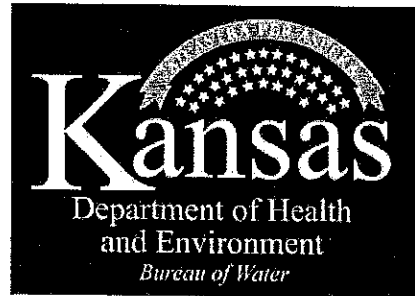


TRANSMITTAL SLIP

**From:** Kansas Department of Health and Environment  
South Central District Office  
RH Garvey Building  
300 West Douglas, Suite 700  
Wichita, Kansas 67202  
(316) 337-6020



**To:** Mayor and City Council  
City of Udall  
\_\_\_\_\_  
\_\_\_\_\_

This information is being provided to you as a result of your:

- Telephone Request of \_\_\_\_\_
- Inspection \_\_\_\_\_

**By:**  Sabrina Cantrell (316) 337-6034 [sabrina.cantrell@ks.gov](mailto:sabrina.cantrell@ks.gov)

**Comments:** Fish Kill Investigation 2018



**KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT**  
**Division of Environment**  
**Fish Kill Investigation Report**



**Location of Fish Kill**

**File Reference No.** SC01-2018 **District Office:** South Central District Office

**River Basin:** Walnut River Basin

**Hydraulic Unit Code (HUC)** 11030018

**Location of Fish Kill** North Point Lake  
*Name of Water Body*

**Location :** 37°23'47.64"N 97°06'52.98"W

**Directions from nearest town:** North Lake residential area on the north side of Udall

**Informant(s) Information**

**Informant(s) Name:** Eric Allen City of Udall

**Address:** 110 S. Main, PO Box 410  
*Street Address* *Apartment/Unit#*

Udall Kansas 67146  
*City* *State* *ZIP Code*

**Phone Number:** 620-262-1176  
*Day* *Night* *Other*

**Date and Time Information**

**Fish Kill Notification:** **Date:** May 18, 2018 **Time:** 3:00 pm

**Incident Investigated:** **Date:** May 18, 2018 **Time:** 4:30 pm

**Duration of Fish Kill:** **First Noticed: Date:** May 16, 2018 **Time:** am

**Ended: Date:** ongoing **Time:** \_\_\_\_\_

**Initial notification received by:** Allison Herring – South Central District Office

**Extent of Fish Kill**

**Upstream Location:** The fish kill is contained within the North Point Lake in Udall.

**Cadastral Legal Description:** \_\_\_\_\_

**Comments:** \_\_\_\_\_

**Down Stream Location:** \_\_\_\_\_

**Cadastral Legal Description:** \_\_\_\_\_

**Comments:** \_\_\_\_\_

**Field Investigators**

KDHE: Sabrina Cantrell	Office Location: SCDO
KDHE: Erika Bauer	Office Location: SCDO
KDWP	Office Location:
KDWP	Office Location:

**Additional Witness or Other Information Sources**

Eric Allen – City of Udall	110 S. Main, PO Box 410, Udall, KS 67146	620-262-1176
<i>Name</i>	<i>Address</i>	<i>Phone</i>
Eric King – Udall PD		
<i>Name</i>	<i>Address</i>	<i>Phone</i>
Mayor Steve Brown – City of Udall		
<i>Name</i>	<i>Address</i>	<i>Phone</i>
<i>Name</i>	<i>Address</i>	<i>Phone</i>
<i>Name</i>	<i>Address</i>	<i>Phone</i>
<i>Name</i>	<i>Address</i>	<i>Phone</i>

**Condition of Fish Observed**

**Condition of Fish Found:** The fish found were recently killed and in distress. Dead fish were cleaned up each day so only that day's fish were available to examine.  
*Dead for Several Days / Recently Killed / Dying or in Distress / other*

**Behavior of Distressed Fish:** Only one carp was seen. It was lying on its side. It was listless and gulping at the surface.  
*Listless / Gulping at Surface / Erratic Swimming / Rapid Movements Followed by Death / Loss of Equilibrium / Tremors, Convulsions and Coughing / Pectoral Fins and Opercula Extended / Increased Ventilation / Hyper Excitable / Flashing*

**Appearance of Dead or Distressed Fish:** Hemorrhagic symptoms (anally and gills) in many of the fish especially the shad and carp.  
*Normal / Excessive Mucus / Abnormal Color / Necrotic / Hemorrhagic / Ulcer / Blister / Tumor*

**Appearance of Lesions on fish (if any):** No lesions were apparent.  
*Single / Multiple / Open / Closed*

**Appearance of Scales:** Normal  
*Raised / Hemorrhagic / Abrasions*

**Appearance of Eyes:** Opaque  
*Normal / Hemorrhagic / Parasites / Opaque*

**Appearance of Fins:** Normal. Some pectorals extended out.  
*Normal / Hemorrhagic / Eroded / Frayed*

**Appearance of Gills:** Hemorrhagic symptoms in many of the fish. Fish taken out to place in tanks had bleeding gills, especially the carp.  
*Normal / Hemorrhagic / Necrotic parasites / Eroded / Pale / Excessive Mucus*

**Are all species of fish present and affected?** Yes

**Severity of Fish Kill:** Heavy to total loss. Minnow like fish were observed.  
Light / Moderate / Heavy / Total

**Other Aquatic or Terrestrial Animals Affected:** Turtles, mollusks, crayfish, and snails. Numbers unknown. A report from an unknown resident indicated the muskrat population may have been affected as well.  
(Species and Numbers)

**Comments:** Turtles were cleaned up by the city. Mullosks, crayfish and small snails littered the water's edge. The snail had crawled up on everything as if trying to get out of the water.

**Field Observations**

**Air Temperature:** 84 °F

**Water Temperature:** 82 °F

**Ice on Water?** No      **Wind:** SE 15mph mph

**Sky Conditions:** Sunny. A few clouds.

**Stream flow conditions, Pond or lake water level:** Lake level is 3-4 feet lower than normal.

**Weather conditions prior to fish kill:** There was a 2 inch rain on May 14, 2018. Weather has been hot.  
(e.g. heavy rains, extreme heat, hail, cold snap, etc...)

**Describe the conditions in the tributary:** Nothing unusual noted at the inlet into the lake.

**Other observations or comments:** \_\_\_\_\_

Location	Date	Time	Water Color and/or Odor	Condition of Aquatic Life	Floating or Deposited Materials?	Heavy Algae or Aquatic Weeds?
Overall condition noted by Eric Allen.	05/16/18	AM	Dark, muddy water after rain event. No odor.	Saw dead minnows.	Silty.	Some algae.
North end of the lake	05/18/18	5:00 PM	No unusual color. Not murky. No odor.	Dead fish, crayfish, mollusks, snail. Turtles had been removed. Saw a distressed carp.	Nothing noted	Some filamentous algae along the banks but not heavy. No other aquatic weeds in abundance.

**Fish Mortality**

(Use American Fisheries Society Guidelines)

Species	Length Class	Number
Spoonbill, shad, perch, carp, catfish, bass	From 4 inches to nearly 6 feet	3000+

KDHE Fish Kill Investigation Report


Comments: \_\_\_\_\_

**On-site Water Measurements**

Location	Date	Time	D.O.	Temp	pH	Analyst
North end. 1 ft down at edge.	05/18/18	4:52 PM	6.79 mg/l	28.4 ° C	7.6	E. Bauer
North end. 1 ft down. 5 ft out.		4:53 PM	7.02 mg/l	28.5 ° C		
North end. 1 ft down. 3 ft out.		4:54 PM	7.09 mg/l	28.4 ° C		
NW end. 3 ft out.		4:56 PM	6.96 mg/l	28.4 ° C	8.2	
NW end. Thrown out 10 feet		4:58 PM	4.45 mg/l	27.4 ° C		

Comments: \_\_\_\_\_

**Chemistry and Bacteriological Samples collected for KDHE or Other Laboratory**  
*(specify lab; attach laboratory sample submission and /or chain of custody)*

Location	Date	Time	Analysis	Test Results
North end. #1	05/18/18	6:13 PM	Amber jug. Pesticides. KHEL	See attached documents.
North end. #1B		6:13 PM	Split sample from #1 for Pace Analytical Laboratory in Salina. 2,4 D	
NW. #2		6:17 PM	Nutrient. KHEL	
NE. #3		6:18 PM	Nutrient. KHEL	
NE. #4		6:19 PM	Heavy Metals. KHEL	
NW. #5		6:20 PM	Heavy Metals. KHEL	
North end. #6		6:25 PM	Cubetainer. KHEL	
North end. HAB		6:25 PM	Cubetainer for HAB	

**Fish or other biological samples collected for KDHE or other laboratory:**

Crayfish and mollusks for the Watershed Planning, Monitoring, and Assessment Section. There were no turtles available to collect.

**Comments:**

The crayfish were determined to be *Oronectes virilis*: Northern crayfish.  
 The mollusks were *Unio merus tetralasmus*: Pondhorn.

**Summation of Investigation**

**Possible cause of problem or source of pollution:**

The possible cause of the North Point Lake fish kill was oxygen depletion most likely induced by long term nutrient overloading (eutrophication) which led to sublethal exposure to ammonia at levels causing burning of the gills. Secondary bacterial infections were possible. The rain event on May 14<sup>th</sup> washed in additional nutrients and chemicals which contributed to an already overloaded system. Elevated arsenic and manganese levels indicate herbicides and/or fungicide may have been in the recent runoff. Chemical analyses could not determine a specific herbicide or fungicide from the samples collected. No elevated evidence of pesticides was detected. Possible causes include in any combination: overfertilizing lawns without proper buffer zones, herbicide and/or fungicide applications, leaking sewage lines or septic systems, nutrient loading by a large geese population or other undetermined source of nutrients.

**Responsible Party (if known):**

No specific responsible party could be determined by the testing completed. However, trees at the edge of the lake and agricultural ground to the east were reported to have been sprayed with unknown substances days before the rain event. The mortality of other species besides fish gives indication that the depletion of oxygen may not have been the only possible cause of the kill.

**Other pertinent comments:**

Blue green algae sampling did not indicate a Harmful Algal Bloom (HAB) but high levels of a Spirillum bacteria were found indicating the sanitary conditions of the lake might be in question.


Eric Allen with the City of Udall was notified on July 3, 2018 that North Point Lake could be re-opened for recreational use but to keep an eye out for deteriorating conditions since a specific source could not be determined. KDHE highly recommends an investigation into the nutrient overloading of the lake that could be caused by leaking sewer system collection lines or other undetermined source of nutrients. Mr. Allen mentioned that he will discuss with city officials about using their collection cleaning service contractor to televisize the wastewater lines around the lake to check for problem areas and explore other possible sources.

**Attach Map of Affected Area and Photographs**

**Report Prepared and Submitted By:** Sabrina Cantrell

**Title:** Environmental Compliance & Regulatory Specialist

**Date:** July 3, 2018

**Signature:** 

**Approved By:** Allison Herring

**Title:** District Environmental Administrator

**Date:** July 9, 2018

**Signature:** 