

Characterizing Recreational Fish Consumption in South Carolina

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Introduction

- **South Carolina** (SC) is a coastal state with numerous inland bodies of water
- There are noted health benefits from regular consumption of fish¹, but eating recreational fish caught in SC may pose a risk for **mercury (Hg) exposure**
- In SC, **higher Hg concentrations** are associated with
 - Specific locations of the state
 - Specific water bodies
 - Higher trophic level fish due to bioaccumulation
- **Research question:** Are there demographic differences among adults in SC who consume recreational fish, in regards to the type of fish/water body and the location in the state?

Methods

- Data from **SC Behavioral Risk Factor Surveillance System (BRFSS)** obtained
 - 2011-2012
 - Non-institutionalized adults (ages 18+)
 - Data are weighted
 - n = 25,743
- These iterations of the survey included **recreational fish consumption** questions
 - Frequency
 - Type of fish
 - Type of water body
 - Where in the state the water body was located
- Demographics of interest
 - Age
 - Sex
 - Race/ethnicity
- **Survey analysis** procedures used in SAS 9.2
 - Prevalence estimates and 95% confidence intervals (CIs)
 - P-values from chi-square test

Results

- Demographics of interest and any recreational fish consumption (Table 1)

Table 1. Demographic distribution for general recreational fish consumption (any vs. none; SC BRFSS 2011-2012; n = 25,743)			
Indicator	Any recreational fish consumption, % (95% CI)	No recreational fish consumption, % (95% CI)	χ^2 p-value
Overall	33.1 (32.2-34.0)	66.9 (66.0-67.9)	-
Sex			<0.0001
Male	40.7 (39.2-42.3)	59.3 (57.8-60.9)	
Female	26.2 (25.1-27.3)	73.8 (72.8-75.0)	
Age group			0.0508
18-24	33.8 (30.1-37.4)	66.3 (62.6-70.0)	
25-34	33.7 (30.9-36.5)	66.3 (63.5-69.1)	
35-44	34.3 (31.8-36.8)	65.7 (63.3-66.2)	
45-54	34.6 (32.5-36.8)	65.4 (63.2-67.5)	
55-64	32.9 (31.1-34.7)	67.1 (65.3-69.0)	
65+	30.0 (28.5-31.4)	70.1 (68.6-71.5)	
Race/ethnicity			0.1092
Non-Hispanic White (NHW)	33.8 (32.7-34.9)	66.2 (65.1-67.4)	
Non-Hispanic Black (NHB)	32.3 (30.4-34.1)	67.7 (65.9-69.6)	
Other	29.7 (25.3-34.1)	70.3 (65.9-74.7)	

- Males reported significantly higher recreational fish consumption than females (p-value = <0.0001; table 1)

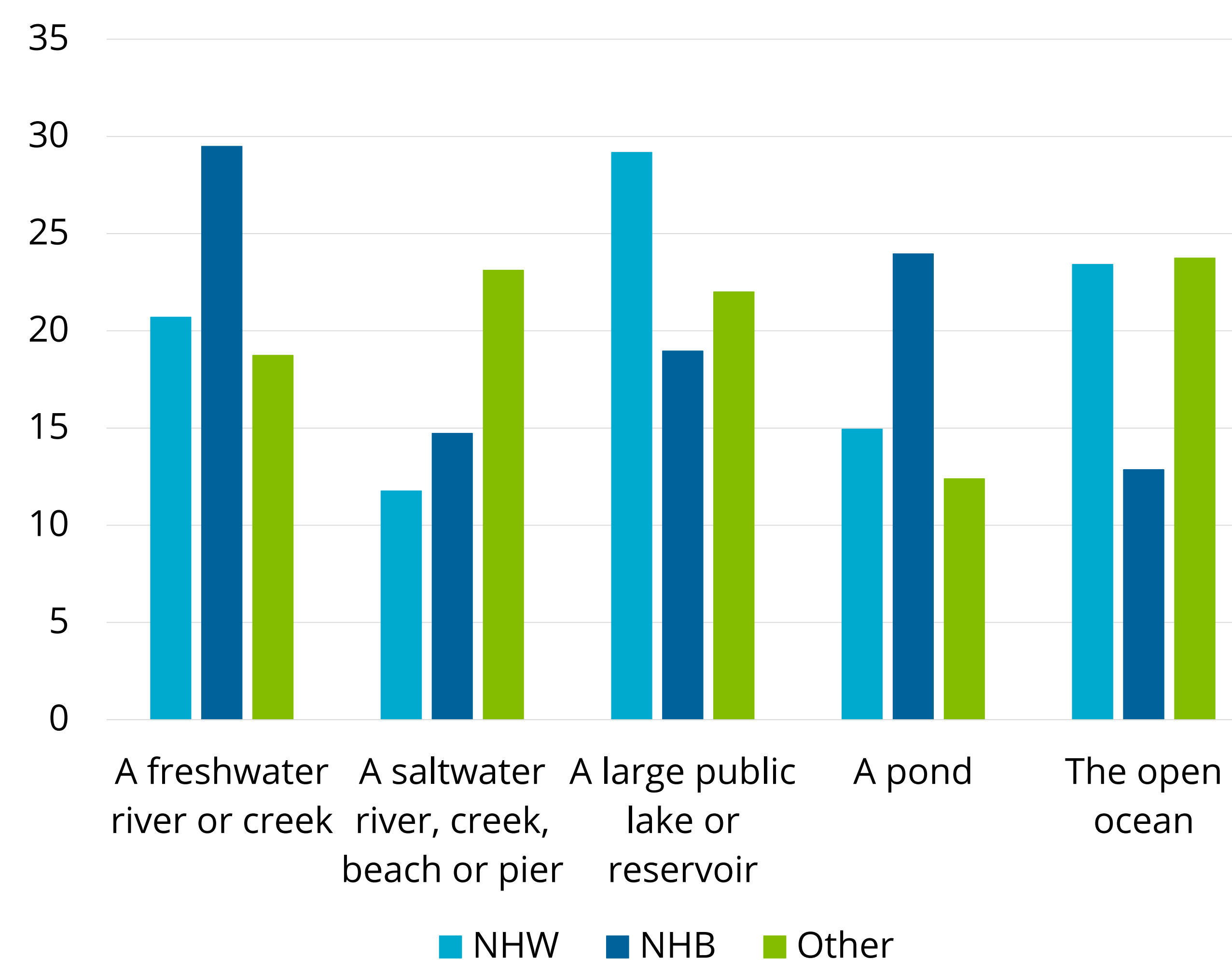


Figure 1. Primary type of water body where recreational fish were caught (p-value = <0.0001; SC BRFSS 2011-2012; n=25,473).

Results continued

- **NHB** (29.5%; 95% CI: 26.3%-32.7%) reported fishing from **freshwater rivers/creeks significantly more** than NHW (20.7%; 95% CI: 19.0%-22.4%; figure 1)
- **NHB** (34.3%; 95% CI: 30.7%-38.0%) reported fishing in **the Lowcountry (coastal area) significantly more** than NHW (25.2%; 23.2%-27.1%).
- Hg concentrations can be highest in freshwater rivers/creeks in coastal areas of SC², so **racial/ethnic disparity** is of note

Discussion

- While fish consumption is associated with better health outcomes, populations consuming fish that can **bioaccumulate Hg** from locations in SC with higher Hg concentrations may be putting themselves at **increased risk** for Hg exposure and any associated health effects
- Limitations
 - Self-reported fish consumption
 - Biases
 - Social desirability
 - Selection bias
- **Further studies** should pinpoint fishing locations and examine Hg concentrations in higher trophic level fish from those locations to better characterize risk for Hg exposure in populations consuming recreational fish from SC

References

1. Mozaffarian D, Rimm EB. Fish intake, contaminants, and human health: evaluating the risks and benefits. JAMA. 2006 Oct 18;296(15):1885-99.
2. South Carolina fish consumption advisories (2016). South Carolina Department of Natural Resources and Department of Health and Environmental Control. Accessed 27 April 2017. [URL: <https://www.scdhec.gov/library/ML-004042.pdf>]

