Sources of Data on Subsistence Harvests of Fish and Wildlife in Alaska

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Human Health Criteria

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Meal of salmon, salmonberries, and rice, Sleetmute, Alaska

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Division of Subsistence: Statutory Duties

- Alaska Statute 16.05.094 lists "duties"

    1. <u>Research and data compilation</u>

    2. <u>Data reporting and education</u>

    3. <u>Application of study findings</u>

Subsistence fishing and processing, Chignik Lake

Types of research projects

- Goal: "holistic" understanding of mixed economy and way of life
- Community "baseline" studies (focus on one year)
- Special topic research
- Local and Traditional Knowledge
- Harvest monitoring (multi-year)

➢ Most projects are partnerships
➢ Guided by ethical principles

Methods: Introducing a project in Togiak

Methods: Local assistant orientation in Noatak

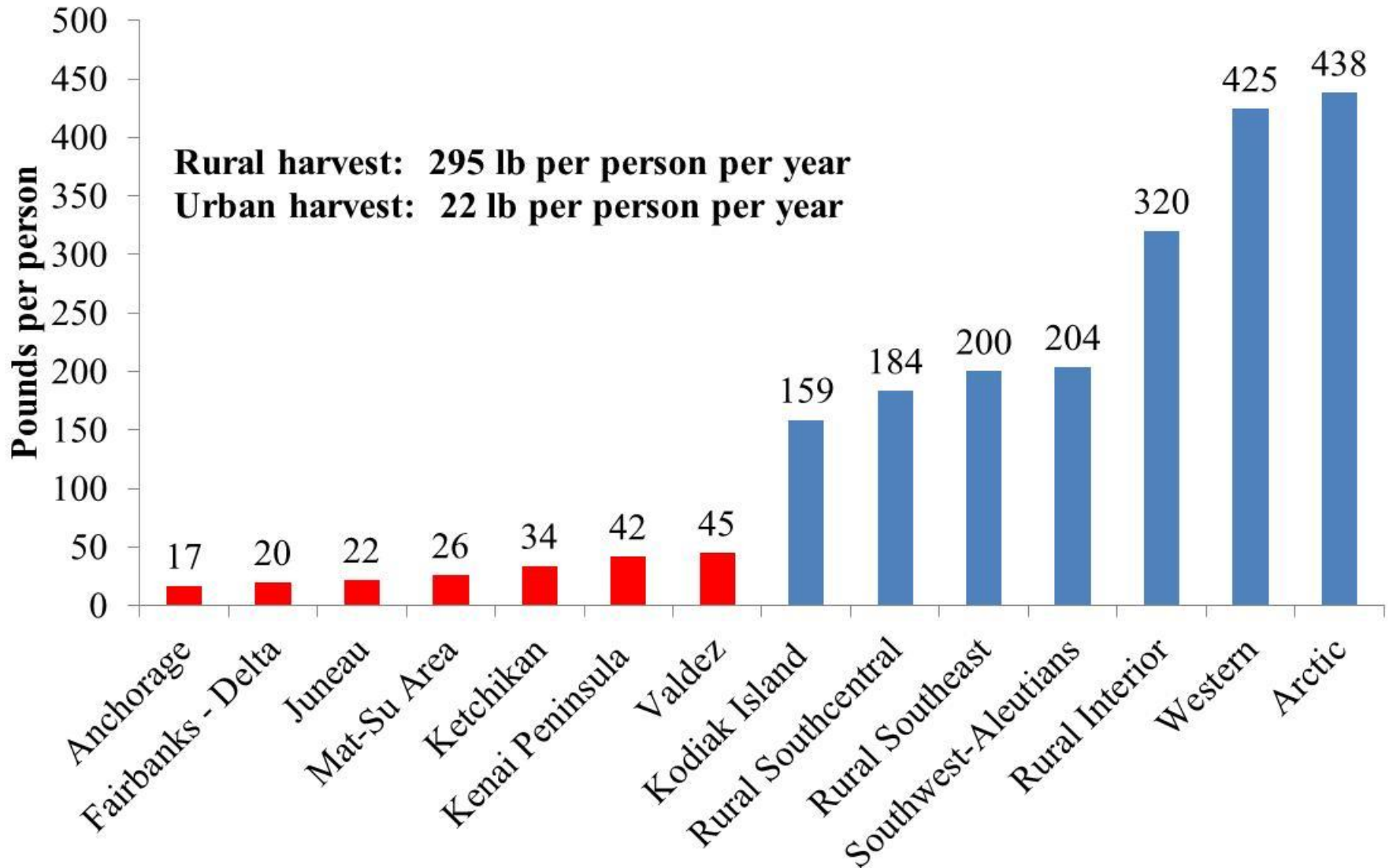# Methods: Administration of survey in Emmonak

Community Subsistence Information System or "CSIS"

- Online at http://www.adfg.alaska.gov/sb/CSIS/
- Searchable by resource, area, or community
- Export data into Excel file
- U.S. Census: 355 named communities in Alaska
- 86 in nonsubsistence areas, 269 in "rural" areas
- Of 263 rural places with a population and not a military base or industrial area, data in CSIS for 197 places (75%); 225+ total Alaska places
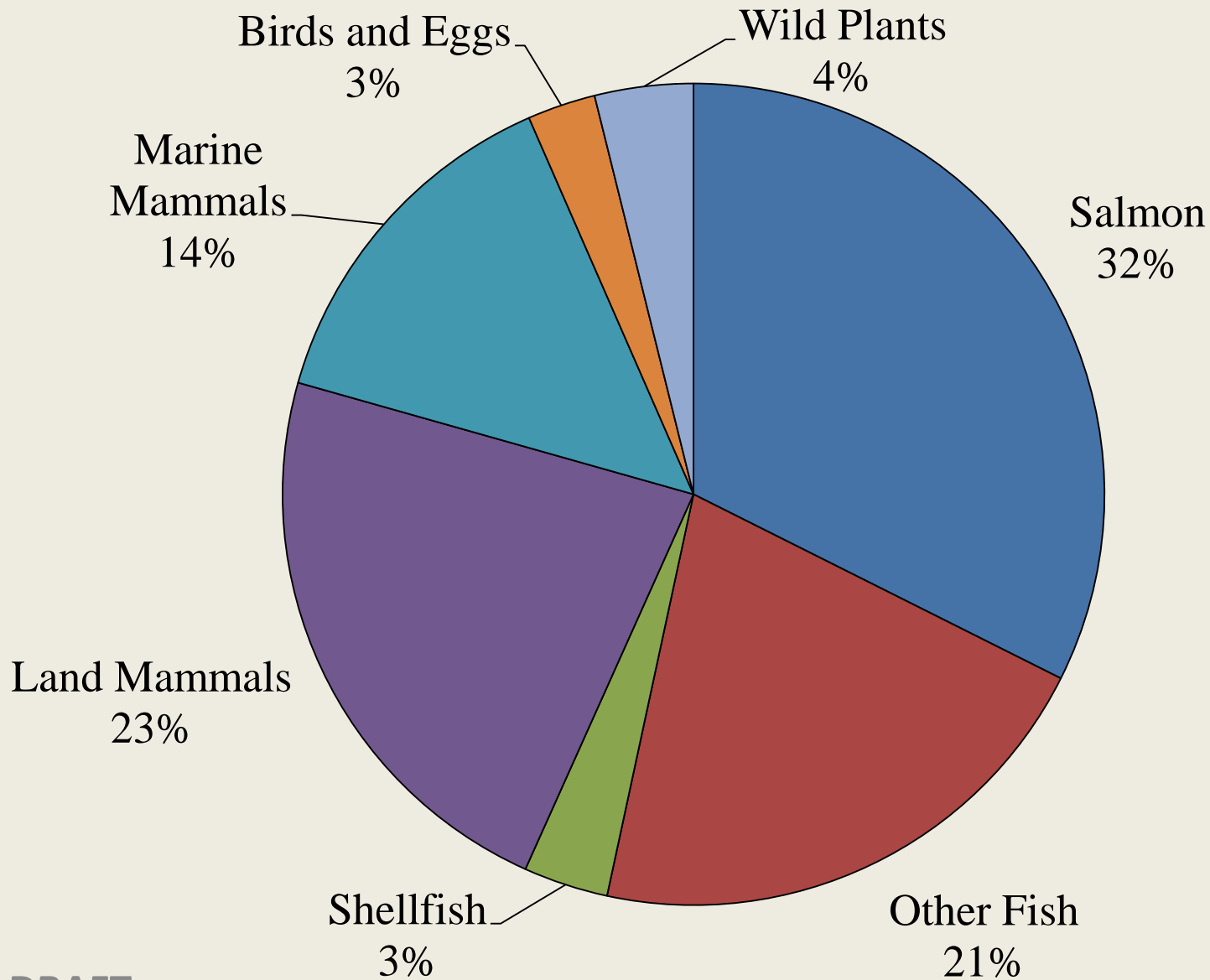- Number of data sets in CSIS = ~440 (community/year combinations)
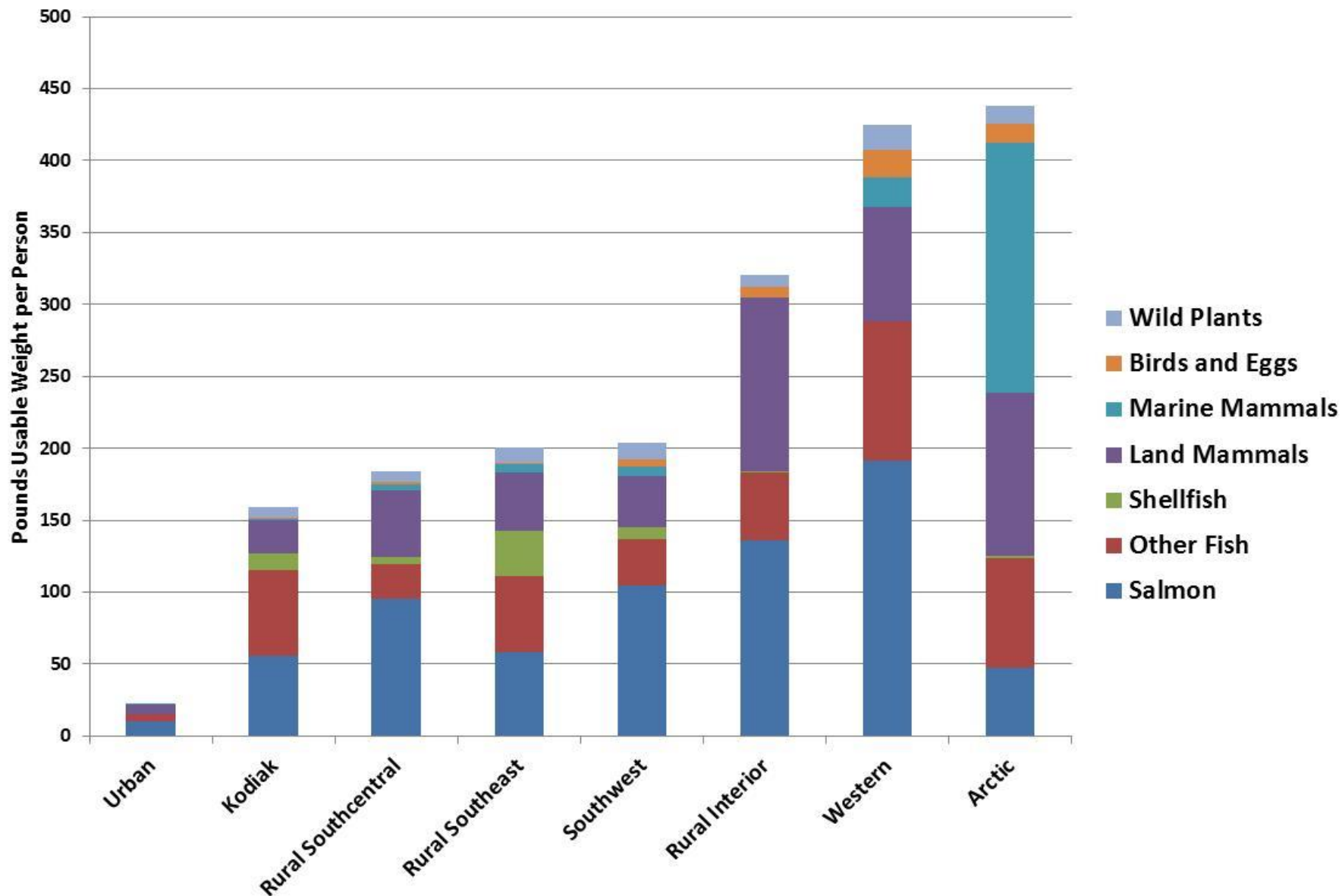
CSIS: Interactive map
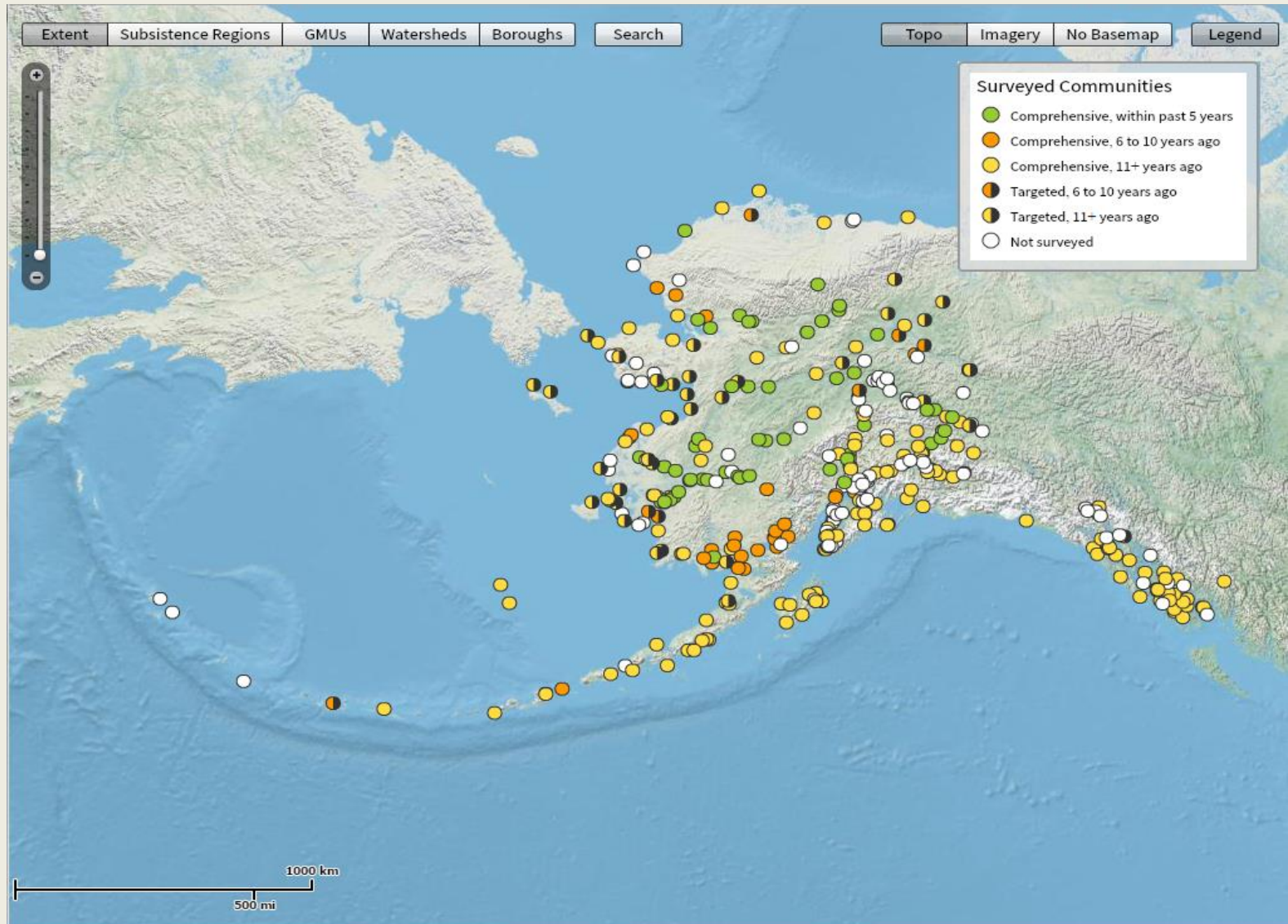
Wild food harvests in Alaska by area, 2012
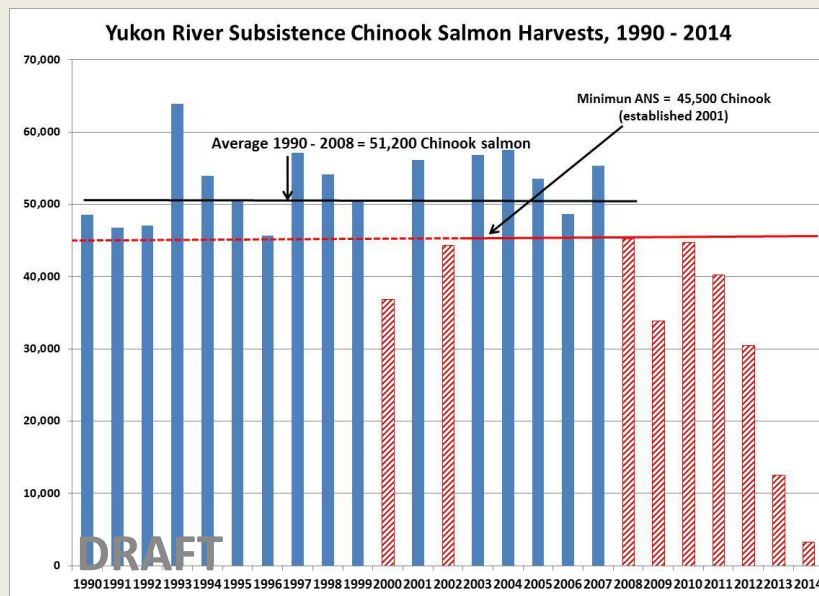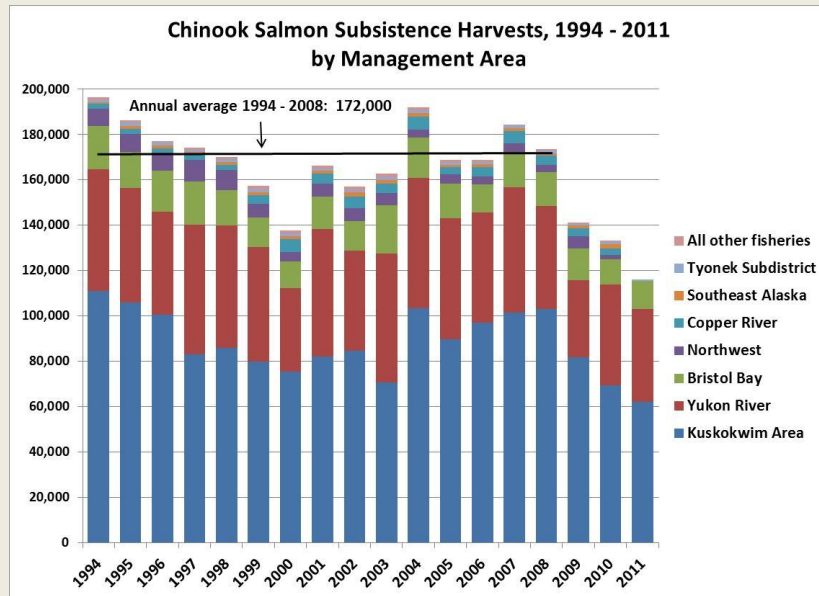(pounds usable weight per person per year)

Rural harvest: 295 lb per person per year
Urban harvest: 22 lb per person per year

Composition of wild food harvest by rural Alaska residents, 2012

- Birds and Eggs 3%
- Wild Plants 4%
- Marine Mammals 14%
- Salmon 32%
- Land Mammals 23%
- Shellfish 3%
- Other Fish 21%

Per Capita Harvests of Wild Resources by Category and Area, 2012

Annual harvest monitoring programs

Chinook Salmon Subsistence Harvests, 1994 - 2011 by Management Area

Annual average 1994 - 2008: 172,000

All other fisheries
Tyonek Subdistrict
Southeast Alaska
Copper River
Northwest
Bristol Bay
Yukon River
Kuskokwim Area

Yukon River Subsistence Chinook Salmon Harvests, 1990 - 2014

Minimun ANS = 45,500 Chinook (established 2001)

Average 1990 - 2008 = 51,200 Chinook salmon

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- Permit systems or post-season surveys
- Most subsistence and personal use salmon fisheries
- Few other subsistence fisheries
- Database (salmon)
- Annual report (salmon)

Consumption Rate Estimates

1. Mean Per Capita Harvest

2. Mean Per Capita Use

   - 95th Percentile Use (High-end User)
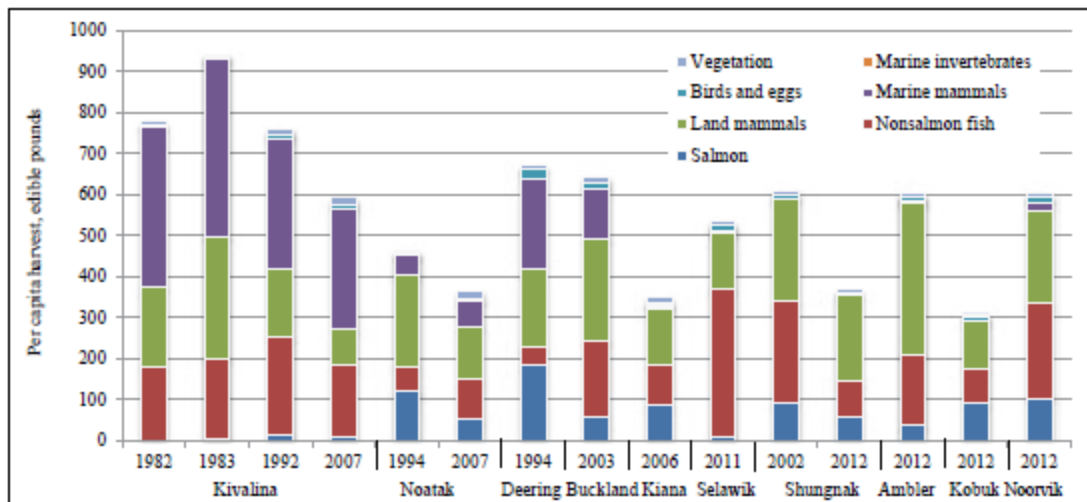
Figure 5-2.–Estimated per capita harvest in edible pounds, 15 northwest Alaska communities, 1982–2012.

Table 3-3.–Estimated harvest and use of salmon and nonsalmon fish, Shungnak, 2012.

Mean Per Capita Harvest

$$\frac{Total\ Harvest\ in\ Community}{Community\ Population} = Mean\ Per\ Capita\ Harvest$$

Assumes that wild foods are …

- Equally distributed among and consumed by all residents of a community
- Not exported from or imported into a community
- Consumed equally across each day of the year, when expressed as grams per day

Limitations …

- Lower/Higher than actual levels
- Not age-specific May not be sensitive to cultural use patterns
- "High-end" consumers underestimated, "low-end" consumers overestimated

Mean Per Capita Use

$$\frac{Community's\ Mean\ Per\ Capita\ Harvest}{Percentage\ of\ Community's\ Households\ Using\ the\ Resource} =$$

Mean Per Capita Use

- More precise measure of mean consumption rates, constructed from both harvest and use information

- Mean per capita use > Mean per capita harvest

- Captures differences among household consumption rates related to cultural food patterns

Mean Per Capita Use

$$\frac{Community's\ Mean\ Per\ Capita\ Harvest}{Percentage\ of\ Community's\ Households\ Using\ the\ Resource} =$$

Mean Per Capita Use

Assumes that wild foods are …

- Equally distributed among and consumed by all residents of households *that report sharing and using the wild food category*
- Not exported from or imported into a community
- Consumed equally across each day of the year, when expressed as grams per day

Limitations …

- Lower/Higher than actual levels
- Not age-specific
- "High-end" consumers underestimated, "low-end" consumers overestimated

95th Percentile Per Capita Use

<u>An estimate for "high-end" consumers in a community.</u>

- A way for quantifying the potential exposure levels of the segment of a community's population at greatest health risk.

- Higher than mean per capita use for most resource categories.

- Captures variation in the dietary patterns in the population related to dietary breadth, sharing patterns, and cultural use patterns.

- "Dietary Breadth" is the relative number of different types of wild foods within a resource category consumed by a household. Households using a comparatively larger number of different types of wild foods have a greater dietary breadth.*

95th Percentile Per Capita Use

Group 1

- Households that "harvested and did not give"
- *Harvest by each household / Household size = Use level*

Group 2

- Households that "harvested and gave" + households that "did not harvest and used"
- *Harvest by the group of households / People in the group of households = Use level*

Group 3

- Households that "did not use"
- *Use level = 0*

Uses of members are rank ordered from the lowest value to the highest value.
The community resident occupying the 95th percentile rank is identified.*

95th Percentile Per Capita Use

Assumptions …

- Group 1 – Wild food harvested by the household was consumed only by members of that household

- Group 2 – The group of "user" households comprised a distribution network in which wild foods were shared equally among all members of the group

- Wild foods are not exported from or imported into a community

- Wild foods are consumed equally across each day of the year, when expressed as grams per day
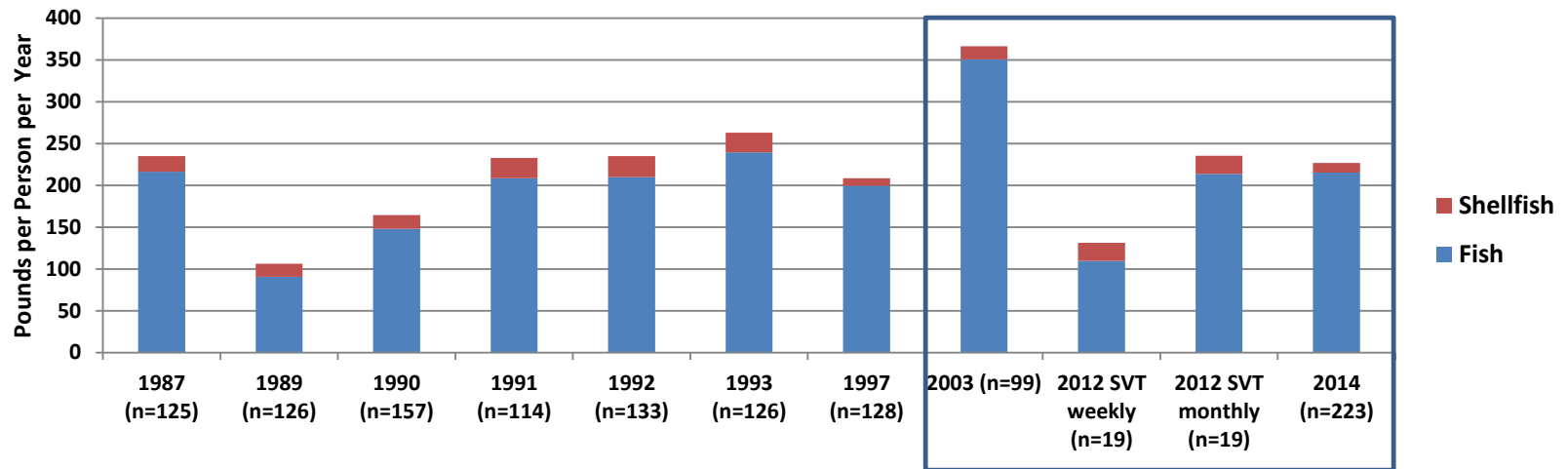
Limitations …

- Not age-specific

- Complexity of calculating the measure, requires access to project databases

    - Standard resource categories are accessible through CSIS

    - Specific groupings of wild foods require further analysis*
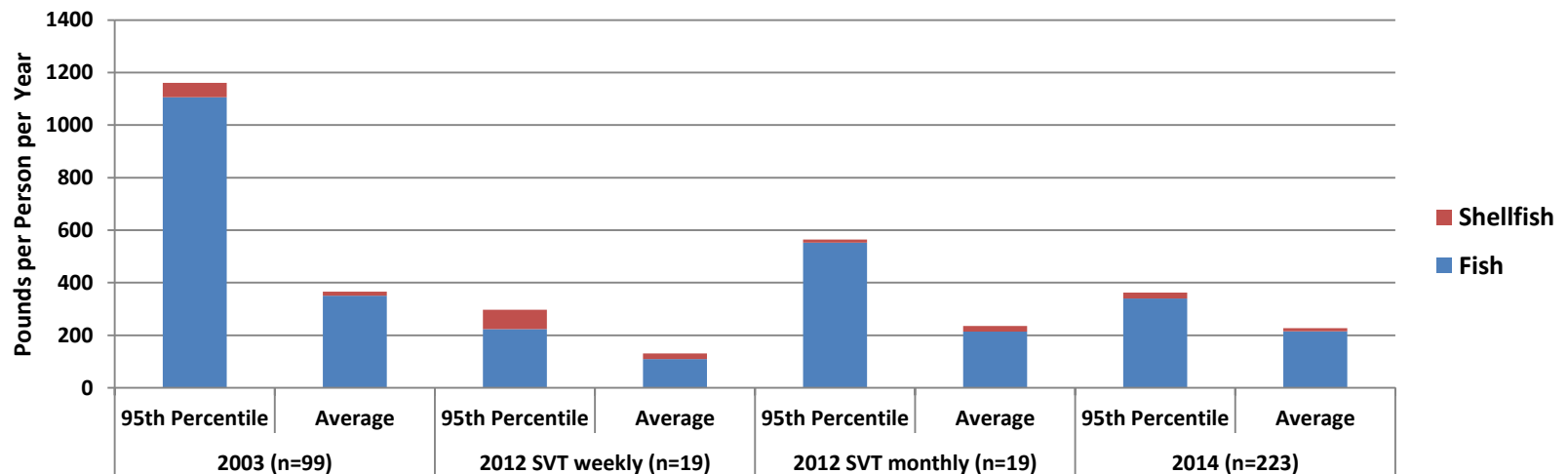
Consumption Rate Estimate Comparisons

95th Percentile Per Capita Use and Average Per Capita

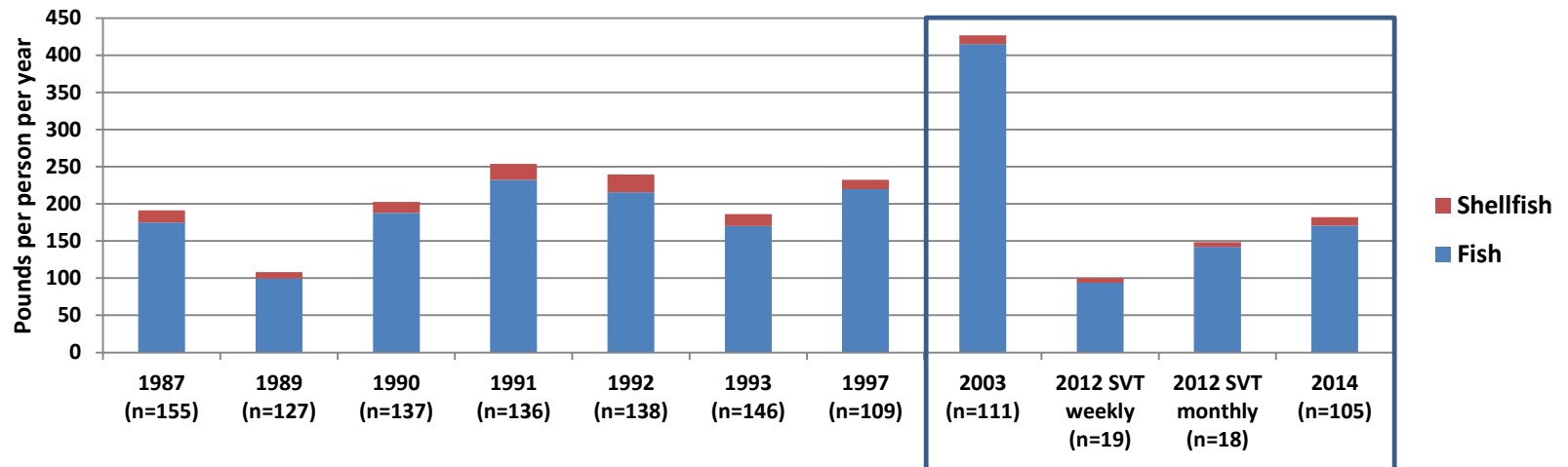Division of Subsistence, ADF&G and Seldovia Village Tribe

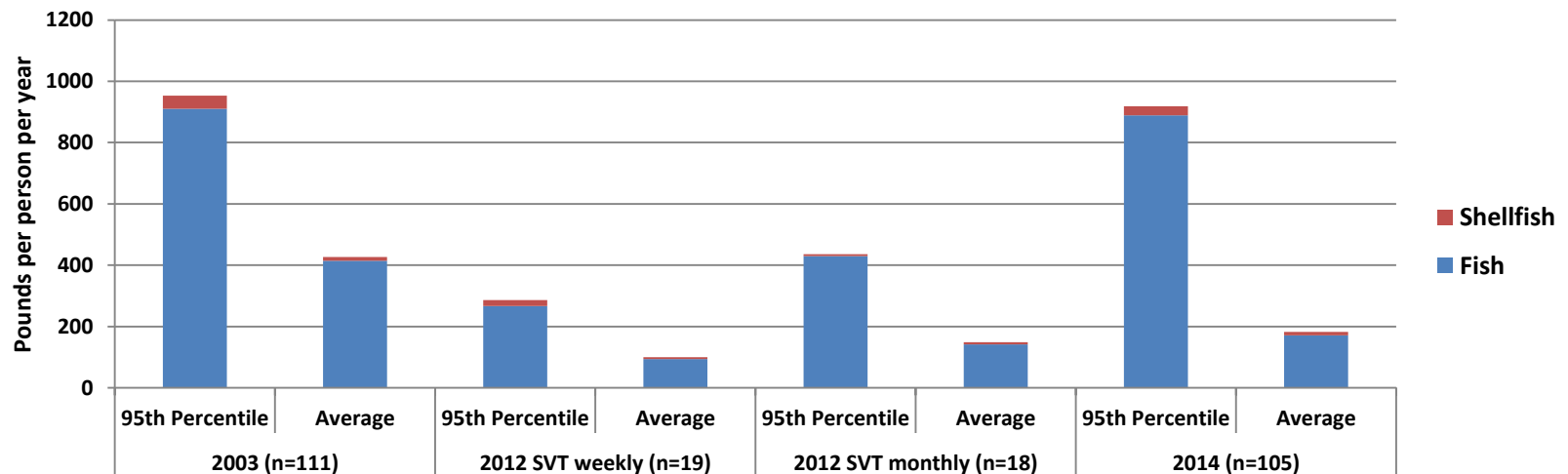Nanwalek Subsistence Harvests/Consumption Estimates, Fish and Shellfish, Average Per Capita

Nanwalek Subsistence Harvests/Consumption Estimates, Fish and Shellfish, 95th Percentile Per Capita Use & Average Per Capita
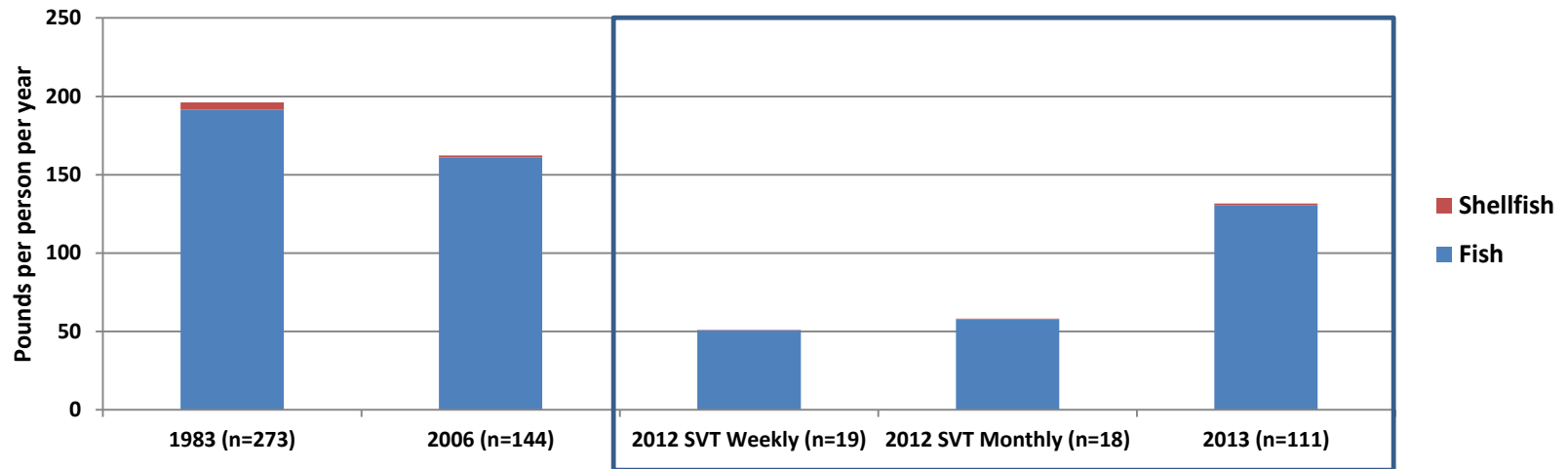
Port Graham Subsistence Harvests/Consumption Estimates, Fish and Shellfish, Average Per Capita
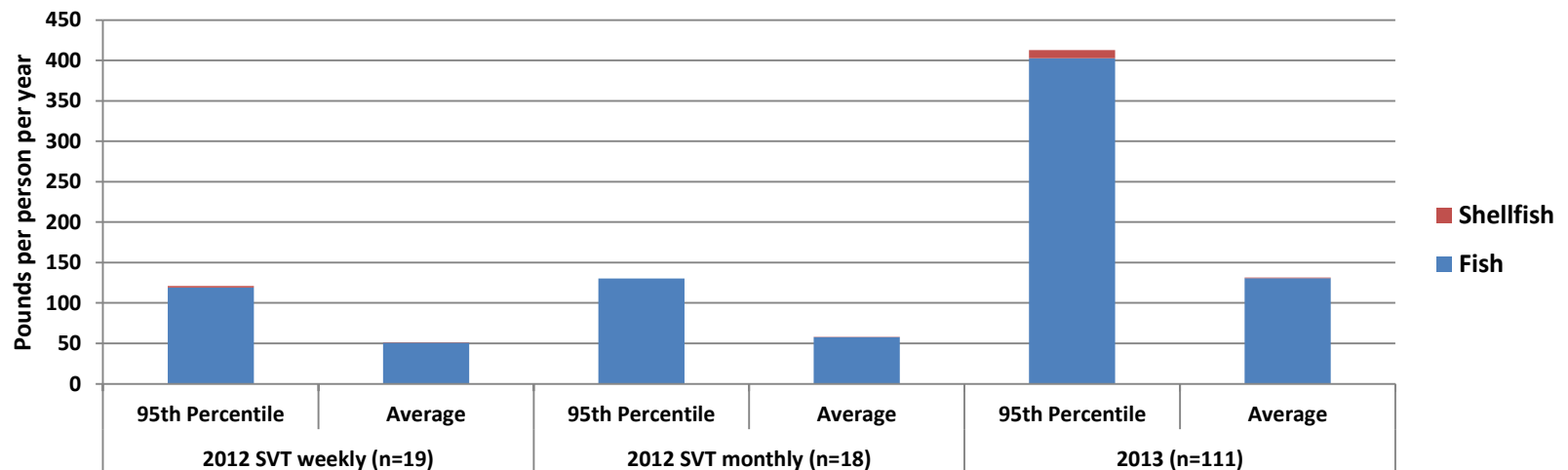
Port Graham Subsistence Harvests/Consumption Estimates, Fish and Shellfish, 95th Percentile Per Capita Use & Average Per Capita
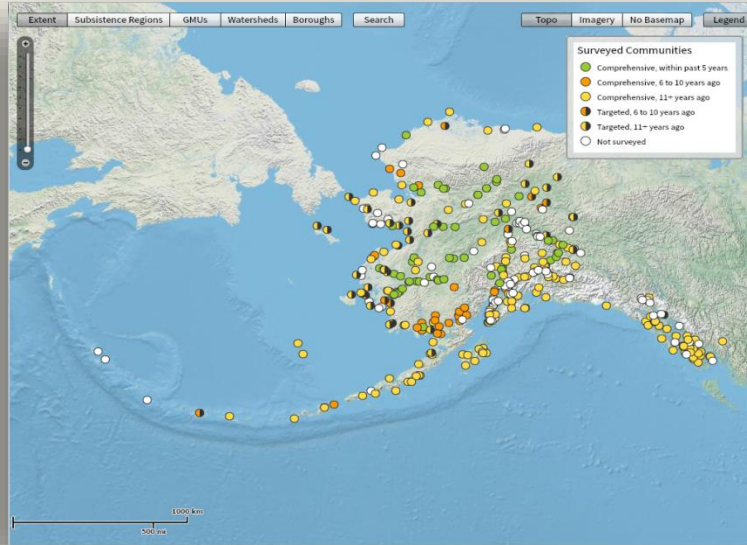
Tyonek Subsistence Harvests/Consumption Estimates, Fish and Shellfish, Average Per Capita

Tyonek Subsistence Harvests/Consumption Estimates, Fish and Shellfish, 95th Percentile Per Capita Use & Average Per Capita

Thank you.