

Kvichak Stock of Concern: Genetics Provides Another Tool



Commercial Fisheries

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- Applications to Kvichak River
- Baseline
- Genetic Structure
 - Within Bering Sea
 - Within Bristol Bay
- Baseline Application

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Applications of Genetic data to Kvichak River Stock of Concern

- Identify where Kvichak River fish migrate.
 - Other Countries
 - Other Regions
 - Other Districts
 - Within Districts

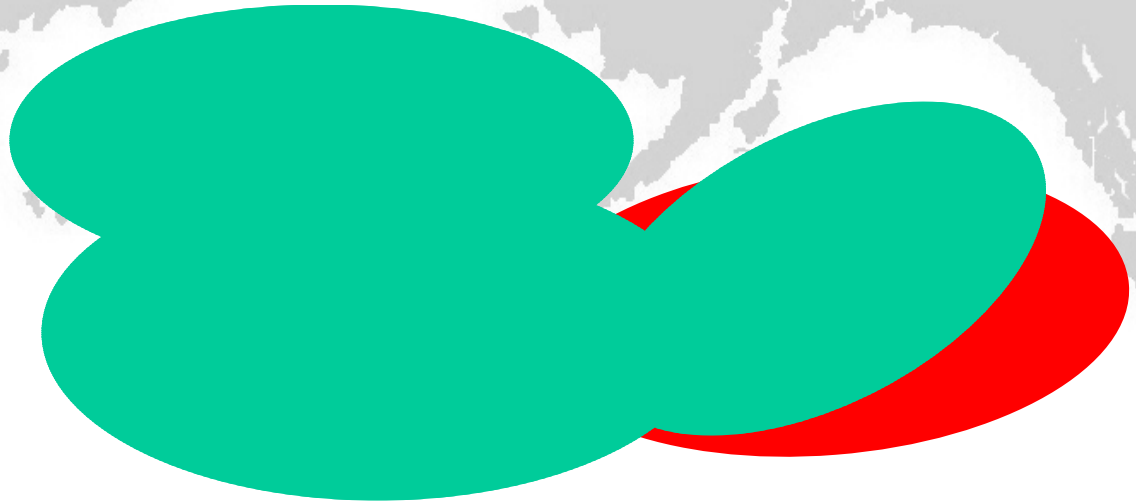
Ocean area used by Bristol Bay sockeye salmon



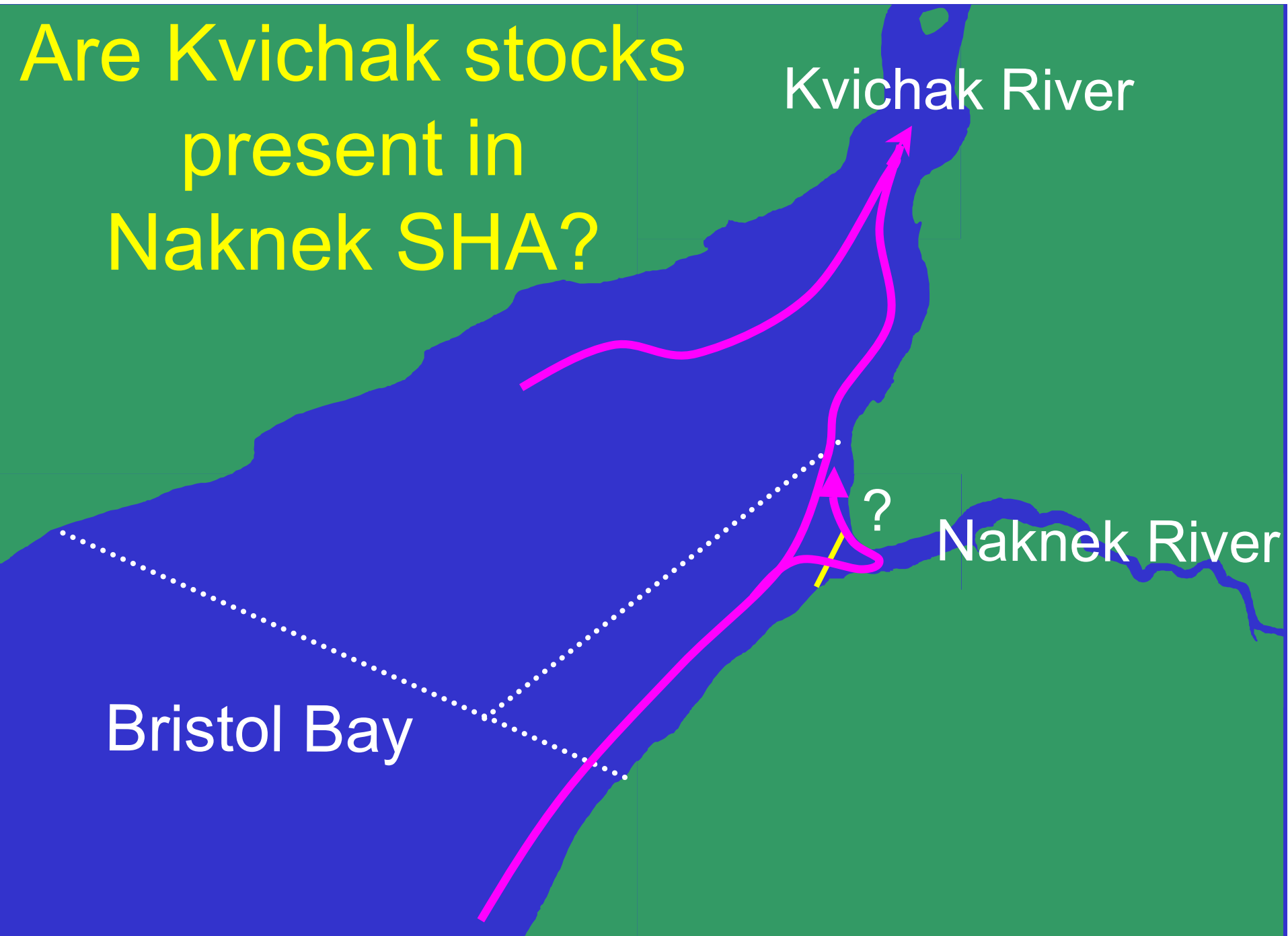
Ocean area used by Asian sockeye salmon



Ocean area used by Frazier River sockeye salmon



Are Kvichak stocks
present in
Naknek SHA?



Kvichak River

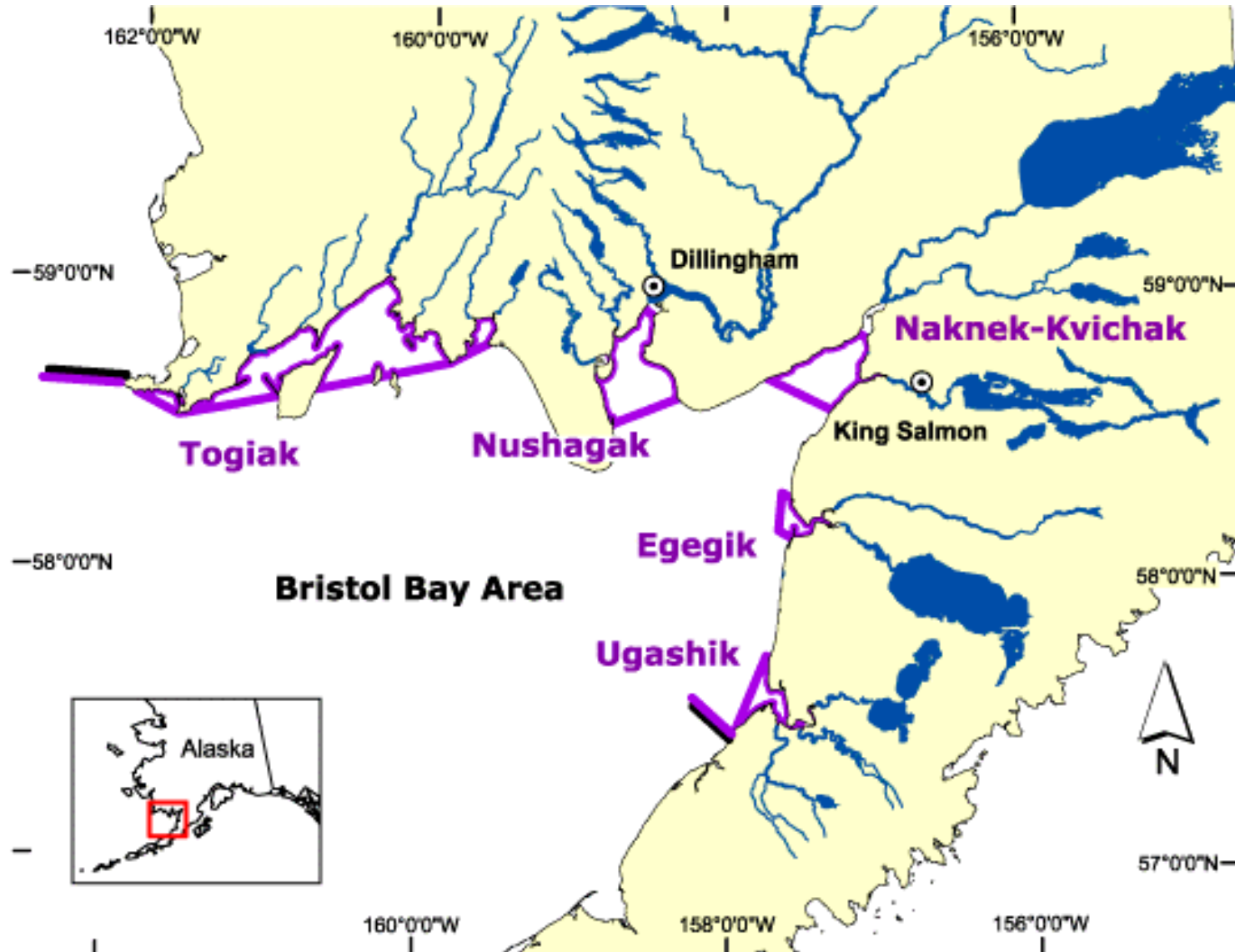
Naknek River

Bristol Bay

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- Improve stock-specific production data.
 - Knowing where and how many of each stock are harvested provides better estimate of total return

Are Kvichak fish caught in other districts?



Applications of Genetic data to Kvichak River Stock of Concern

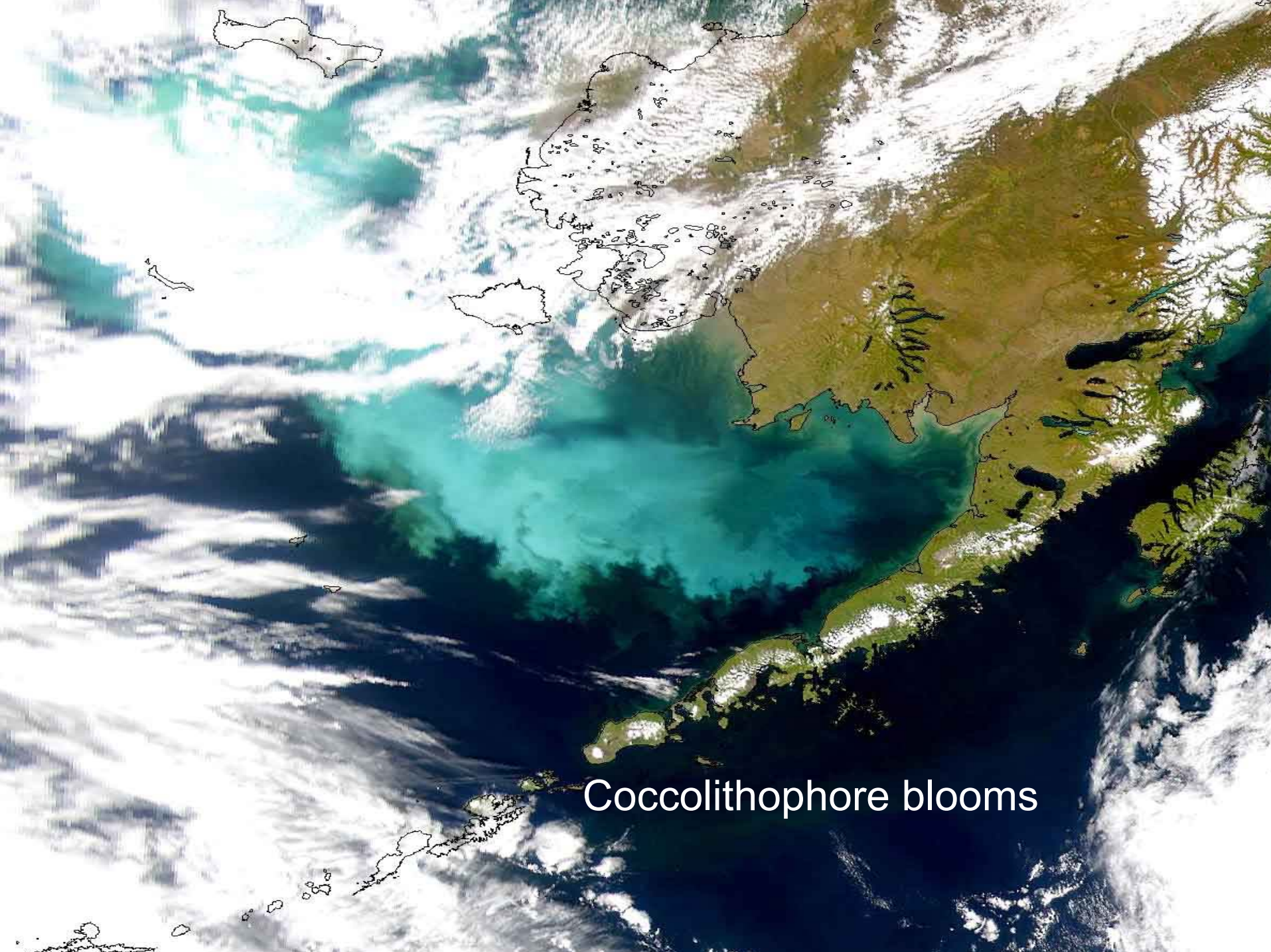
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- Improve stock-specific production data.
 - Knowing where and how many of each stock are harvested provides better estimate of total return
- Examine what environmental conditions different stocks encounter as smolt in near-shore areas.
 - Ongoing NPRB work



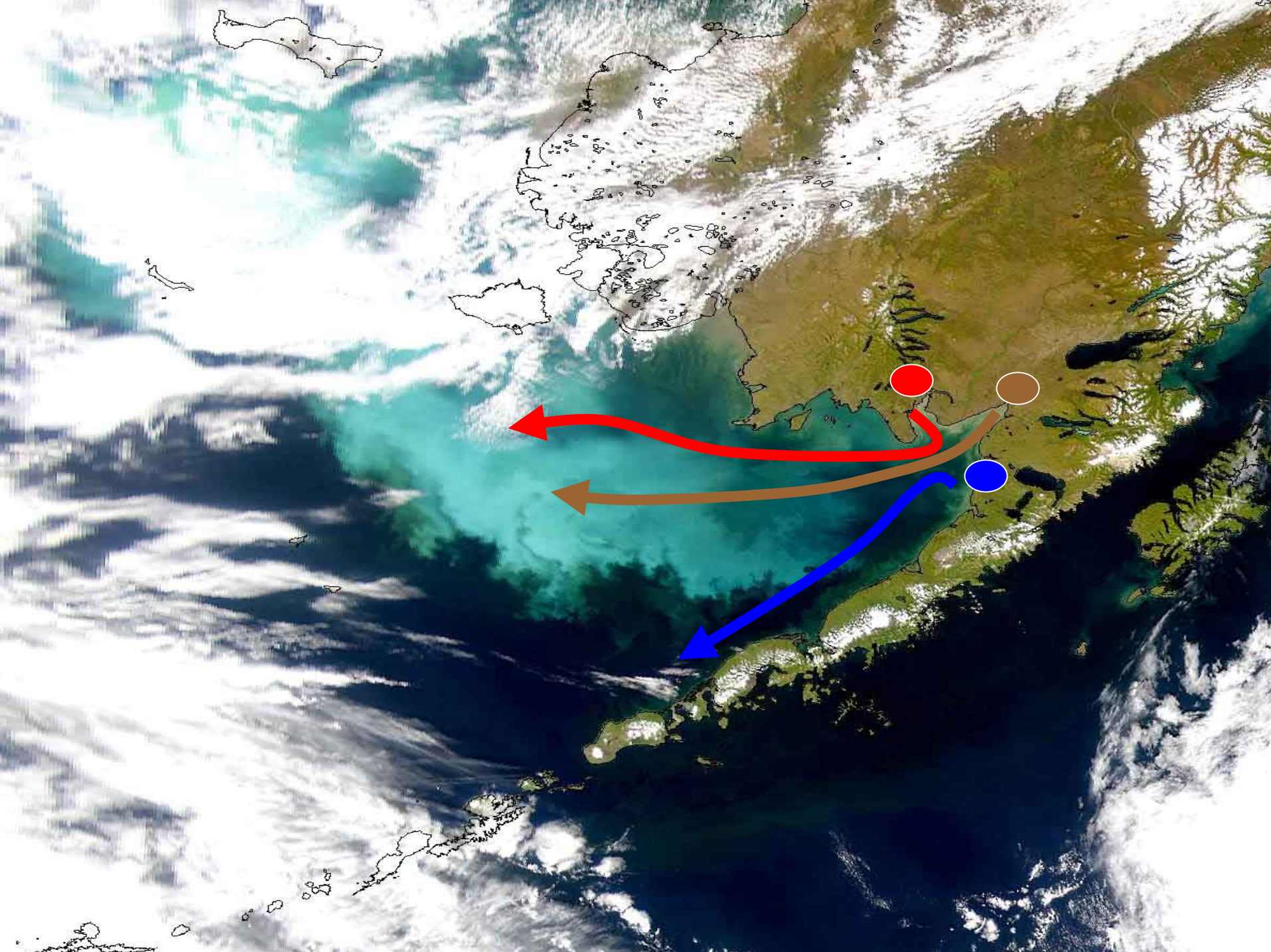








Coccolithophore blooms

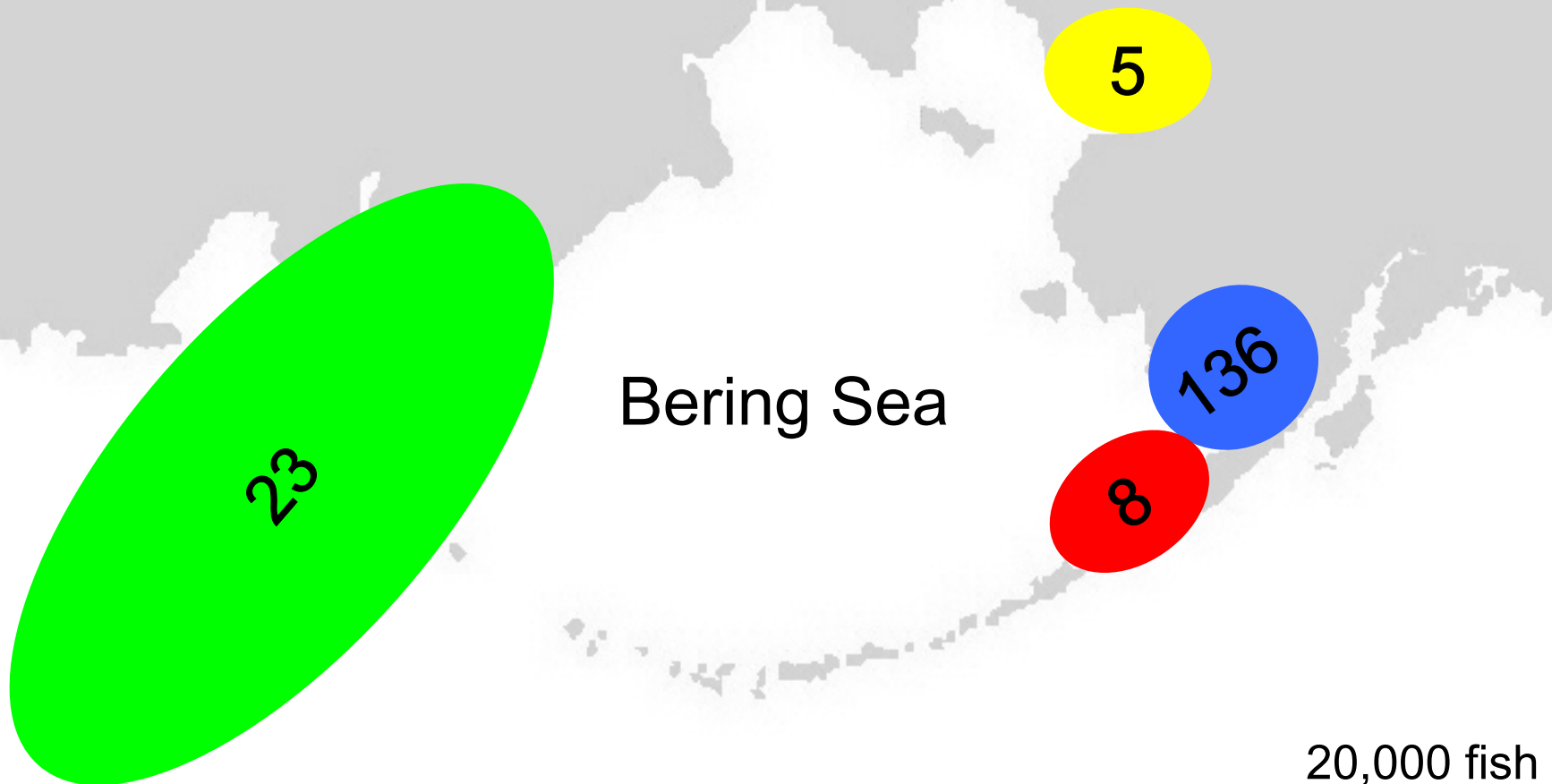


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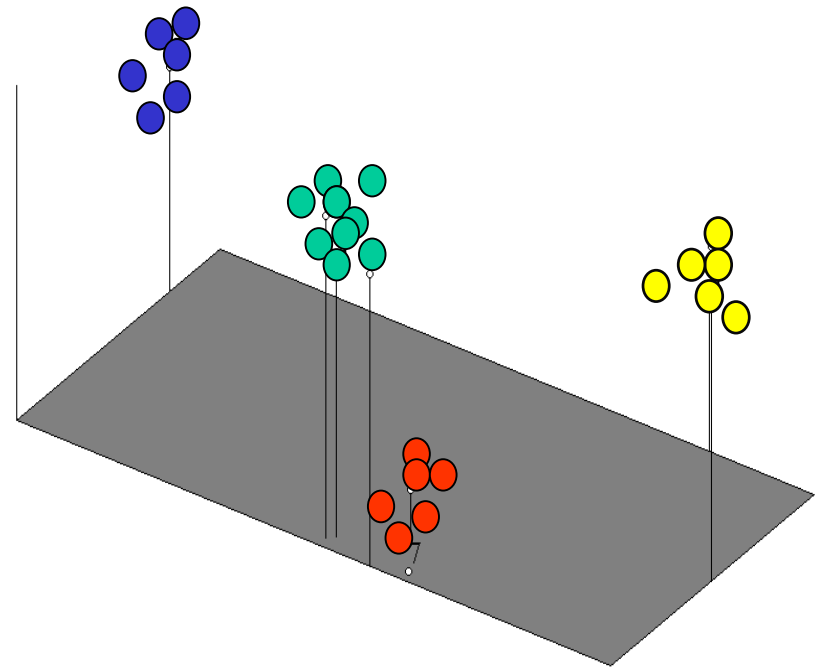


Bering Sea: DNA Tissue Collections



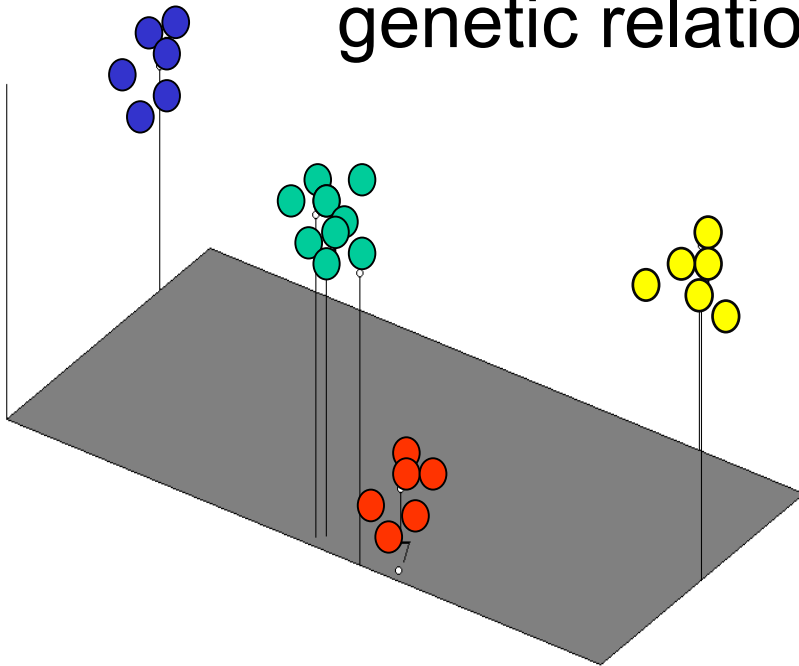
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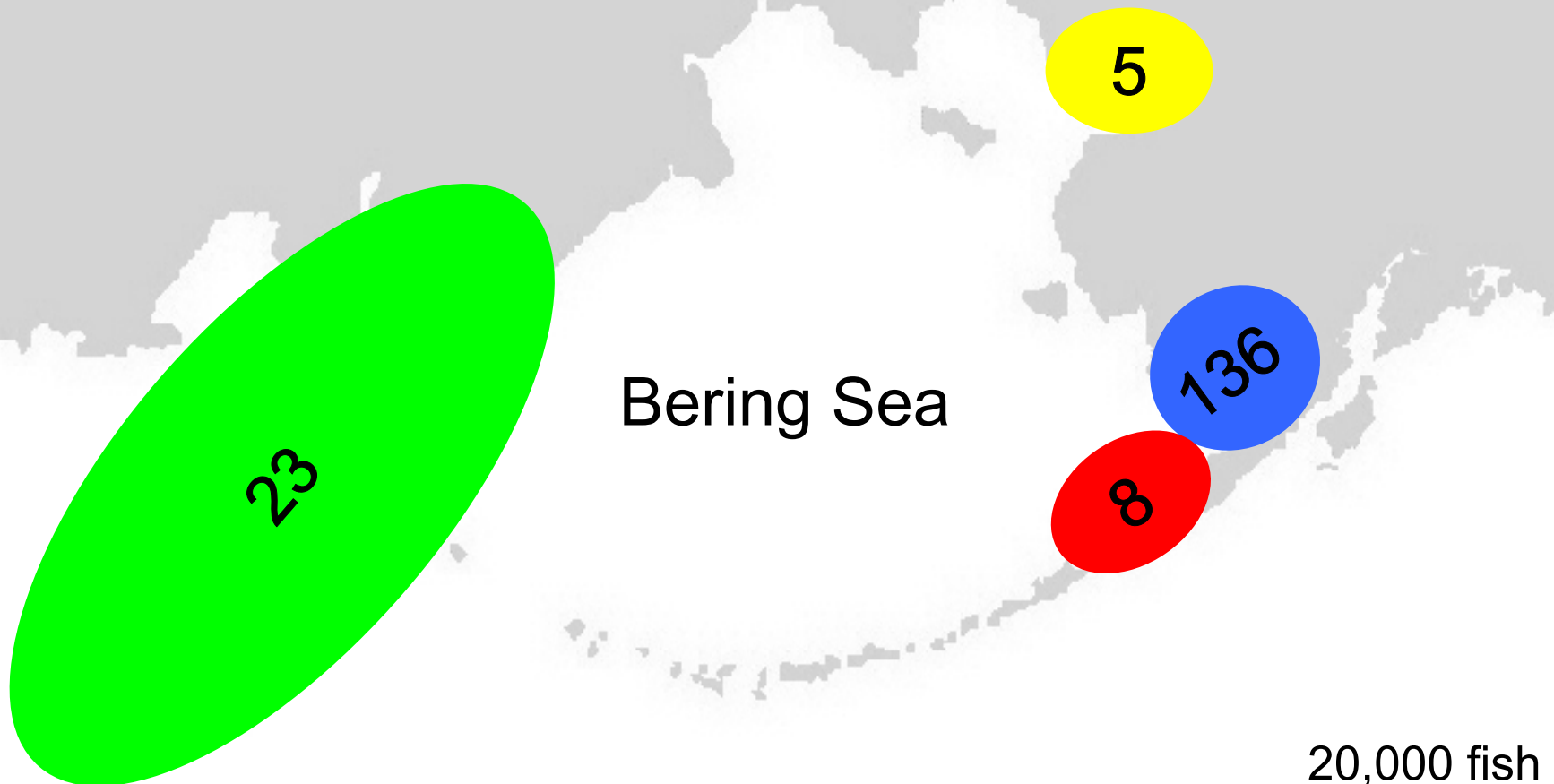
Determining “Highly Identifiable Groups”

1) Visual representation of genetic relationships

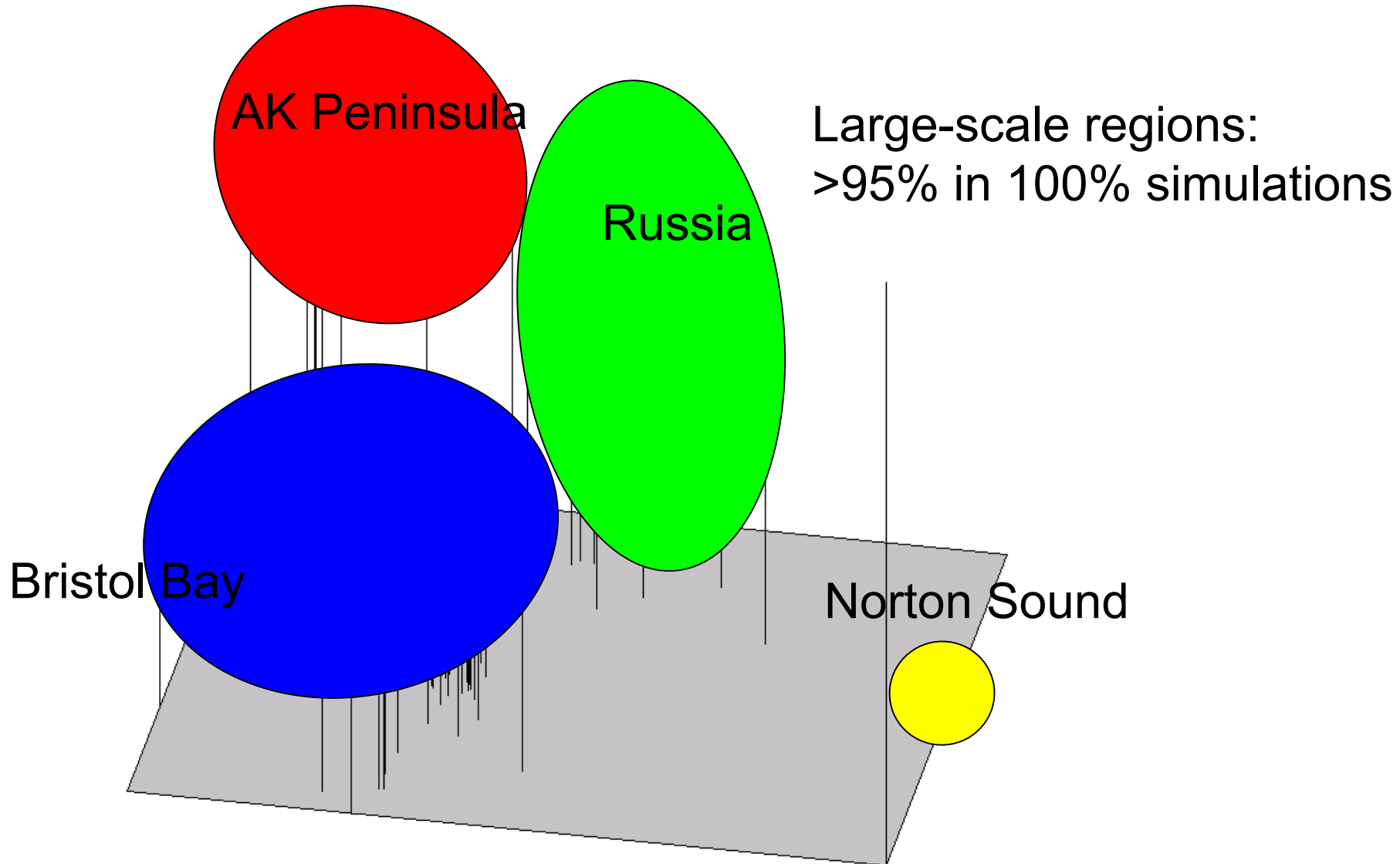


2) Statistical tests determine
“Highly Identifiable Groups”

Bering Sea: DNA Tissue Collections

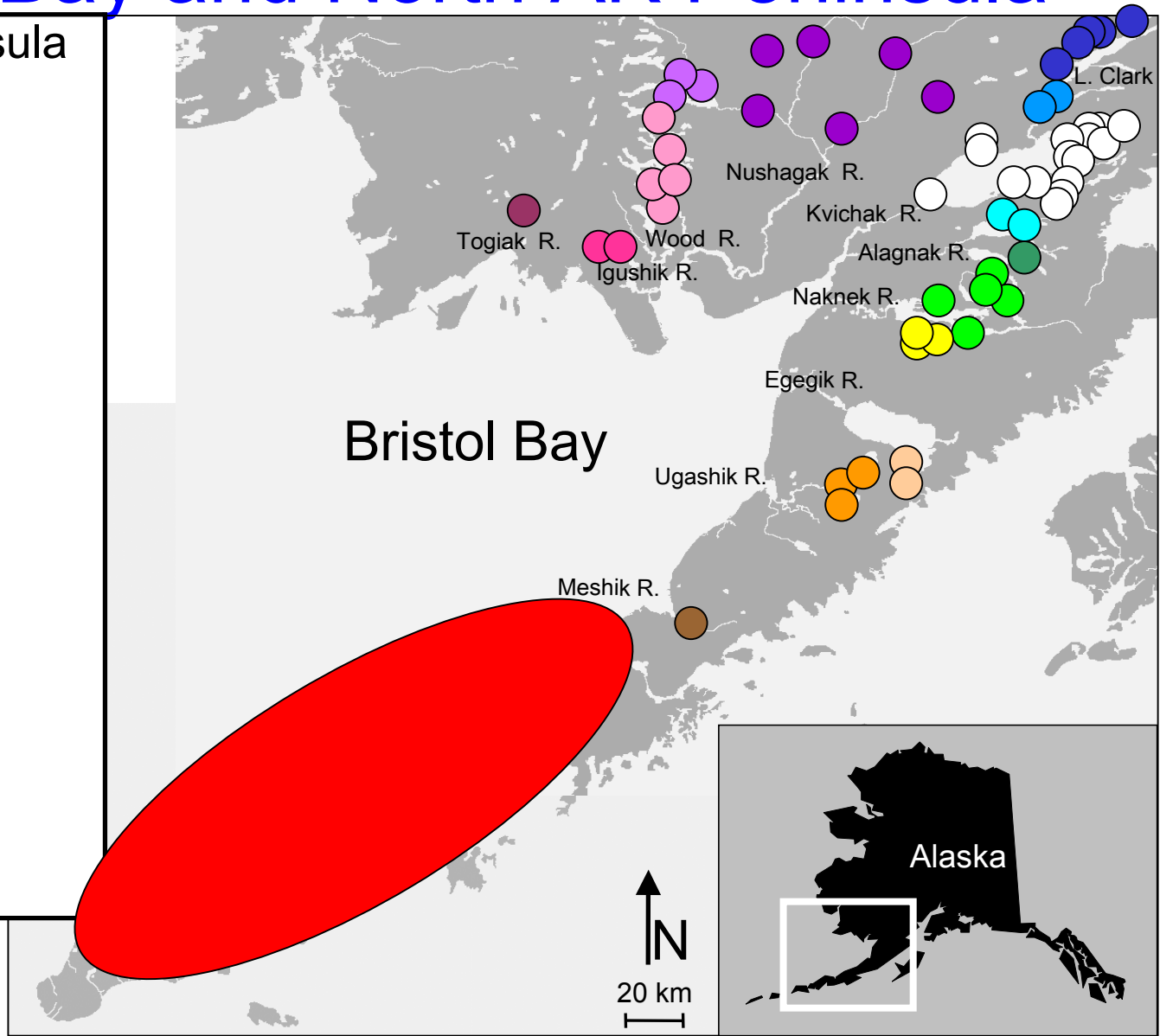


AK Peninsula, Russia and Norton Sound: Highly Identifiable Groups

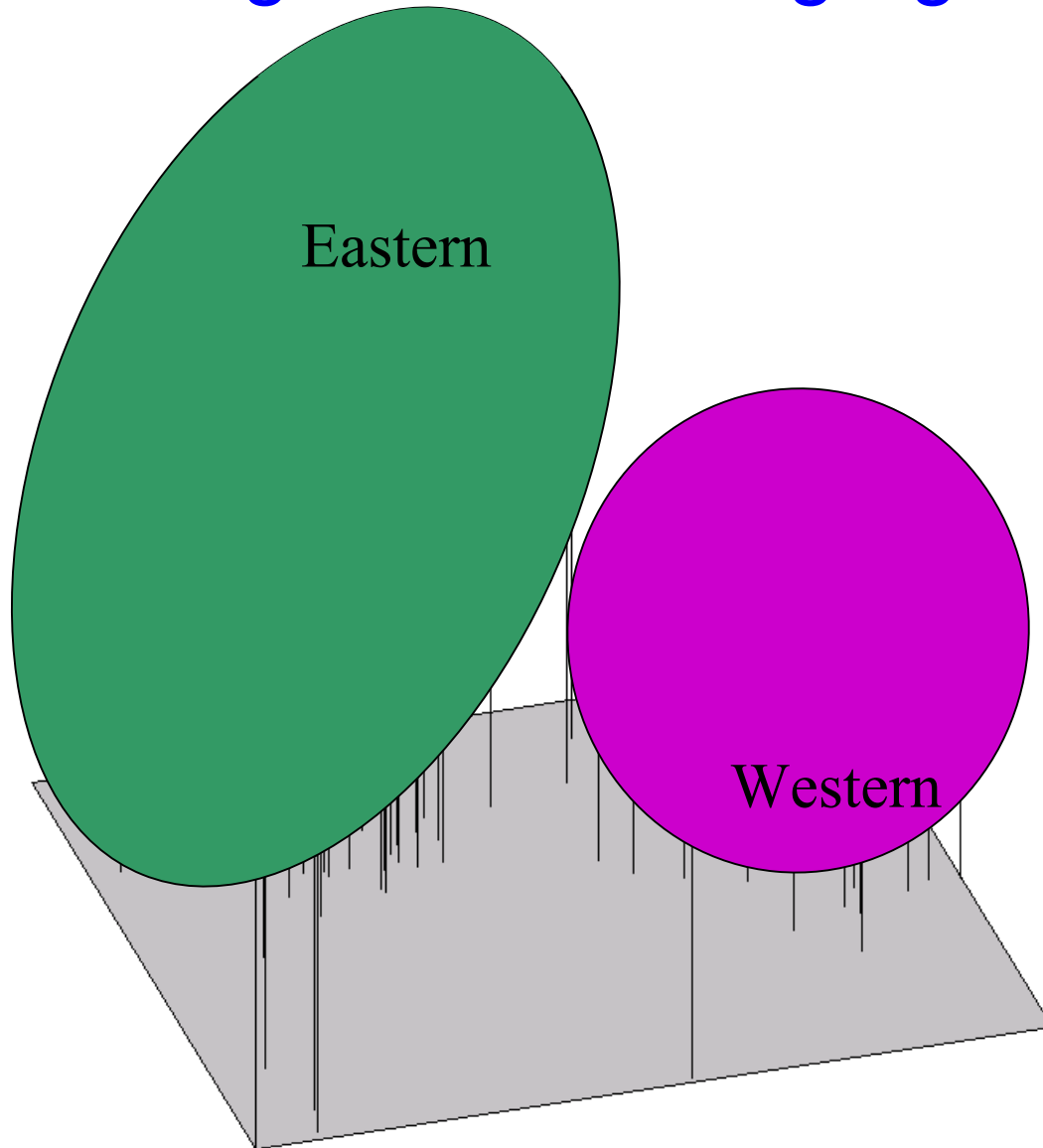


Collections: Bristol Bay and North AK Peninsula

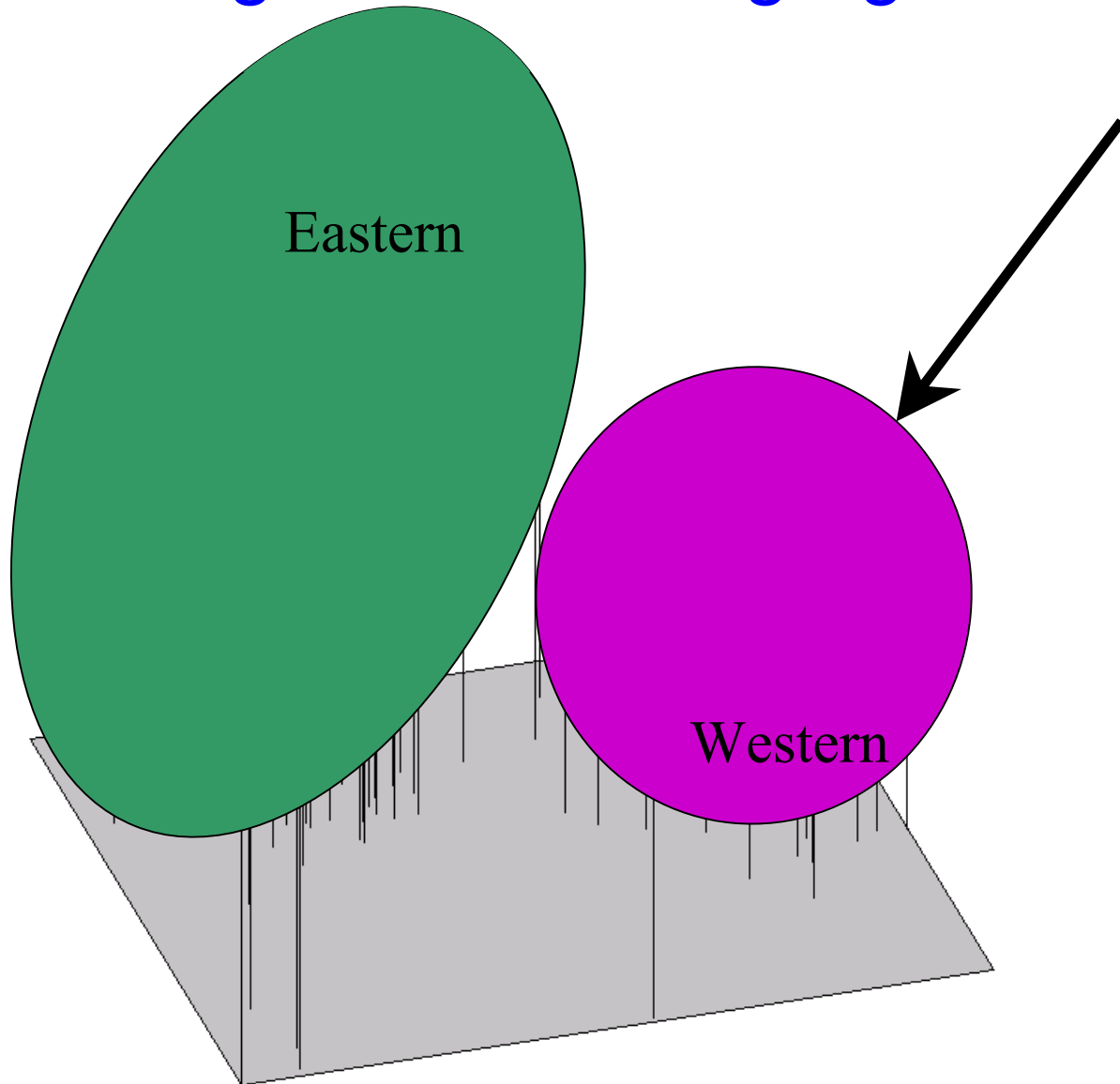
- North AK Peninsula
- Meshik
- Ugashik
- Egegik
- L. Brooks
- Naknek L.
- Nonvianuk L.
- Kukaklek L.
- Iliamna L.
- Six Mile L.
- L. Clark
- Nushagak R.
- Tikchik L.
- Wood R.
- Igushik R.
- Togiak R.



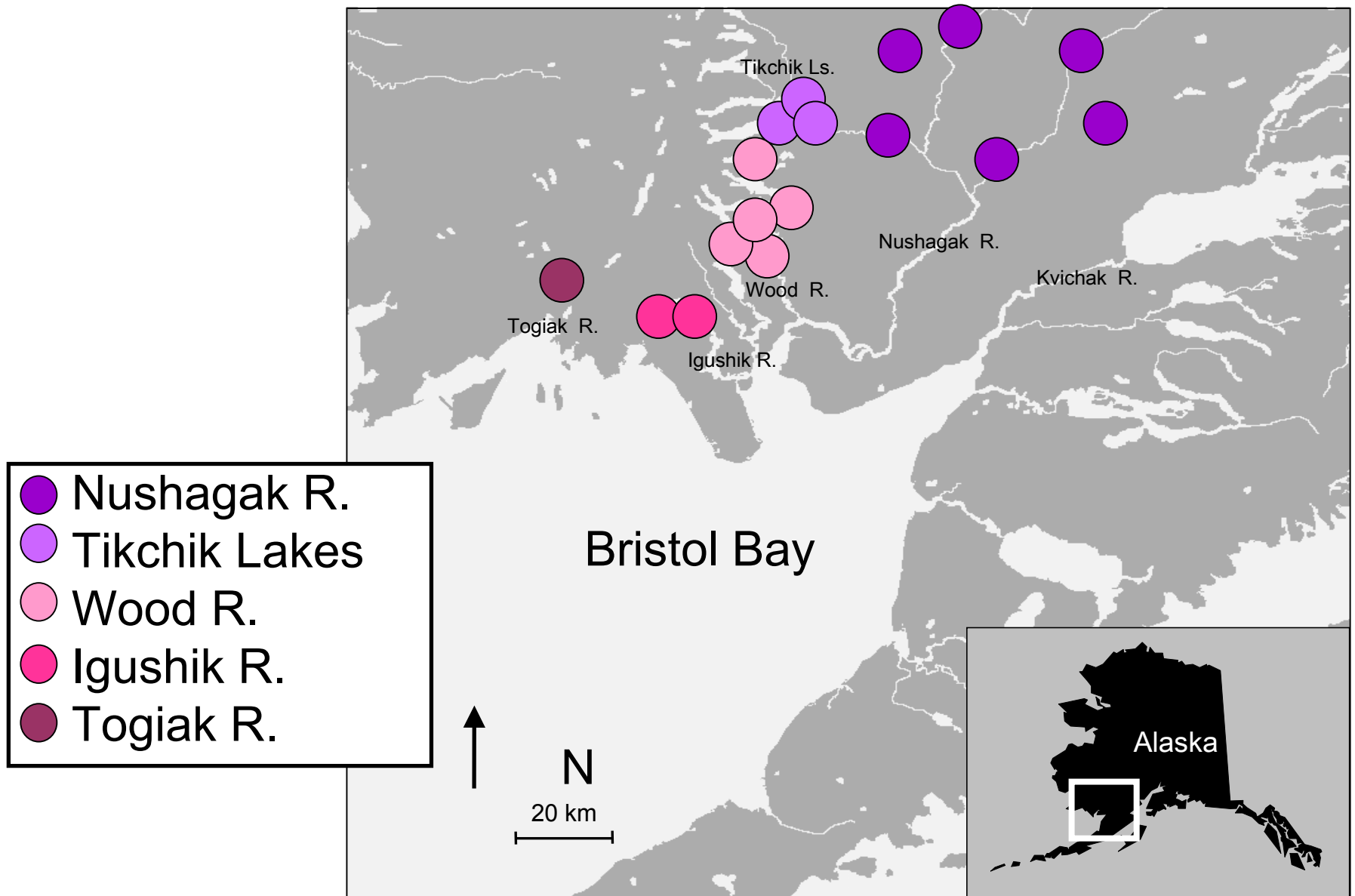
Bristol Bay: Strong east-west segregation



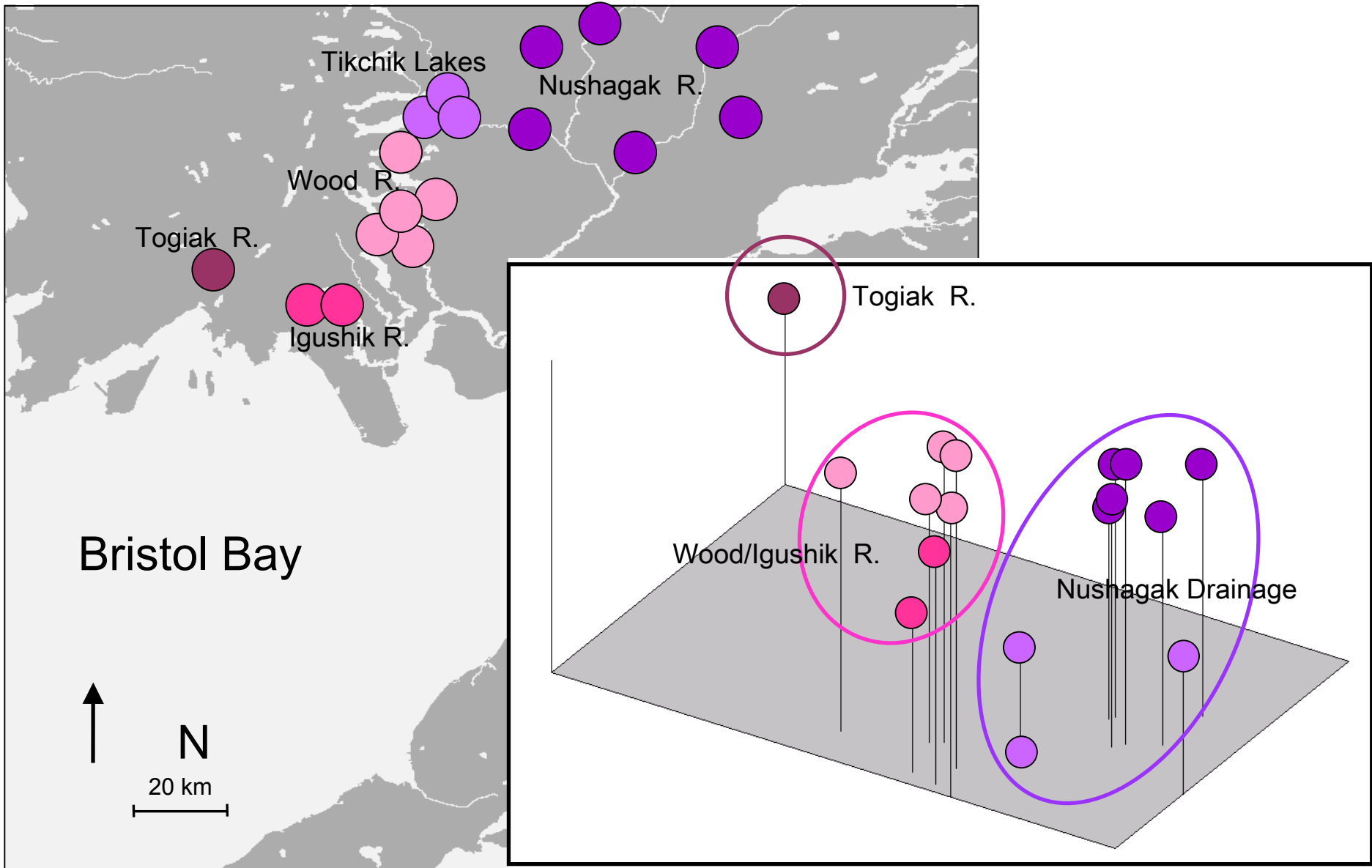
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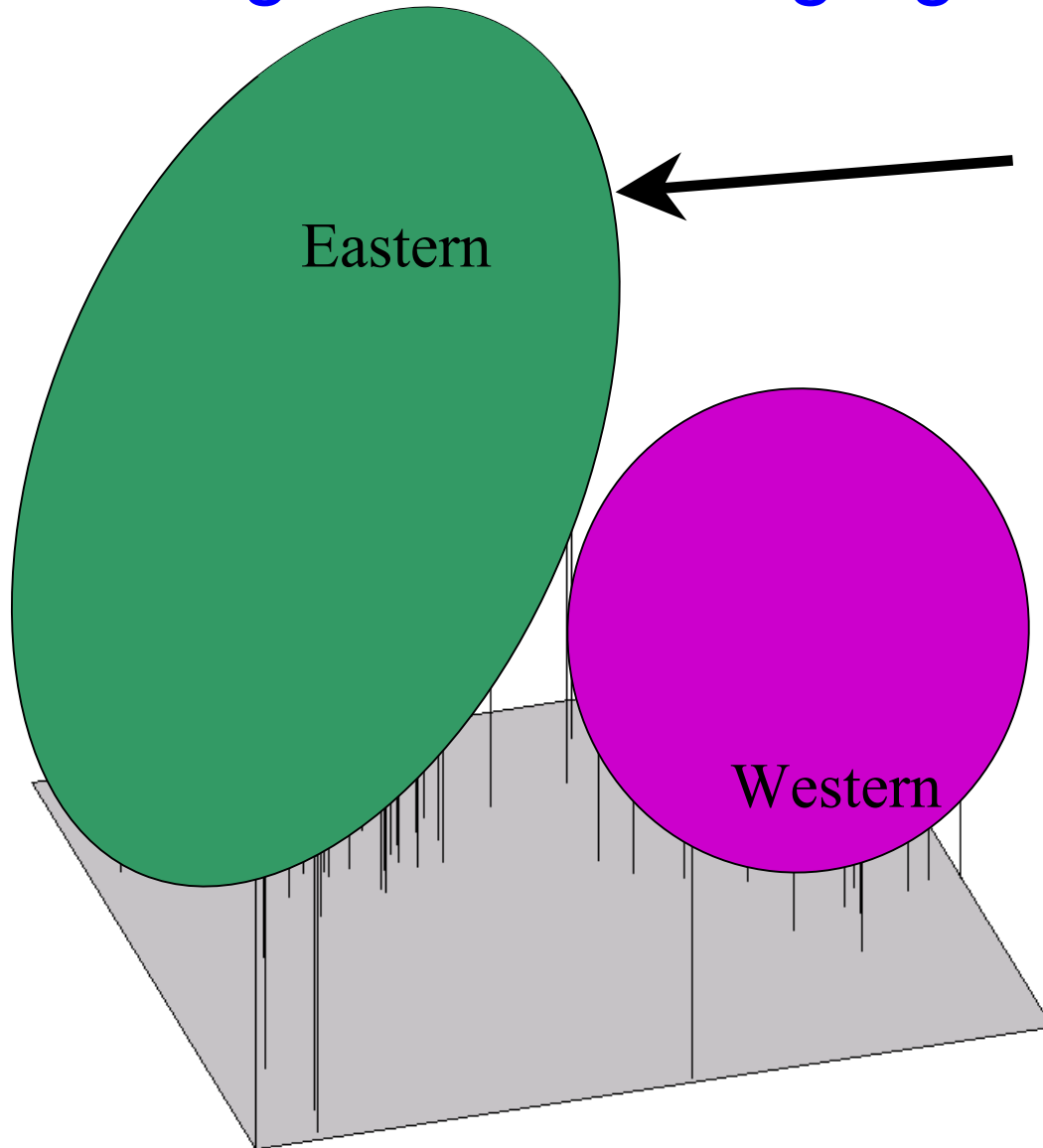
Western Bristol Bay collections



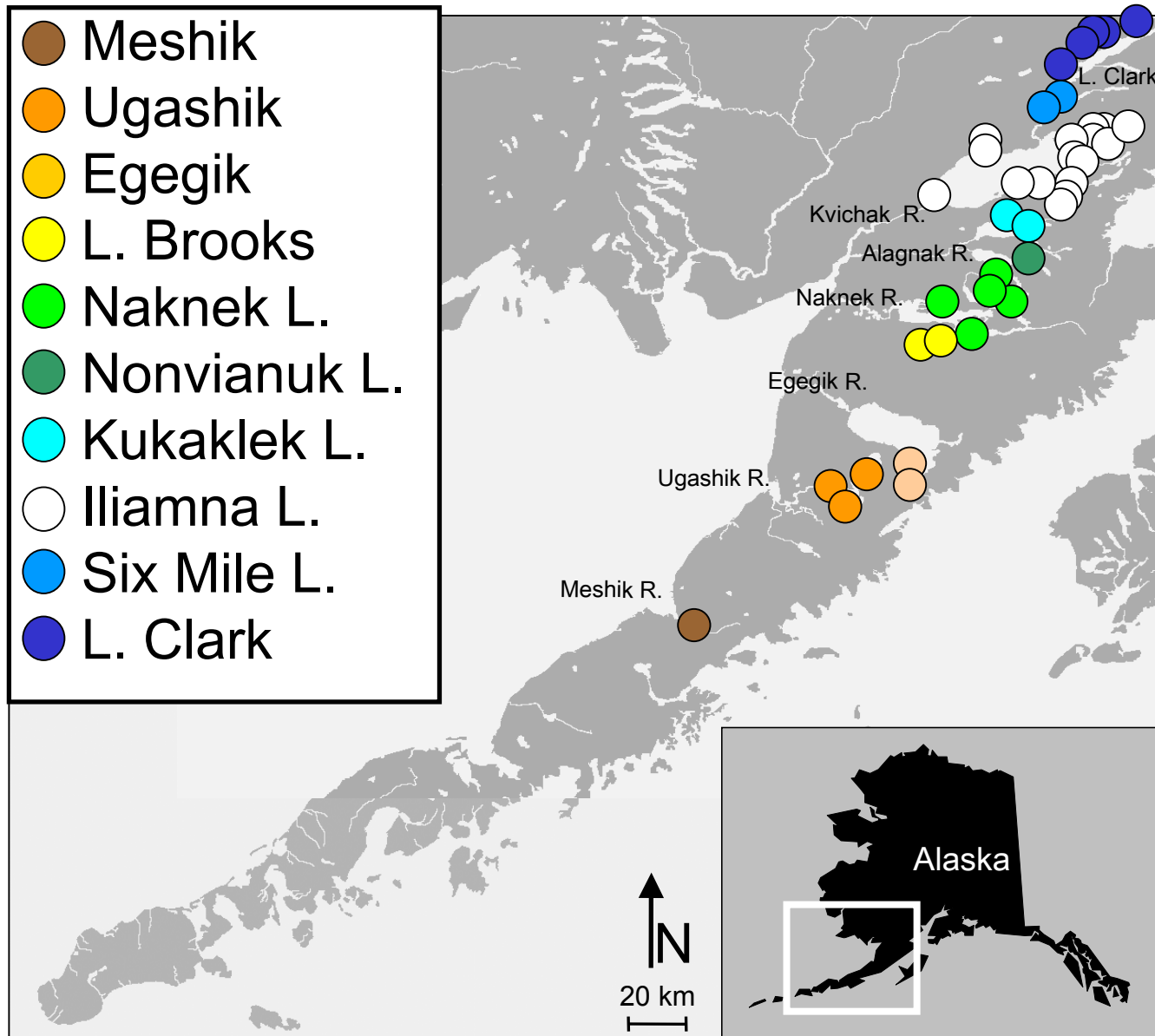
Western Bristol Bay collections



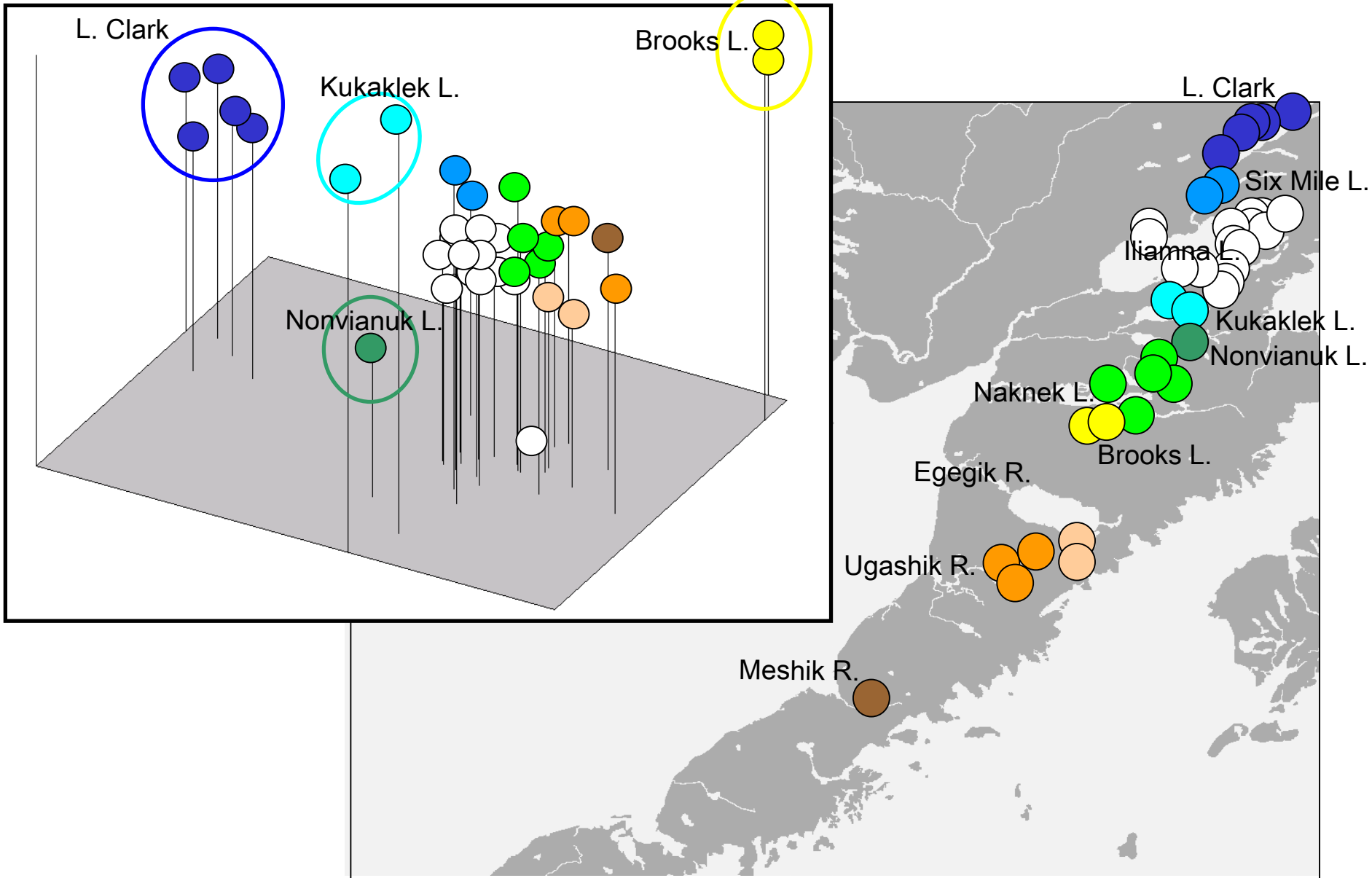
Bristol Bay: Strong east-west segregation



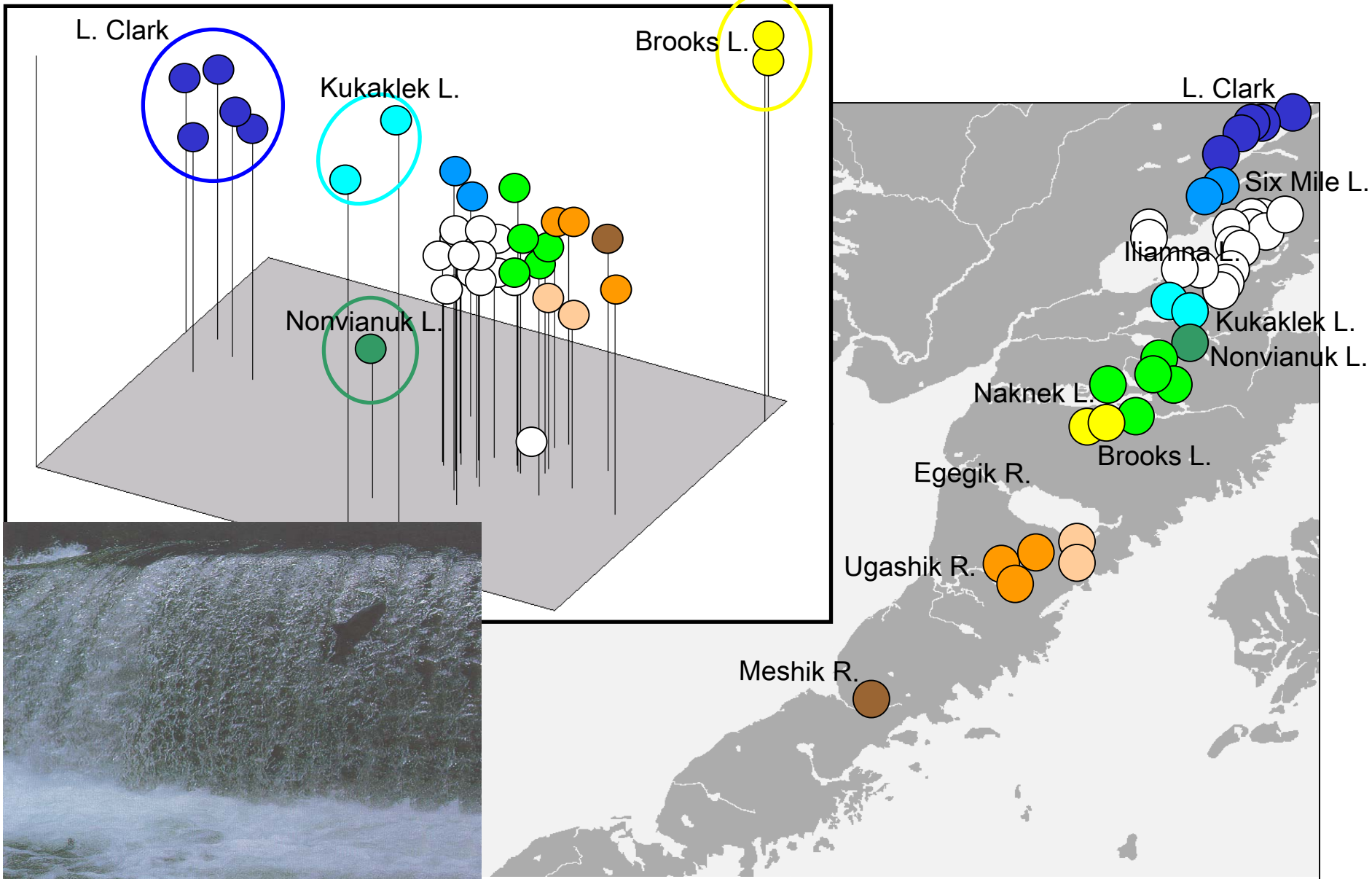
Eastern Bristol Bay collections



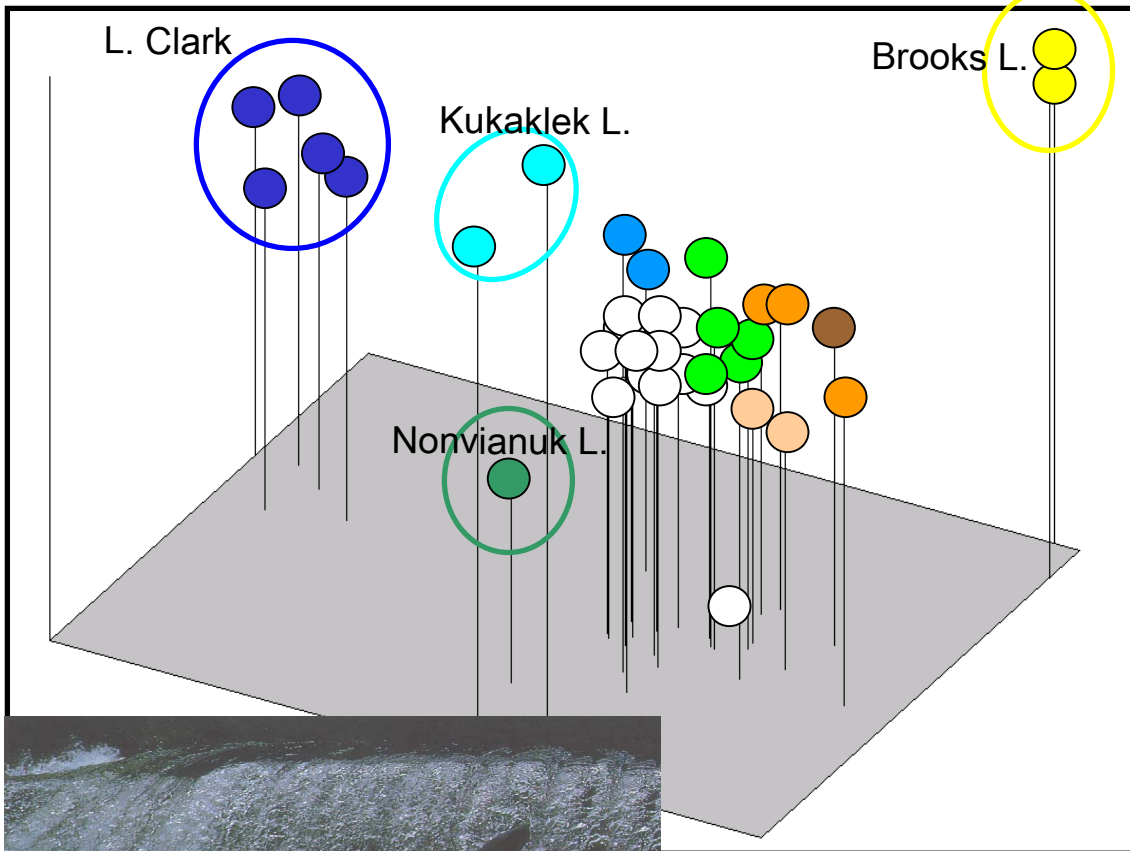
Eastern Bristol Bay collections



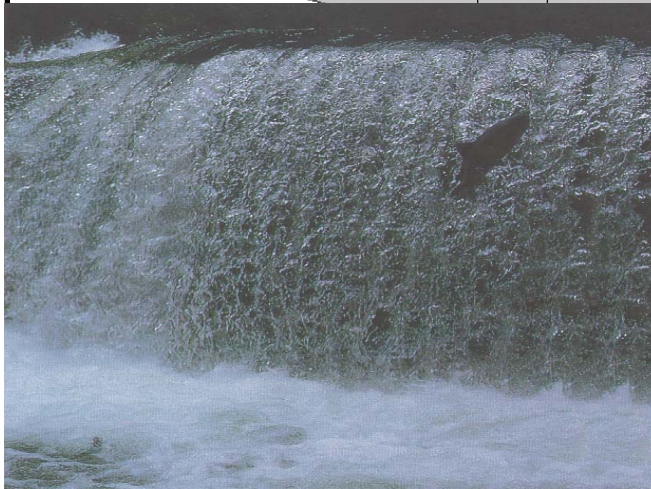
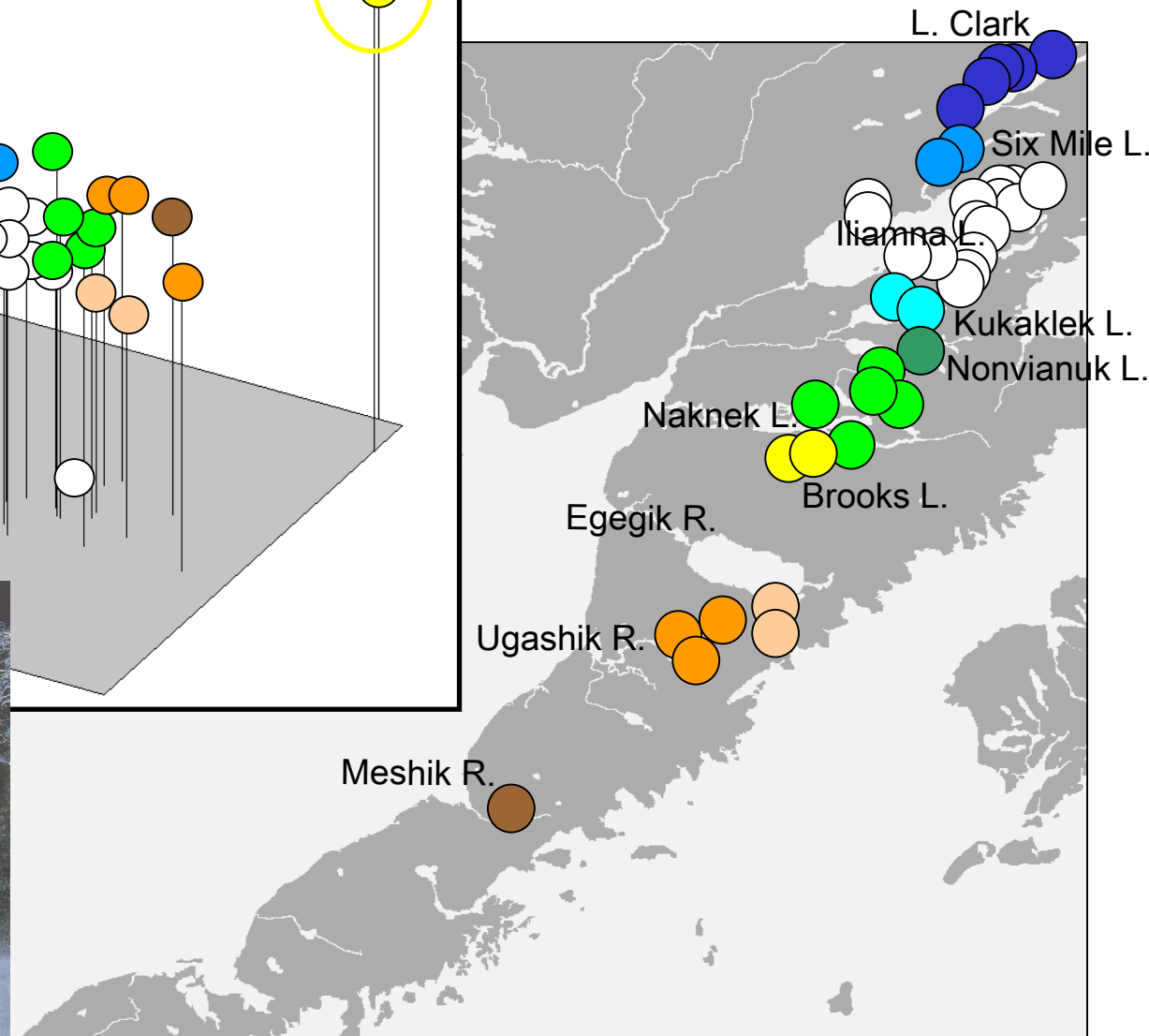
Eastern Bristol Bay collections



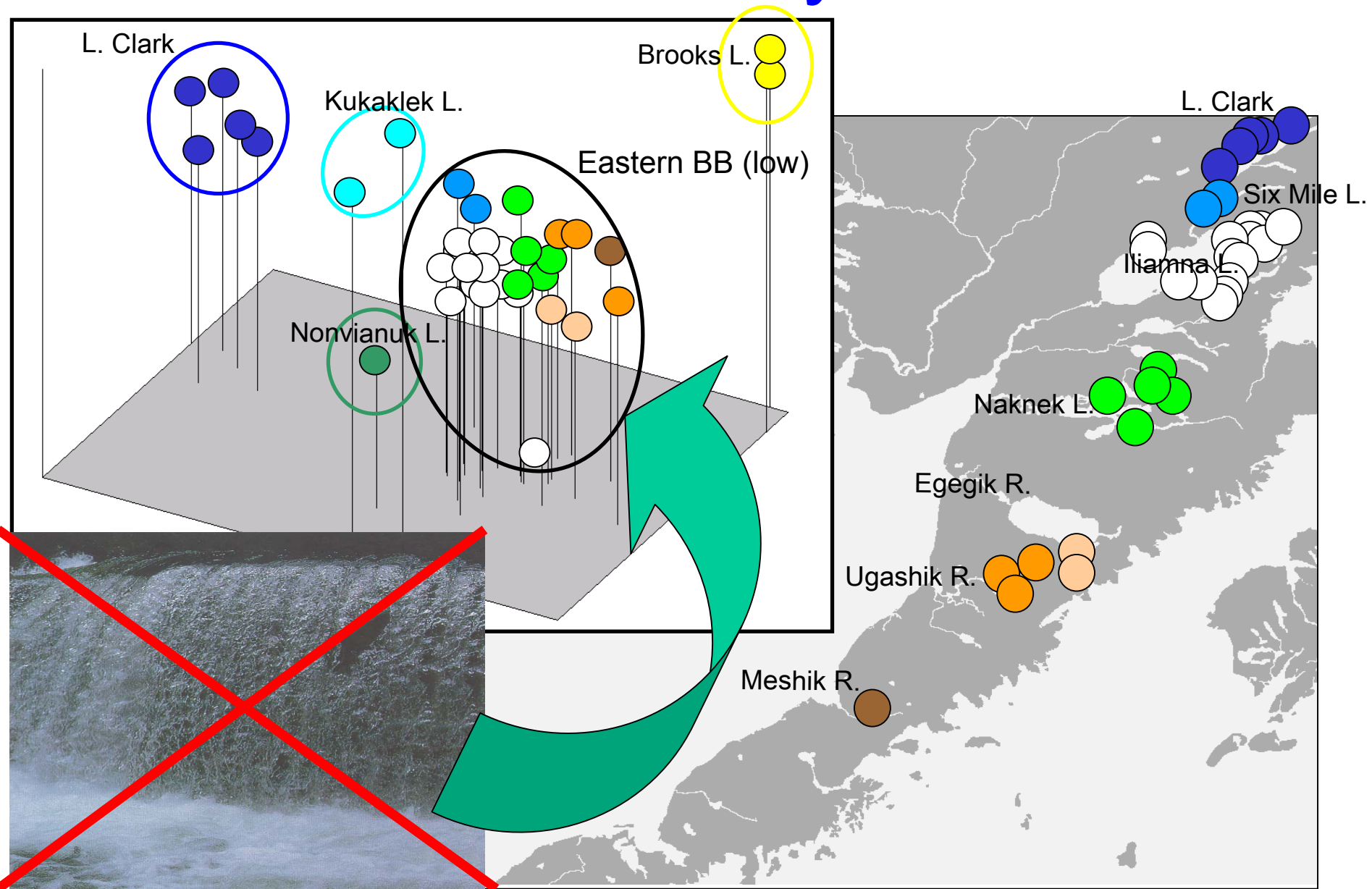
Eastern Bristol Bay collections



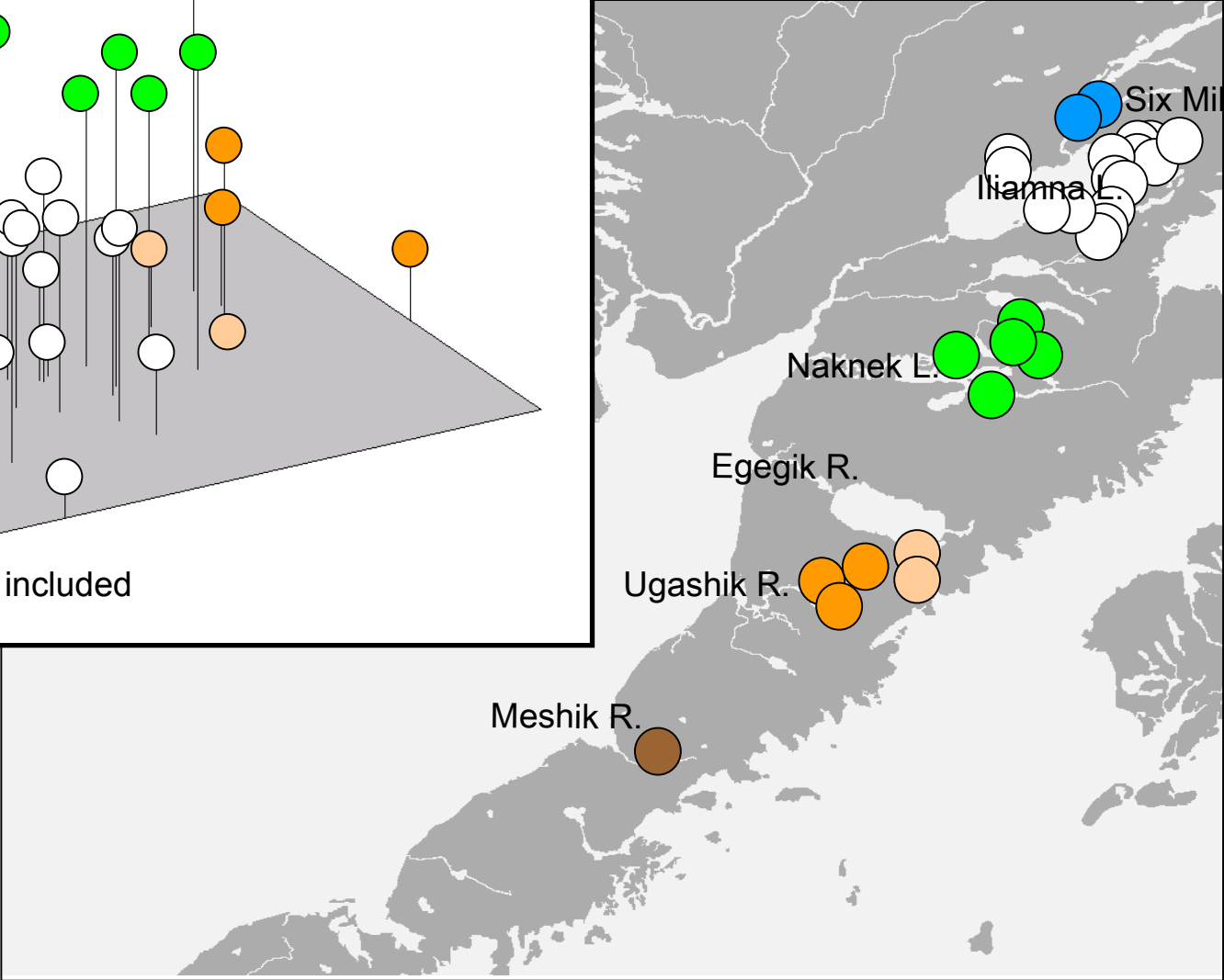
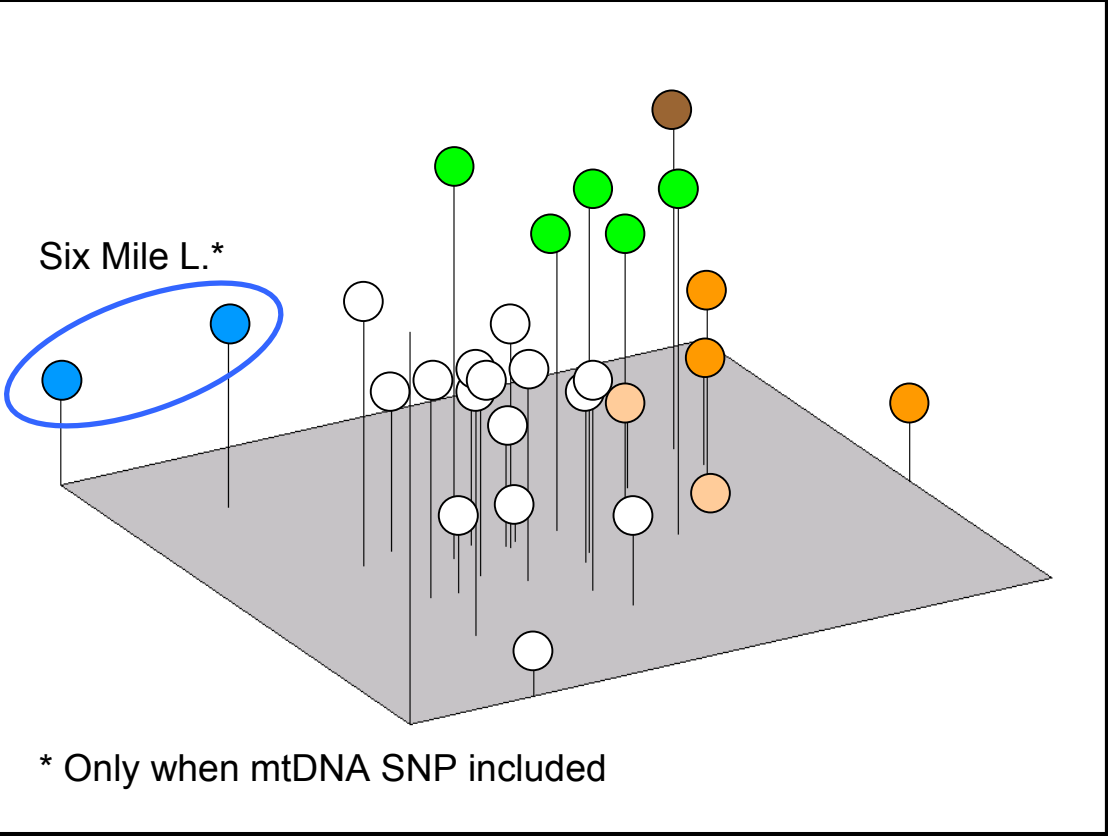
Sentinel Stocks



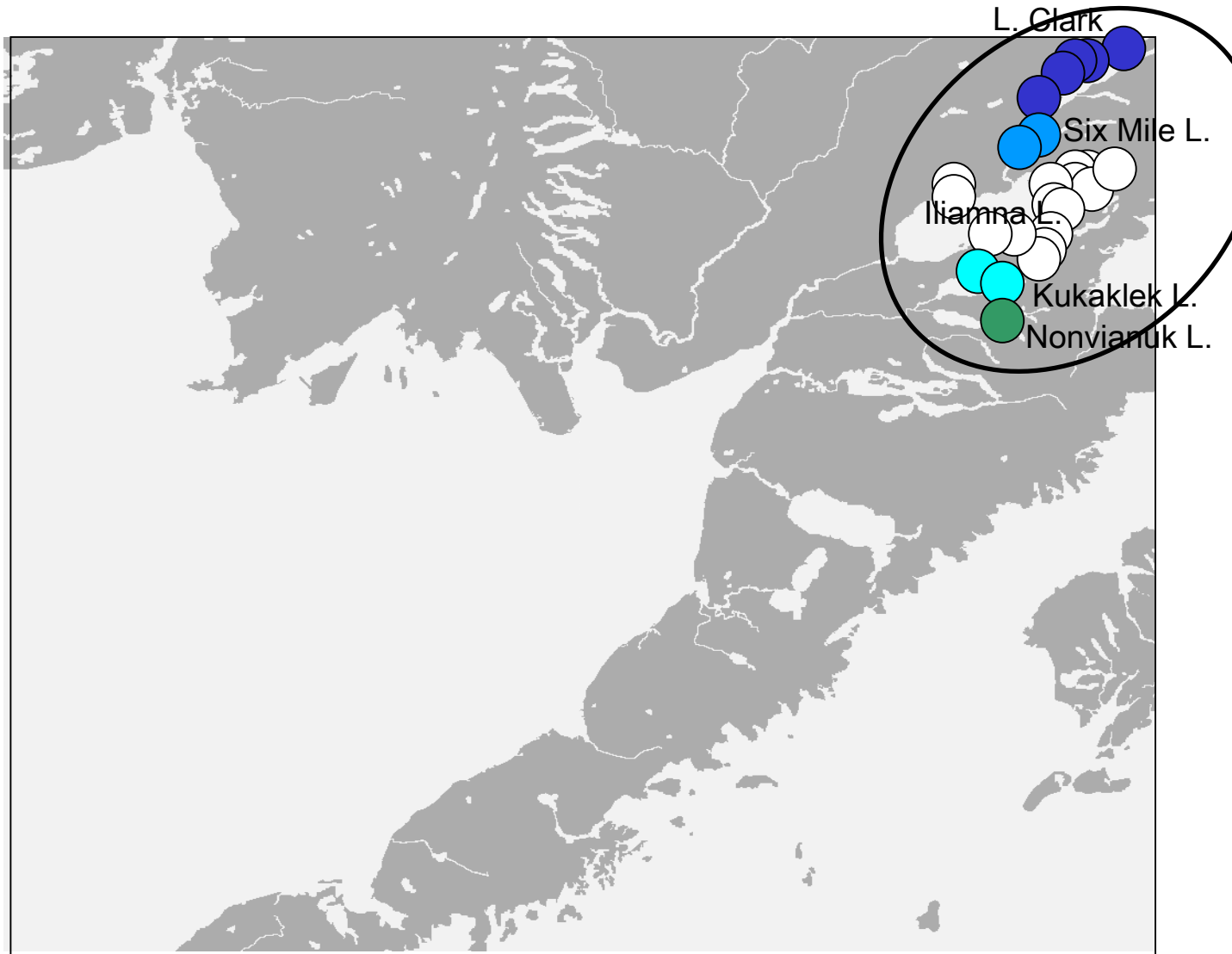
Eastern Bristol Bay collections



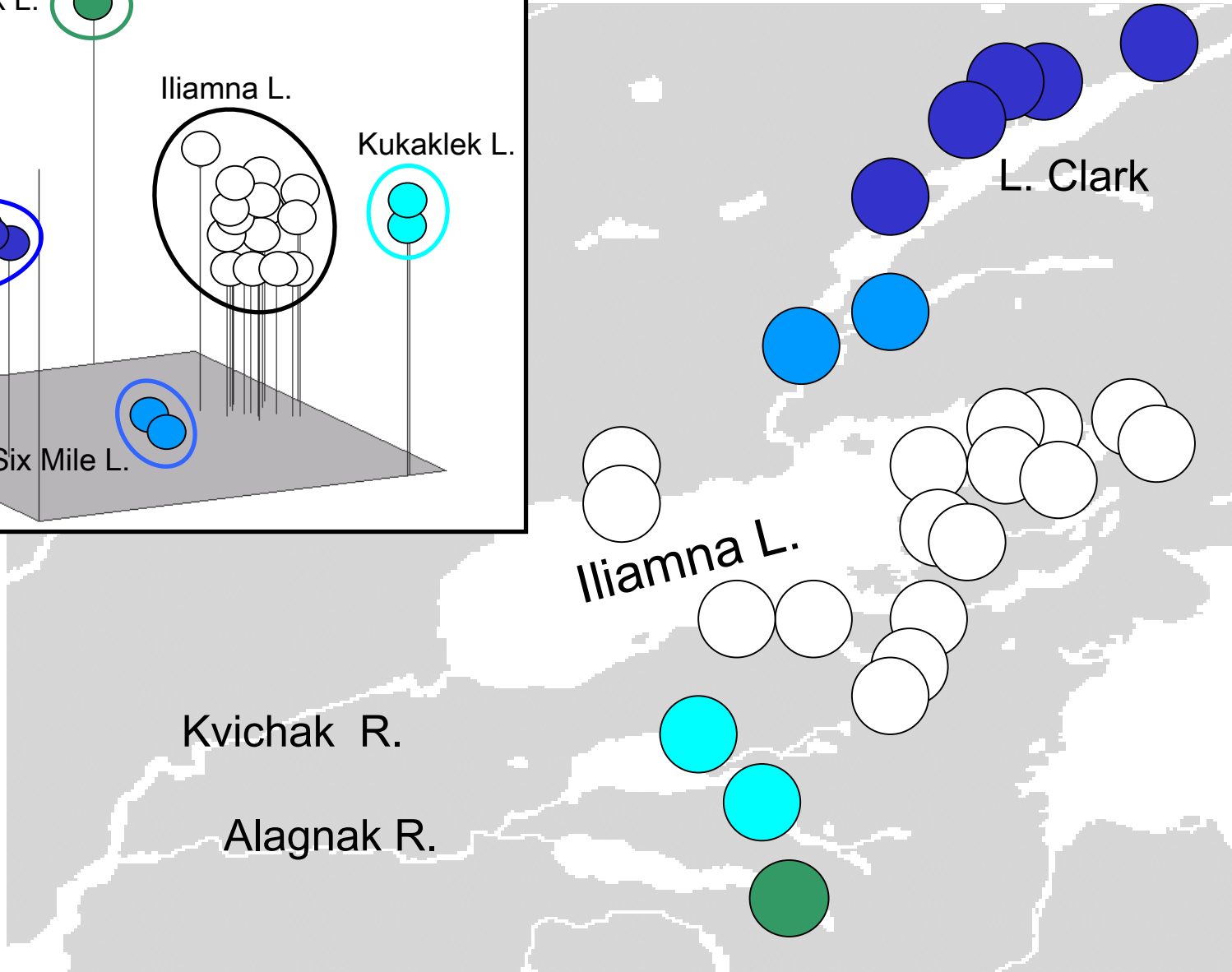
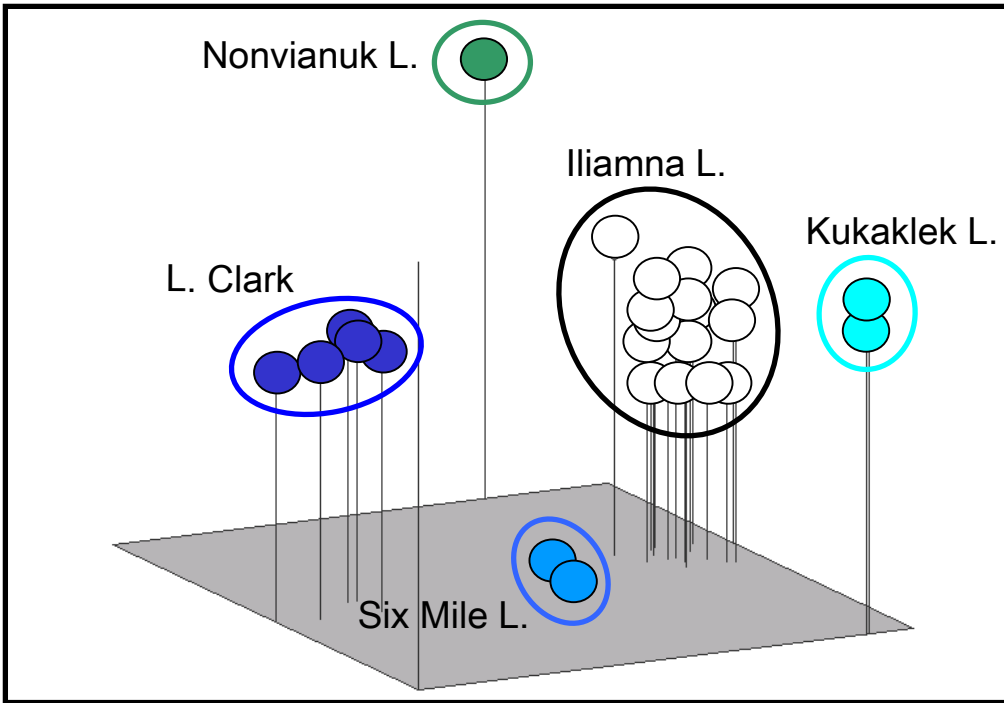
Eastern Bristol Bay (low) collections



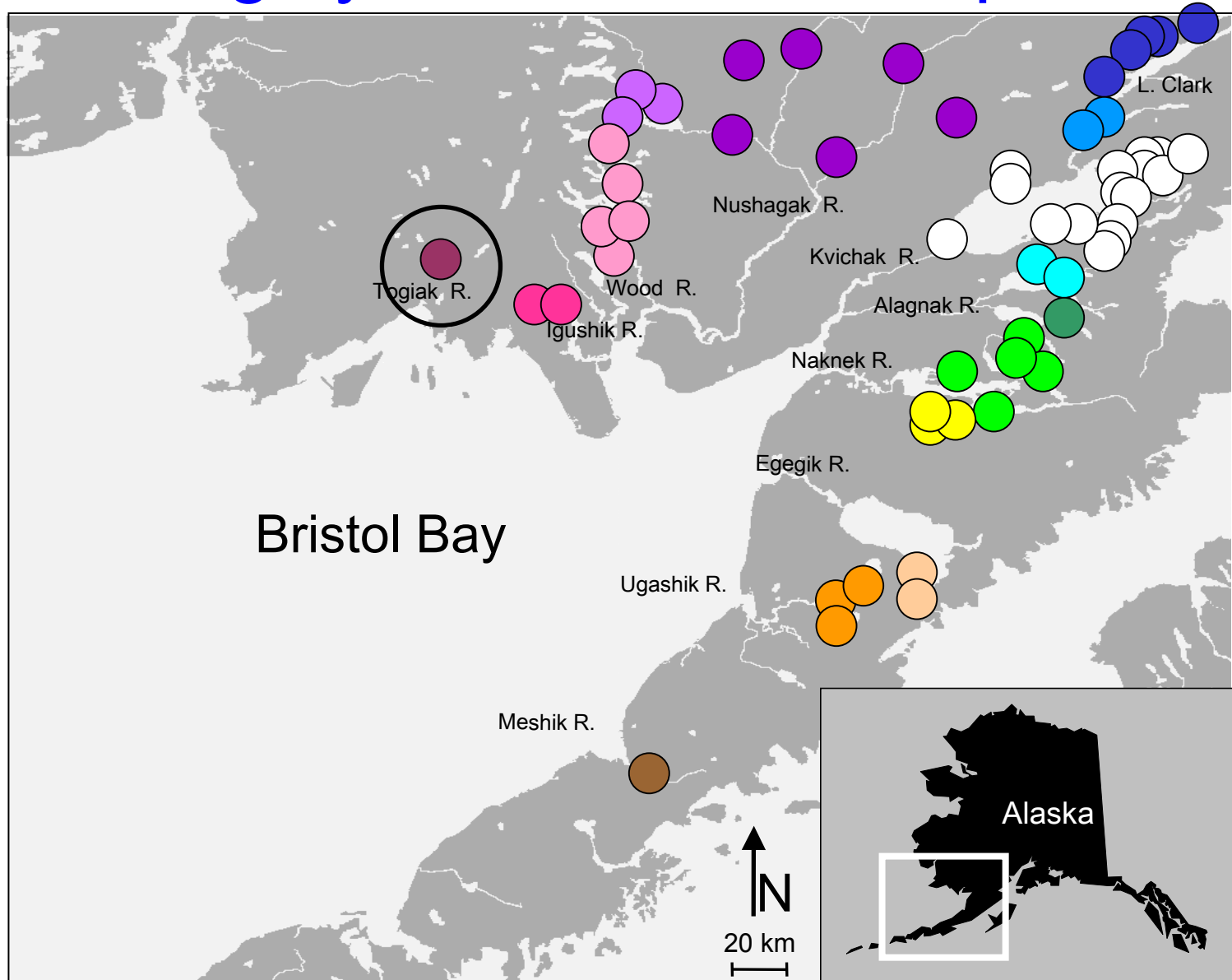
Kvichak Drainage collections



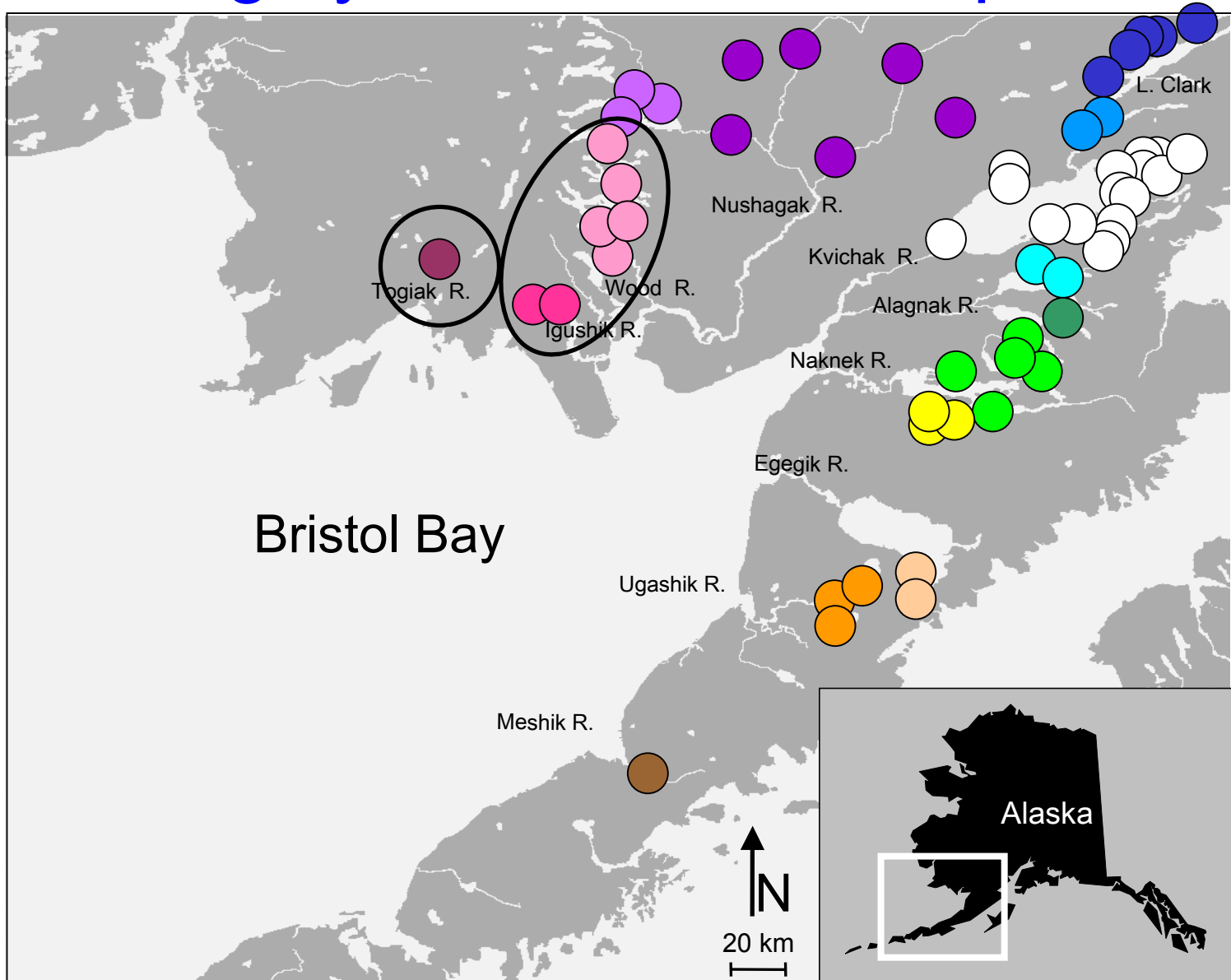
Collections in Kvichak Drainage



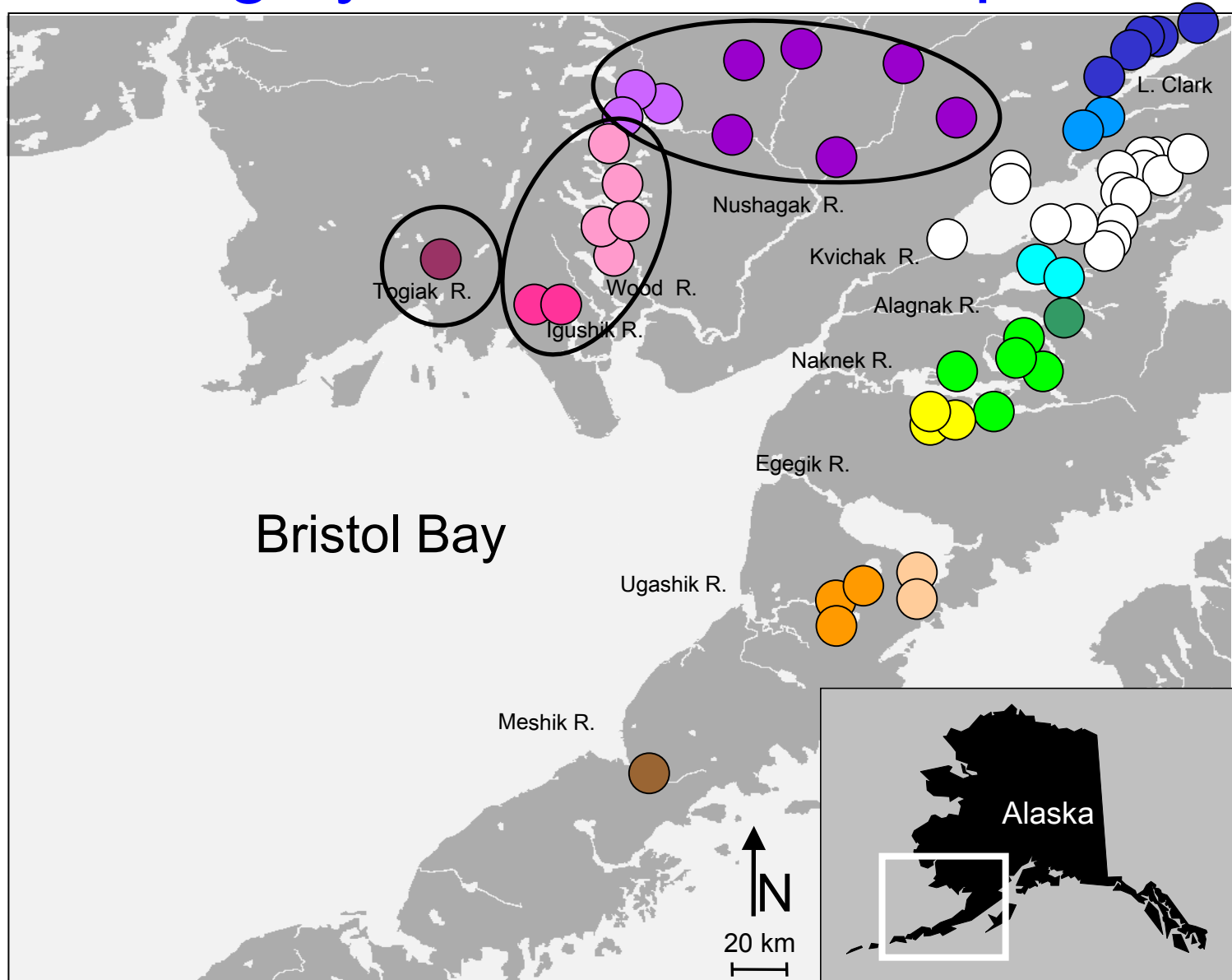
Collections in Bristol Bay: Highly Identifiable Groups



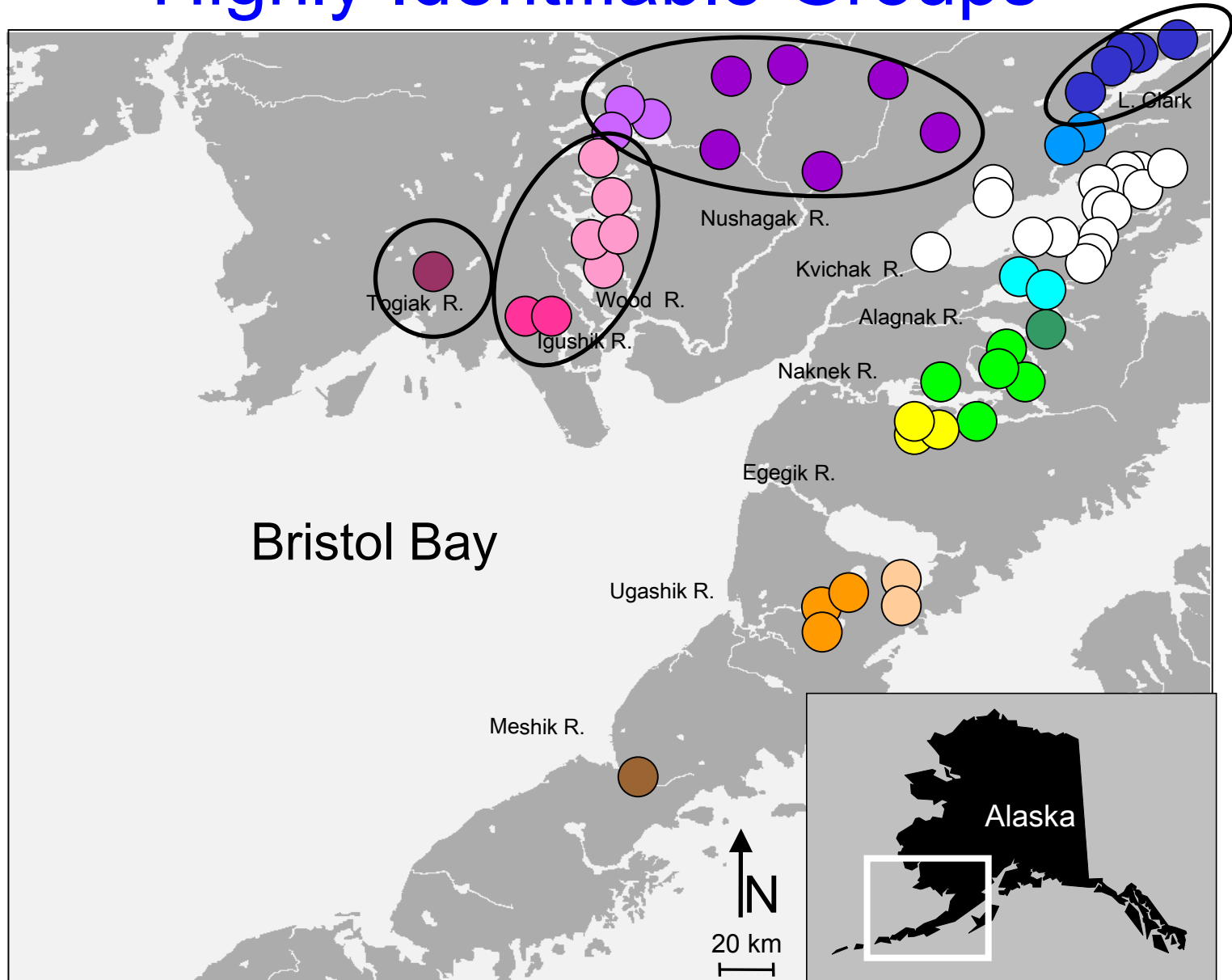
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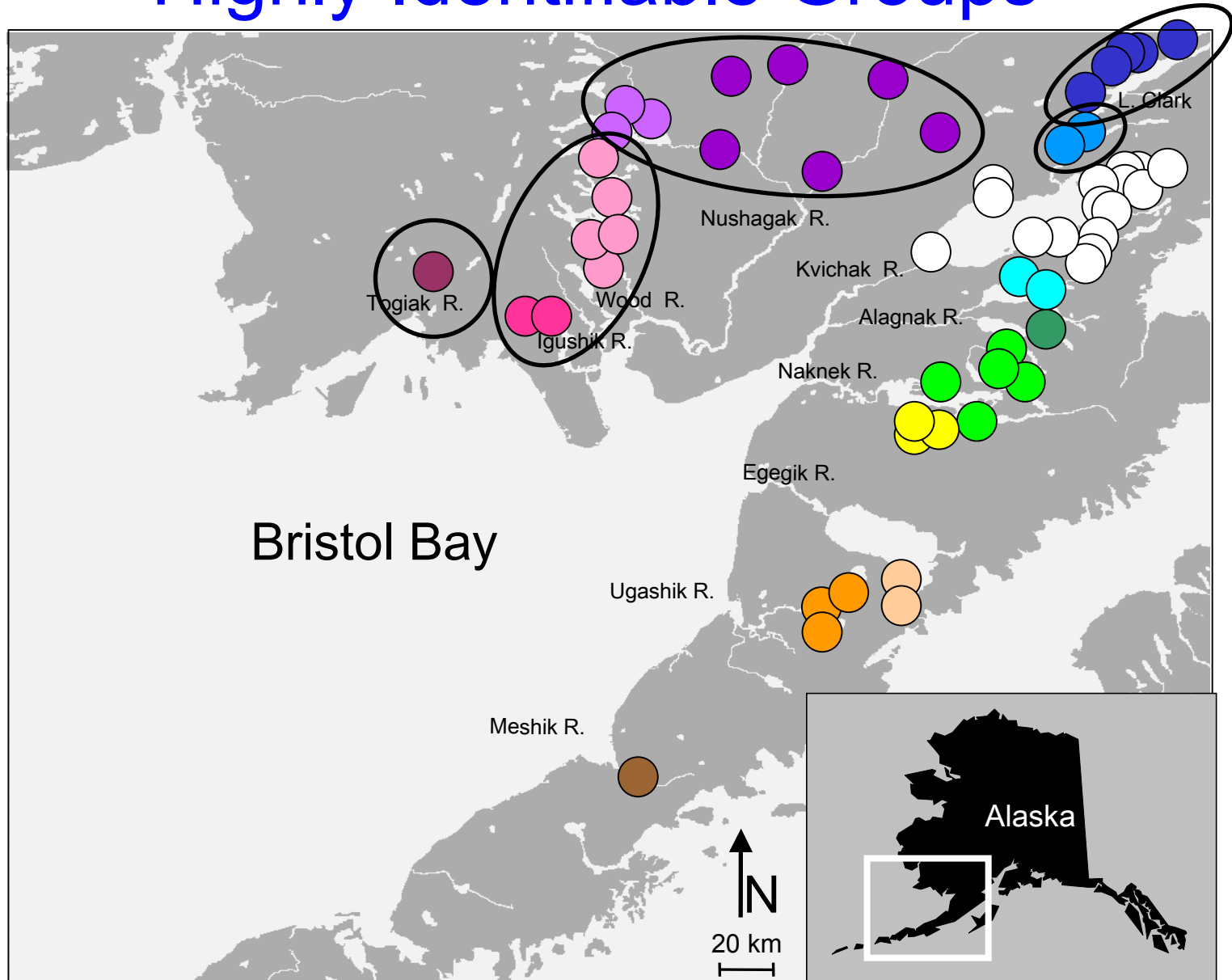
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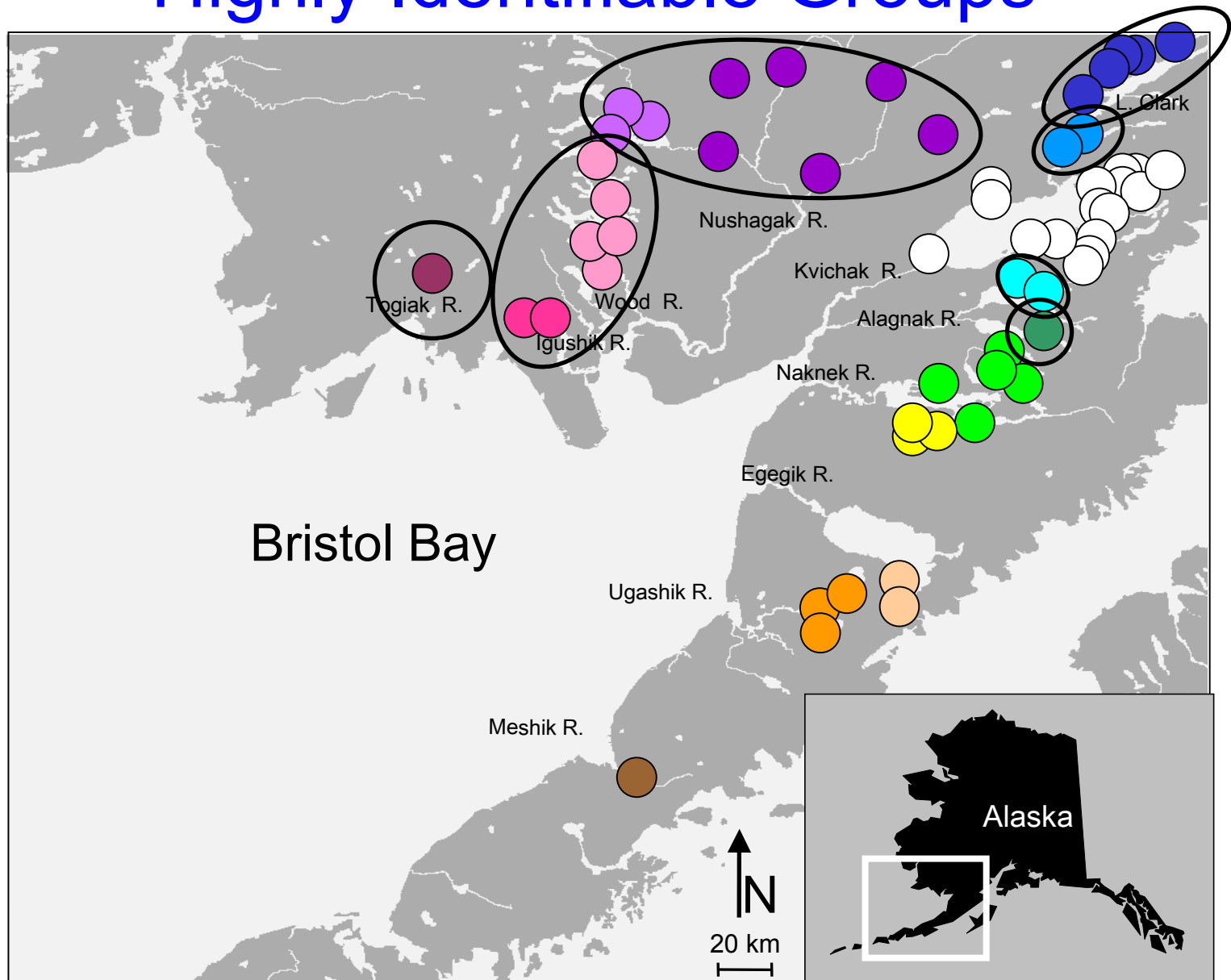
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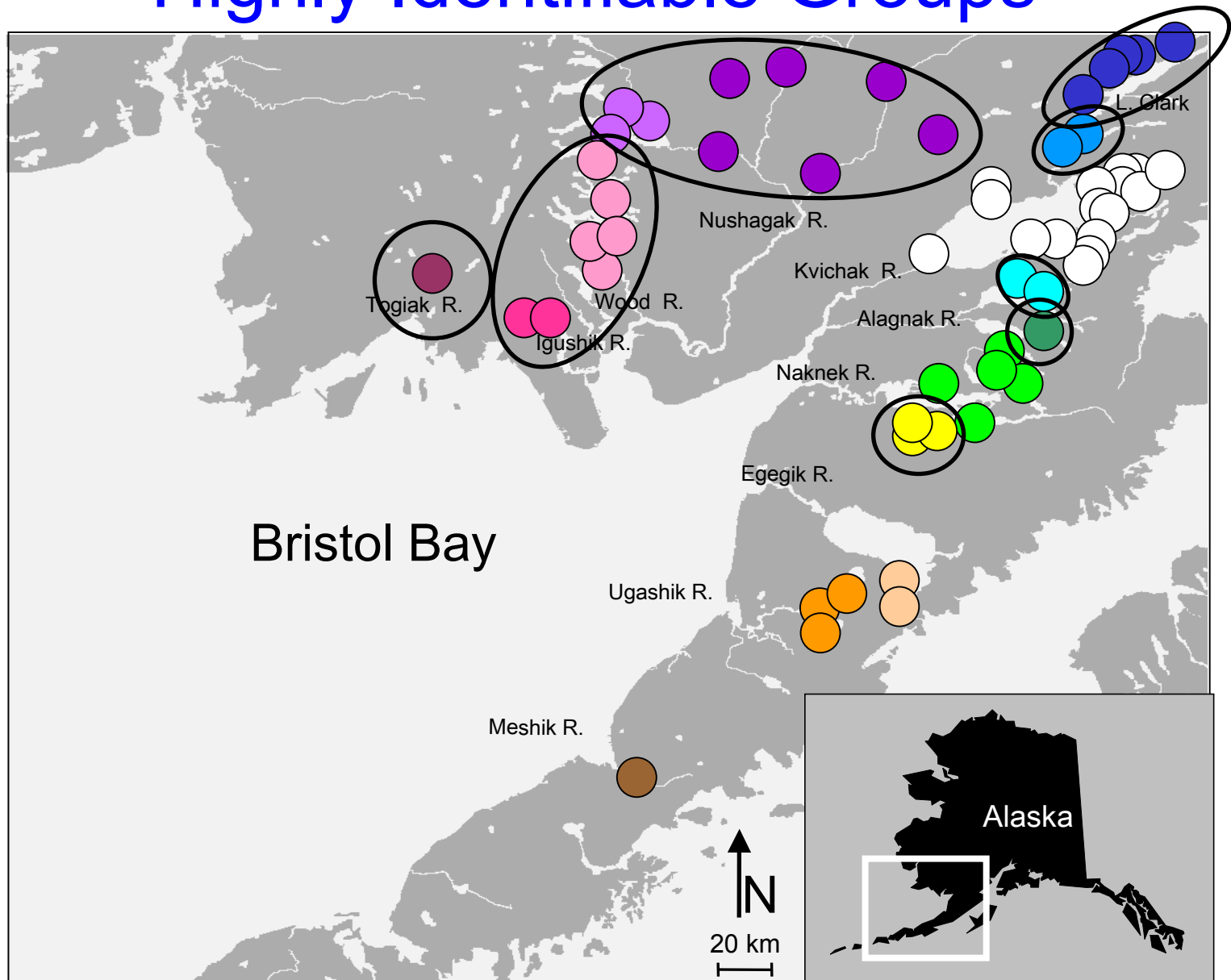
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 - Is extrapolation OK?
 - Expect to start in 2004 with Kvichak River stocks
- **Examine changes in stock compositions within districts, within years, or between years**
 - Identifying patterns will allow for extrapolation

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- **ADF&G Special Projects Fund??**
 - Baseline Application and production data