

Louisiana Department of Health
A Descriptive Summary of Indoor Environmental Education Service (IEES)
Cases between
2008-2017

Prepared by:

Louisiana Department of Health

Office of Public Health

Section of Environmental Epidemiology and Toxicology

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List of Acronyms:

SEET	Section of Environmental Epidemiology and Toxicology
IEES	Indoor Environmental Education Service
IEQ	Indoor Environmental Quality
LDH	Louisiana Department of Health
OPH	Office of Public Health
USEPA	United States Environmental Protection Agency

Introduction:

As mandated in LA Revised Statutes (RS) 36:258 OPH performs functions which relate to protecting the general health of the people and to ensure environmental quality and pollution control. In RS 40:5 (general powers and jurisdiction) OPH is given control over public health areas such as noxious odors and environmental quality and pollution control. RS 40:4 (10) specifically mandates for public school protection relative to ventilation, heating and air conditioning and other similar factors affecting public health.

Severe weather events frequently impact Louisiana that requires residents to manage water damage and dampness within homes and buildings. In August 2000, the Louisiana Department of Health (LDH)/ Office of Public Health (OPH)/ Section of Environmental Epidemiology and Toxicology (SEET) developed the Indoor Environmental Education Service (IEES) to serve as the state's primary program to provide educational information that addresses the public's indoor environmental quality concerns. As part of SEET's mission, 'the provision of public health guidance to assist with positive decision-making...' ^[1], SEET determined that there was a need to provide accurate information to the public on indoor environmental concerns. IEES answers inquiries submitted online and through the Indoor Environmental Quality hotline and provides IEQ information through telephone consultations, environmental educational material development, and targeted outreach. This service is free of charge and available to all residents of the state. The program also "actively educates local school administrators, staff, students, and parents about the benefits of improved indoor air quality through the US Environmental Protection Agency's Indoor Air Quality/Tools for Schools Program."^[1]

IEES addresses complaints and inquiries by categorizing callers' information according to demographics, topic of concern, health issues, structure affected, whether the property affected is leased or owned, and the type of IEES response provided. The initial inquiry is followed by a phone consultation with IEES staff, during which the complainant's concerns are recorded in detail on the IEES Complaint Form. The details of each IEES Complaint Form are entered into the IEES Microsoft Access database, which currently contains over 10,000 records.

In 2014-2016 IEES staff facilitated the statewide Mold Task Force in response to the legislative mandate (Louisiana Legislative Act 258). The Mold Task Force brought together experts in science, public health, medicine, and industry to assist with policy development specific to the issues and concerns of residents. Activities performed through the Mold Task Force highlighted the need for more efficient identification of the indoor environmental concerns regularly encountered by Louisiana citizens. The Descriptive Summary of *Indoor Environmental Education Service Cases for 2008-2017* was prepared to identify these concerns.

Methodology:

To analyze the IEES data collected during this timeframe, each consultation was categorized as a *case*. A *case* was defined to be an inquiry or complaint received electronically, by letter, or phone call to the IEES hotline. *Cases* were generated from information taken from hotline caller requests, written inquiries, referrals and contacts from other agencies or through oph.seetweb@la.gov which serves as the OPH/SEET email web contact <http://new.dhh.louisiana.gov/index.cfm/form/61>

The IEES Complaint Form (see Appendix A) collects data for each *case* including: the inquirer's name, the affected address, the topic of concern, type of health concern, the date of the complainant's inquiry, and the response or referral provided by IEES. In some instances, several environmental topics and health concerns were captured from a single case's consultation.

The subject of the indoor air concern was categorized using twenty possible general topics: Asbestos, Bedbugs, Biological (excluding Mold), Chemical, Carbon Monoxide, Environmental Tobacco Smoke (ETS), Formaldehyde, Heating-Ventilation-Air-Conditioning (HVAC), Lead, Mold, Particulates, Pests, Pesticides, Radon, Sewage, Smoke (excluding ETS), Soot, Odors, Volatile Organic Compounds (excluding Formaldehyde), or Other for IEQ concerns not included in the list on the form.

Seven health effects groupings were used to categorize reported health effects. These groupings are based on the organ system involved and include: GI or Gastrointestinal, Neurological, Respiratory, and Other (complainant reported 'sickness/illness' without giving any details of the health concern or the health complaint did not fit into any of the listed categories), None Reported (no health concerns reported). In some cases, more than one health effect was reported by the complainant. Those reporting health effects were advised to seek the treatment and advice of a licensed medical physician or healthcare provider.

When the case involved broader issues, IEES referred the case to other SEET or OPH programs or to outside agencies and organizations. These referrals were categorized by the following referral agencies/offices in the IEES database: City Code Enforcement, City Health Department, Louisiana Department of Administration, Louisiana Department of Agriculture and Forestry, Louisiana Department of Environmental Quality, U.S. Manufactured Housing Commission, Office of Public Health/ Infectious Epidemiology Section, the U.S. Occupational Safety and Health Administration, Office of Public Health/Sanitarian Services, the Louisiana State Licensing Board for Contractors, and the Louisiana Attorney General. This list is not complete and only represents referrals frequently provided.

The types of building structures in the reported cases were classified into ten categories: Apartment, Condominium/Townhouse, Healthcare facility, Daycare facility (adult or child), Hotel/Motel, Mobile Home/Trailer, Office, Retail, School/University, Other (i.e. a firehouse,

because it is a combination of a work-related residence, office, storage area, garage, and in some cases a classroom-all within a multi-purpose structure). If the structure reported did not fit into any of the building categories it was categorized as *Miscellaneous* (i.e. gazebo, carport or any other buildings adjacent to or adjoining categorized buildings).

When the structure was categorized as *Not Available*, the type of structure could not be determined from the address reported or the address reported could not be verified. The location was counted as *Not Applicable* when location was not reported (i.e. an inquiry about licensure information). The data also included a record of whether or not a structure was rented or owned and to whom the information was sent. The complainants' addresses were used to identify the parishes (and corresponding OPH Regions) that were mapped and presented in this summary.

Results:

Case Locations:

The map below shows the total number of cases received during 2008-2017 in each parish (N=6280). In OPH-Region two (2), it was East Baton Rouge (EBR) parish that recorded the highest number of calls (N=1427) for this timeframe. The second and third highest parishes for total complaint calls during the 2008-2017 were Jefferson (N=503) and Orleans (N=453).

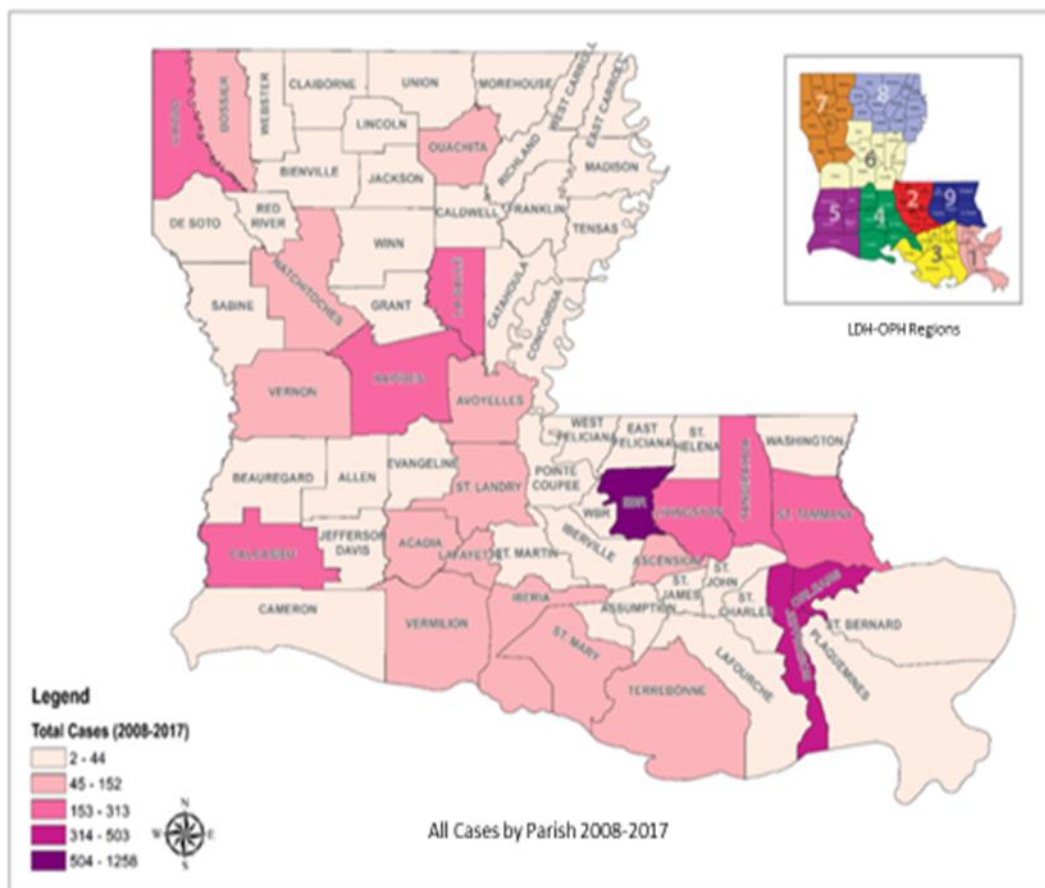


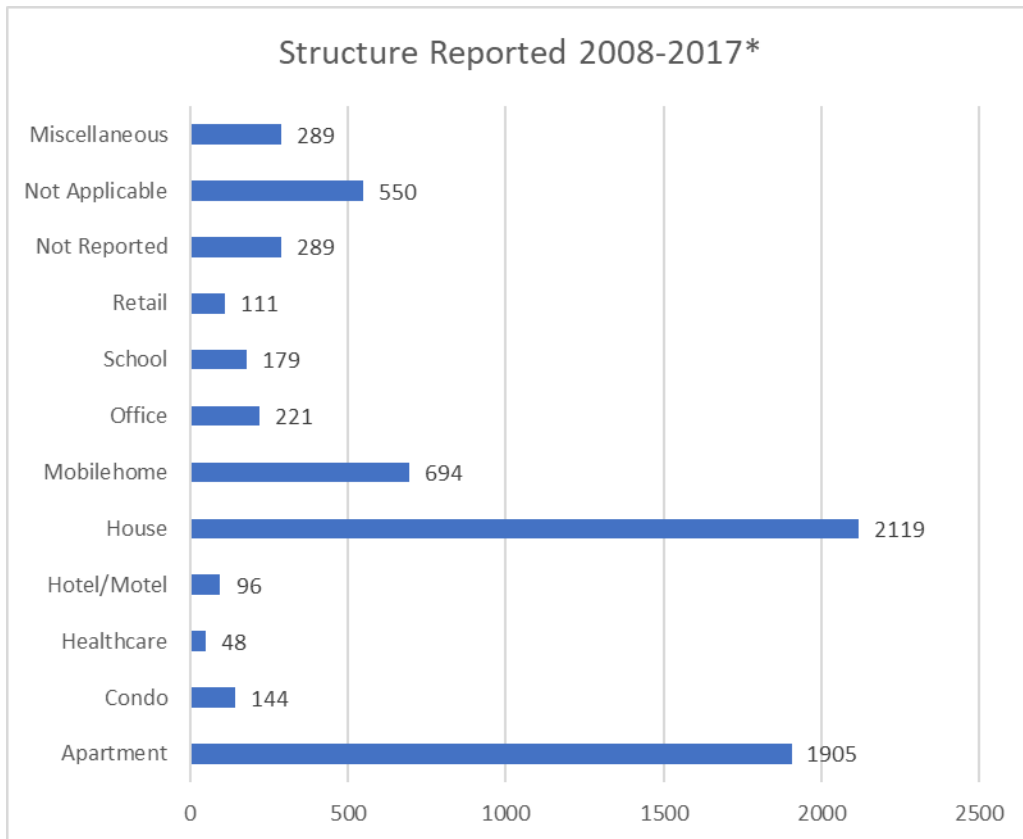
Figure1-Map of Cases by Parish 2008-2017

IEES received many cases related to water intrusion (flooding) after a storm event (hurricane or tornado). A summarized chart of the major storms and flooding events and initial OPH-region affected during the period of 2008-2017 shows that there was at least one storm or flooding event in Louisiana for each year of this survey period.

Table 1- Major Storms & Flooding Events, Dates, & Initial OPH-Region Affected '06-'17				
Year	Storm	Date	Initial Louisiana Landfall	OPH-Region
2007	Humberto	9/13	Cameron (Vinton)	5
2008	Gustav	9/01	Mouth of MS	1,3,9
2009	Ike	9/13	Cameron	5
2010	Ida	11/4	Plaquemine	1
	Bonnie	7/22	Plaquemine	1
2011	Lee*	9/2	St. Mary, Iberia	3,4
2012	Isaac	8/21	Lafourche, Terrebonne	3
2013	Karen Erin	10/3 8/15-18	SW LA Coast	4,5
2014	Dolly	9/1-3	Cameron, Vermilion	4,5
2015	Bill	6/16-21	Caddo, Bossier	7
2016	Alex Fiona + floods	1/12-15 8/16-23	Livingston, St. John the Baptist East Baton Rouge, West Baton Rouge, Ascension, Iberville, Orleans	1,2,3,9
2017	Cindy	6/20	Livingston, St. John the Baptist, East Baton Rouge, West Baton Rouge, Orleans Ascension, Iberville	1,2,3,9
	Harvey	8/17	Same as above	
	Nate*	10/4	Same as above	
*Tropical Storm and/or severe flooding Source: National Weather Center's National Hurricane Center www.nhc.noaa.gov ^[2,3]				

Type of Structure:

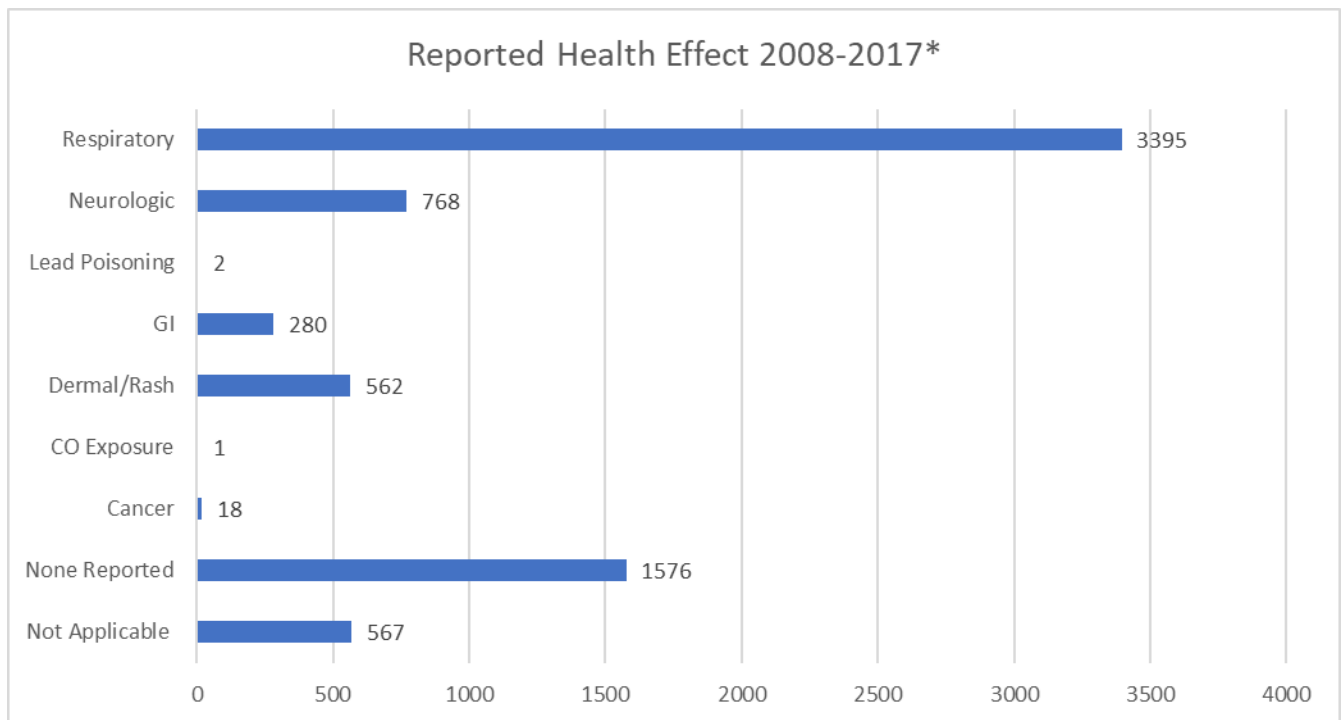
The largest number of inquiries (N=2119) was about indoor environmental quality issues involving a *House*. *Apartments* represented the second largest number of inquiries received (N=1905). Complainants most often called IEES to obtain information on remediation and restoration for a *place of residence*. This corresponds to the majority of the requests relating to ‘do-it-yourself’ restoration and remediation information from residential occupants.



*Building structure type of residence reported may cross multiple categories.

Health Effect:

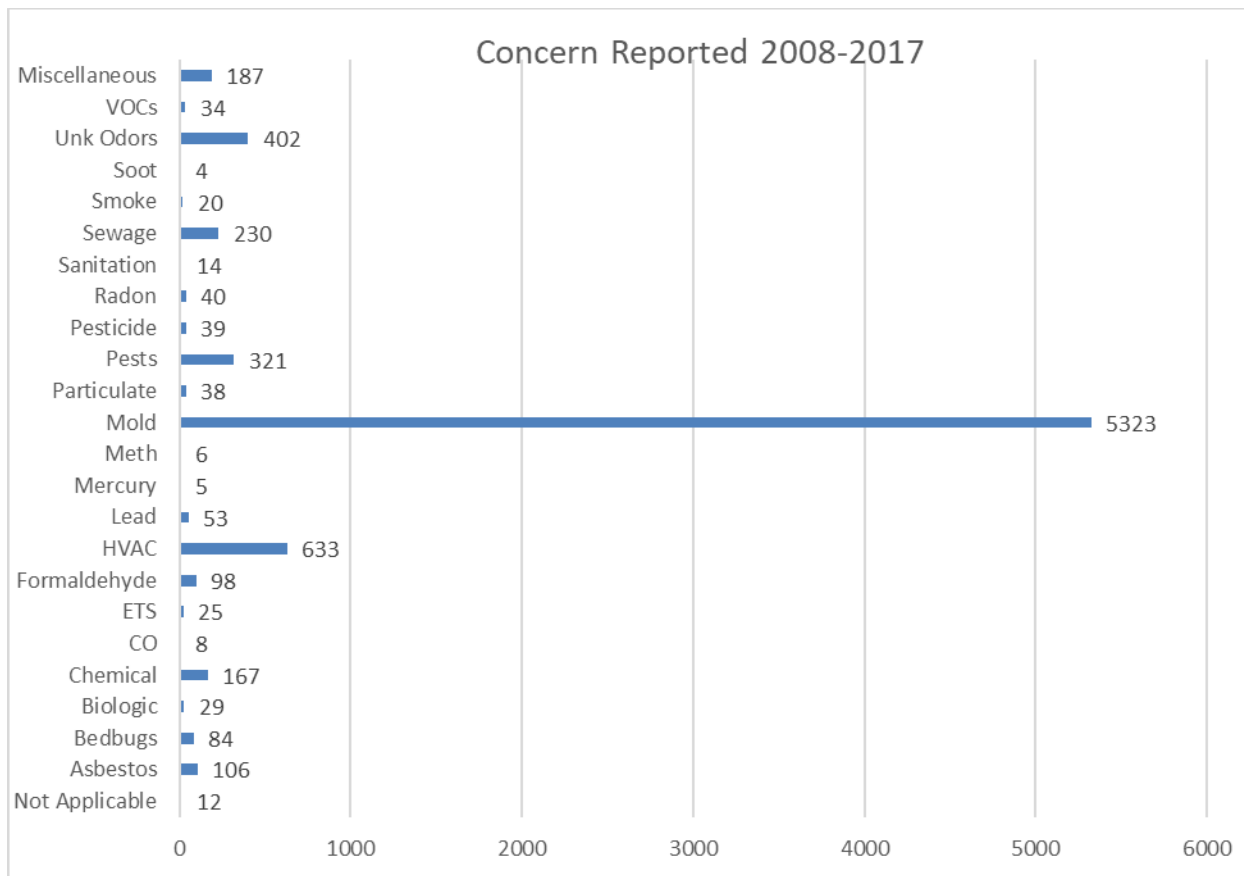
Indoor environmental issues can affect the health of individuals differently. The most reported health effects involved the respiratory system (N=3395).



*A case may have more than one health effect reported.

Type of Concern:

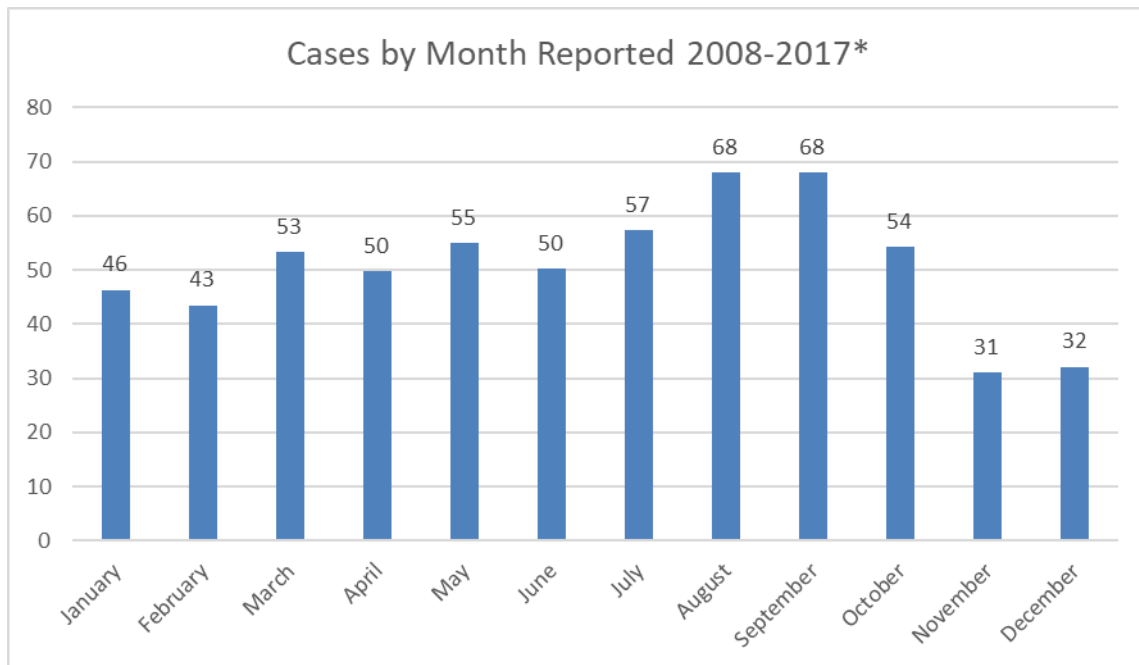
The most common concern or complaint received by the IEES was related to mold.



*A case may have more than one health concern reported.

Month:

As illustrated in the following ten year cumulative monthly average of cases (i.e. all of the complaints received for January of each year were averaged), July, August, and September were the months with the largest number of inquiries.



*This chart shows the average number of IEES cases per month 2008-2017,

Mold Complaints:

This map illustrates the distribution of IEES mold-related complaints by parish from 2008-2017. Complaints that had a mold component accounted for N=5323 of those reported. East Baton Rouge Parish had the most reported mold-related complaints (N=1076) from 2008-2017.

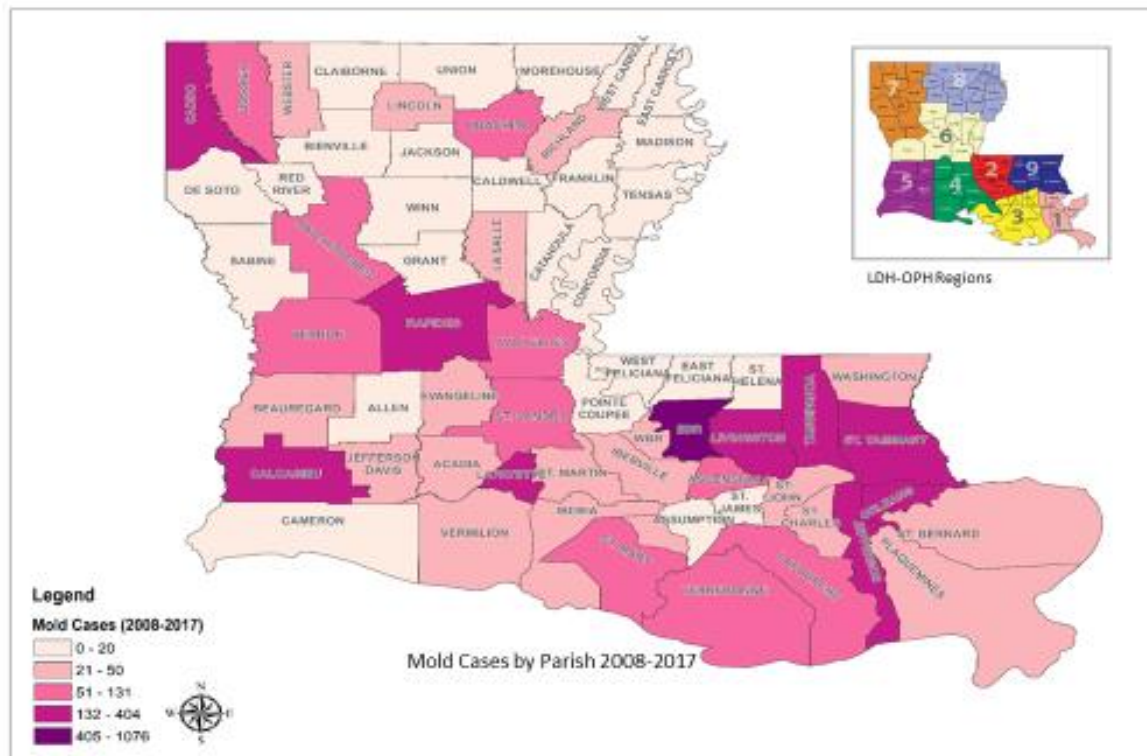


Figure 2 - Map of Mold Cases by Parish 2008-2017:

Referrals:

Some IEQ issues required the dissemination of indoor environmental educational information only. In these instances, a request that involved referral to appropriate professionals, agencies, or organizations with the provision of topic-specific background materials (i.e. USEPA ‘Mold and Moisture and Your Property’) fulfilled the request from the inquirer. During 2008-2017 there were 4528 IEES complaint cases that involved one or more referrals.

Table 3 IEES Referrals 2008-2017*	
Referral:	Number of referrals
Attorney General's Office	5258
Adult/Elderly Protective Services	20
Alcohol, Tobacco, & Fire Arms	6
Agency for Toxic Substances and Disease Registry	6
Building's Administration	28
Consumer Product Safety Commission	22
City Code Enforcement	111
City Health Dept.	50
Dept. of Public Works	15
Federal Emergency Management Agency	30
Fire Marshal	11
La. Board of Cosmetology	4
La. Board of Home Inspectors	2
La. Civil Justice Center for Legal Aid	24
La. Dept. of Agriculture & Forestry	35
La. Dept. of Environmental Quality	137
LDH/Legal	6
La. Real Estate Commission	8
La. State Licensing Board for Contractors	1259
La. State Police	11
La. Tumor Registry	2
Local School District/Board	4
Local Utility Company	4
Occupational Safety & Health Administration	103
OPH/Sanitarian Services	329
OPH/SEET (other programs)	29
OPH/Infectious Epidemiology	38
OPH/Lead program	17
Point of Purchase	1
Poison Control Center	44
La. University expert	20
The US. Housing & Urban Development	163
*Multiple referrals can be given for each case.	

Discussion:

For the 2008-2017 timeframe, the number of indoor air complaint calls from OPH Regions increased after storm or flooding events. The majority of the IEES cases reported were from OPH Regions Two (N=1427), One (N=1019), and Nine (N=652). East Baton Rouge Parish (N=1258) reported the most cases for the years 2008-2017. OPH Region Two, which includes East Baton Rouge Parish has historically experienced an influx of evacuees from surrounding coastal regions during severe storm periods. The second and third highest numbers of cases reported by parish for 2008-2017 are Jefferson (N=503) and Orleans (N=453). Orleans and Jefferson Parishes are both located in OPH Region One, which was identified as one of the most common areas of initial landfall for severe Gulf of Mexico storms during this period. Many complainants reported that they were the victims of repeated water-intrusion events in these OPH Regions.

The number of cases reported tended to increase during the months of July through September each year corresponding to the peak of the hurricane season (June 1 to December 30). After severe storm and flooding events, water intrusion/flooding is often slow to drain increasing its impact. Local media outlets reported that during the 2017 flooding events OPH-Region Two (East and West Baton Rouge, Pointe Coupee, Iberville, Ascension, and the Feliciana Parishes) were slow to drain and many property owners experienced extensive water damage.

Sixty-seven percent (67%) of the referrals were sent to the Louisiana Attorney General's Office. Residences, specifically rental properties such as apartments, were most often the built structures of concern.

Property owners of both tenant and owner-occupied properties most often requested guidance about the correct procedures for rebuilding these structures. These residences were most often the primary place of habitation and represented greatest need for quickly repairing buildings and restoring the indoor space to livable conditions. These situations required referral to the appropriate source of remediation professional; for example, a question about what agency licenses mold remediators was referred to the Louisiana State Licensing Board for Contractors. Guidance offered emphasizes that, '...the responsibility for these repairs lies with the landlords/property owners...' ^[4] rather than with the tenants. As stated in the Task Force on Mold in Louisiana: Follow-up Summary Report – April 2016, as of January 1, 2015, there were 155 Mold Remediation contractors licensed with the State Licensing Board for Contractors. The Board maintains a copy of the Contractors Licensing Law (La. R.S. 37:2150-2192) at www.lslbc.louisiana.gov, or www.lacontractor.org, which includes the provisions of Act 880 of the 2003 Louisiana Legislature regarding the licensure Mold Remediation contractors. ^[5]

Given the large number of flooding events, 'the majority of inquiries involve concerns about mold issues in residential and public buildings.' ^[6] As shown by the types of post storm/flooding events inquiries, these inquiries needed information on recovery and resources available in their areas.

Many complainants evacuated from their original residences because of severe water damage but, returned regularly to remediate and repair their homes.

Homeowners living in their homes while remediate their own residences requested both health and remediation guidance. The emphasis on the guidance provided in these cases was to remove water-damaged building materials as soon as possible. These suggestions were made to preserve safety, health, and structural integrity in situations where water-damaged buildings were in varying stages of remediation.

“A review of 2010-2017 Census data for Louisiana, showed a minor decrease...”^[10] in the numbers of residents that shifted inland from the coastal regions of the state. This was not true when the flooding reached historic levels (as with the August 2016 floods), where populations decreased significantly in the hardest hit parishes^[10].

Conclusion:

Mapping the inquiries reported by complainants allowed IEES to more efficiently target outreach in the form of environmental education materials and recovery resource efforts after recent storms and flooding events.

The IEES consultation process involves providing accurate information to the public on mold, removing wet materials and drying out the building and using licensed contractors for repairs and mold remediation. As a deterrent to issues with contractor fraud, guidance and referrals centered on which type of professional should be used to remediate various situations after a severe storm and flooding events; this guidance provided property owners with information for finding remediation professionals.

There is a particular need for agency partnerships to assist with providing information to Louisianans about their rights as tenants. Tenant/landlord complaint reports highlight a lack of knowledge regarding the details of this contractual relationship and the need for more education and resource referrals for this topic. Additional resource agencies have also been identified throughout the state to refer IEES callers to sources of legal advice. The Louisiana Civil Justice Center for Legal Aid (sponsored by the Baton Rouge Bar Association) and the Stuart H. Smith Law Clinic and Center for Social Justice (on the campus of Loyola University of New Orleans) assists clients with legal concerns that might not otherwise receive legal representation due to financial challenges.

Examining the current process of data collection and entry in the IEES Complaint Database revealed areas where the process could be improved with seamless electronic database updates. A digital form for the input of real-time consultation information that simultaneously updates the IEES database represents a next step to streamlining data entry. Consultation information

collected should be expanded to include demographic, race, and health effect details for all members of the household.

This 2008-2017 summary highlights various reported indoor environmental concerns resulting from water intrusion events in many types of built structures. Among these challenges are the IEQ issues that arise in private residences. There may be similar issues mirrored in daycare facilities, nursing homes, and schools.

Recommendations:

IEES should continue to provide Louisianians with accurate information regarding indoor environmental issues, particularly after severe storm and flooding events. IEES staff provides information to the public in easily accessible forms (brochures, fact sheets, links and contact information to other state and federal publications located on the LDH website) and through presentations to audiences upon request. LDH should continue to provide opportunities for the public to ask questions related to other environmental exposures.

Public service announcements after a severe storm that reference the location of environmental ‘do-it-yourself’ remediation guidance after water intrusion storm and flooding events may also provide a way of reaching underserved Louisiana populations. “A continued effort to monitor mold and its causes and effects should be the goal..., as awareness is increased, there should be broader public understanding of the causes, prevention, and reporting of mold.”^[5]

IEES has increasingly been requested to handle indoor environmental complaints and to conduct indoor environmental investigations. Responsive environmental education efforts that include remediation training for citizens and ongoing partnership building continue to be the hallmark of current IEES efforts. Moving forward, IEES proposes to expand its outreach efforts and work to acquire staff, and resources to conduct more sustainable indoor environmental initiatives in Louisiana public schools, daycares, and nursing homes.

References:

1. Louisiana Department of Health, Office of Public Health, Section of Environmental Epidemiology and Toxicology, Indoor Environmental Quality Education Service's program Issue Briefs 2014, 2015.
2. Louisiana Hurricane History by David Roth of the National Weather Service 2014
3. National Oceanic and Atmospheric Administration's National Centers for Environmental Information or www.ncdc.noaa.gov/listevents
4. Moving In, Moving Out, and Everything in Between! A Guide to Louisiana Landlord and Tenant Laws, by Attorney General Jeff Landry Louisiana Department of Justice, Consumer Protection Section, 2016
5. The Task Force on Mold in Louisiana: Follow up Summary Report – April 2016
6. Louisiana Department of Health, Office of Public Health, Section of Environmental Epidemiology and Toxicology Programs Factsheet 2015
7. Louisiana Department of Health, Office of Public Health, Section of Environmental Epidemiology and Toxicology, Indoor Environmental Quality Education Service <http://new.dhh.louisiana.gov/index.cfm/page/829>
8. The United States Environmental Protection Agency www.epa.gov/mold
9. Louisiana State Licensing Board for Contractors www.lslbc.louisiana.gov
10. Annual Estimates of the Resident Populations: April 1, 2010, to July 1, 2017, by the United States Census Bureau
11. Louisiana's Comprehensive Master Plan for a Sustainable Coast 2017, by the Louisiana Coastal Protection and Restoration Authority

Appendix

A. LDH/OPH/SEET Indoor Environmental Complaint Form:

INDOOR ENVIRONMENTAL COMPLAINT FORM

Section of Environmental Epidemiology & Toxicology

Date of Initial Contact _____ / _____ / _____

Complaint Handled By _____

Subsequent Contact _____

COMPLAINANT INFORMATION

Name	Home Phone
Address	Mobile Phone
City	Work Phone
State	Fax
Zip Code	Pager
Parish	Additional #
Mailing Address	Email
City (Mail)	
State (Mail)	
Zip Code (Mail)	

COMPLAINT DETAILS:

<input type="checkbox"/> N/A		
<input type="checkbox"/> Asbestos	<input type="checkbox"/> HVAC	<input type="checkbox"/> Sewage
<input type="checkbox"/> Biological (excluding Mold)	<input type="checkbox"/> Lead	<input type="checkbox"/> Smoke (excluding ETS)
<input type="checkbox"/> Chemical (miscellaneous)	<input type="checkbox"/> Mold	<input type="checkbox"/> Soot
<input type="checkbox"/> CO	<input type="checkbox"/> Particulates	<input type="checkbox"/> Unknown Odor
<input type="checkbox"/> ETS	<input type="checkbox"/> Pests _____	<input type="checkbox"/> VOC (excluding Formaldehyde)
<input type="checkbox"/> Formaldehyde	<input type="checkbox"/> Pesticide	<input type="checkbox"/> Other _____
	<input type="checkbox"/> Radon	If Other, Specify _____

HEALTH EFFECTS

<input type="checkbox"/> N/A	<input type="checkbox"/> Neurological
<input type="checkbox"/> None Reported	<input type="checkbox"/> Respiratory: _____
<input type="checkbox"/> Dermal/Rash	<input type="checkbox"/> Other
<input type="checkbox"/> GI	If Other, Specify _____

BUILDING INFORMATION

<input type="checkbox"/> N/A	<input type="checkbox"/> Hotel/Motel	<input type="checkbox"/> Retail	Rent?
<input type="checkbox"/> Apartment	<input type="checkbox"/> House	<input type="checkbox"/> School	<input type="checkbox"/> N/A
<input type="checkbox"/> Condo	<input type="checkbox"/> Mobile Home	<input type="checkbox"/> Other	<input type="checkbox"/> Yes
<input type="checkbox"/> Healthcare	<input type="checkbox"/> Office	If Other, Specify _____	<input type="checkbox"/> No

ENVIRONMENTAL ED. OR REFERRALS PROVIDED:			
I.	Date Info Sent	Info Sent To	
		<input type="checkbox"/> N/A	<input type="checkbox"/> Property Owner
		<input type="checkbox"/> Complainant	<input type="checkbox"/> Other, Specific

ACTIONS TAKEN			
<input type="checkbox"/> Case Closed?		If No, Specify Reason	
Date(s) of Attempts to Contact Complainant (or other party)			
Date of Initial Consultation			
Date(s) of Additional Consultation(s)			
II.	Additional Info Sent:	Info Sent To	
		<input type="checkbox"/> N/A	<input type="checkbox"/> Other
		<input type="checkbox"/> Complainant	If Other, Specify
		<input type="checkbox"/> Employer	
		<input type="checkbox"/> Property Owner	
Date of Site Visit			
Referred To			
<input type="checkbox"/> N/A		<input type="checkbox"/> Manufactured Housing Commission	
<input type="checkbox"/> City Code Enforcement		<input type="checkbox"/> OPH / Infectious Diseases Epidemiology Section	
<input type="checkbox"/> City Health Dept.		<input type="checkbox"/> OSHA	
<input type="checkbox"/> DOA		<input type="checkbox"/> OPH / Sanitarian Services	
<input type="checkbox"/> LDAF		<input type="checkbox"/> Other	
<input type="checkbox"/> LDEQ		If Other, Specify	

THIRD PARTY INFORMATION	
Relation to Complainant	Home Phone
Name	Mobile Phone
Address	Work Phone
City	
State	Fax
Zip Code	Pager
Parish	Additional #
Mailing Address	Email
City (Mail)	
State (Mail)	
Zip Code (Mail)	

PARTY RESPONSIBLE FOR PROPERTY INFORMATION		
Party Responsible for Property	<input type="checkbox"/> Complainant	Home Phone
	<input type="checkbox"/> Employer	Mobile Phone
	<input type="checkbox"/> Property Manager	Work Phone
	<input type="checkbox"/> Property Owner	
	<input type="checkbox"/> Other	
If Other, Specify		
Name of Employer	Fax	
Name	Pager	
Address	Additional #	
City	Email	

