

# Oklahoma Kill Response Management Team (OKRMT): A collaborative response to fish and wildlife kills in Oklahoma

Presented by: Ferrella March

Oklahoma Department of Environmental Quality

Oklahoma Clean Lakes and Watershed Association

Wes Watkins Center

Stillwater, OK

April 8-9, 2015



# Objectives

- Importance of collaborative technique to resolve complex environmental issues
- Mission of the Oklahoma Kill Response Management Team (OKRMT)
- Role of OKRMT
- Communication Flow
- Future of OKRMT (Next Steps)




# Collaboration: Effective Response

- Essential in identifying the causes of fish kills and responsible parties if they exist
- Allow for informed policy decisions that protect fish and wildlife resources, waters of the state, and human health



## **COLLABORATION:**

Two or more people working  
together towards shared goals



# Collaboration:

## Why a Consolidated Approach?

- A consolidated approach to the management of fish kills in Oklahoma results in more organized responses in a timely manner
- Allows for better communication between front line staff and office staff
- Opportunity for participating agencies to share expertise and resources
- Shared training opportunities
- Standardization of fish kill reporting
- Increases awareness of fish kill events among field staff



# Collaboration: Steps in a Consolidated Approach

- Identify
- Educate
- Effective ways of resolving conflict
- Achieve a common goal
- Develop work plan and establish clear goals
- Evaluation

\*<http://www.epa.gov/sustainability/analytics/collps.htm>



# OKRMT Mission statement

## Proposed Mission Statement:

- The mission of OKRMT is to facilitate communication and collaboration between government entities regarding fish kills, to provide a framework for coordinated, consistent, and effective fish kill\*response



\*May include other wildlife kills



# The OKRMT Collaborative Team



GW23 DAP  
CHEROKEE NATION®



OKLAHOMA  
CONSERVATION  
COMMISSION



US Army Corps  
of Engineers  
Tulsa District

State of Oklahoma  
OWRB  
WATER RESOURCES BOARD  
the water agency



OKLAHOMA CORPORATION COMMISSION

# Statewide Jurisdiction

Agency	Jurisdiction related to fish kills
Oklahoma Department of Wildlife Conservation ( <b>ODWC</b> )	Fish and wildlife
Oklahoma Department of Environmental Quality ( <b>ODEQ</b> )	Hazardous waste, sewage, industrial wastewater, public water supplies, spills (except below)
Oklahoma Corporation Commission ( <b>OCC</b> )	Oil & gas production
Oklahoma Department of Agriculture, Food, and Forestry ( <b>ODAFF</b> )	Pesticides, herbicides, fertilizers, agricultural discharges
Other Federal Agencies (i.e., FWS, BOR, NPS, and Forest Service)	Management authority for streams and lakes; Co-trustees under CERCLA/CWA/OPA



# Local Jurisdiction

Entity	Jurisdiction related to fish kills
Grand River Dam Authority ( <b>GRDA</b> )	Grand Lake, Lake Hudson, W. R. Holway Reservoir
U.S. Army Corps of Engineers ( <b>USACE</b> )	29 Oklahoma lakes including Texoma, Eufaula, Tenkiller, Keystone, Arcadia
Tribal environmental agencies	Some types of tribal lands, if delegated by EPA; Co-trustees under CERCLA/CWA/OPA

# OKRMT Evolution

- Intrastate and Tribes
- Federal
- Functional role
  - Site specific technical team
  - Training
  - Response



# OKRMT Functional Role

- Communication
- Coordination
- Analysis
- Standardization
- Training



# OKRMT Functional Role

## Communication

- Notification
- Facilitate communication
- Event updates

## Coordination

- Meet on a regular basis
- Avoid duplication of effort
- Identify/share resources
  - Regional and state-wide
  - Both general and on-the-fly requirements and capabilities
- Evaluate response effectiveness
  - Time until solution
  - Missing data



# OKRMT Functional Role

## **Analysis**

- Facilitate reporting and distribution of data
  - Mapping shapefiles/cartography
- Identify trends

## **Standardization**

- Standardize procedures
- Develop QAPP/SOP for sampling/reporting
- Provide field response kits
- Maintain and distribute “Quick Reference Guide” and contacts


# OKRMT Functional Role

## Training

- Facilitate training
- Notify members about training opportunities
- Lab protocols/cross training
  - Understand “whys” of collection procedures
  - QA/QC

## Training

developing the skills, experience, and  
employees need to perform  
improve their performance  
skills, and abilities, specific



# OKRMT Functional Role

## Technical support

- Site specific support (i.e., sampling, monitoring, support)
- Enhanced/more timely response

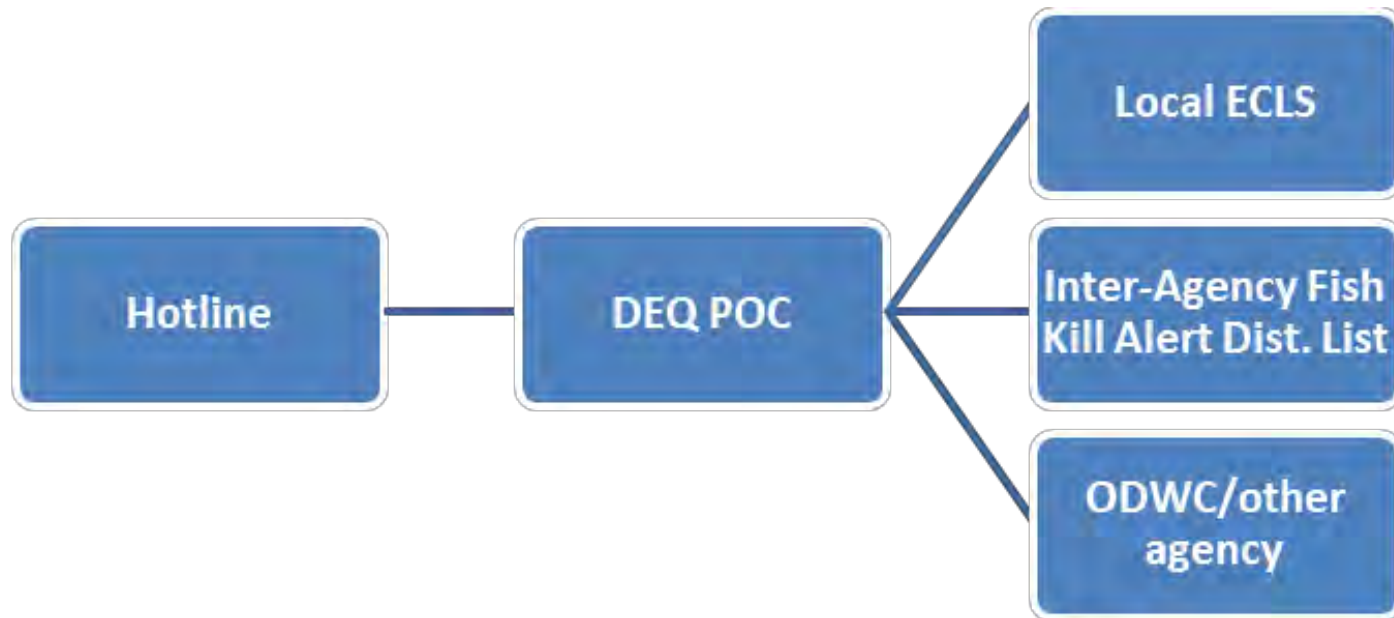




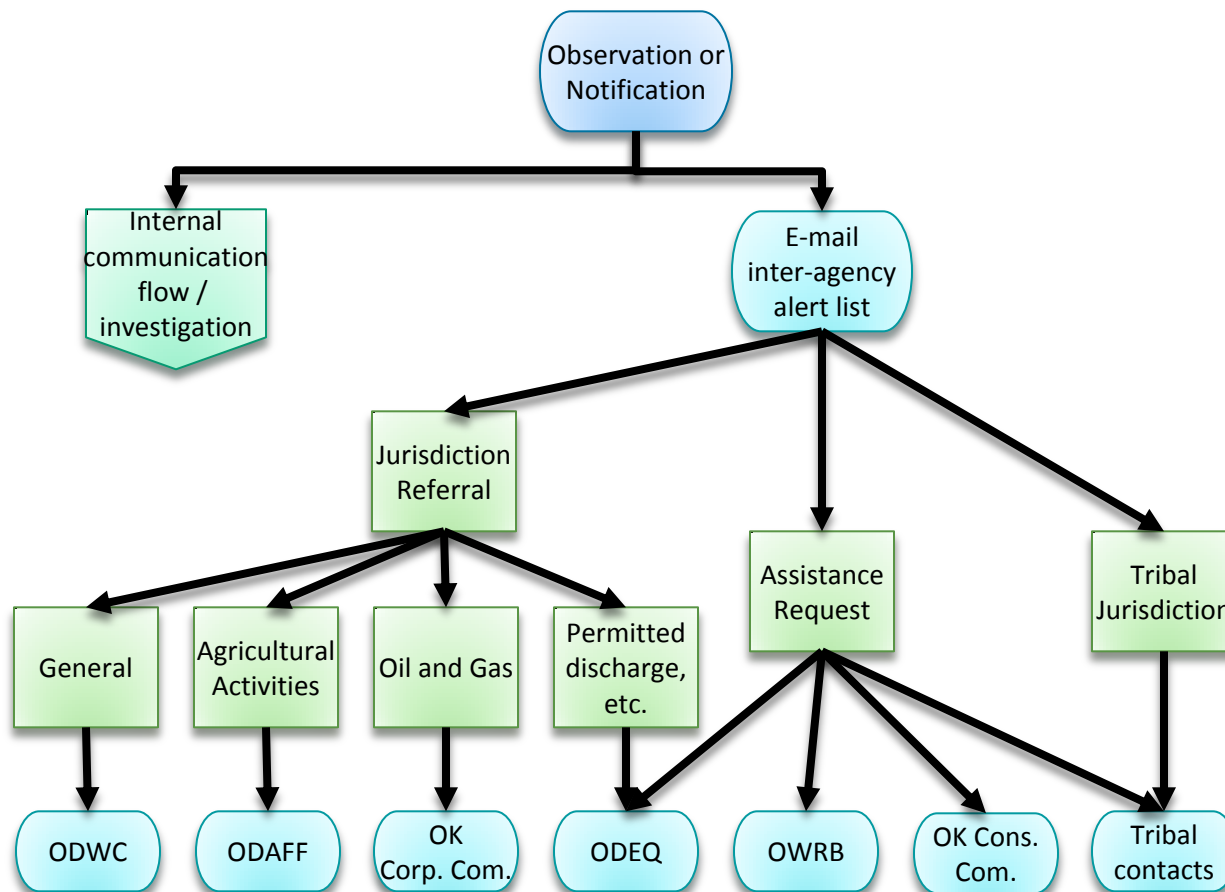
# Communication Flow

- The Interagency Fish Kill Alert Distribution List is managed through ODEQ
- When an agency receives a notification, send email with pertinent information about fish kill and contact to interagency list
- Address of fish kill alert list is not for public, only for OKRMT member agencies. The public should direct complaints/notifications to ODEQ or ODWC hotlines (or other appropriate agency)
- When receiving an alert, distribute notification to relevant staff (if they are not already on list)

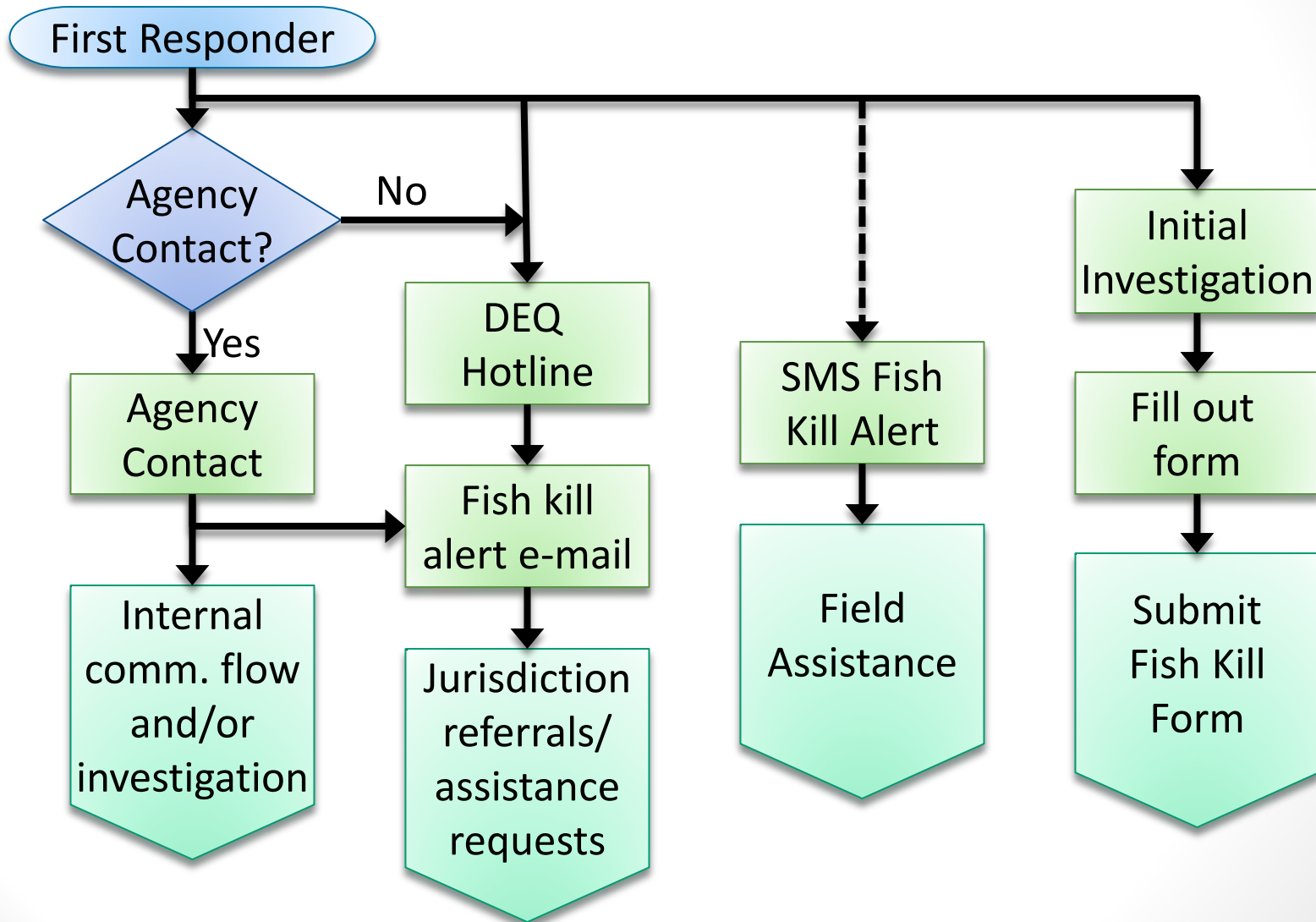
# OKRMT Communication Flow



# OKRMT Communication Flow



# Interagency Communication Flow



# OKRMT Communication Flow

- Each agency is responsible for assessing whether the event is within their jurisdiction
- Non-jurisdictional agencies may be notified and their assistance requested depending on the nature and extent of the event
- Tribal jurisdiction includes events that are contained on tribal land. This does not prevent a tribe from requesting assistance or preclude tribes from notifying the State in the event of fish kill that could affect waters of the State of Oklahoma

# OKRMT Criteria for agency involvement

## **GENERAL**

- Regulatory Authority
  - Source— sometimes unknown
  - Receptor
- Expertise
- Basin significance (i.e., Beaver Ck)
- Potential effect on cultural & natural resources
- Relevance to previous fish kills or ongoing investigations
- Inter-agency request for assistance

# OKRMT Criteria for inter-agency assistance

- Regulatory authority
- Unknown cause/source (unknown regulatory authority)
- Expertise/resources
- Requires multi agency response
- Relevance to previous or existing fish kills
- Historical data



# Standardization of Fish Kill Reporting

- Current forms
  - ODWC
  - ODEQ ECLS
- Merge to create one standard form
- Electronic Reporting
  - Web form/mobile app
  - Automatic notification
  - Automatic database population
  - Automatic reports



# Standardization of Fish Kill Reporting

Cushing.pdf - Adobe Reader

File Edit View Window Help

My Files 1 / 3 71.4%

Tools Sign Comment

Please fill out the following form. You can save data typed into this form.

Highlight Existing Fields

Export PDF

Adobe ExportPDF

Convert PDF files to Word or Excel online.

Select PDF File:

Cushing.pdf 1 file / 293 KB

Convert To:

Microsoft Word (\*.docx)

Recognize Text in English(U.S.)

Change

Convert

Create PDF

Send Files

Store Files

## Oklahoma Interagency Fish Kill Report

Complaint #

<b>1. Reported by</b> Name Nathan Copeland Address ODWC Biologist City Ponca City State Zip Phone (home) (work/mobile) 580-762-2248 Anonymous <input type="checkbox"/> Y <input type="checkbox"/> N Confidential <input type="checkbox"/> Y <input type="checkbox"/> N	<b>2. Received by</b> Date/time 8-4-14 16:00 Name Kurt Kuklinski Agency ODWC Office OFRL Norman Phone (office) 405-325-7288 (mobile) E-mail kurt.kuklinski@odwc.ok.gov	<b>3. Referred to</b> Date/time 8-4-14 16:00 Name Ferrelia March Agency OKDEQ Office OKC Phone (office) (mobile) E-mail
---	---	--

**4. Physical location**  
Lat Long  
GPS unit model Projection  
Sec T R County  
Nearest Town Cushing Local Tribe(s)  
Description of location/address Spillway pool below Cushing Lake  
One isolated pool.

**5. Extent**  
Physical extent (miles/ acres) Single isolated pool about 1 acre

**5a. Downstream location**  
Lat Long  
Description

**5b. Upstream location**  
Lat Long  
Description

**6. Initial Investigation**  
Date/Time 8-4-14 15:00 Kill ongoing? ☒ Y ☐ N  
Name Emily Long game warden Kay/Grant Counties  
Agency ODWC Office  
Phone (office) (mobile) 580-541-6087  
E-mail  
EID# Hours Miles

**7. Water Body**  
**7a. Type** ☐ Pond ☐ Lake ☐ River  
☒ Stream/Creek ☐ Intermittent ☐ Other no flow currently  
**7b. Ownership** ☐ Public ☒ Private  
**7c. Potential for impact to Public Drinking Water Supply**  
☐ Y (PWS name) ☒ N ☐ Unknown  
**7d. Brief description of water body (name, size, etc.)**  
One isolated pool out off from flow below Cushing Lake  
Typical lack of DO kill because of no water flow in this pool.

**8. Site Characteristics**  
**8a. Primary land use(s) at site** ☐ Agriculture ☐ Golf Course  
☐ Industrial ☐ Livestock ☐ Mining ☐ Oil/Gas  
☐ Residential ☐ Wildlife Refuge ☒ Other municipal  
**8b. Canopy cover** ☐ Sparse (0-10%) ☐ Moderate (10-40%)  
☐ Significant (40-60%) ☐ Dense (>60%) ☒ Total cover (100%)

**9. Water**  
**9a. Appearance (discuss in comments and take pictures!)**  
☒ Clean ☐ Manure in water ☐ Ice cover  
☐ Offensive odor ☐ Floating detritus ☐ Trash  
☐ Oily film/sheen ☐ Dead animals in water  
**9b. Color** ☐ Clear ☐ Orange ☐ Pink  
☐ Red ☒ Brown ☐ Green ☐ Blue  
**9c. Foam/Scum** ☒ None ☐ White  
☐ Yellow ☐ Brown ☐ Green  
**9d. Algae** ☐ None ☒ Sparse ☐ Abundant ☐ Surface scum  
**9e. Flow/water level** ☒ Low ☐ Normal ☐ High  
**9f. Water Quality** Temp(C) DO(mg/L) <1  
pH Salinity(ppt) Conductivity(S/cm)  
**9g. Samples collected**

**10. Weather conditions**  
Wind direction S Air temp(C) 30  
**10a. Weather** ☒ Clear, sunny skies ☐ Overcast  
☐ Haze ☐ Fog ☐ Drizzle  
☐ Rain ☐ Heavy Rain ☐ Snow/Sleet  
**10b. Wind** ☐ Calm (<1 MPH) ☒ Slight (1-5 MPH)  
☐ Leaves/twigs move (5-10 MPH) ☐ Branches move (10-15 MPH)  
☐ Trees sway (>15 MPH)  
**10c. Comments (recent storms, drought conditions, etc.)**  
Total canopy cover and recessed topography prevent wind and sunlight from reaching this pool of water. These variables add to conditions already favorable for a DO kill.

Draft May 22, 2014

1

# Standardization of Fish Kill Reporting

Cushing.pdf - Adobe Reader

File Edit View Window Help

My Files 2 / 3 714% Tools Sign Comment

Please fill out the following form. You can save data typed into this form. Highlight Existing Fields

Sign In

▼ Export PDF

Adobe ExportPDF  
Convert PDF files to Word or Excel online.

Select PDF File:  
Cushing.pdf 1 file / 293 KB

Convert To:  
Microsoft Word (\*.docx)

Recognize Text in English(U.S.)  
Change

Convert

► Create PDF  
► Send Files  
► Store Files

11. Cause

11a. Apparent cause ☐ Unknown ☒ Low DO ☐ Algal Bloom ☐ Pollution ☐ Other natural (ice cover, flooding, etc.)

11b. Possible Sources of Pollution (PSOP), if any: ☐ Agricultural applications ☐ Animal feedlot ☐ Construction ☐ Dredging ☐ Industrial discharge ☐ Irrigation runoff ☐ Land disposal (☐ Industrial, ☐ Municipal, ☐ Unpermitted dump) ☐ Mine Drainage ☐ Oil/gas activity ☐ Pipeline rupture ☐ Power/industrial thermal pollution ☐ Sewage treatment (☐ Advanced, ☐ Secondary, ☐ Primary) ☐ Silvicultural operations ☐ Spill from roadway/train track ☐ Urban runoff ☐ Unknown ☐ Other

11c. Specific pollutants

11d. Specific facility Name ID # Permit # Distance from kill Comments

12. Kill observations — Take pictures of scene and fish!

12a. Number and size of affected fish

	0-6 in	6-12 in	12-18 in	>18 in
<input type="checkbox"/> Bass (Largemouth, Smallmouth, etc.)				
<input type="checkbox"/> Catfish (Blue, Channel, Flathead, etc.)				
<input checked="" type="checkbox"/> Crappie (Black, White)		5		
<input type="checkbox"/> Sunfish (Bluegill, Green, Longear, etc.)				
<input type="checkbox"/> Common Carp			10	10
<input type="checkbox"/> Shad (Gizzard, Threadfin, etc.)				
<input type="checkbox"/> Minnows (less than 3 inches)				
<input type="checkbox"/> Unknown				
<input checked="" type="checkbox"/> Other buffalo spp			10	10

Total number of fish involved ≤100

12b. Exact species mostly carp, buffalo, gar with few crappie

☐ Listed Species Affected (Threatened, Endangered, Special Concern) SCIN Number(s)

12c. Condition of live fish ☒ Piping ☐ Erratic behavior ☐ Excessive mucus ☐ Gasping ☐ Lesions/sores ☐ Lethargy ☐ Struggling ☐ Tumors ☐ Flared pectoral fins ☐ Visible parasites ☐ Other

Gills: ☐ Normal ☐ Flared ☒ Pale ☐ Hemorrhaged

12d. Condition of dead fish ☒ Fresh ☐ Decomposed ☒ Skeletal ☐ If freshly dead: ☐ Bulging eyes ☐ Extruded organs ☐ Lesions/sores ☐ Mechanical injury ☐ Tumors ☐ Visible parasites ☐ Other

Gills: ☒ Pale ☐ Normal ☐ Hemorrhaged

12e. Other wildlife affected ☐ Amphibians ☐ Reptiles ☐ Mussels ☐ Crayfish ☐ Birds ☐ Mammals ☐ Other

13. Contact person Name Kurt Kuklinski Agency ODWC Office Norman Phone (office) 405-325-7288 (mobile) E-mail

14. Response Agencies involved ODWC Date resolved 8-5-14 Conclusions Obvious DO Kill. No further action required. Investigation by ODWC is closed.

15. Other information

Submit Draft May 22, 2014 Reset

2

Windows taskbar: E:\LPD-TIREP... F:\LPD\_Fish... Q:\LPD\_Fish... Response to... OKRMT TEC... Inbox - Ferre... Cushing.pdf... 12:05 PM



# Next Steps

- Develop a project plan/SOP for communication
- Training
  - First Responder Training (April 7, 2015)
- Quick reference guide
- Site Specific technical assistance
  - Response
  - Sampling
  - Field kits

# Next Steps

- Promote use of standard form
- Create App for form and online submission
- Create database for information generated from form
- Create text message group to help improve front line communication
- Continue to improve communication

# Next Steps-Training

- Classroom
- Field
- Fish ID
- Use of reporting form
- Oklahoma specific response
- DEQ Laboratory awareness



# Next Steps-Site Specific Technical Support and Response

**RESPONSE**

Sampling

**Cooperation**

**Ambient monitoring**

Maximize resources

*Examples: Salt Fork and Red River*



# Conclusion

- Apply the Collaborative process when dealing with complex environmental issues
- Through shared goals we can maximize resources and learn from the experience
- Minimize duplication of effort
- Technical support and data gathering become less time and resource intensive
- The resolution is often more palatable for all parties regardless of differences

# Contact us

## Contact Information

Ferrella March

405-702-5175

[Ferrella.march@deq.ok.gov](mailto:Ferrella.march@deq.ok.gov)



# Questions?

