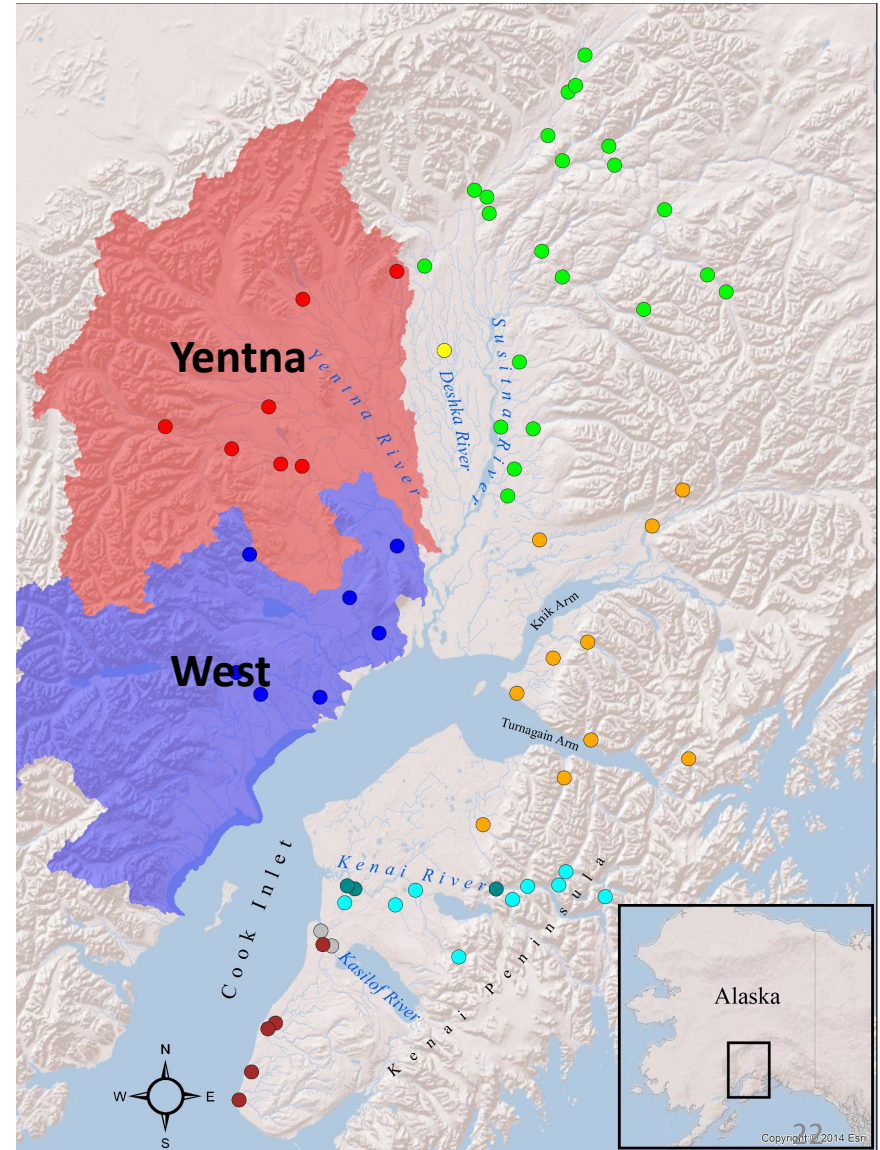
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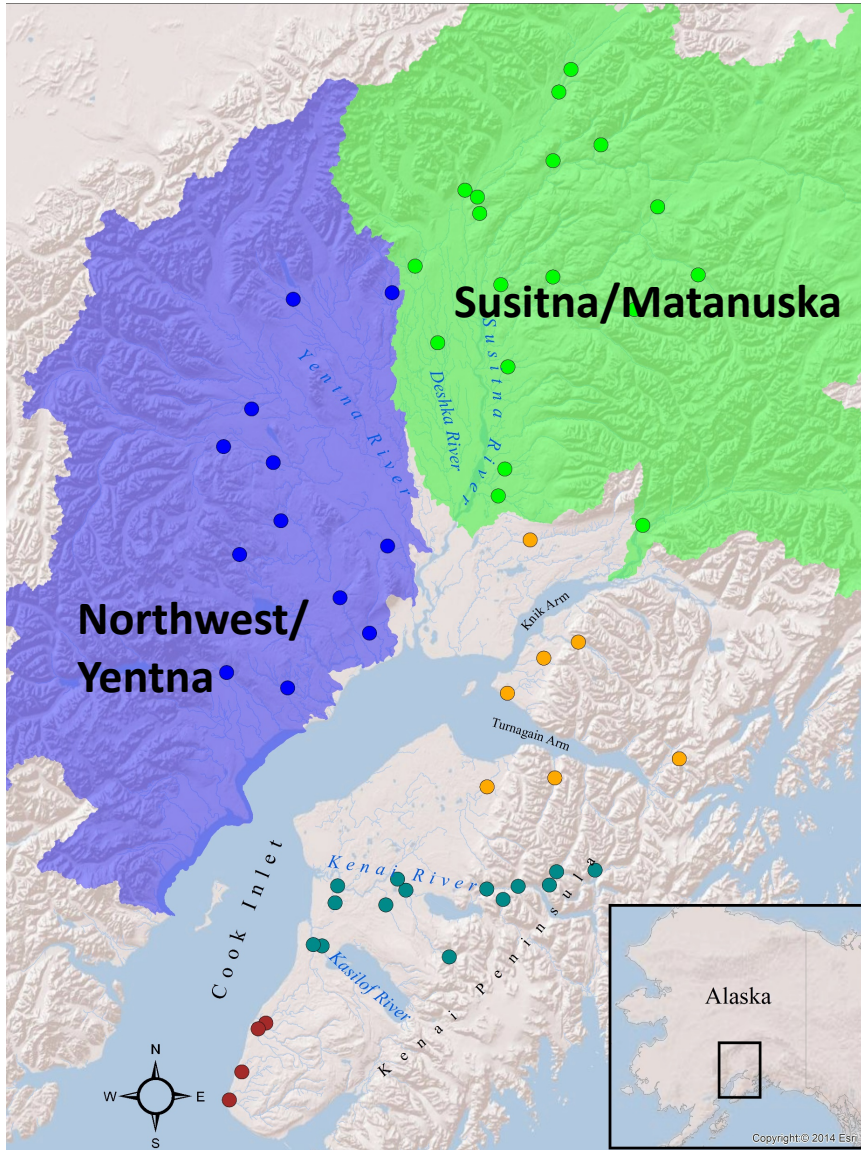
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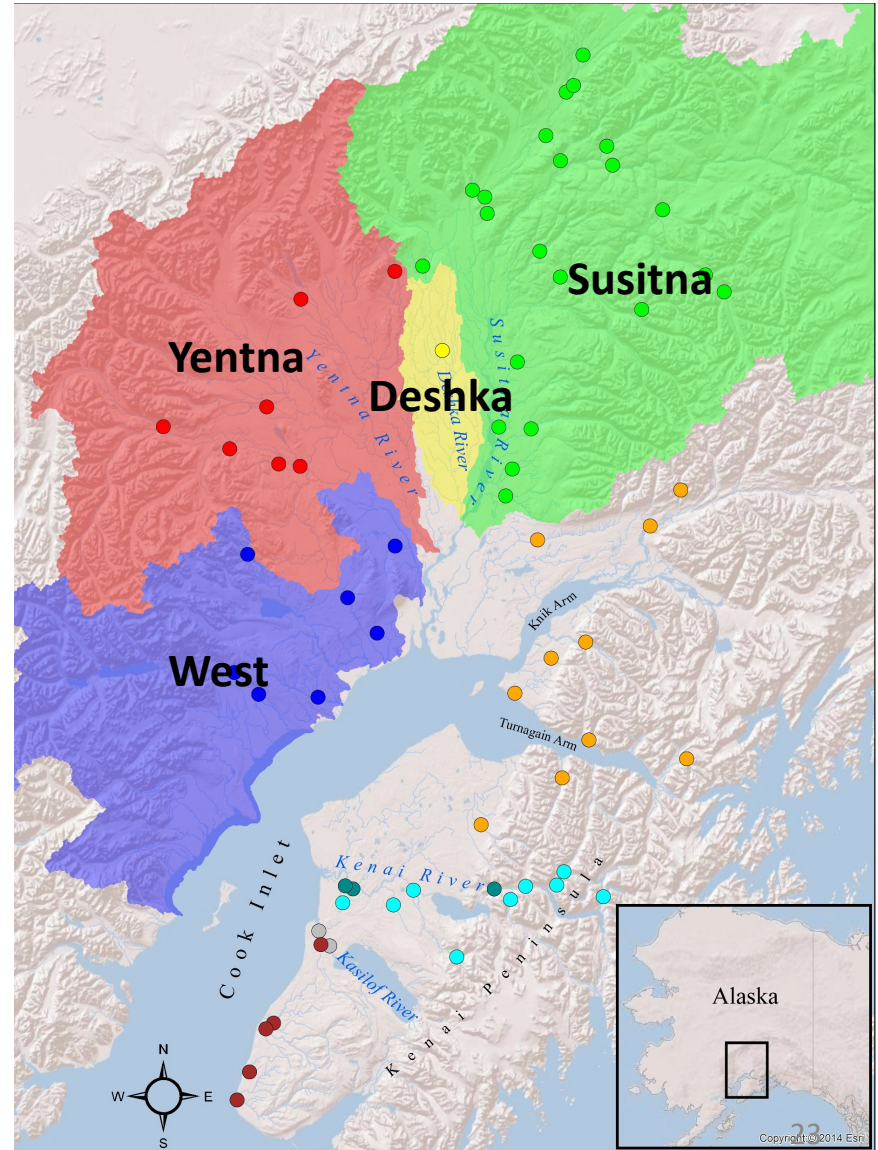
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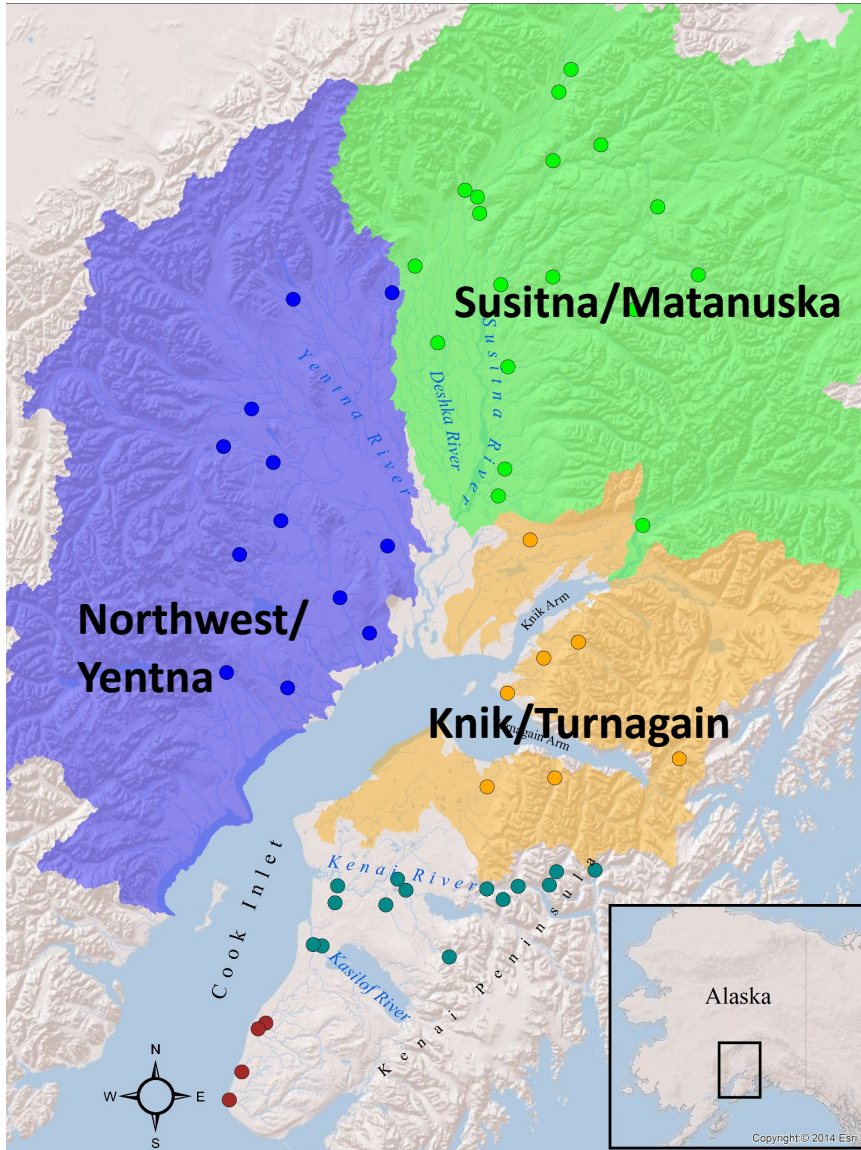
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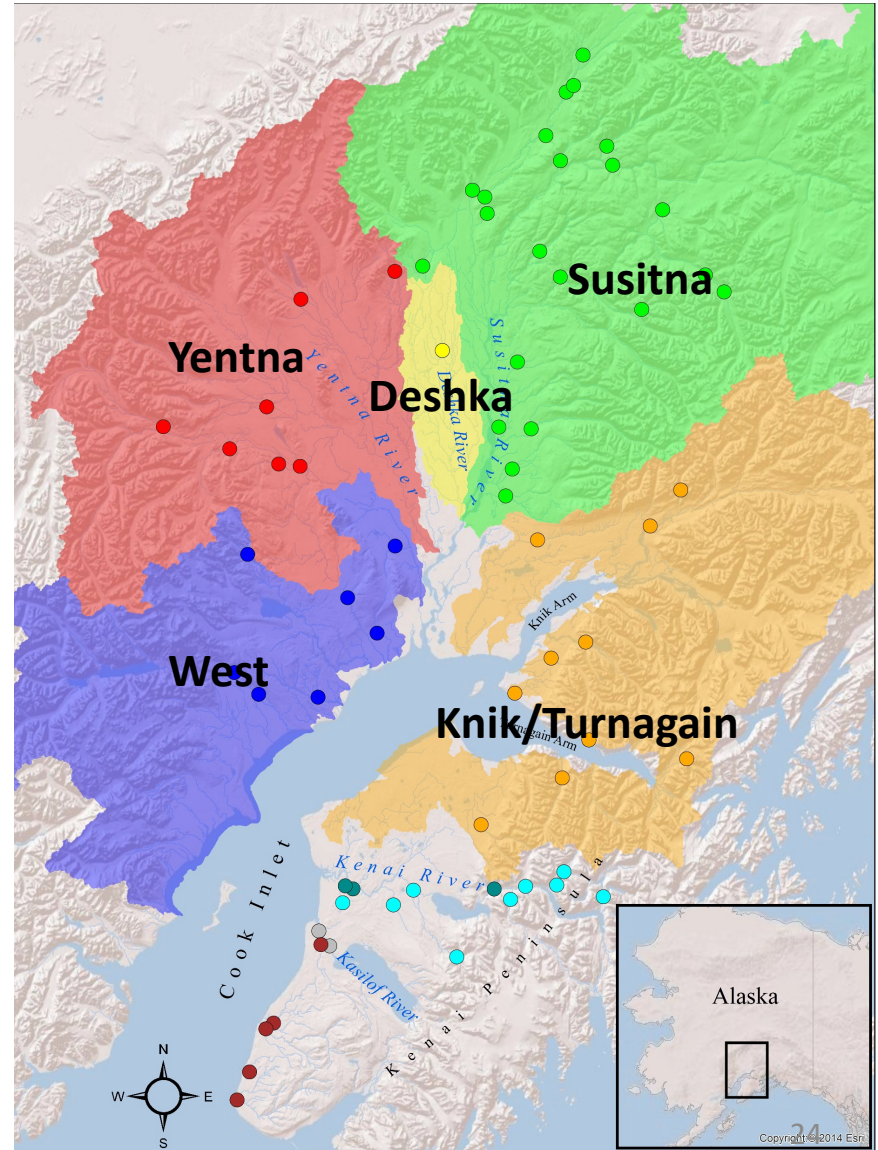
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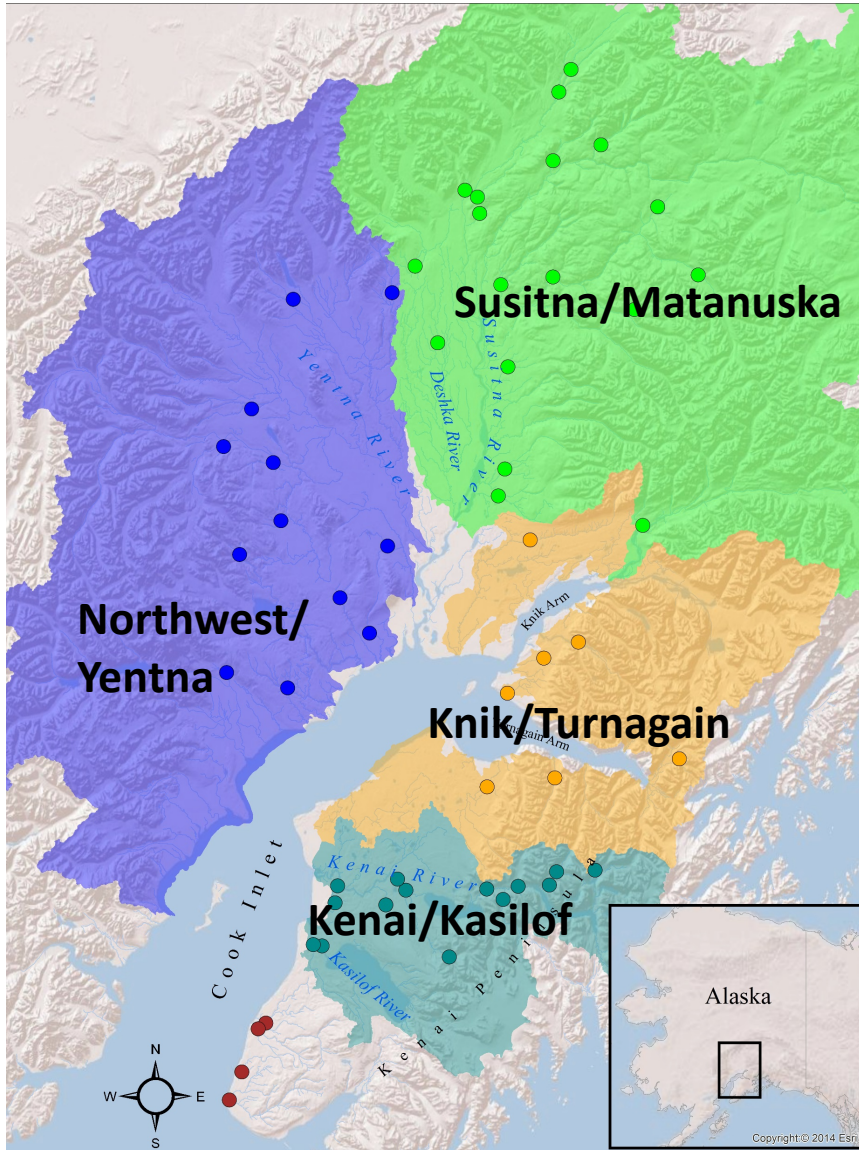
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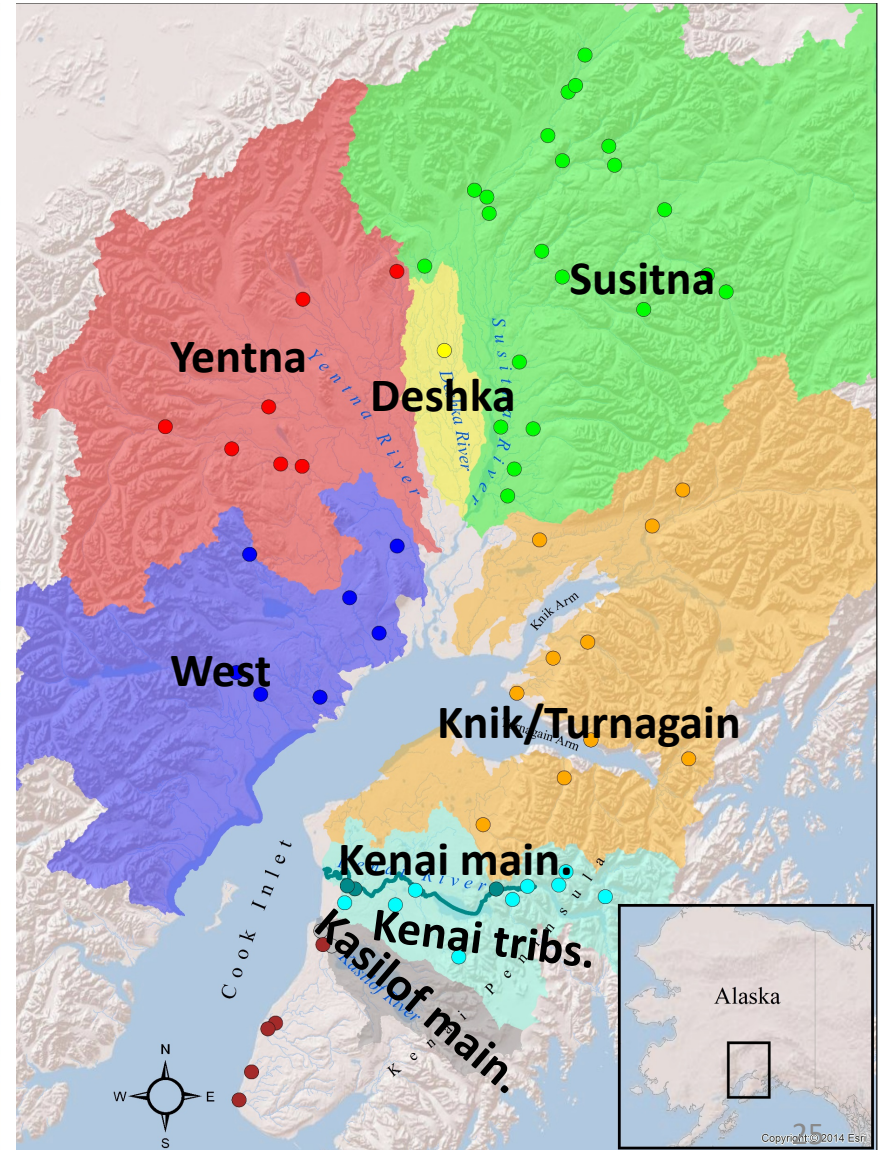
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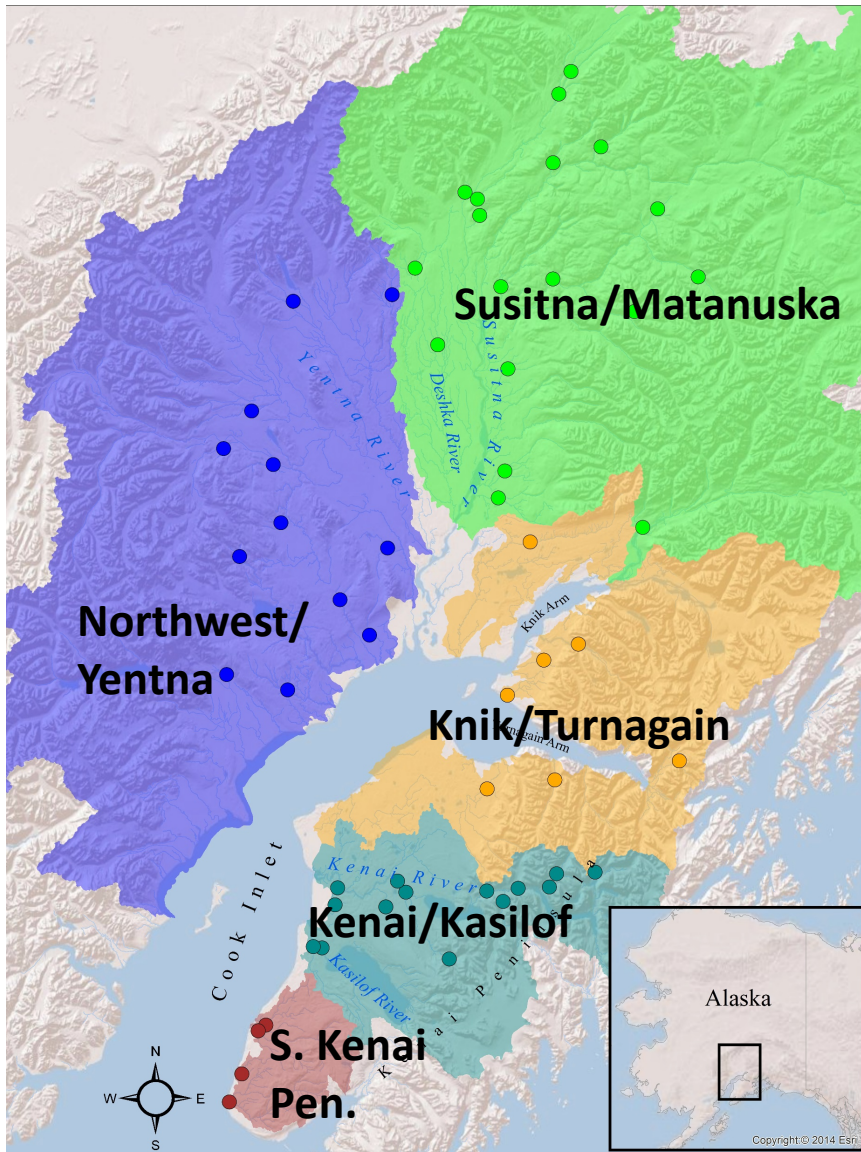
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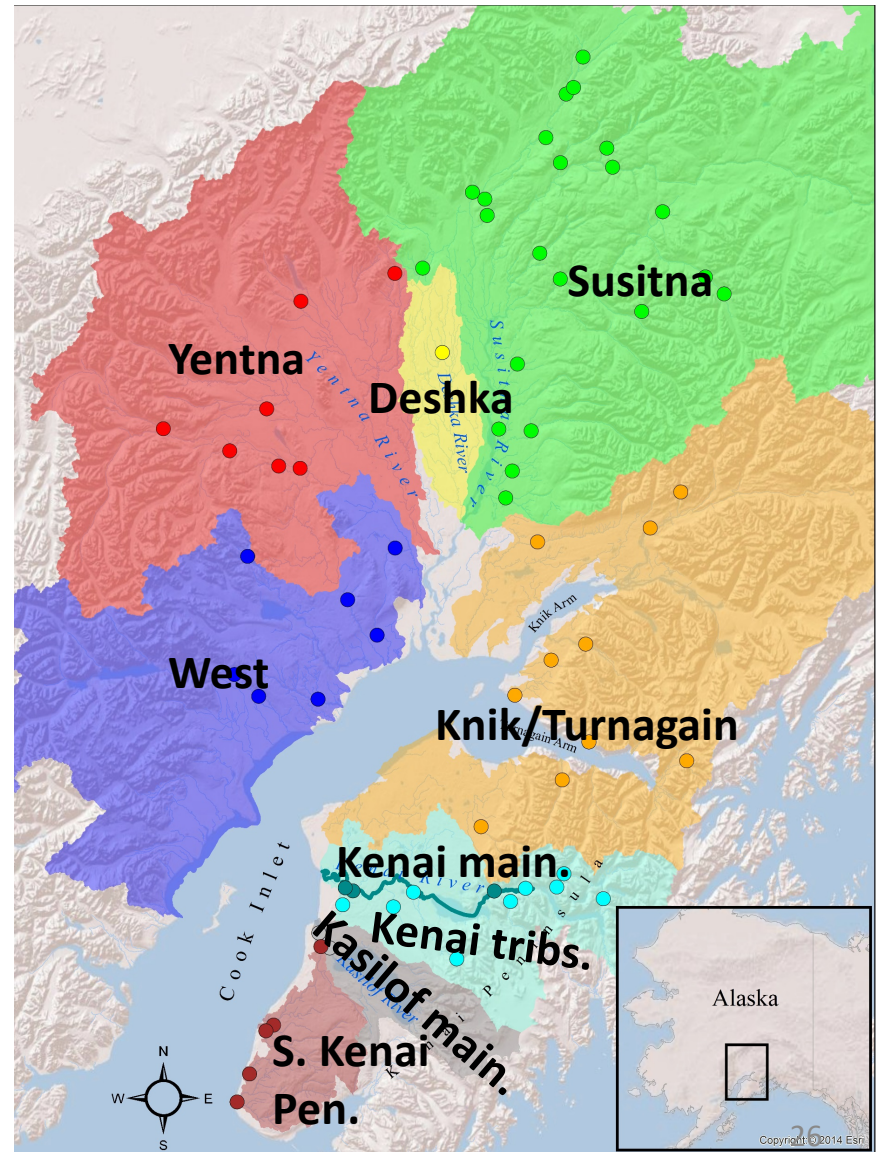
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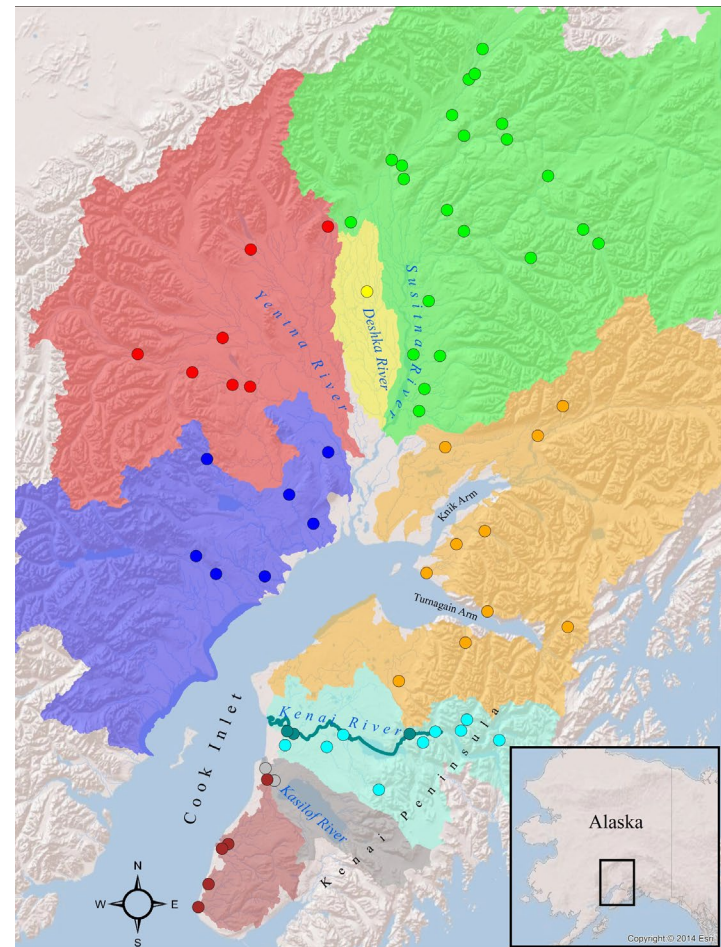


New Baseline



What capacities did we gain?

- Distinguish West from Yentna
- Distinguish Deshka
- Distinguish Susitna from Matanuska
- Increased precision

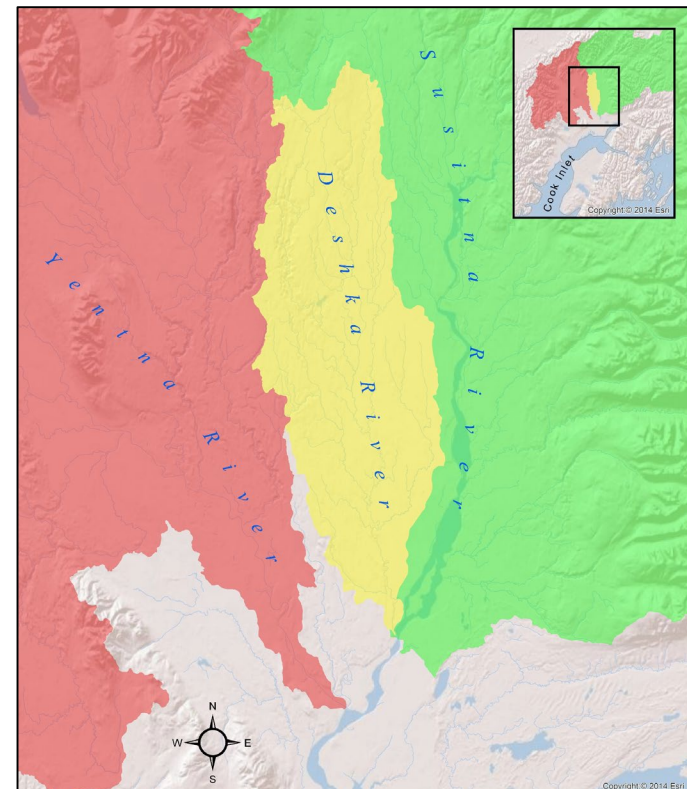


Next projects to benefit

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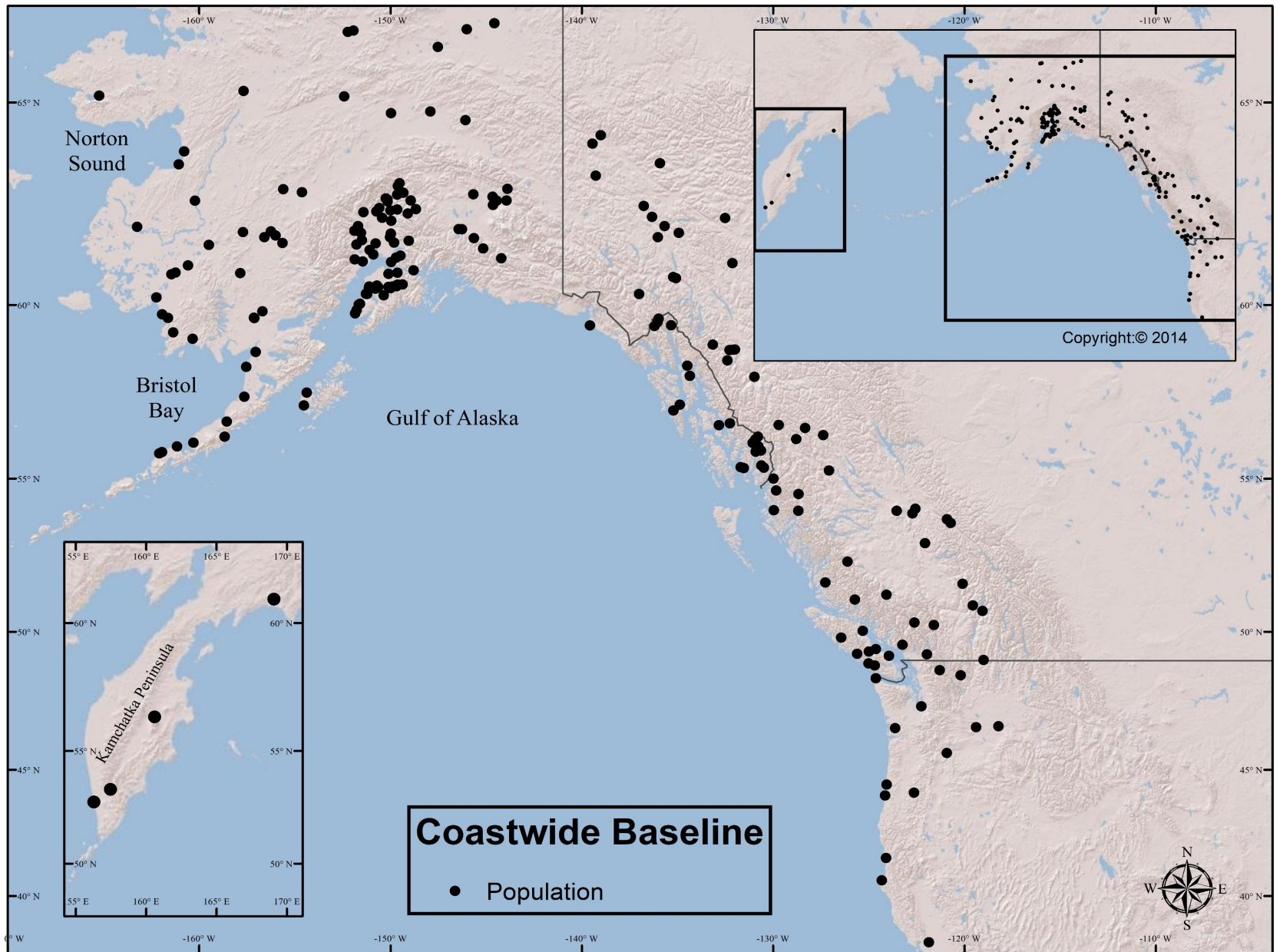
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- **Nearshore outmigration estimates to examine marine mortality – potential project**



Questions?

