

Lake Erie Public Health and Fish Consumption

Identifying and Providing At-Risk Communities with Safe Consumption Practices

Katherine Leone and Gabriela Arima, Case Western Reserve University

Problem Statement

Some Northeast Ohio Anglers rely on self-caught fish from Lake Erie and its tributaries as a major source of protein. Such fish contain possibly dangerous levels of toxicants, such as mercury and poly-chlorinated biphenyls, which may contribute to serious public health complications in the future. The Cuyahoga County Board of Health is seeking the most effective ways to disseminate educational material to such anglers.

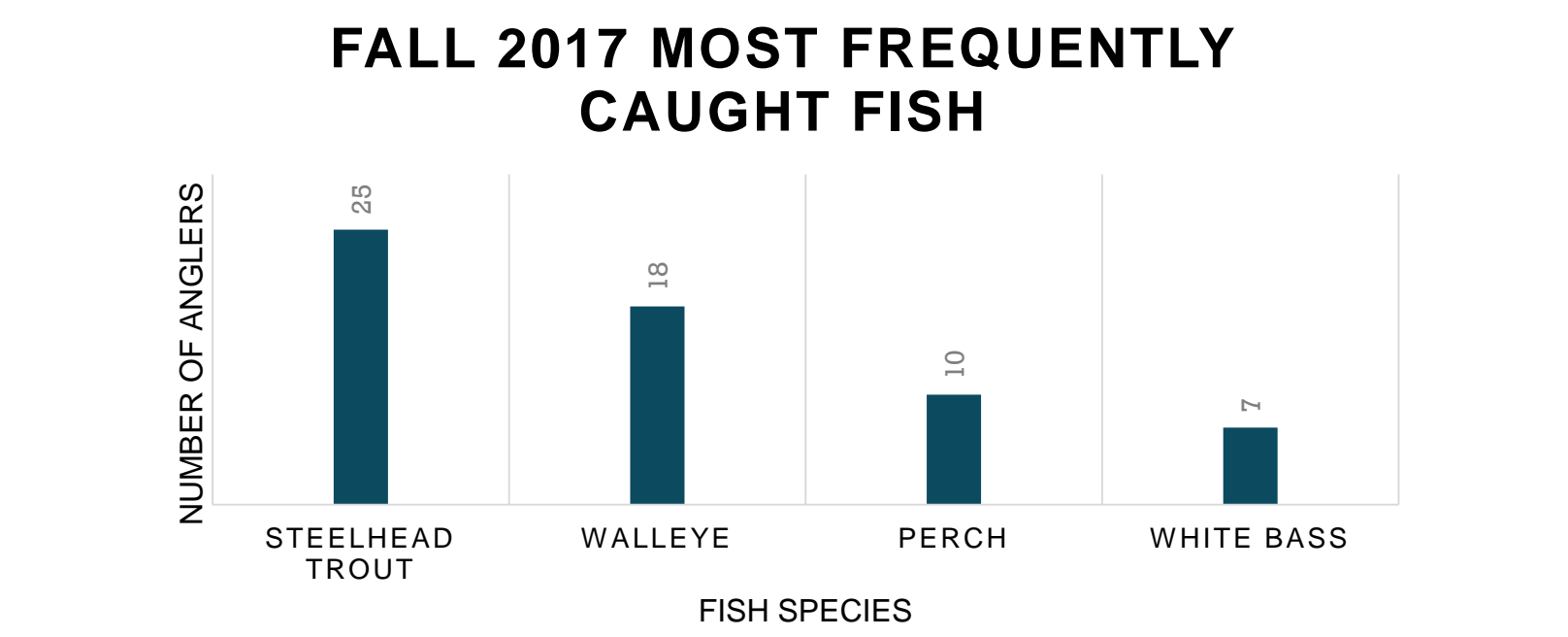
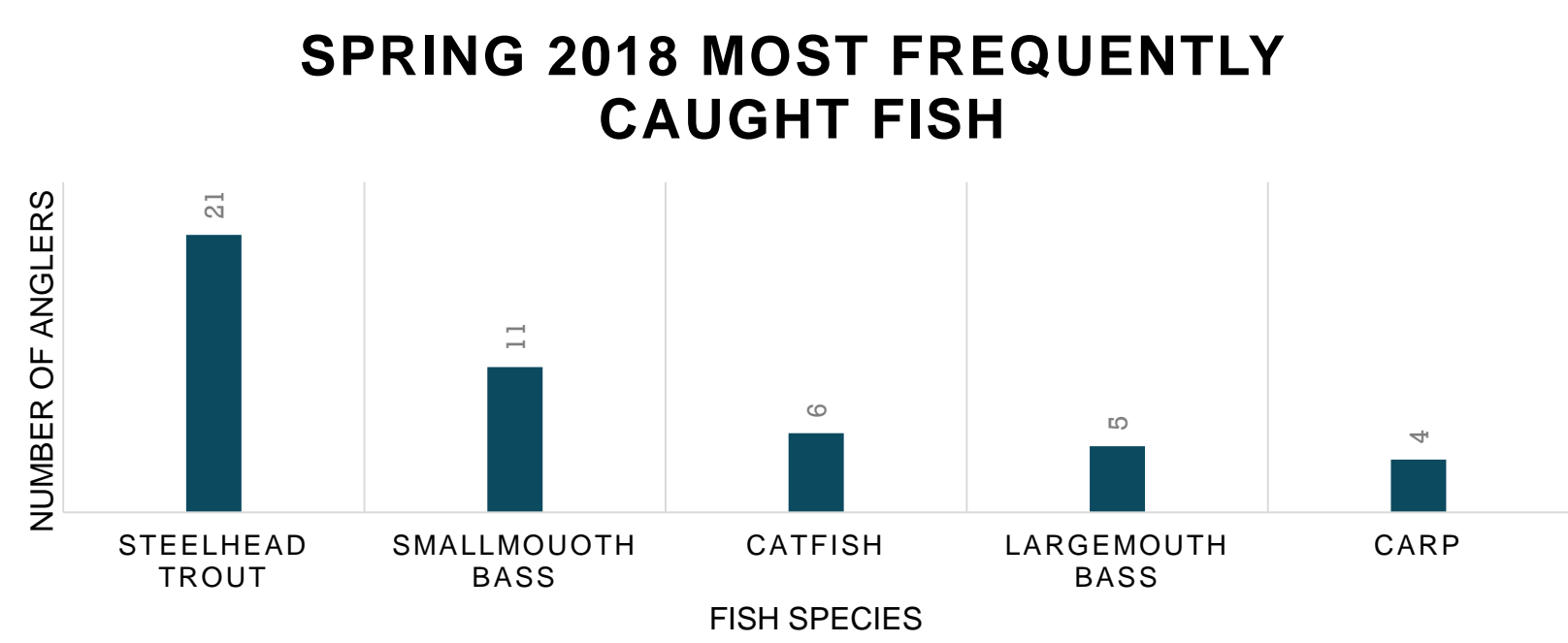
Objectives

- Obtain appropriate and complete data on angler's fishing and consumption practices on pre-selected locations in the Greater Cleveland area, through conversational surveys
- Analyze data, attaining correlations and identifying needs
- Arrive at conclusions and subsequent recommendations for effective communication strategies on dissemination of information to local angler populations

Methods

- Survey locations selected on the Lake Erie shoreline and Rocky River bank via identification of common angler congregation sites
- Anglers on location chosen at "random" and surveyed
 - Fall 2017: **Preliminary** 3-Part Verbal Qualitative Survey
 - Spring 2018: **Preliminary** 2-Part Verbal Quantitative, 1-Part Verbal Qualitative Survey
 - On-going: **Year-Long** 3-Part Survey
 - Fishing Practices – Verbal Quantitative
 - Pollution Background – Verbal Qualitative
 - Interviewee Demographic – Written Quantitative
- Fall 2017/Spring 2018 "preliminary" results analyzed and coded for consumption rates, preparation practices, toxicant/pollutant knowledge and demographics

Results

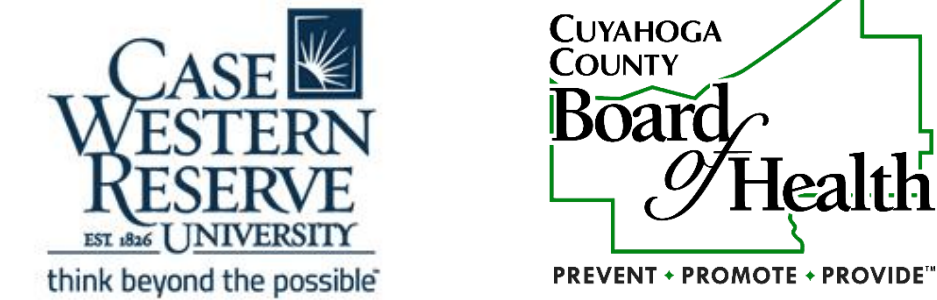


Public Health research on fish consumption practices, specifically in areas of environmental concern and areas containing sensitive populations, is sparse and dated.

Many Northeast Ohio Anglers may be at risk for overconsumption of toxicants in local fish, persisting from Lake Erie's industrial history. Preliminary research indicates such is due to outdated fish preparation and consumption practices, a lack of streamlined exposure to appropriate educational material on local water pollution, fish preparation methods and advisories, and apathy from various subgroups.

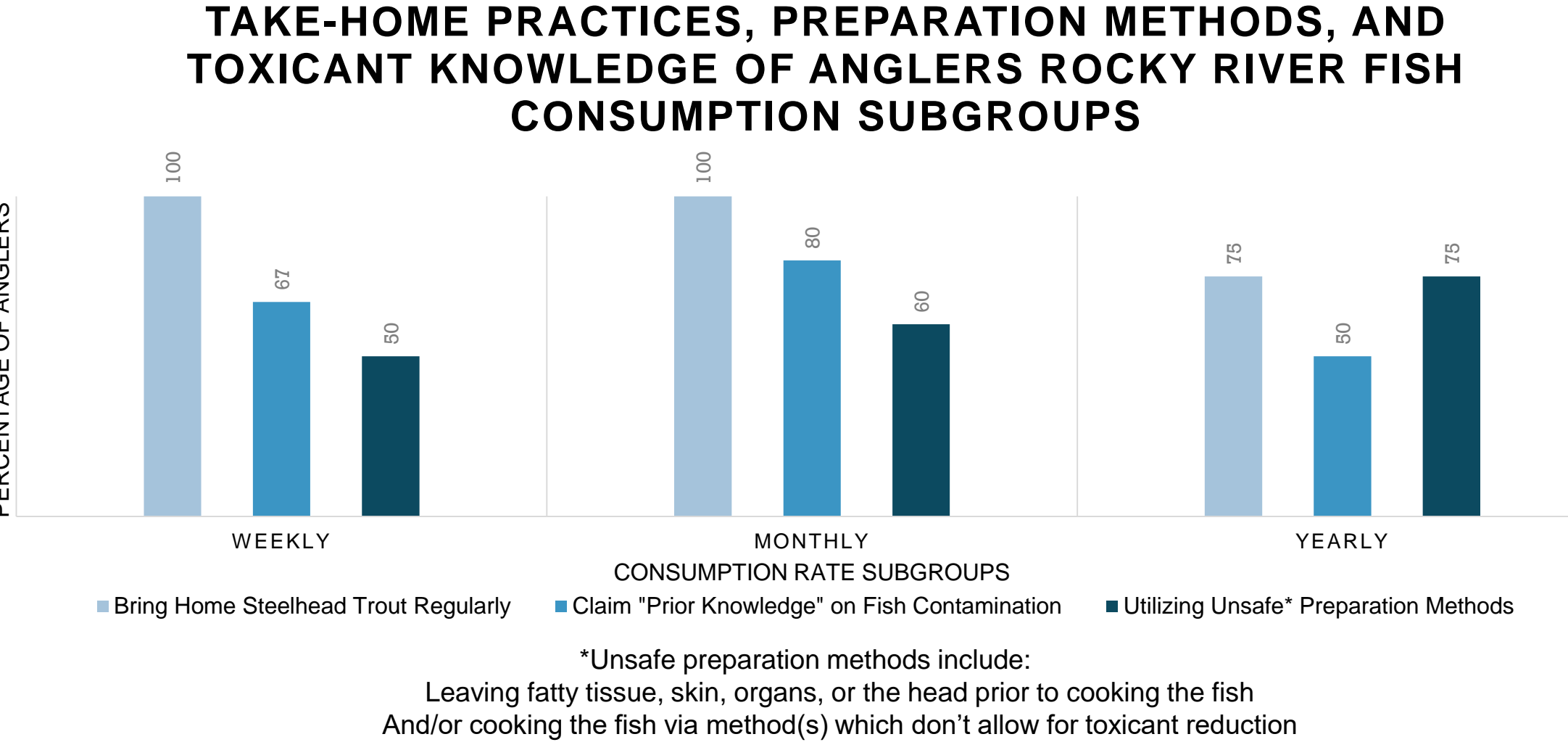
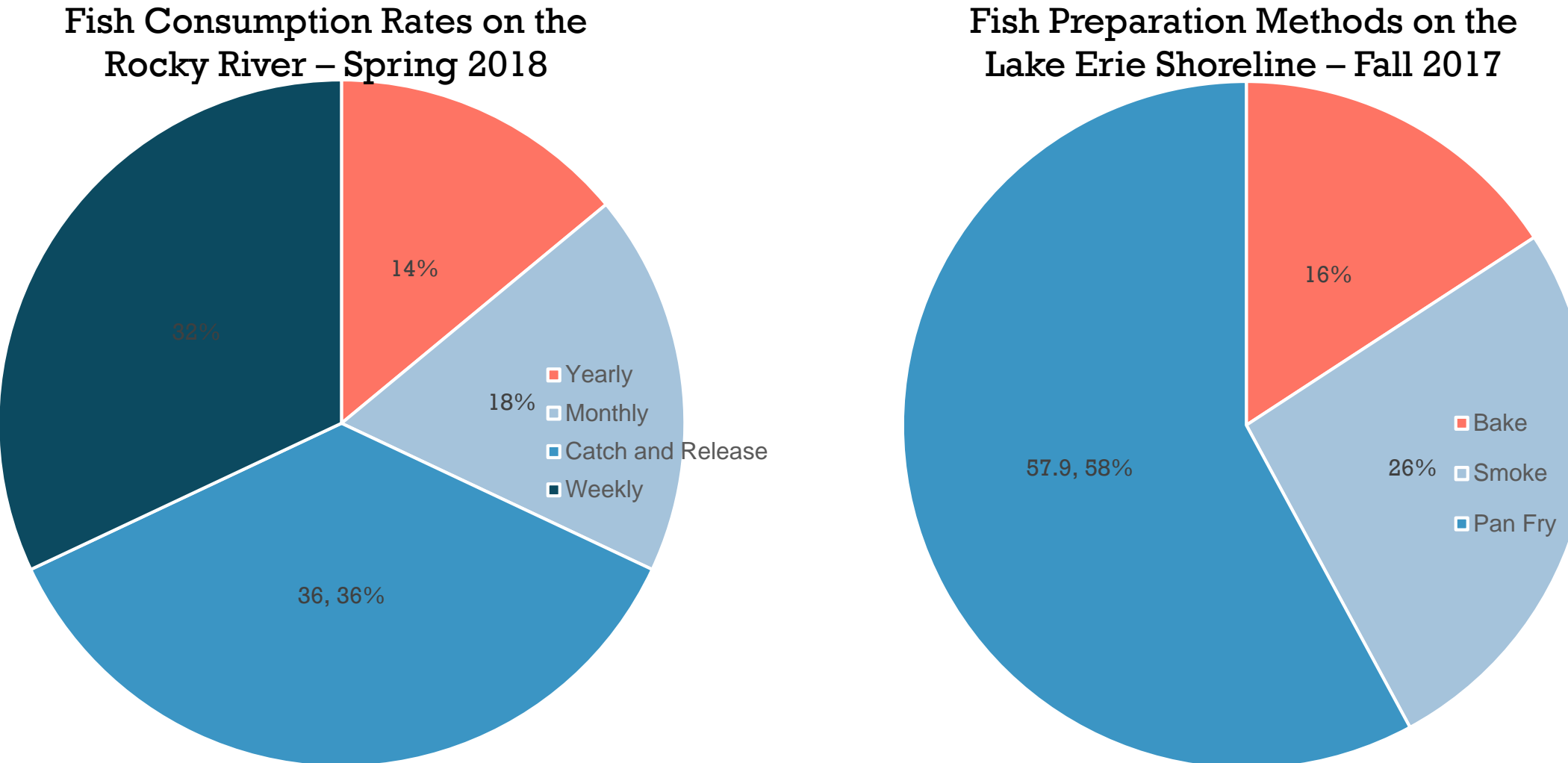
Our findings also indicate the existence of sensitive subgroups, such as non-primary English-speaking populations, of which correlate to higher rates of fish overconsumption.

Bhutanese refugee populations in Cleveland were identified as at-risk subgroups. Research outcomes have included development of educational materials and workshops, training sensitive populations in best consumption practices.



Acknowledgements:

Dr. Robert Brand, Cuyahoga County Board of Health; Glenn Odenbrett, Case Western Reserve University; CWRU USNA (University Seminar – Natural World) 249 Classes – Fall 2017, Spring 2018



Discussion and Outcomes

Methods of Fish Preparation

*CLEAN ALL FISH BEFORE COOKING

Best Methods	Acceptable Methods	Worst Methods
Grill Smoke	Bake Poach Deep Fry	Pan Fry

- If deep-frying, **discard oil** after use.
- Pan frying** removes few, if any, contaminants.

Clean and Cut:

Serving Size:

One size does not fit all!

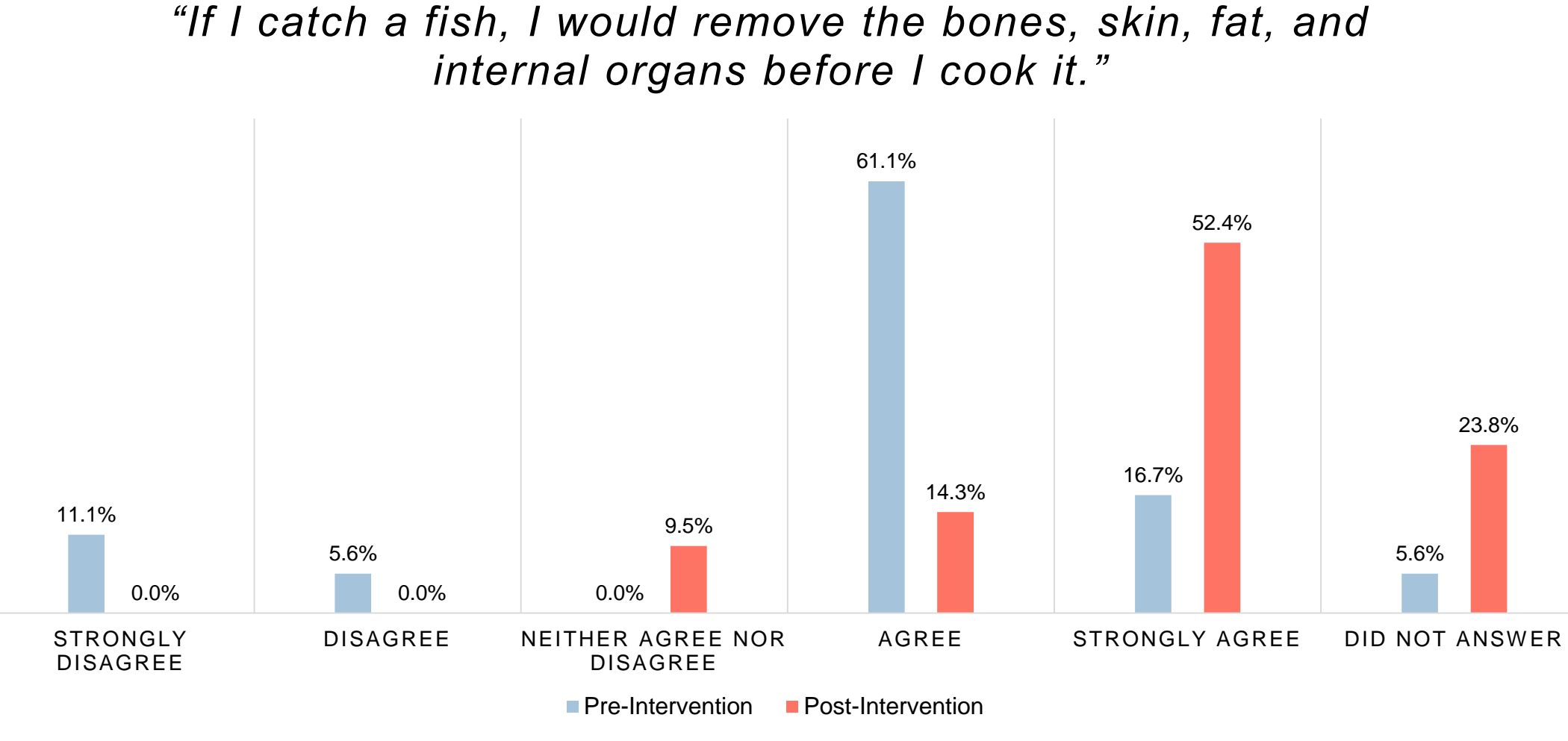
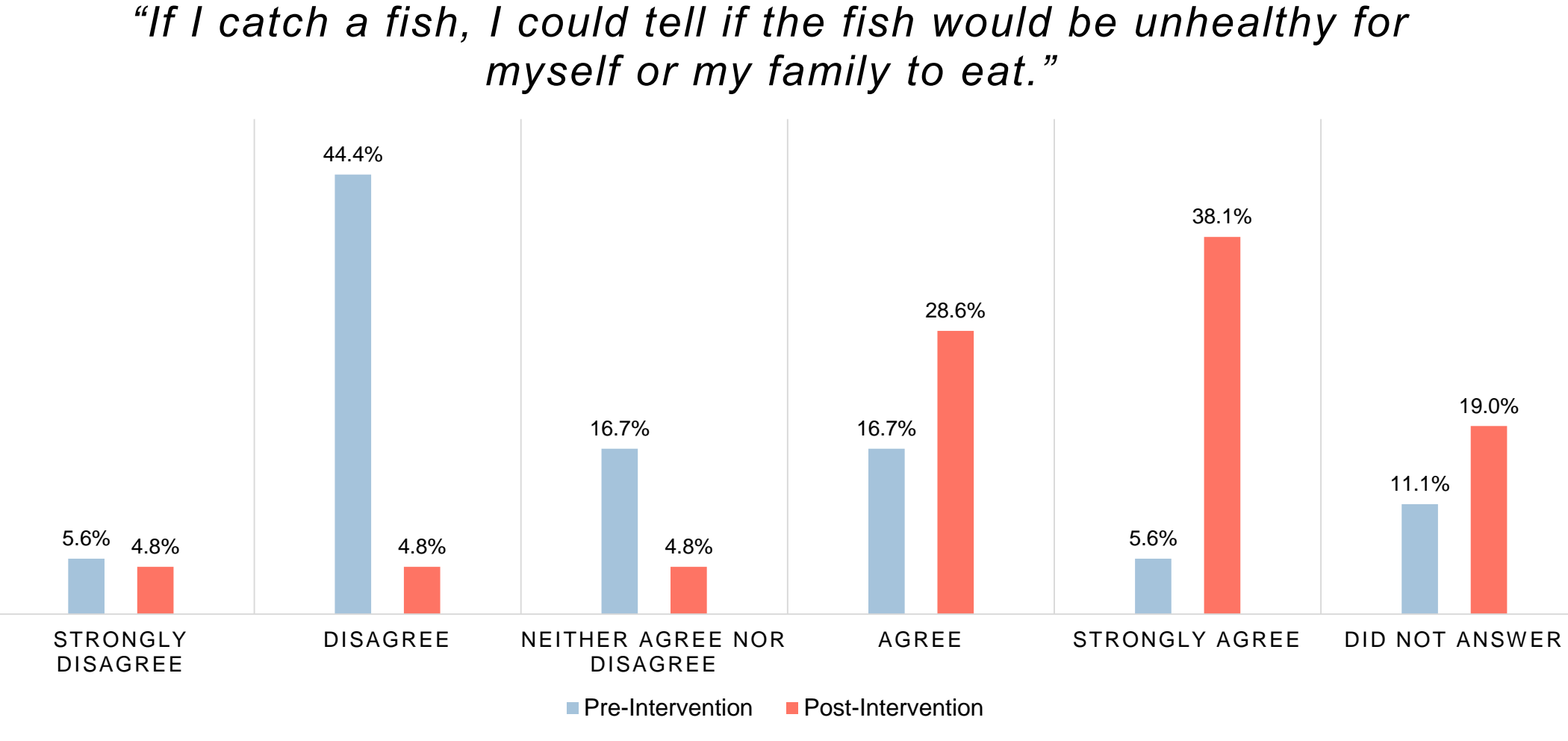
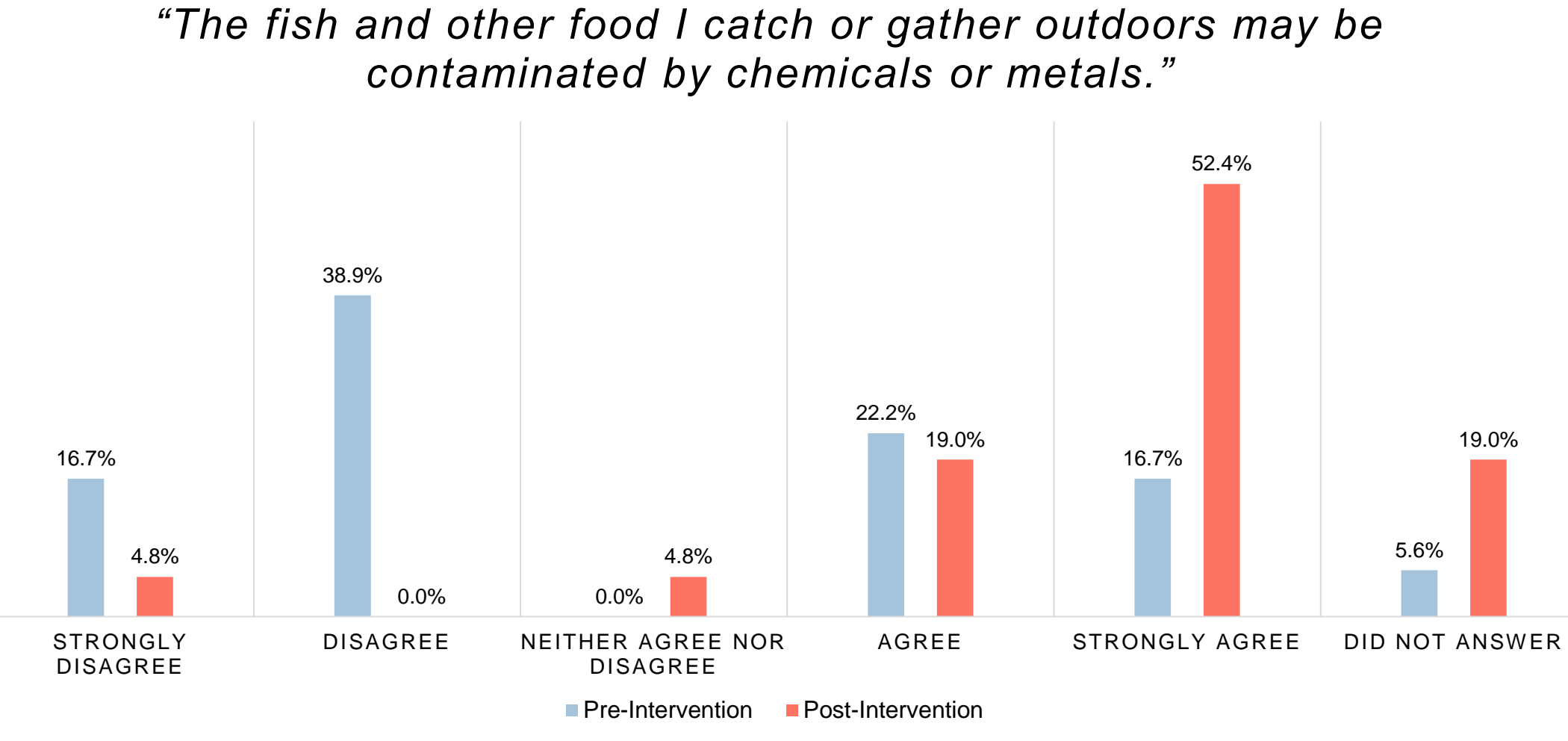
What is a serving?

To find out, use the palm of your hand!

For an adult: 4 to 7 ounces
For children: 2 to 3 ounces

Anglers can minimize exposure to contaminants by:
Discarding **organs** (do not eat).
Remove skin from fillets or steaks.
Trim away **fatty areas** near the belly, back, and sides.

Implemented a "safe fishing, foraging, and gardening" workshop with Bhutanese refugees – administered pre-workshop questionnaire (n=18) and post-workshop questionnaire (n=21)



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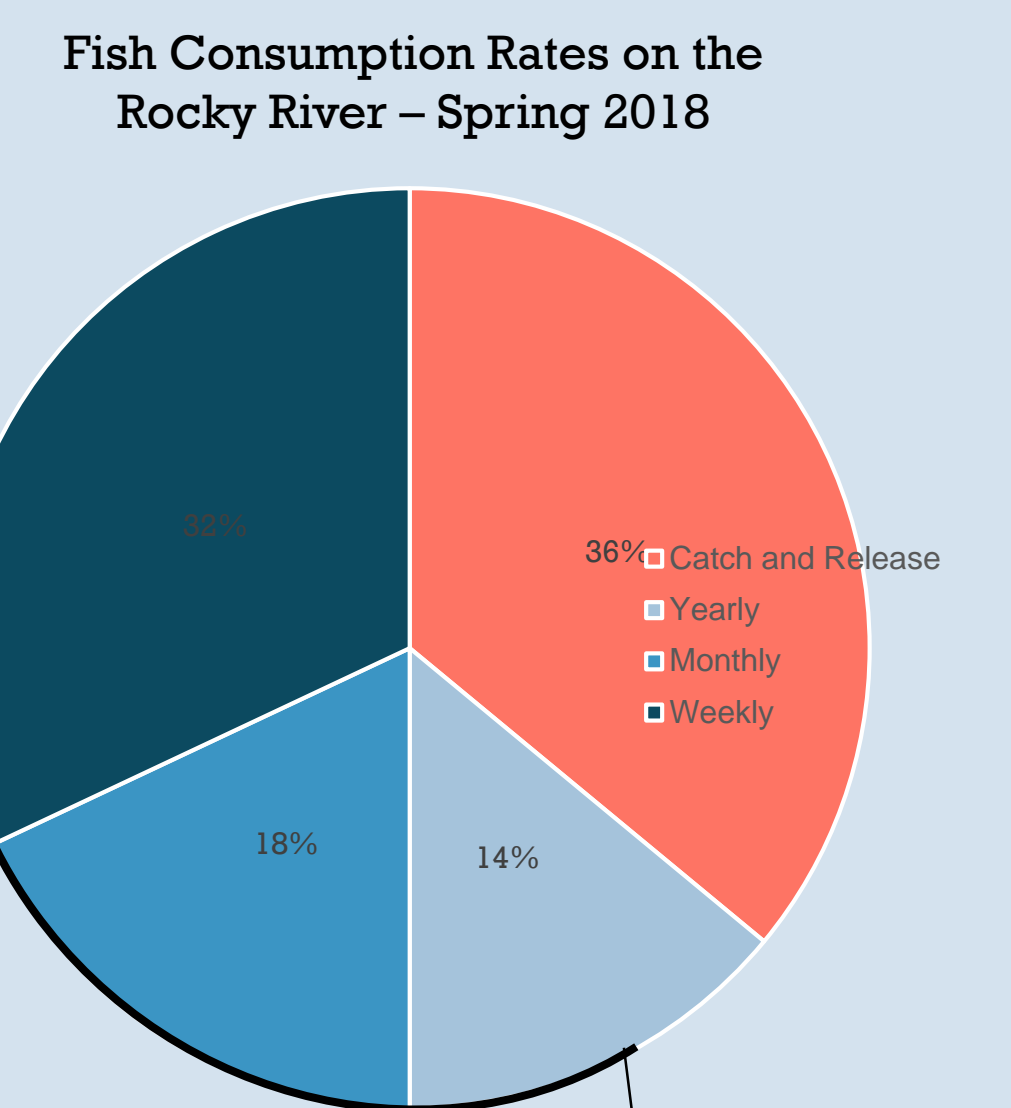
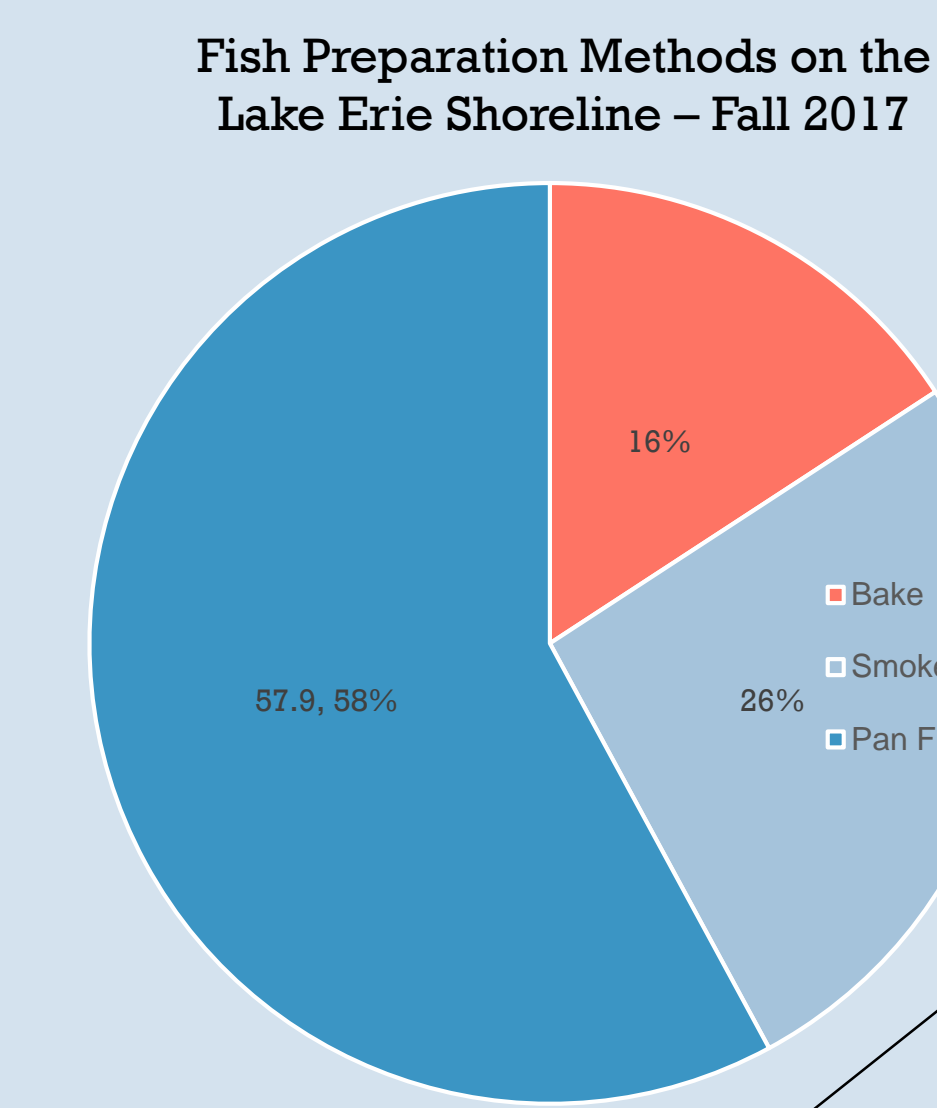
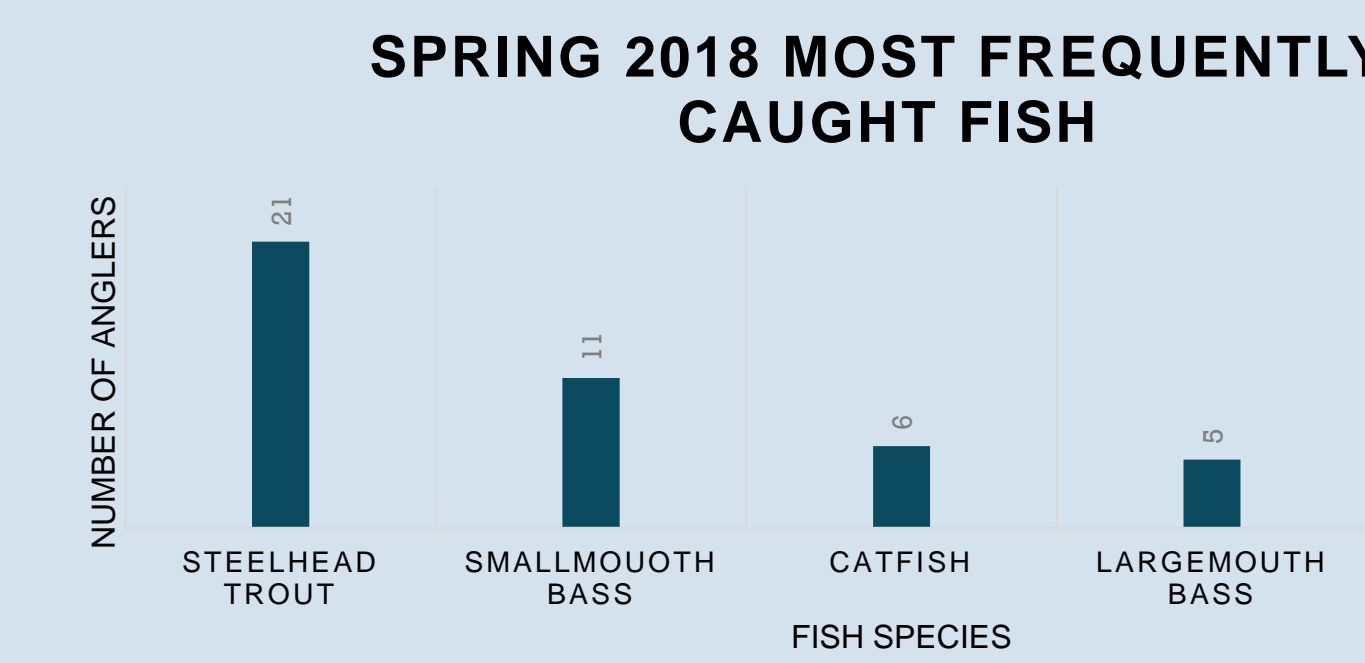
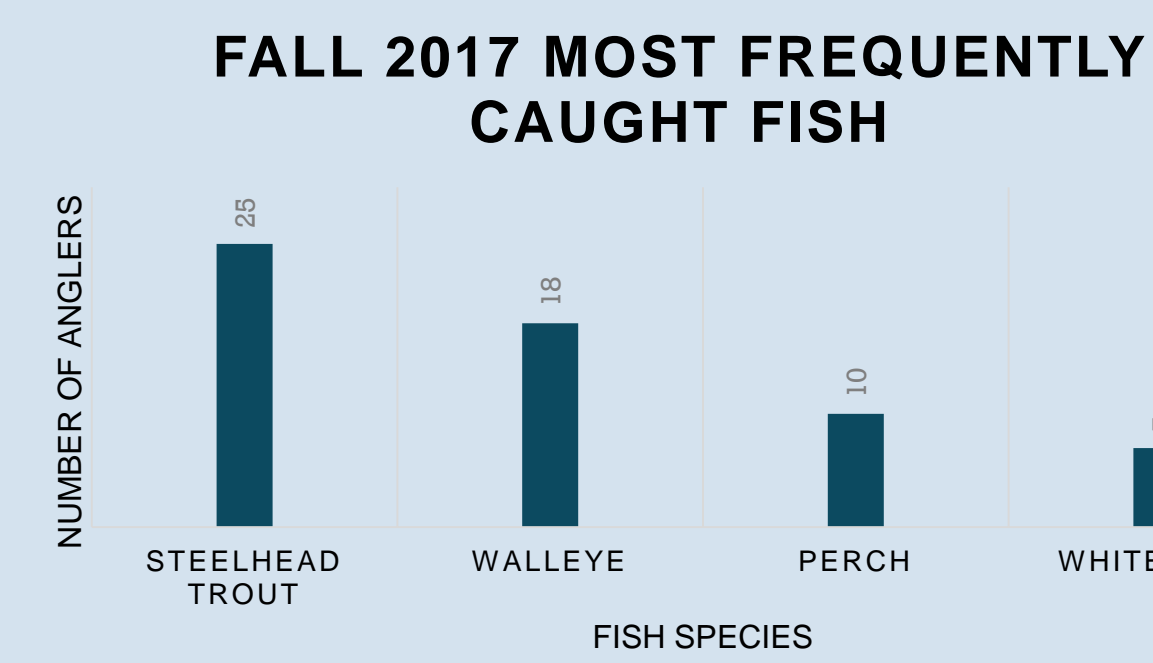
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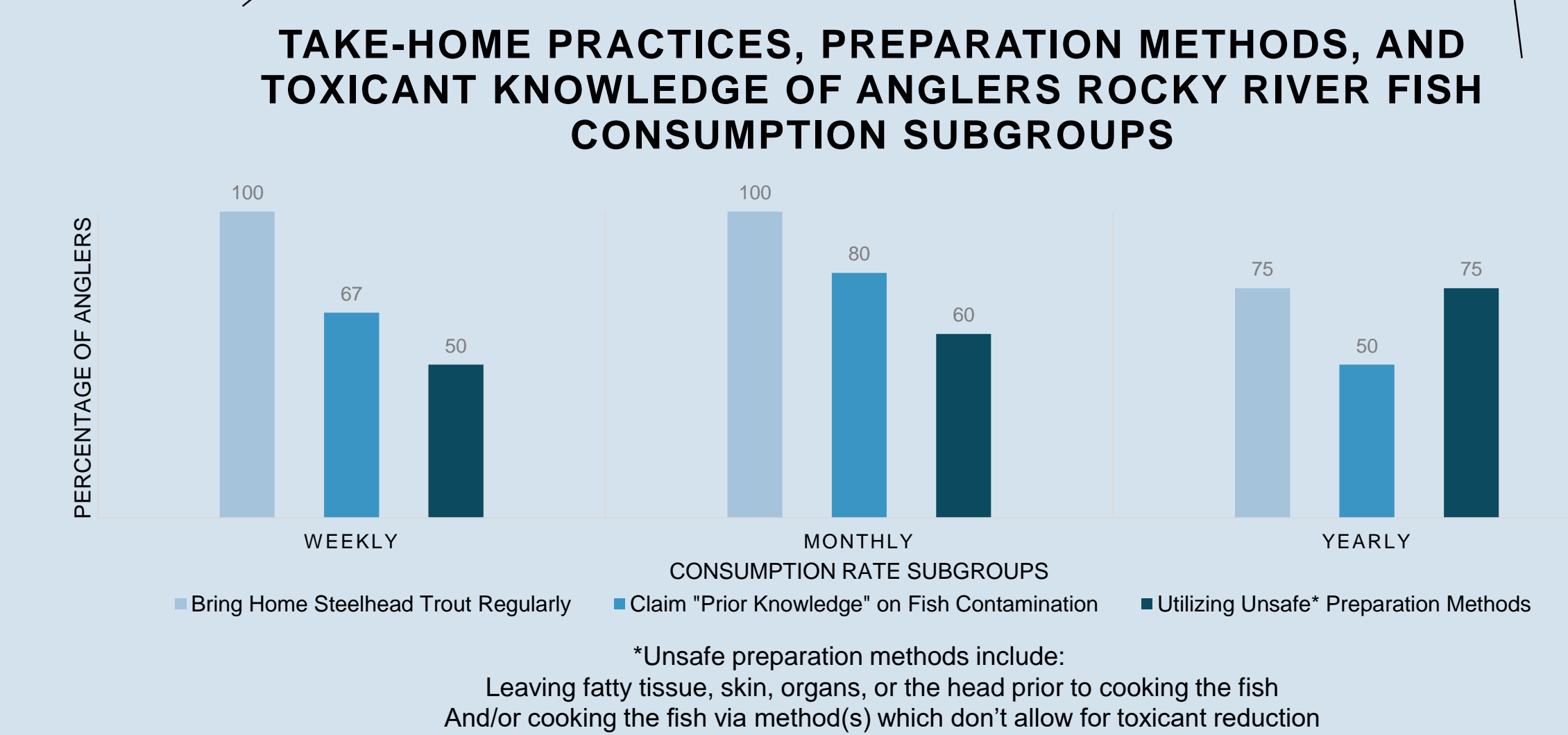
Results



- Our findings indicate the **existence of sensitive subgroups**, such as non-primary English-speaking populations, of which correlate to a **higher rates** of fish overconsumption.

In the Spring 2018 research,

- 60%** of interviewed anglers claimed to have **previous knowledge** on fish and water **contamination**
 - Only **~13%** of the entire sample (n=30) claimed such knowledge was received from the **ODNR***
- However, upon relay of knowledge:
 - None** displayed information fully pertinent to making **educated** decisions on consumption
 - ~40%** displayed **zero** or fully **unsound** knowledge on contamination



Discussion and Outcomes

- Public Health **research** on **fish consumption practices**, specifically in areas of environmental concern and areas containing sensitive populations, is **sparse** and **dated**.
- Many Northeast Ohio Anglers may be at risk for **overconsumption of toxicants** in local fish; preliminary research indicates such is due to **outdated** fish preparation and **consumption** practices, a **lack of** streamlined exposure to appropriate **educational material** on local water pollution, fish preparation methods and advisories, and apathy in various subgroups

Methods of Fish Preparation
*CLEAN ALL FISH BEFORE COOKING

Best Methods	Acceptable Methods	Worst Methods
Grill Smoke	Bake Poach Deep Fry	Pan Fry

- If deep-frying, **discard oil** after use.
- Pan frying** removes few, if any, contaminants.

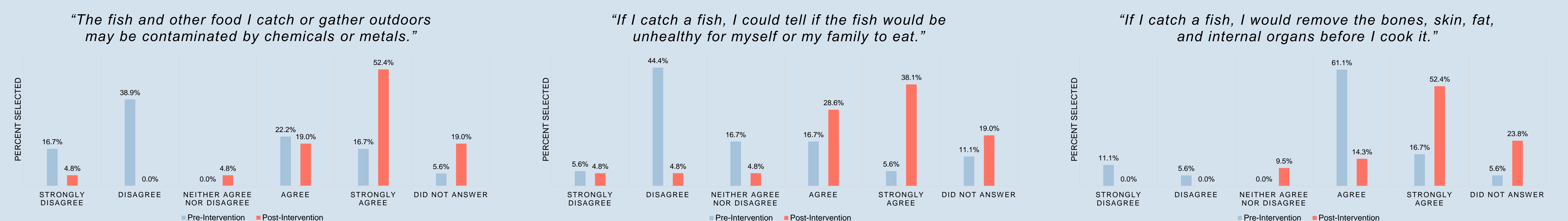
Clean and Cut: Cut away the fat along the backbone. Trim off the belly fat. Cut away the belly area around the side of the fish.

Serving Size: **One size does not fit all!**
For an adult: 4 to 7 ounces
For children: 2 to 4 ounces

What is a serving? To find out, use the palm of your hand!

Anglers can minimize exposure to contaminants by:
Discarding **organs** (do not eat).
Remove skin from fillets or steaks.
Trim away fatty areas near the belly, back, and sides.

Implemented a "safe fishing, foraging, and gardening" workshop with Bhutanese refugees – administered pre-workshop questionnaire (n=18) and post-workshop questionnaire (n=21)



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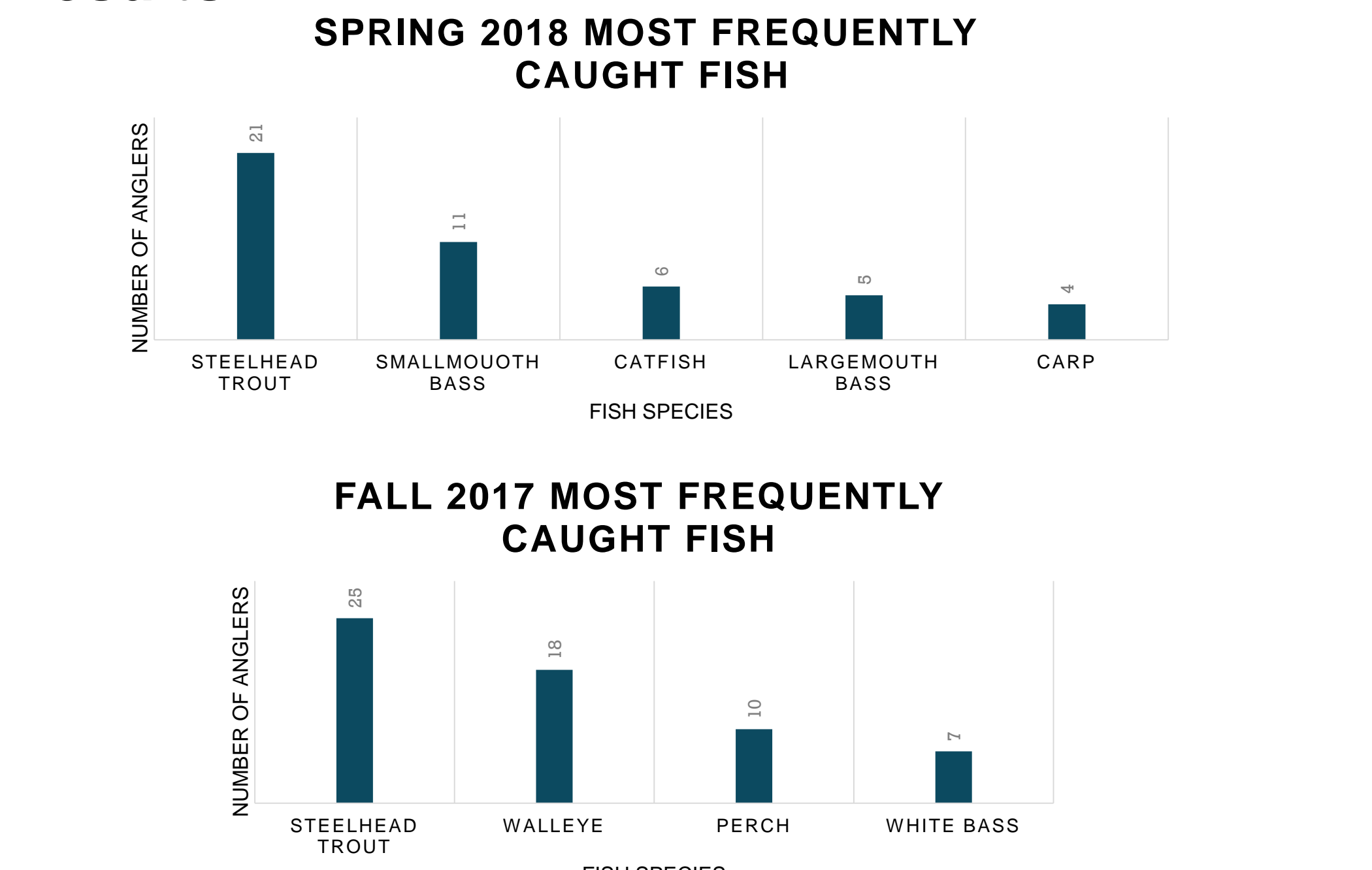
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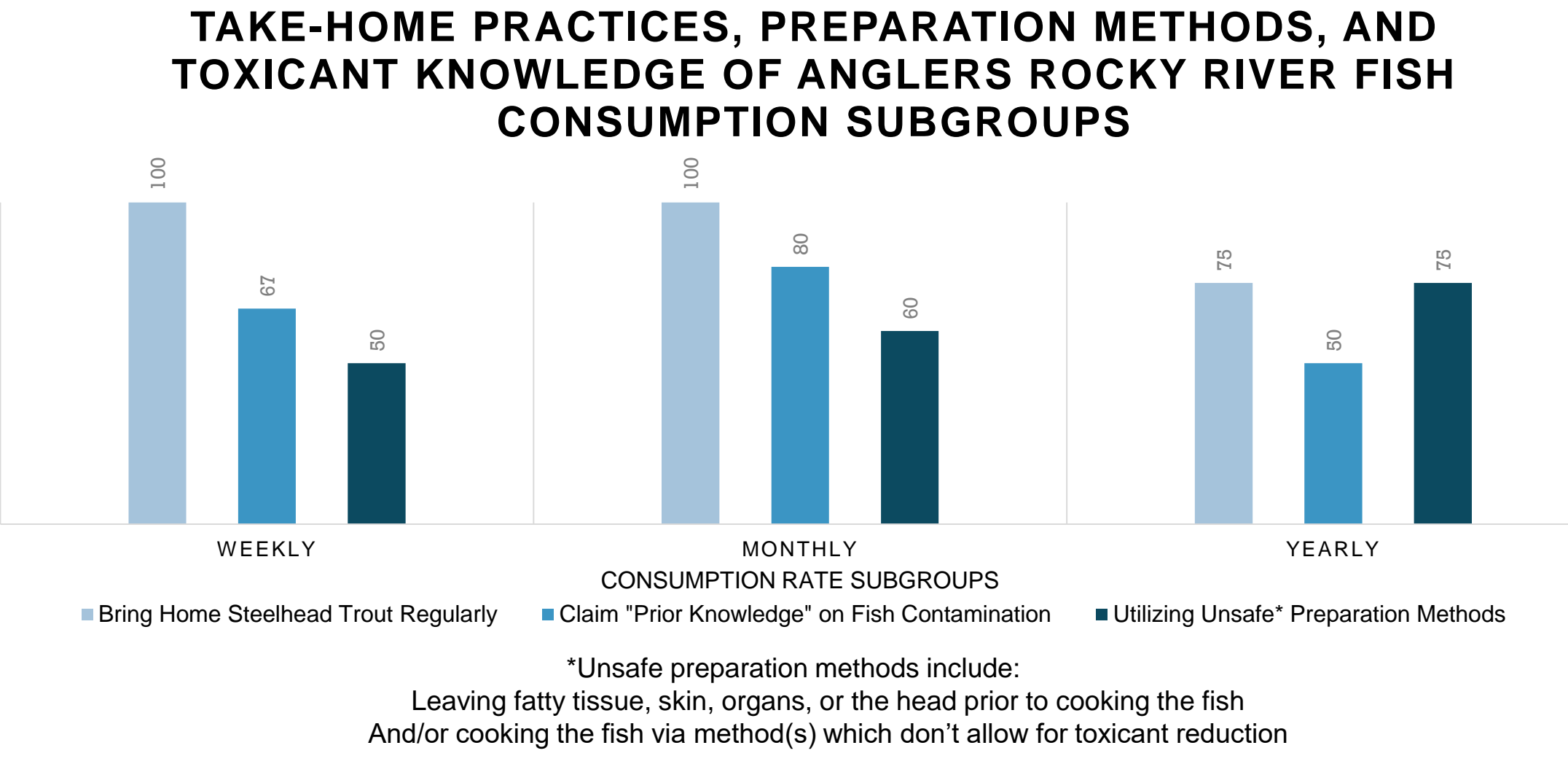
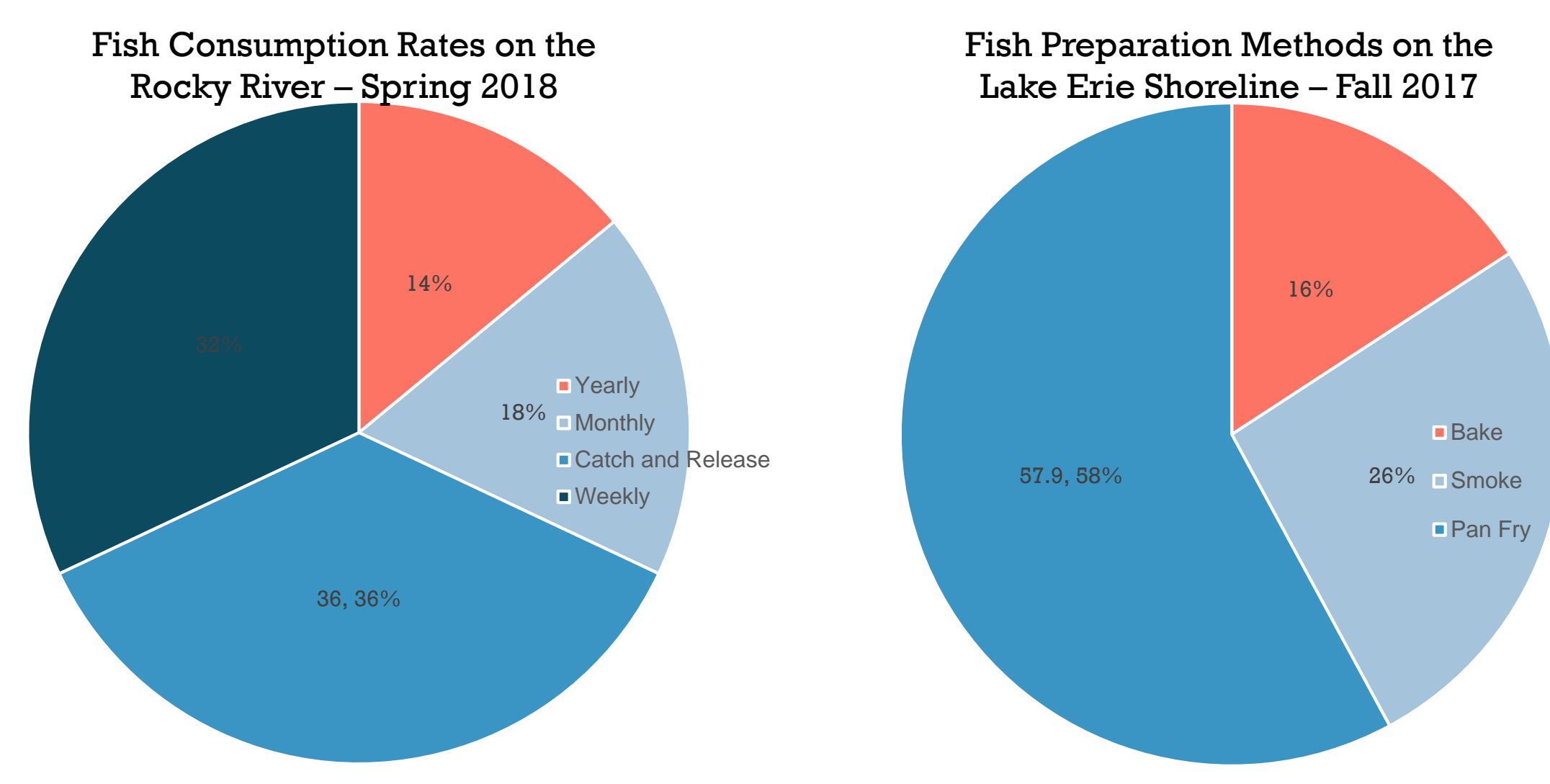
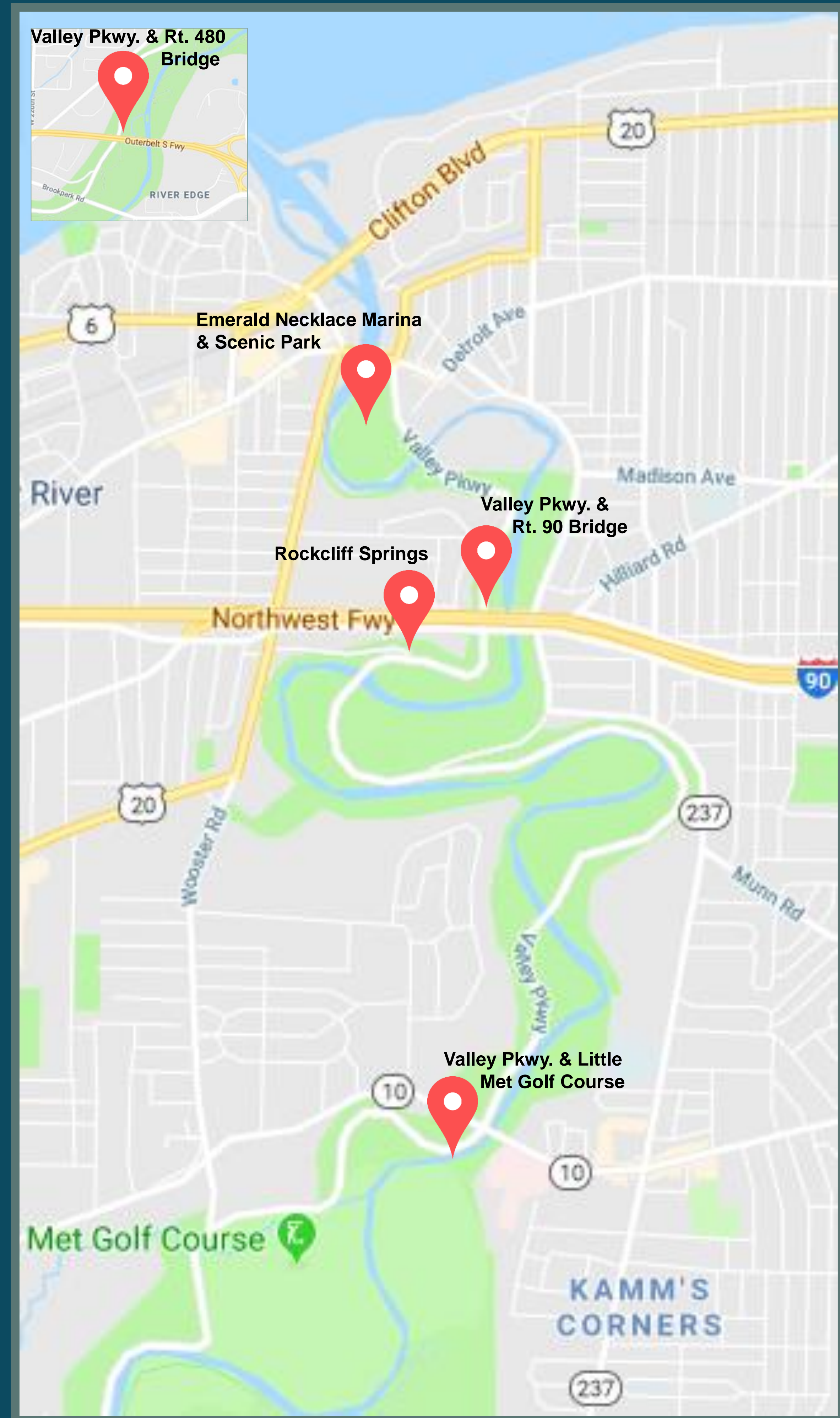
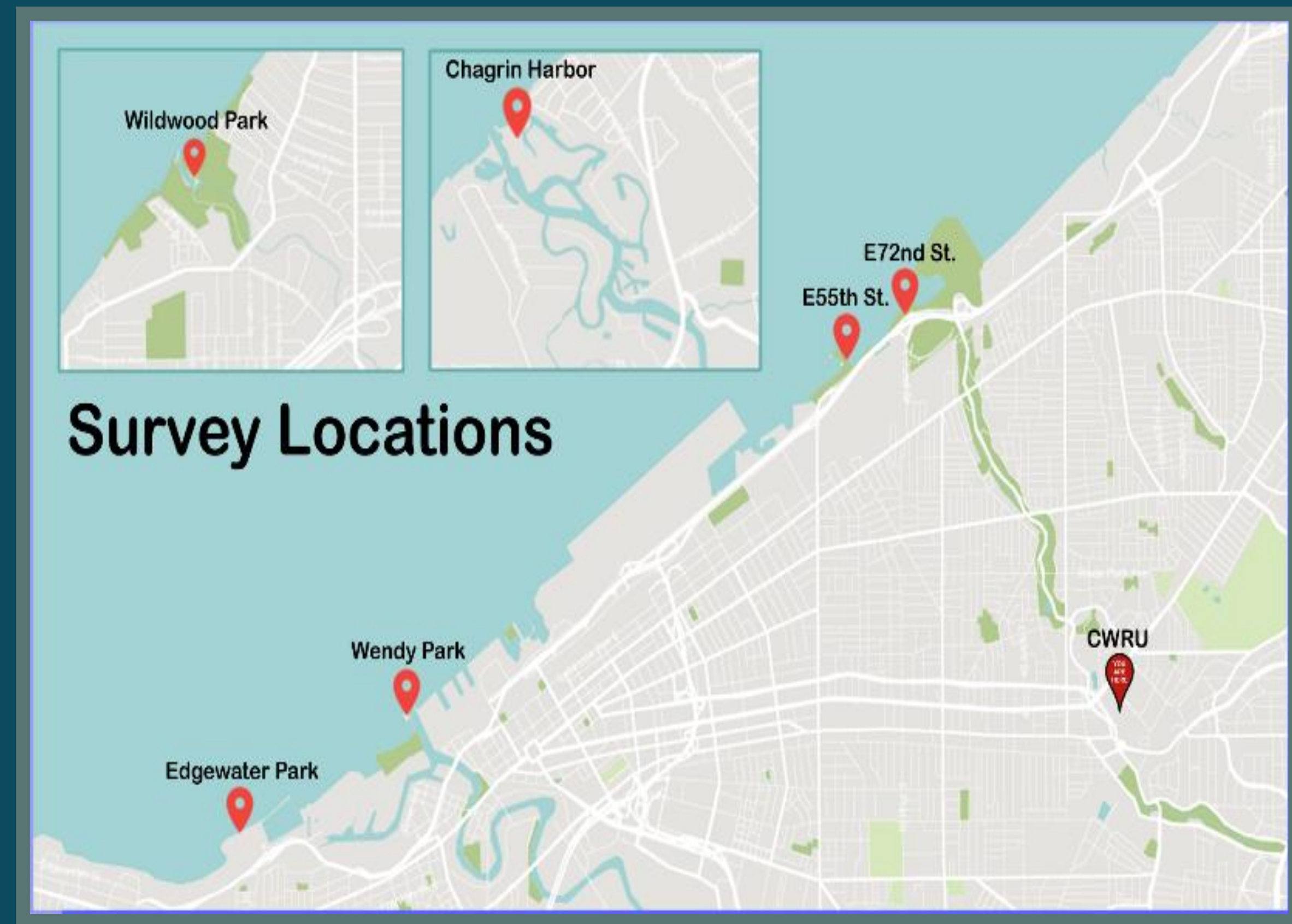
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Bhutanese refugee populations in Cleveland were identified as at-risk subgroups. Research outcomes have included development of educational materials and workshops, training sensitive populations in best consumption practices.



Discussion and Outcomes

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Best Methods	Acceptable Methods	Worst Methods
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- If deep-frying, discard oil after use.
- Pan frying removes few, if any, contaminants.

Clean and Cut:

- Cut away the fat along the back.
- Trim off the belly fat.
- Remove skin.
- Cut away the fatty areas along the side of the fish.

Serving Size:

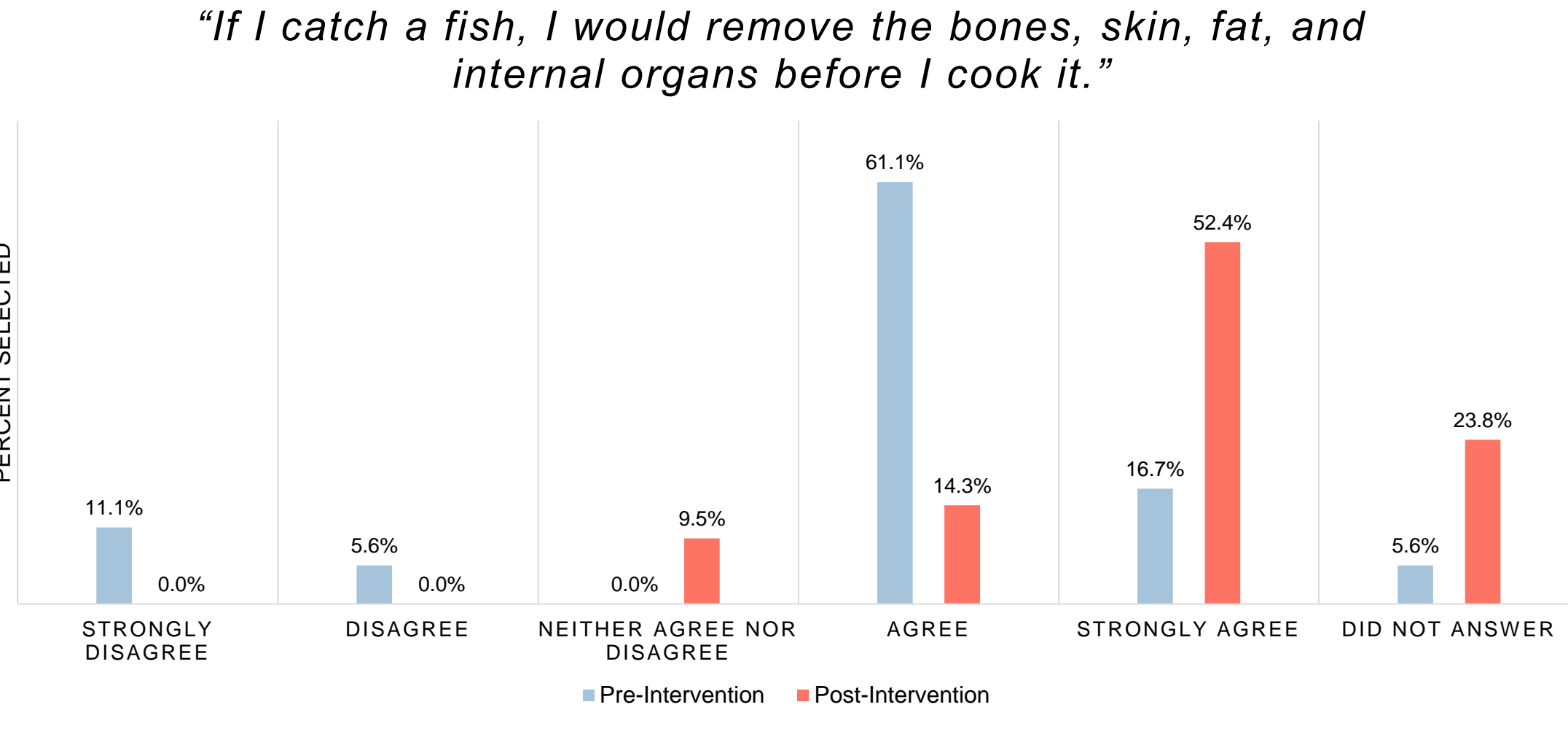
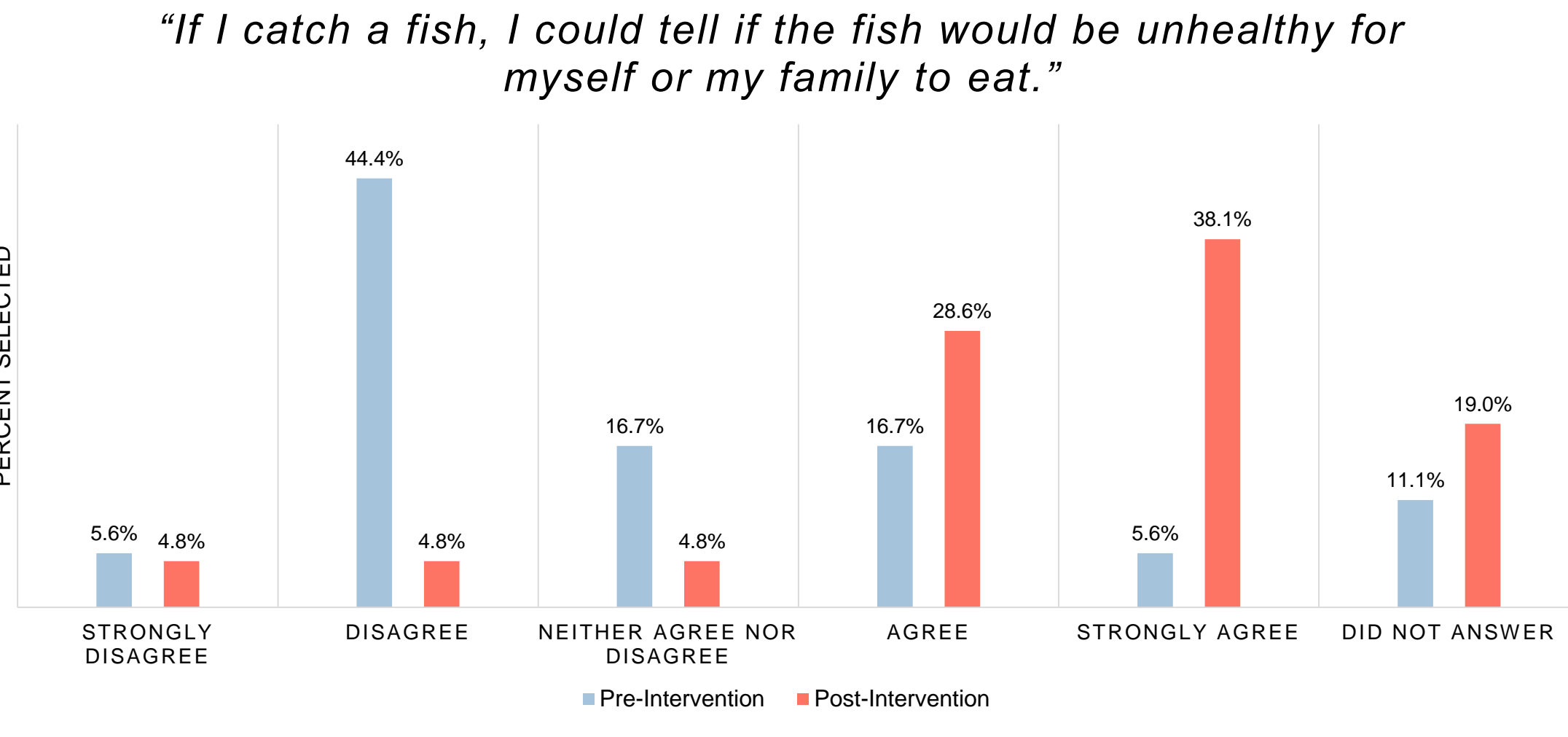
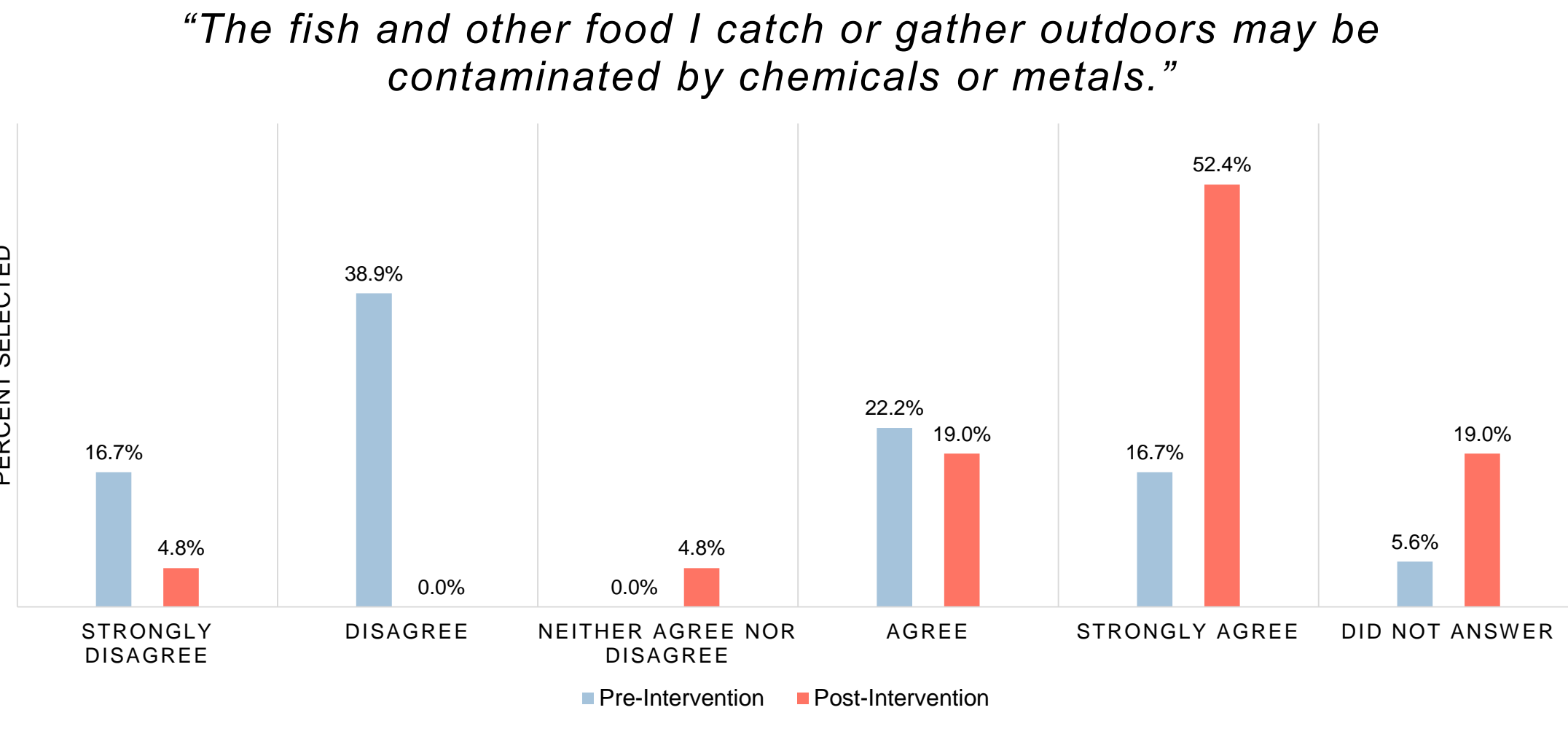
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What is a serving?

- To find out, use the palm of your hand!
- For an adult: 4 ounces
- For children, ages 4 to 7: 2 ounces

Anglers can minimize exposure to contaminants by: Discarding organs (do not eat). Remove skin from fillets or steaks. Trim away fatty areas near the belly, back, and sides.

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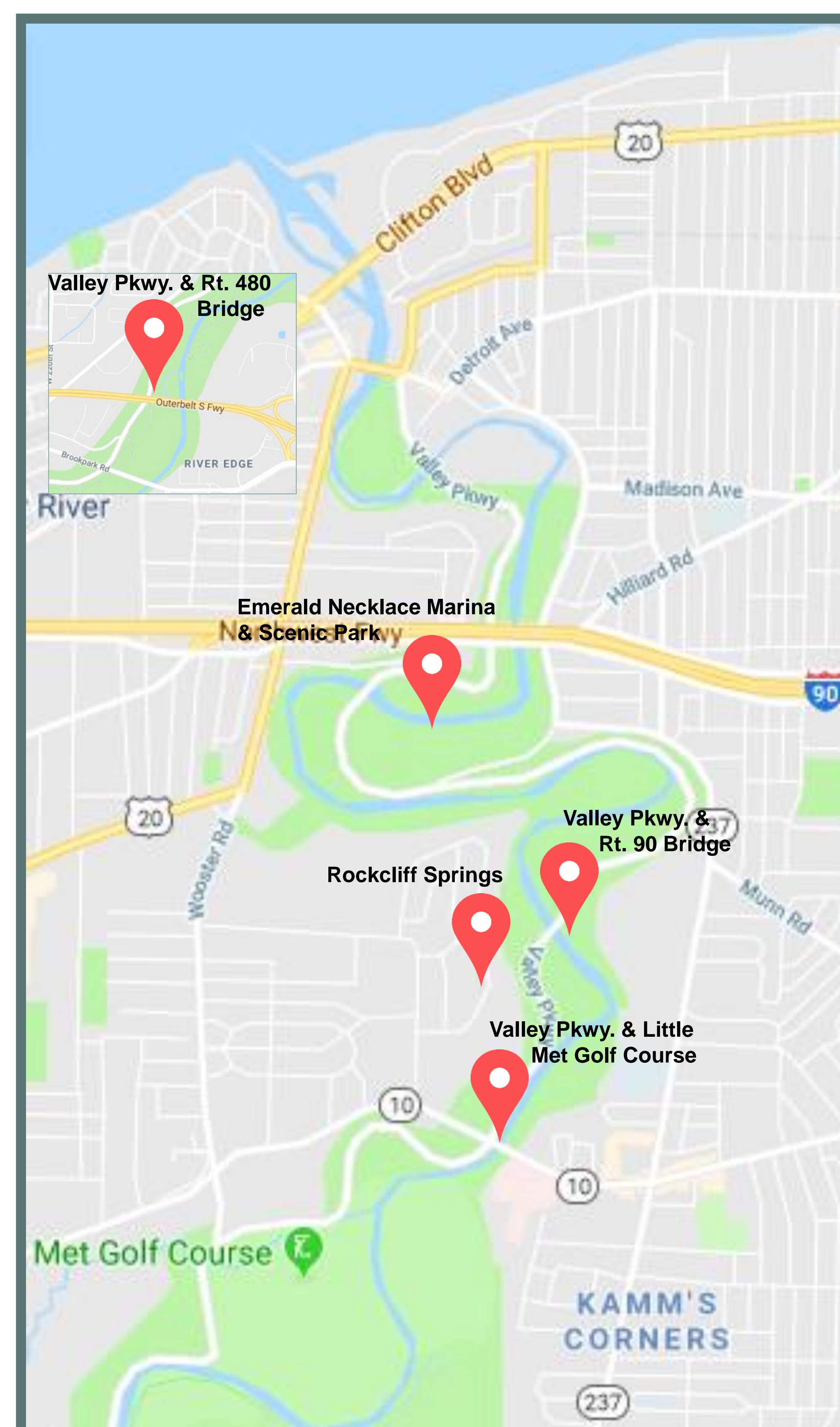
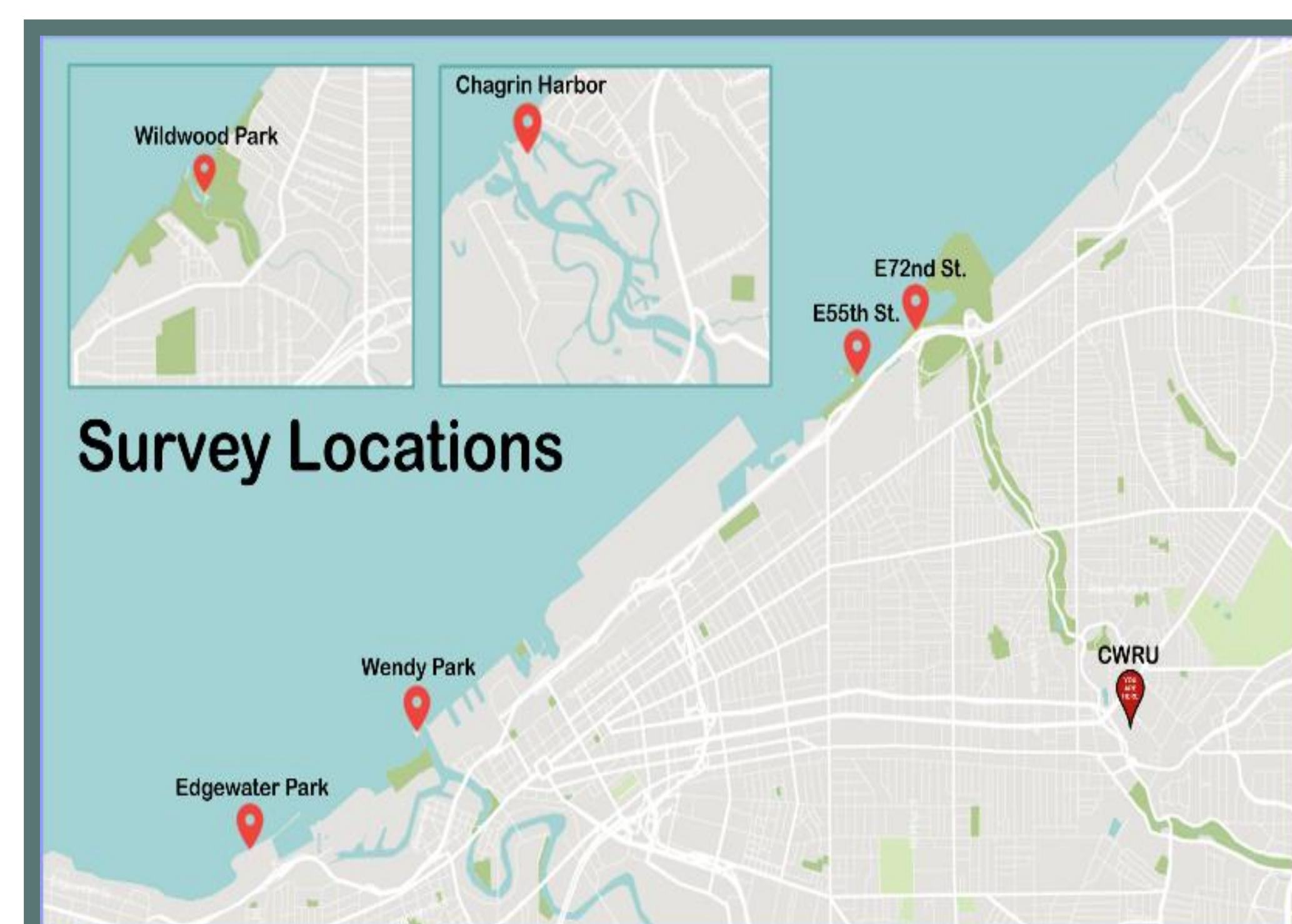
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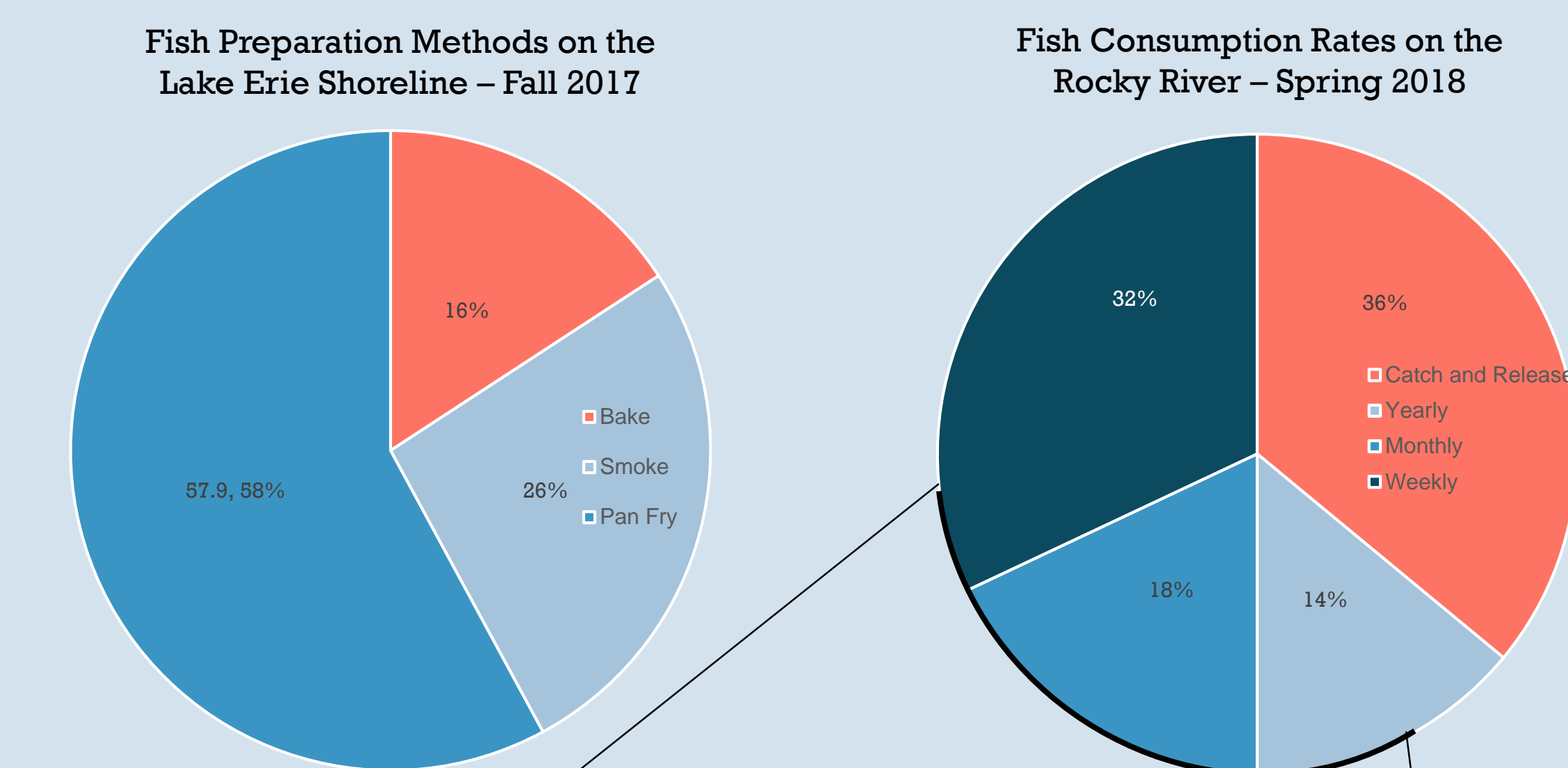
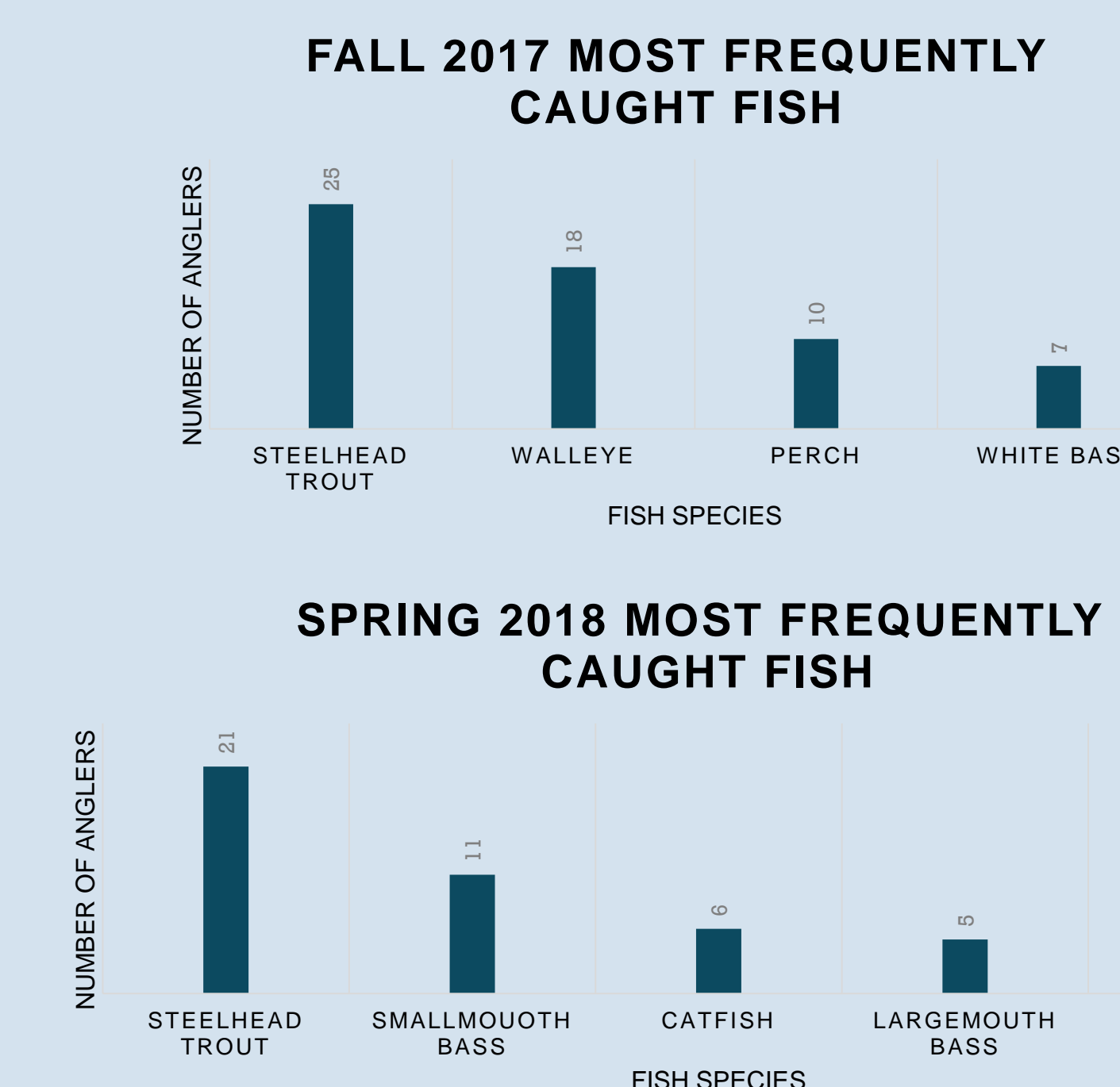
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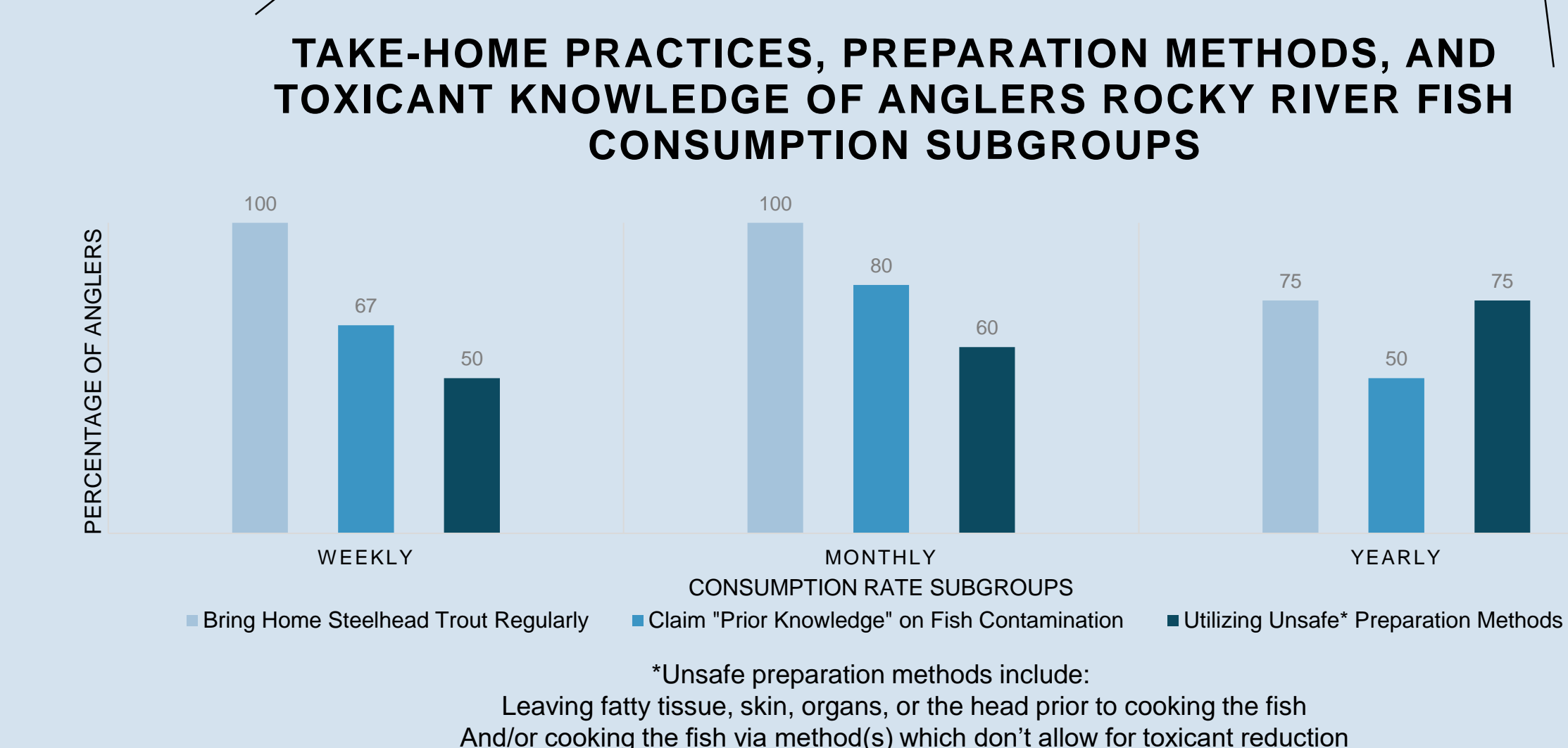
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Trim away the fatty area along the side of the fish.
Trim off the belly fat.

Serving Size:
One size does not fit all!
What is a serving?
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For children, ages 2 to 3: 1 ounce

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