

# **Klamath Basin Food System Assessment**

## ***Yurok Tribe Data Summary***

*A survey about access to food for tribal people in the Klamath Basin*

**The Yurok Tribe and the University of California at Berkeley**  
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### **Acknowledgements and Disclaimer**

The data provided in this internal report are the results of a survey that was part of a larger food assessment study conducted as part of a 5 year USDA-NIFA-AFRI food security project titled, *Enhancing Tribal Health and Food Security in the Klamath Basin by Building a Sustainable Regional Food System*.

The data in this report reflects a preliminary compilation and summary of the survey data. Further analysis and interpretation of the results is presented in a final report and in articles and publications, available on the following website:

<https://nature.berkeley.edu/karuk-collaborative/>

The views and opinions expressed in this report do not necessarily reflect the official policy or position of any agency of the U.S. government, but that of the authors. The survey was co-designed by Yurok Tribe employees Chris Peters, Rosie Clayburn, and Bob McConnell in together with UC Berkeley Cooperative Extension Specialist Jennifer Sowerwine, and research assistant Sara Reid. Data analysis was conducted by Megan Mucioki, post-doctoral researcher at UC Berkeley. Special thanks to other members of the Klamath Basin Food Security team especially Daniel Sarna-Wojcicki, Frank Lake, and Edith Friedman, and to all the survey respondents who contributed their knowledge and experiences to this report.

It is important to acknowledge the assumptions and limitations of this survey in representing all facets of the tribal community. While we made our best effort to make the survey accessible to all tribal members and descendants, we may not have been able to reach everyone as not all descendants' mailing addresses are registered with the tribe. We also may not have been able to reach those experiencing the greatest poverty and food insecurity. This includes those who may not have received the survey as they were no longer at the mailing address, are homeless, or are elderly and may not have had the means to respond to the survey. In addition, because the focus of our survey was at the household level, in which we requested one response per household, we may not have captured *all* tribal members as the survey respondent may have represented another tribe. Households often consist of tribal members and descendants from different or multiple tribal affiliations, as well as non-tribal members of the household. Survey responses were categorized based on the primary tribal affiliation of the person who filled out the survey.

When referencing this report, please use the following citation:

The Yurok Tribe, Megan Mucioki, and Jennifer Sowerwine. 2016. *Klamath Basin Food System Assessment: Yurok Tribe Data Summary*. Klamath, California and Berkeley, California: Yurok Tribe and University of California at Berkeley.

## **Executive summary**

The Klamath Basin Food System Assessment was conducted by Yurok Tribe employees and University of California at Berkeley researchers to document the current state of the food system in tribal communities on the Klamath River Basin and possible solutions to food-related challenges faced by tribal people in this region. While the survey covered all four tribes in the Klamath River Basin, this report summarizes survey results from all Yurok respondents stratified by geographic region (Crescent City, Klamath, Weitchpec, Hoopa, and other towns).

The Klamath Basin Food System Assessment is a 60-question survey focused on food shopping and consumption, food assistance programs, home grown and home raised foods, Native foods, and community resources and food education. A total of 1323 surveys were distributed to tribal members residing within the service area of the Tribe through the mail (1323) and at select tribal events from March 2015 to February 2016. For the Yurok Tribe, 115 Tribal households responded to the survey, collectively covering 392 people among all Tribal Households that responded.

### **Summary of results<sup>1</sup>**

#### **Household characters**

- 43.52% of households were classified at or under the federal poverty level for a household of three.
- Incidence of high blood pressure and type II diabetes were about twice the national rates reported by the Centers for Disease Control.

#### **Access to food, water, and other resources**

- 27.43% of households rarely or never had access to healthy food they desired throughout the year, a trend twice as high in Weitchpec.
- 54.38% of respondents rarely or never had access to Native foods that they desired throughout the year.
- 67.89% of households said they always had access to drinkable water from the tap. Respondents in Klamath had the best access to this resource and respondents in Weitchpec had the worst.

#### **Community food resources**

- Use of a convenience store to buy food was highest and use of grocery store the lowest in Klamath (15% did not use grocery stores).
- Hunting, fishing, and gathering Native foods were most important to respondents in Klamath, Weitchpec, and Hoopa.

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<sup>1</sup> The recall period for the survey questions was one year (2014-2015).

- Respondents most desired more local grocery stores, fishing and eeling, and gathering of Native plants in their communities.

### **Grocery shopping behavior**

- 32.14% of all respondents had to travel one or more hours one way by car to the grocery store.
- About 20% of households in Weitchpec and Crescent City did not have access to a vehicle.
- 71.05% of respondents said fresh fruits were too expensive; this was particularly so in Hoopa and Weitchpec (over 90%).
- 64.04% of respondents said fresh vegetables were too expensive; again this was particularly the case in Hoopa and Weitchpec (80-90%).
- Households in Klamath and Weitchpec prioritized buying local the most.

### **Food security**

- 55.56% of households are experiencing very low food security with the most households in Weitchpec and Crescent City regions experiencing low or very low food security.
- 38.39% of all respondents ran out of food or worried about running out of food in the past year.
- When asked how often they ran out of grocery money in the past year, 16.82% of households responded never and 25.23% responded rarely, while 10.28% of households ran out of money for food at least once a week, 30.84% at least once a month, and 16.82% a few times a year.
- Almost half of respondents in each location have reduced the size of meals and 30-40% of respondents in each location had adults that have skipped meals to deal with not having enough money to buy food.
- Buying less expensive foods was the most common strategy to deal with lacking money for groceries.
- All locations, except “other towns,” have utilized gathering, hunting, and fishing to deal with food insecurity.
- About 13% of households in Weitchpec had adults and children who skipped meals in the last year.

### **Food assistance programs**

- In the past year, 74.77% of households used some form of food assistance.
- Tribal commodities were used by 35-50% of households in each location.
- SNAP was used most commonly by households in Weitchpec, Hoopa, and Klamath.
- Crescent City had the lowest participation in food assistance programs.
- 26.36% of respondents said they used food assistance because Native foods were not available.
- 18.18% of respondents used food assistance because of continuous unemployment.
- About 70% of households wanted more fresh fruits and vegetables in food assistance programs.

- Respondents prioritized deer and elk, fresh vegetables, red meat, poultry, and acorns as foods they wanted more of in food assistance programs.

### **Home raised foods**

- 52.21% of respondents grew or raised their own food.
- Respondents wanted most to learn more about pests and weeds, preparation of soil and fertilizer, and crop planning and crop selection.
- 16.81% of households participated in a community or school garden.
- The highest rates of community garden participation were in Klamath and Weitchpec.

### **Native foods**

- 96.46% of respondents ate Native foods at least once in the past year.
- Respondents prioritized salmon, deer, and berries as the Native foods they wanted more of.
- The strongest barriers to obtaining Native foods were limited availability, degradation of the environment, lacking a person to bring the household Native foods, and limitations set by rules related to acquiring Native foods and materials.
- The weakest barriers were not being familiar with Native foods, lacking space or equipment to prepare Native foods, and not knowing how to prepare Native foods.
- In order to eat more Native foods, respondents said they most desired improved management of Native foods, followed by classes on gathering and the integration of Native foods into school lunches.
- 64.29% of all respondents shared knowledge about gathering, fishing, hunting, preparing or managing Native foods or materials with other people.
- While respondents most commonly acquired knowledge related to Native foods and materials through family members (94.4%), they also taught themselves (37.3%), or learned from an unrelated person (23.8%).

## **Household and survey respondent characteristics**

### Key trends:

- *43.52% of all households fell below the federal poverty level with reported annual household income of \$20,000 or less for a family of 3.*
- *10.00% of respondents and 23.58% of respondents' mothers did not graduate from high school.*
- *27.28% of respondents had completed some form of higher education, compared with 12.26% of their mothers doing the same.*
- *The reported rates of high blood pressure (48.65%) and type II diabetes (19.82%) are exceptionally high when compared to national rates of high blood pressure (29% reported by the Centers for Disease Control) and type II diabetes (9.3% reported by the Centers for Disease Control).*

There were 115 Yurok Tribal member households who responded to our survey. The data for the Yurok Tribe was divided up by town or Yurok service area:

- Crescent City: 42 respondents
- Klamath: 21 respondents
- Weitchpec: 10 respondents
- Hoopa: 31 respondents
- Other towns (Gasquet, Trinidad, Smith River, and Willow Creek): 11 respondents

Additionally, the data was divided into households residing on the Yurok Tribe's reservation and those residing off reservation. Our data set covered 31 households on the Yurok reservation and 84 households off the Yurok reservation.

Basic demographics: The average respondent was 50.46 years old with an age range of 20-88 years. There were more female respondents (77.39%) than male respondents (22.61%). Most respondents were Native American (97.39%). The average household size was 3.41 people with a range of one to ten people.

Income: Respondents were asked to share their annual individual income as well as the household annual income. For annual individual income: 34.26% respondents earned less than \$10,000, 22.22% of respondents earned \$10,000-\$19,999, 18.52% earned \$20,000-\$29,999, 8.33% earned \$30,000-\$39,999, 4.63% earned \$40,000-\$49,999, 3.70% earned \$50,000-\$59,999, 1.85% earned \$60,000-\$69,999, 1.85% earned \$70,000-\$79,999, and 4.63% earned more than \$80,000. The results for annual household income followed a similar pattern. The bottom three income brackets captured over half of Yurok households surveyed, with 21.30% of households earning less than \$10,000 per year, 23.15% earning \$10,000-\$19,999, and 18.52% earning \$20,000-\$29,999. Household or individual income was not statistically different<sup>2</sup> among locations.

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<sup>2</sup> We use the term *significant* or *statistically significant difference* to indicate relationships among household location/service areas and other variables that are not random or by chance. In other words, if our sample size is large enough and diverse enough, statistics

Education: Survey respondents were asked to share the highest level of education they completed as well as the highest level of education their mother completed. Collectively, 10.00% of respondents completed some high school or some grade school, 26.36% completed high school, 36.36% completed some college, 10.00% completed an Associate's Degree or a technical school, 12.73% had a Bachelor's degree, and 4.55% had a Masters or Ph.D. Comparatively, the education of respondents' mothers are as follows: 23.58% completed some high school or grade school, 33.96% completed high school, 16.98% completed some college, 7.55% obtained an Associate's Degree or completed technical school, 3.77% completed a Bachelor's degree, 0.94% had a Masters degree or Ph.D, and 13.21% of respondents did not know the highest level of education their mother completed.

Health issues: Lastly, survey respondents were asked if themselves or anyone in their household suffered from a list of health conditions. Collectively, 48.65% of households had at least one person who suffered from high blood pressure, 17.12% had at least one person who suffered from hypertension, 18.02% had at least one person who had a heart condition, 19.82% had at least one person who suffered from type II diabetes, 42.34% had at least one person who was obese, 36.04% had at least one person with cavities, 19.09% had at least one person with food allergies, and 11.93% had at least one person that suffered from a disease other than those listed (e.g. arthritis, liver disease, or cancer).

### **Access to food, water, and other resources**

Key trends:

- *27.43% respondents rarely or never had access to healthy foods; this was twice as high in Weitchpec.*
- *54.38% of respondents rarely or never had access to all the Native foods they wanted throughout the year.*
- *67.89% of households said they always had access to drinkable tap water while respondents in Klamath had the best access to this resource and respondents in Weitchpec had the worst.*

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inform us of relationships that are true to the population being surveyed every time and not just occurring by chance or randomly this time. The specific statistical tests we used to evaluate relationships in this report are the chi-square test and Fischer's exact test. We have used the probability of error level .05 which means that 5% of the time an identified relationship based on statistical analysis is wrong or not inherent to the population. For more reading about these tests and statistical significance please see:

<http://www.stat.yale.edu/Courses/1997-98/101/chisq.htm> and  
<https://web.csulb.edu/~msaintg/ppa696/696stsig.htm>

### *Access to healthy food*

Respondents were asked to rank their household's access to desired healthy foods in the past year. As an aggregate, 13.27% said they always had access to healthy food and 59.29% of households said they usually had access to healthy food, while 25.66% of respondents said rarely and 1.77% said never. While there were not statistically significant differences among locations some notable differences include: 50% of Weitchpec respondents said they rarely had access to healthy food, and 20-30% of respondents in the remaining locations said they rarely had access to healthy food in the past year (Figure 1). Figure 2 compares healthy food access by households on and off the Yurok Tribe's reservation. While responses were very similar between the two groups, slightly more on-reservation households identified with rarely having access to healthy foods while more off-reservation households said they always or never had access to healthy foods (Figure 2).

### *Access to Native foods*

Next, households were asked to rank their access to Native foods that they desired in the past year. Collectively, 9.65% said they always had access to Native foods that they desired, 35.96% said usually, 49.12% of households said rarely, and 5.26% of households responded never. Figure 3 displays Native food access by household location. Across all locations households most commonly identified with usually and rarely having access to Native foods, following a similar pattern to the aggregate data (Figure 3). Figure 4 compares Native food access between households on and off the Yurok Tribe's reservation. About 10% more households living off reservation said they rarely had access to all the Native foods they desired throughout the year as compared to households living on reservation (Figure 4).

### *Access to drinkable tap water*

Respondents were asked if they had access to drinkable water from the tap. Collectively, most households (67.89%) said they always had access to drinkable tap water while 20.18% said they usually did but not always, 2.75% said sometimes, 2.75% said rarely, and 6.42% responded never. Households in the "rarely" and "never" categories were most represented by those in Weitchpec and least represented by households in Klamath. Additionally, 17.33% of households off the reservation said they always had access to drinkable tap water compared to households on the reservation (Figure 5).

### *Emergency resources*

In event of an emergency, 75.44% of people have non-perishable food on-hand for at least three days, 69.03% of households have access to drinking water for at least three days, 58.77% have a propane stove, 41.2% have a radio, and 47.37% have a generator. There was a significant difference by location for households that owned a propane stove and a generator, with both items being more common in Weitchpec and the least common in Crescent City.



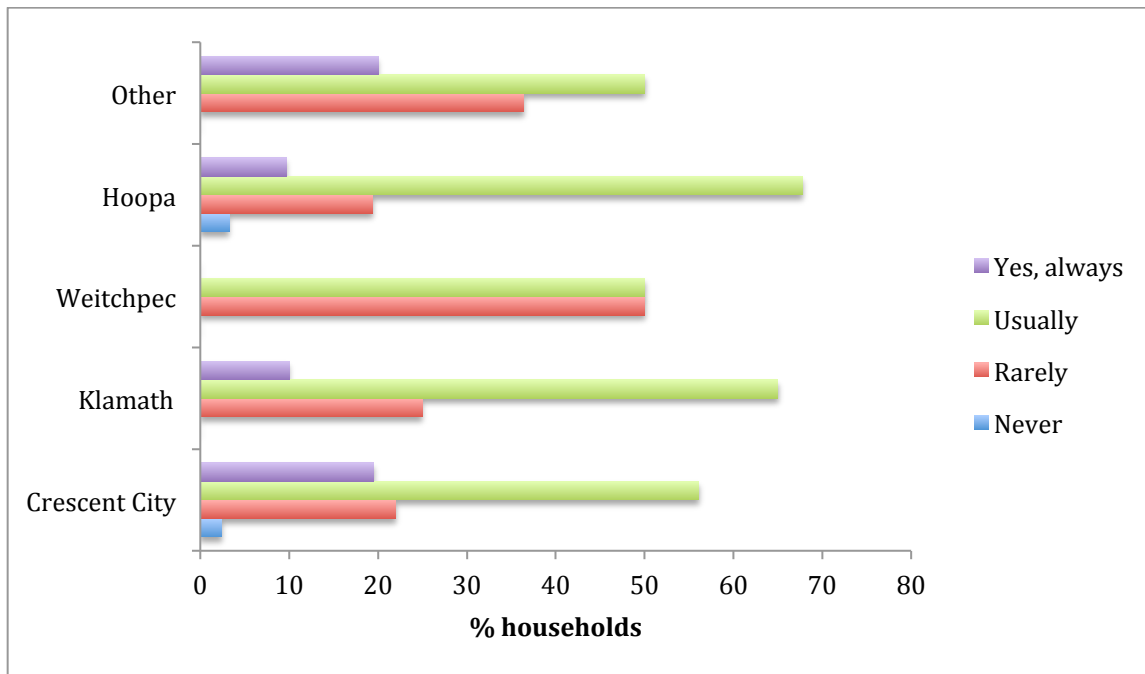


Figure 1. Access to healthy foods by household location.

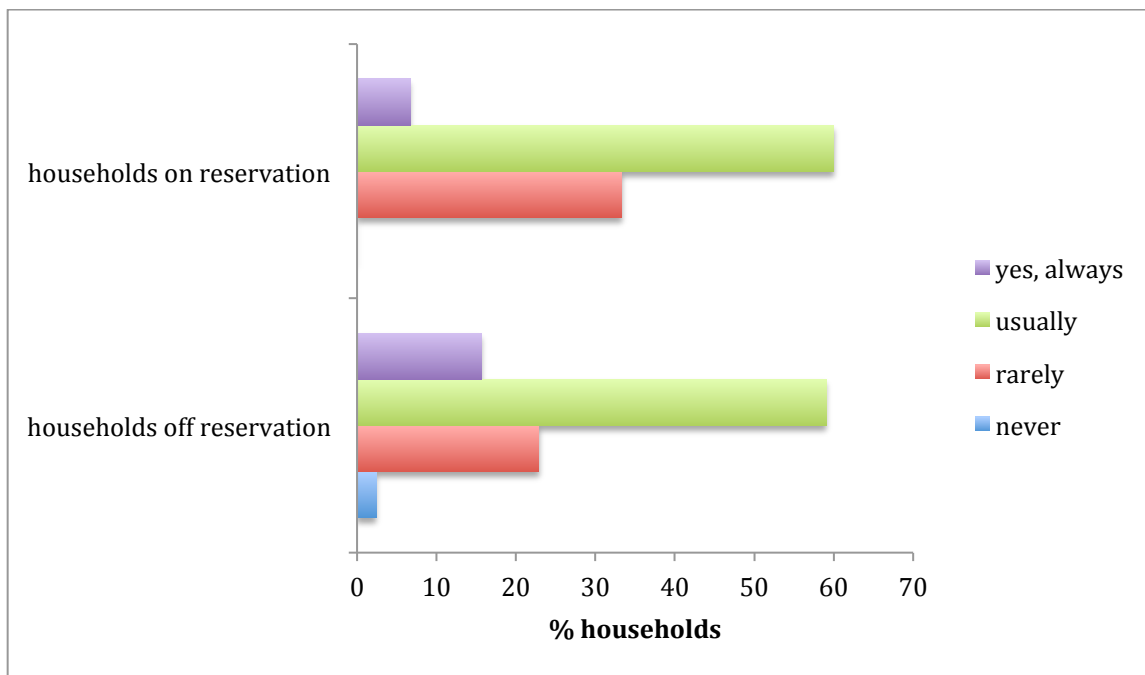


Figure 2. Access to healthy foods by households residing on and off the Yurok reservation.

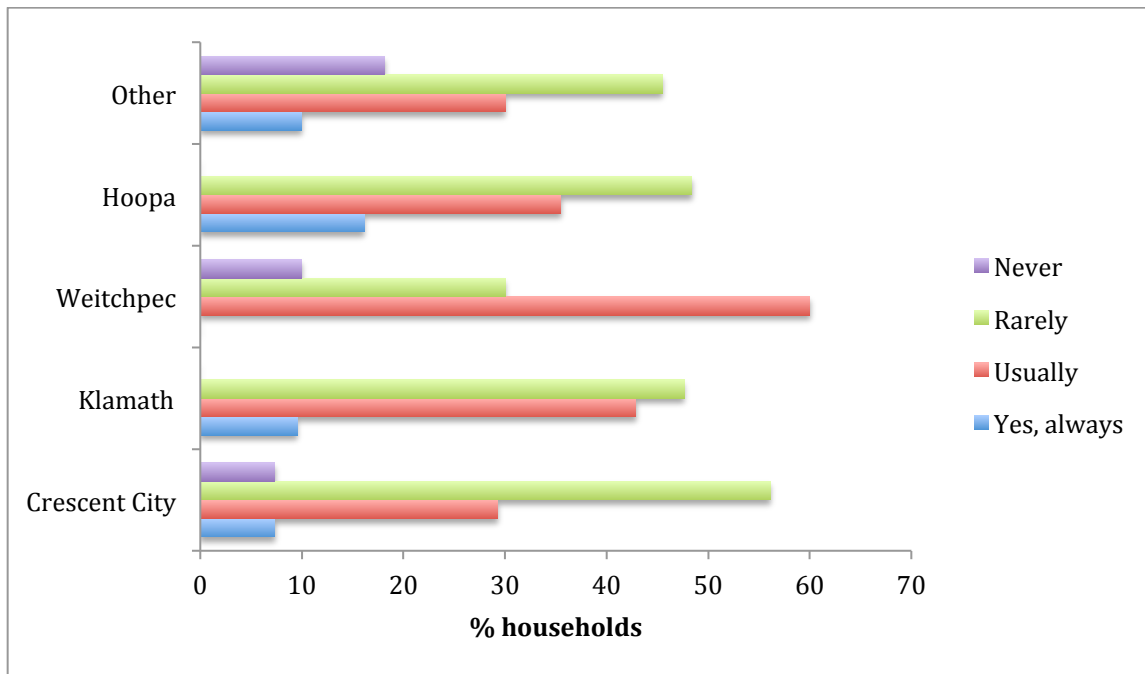


Figure 3. Access to Native foods by household location.

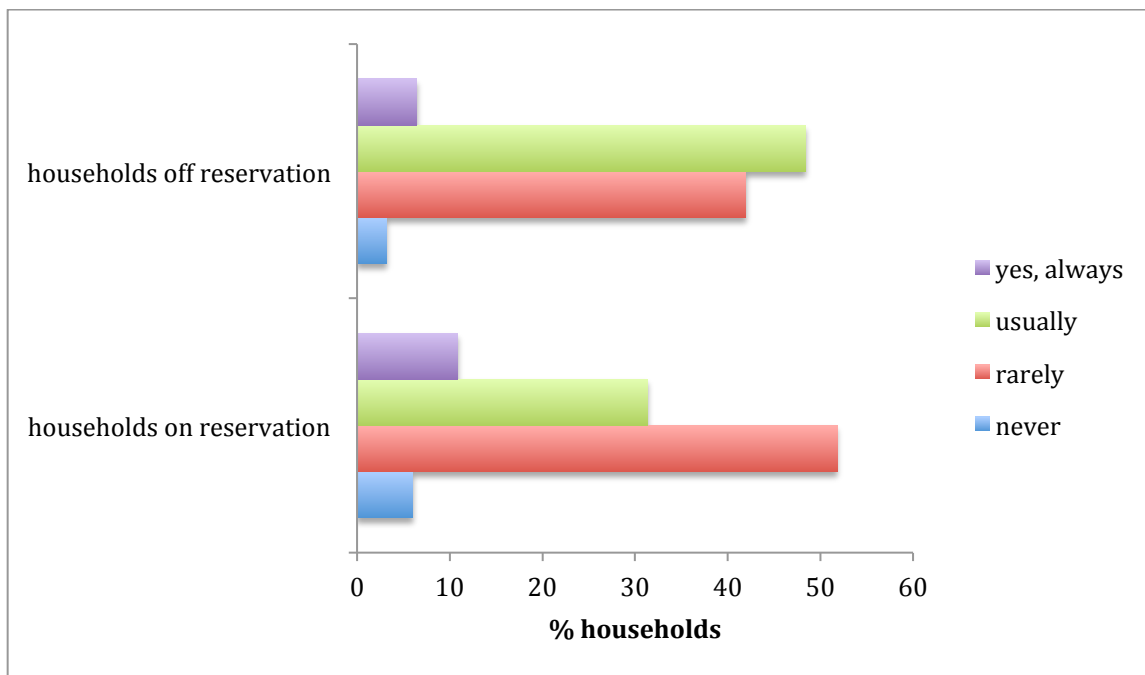


Figure 4. Access to Native foods by households residing on and off the Yurok reservation.

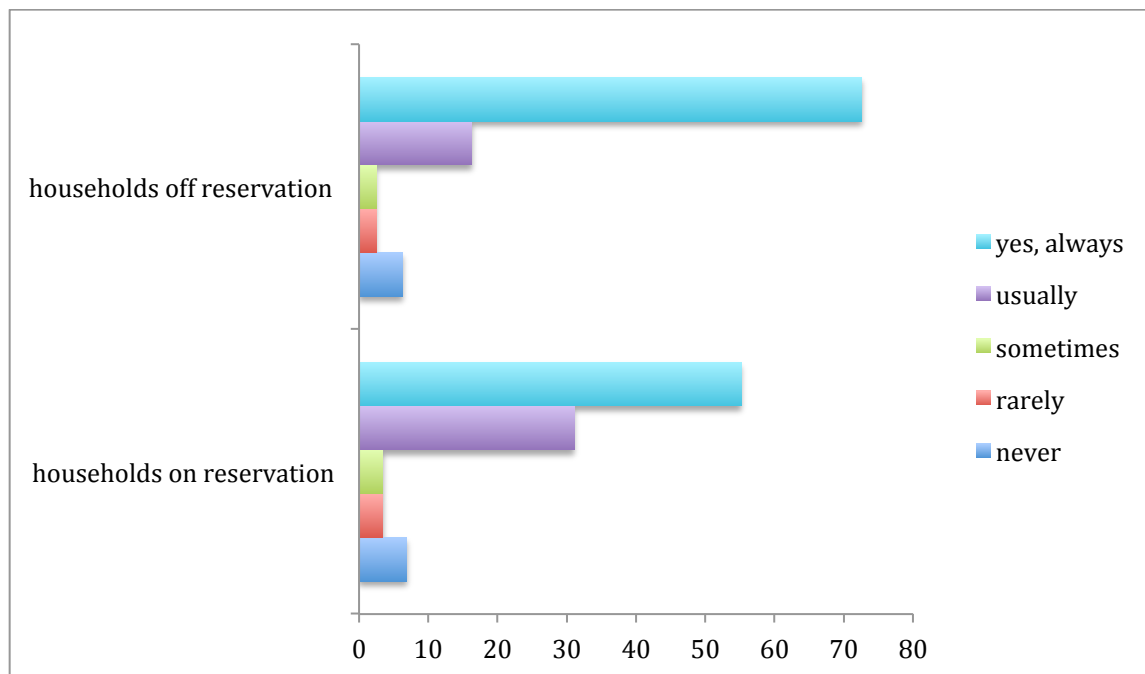


Figure 5. Access to drinkable water from the tap by households residing on and off the Yurok reservation.

### **Community food resources**

#### Key trends:

- *The use of convenience store to buy food was the highest and use of grocery store the lowest in Klamath (15% did not use grocery stores).*
- *Households in Weitchpec used hunting, gathering, and fishing, food distribution, and gardens and orchards the most.*
- *Hunting, fishing, and gathering Native foods were most important to respondents in Klamath, Weitchpec, and Hoopa.*
- *Respondents most desired more local grocery stores, fishing and eeling, and gathering of Native plants in their community.*

#### *Where do you get most of your food?*

Respondents were asked to identify all the places their household obtained food. Figure 6 displays food resources that were used significantly different by household location. More households in Weitchpec utilized tribal food distribution, hunting, gathering, or fishing, and gardens or orchards as compared to households in other locations. While the majority of households in all locations utilized grocery stores to get food, more households in Klamath (15%) than other locations did not use grocery stores (Figure 6). Collectively, 24.56% of all households got food from convenience stores (40% in Klamath), 35.96% of all households ate fast food or at restaurants (only 10% in Weitchpec), and 37.72% of all households relied on neighbors, family, or friends for food (50% in Weitchpec).

Figure 7 compares the use of different food resources by households living on and off the Yurok Tribe's reservation. There were some notable differences between the two groups: 30.47% more on-reservation households got a portion of their food from hunting, gathering, or fishing; 8.81% more off-reservation households got a portion of their food from the grocery store, while 11.90% of households on reservation got a portion of their food from convenience stores; 17.50% of households off reservation consume fast food or restaurant food; 19.28% of households on reservation got their food from home gardens or orchards; 28.81% of households on reservation got their food from tribal food distribution; and 12.15% of on reservation households got food from neighbors, friends, or family (Figure 7). Next, households were asked to rank (one to four) the places where they got the most food. Households got the most food from local grocery stores followed by hunting, gathering, and fishing (2<sup>nd</sup> and 4<sup>th</sup> selections) and a home garden or orchard (3<sup>rd</sup> selection).

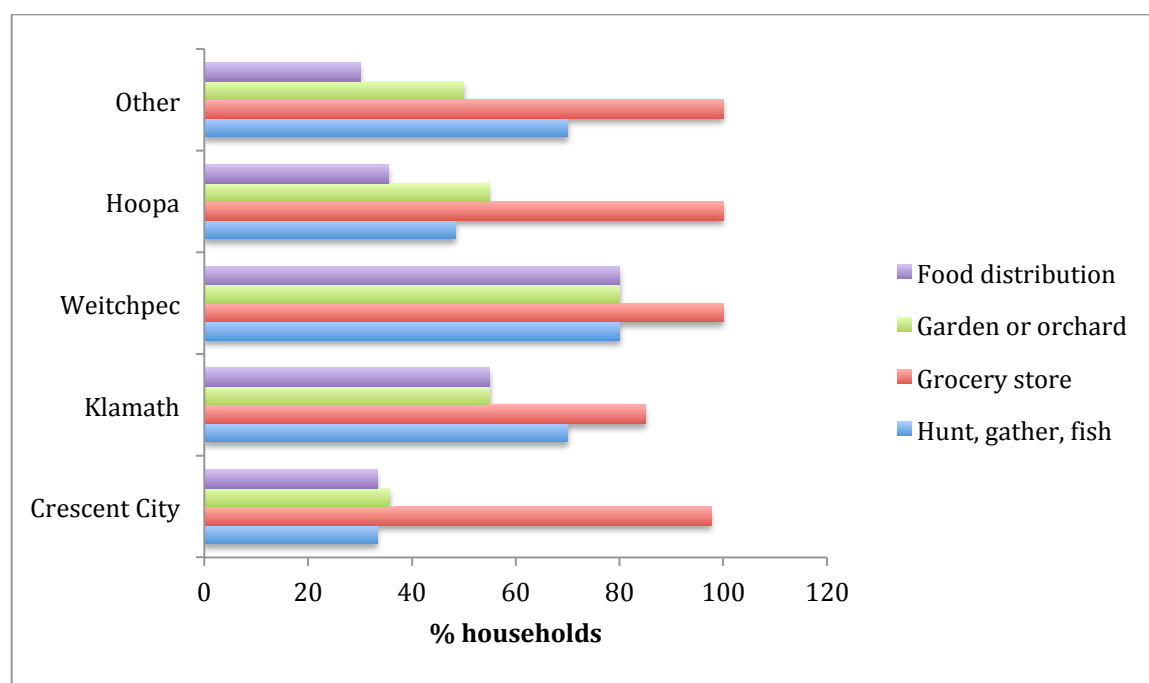


Figure 6. Food resources that were used differed significantly by household location.

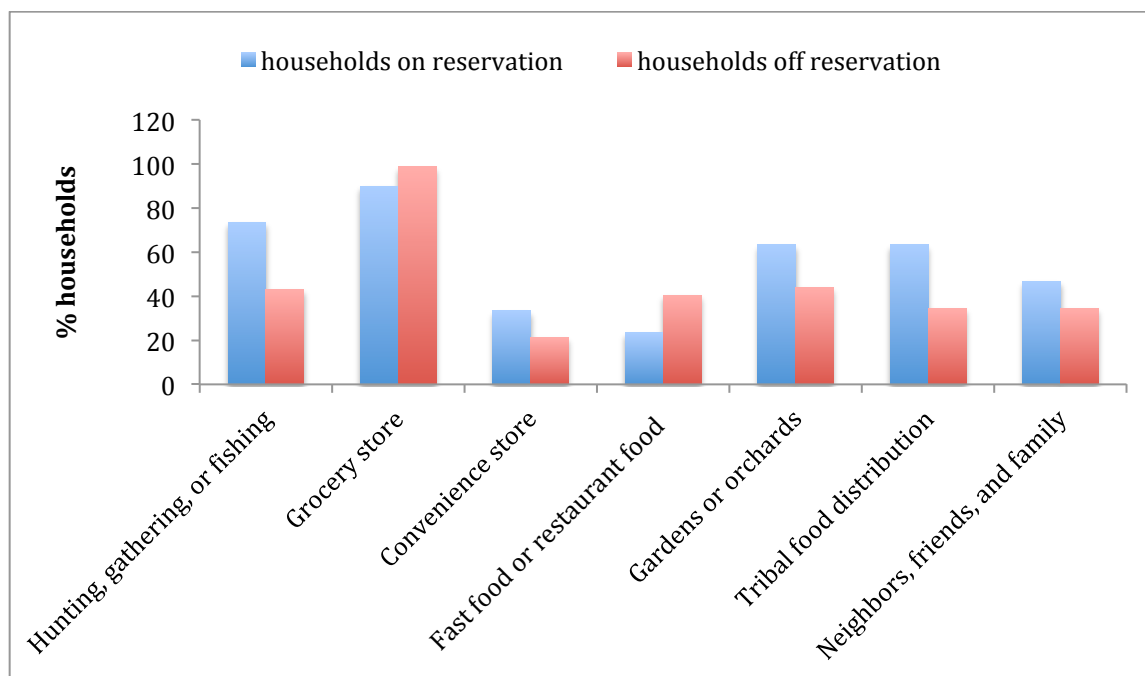


Figure 7. The use of food resources by households residing on and off the Yurok Tribe's reservation.

#### *How important are the following food resources?*

Survey respondents were asked to rank, based on level of household importance, a list of different food resources. They could choose very important, somewhat important, not important, and does not exist in my community for each food resource. Collectively, hunting was very important to 47.57% of households, somewhat important to 21.36% of households, and not important to 23.30% of households. Additionally, 7.77% said hunting did not exist in their community. The ranking pattern for home gardens and orchards was similar. School and community gardens were ranked not important by 40.21% of households, somewhat important by 22.68% of households, and very important to 20.62% of households. Community or school gardens did not exist in their community according to 16.49% of respondents.

Table 1 reports the food sources that were ranked significantly differently among households in each location. The most households in Crescent City and the fewest households in Klamath ranked the local grocery store as very important. In general, fast food or restaurant food was ranked as not important to the majority of households across all locations. SNAP was the most important to households in Hoopa, Weitchpec, and Klamath. In Crescent City, 67.65% of households ranked SNAP as not important and 75% of households in the other region did the same. The ranking of WIC followed a similar pattern. Tribal food distribution was ranked very important by about 50% of households in Klamath and Weitchpec. About 38% of households in the other region, 30% in Crescent City, and 30% in Hoopa did the same. Fishing and eeling was ranked as very important or somewhat important by at least 75% of households in each region (except Crescent City).

Additionally, gathering Native foods was most important to people in Weitchpec, Hoopa, and Klamath (Table 1).

Table 1. Food resources ranked by level of importance by household location. The food resources listed were ranked significantly different by household location.

		<b>Very important (%)</b>	<b>Somewhat important (%)</b>	<b>Not important (%)</b>	<b>Does not exist (%)</b>
<b>Local grocery</b>	Crescent City	76.19	16.67	7.14	0.00
	Klamath	38.10	14.29	9.52	38.10
	Weitchpec	50.00	10.00	20.00	20.00
	Hoopa	67.74	29.03	3.23	0.00
	Other	45.45	18.18	27.27	9.09
<b>Convenience store</b>	Crescent City	10.53	21.05	68.42	0.00
	Klamath	6.25	43.75	50.00	0.00
	Weitchpec	11.11	11.11	44.44	33.33
	Hoopa	3.57	39.29	32.14	25.00
	Other	10.00	10.00	70.00	10.00
<b>Farmers market</b>	Crescent City	35.90	30.77	30.77	2.56
	Klamath	35.00	30.00	20.00	15.00
	Weitchpec	11.11	33.33	22.22	33.33
	Hoopa	22.22	59.26	11.11	7.41
	Other	9.09	36.36	54.55	0.00
<b>Fast food or restaurant</b>	Crescent City	0.00	29.73	70.27	0.00
	Klamath	0.00	0.00	87.50	12.50
	Weitchpec	0.00	12.50	25.00	62.50
	Hoopa	0.00	23.08	50.00	26.92
	Other	0.00	27.27	36.36	36.36
<b>SNAP</b>	Crescent City	14.71	8.82	67.65	8.82
	Klamath	40.00	6.67	40.00	13.33
	Weitchpec	42.86	14.29	42.86	0.00
	Hoopa	52.00	12.00	28.00	8.00
	Other	11.11	22.22	66.67	0.00
<b>WIC</b>	Crescent City	22.86	5.71	65.71	5.71
	Klamath	37.50	12.50	43.75	6.25
	Weitchpec	37.50	0.00	62.50	0.00

	Hoopa	42.31	26.92	30.77	0.00
	Other	0.00	11.11	88.89	0.00
<b>Tribal food distribution</b>	Crescent City	33.33	13.89	47.22	5.56
	Klamath	47.06	11.76	41.18	0.00
	Weitchpec	50.00	20.00	30.00	0.00
	Hoopa	28.57	57.14	14.29	0.00
	Other	33.33	22.22	33.33	11.11
<b>Fishing and eeling</b>	Crescent City	47.37	13.16	34.21	5.26
	Klamath	61.90	19.05	9.52	9.52
	Weitchpec	80.00	20.00	0.00	0.00
	Hoopa	64.29	28.57	3.57	3.57
	Other	27.27	45.45	18.18	9.09
<b>Gathering</b>	Crescent City	38.89	16.67	36.11	8.33
	Klamath	50.00	15.00	25.00	10.00
	Weitchpec	44.44	55.56	0.00	0.00
	Hoopa	53.85	19.23	15.38	11.54
	Other	10.00	70.00	10.00	10.00

*Which sources of food would you like more of?*

Respondents were asked to choose all the sources of food they would like more of in their community and then rank the top five sources they would like more of the most. Collectively, half or more respondents wanted more foods acquired through hunting, fishing, or gathering. Households in Klamath (20-40% less people) did not want access to more superstores as compared to households in all other locations. Households in Klamath and Weitchpec desired more food from farmers markets whereas the other locations showed less interest. Households in Weitchpec had the most desire for a tribal farm or orchard. About 20% of households in Hoopa and other towns wanted more access to fast food or restaurant foods while households in all other locations had little to no interest in obtaining more of this type of food. When asked which food resources they wanted more of the most, respondents ranked local grocery store as the first source they wanted more of in their community. This was followed by fishing and eeling for the second choice, gathering Native plants for the third choice, and fishing and eeling (again) for the fourth and fifth choices.

## Grocery Shopping Behavior

### Key trends:

- *Households in Weitchpec, Hoopa, and other towns spent the most time traveling one way to the grocery store and shopped less frequently than other locations.*
- *32.14% of all respondents traveled one or more hours one way by car to the grocery store.*
- *About 20% of households in Weitchpec and Crescent City did not have access to a vehicle.*
- *71.05% of respondents said fresh fruits were too expensive; this was particularly so in Hoopa and Weitchpec (over 90%).*
- *64.04% of respondents said fresh vegetables were too expensive; again this was particularly the case in Hoopa and Weitchpec (80-90%).*
- *Households in Klamath and Weitchpec prioritized buying local the most.*
- *73.33% of households living on the Yurok Tribe's reservation said buying local was very important to them, 27.65% more than those living off reservation.*

### *How often do you get to the grocery store?*

Each respondent was asked how often their household went grocery shopping. Frequency of grocery shopping was significantly different by household location, and Figure 8 shows how often households went grocery shopping in each location. All households in Weitchpec shopped once or twice a month while most households in Crescent City shopped on a daily or weekly basis. Households in Klamath had contrasting shopping strategies, with a large portion shopping every two weeks and others shopping multiple times a week. Households in Hoopa followed a similar pattern but additionally had a greater portion of households that shopped once a month or once a day (Figure 8). Figure 9 illustrates the frequency of grocery shopping by households living on and off the Yurok Tribe's reservation. Households living on the Yurok reservation shopped less frequently than those living off reservation. For example, 13.58% of households living off reservation shopped daily and 43.21% shopped 1-3x/week while 72.43% of households on reservation shopped at most twice a month (Figure 9).



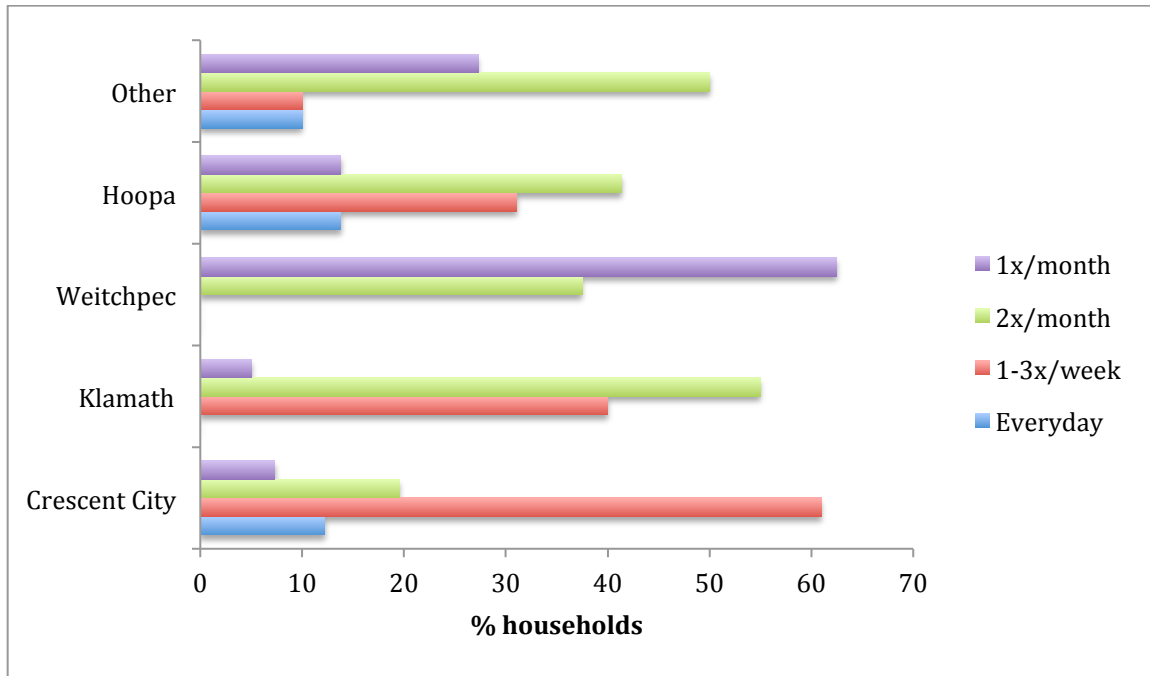


Figure 8. The frequency of grocery shopping by household location.

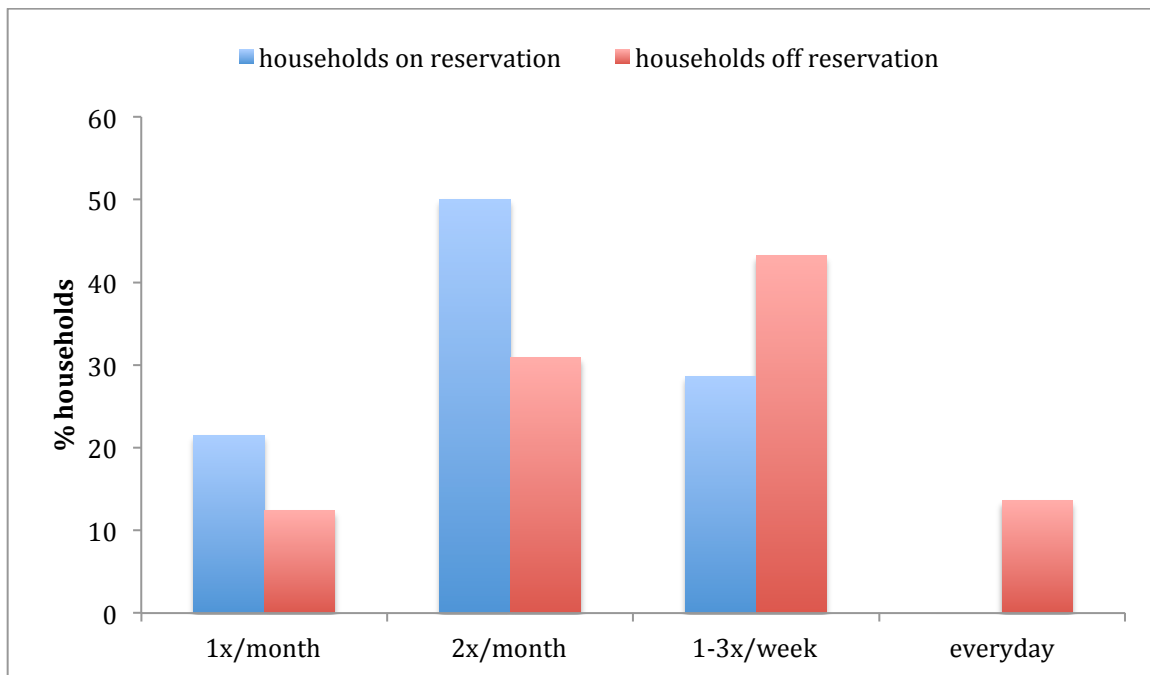


Figure 9. Frequency of grocery shopping by households living on and off reservation.

*How long does it take one way to the grocery store?*

Next, respondents were asked how long it took them to travel from their house, one way, in a vehicle, to the grocery store. Collectively, 32.14% of all households spent one or more

hours traveling one way to the grocery store. Figure 10 shows that it took households in Weitchpec longest to travel to the grocery store followed by households in Hoopa and other towns. Additionally, about 60% of households in Klamath spent 30-35 minutes driving to the grocery store one way, and the majority of households in Crescent City spent 20 minutes or less getting to the grocery store. Figure 11 compares travel time to the grocery store by households residing on and off the Yurok Tribe's reservation. Exactly 60.97% of households off reservation spent 20 minutes or less to get to the grocery store, while 80% of households on reservation spent 30 minutes or more getting to the grocery store (Figure 11). Collectively, 87.61% of respondents reported that their household had access to a vehicle. However, 20% of households in Weitchpec and 16.67% of households in Crescent City did not have access to a vehicle.

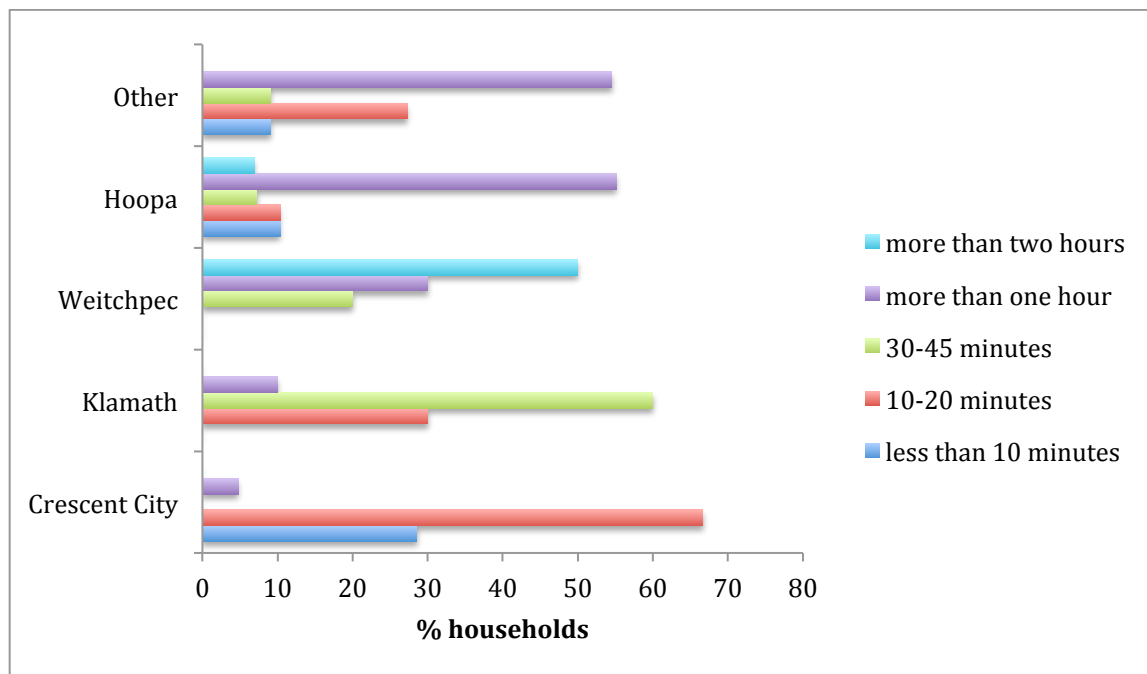


Figure 10. Time spent traveling, one way, to the grocery store by household location.

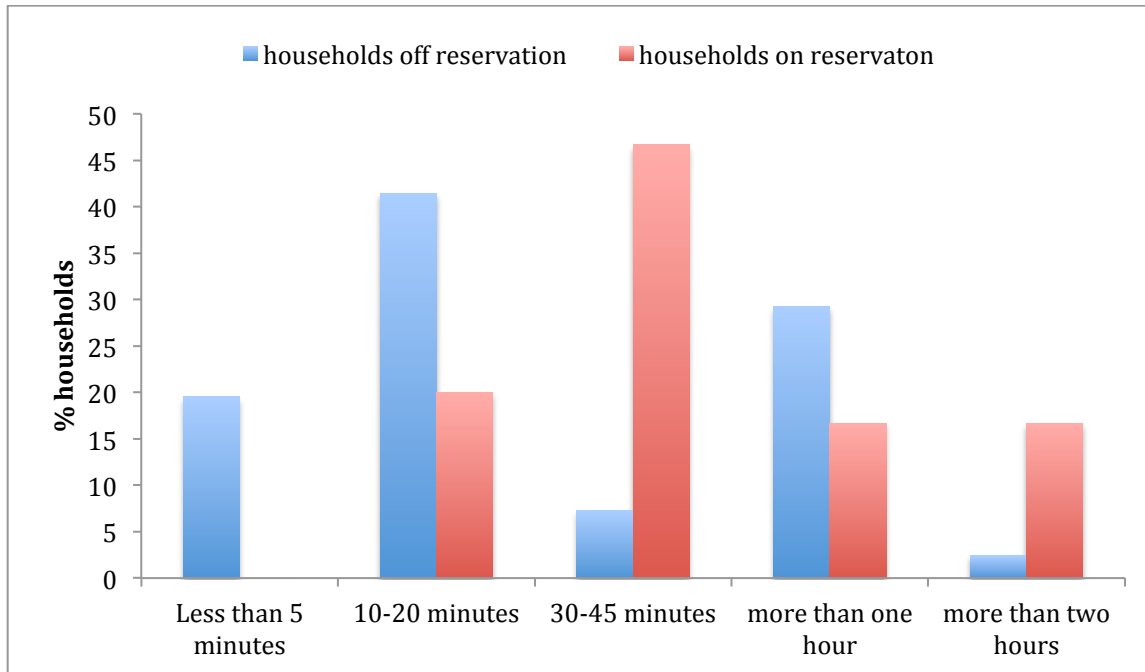


Figure 11. Time spent traveling one way to the grocery store for households on and off the Yurok Tribe’s reservation.

*What is the biggest barrier you face getting to the grocery store?*

Respondents were asked to identify the greatest barrier their household encountered when getting to the grocery store. About 50% of households in Crescent City experienced no barrier to getting to the store while households in Weitchpec and other towns said distance was a strong barrier (Figure 12). Interestingly, 40-50% of respondents in Hoopa, Weitchpec, and Klamath choose “other challenges” and listed specifically poor health, lacking money, having children, bad weather, poor condition of vehicle, and local grocery store too expensive as the other barriers. Figure 13 shows barriers to going to the grocery store experienced by households on and off the Yurok Tribe’s reservation. Generally, more households on the reservation experienced barriers to grocery shopping than those living off the reservation. However, more households off reservation experienced challenges with transportation than households on reservation (Figure 13).

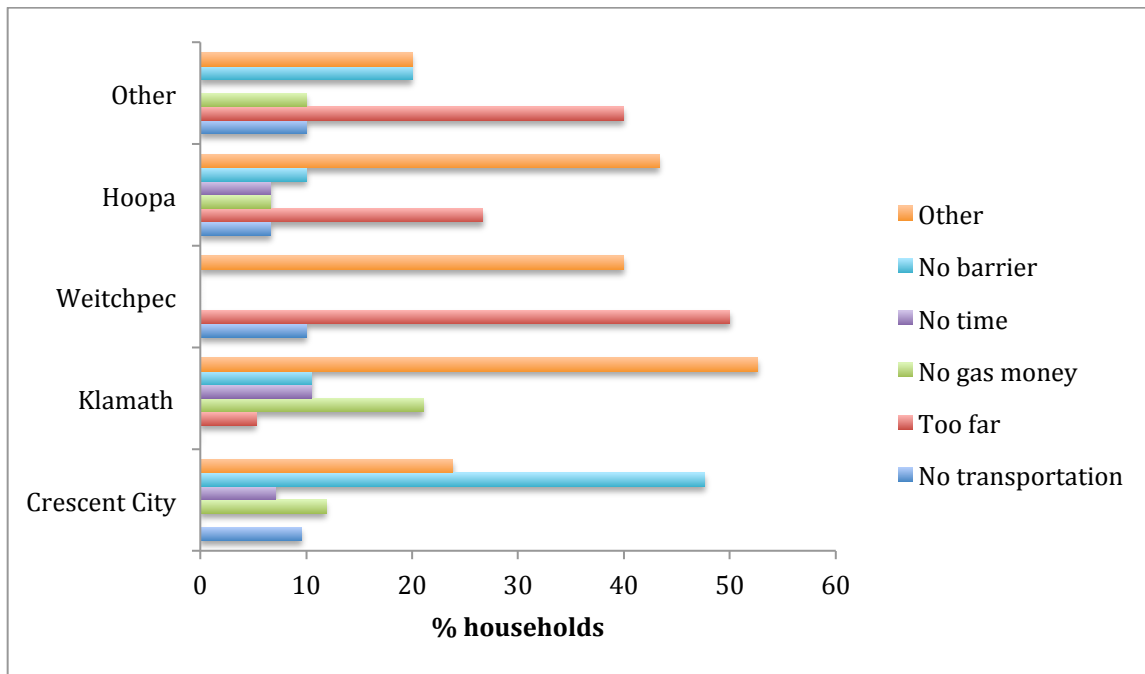


Figure 12. Barriers that households experienced, in each location, to going to the grocery store.

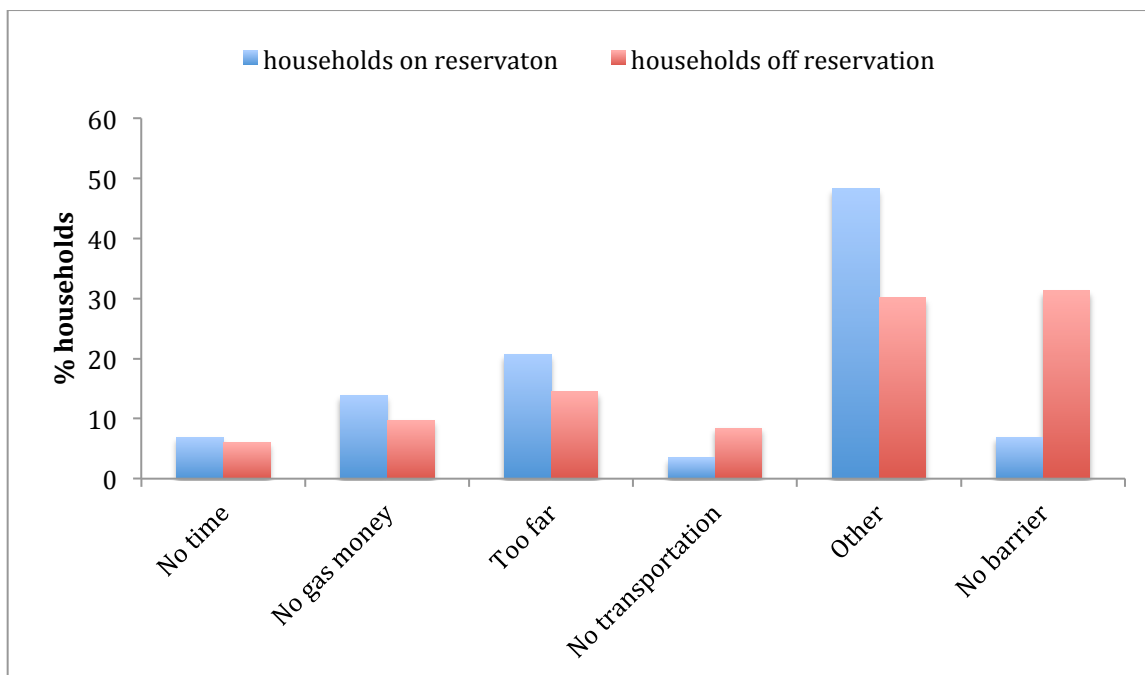


Figure 13. Barriers to going to the grocery store experienced by households residing on and off the Yurok Tribe's reservation.

### *Opinion of the foods at the stores closest to you*

Survey respondents were asked to provide their opinion on different food groups sold at the stores closest to their home. They were asked to choose if each food group was affordable, of good quality, in good selection, too expensive, of poor quality, or in poor selection. They could also indicate that they did not know or did not buy a certain food. There were many differences in opinion, by household location, for this question (too many to even represent meaningfully in a graph). Notable aggregate responses highlight food being too expensive at local grocery stores. For example, 71.05% of respondents said fresh fruits were too expensive at the grocery store closest to their home, this was particularly so in Hoopa and Weitchpec (over 90%). Similarly, 64.04% of respondents said fresh vegetables were too expensive at the grocery store closest to their home; again this was particularly the case in Hoopa and Weitchpec (80-90%).

In answer to how important it was to buy local foods, collectively, it was very important to 53.15% of households, moderately important to 21.62% of households, somewhat important to 14.41% of households, and 10.81% did not prioritize buying local at all. There was a significant difference in buying local among locations. Households in Klamath and Weitchpec most prioritized buying local while households in other towns had the least interest in buying local. Additionally, 73.33% of households living on the Yurok Tribe's reservation said buying local was very important to them, 27.65% more than those living off reservation.

### **Cooking**

#### Key trends:

- *47.32% of people faced no barriers to cooking meals while 19.64% of respondents said they found cooking too expensive*
- *The most common barriers to cooking included the expense, time, lack of ingredients, no kitchen space, and other listed barriers.*
- *Access to water needed for cooking was a major challenge for households in Weitchpec.*

Respondents were asked if they faced any barriers to cooking meals at home. Collectively, 47.32% of respondents faced no barriers to cooking meals while 11.61% of people said they had no time to cook, 6.25% said they did not know how to cook, 8.93% said they do not like to cook, 5.36% said their family would not eat what they cooked, 19.64% said it was too expensive to cook, 9.82% said they lacked essential kitchen equipment, 10.71% said they did not have kitchen space, 5.36% said they lacked water, 11.61% lacked ingredients needed to cook, and 25.22% said they experienced other barriers. Other barriers listed by respondents include the expense of traveling to get ingredients and the expense of quality water, not having ingredients on hand, inability to afford the preferred ingredients, the expense of propane and issues with the propane vendor, not seeing the point of cooking for one person, or being physically unable to cook. Access to water needed

for cooking significantly differed among locations. This was particularly high in Weitchpec, with 40% of respondents from this location lacking water needed for cooking.

### **Food Security**

Key trends:

- *55.56% of households are experiencing very low food security with households in Weitchpec and Crescent City regions with the most households experiencing low or very low food security.*
- *38.39% of all households ran out of food or worried about running out of food in the past year. In Weitchpec, alone, the rate was 70% and in Crescent City, alone, the rate was 42.50%.*
- *When asked how often each household ran out of grocery money in the past year, 16.82% of households responded never and 25.23% responded rarely while 10.28% of households ran out of money for food at least once a week, 30.84% at least once a month, and 16.82% a few times a year.*
- *In Weitchpec, 50% of people ran out of groceries at least once a month.*
- *Buying less expensive foods was the most common strategy to deal with lacking money for groceries.*
- *Almost half of respondents in each location have reduced the size of meals and 30-40% of respondents in each location had adults that have skipped meals.*
- *About 13% of households in Weitchpec had adults and children who skipped meals in the last year.*
- *All locations except the "other towns" category have utilized gathering, hunting, and fishing to deal with food insecurity.*
- *Residents of Weitchpec were the most reliant on food assistance and home canned foods.*

Survey respondents were asked if they worried about or actually ran out of food in the past year. They were also asked about running out of money to buy food, and strategies to cope with not having enough money to buy food. Collectively, 38.39% of surveyed households worried about running out of food or ran out of food in the past year, a trend that was the same for households living on and off the Yurok Tribe's reservation. This experience was especially high in Weitchpec (70%) and Crescent City (42.50%). When asked how often each household ran out of grocery money in the past year, 16.82% of households responded never and 25.23% responded rarely while 10.28% of households ran out of money for food at least once a week, 30.84% at least once a month, and 16.82% a few times a year. In Weitchpec alone 50% of households ran out of money for groceries at least once a month. Incidence of running out of money for groceries for households on and off the Yurok Tribe's reservation were no different than the trends reported above.

Figure 14 illustrates different strategies households used to deal with not having enough money to buy food. Collectively, buying less expensive foods was the most common strategy employed. Almost half of all respondents in each location had reduced the size of

meals and 30-40% of respondents in each location had adults who had skipped meals in the past year. About 13% of households in Weitchpec, alone, had adults and children who skipped meals in the past year. All locations, except “other towns,” utilized gathering, hunting, and fishing to deal with food insecurity. Residents of Weitchpec were the most reliant on food assistance and home-canned foods. Figure 15 compares the use the of food security strategies between households living on and off the Yurok Tribe’s reservation. Exactly 7.84% more households living off reservation than those living on reservation had reduced the size of meals to deal with not having enough money for food. More households residing on the Yurok Tribe’s reservation utilized hunting, fishing, and gathering Native plants to deal with not having enough money to buy food than households living off reservation (Figure 15).

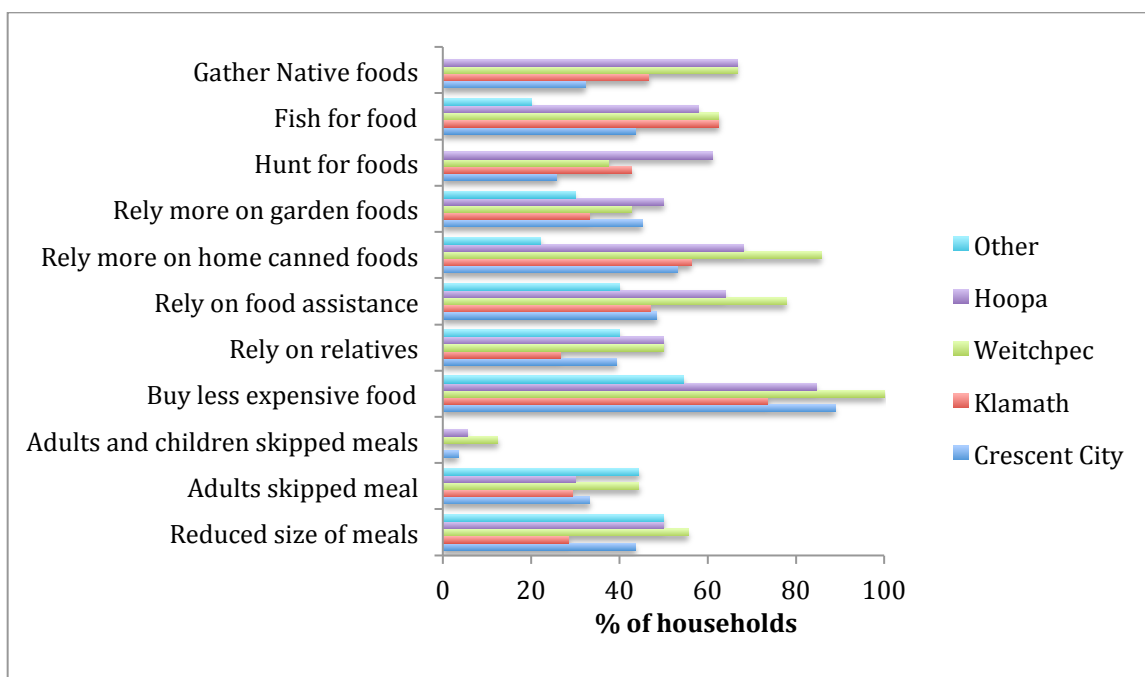


Figure 14. The proportion of households, by location, that used each strategy to cope with not having enough money to buy food.

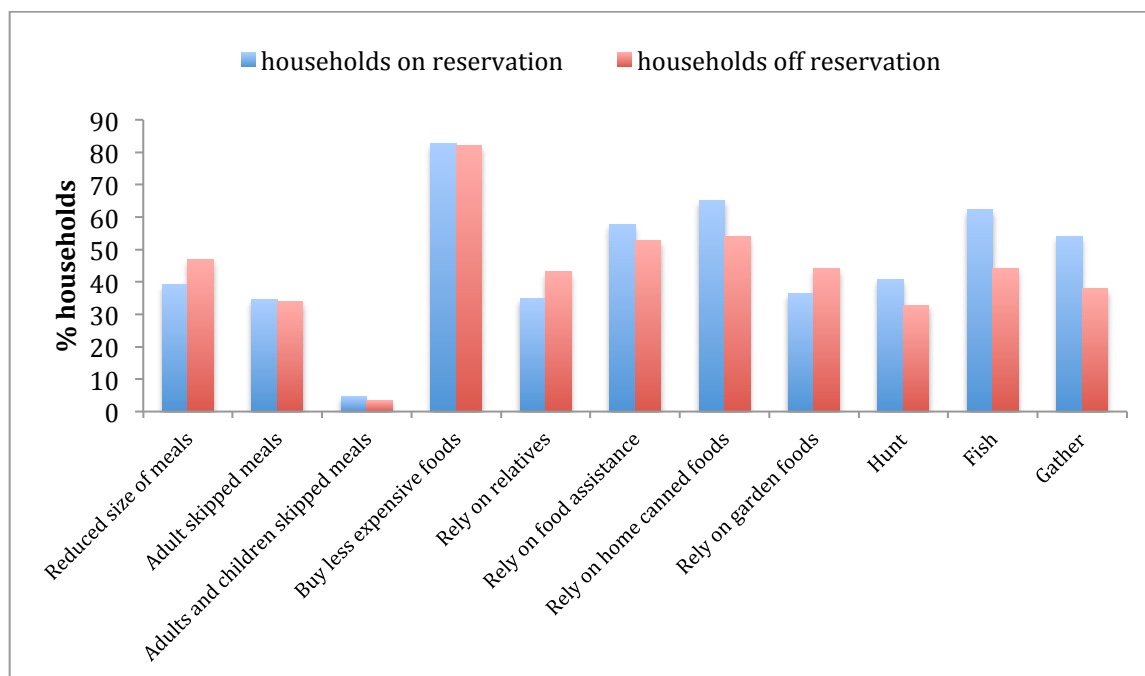


Figure 15. The proportion of households, on and off the Yurok reservation, that used each strategy to cope with not having enough money to buy food.

In our assessment, we used conventional definitions and categorizations developed by the USDA to measure food security, examining household food intake, access to healthy foods, and food insecurity coping strategies reported above. Food security categories used in this study were adapted from the USDA Economic Research Service definition of food security<sup>3</sup> and are characterized as follows. Households with *high food security* report no indications of food access problems or limitations and are considered food secure. Households with *marginal food security* report some level of change in food sufficiency such as not always having access to healthy foods, sometimes running out of money for groceries, using food assistance and/or buying less expensive food. *Low food security* households are those that report greater reduction in quality but do not yet utilize extreme coping strategies found among very low food secure households. Low food security households may report that they rarely have access to healthy foods, run out of money for groceries several times a year, depend on food assistance and/or buy less expensive foods. Households with *very low food security* face severe challenges, reporting never having access to healthy foods, often running out of money for food, and reducing food intake (Table 2). Given the vulnerability of many Native American households, to be included in marginal, low, or very low food security categories, households must meet at least one of the criteria listed for that category and no unique criteria for a more severe category (see

<sup>3</sup> “[A]ccess by all people at all times to enough food for an active, healthy life” (Coleman-Jensen et al. 2017). Includes at a minimum: a) “the ready availability of nutritionally adequate and safe foods,” and b) “the assured ability to acquire acceptable foods in socially acceptable ways” (e.g. “without resorting to emergency food supplies, scavenging, stealing, and other coping strategies”) (USDA 2017b).



Table 2). For example, a household in the marginal category may usually have access to healthy foods, buy less expensive foods, but not use food assistance in the last 12 months. High food security households must meet all criteria for that category (Table 2). In categorizing households, we found that most food insecure households have more than one attribute of food insecurity with the average frequency of food insecurity attributes increasing with severity of food insecurity. We also found that very low food security households experienced not only more indicators but more severe indicators of food insecurity, as one might expect.

Table 2. Characteristics of food security categories used in this study. Households in the high food security category are characterized by no indication of food insecurity and thus must meet all the criteria in the “high food security” row of the table. Households in subsequent categories must meet at least one criteria in a given category and no unique criteria for a more severe category (underlined in italics).

	Access to healthy foods	Ran out of money for groceries	Coping strategies	Ran out or worried about running out of food	Used food assistance <sup>a</sup>	Qualified for food assistance but did not use
<b>High food security</b>	Always	Never	None	No	No	No
<b>Marginal food security</b>	<u>Usually</u>	<u>Rarely</u>	<u>Buy less expensive foods</u>	<u>Yes</u>	<u>Yes</u>	No
<b>Low food security</b>	<u>Rarely</u>	<u>A few times a year</u>	Buy less expensive foods	Yes	Yes	No
<b>Very low food security</b>	<u>Never</u>	<u>At least once a month or once a week</u>	<u>Buy less expensive foods</u> <u>Reduce size of meals</u> <u>Adults and children skip meals</u>	Yes	Yes	<u>Yes</u>

<sup>a</sup>Excluding free school lunches and senior meals

Using this method to assess food security in Yurok households we found that 55.65% of households are experiencing very low food security, 15.65% low food security, 26.09% marginal food security, and 2.61% high food security (Figure 16).

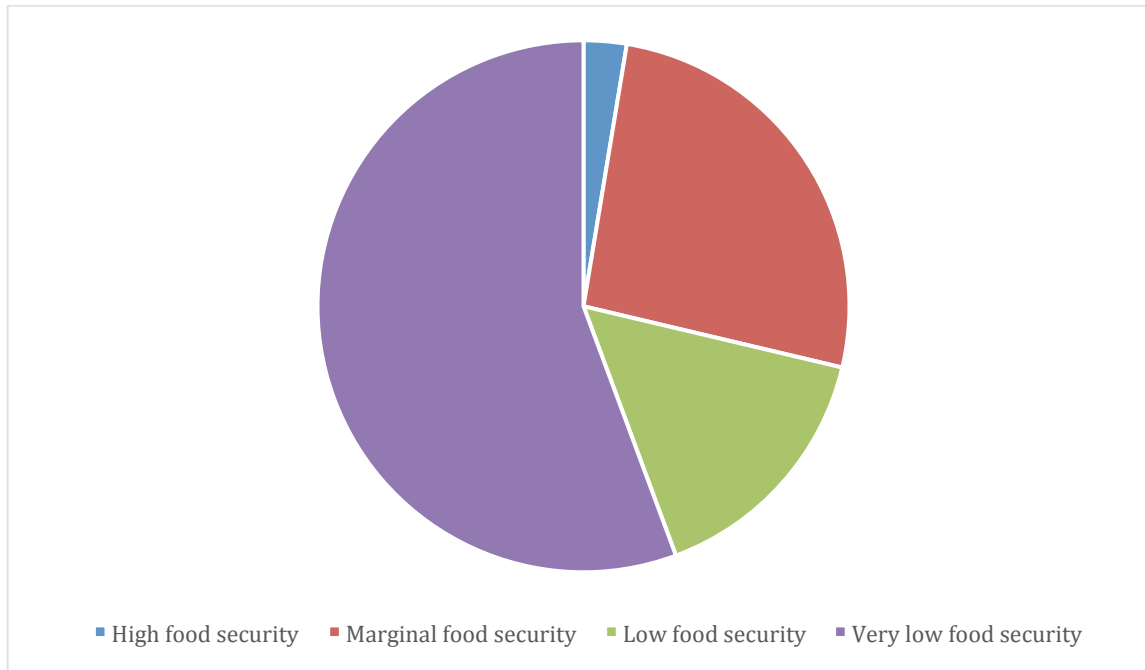


Figure 16. The proportion of Yurok households that are experiencing high, marginal, low, and very low food security.

The Weitchpec region had the greatest proportion of households experiencing very low or low food security (90.00%), followed by Crescent City with 78.57% of households, Klamath 66.67%, Hoopa 64.52%, and Other 54.55% (Figure 17).

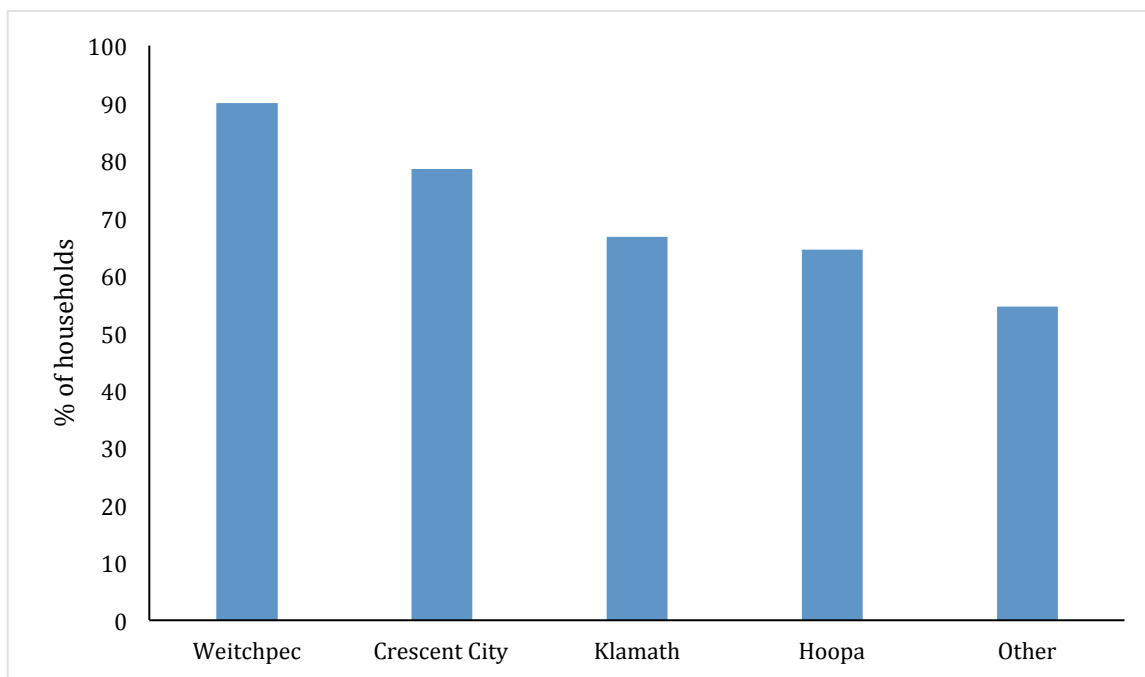


Figure 17. The proportion of Karuk households in each service area experience low or very low food security.

## *Native foods security*

Additionally, we developed a novel indicator of food security, access to desired Native foods or *Native foods security*, to explore the contributions of Native foods to overall food security for Native American communities<sup>4</sup>. Through our analysis, we found that Native foods security is indeed an important indicator of overall food security for Native American households and should therefore be included in standardized food security assessments in Native American communities. Recognizing that *access* to Native foods is insufficient, we offer a definition of *Native foods security* that includes both access to all desired Native foods *and* the continuity of cultural, knowledge and stewardship practices that sustain them. *Native foods security is having physical, economic, social and legal access to all desired Native foods in the appropriate quality and quantity throughout the year, and the continuity of the cultural institutions that sustain them including traditional ecological knowledge, social support networks, and cultural resource stewardship* (Sowerwine and Mucioki et al. 2019). This definition is not intended to substitute for the USDA definition of food security but to enhance it; we intend it to serve as a supplement or addendum to the current definition of food security specifically for Native American communities. In other words, we argue that Native *foods* security contributes to *Native food* security.

### **Food Assistance Programs**

#### Key trends:

- *In the past year, 74.77% of households used some form of food assistance.*
- *Crescent City had the lowest participation in food assistance programs.*
- *Tribal commodities were used by 35-50% of households in each location.*
- *SNAP was used most commonly by households in Weitchpec, Hoopa, and Klamath.*
- *Food pantries were used by about 80% of respondents from Weitchpec.*
- *26.36% of respondents said they used food assistance because Native foods were not available.*
- *18.18% of respondents were using food assistance because of continuous unemployment.*
- *9.58% more households living on reservation, as compared to households living off reservation, said they used food assistance because Native foods were not available. A far greater proportion of households living on reservation (40.00%) said they used food assistance because gardens were not available compared to all households (20.00%) and compared to households living off reservation (12.50%).*
- *About 70% of households wanted more fresh fruits and vegetables in food assistance programs.*

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<sup>4</sup> By using the term “Native *foods* security,” we draw attention to the state of having secure access to Native foods at all times in the desired quality and quantity, as distinguished from the state of Native American people being food secure more generally, which might be referred to as “Native *food* security”.

- *Respondents prioritized deer and elk, fresh vegetables, red meat, poultry, and acorns as foods they wanted more of the most in food assistance programs.*

In the past year, 74.77% of households used some form of food assistance. The use of food assistance was significantly different by location, ranging from 100% in Weitchpec, 90% in Hoopa, 85% in Klamath, and 55% in Crescent City. Additionally, 90% of households on the Yurok Tribe's reservation used some form of food assistance in the past year, while 69.14% of households living off the reservation did the same. Figure 18 shows household participation, by location, in different food assistance programs. Crescent City had the lowest participation in food assistance programs overall. Households among all locations did not use soup kitchens. Tribal commodities were used by 35-50% of households in each location. Households in Weitchpec, Hoopa, and Klamath used SNAP more than households in the other locations. Food pantries were used by about 80% of households in Weitchpec. The use of senior meals and WIC was the highest in Klamath. Figure 19 shows the use of food assistance programs by households living on and off the Yurok Tribe's reservation. Generally, households living on the reservation used all food assistance programs more than households living off the reservation (Figure 19).

Respondents were asked the reasons that their household used food assistance. Collectively respondents identified with the following reasons: 14.55% had unusual expenses for the month, 13.64% used food assistance because they ran out of SNAP for the month, 5.45% had experienced a recent job loss, 18.18% experienced continuous unemployment<sup>5</sup>, 3.64% separated from their spouse, 5.45% had money or food stamps stolen, 26.36% said Native foods were not available, 18.18% said gardens were not available, and 25.69% said other. Other reasons given were having children or large families to care for, living on a fixed income, not being able to afford food, or budgeting. Not having access to gardens or orchards was particularly high in Weitchpec (60% of households) as was Native foods not being available (50% of households in Weitchpec). Additionally, 9.58% more households living on the reservation, as compared to households living off the reservation, said they used food assistance because Native foods were not available. A far greater proportion of households living on reservation (40.00%) said they used food used food assistance because gardens were not available compared to all households (20.00%) and compared to households living off reservation (12.50%).

Respondents were asked what type of foods they would like more of in food assistance programs. The desire for more fresh fruits and fresh vegetables was expressed by about 70% of all respondents. Additionally, 49.07% of respondents wanted more red meat, 40.74% wanted more poultry and 39.81% wanted more fish. The desire for more fish varied significantly by location with 25% of people in Klamath wanting more fish, 50% in Crescent City, and 70% in Weitchpec. Less than 30% of respondents wanted more non-meat protein, dairy alternatives, and whole grains. Out of the Native food options, 61.11% of households desired more salmon, fish, or other seafood (90% in Weitchpec), 62.96% desired more deer and elk (90% in Weitchpec), 39.25% desired more acorns (but in

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<sup>5</sup> According to the National Bureau of Labor Statistics the national rate of unemployment was 5% in April 2016.

Weitchpec alone 60% of people wanted more), 49.07% more berries and nuts (70% in Weitchpec), and 46.30% more mushrooms (90% in Weitchpec). When asked which foods people desired more of the most in food assistance programs respondents prioritized deer and elk, fresh vegetables, red meat, poultry, and acorns.

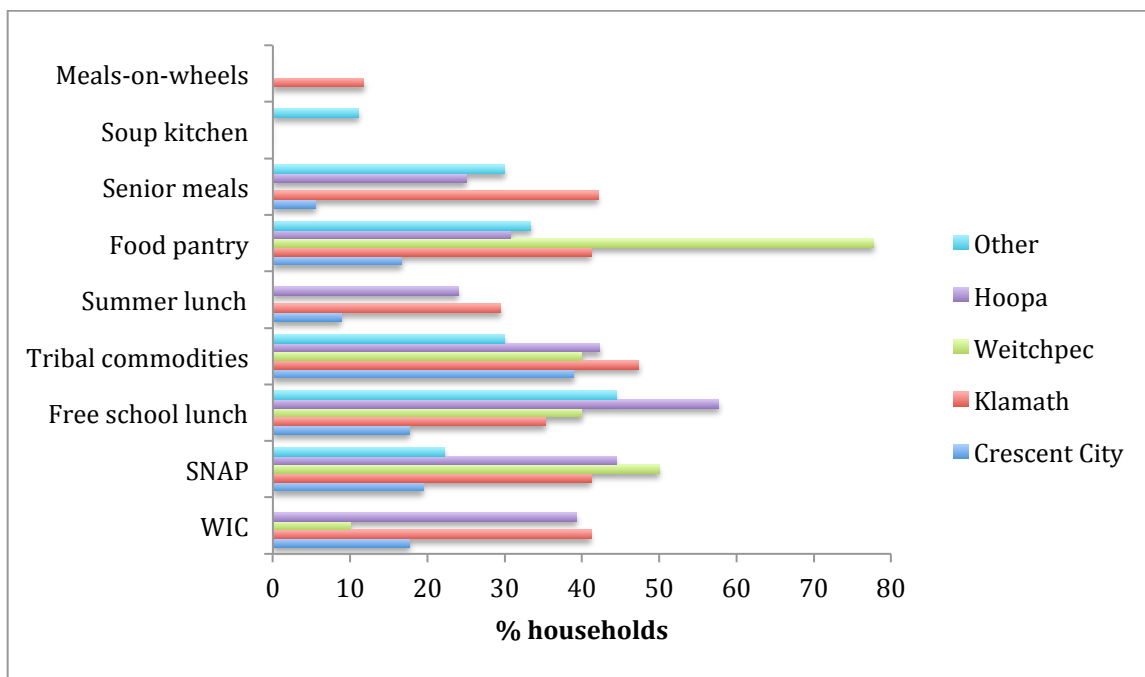


Figure 18. The use of food assistance programs by household location.

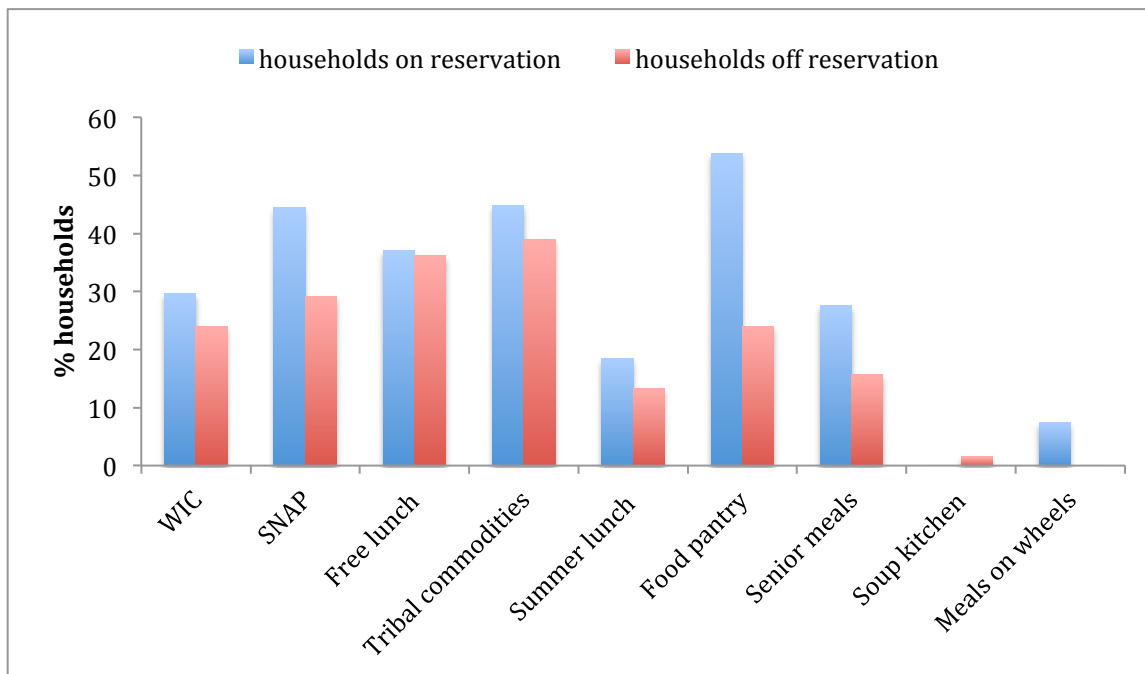


Figure 19. The use of food assistance programs by households residing on and off the Yurok Tribe's reservation.

### **Homegrown and home raised foods**

Key trends:

- *52.21% respondents grew or raised their own food.*
- *Respondents wanted to learn more (the most) about pests and weeds, preparation of soil and fertilizer, pruning, greenhouse gardening, crop planning and selection, and irrigation best practices.*
- *16.81% of households participated in a community or school garden.*
- *The highest rates of community garden participation were in Klamath and Weitchpec.*
- *Residents in Weitchpec were most interested in participating in a community garden if given the opportunity.*

Collectively, 52.21% of households grew or raised their own food at home in the past year. Growing a home garden did significantly vary by household location. The most households in Hoopa and Weitchpec (70%) maintained home gardens, while home gardens were only maintained by about 30% of households in Klamath and other towns. Additionally, 45.16% of households living on the Yurok Tribe's reservation grew a garden in the past year, while 54.88% of households off reservation did the same. Figure 18 shows what households did with their home grown or raised foods. The majority of households that grew or raised food at home consumed the foods at home, 66.67% of households shared home grown food with others, and 55.07% preserved homegrown food. None of the surveyed households reported selling homegrown food (Figure 20).

When asked if people desired to start producing their own food or expand their current production, 28.44% responded yes while 48.62% would like to but experience challenges that may not allow them to do so. Additionally, 64.29% of respondents wanted to learn more about growing or raising their own food. Respondents were most interested in learning more about how to deal with pests and weeds (71.43%), preparation of soil and fertilizer (61.04%), pruning (55.84%), greenhouse gardening (55.84%), crop planning and crop selection (51.95%), and irrigation best practices (50.65%). Precisely 16.81% of households participated in a community or school garden with Weitchpec and Klamath reporting the highest rates of participation. When asked if given the opportunity would they participate in a school or community garden, 60.00% people said yes, with 80% of respondents interested in Weitchpec.

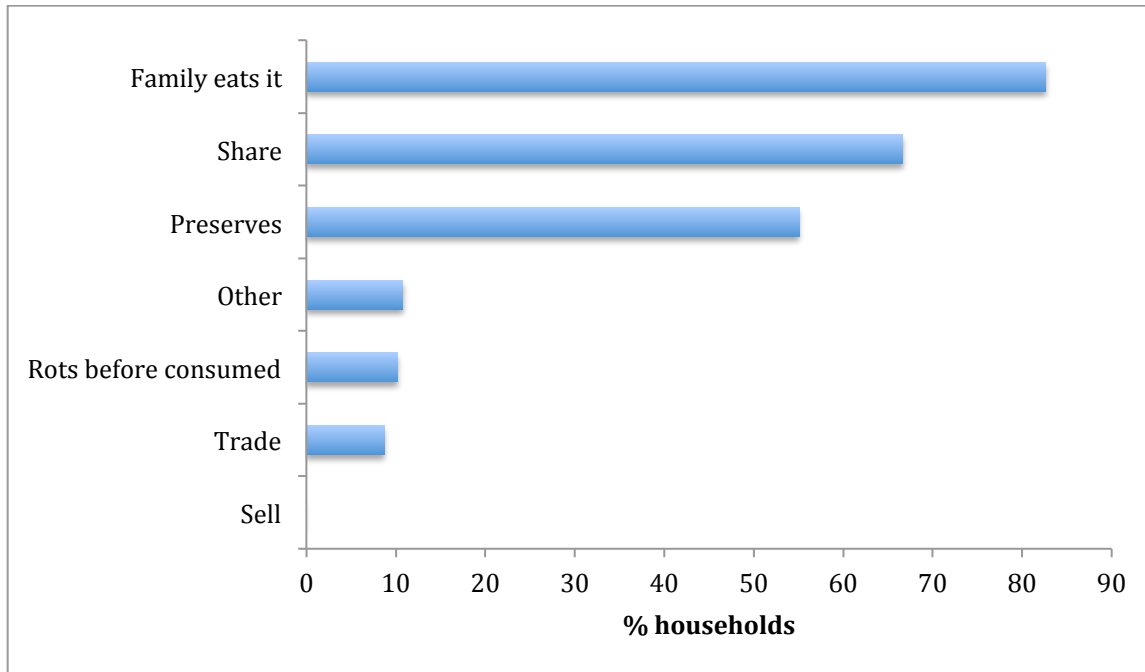


Figure 20. Household use of homegrown or raised foods.

### **Native Foods**

#### Key trends:

- 96.46% of households ate Native foods at least once in the past year.
- Salmon, berries, and deer were the most commonly consumed Native foods.
- Eel, salmon, berries, seeds, and other seafood were most frequently consumed in Klamath.
- Deer was most frequently consumed in Hoopa.
- Collectively most households consumed, preserved, or shared their Native foods. However, households residing on the Yurok Tribe's reservation less commonly consumed their Native foods and more commonly preserved, shared, or traded the Native foods they acquired.
- Respondents prioritized salmon, deer, and berries as the Native foods they wanted more of.
- The strongest barriers to Native foods were limited availability, degradation of environment, no one to bring it to them, and limitations by rules related to Native foods.
- The weakest barriers were not being familiar with Native foods, lacking space or equipment to prepare, and not knowing how to prepare.
- When asked to rank the actions that would most help households integrate Native foods in their diet respondents prioritized improved management of Native foods, classes on gathering Native plants, and the integration of Native foods into school lunches.

- *64.29% of all respondents shared knowledge about gathering, fishing, hunting, preparing or managing Native foods or materials with other people.*
- *Most commonly respondents shared Native food related knowledge with their children, other family members, friends and nieces or nephews.*
- *Respondents most commonly acquired knowledge related to Native foods and materials through family members (94.4%), taught themselves (37.3%), or learned from an unrelated person (23.8%).*
- *50% of individuals in Weitchpec were self-taught in relation to Native foods and materials.*
- *Collectively, respondents prioritized learning more about where and when to gather Native plants, the management of traditional foods and materials, and the preparation of traditional medicines.*

Respondents were asked if their household ate Native foods at least once a year in the past year. Collectively, 96.46% of respondents said their households did. Comparatively, 100% of households living on the Yurok Tribe's reservation said they consumed Native foods at least once in the past year. Figure 21 indicates where households received the Native foods they consumed. Family and friends, and hunting, fishing, gathering on ones own were the most common sources of Native foods. More households on the Yurok Tribe's reservation reported trading for Native foods, getting Native foods from friends or family, and acquiring the food themselves through hunting, gathering, or fishing (Figure 21). Next, respondents were asked what their household did with Native foods they acquired (Figure 22). Collectively most households consumed, preserved, or shared their Native foods. However, households residing on the Yurok Tribe's reservation less commonly consumed their Native foods and more commonly preserved, shared, or traded the Native foods they acquired (Figure 22).



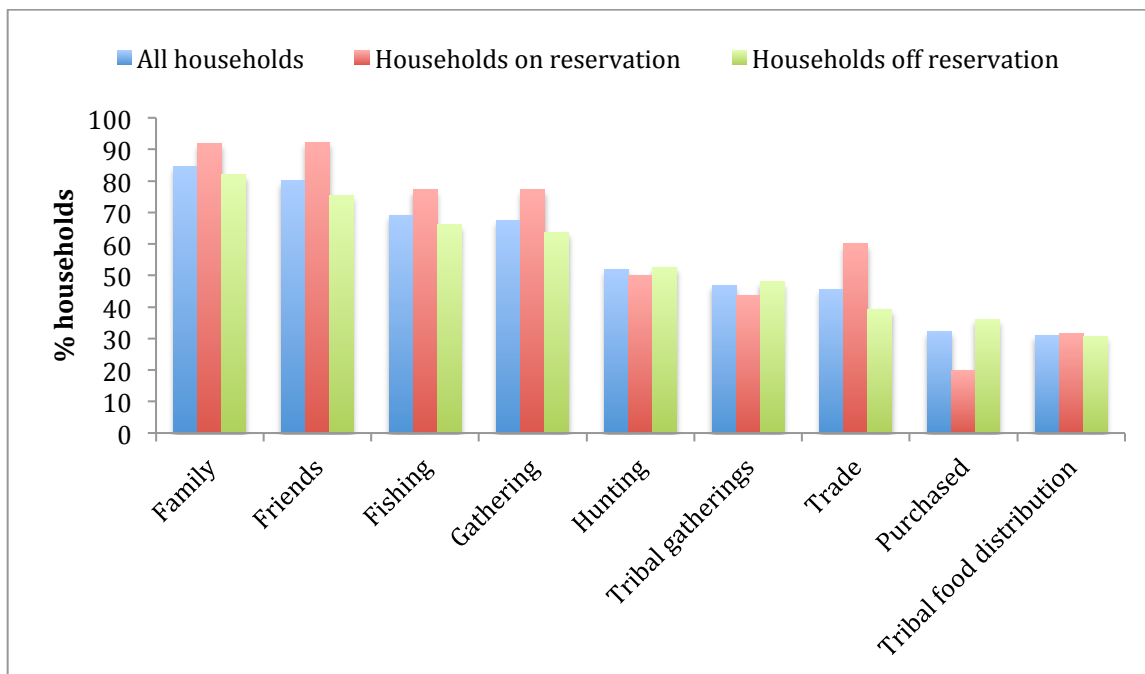


Figure 21. Sources of Native foods for all households, households on reservation, and households off reservation.

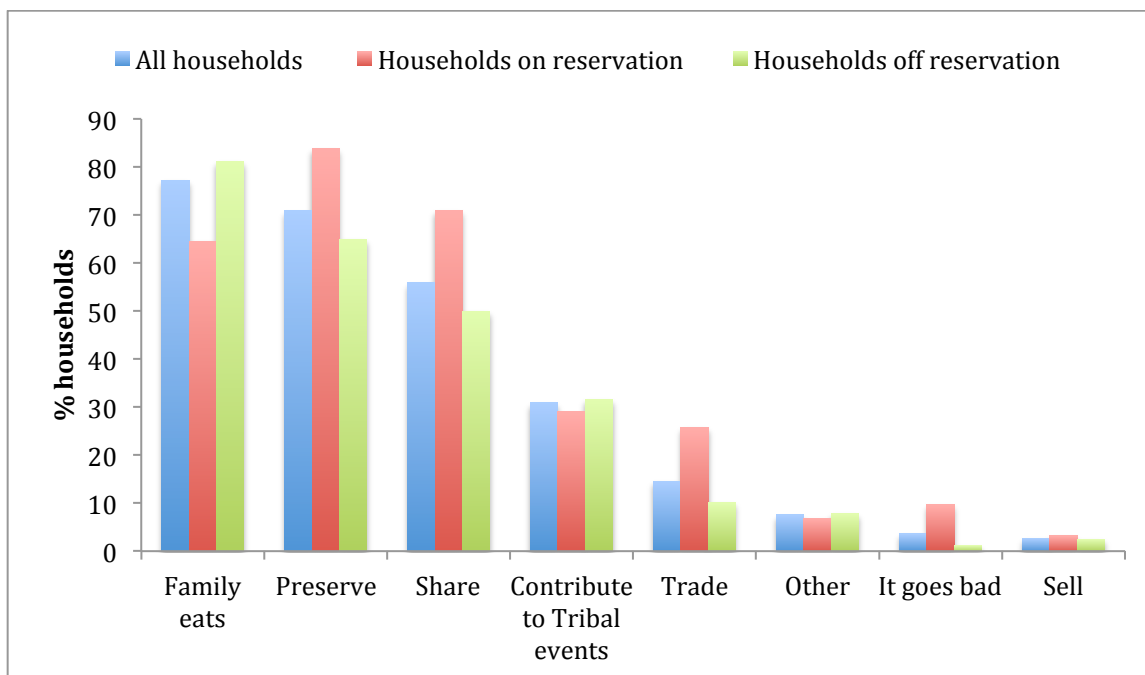


Figure 22. What households did with the Native foods they acquired.

### *Household consumption of Native foods*

Households that consumed Native foods at least once a year were asked to select the specific Native foods that they consumed (Figure 23). The most common Native foods

consumed at least once a year by surveyed households were salmon, berries, and deer; while the least common Native foods consumed by surveyed households were teas, roots, and seeds (Figure 23). Next households were asked to list the number of days out of the past year that they consumed each Native food. The average number of days of consumption for each location is reported in Table 3. Eel, salmon, elk, berries, seeds, and other seafood were most frequently consumed by households in Klamath. Deer was consumed the most days out of the year in Hoopa. Collectively, roots were consumed less frequently than other Native foods. Figure 24 reports the frequency of consumption of Native foods, in the past year, by respondents living on and off the Yurok Tribe's reservation. Households residing on reservation consumed most Native foods more frequently than those living off reservation. However, deer and acorns were consumed slightly more frequently by households living off reservation than those living on reservation (Figure 24). Next respondents ranked the top five Native foods they would like more of in their household. The foods prioritized were salmon (1<sup>st</sup> selection), deer (1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> selection), elk (4<sup>th</sup> selection) and berries (4<sup>th</sup> and 5<sup>th</sup> selection). The same selection for different foods indicate a tie.

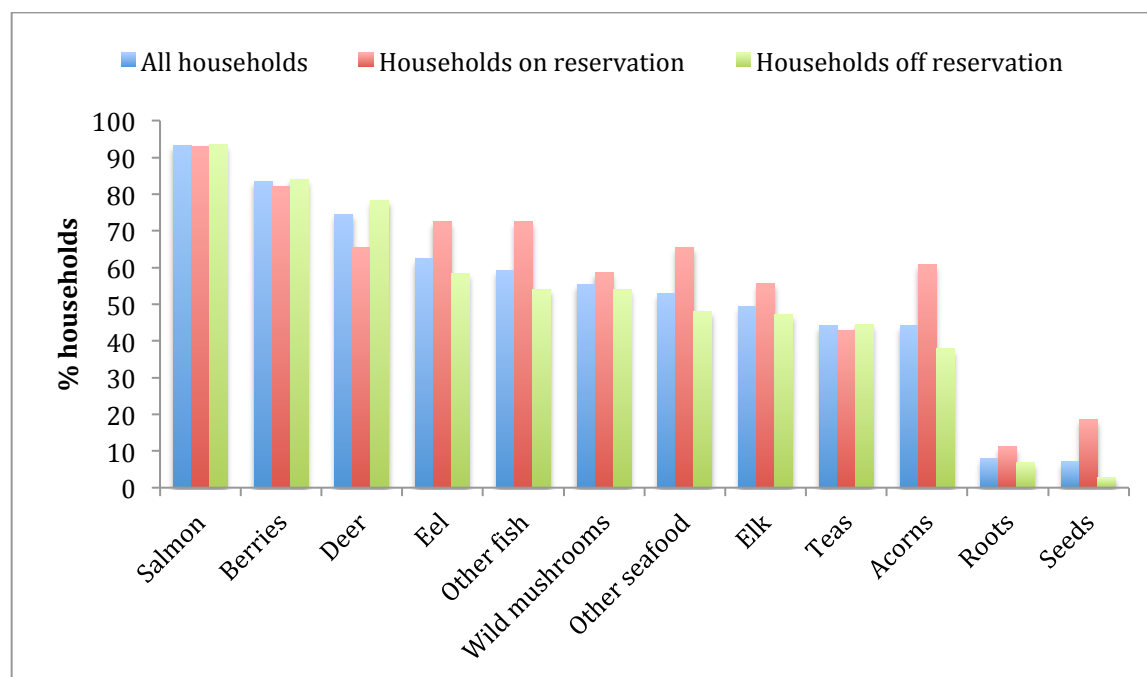


Figure 23. Households that consumed each listed Native food at least once a year.

Table 3. The average number of days households in location consumed a given Native Food in the past year.

	Crescent City	Klamath	Weitchpec	Hoopa	Other
Salmon	35.94	54.50	45.71	32.65	23.56
Eel	6.77	41.00	5.40	13.39	2.17
Other fish	7.32	13.00	6.50	10.35	22.80

<b>Other seafood</b>	7.91	15.18	4.00	7.91	6.00
<b>Deer</b>	11.81	14.63	3.80	21.17	8.20
<b>Elk</b>	5.83	13.92	1.25	6.31	1.33
<b>Acorns</b>	3.00	5.50	6.00	14.85	2.00
<b>Wild mushrooms</b>	6.85	11.27	7.50	11.65	3.00
<b>Roots</b>	0.00	0.00	1.50	5.3	0.00
<b>Berries</b>	24.30	54.12	22.83	16.1	5.00
<b>Tea</b>	41.68	82.92	85.00	16.57	9.50
<b>Seeds</b>	0.50	51.89	3.33	1.91	0.00

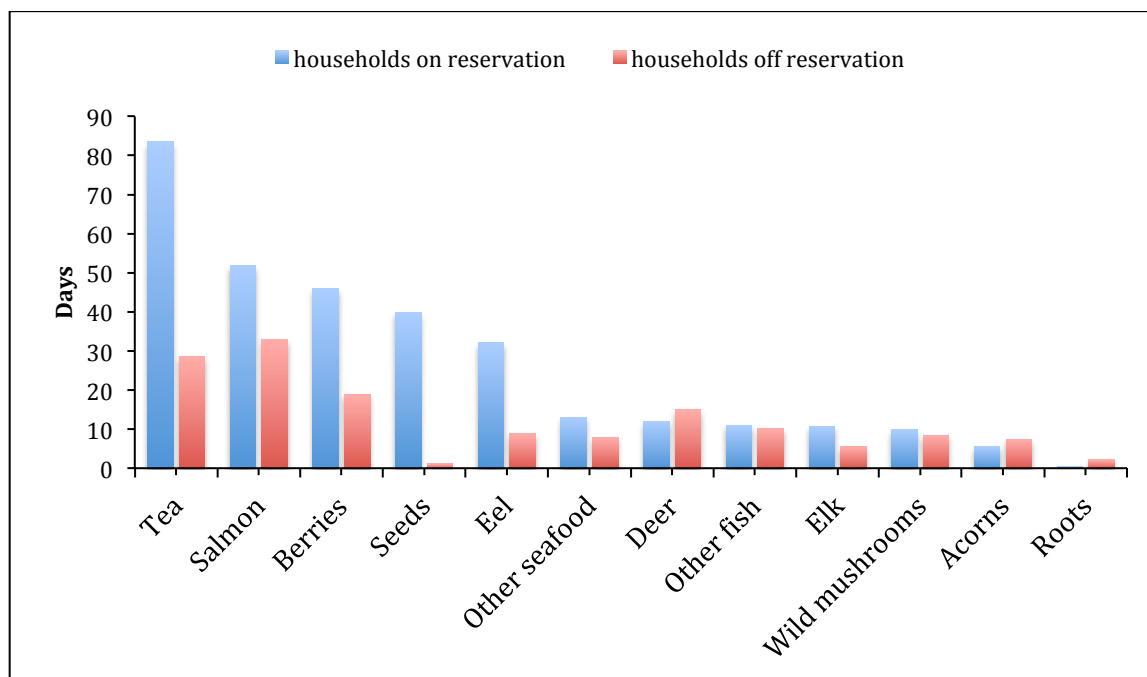


Figure 24. The number of days in the past year respondents residing on and off the Yurok Tribe's reservation consumed specific Native foods.

### *Barriers to Native foods*

Next respondents identified barriers that made it hard for their household to get all the Native Foods that they desired throughout the year. Rankings of barriers to Native foods did not significantly vary with household location. Figure 25 illustrates how respondents collectively rated various barriers. There were a range of strong barriers identified including limited availability, degradation of environment, no one to bring it to them, and limitations set by rules related to Native foods. The weakest barriers were not being familiar with Native foods, lacking space or equipment to prepare, and not knowing how to prepare Native foods. Table 4 displays how households on and off the Yurok Tribe's reservation rated barriers to Native foods. Some notable differences include: 71.19% of households off reservation said poor quality of Native foods was a barrier to getting

enough Native foods while 47.62% of households on reservation felt the same; 11.39% more households off reservation said no one bringing them Native foods was a barrier to getting enough Native foods; 40% of households on reservation said rules and permits were not a barrier to them while 16.42% of households off reservation said the same (Table 4).

Respondents were then asked what would make it easier to incorporate Native foods into their diet, essentially minimizing some of the barriers identified in the previous question. Figure 26 shows the actions respondents desired to help their household eat more Native foods. Collectively, classes on gathering, improvement of management, and the removal of legal barriers were the actions respondents desired the most. There was a range in responses by location for a few different components of this question. The desire to integrate Native foods into the Tribal commodities program was strongest in Weitchpec (80% of respondents) and weakest in Klamath (about 33% of respondents). The integration of Native foods into school lunches followed the same pattern. The desire for classes on gathering was strongest in Klamath and Weitchpec. The removal of legal barriers was wanted by 70% of respondents in Weitchpec. While responses were similar between households on and off reservation, 23.57% more households on reservation wanted classes on gathering Native plants as compared to households off reservation.

Lastly, when asked to rank the actions that would *most* help households integrate Native foods in their diet respondents prioritized improved management of Native foods (ranked 1<sup>st</sup>), classes on gathering Native plants (ranked 2<sup>nd</sup> and 4<sup>th</sup>), and the integration of Native foods into school lunches (ranked 3<sup>rd</sup>).

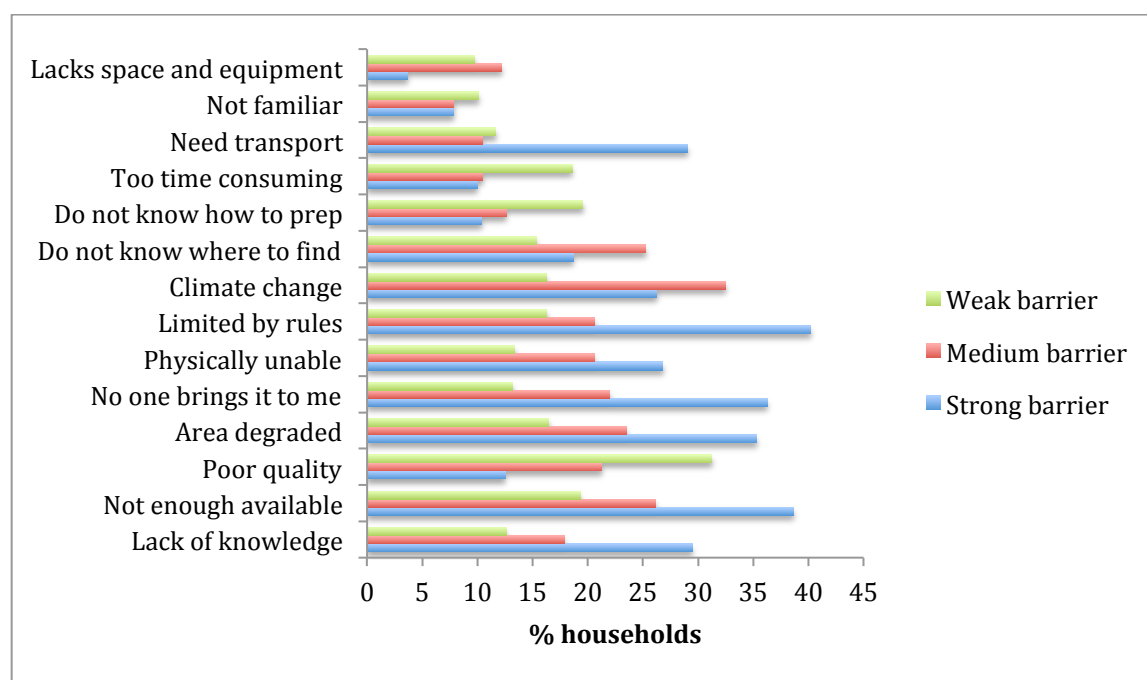


Figure 25. Barriers respondents encounter when accessing Native foods.

Table 4. Barriers experienced by households on and off the Yurok Tribe's reservation when accessing Native foods.

		<b>Households on reservation (%)</b>	<b>Households off reservation (%)</b>
<b>Lack of knowledge</b>	Strong barrier	26.92	30.43
	Medium barrier	19.23	17.39
	Weak barrier	11.54	13.04
	No barrier	42.31	39.13
<b>Not enough available</b>	Strong barrier	37.50	39.06
	Medium barrier	20.83	28.12
	Weak barrier	16.67	20.31
	No barrier	25.00	12.50
<b>Poor quality</b>	Strong barrier	0.00	16.95
	Medium barrier	14.29	23.73
	Weak barrier	33.33	30.51
	No barrier	52.38	28.81
<b>Environment heavily degraded</b>	Strong barrier	30.43	37.10
	Medium barrier	21.74	24.19
	Weak barrier	21.74	14.52
	No barrier	26.09	24.19
<b>No one brings to me</b>	Strong barrier	28.00	39.39
	Medium barrier	24.00	21.21
	Weak barrier	12.00	13.64
	No barrier	36.00	25.76
<b>Physically unable</b>	Strong barrier	22.22	28.57
	Medium barrier	18.52	21.43
	Weak barrier	18.52	11.43
	No barrier	40.74	38.57
<b>Rules and permits</b>	Strong barrier	36.00	41.79
	Medium barrier	20.00	20.90
	Weak barrier	4.00	20.90
	No barrier	40.00	16.42
<b>Climate change</b>		30.00	25.00
	Strong barrier		
	Medium barrier	35.00	31.67
	Weak barrier	15.00	16.67
<b>Do not know where to find</b>	No barrier	20.00	26.67
	Strong barrier	16.67	19.40
	Medium barrier	12.50	29.85
	Weak barrier	20.83	13.43
<b>Do not know how to prepare</b>	No barrier	50.00	37.31
	Strong barrier	8.70	10.94
	Medium barrier	4.35	15.62

	Weak barrier	26.09	17.19
	No barrier	60.87	56.25
<b>Too time consuming</b>	Strong barrier	4.35	7.94
	Medium barrier	13.04	9.52
	Weak barrier	13.04	20.63
	No barrier	69.57	61.90
<b>Lack transportation</b>	Strong barrier	29.17	29.03
	Medium barrier	8.33	11.29
	Weak barrier	20.83	8.06
	No barrier	41.67	51.61
<b>Not familiar with eating Native foods</b>	Strong barrier	8.70	7.58
	Medium barrier	4.35	9.09
	Weak barrier	13.04	9.09
	No barrier	73.91	74.24
<b>Lack space or equipment for processing</b>	Strong barrier	4.76	3.28
	Medium barrier	4.76	14.75
	Weak barrier	9.52	9.84
	No barrier	80.95	72.13

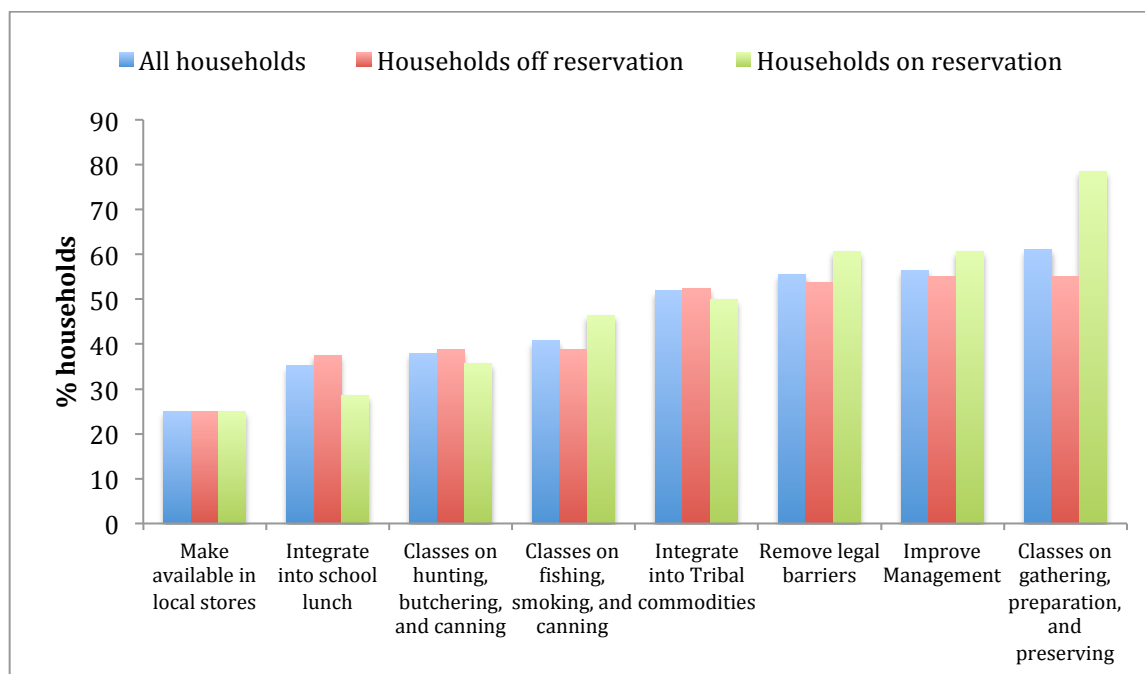


Figure 26. Things that would make it easier for households to incorporate Native foods into their diet.

### *Knowledge related to gathering, hunting, fishing, preparing, and managing Native Foods*

About six out of ten respondents (64.29%) have shared knowledge about gathering, fishing, hunting, preparing or managing Native foods or materials with other people. Figure 27 details with whom or where respondents shared knowledge related to Native foods. Respondents most commonly shared their knowledge with their children, other family members, friends, and nieces or nephews. More respondents living on reservation shared knowledge with other tribal members as compared to those living off reservation (Figure 27).

Figure 28 shows where respondents acquired Native food- and material-related knowledge. Respondents most commonly acquired knowledge through family members (94.4%), taught themselves (37.3%), or learned from an unrelated person (23.8%). A higher proportion of individuals in Weitchpec (50%) were self-taught while a higher proportion of individuals in Crescent City had acquired knowledge through Tribal and non-Tribal programs. More respondents residing outside of the Yurok Tribe's reservation acquired Native food related knowledge through tribal programs, school, or non-tribal programs than those living on reservation (Figure 28).

Respondents were then asked to rank the top four topics related to Native foods and materials that they wanted to learn more about the most. Collectively, they prioritized learning about where and when to gather Native plants, the management of traditional foods and materials, and the preparation of traditional medicines.

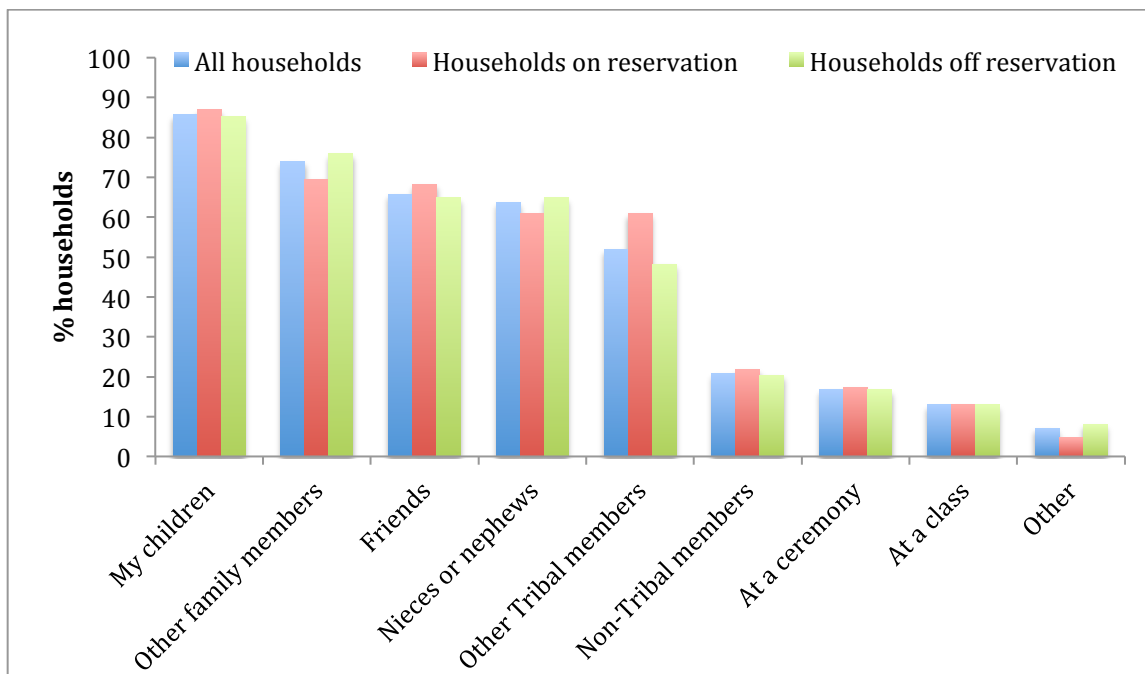


Figure 27. Where or with whom respondents shared knowledge about gathering, fishing, hunting, preparing, or managing Native foods or materials.

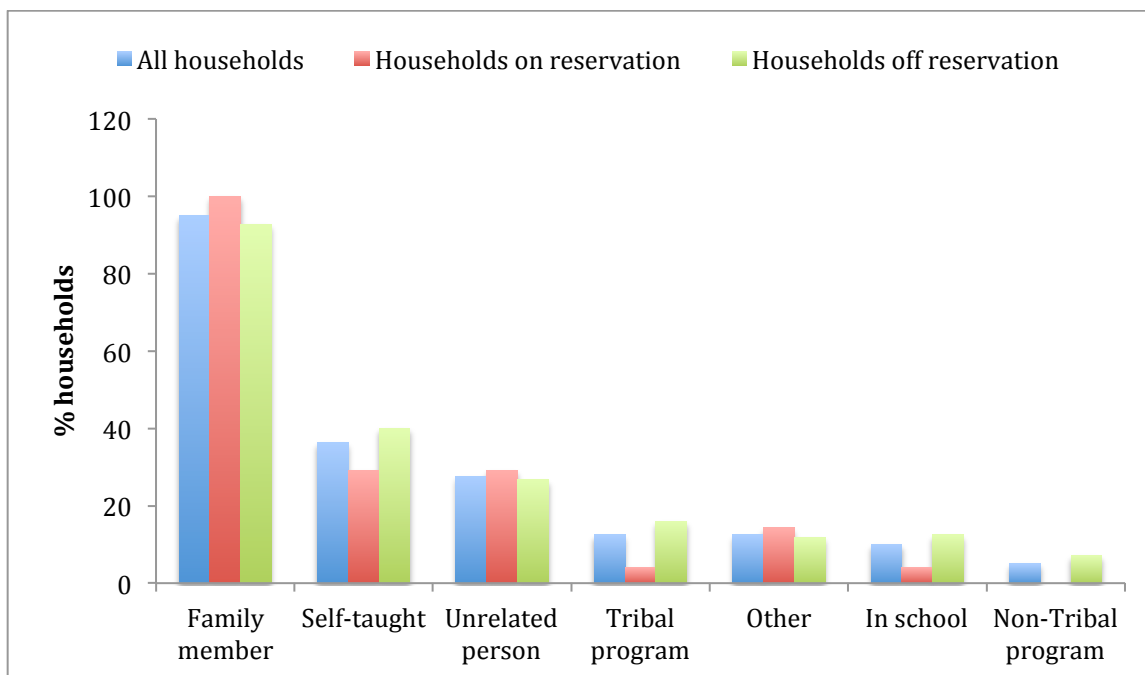


Figure 28. Where and with whom respondents acquired knowledge of Native foods and materials.



## Community resources and food education

### Key trends:

- *Out of all possible community resources respondents most wanted a farmers market, weekly vegetable box, community canning equipment, gardening tools, and dehydrator.*
- *People in Weitchpec displayed a strong desire for many community resources compared to other locations.*
- *Respondents preferred receiving food related information via P.O. Box, local newspaper, email, or Facebook.*

Survey respondents were asked which of the following resources they would use if they were available in their community. Figure 29 shows the community resources that people were interested in utilizing. A farmers market, weekly vegetable box, community canning equipment, gardening tools, and a dehydrator were the top five community resources respondents were interested in using (Figure 29). In Weitchpec, the desire for a community freezer, community garden, gardening tools, farmers market, and community green house was more than twice the interest expressed by other locations. Next, respondents were asked how they would like to receive food-related information. Receiving the information in their P.O. Box was the top choice followed by posting in the local newspaper, sending via email, and posting on Facebook.

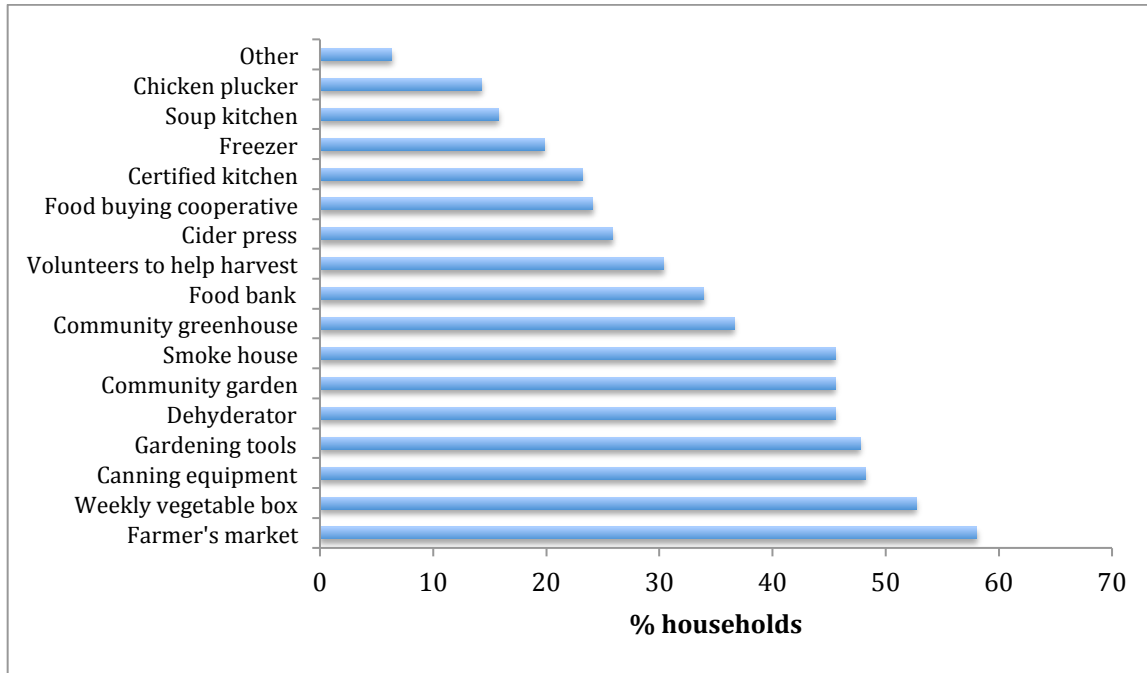


Figure 29. Community resources that respondents were interested in utilizing.