



NC DEPARTMENT OF  
**HEALTH AND  
HUMAN SERVICES**

ROY COOPER • Governor  
MANDY COHEN, MD, MPH • Secretary  
BETH LOVETTE, MPH, BSN, RN • Acting Director, Division of Public Health

June 27, 2019

Phillip Tart  
Health Director  
New Hanover Public Health,

Re: March 2019 Lake Sutton fish tissue sampling

Dear Mr. Tart,

Based upon the current data we would recommend the following fish advisory:  
**The North Carolina Division of Public Health (DPH), Occupational and Environmental Epidemiology Branch (OEEB), has reviewed fish tissue data for largemouth bass, redear sunfish, and bluegill sunfish in Lake Sutton. After reviewing the data, DPH recommends that Lake Sutton follow the statewide mercury advisory for fish<sup>1</sup>. Based on the statewide mercury advisory for largemouth bass (HIGH in mercury) and bluegill sunfish (LOW in mercury), the North Carolina Division of Public Health recommends the following meal guidance:**

<b>Statewide Mercury Fish Consumption Advisory</b>	
<b>Women of Childbearing Age (15-44 years), Pregnant Women, Nursing Women and Children under 15:</b>	
HIGH in mercury	Do not eat, includes catfish and largemouth bass
LOW in mercury	Up to 2 meals per week
<b>All Other Individuals:</b>	
HIGH in mercury	No more than 1 meal per week, includes catfish and largemouth bass
LOW in mercury	Up to 4 meals per week

This fish consumption advisory is based on an increased risk of harm to neurological and brain development in unborn and young children which can affect a child’s ability to think, learn, and problem-solve later in life. Effects can also occur in adults at much higher doses. The earliest obvious signs of mercury poisoning in adults are tingling or numbness of the lips, tongue, fingers, or toes; fatigue; and blurred vision.

We will be adding this fish advisory to the OEEB website in the coming weeks. More information regarding the March 2019 fish sampling and analysis of the data can be found in Attachments A and B.



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OEEB staff are available to assist the affected county health departments in developing signs and educational materials, as well as other technical support. If you have any questions, please contact me at 919-707-5910 or by email at [kennedy.holt@dhhs.nc.gov](mailto:kennedy.holt@dhhs.nc.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Kennedy Holt", written over a horizontal line.

**Kennedy Holt**

Chemical Risk Assessor

Public Health, Occupational and Environmental Epidemiology

North Carolina Department of Health and Human Services



## Attachment A

### Fish Sampling Summary:

In March 2019, the North Carolina Department of Environmental Quality (NCDEQ) collected 11 largemouth bass, 8 redear sunfish, and 3 bluegill sunfish samples for mercury from Lake Sutton. Samples were analyzed as scaled, skin on filets as this represents the most commonly consumed part of the fish. DEQ finalized their fish tissue analysis in June 2019 and provided the data to NCDHHS for evaluation. A summary of the results can be found in Attachment B.

Individual fish tissue concentrations were averaged to give an estimate of the mercury concentrations in the fillets of the largemouth bass, bluegill sunfish, and redear sunfish populations. However, due to an insufficient number of bluegill sunfish samples collected the North Carolina Department of Health and Human Services (NCDHHS) could not issue a site-specific fish consumption advisory for bluegill sunfish<sup>2</sup>. The average mercury concentrations from the fish tissue data were then compared the NC DPH screening levels to determine whether a full risk assessment should be conducted on the data. Only largemouth bass had an average mercury concentration that exceeded NC DPH screening levels.

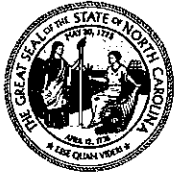
After analyzing the largemouth bass, Occupational and Environmental Epidemiology (OEE) calculated a 3-meals-per-week limit for largemouth bass. Meal limits are rounded to the nearest whole number. However, the meal limits from the statewide advisory are more restrictive and OEE recommends adhering to the statewide mercury advisory.

### Limitations of the Fish Sampling:

The data that were collected from the March 2019 fish sampling event and health risk assessment are specific to the species collected. The conclusion and recommendations do not pertain to fish species not sampled.

Additionally, any advisories or health risks for largemouth bass, bluegill sunfish, and redear sunfish are based solely on the mercury analysis and do not account for any other potential contaminants in the fish. The data presented in this evaluation are only representative of mercury concentrations at the time the fish were collected. Concentrations could increase or decrease over time.

The limitations outlined above would warrant continued sampling of the largemouth bass and bluegill sunfish for mercury to monitor concentrations in the population over time. Also, it is recommended that OEE work with DEQ to determine future sampling dates of the largemouth



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bass, bluegill sunfish, and redear sunfish for mercury and other contaminants to more accurately assess the status of fish in Lake Sutton.



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**Attachment B**

Table 1: Lake Sutton fish tissue data collected March 2019. Summary of mercury detections and average concentrations by species.

Species	# of samples	# of detections	Mercury		
			Range of Detections (mg/kg)	Average Mercury Concentration (mg/kg)	Does average exceed screening level?
Largemouth Bass	11	11	0.07 - 0.23	0.13	YES
Bluegill Sunfish	3	1	0.11	0.04	NO
Redear Sunfish	8	5	0.02 - 0.05	0.02	NO
					NC DPH Screening Level (mg/kg)
					0.0471

Notes: mg/kg = milligrams of contaminant per kilogram of fish  
NC DPH = North Carolina Division of Public Health

Table 2: Lake Sutton fish tissue data collected March 2019. Estimated mercury exposure doses for subsistence and recreational fishers. All mercury present is assumed to be methylmercury.

Species	Health Guideline/ Type (non-cancer) (mg/kg/day)	Average Mercury Concentration (mg/kg)	Mercury			Does calculated dose exceed HG?
			Subsistence Fishers Estimated Dose (mg/kg/day)	Does calculated dose exceed HG?	Recreational Fishers Estimated Dose (mg/kg/day)	
Largemouth Bass	1 x 10 <sup>-4</sup> EPA RfD	0.13	2.74E-04	YES	2.82E-05	NO
Bluegill Sunfish		0.04	9.21E-05	NO	9.48E-06	NO
Redear Sunfish		0.02	4.78E-05	NO	4.92E-06	NO

Notes: mg/kg/day = milligrams of contaminant per kilogram of body weight per day  
mg/kg = milligrams of contaminant per kilogram of fish or shellfish tissue  
HG = health guideline  
EPA = U.S. Environmental Protection Agency<sup>3</sup>  
RfD = reference dose

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## References

1. [NCDHHS]. *Fish Consumption Advisories*. NC Department of Health and Human Services. <https://epi.dph.ncdhhs.gov/oee/fish/advisories.html>
2. [NCDHHS 2018]. *Standard Operating Procedure for Fish Consumption Advisories*. NCDHHS DPH OEEB. June 29, 2018
3. [IRIS 2001] Integrated Risk Information System (IRIS) Chemical Assessment Summary: Methylmercury (MeHg). U.S. EPA. July 27, 2001. [https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?&substance\\_nmbr=73](https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?&substance_nmbr=73)

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