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Dear Reader,

The Emmett Environmental Law & Policy Clinic is pleased to share with you a Manual for Citizens Scientists Starting or Participating in Data Collection and Environmental Monitoring Projects that we developed to support individuals researching and responding to public health and environmental concerns. Whether collecting, generating, analyzing, or distributing information, citizens from all backgrounds can play an important role in protecting their own communities and the environment. The Manual outlines practical suggestions for how to do this. The Manual also contains an overview of relevant laws and regulations, as well as technical suggestions regarding data collection, analysis, and compliance with relevant scientific and quality standards.

In the wake of Hurricane Harvey, the Clinic prepared an Appendix to the Manual that provides additional information specific to citizen data collection in Texas, and the Houston and Galveston areas more specifically. Although the Appendix can be read as a stand-alone document, it is enhanced by reading it in conjunction with the more comprehensive Manual.

We welcome your feedback on the Manual, and the Texas Appendix, and we thank you for your interest in participating in efforts to promote and protect public health, local communities, and the environment.

Sincerely,

The Emmett Environmental Law & Policy Clinic

# A MANUAL FOR CITIZEN SCIENTISTS STARTING OR PARTICIPATING IN DATA COLLECTION AND ENVIRONMENTAL MONITORING PROJECTS



Harvard Law School Emmett Environmental Law & Policy Clinic

#### **Preliminary Information**

This manual is a project of the Emmett Environmental Law & Policy Clinic at Harvard Law School under the direction of Clinical Professor Wendy B. Jacobs. This manual was researched and prepared by Clinic students, including Curtis Powell ('18) and Phillip Godfrey ('17), together with the Clinic's lawyers Wendy Jacobs, Shaun Goho, and Aladdine Joroff. Additional Clinic students, in particular Erik Federman ('18), Esther Labrado ('17), Ellen Park ('17), Gloria Scott ('17), Amy Chyao ('19), and Michael Shafer ('19) performed research and helped prepare the appendices to this manual. Questions or comments on this manual can be directed to EmmettClinic@lists.law.harvard.edu.

#### Legal Disclaimer

The manual is not intended to operate as a substitute for legal representation and does not create an attorney-client relationship. This manual generally describes the legal framework within which citizen collection of data and environmental monitoring may occur. It identifies legal issues citizens should be aware of and offers general suggestions. However, if you have specific questions or you encounter legal threats in the course of conducting a citizen science project, you should consult a lawyer with expertise in the geographic locale in which you are working. Please understand that laws vary from state to state and from locale to locale. Laws also frequently change so it is important to educate yourself about the current laws in the area in which you plan to work. This manual will help get you started. Neither the Clinic nor any of the authors assumes any liability for the actions taken (or not taken) by any party in reliance on this manual.

## Glossary of Terms

Decision Maker: A person or entity with jurisdiction to make legal decisions or judgments.

**Environmental Protection Agency**: The federal agency created by Congress to protect human health, natural resources, and the environment from pollution, to set limits for the emission of pollutants, and to enforce those limits. Most states have their own state-created agency empowered to do the same within that state.

**Information Collection**: The gathering and analysis of information that is already publicly available.

**Information Generation**: The procurement of information that was previously uncollected, unknown, unreported, or unestablished in the realm of public knowledge.

**Information Use**: The ways in which information that is collected or generated during a citizen science project can be used.

**Jurisdiction**: The legal authority to make legal decisions or judgments. It could be a local, state, or federal administrative agency, legislative body, or court.

**Pollutant Source:** An industrial facility, agricultural facility, land fill, sewage treatment plant, coal mine, etc.

**Project Approach**: An early design of a project comprised of two components: i) the identification of a **site** (i.e., location) of interest to you and ii) the determination of which pollutant or combination of pollutants are of concern to you and about which you will collect information and data.

**Project Focus**: The environmental question, theme and/or problem to which a project is directed.

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## INTRODUCTION

**Purpose of this Manual**: This manual aims to empower individuals in their roles as citizen scientists and to promote the practice of community-based citizen science as a vehicle for environmental justice. It is our hope that this manual will increase your awareness of how to identify and contribute to existing projects or to initiate and effectively prove your own project. To that end, this manual outlines practical suggestions for how to design and carry out a citizen science project. It also contains an overview of relevant laws and regulations, as well as technical suggestions regarding data collection, analysis, and compliance with relevant scientific and **quality standards**.

### What is Citizen Science?

Citizen science can be defined as a grassroots initiative in which ordinary citizens, sometimes in collaboration with professional scientists, organizations and government agencies, collect, generate, and distribute information either for educational purposes or to address communitycentered environmental issues. More simply, it is community-driven science: science engaged in, by, and for the non-scientist populace.

There are multiple ways that individuals can get involved in citizen science projects, and these projects can take on a variety of configurations. For example, individuals may choose to *find and collaborate on pre-existing projects* rather than start their own. Existing projects are often offered by professional citizen science organizations, neighborhood organizations, environmental agencies, and local park and wildlife services. Most existing projects have a specific, and often unique, focus that is set by the organization or agency conducting the project. For instance, a project may be designed to assist with the collection or generation of information needed to support the work of a decision-maker or advocate or to motivate individuals to engage with nature and science.

*Citizen science* is community-driven science: science engaged in, by, and for the nonscientist populace.

The EPA has defined environmental *justice* as "the fair treatment and meaningful involvement of all people . . . with respect to the development, implementation, and enforcement of environmental laws. regulations, and policies."

Alternatively, individuals may *design and initiate their own project*, either for similar goals or with an eye toward regulatory or private enforcement of environmental laws. Individuals may start by identifying an issue in their communities (*e.g.*, groundwater pollution, lead contamination, high asthma rates), and then develop a plan to collect and analyze samples near potential sources of the problem. They might then use these results to educate community members and decision-makers, including by submitting the results of their work to a regulatory agency (*e.g.*, the local board of health or the state or federal **Environmental Protection Agency**) to petition the agency to take action necessary to protect the community (e.g., enforcement against a polluter).

In short, citizen science projects are and can be organized for many different purposes and with many opportunities for varying levels of involvement. Recognizing the many forms citizen science projects may take, this manual generally focuses on those projects designed to remediate environmental problems that threaten community health and wellbeing.

**Example of Citizen Scientists in Action**: In 2004, residents of Tonawanda, New York, home to some of the state's largest industrial manufacturing facilities, noticed a marked decrease in local air quality and an increase in chronic health problems and banded together to form the Clean Air Coalition of Western New York. They collected local air samples using simple air sensors readily available online, and their analysis of these samples revealed the presence of high levels of benzene, a known carcinogen, in the town's air. The residents then presented this information to New York's Department of Environmental Conservation, which worked with the federal Environmental Protection Agency to perform further air quality tests. Once the state and federal agencies became involved, the local manufacturing facilities tightened operating procedures, ultimately decreasing benzene levels in the air by 86 percent.

Many successful citizen science projects tend to follow the process demonstrated by this example. A community of citizens comes together through grassroots organizing to identify and solve a problem through the collection or generation of information. They then leverage this information to gain traction with the relevant enforcement agencies and put pressure on the polluting parties to reform.

## Technical and Legal Limitations of this Manual

This manual describes the legal and technical framework governing citizen science and offers practical suggestions. These suggestions are general and not specific to your locale. Nor are these suggestions comprehensive. It is important that you check the *It is important that* 

current rules in the specific **jurisdiction** in which you will carry out or are currently carrying out your project. This manual provides references to resources for those seeking more information. However, these resources are non-exhaustive and are subject to change.

<u>Concerning legal suggestions</u>: Many of the laws referred to in this manual are administered and regulated at the state and local levels, with potentially significant differences across **jurisdictions**. This manual does not attempt to compile and detail every state statute, local ordinance, or agency regulation that may be relevant to a citizen scientist's efforts. Instead, the manual is intended to give a broad overview of the relevant laws by distilling governing principles and common statutory elements across **jurisdictions**. Having canvassed these laws generally, the manual identifies types of laws that restrict citizen science – meaning laws that could result in a citizen scientist facing either criminal or civil liability for actions (such as trespass) not conducted in compliance with such law. It is important that you seek to educate yourself about statutes, regulations,

sample collection. The tools available in this guide will assist you in doing so.

<u>Concerning technical suggestions</u>: The problems addressed by citizen science projects are diverse.<sup>1</sup> This manual is primarily focused on citizen science projects that are directed at environmental pollution concerns, and in particular, pollution of air, water, and soil. However, many of the suggestions in this manual are highly generalizable. If your project lies outside the focus of the manual, we recommend that you use It is **important** that you check the rules in the specific jurisdiction in which you carry out or are currently carrying out your project.

It is **important** that you seek to educate yourself about statutes, regulations, and ordinances specific to your own jurisdiction before setting off into the field to engage in sample collection.

and ordinances specific to your own jurisdiction before setting off into the field to engage in

This manual is primarily focused on citizen science projects that are directed at pollution concerns, and in particular, the environmental pollution of air, water, and soil.

<sup>&</sup>lt;sup>1</sup> See, e.g., Anne Bowser & Lea Shanley, *New Visions in Citizen Science*. Washington, DC: Woodrow Wilson International Center for Scholars (2013).

the chapter headings and introductions to rapidly assess whether the content of the chapter will be relevant to your particular project.

### Manual Overview

This manual is divided into seven major chapters. The needs of individual citizen scientists

can differ greatly, and therefore, there are various ways in which the content of this manual might be presented. We have chosen to structure the manual to reflect the sequence of steps that one might follow when initiating a new citizen science project. But, we emphasize that no two projects will follow the exact same path from beginning to end.

The following graphic provides a visual representation of how the different chapters relate. This graphic highlights: (i) that there are many paths that can be taken from the beginning of a project ("Identify **Project Focus**") to completion of that project ("Goal: **Information Use**"); (ii) that the chapters of this manual are highly interrelated and need not be thought of as separate steps; and (iii) that many times citizen The manual is organized to reflect the sequence of steps one might follow when initiating a new citizen science project.

No two projects will follow the exact same path from beginning to end.

science projects are iterative: they may involve some cycling back to previous steps as new information is uncovered or if circumstances change.



#### Graphic Legend:

Each chapter of this manual relates to one or more of the major categories outlined in this graphic. Areas of the graphic will be expanded in each chapter to highlight information that may be of use to you as you carry out your project.

Chapter 1, "Identifying Your Project's Focus and Designing Its Approach," describes the initial steps of a citizen science project. This includes guidance on how the focus of your project, or the central environmental issue to which it is directed, should influence your project's approach.

Chapter 2, "Identifying Your Project's Goals - Evaluating Potential Information Uses," assists you in brainstorming the potential goals of your efforts before engaging in **information** 

**collection** or field research. For example: Do you intend to give your data to a regulatory agency for use in an enforcement action? Does that agency have the resources and political will to pursue such an enforcement action? Are there other uses for your data that do not involve an agency enforcement action (*e.g.*, community organizing, media attention)? Your answers to these questions can shape the scope and direction for your project.

Chapter 3, "Information Collection: Gathering Publicly Available Information," assists you in identifying what is already known about the problem with which you are concerned. Specifically, it provides guidance on how to acquire publicly available information with respect to pollutants and **pollutant sources**. After reading this chapter, you should know how to efficiently gather publicly available information and to determine whether or not it is sufficient to resolve the problem you have identified.

Chapter 4, "Information Generation: Potential Liability," reviews potential legal limitations on information generation by citizen scientists as well as positive rights and privileges you can take advantage of to design the most effective project possible. Think of this as a primer on which laws might be most relevant to citizen science. While we anticipate that most readers will not encounter legal complications in conducting their projects, we nonetheless want to arm you with the knowledge and resources to carry out your project without fear of adverse consequences. To that end, this chapter summarizes a wide range of legal issues like trespass, drone use, and privacy rights. The analysis of these laws canvasses the full 50-state spectrum, highlighting similarities and differences across jurisdictions. This chapter should be read in conjunction with the material in Appendices 1 and 2 of this manual, which compile specific state statutes and resources. Ultimately, this chapter will help you *begin* to develop a sense of which actions you can take and which you should avoid, allowing you to plan your project more effectively.

#### Appendices include:

1. High-level comparisons of state laws

- 2. Individual State Law Summaries
  - 3. Pollutants Monitored by the EPA
- 4. Publicly available Data and Permits
  - 5. EPA Reference Methods, Standards and Protocols

Chapter 5, "Information Generation: Design of Sample Collection, Sample Analysis, and Data Interpretation Methodologies," highlights ways of increasing the quality of new information that you generate from any field work that your project may involve. Importantly, increasing the quality of the information you generate promotes its utility or usefulness. This chapter also stresses the value of making this process a community endeavor. For example, look for experts in your community who can help you overcome any technical hurdles you may encounter.

Finally, Chapter 6, "Information Use: Making the Most Out of Your Information," provides a few examples of ways in which you can increase the value of the work that you have performed.

### Use of This Manual

Citizen scientists have diverse needs that depend on the nature and status of the projects in which they are involved. As such, we anticipate that readers will differ in how they will use this manual. Some may read the manual from cover to cover; others will seek out specific topics.

While most of the examples and discussion provided in each chapter of this manual are geared toward helping citizen scientists begin and complete their own projects, the suggestions are applicable to all citizen science projects that are directed at air, water, and soil pollution concerns. Thus, whether you are interested in finding and getting involved in an existing project or are already involved in an ongoing project, this manual can still be a valuable resource to you.

Below are examples of how readers may use this manual:

- <u>Individuals interested in initiating a citizen science project</u>: because the manual is structured to reflect the sequence of steps that one might follow when initiating a new citizen science project, these readers may benefit from reading the manual from cover to cover.
- <u>Volunteers who are seeking to join an ongoing citizen science</u> <u>project</u>: because Chapter 1, "Identifying Your Project's Focus and Designing Its Approach," includes a section with resources for those interested in joining an ongoing project, people looking for a project to join may benefit from starting with this chapter. After joining a project, these readers can explore the chapters of the manual that are most relevant to their specific project roles.
- Organizers, Project Managers and Volunteers who are currently engaged in a citizen science project: for these readers, the manual's most useful content will likely relate to the project roles in which they are involved (*e.g.*, project design, collecting samples,

use this manual. Depending on your project's needs and status, and *your type of* involvement, you *may choose to* read the text in full, focus on the chapters that you anticipate will be most relevant, or *dig deeper into the* references cited in the text or into the appendices.

analyzing available data, interpreting results, preparing forms, disseminating a project's results, etc.). These readers may refer to the table of contents and to the chapter headings and introductions to identify sections of the manual containing content that addresses their current project needs.

This manual is designed to be useful for readers with a broad range of technical and legal backgrounds. Those who are just starting to learn about these topics may find it most useful to focus on the complete text of the chapters. Readers who are more familiar with the issues, and those who possess a technical or legal background may prefer to spend more time investigating the references cited in the text and appendices.

**Problem Solving as You Read**: Some readers may not have a specific problem in mind as they review the contents of this manual. Because reading the manual with a specific problem in mind may help highlight the relevance and application of the topics discussed, the following are hypothetical scenarios that you could consider when reading the manual:

<u>First scenario</u>: Imagine that you have just retired and moved to Wyoming for the clean air and fresh water. You bought a home on a hill overlooking and within a short distance of a river. You are hankering for something to do in retirement and decide to become an observer of nature and the environment. You soon learn that there are a couple of ranches near the area in which you have settled. How would you initiate a project to monitor any potential pollution of the river associated with ranching activities?

<u>Second scenario</u>: Imagine that you live in a small Pennsylvania community. Many individuals in your community are suffering from headaches and skin rashes, and they are complaining that their tap and well water is discolored with a bad odor. With a little investigation, you discover that some members of the community have recently leased their land to a gas company but cannot discuss the situation because of confidentiality provisions in their leases; others have not leased their land or given the gas company any rights to access or use their property. How would you design a project to determine whether there are pollutants in the water that are causing health impacts? Suppose that the successful completion of your project will require the comparison of water pollution levels that existed prior to the arrival of the gas company (*i.e.*, baseline pollution levels) with levels after its arrival?

<u>Third scenario</u>: Imagine that you live in North Dakota and that you are worried that a recently constructed pipeline will leak oil into a lake that is the source of many important resources for the residents in the area, not the least of which is drinking water. How would you initiate a project that will allow you to detect a leak in the pipeline?

# CHAPTER 1: IDENTIFYING YOUR PROJECT'S FOCUS AND DESIGNING ITS APPROACH

Why You Should Read this Chapter: Starting your project in the right way will help assure your overall satisfaction with your project. This chapter provides guidance for those taking these beginning steps. By the end of it, you will know how to identify your **project's focus** and how to use that focus to design your **project's approach**, which includes (i) the identification of a **site** (i.e., location) of interest to you (*e.g.*, a river, forest, industrial activity) and (ii) the determination of which pollutant or combination of pollutants will be examined during your project. In addition, this chapter provides resources for those seeking to join an ongoing citizen science project.



## Identifying the Focus of a Project of Interest

Before beginning a new citizen science project, you should identify the **project focus**, which is the environmental question, theme, and/or problem at issue. Some who are reading this manual may already have a **project focus** in mind; others may not. Recognizing the vast breadth of environmental problems that may be of interest to citizen scientists, we do not attempt to list them all here. Instead, we mention a few types of projects and examples of each.

<u>Monitoring the condition of an environmental interest</u> – Your project's focus might relate to protecting an environmental resource or habitat that is currently unthreatened or thought to be

unthreatened. By monitoring this resource, your efforts may facilitate the rapid detection of changes in pollution levels. Examples include:

- Monitoring water pollution levels in a river or in a national forest.
- Monitoring air quality in your community following the construction of a new local **pollutant source** (*e.g.*, an industrial facility, agricultural facility, land fill, sewage treatment plant, coal mine, etc.) or an announcement that an existing **pollutant source** in your community will be expanding or increasing its activity levels.
- Monitoring water quality in your community because you suspect an increase in pollution resulting from accumulated wear and tear of a known **pollutant source** near your home.

<u>Verifying reported emissions of pollution from a known pollutant source</u> – Your project's focus might relate to verifying that a known pollutant source is accurately reporting its environmental footprint. For example:

- Verifying that a known **pollutant source** is accurately reporting how much or what it pollutes.
- Verifying that a known **pollutant source** is complying with its current permit obligations.

<u>Redressing a known environmental pollution problem</u> – Your project's focus might relate to correcting a known pollution problem. Examples include:

- Identifying the source of an environmental pollutant.
- Redressing poor air or water quality.
- Decreasing the environmental impact of an oil spill in a national or state forest or in a body of water.

<u>Diagnosing a problem that you suspect is caused by pollution</u> – Your project's focus might relate to solving a problem that has arisen in your community when the cause of the problem is uncertain. You might desire to determine whether the problem's cause relates to a pollutant present in your community. For example:

• Diagnosing unexplainable health problems that individuals, animals, or plants in your community are suffering.

# Determine Whether Existing Projects Are Already Directed at the **Project Focus** that You Have Identified

The **project focus** that you are interested in may already be the focus of an ongoing citizen science project. If so, you might consider supporting that project instead of initiating one of your own. Indeed, supporting an existing project can alleviate the burden that some individual citizen scientists may feel in planning and mobilizing their own projects. If your interests align with those of an ongoing project, supporting that project can be ideal for you.

There are a variety of resources to help citizens identify ongoing citizen science efforts:

- <u>Media Outlets</u>: Local news agencies often cover major ongoing citizen science projects. Moreover, many community-driven citizen science projects increase public awareness through social media. For example, details concerning the citizen science project in Tonawanda, New York were reported in local news. In addition, the project's task force, the Clean Air Coalition of Western New York, used a Facebook page to advertise public meetings and other ways of getting involved in the project.
- <u>Organizational Websites</u>: Various citizen science organizations host websites that consolidate ongoing citizen science projects. Examples include the Citizen Science Alliance, the government-sponsored https://www.citizenscience.gov, and SciStarter (https://scistarter.com/finder).
- <u>Agency Websites</u>: State and federal environmental agencies also maintain citizen science databases on their websites. The EPA, for example, hosts a robust page dedicated to promoting citizen science involvement at https://www.epa.gov/citizen-science. In addition, many state and local park and wildlife departments host links to ongoing citizen science projects.
- <u>Appendices</u>: Appendices <u>1</u> and <u>2</u> of this manual provide references to various projects that are open to public involvement.

## Initiating Your Own Project: Designing Your Project's Approach

Many important environmental problems are not addressed by existing citizen science projects. Projects sponsored by government agencies may be limited and constrained by budget cuts, changes in priorities, and changes in political administrations. Ultimately, you may seek to initiate your own project. The first step in initiating your own citizen science project is designing your project's approach. A "**project approach**" has two components: i) the identification of a **site** of interest to you and ii) the determination of which pollutant or combination of pollutants you will examine. Importantly, the design of your project's approach should be driven by the **project focus** that you identified previously (*see* the first section of this chapter). For example, suppose that your **project focus** is:

- *Verifying* that a known **pollutant source** is accurately reporting how much or what it emits to the environment. This project's **site** of interest might be the known **pollutant source**.
- *Improving* the quality of air or water in your community. Here, the project's **site** of focus might be your community itself or a known **pollutant source** located near your community.
- *Monitoring* a natural habitat that you consider valuable (*e.g.*, a river, forest, ocean, etc.). In this instance, the **site** of interest might be the natural habitat or a known **pollutant source** located near that habitat.

After you have identified your project's **site** of interest, you should determine which pollutant or combination of pollutants will be examined during your project. This aspect of your project's approach is critical because if you spend all of your time examining the wrong pollutant, your project's goal will not be met. For some projects, determining which pollutant or combination of pollutants to examine will be a straightforward process. In others, this process may be the most difficult aspect of your project's design.

Use what you know about your project's **site** of interest to guide you in determining which pollutant or combination of pollutants you will examine during your project (*see Chapter 3*). For example:

<u>Source Indicators</u>: Pollutant sources are often associated with strong source indicators – meaning that some pollutants are commonly produced by a certain kind of pollutant source. Suppose for instance that your project's goal is to measure the impact of a newly constructed facility that produces plastics. These facilities are known to emit volatile organic compounds (VOCs). Therefore, your project may seek to examine VOC emissions. If you are interested in monitoring water quality in a stream, you could research sources of water pollution flanking the stream to determine which pollutants they discharge and, therefore, which you should examine.

- <u>Use Your Senses</u>: Your eyes, ears, and nose can help you figure out which pollutants you should examine (*e.g.*, a distinct smell in the air, the sight of an oil slick on the surface of water, a distinct taste in your drinking water, etc.). Likewise, the health symptoms associated with exposure to a pollutant may prove insightful. For example, the pollutant benzene, which is associated with petroleum products, has a sweet smell and exposure to abnormal levels of benzene in ambient air is associated with a heightened risk of asthma. If you notice a correlation between these two things in your community a gasoline-like smell and an increase in asthma diagnoses you might then consider initiating a citizen science project focused on local sources of benzene pollution.
- <u>Media Outlets</u>: Local news reports may also provide valuable information. For example, if a local news agency reports that residents of your community have been suffering from exposure to lead, the approach of your project may be determining the lead content of your drinking water.
- <u>Smartphone Apps:</u> Some regions may have smartphone applications set up to report pollutants or evidence thereof. For instance, Pittsburghers can use Smell PGH to report air quality on their smartphone; the app can then alert the Allegheny County Health Department to the data.<sup>2</sup> Apps such as this may provide useful information as you begin to decide which pollutants require attention in your area.

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We conclude this chapter by emphasizing that your project's approach need not be static; it is possible that it will require modification as your project progresses. For example, suppose that the focus of your project is diagnosing the sudden and unexplainable health problems recently afflicting members of your community. Your original **project approach** may have involved determining the levels of pollutant X in the community's water supply, but the results of your examination could indicate that the pollutant is absent or within safe levels. In response, you should revisit and modify the design of your project's approach (*e.g.*, modify it so that you will determine the levels of pollutant Y in the water supply, the levels of pollutant X in the air, or otherwise).

<sup>&</sup>lt;sup>2</sup> Ashley Murray, *Carnegie Mellon Scientists Use App to Track Foul Odors in Pittsburgh*, PITTSBURGH POST-GAZETTE, July 3, 2017

## CHAPTER 2: IDENTIFYING YOUR PROJECT'S GOAL

Why You Should Read this Chapter: If you don't know where you want to end up, you will never get there. Thus, it is important to identify your project's goals early. This process involves the evaluation of potential uses of the information that you collect or generate as you carry out your project (*i.e.*, **information use**). Here, we outline examples of **information use** and, at the same time, explain the **quality standards** that can limit the use of information that is collected or generated by citizen scientists. Understanding this information will help assure that your project's goals are achieved.



## Introduction

The use of citizen science-generated information is subject to various legal standards (i.e., "**quality standards**").<sup>3</sup> These standards serve to establish a level of quality that the information must meet before it can be used in a certain way (for example, in a court proceeding or agency decision). The terms "credible information" or "reliable information" may be used in place of "quality information" in some contexts.

Two simple inquiries can help you identify the **quality standards** that are relevant to your project's ultimate goals. First, who will use the information? Potentially, you seek to use the information yourself. Alternatively, you may want the government to use the information (*e.g.*, use by a federal, state, or local governmental agency, etc.). Second, how will the identified user ultimately use the information?

**Making Connections Between Chapters:** Chapter 1 was directed at helping you take the first steps of your project. Now that you have established your project's beginnings, you should take time to consider its possible endings. This involves an examination of the potential uses of the information that might be collected or generated during your project's progression (*i.e.*, "**information use**").

This chapter highlights examples of **information use**. Along the way, we identify legal standards that can limit the use of information that is collected or generated by citizen scientists. Doing so will help reveal the path that you should take to achieve your project's goals.

It may also be useful for you at this point to note that **information collection** is the topic of <u>Chapter 3</u>, and that **information generation** is the topic of <u>Chapter 4</u> and <u>Chapter 5</u>.

<sup>&</sup>lt;sup>3</sup> We emphasize that this chapter is only introductory in nature. Additional background information can be found in Appendices <u>1</u> and <u>2</u> of this manual and in a recent report published by the Commons Lab of the Science and Technology Innovation Program. *See* James McElfish, John Pandergrass & Talia Fox, *Clearing the Path: Citizen Science and Public Decision Making in the United States* (2016).

You can use the information that you collect or generate during your project in many ways. Depending on how you want to use the information, it will be subject to different **quality standards**, which can range from lenient to strict. While the laws and regulations that establish **quality standards** are too varied to allow a strict differentiation into clear "lenient" and "strict" categories, we attempt below to indicate where different standards fall along this continuum. It should be stressed at the onset of this discussion that even when use of information is not formally limited by **quality standards** or when it is limited only by lenient **quality standards**, the information's quality still impacts how effective it will be in advancing your goals.

Some potential uses of information that you have collected or generated are not subject to legally imposed **quality standards**. For example, you may use the information to increase knowledge in educational campaigns, to stimulate public awareness, or to foster community engagement. Or you might want to contact your elected representatives to influence the development of new laws. You can provide them with the information that you have collected or generated by phone, email, letter, or otherwise. Although there are no legal rules governing the quality of the of the data for these uses, you obviously still want to ensure that it is of as high a quality as possible so that you can make a compelling argument.

Uses by Citizen Scientist <u>No Legally Imposed</u> Quality Standards

 Education
Stimulate Public Awareness
Inform Legislators

You might instead want to provide the information to a regulatory agency or use it as evidence in a court case such as a citizen suit against a polluter. In these situations, the use of the information, either by yourself or by a government agency, will be subject to legally-imposed **quality standards**.

You can provide information to regulators in a variety of contexts. First, you can provide an agency with the information that you have collected or generated to influence the development of new regulations. For example, when an agency uses notice and comment rulemaking to propose the adoption of a new regulation, members of the public can submit comments in response to the proposed regulation during an allotted window of time. After closure of this time window, comments are no longer accepted. At the federal level, opportunities for public comment during notice and comment rulemaking are generally published in the Federal Register or can be found on the agency's website.<sup>4</sup> Each year, the EPA receives millions of comments on its proposed rules, notices, and other actions which are posted on its dockets at regulations.gov.<sup>5</sup>

If an agency is going to rely on the information you have submitted as a basis for its eventual decision, then the information must satisfy certain **quality standards**. Federal and state agency decisions are subject to judicial review. For example, the Administrative Procedure Act (APA) directs courts that review federal agency actions to "hold unlawful and set aside agency action, findings, and conclusions found to be *arbitrary*, *capricious*, an abuse of discretion, or otherwise not in accordance with law" or "unsupported by *substantial* evidence."<sup>6</sup> Standards in state courts are similar. Although these standards are not particularly burdensome, because courts grant considerable deference to agencies' scientific expertise, they nevertheless provide a check on the quality of the information that forms the basis for agency decisions.

If an agency does not have an ongoing rulemaking proceeding to which your information is relevant and if you believe an agency should issue new or revised rules to address the situation, then petitions for rulemaking provide an additional opportunity for you to use the information that you have collected or generated. Indeed, the APA requires each federal agency to provide "an interested person the right to petition for the issuance, amendment, or repeal of a rule."<sup>7</sup> Federal agencies have implemented different processes for the submission of petitions. The EPA, for example, provides opportunities for the public to submit and view previously submitted petitions on its website.<sup>8</sup> Similar opportunities for public engagement to influence the development of new regulations exist at the state level.

You might also submit the information to agency in the hope that the agency will use it to bring an administrative or judicial enforcement action against someone who is violating the law. For example, a government may use the information as evidence in a civil lawsuit or a criminal prosecution in a federal or state court. In these instances, the **quality standards** discussed below

<sup>&</sup>lt;sup>4</sup> For a comprehensive source compiling pending agency actions available for public input, *see Regulations.gov*, https://www.regulations.gov/ (last visited May 1, 2017).

<sup>&</sup>lt;sup>5</sup> Additional information can be found on EPA's website: *See* Environmental Protection Agency, *EPA Docket Center*, https://www.epa.gov/dockets (last visited May 1, 2017).

<sup>&</sup>lt;sup>6</sup> 5 U.S.C. § 706 (emphasis added).

<sup>&</sup>lt;sup>7</sup> 5 U.S.C. § 553(e).

<sup>&</sup>lt;sup>8</sup> See Environmental Protection Agency, *Petitions for Rulemaking*, https://www.epa.gov/aboutepa/petitions-rulemaking (last visited May 1, 2017).

concerning citizen use of the information in a citizen suit would apply. Alternatively, a state or federal agency may use the information in an administrative adjudication. The hearing officer in an administrative adjudication will follow **quality standards** that are similar to those in federal and state courts, though generally somewhat more flexible and lenient. For example, at the federal level, the APA indicates that "any oral or documentary evidence may be received, but the agency as a matter of policy shall provide for the exclusion of irrelevant, immaterial, or unduly repetitious evidence."<sup>9</sup> At the state level, the Revised Model State Administrative Procedure Act (MSAPA) provides similar guidance;<sup>10</sup> not all states, however, have adopted this model statute.

Finally, you may use the information that you have collected or generated to stimulate future independent agency action. In these instances, the information serves to call an agency's attention to the problem. The agency may then independently act to verify the information through its own **information generation** procedures and may initiate enforcement proceedings.<sup>11</sup> Some federal regulations expressly require states to solicit public participation in the collection of information and require state agencies to comment on citizen-generated information. For example, an EPA regulation requires states that implement the Clean Water Act (CWA), the Resource Conservation and Recovery Act (RCRA), and the Safe Drinking Water Act (SDWA) to "provide for, encourage, and assist the participation of the public."<sup>12</sup> With respect to the CWA, EPA regulations require each state that is developing and updating its list of impaired waters to "assemble and evaluate all existing and readily available water quality-related data and information."<sup>13</sup> Moreover, the CWA regulations specify that state agencies should actively solicit the help of members of the public "for research they may be conducting or reporting."<sup>14</sup> EPA regulations also specify that "[e]ach agency administering a permit program shall develop internal procedures for receiving evidence submitted by citizens about permit violations and ensuring that it is properly considered. Public effort in reporting violations shall be encouraged, and the agency shall make available information on reporting procedures. The agency shall investigate alleged

<sup>&</sup>lt;sup>9</sup> 5 U.S.C. § 556(d).

<sup>10</sup> M.S.A.P.A. § 404.

<sup>&</sup>lt;sup>11</sup> For example, Tonawanda, NY is a success story on this front.

<sup>&</sup>lt;sup>12</sup> 40 C.F.R. § 25.3.

<sup>&</sup>lt;sup>13</sup> 40 C.F.R. § 130.7(b)(5).

<sup>&</sup>lt;sup>14</sup> *Id*.

violations promptly."<sup>15</sup> Some state statutes also require state agencies to actively investigate complaints made by citizens concerning violations of environmental laws (see <u>Appendix 2</u>).<sup>16</sup>

State and federal laws also provide standards that may limit agency use of some types of information in all kinds of administrative actions. For example, the Information Quality Act (also known as the Data Quality Act) directs the Office of Management and Budget (OMB) to adopt guidelines for federal agencies to address the goals of ensuring and maximizing the "quality, objectivity, utility, and integrity of information."<sup>17</sup> Among other ways of promoting these goals, OMB guidelines direct federal agencies to develop a process for reviewing the quality of information before it is disseminated by the agency.<sup>18</sup> In a second example, the Endangered Species Act requires federal agencies to make species listing determinations (*e.g.*, as threatened or endangered) "solely on the basis of the best scientific and commercial data available."<sup>19</sup>

At the federal level, EPA's "Information Quality Guidelines" limit the agency's uses of "existing data and information generated by third parties to inform its decisions."<sup>20</sup> These guidelines require "the quality and scientific soundness of this type of data to be reviewed and documented prior to use."<sup>21</sup> These **quality standards** are expounded upon on EPA's website.<sup>22</sup>

State agency regulations or guidelines function similarly to the EPA's Information Quality Guidelines. For example, various state agencies have express authority to consider "credible" information in enforcement actions, administrative actions, or both (*see Appendix 2*). The

<sup>19</sup> 16 U.S.C. § 1533(b)(1)(A); 50 C.F.R. § 424.11.

<sup>21</sup> Scientific Integrity Policy, *supra*.

<sup>&</sup>lt;sup>15</sup> 40 C.F.R. § 25.9.

<sup>&</sup>lt;sup>16</sup> See, e.g., N.J. Admin. Code § 7:7A-16.19; N.Y. Envtl. Conservation Law § 19-0503; Utah Admin. Code § R317-8(1.9); Vt. Stat. Ann. tit. 10, § 8020.

<sup>&</sup>lt;sup>17</sup> Information Quality Act of 2001, Pub. L. No. 106-554, § 515, 114 Stat. 2763 (Dec. 21, 2000).

<sup>&</sup>lt;sup>18</sup> Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies, 67 Fed. Reg. 8452, 8460 (2002).

<sup>&</sup>lt;sup>20</sup> Environmental Protection Agency, *Scientific Integrity Policy* (2012), at 2. As of June 2017, the EPA continues to refer to the 2012 policy document. Environmental Protection Agency, *Policy on EPA Scientific Integrity*, https://www.epa.gov/osa/policy-epa-scientific-integrity (last visited June 21, 2017). In February 2017, a bill on scientific integrity was introduced in the Senate, and in March 2017, a similar bill was introduced in the House. Scientific Integrity Act, S. 338, 115th Cong. (2017); Scientific Integrity Act, H.R. 1358, 115th Cong. (2017). The former aims to promote open exchange of data and findings. Both have been referred to a relevant committee or subcommittee.

<sup>&</sup>lt;sup>22</sup> Environmental Protection Agency, *Doing Business with EPA: Quality Specifications for non-EPA Organizations*, http://www.epa.gov/quality/exmural.html (last visited June 21, 2017).

definition of "credible" varies between states. In some states, information is credible if its collection conforms (i) to accepted scientific practice; (ii) to federally recognized standards; or (iii) to state-specific protocols. Iowa law provides an example of a relatively stringent **quality standard** imposed to ensure that the information is credible. To submit water data to the Iowa Department of Natural Resources (DNR), citizen scientists must first submit a "volunteer water quality monitoring plan" for DNR approval. The plan must include a "statement of intent[,]" the names of all participants, the duration of the monitoring effort, the "[1]ocation and frequency of sample collection[,]" the "[m]ethods of data collection and analysis[,]" and "[r]ecord keeping and data reporting procedures."<sup>23</sup> In addition to this, citizen-submitted data must be approved before being considered credible.<sup>24</sup> To be approved, data must be submitted by a "qualified volunteer" who must request that it be deemed credible at the time of submission.<sup>25</sup> "[Q]ualified volunteers must have the training and experience to ensure quality assurance and quality control for the data being produced, or be under direct supervision of a person having such qualifications."<sup>26</sup>

You may want to use the information to bring a lawsuit against a polluter yourself. One mechanism for such a lawsuit is a **citizen suit** under one of the federal environmental laws. Citizen suits are lawsuits that are brought by a private citizen (i) against an individual, corporation, or government body for engaging in conduct prohibited by a statute or (ii) against a government body for failing to perform a duty required by law. Various federal environmental statutes, including the CWA, RCRA, SDWA, the Clean Air Act (CAA), the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Endangered Species Act (ESA), and the Emergency Planning and Community Right to Know Act (EPCRA), allow private citizens to bring lawsuits against violators.

Various **quality standards** govern citizen lawsuits.<sup>27</sup> First, the quality of the information must be sufficient to bring a claim. Federal courts require that an attorney filing a complaint to initiate a lawsuit must certify "that there is (or likely will be) 'evidentiary support' for [each]

<sup>&</sup>lt;sup>23</sup> Iowa Admin. Code 567-61.11(455B).

<sup>&</sup>lt;sup>24</sup> Iowa Admin. Code 567-61.12(455B).

<sup>&</sup>lt;sup>25</sup> Id.

<sup>&</sup>lt;sup>26</sup> Iowa Admin. Code 567-60.2(455B).

 $<sup>^{27}</sup>$  There are a variety of requirements that you must satisfy to successfully bring a citizen suit (*e.g.*, sending a notice letter in advance, establishing that the plaintiff has standing to sue, etc.). Here, our primary topic of interest relates only to the quality of the evidence you will use to support a citizen suit.

allegation, not that the party will prevail with respect to its contention regarding the fact."<sup>28</sup> Generally, requirements in state courts are comparable (*see* Appendices <u>1</u> and <u>2</u>).

Second, when submitting evidence at trial or in support of a motion for summary judgment, you must authenticate that evidence, which requires, among other things, maintaining records establishing the "chain of custody" of the evidence. To satisfy the requirement of authentication in federal courts, "the proponent must produce evidence sufficient to support a finding that the item is what the proponent claims it is."<sup>29</sup> Generally, requirements in state courts are comparable (*see* <u>Appendix 2</u>). You should also note that if you are relying on government-generated information or monitoring reports that the permittee submits to the government, then the information is self-authenticating.

Finally, **quality standards** specifically serve to limit the introduction of "scientific" evidence in trial. It should be noted that some information that you may collect or generate will not be considered scientific (*e.g.*, a picture of an industrial facility that is discharging a pollutant into surface water). In these instances, layperson testimony is sufficient to introduce the information. However, if the information is deemed scientific (*e.g.*, information generated via an interpretation of a data output from a technical instrument), it must be introduced through expert testimony and is subject to stricter quality requirements. This is because scientific evidence is believed to carry greater weight in the minds of jurors than evidence deemed non-scientific. In federal courts, judges use an approach known as the *Daubert* standard to make a preliminary assessment of the quality of the information. In doing so, federal judges consider whether:

"(a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue; (b) the testimony is based on sufficient facts or data; (c) the testimony is the product of reliable principles and methods; and (d) the expert has reliably applied the principles and methods to the facts of the case."<sup>30</sup>

While judges in many state courts also use the *Daubert* standard when assessing the quality of scientific evidence, others use different standards, although these are generally similar (*see* 

<sup>&</sup>lt;sup>28</sup> Fed. R. Civ. P. 11.

<sup>&</sup>lt;sup>29</sup> Fed. R. Evid. 901(a).

<sup>&</sup>lt;sup>30</sup> Fed. R. Evid. 702.

<u>Appendix 2</u>). Importantly, under each standard, the method by which data is collected and interpreted impacts whether the information will be allowed in a trial.

A final point is applicable to multiple uses of the property, but only in certain states. Several states explicitly forbid the use of certain illegally-collected information in court or in administrative decision-making (*see* <u>Appendix 2</u>). Of these, Wyoming most directly implicates citizen science: information collected in violation of the state's data trespass law is not "admissible in any civil, criminal, or administrative proceeding."<sup>31</sup> Moreover, any information fitting this description that is "in the possession of any government entity . . . shall be expunged from all files and databases, and shall not be considered in determining any agency action."<sup>32</sup> Several other states forbid the use of information illegally collected by drones under some circumstances.<sup>33</sup> (*see* Appendix 2)

<sup>&</sup>lt;sup>31</sup> Wyo. Stat. Ann. § 6-3-414(f).

<sup>&</sup>lt;sup>32</sup> *Id.* § 6-3-414(g).

<sup>&</sup>lt;sup>33</sup> At the time of writing, these were Nevada, *see* Nev. Rev. Stat. Ann. § 493.112(4); North Carolina, *see* N.C. Gen. Stat. Ann. § 15A-300.1(f); and Vermont, *see* Vt. Stat. Ann. tit. 20, § 4622(e); *see also* <u>Appendix 2</u>.

## CHAPTER 3: INFORMATION COLLECTION – GATHERING PUBLICLY AVAILABLE INFORMATION

Why You Should Read this Chapter: Every citizen science project has limited resources (*e.g.*, limited time, finances, volunteer involvement, etc.). You will increase the efficiency of your project by taking time to examine information that already exists (*i.e.*, "**information collection**"). This chapter provides suggestions as to what information, if publicly available, might be of use to your project. In particular, this chapter focuses on the collection of information related to pollutants and pollutant sources. Resources are provided to aid in your search for this information. Because all citizen science projects *should* involve this type of "**information collection**," we anticipate that this chapter will be useful to all citizen science projects, whether just beginning or ongoing.



## Introduction

**Information collection** serves various purposes. It informs and directs the design of your project in both technical and legal ways. It also helps assure that your efforts are not redundant, as there may already be useful information in the public domain. It may lead you to other

individuals who are monitoring the problem that you have identified. Here, we provide examples of information that may be worth collecting.

Importantly, if you feel unable to collect this information, we recommend that you seek out expertise in your community. High school teachers, university professors, scientists, engineers, lawyers, and many other individuals in your community are likely willing and able to help.

Making Connections Between Chapters: In Chapter 1, you identified your project's focus and used that focus to identify a site of interest to you (*e.g.*, a natural resource or a **pollutant source**) and to determine which pollutant or combination of pollutants will be examined during your project. In Chapter 2, you identified how you hope to use the information that you collect or generate during your project and the type of **quality standards** that might apply.

This chapter's focus is "**information collection**," gathering and analyzing information that is already in the public domain. In some instances, the process of **information collection** alone will provide you with the tools you need to meet your goals. However, many projects will need to supplement the process of **information collection** with **information generation**, which is discussed in Chapter 4 and Chapter 5

## Collecting Available Information Concerning a Pollutant

A large amount of information concerning specific pollutants is already available in the public domain. Spending time upfront to research your pollutant(s) of interest will help to assure that you get the most out of your efforts and could also help shield you from potential health risks.

We recommend that you begin your research by addressing the following technical and legal questions:

• <u>Technical Questions Related to Determining the Identity of a Pollutant</u>: Is the pollutant visible, and if so, what does it look like? Can the pollutant be sensed in other ways, such as smell? What health risks are associated with the pollutant? How are potential health

risks manifested (*e.g.*, vomiting, dizziness, skin rash, etc.)? What information is available on the pollutant's material safety data sheet (MSDS) (*e.g.*, health effects, first aid measures, flammability and explosiveness, proper storage and disposal, physical properties, toxicity, and necessary protective equipment)?

- <u>Technical Questions Related to Determining the Source of a Pollutant</u>: What sources are typically associated with the pollutant (*e.g.*, natural sources or human sources such as industrial facilities, landfills, sewage treatment plants, mining operations, etc.)? What is the pollutant's Chemical Abstracts Service (CAS) number (a unique chemical identifier that can help you locate sources of a pollutant and any relevant characteristics)?
- <u>Technical Questions Related to Collecting, Handling, or Storing Samples</u>: What is the stability of the pollutant in the air, water, or soil? Is the pollutant soluble in water? What instruments or methodologies can be used to measure the amount of the pollutant in air, water, or soil? What is the lowest amount of pollutant that is instrumentally or methodologically detectable (*i.e.*, its detection limit)? What are the baseline/background levels of the pollutant (*e.g.*, in some contexts pollutants are ubiquitous, and so detecting a pollution problem involves showing that the level of the pollutant is higher than previously recorded)? What are appropriate safety measures for the handling of the pollutant?
- <u>Legal Questions</u>: Is the pollutant regulated by a federal or state agency (*i.e.*, does a state or federal agency have **jurisdiction** over the pollutant)? If so, what regulations are in place that are specific to the pollutant (*e.g.*, permissible or reportable quantities)?

Various resources exist that can be of aid in answering these or other related questions. Substantial technical and legal information can be found online; however, care should be taken to assure the quality of the references that you rely upon. Generally, peer-reviewed medical or scientific articles are a very good resource to gain technical knowledge; these articles can be found by searching online with Google Scholar (https://scholar.google.com/) or in various public databases (*e.g.*, Web of Science, PubMed, MedlinePlus, etc.) that might be available through a public library.

Federal and state agency websites, such as epa.gov, also contain reliable information. For example, the Substance Registry Services (SRS) is the EPA's "central system for information about substances that are tracked or regulated by EPA or other sources. It is the authoritative resource for basic information about chemicals, biological organisms, and other substances of interest to

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EPA and its state and tribal partners."<sup>34</sup> The EPA website also provides links to state health and environmental agencies that play a role in monitoring pollutants.<sup>35</sup>

Finally, federal and state regulations contain information on how pollutants are monitored. These regulations may be very relevant to your project. For example, in many instances regulations will specify pollution quantities, that if exceeded, *must* be reported to a federal or state agency. Various federal regulations that may be relevant to your project are listed in <u>Appendix 3</u>. For many facilities, reporting requirements will also be contained in a permit, a topic discussed in the next section.

## Collecting Available Information Concerning a Pollutant Source

A large amount of information concerning specific **pollutant sources** is also already available in the public domain. Investing time in researching the **pollutant source** will help to fine tune your project design and will help you avoid wasting time on the wrong potential **pollutant source**. For example, since news coverage and public records differ based on the individual **pollutant source**, it is crucial to start your research with the correct one. Identifying the correct **pollutant source** will allow you to conduct searches to obtain further information more easily.

Here, we recommend that you begin your research by addressing the following questions: Are there any media reports that involve the **pollutant source**? Are third-party monitoring records available? Is this source monitored by a federal or state agency (*i.e.*, does a state or federal agency have **jurisdiction** over this source) or is the source responsible for self-monitoring and reporting?

A good place to begin researching a **pollutant source** is by reviewing public media releases that might implicate the **pollutant source** with an environmental concern.<sup>36</sup> You should also seek out publicly available monitoring records (*e.g.*, generated by the source, a third party, and/or a government agency) and permit records. Additional public records may include prior inspections

<sup>&</sup>lt;sup>34</sup> See Environmental Protection Agency, Substance Registry Service,

https://iaspub.epa.gov/sor\_internet/registry/substreg/home/overview/home.do (last visited May 1, 2017).

<sup>&</sup>lt;sup>35</sup> See Environmental Protection Agency, *Health and Environmental Agencies of U.S. States and Territories*, https://www.epa.gov/home/health-and-environmental-agencies-us-states-and-territories (last visited May 1, 2017).

<sup>&</sup>lt;sup>36</sup> For a resource that will help you locate these information releases, see U.S. ENVIRONMENTAL PROTECTION AGENCY, *Envirofacts*, https://www3.epa.gov/enviro/ (last visited May 1, 2017); *see also* U.S. ENVIRONMENTAL PROTECTION AGENCY, *Toxics Release Inventory (TRI) Program*, https://www.epa.gov/toxics-release-inventory-triprogram (last visited May 1, 2017); U.S. ENVIRONMENTAL PROTECTION AGENCY, *Enforcement and Compliance History Online (ECHO)*, https://echo.epa.gov/ (last visited May 1, 2017).

of the **site** of interest, prior compliance records, or reports submitted to governmental agencies by the **site** of interest. <u>Appendix 4</u> lists several resources provided by the EPA. Various state agencies also provide similar resources.

Additional information can be obtained through a Freedom of Information Act ("FOIA") request. FOIA requires federal agencies to disclose any records requested by the public unless they fall into one of nine exemptions.<sup>37</sup> These exemptions include information that bears on national security and personal privacy, among other concerns.<sup>38</sup> Before making a FOIA request, you can conduct a search of information already made available by federal agencies at FOIA.gov to see if the information you seek has already been released.<sup>39</sup> If that fails, then you may want to consider filing your own FOIA request.

Submitting a FOIA request does not involve any special forms and does not require any kind of legal expertise. You can simply write a letter to the agency most likely to possess those records detailing the records you would like a copy of. Generally, the more specific your request is, the better; broader requests take considerably longer to process and are more likely to yield irrelevant results. Additionally, some agencies require individuals to submit a fee to cover the cost of record retrieval.<sup>40</sup> Broader requests, which tend to require more work on the agency's part, are likely to be more expensive. For a sample FOIA request letter you can fill out with your specific details, visit the National Freedom of Information Coalition's website.<sup>41</sup> Once you have written your request, you can locate the relevant agency's FOIA request contact information on FOIA.gov.<sup>42</sup>

<sup>&</sup>lt;sup>37</sup> U.S. Department of Justice, *What is FOIA*?, FOIA.GOV, https://www.foia.gov/about.html (last visited May 1, 2017); 5 U.S.C. § 552(a)(3)(A), (b).

<sup>&</sup>lt;sup>38</sup> Id.

<sup>&</sup>lt;sup>39</sup> U.S. Department of Justice, *Search for Released Information*, FOIA.Gov, https://www.foia.gov/about.html (last visited May 1, 2017).

<sup>&</sup>lt;sup>40</sup> That being said, there are certain provisions that limit fee collection on FOIA requests. The reasonableness of such fees may vary according to whether the information sought is to be used for commercial or noncommercial purposes, with the latter meriting a lesser fee. 5 U.S.C. 552(a)(4)(A)(ii). Fees may also be waived if the information sought is in the public interest. 5 U.S.C. §552(a)(4)(A)(iii). Furthermore, the government agency waives its right to collect fees if it does not respond to the request within 10 days. OPEN GOVERNMENT ACT OF 2007, Pub. L. No. 110-175, §6.

<sup>&</sup>lt;sup>41</sup> National Freedom of Information Coalition, *Sample FOIA Request Letters*, http://www.nfoic.org/sample-foia-request-letters#foireq (last visited May 1, 2017).

<sup>&</sup>lt;sup>42</sup> U.S. Department of Justice, *Where to Make a FOIA Request*, FOIA.Gov, https://www.foia.gov/about.html (last visited May 1, 2017).

If the information you seek is more likely to be held by a state agency, then you will want to acquaint yourself with your state's public records law and see if you can make a similar document request. Every state has its own public records laws pertaining to public requests for information from state agencies. While some are very similar to FOIA, others are broader or more limited. To learn more about your state's public records law, you can access the National Freedom of Information Coalition's database of state public records laws.<sup>43</sup> This helpful resource also includes sample FOI request letters by state.<sup>44</sup> As with federal FOIA requests, you will want to make sure that your state records request is as detailed and specific as possible. If you encounter any difficulty in securing a response to your state FOI request, the Freedom of Information Coalition and its affiliates have offices in every state that you can contact for advice and assistance.<sup>45</sup>

<sup>&</sup>lt;sup>43</sup> National Freedom of Information Coalition, *State Freedom of Information Laws*, http://www.nfoic.org/state-freedom-of-information-laws (last visited May 1, 2017).

<sup>&</sup>lt;sup>44</sup> National Freedom of Information Coalition, *State Sample FOI Request Letters*, http://www.nfoic.org/state-sample-foia-request-letters (last visited May 1, 2017).

<sup>&</sup>lt;sup>45</sup> National Freedom of Information Coalition, *NFOIC State and Regional Affiliates*, http://www.nfoic.org/members (last visited May 1, 2017).

## CHAPTER 4: INFORMATION COLLECTION – BEWARE POTENTIAL LIABILITY

Why You Should Read this Chapter: While most citizen science projects will not implicate legal concerns, there are nonetheless various laws that can limit your ability to gather information. This chapter gives an overview of these laws and provides suggestions on how to remain in compliance with them. It also notes areas where you may have a legal privilege to engage in certain activity, so that you can respond proactively. The content of this chapter is supplemented by Appendices <u>1</u> and <u>2</u>, which provide a state-by-state analysis of the laws discussed.



## Introduction

In most instances, we anticipate that you will not encounter legal difficulties in conducting research for your citizen science project. Your project's **site** of interest (which you identified as part of your **project approach** in Chapter 1) may be open to all citizens – meaning there are no legal barriers in collecting samples of air, water, and/or soil quality, or taking photographs. Many

federal and state agencies have issued guidelines that are favorable to the practice of citizen science. In sum, you should not let the fear of legal troubles deter you from pursuing your project. But, you should be aware of the laws that might apply to your project.

This chapter outlines the various legal claims that have been asserted (rightly or wrongly) against citizen scientists. It aims to arm you with some general knowledge, including things you are well within your rights to do as well as things you should avoid doing. Should you encounter a legal threat in the course of your project, our hope is that you Legal topics covered in this chapter include:

- 1) Trespass
- 2) Loitering
- 3) Stalking
- 4) Privacy
- 5) Drone use
- 6) Agency
  - regulations

will be able to figure out whether that threat is real or mere puffery, allowing you to take full advantage of your legal rights. Because many types of potential liability relate to actions you might take on private property, we begin by discussing property ownership.

**Making Connections Between Chapters:** In <u>Chapter 1</u>, you identified your **project's focus** and used that focus to design your project's approach, which included the identification of a site of interest to you (*e.g.*, a natural resource or a pollutant source). In <u>Chapter 3</u>, you collected publicly available information on any pollutant sources relevant to your project.

This chapter provides resources for you to extend this previous work, helping you to determine or verify property ownership of land on and surrounding your project site (*e.g.*, where you will collect samples). It then gives an overview of legal issues relevant to your sample collection design. This information can guide the scope of your **information generation** strategy (discussed in <u>Chapter 5</u>).
# *Property Ownership: Who owns the land where you want to gather information or collect samples?*

In addition to securing any publicly available records that are relevant your project goals (discussed in Chapter 3), you should take steps to learn about ownership of the land where your project **site** is located, as well as the land surrounding it. One way to determine the ownership status of your project's **site** of interest is to use Geographic Information System (GIS) maps. GIS maps layer data over geography, allowing interactive visualization of geographic information on the map.<sup>46</sup> Many GIS maps display property lines and ownership information.<sup>47</sup>

A related resource is your local assessor's office, which maintains a public database of local property ownership. You can submit a request to your assessor's office to determine a given parcel's ownership information so long as you have the property's parcel number (oftentimes, this parcel number can be found using GIS maps). Note that many offices provide this information online – meaning you do not have to go in person to find certain information or submit a request for further information.

Property ownership determines whether you may access a property and whether you may collect samples, photos, or other information. For example, strict trespass and privacy laws apply to private property. Public property is managed by various government agencies that have their own special rules about who can access the land and for what purposes. Public lands can be roughly split into the following categories: Property ownership determines whether you may access a property and whether you may collect samples, photos or other information.

 Federal Land: Land owned by the federal government is managed either by the Department of the Interior or by the Department of Agriculture's Forest Service.<sup>48</sup> Within the Department of the Interior, the Bureau of Land Management is tasked with overseeing the majority of the federal government's on-shore landholdings,

<sup>47</sup> See, e.g., Mass. Interactive Property Map, Mass. Exec. Office of Admin. and Finance,

<sup>&</sup>lt;sup>46</sup> See What is Geographic Information Systems (GIS)?, GIS Geography, http://gisgeography.com/what-gis-geographic-information-systems/ (last visited May 1, 2017).

http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-informationmassgis/online-mapping/massgis-par-vwr.html (last visited May 1, 2017) (GIS map of property in Massachusetts); *Tennessee Property Viewer*, State of Tenn., http://tnmap.tn.gov/assessment/ (last visited May 1, 2017) (GIS map of property in Tennessee).

<sup>&</sup>lt;sup>48</sup> Congressional Research Service, *Federal Land Ownership: Overview and Data*, https://fas.org/sgp/crs/misc/R42346.pdf (last visited June 21, 2017).

which add up to about 1/8 of the nation's land.<sup>49</sup> These federal landholdings are especially concentrated in western states; 48.4% of Montana, for example, is federally-owned land.<sup>50</sup>

- State Land: Each state has its own land-holding agencies that oversee the use of state-owned property. These generally include a state-wide Parks Department and a Department of Natural Resources. A great deal of state-held land about 3/4 is in the form of trust lands—lands held by the state to benefit specific public purposes, most commonly to support public schools.<sup>51</sup> While some of these trust lands are commercially leased and unavailable to the public, in many cases they are open to public access. You should check with the state's Department of Natural Resources or Parks Department to see what activities are permitted in state parks and trust lands.
- *Local/Municipal Land*: A lot of public property is also managed at the local or municipal level. Municipalities can own and rent land within city limits.<sup>52</sup> Many local parks, cemeteries, and waterways are subject to local ownership and control.<sup>53</sup> Generally, a municipality's Parks & Recreation Department or Water Department will have authority to administer such lands—and control access.
- Maritime Territory: Management of the oceans is split between the state and federal governments. The first three miles from the coast are considered state property and are managed by the states.<sup>54</sup> The next nine miles are U.S. territorial waters that are managed by the federal government. Different federal agencies are responsible for regulating particular types of activities in federal waters. The Bureau of Ocean Energy Management (BOEM) and the Bureau of Safety and Environmental Enforcement (BSEE), both part of

<sup>53</sup> Id.

<sup>&</sup>lt;sup>49</sup> Bureau of Land Management, *Public Land Statistics*, https://www.blm.gov/public\_land\_statistics/ (last visited June 21, 2017).

<sup>&</sup>lt;sup>50</sup> *Supra* note 49 at 9.

<sup>&</sup>lt;sup>51</sup> See Steven M. Davis, Preservation, Resource Extraction, and Recreation on Public Lands: A View from the States, 48 Nat. Resources J. 303, 306 (2008).

<sup>&</sup>lt;sup>52</sup> Municipal Association of South Carolina, Forms and Powers of Municipal Government, https://www.masc.sc/SiteCollectionDocuments/Administration/Forms%20and%20Powers2.pdf (last visited May 1, 2017)

<sup>&</sup>lt;sup>54</sup> While most state managed waters only extend out to three miles beyond the shore, Texas and the Gulf Coast of Florida extend to nine miles. *See* NOAA GENERAL COUNSEL, *Maritime Zones and Boundaries* (last visited May 1, 2017), http://www.gc.noaa.gov/gcil\_maritime.html.

the Department of the Interior, manage offshore energy exploration and development.<sup>55</sup> The National Marine Fisheries Service regulates fisheries and is responsible for the stewardship of marine protected species. The EPA has general authority over pollution discharges not associated with energy development and minerals (which would fall under BOEM/BSEE's purview). The Coast Guard is the primary law enforcement authority in these waters.

Knowing the property lines and ownership status of properties you want to access is an important first step when it comes to determining what you are allowed to do on the property. Knowing who owns the property on which you want to conduct research may have another benefit: in many cases, reaching out to the property owner or managing agency ahead of time to see if you can conduct your citizen science project on their land will resolve any disputes at the outset. For example, you can avoid the risk of trespass liability if you have already received permission from the property owner to conduct research on his or her land.

#### Potential Legal Challenges

In this subsection, we identify categories of laws that restrict access to land. Appendices  $\underline{1}$  and  $\underline{2}$  provide a 50-state survey of the laws discussed in this chapter. Neither this subsection nor the appendices provides complete and detailed answers about the applicable laws in any given state; instead, they are intended to give you a broad overview of the applicable laws. We encourage you to use the tools at your disposal, such as local libraries and the Internet, to conduct further research about the local laws where you live. Laws change and evolve; please remember that the resources in this manual do not constitute legal advice, and that you should seek representation should you encounter any legal issues.

<sup>&</sup>lt;sup>55</sup> Bureau of Safety and Environmental Enforcement, *Agency Roles*, (last visited May 1, 2017), <u>https://www.bsee.gov/site-page/decommissioning-0</u>.

#### 1. <u>Trespass</u>

**Summary**: You commit a trespass only when you go on someone else's land without the owner's permission. If you stay on public or private lands where you have permission to be, then trespass laws will not be a problem for your research. If you need to take samples on private land or cross private land to get to your sampling location, then you can seek permission from the property owner. Otherwise, you will generally be safe if you avoid areas that are marked off by fences or "no trespassing" signs. In a few states (indicated in this subsection), you need to use GIS maps to identify property boundaries and therefore avoid accidentally crossing onto someone's property. Additionally, a few states have specialized laws that punish trespass and even photography around industrial and agricultural sites. You will want to be aware of whether your state has such a law. For the most part, you can avoid trouble under these laws by not entering any clearly off-limits sites – the same advice as with trespass generally. Nonetheless, it would be wise to utilize GIS maps and to be aware of property lines when conducting research around such a facility.

Broadly defined, a trespasser is someone who physically enters or remains on another person's property without that person's consent.<sup>56</sup> Liability for trespass generally takes two forms: criminal (prosecution by the government) and civil (private lawsuits). In addition, certain states impose heightened liability for trespass—or even taking photographs—around industrial or agricultural facilities.

#### a. General Criminal and Civil Trespass

Every state has its own criminal trespass statute. If you are interested in learning more about your state's criminal trespass statute, you can begin by locating your state's criminal code online.<sup>57</sup> These statutes generally define trespass as unauthorized entry onto someone else's land. Beyond that basic definition, many states have varying degrees of criminal trespass, meaning that

<sup>&</sup>lt;sup>56</sup> Cf. RESTATEMENT  $(2^{ND})$  OF TORTS §329.

<sup>&</sup>lt;sup>57</sup> Cornell University's Legal Information Institute has compiled each state's criminal code at https://www.law.cornell.edu/wex/table\_criminal\_code (last visited May 1, 2017). Upon locating your state's criminal code, you can follow the hyperlink to its criminal trespass laws in the table of contents.

certain forms of trespass may be punished more severely than others. In Alabama, for example, first degree criminal trespass occurs when a person knowingly enters someone else's home without permission;<sup>58</sup> second degree trespass occurs when a person crosses, without authorization, onto private land that is fenced off or otherwise bears markers of private property.<sup>59</sup>

The role of notice varies among state criminal trespass statutes. Most states require that, to be guilty of criminal trespass, an individual must have had notice that he or she was entering private property without authorization (*e.g.*, a "no trespassing" sign or a fenced off area). Eight states, however, do not require notice: *Colorado, Delaware, Hawaii, Kentucky, Missouri, Tennessee, Wisconsin, and Wyoming*. In these states, trespass is an absolute liability crime – meaning that being unaware that you were not supposed to be on the property in question is not a valid defense in these instances.<sup>60</sup> If you are conducting your project in one of these states, you should carefully scrutinize current GIS maps and property records before entering your project's **site** of interest.<sup>61</sup> In other states, common sense should suffice: avoid entering fenced or marked-off areas without permission.

In addition to criminal statutes, every state also allows landowners to bring civil lawsuits for trespass. These are generally governed by common law – meaning there is no statute to look at when determining what constitutes civil trespass; the law is developed by judges in their decisions. Many judges define it in the same way as criminal trespass: voluntary entry onto someone else's property without consent or authorization.<sup>62</sup> Ultimately, this means that you may be liable for any damage you cause to someone else's property while conducting research on that property. Moreover, even if no quantifiable damage is done, many courts will allow the property owner to recover nominal damages for the very fact of the trespass.<sup>63</sup> However, these nominal damages are typically very small.

<sup>62</sup> Restatement (Second) of Torts §158.

<sup>&</sup>lt;sup>58</sup> Ala. Stat. 13A-7-2.

<sup>&</sup>lt;sup>59</sup> Ala. Stat. 13A-7-3.

<sup>&</sup>lt;sup>60</sup> Cf. State v. Hunt, 630 S.W.2d 211 (Mo. App. 1982).

<sup>&</sup>lt;sup>61</sup> For further information on what these informational tools are and how to access them, *see* Chapter 3.

<sup>&</sup>lt;sup>63</sup> See Foust v. Kinney, 80 So. 474, 475 (Ala. 1918); see also Brown Jug, Inc. v. Int'l Brotherhood of Teamsters, Chauffeurs, Warehousemen & Helpers of Amer., 688 P.2d 932, 939 (Alaska 1984); Hale v. Brown, 323 P.2d 955, 963 (Ariz. 1958) (It is a "well-established and deeply-rooted legal principle that a person has the right to vindicate any trespass upon his legal rights . . . for at least nominal damages.").

#### b. Specialized Trespass Statutes: Industrial Trespass and Ag-gag Laws

In addition to basic trespass liability, some states treat it more seriously when someone trespasses on certain industrial or agricultural facilities. Industrial trespass laws impose heightened liability for trespass on "critical infrastructure." This term often encompasses various **sites** that may be of interest to citizen scientists (*e.g.*, power plants and factories).<sup>64</sup> If your project has identified such a facility as its **site** of interest, you will want to take extra care to identify whether your state has an industrial trespass statute. For this, you can refer to the comprehensive state spreadsheet in Appendices <u>1</u> and <u>2</u> but recognize that the laws change so you will need to double-check the current accuracy of the spreadsheet before you rely on it. On a positive note, states laws that have heightened criminal sanctions for trespass on critical infrastructure typically include a notice requirement, meaning liability for trespass occurs when someone has (i) crossed a fence or passed a "no trespassing" sign to get to a sample collection **site** or (ii) received personal notice to leave the premises from the property owner and refused to leave. Therefore, in those states, you will not be liable for industrial trespass as long as those situations do not apply to you.

Many states also have specialized statutes that address trespass on and monitoring of agricultural facilities, colloquially known as "ag-gag laws." At the time of writing, 24 states had such laws. Ag-gag laws are compiled in the spreadsheet in Appendices <u>1</u> and <u>2</u>. These statutes tend to have the same basic elements: an alleged trespasser entered or remained on an agricultural facility (i) without effective consent, (ii) intending to disrupt or damage the enterprise conducted at the animal facility, and (iii) had notice that entry was forbidden or received notice to depart and did not. Some also include a separate legal claim for taking photos or videos of such a facility with the intent of damaging its enterprise (*e.g.*, by publishing damning information about it).<sup>65</sup> In summary, when seeking to monitor an agricultural facility, you should check to see if your state has an applicable ag-gag law.

Wyoming is currently unique in that it has a trespass law that specifically targets citizen scientists.<sup>66</sup> This statute creates a new criminal offense called "trespassing to unlawfully collect

<sup>&</sup>lt;sup>64</sup> See, e.g., Texas Penal Code §30.05.

<sup>&</sup>lt;sup>65</sup> See, e.g., Kan. Stat. Ann. §47-1827.

<sup>66</sup> Wyo. Stat. §6-3-414

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resource data."<sup>67</sup> The offense is defined as trespassing on private property for the purpose of collecting "data relating to land or land use, including but not limited to data regarding agriculture, minerals, geology, history, cultural artifacts, archeology, air, water, soil, conservation, habitat, vegetation or animal species."<sup>68</sup> The statute is triggered either by collecting resource data on private land or by crossing private land to collect resource data on public land. A violation of this statute triggers enhanced penalties, compared to ordinary trespass. For a first offense, the punishment is up to one year in prison plus a fine of up to \$1,000; the maximum fine is increased to \$5,000 for repeat offenders.<sup>69</sup> A related statute allows property owners to bring a civil damages action against trespassers.<sup>70</sup> Someone can be liable under both the criminal and the civil statutes even if the private property boundaries are unmarked.

A number of environmental groups have challenged this law in court, arguing that it violates their free speech rights under First Amendment of the U.S. Constitution. A federal appeals court found that subsection (c) of the statute, which defines the prohibited conduct to include crossing private property in order to collect resource data on nearby public lands, implicates protected speech. The court therefore sent the case back to the trial court to determine whether this impact on protected speech violated the Constitution.<sup>71</sup> This decision leaves in place, however, the portions of the law that provide enhanced penalties for trespassing for the purpose of collecting resource data on private property.

Citizen scientists in Wyoming should be especially careful about identifying private property boundaries, particularly because these are often unmarked. One way to accomplish this is by using GIS maps and public records to identify the ownership and property lines in any locations where you want to take samples and along your routes to reach those **sites**. If you are conducting your project on public property, then you will want to check the relevant agency's regulations and guidelines to see what type of activity is allowed on that land. For more information on how to do this, see <u>Chapter 2</u>.

<sup>&</sup>lt;sup>67</sup> Id.

<sup>&</sup>lt;sup>68</sup> Id.

<sup>&</sup>lt;sup>69</sup> Id.

<sup>&</sup>lt;sup>70</sup> Wyo. Stat. § 40-27-101(d).

<sup>&</sup>lt;sup>71</sup> W. Watersheds Project v. Michael, No. 16-8083, 2017 WL 3908875 (10th Cir. Sept. 7, 2017).

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#### 2. Loitering

**Summary**: Loitering laws are generally written by local governments rather than states, so it is not possible for us to compile all of the potentially relevant laws. In general, however, you cannot be liable for loitering just because you are hanging around a public place. Courts have held that such "pure" loitering laws are unconstitutional. Instead, loitering laws are typically constitutional only when they target loitering in connection with some otherwise illegal activity. This means that if you follow the suggestions given with respect to the other laws discussed in this chapter, you will likely avoid the possibility of loitering liability. And, you can inform anyone who threatens you with loitering that your conduct is protected.

Loitering is a second offense potentially relevant to your citizen science project. Defined broadly, loitering means hanging around a public place or business without an apparent legal purpose.<sup>72</sup> Generally, loitering laws are established at the local or municipal level. Thus, you will want to check your local area's anti-loitering provisions before spending time around your identified project **site**. At least one state, California, includes loitering within its criminal trespass laws. California's industrial trespass statute provides that "it is unlawful to loiter in the immediate vicinity of any posted property."<sup>73</sup> While this statute does not separately define "loitering," another part of the California criminal code defines the term as "to delay or linger without a lawful

<sup>&</sup>lt;sup>72</sup> See The Free Legal Dictionary, *Loitering*, http://legal-dictionary.thefreedictionary.com/loiter (last visited May 1, 2017).

<sup>&</sup>lt;sup>73</sup> Cal. Penal Code § 555.2.

purpose for being on the property and for the purpose of committing a crime as opportunity may be discovered."<sup>74</sup> This definition limits liability to instances when the person is lying in wait to commit a separately criminalized offense.

The U.S. Supreme Court has invalidated loitering laws that do not include a separate, objective element of criminal behavior (*e.g.*, criminal and specialized trespass, etc.).<sup>75</sup> This undermines the validity of any criminal loitering statute that simply criminalizes loitering in and of itself.<sup>76</sup> As a result, your potential liability for loitering is likely low if you are not also breaking a separate *criminal* law. You should feel comfortable taking advantage of this aspect of loitering

**Summary**: Generally, it is a good practice to maintain a comfortable distance from and to avoid repeated contact with the same individuals in the course of your research (unless they have invited the contact or interaction!). You should especially avoid photographing or filming the same individuals on a recurring basis, which might be interpreted as harassing behavior.

You should also review relevant state stalking laws to determine the point at which conduct is considered stalking and whether "stalking" requires general or specific intent. Typically, stalking laws that require "specific intent" will not apply to your role as a citizen scientist. If the stalking laws relevant to your project's site of interest require "general intent," you might consider letting the local community know about your project ahead of time to eliminate any cause for alarm.

laws: if someone accuses you of loitering when you are otherwise participating in perfectly innocent activity, then you can respond by saying that whatever loitering law they are referring to is not likely to include your conduct.

<sup>&</sup>lt;sup>74</sup> Cal. Penal Code §§ 647(h), 653.20(c).

<sup>&</sup>lt;sup>75</sup> See generally Papachristou v. City of Jacksonville, 405 U.S. 156 (1972); City of Chicago v. Morales, 527 U.S. 41, 41-45 (1999).

<sup>&</sup>lt;sup>76</sup> See Note, Striking a Balance: The Efforts of One Massachusetts City to Draft an Effective Anti-Loitering Law Within the Bounds of the Constitution, 39 Suffolk U. L. Rev. 1069, 1081 (2006); Kim Strosnider, Note, Anti-Gang Ordinances After City of Chicago v. Morales: The Intersection of Race, Vagueness Doctrine, and Equal Protection in the Criminal Law, 39 Am. Crim. L. Rev. 101, 126 (2002).

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#### 3. <u>Stalking</u>

If your project involves recurring interaction with or surveillance of the same individuals (*e.g.*, photographing or video recording), you will want to familiarize yourself with your state's stalking laws.<sup>77</sup> Generally, you can avoid stalking liability if you space your research out temporally and if you avoid repeated contact with the same individuals (unless they have invited the contact or interaction).

Every state has a criminal anti-stalking statute (*see* Appendices <u>1</u> and <u>2</u> for specific references to each state).<sup>78</sup> States tend to define stalking as repeated and willful following of another person, often paired with some malevolent purpose or action, such as threatening or harassing behavior.<sup>79</sup> A person violates California's anti-stalking law, for example, if he or she "willfully, maliciously, and repeatedly follows or harasses another person and makes a credible threat with the intent to place that person in reasonable fear of death or great bodily harm or to place that person in reasonable fear of or great bodily injury of his or her immediate family."<sup>80</sup>

While state anti-stalking statutes are similar in some respects, they can differ in a few key ways. One difference relates to the point at which conduct is considered sufficiently repetitive and continuous to be considered stalking. For example, Arkansas's statute requires "a pattern of conduct composed of two (2) or more acts separated by at least thirty-six (36) hours but occurring within one year."<sup>81</sup> Other states require conduct that is more repetitive and continuous. For example, Alabama requires "a series of acts over a period of time which evidences a continuity of

<sup>&</sup>lt;sup>77</sup> As with criminal trespass laws, stalking laws are often classified into varying degrees. Generally, higher degree stalking crimes include the issuance of credible threats, repeated convictions, contact in violation of a restraining order, stalking of a minor, and harassment on the basis of sex, race, religion, or sexual orientation. Because your behavior as a citizen scientist will not likely encompass any of these aggravating factors, this subsection and Appendices 1 and 2 focuses on lower degree stalking violations.

<sup>&</sup>lt;sup>78</sup> See Kathleen G. McAnaney, Laura A. Curliss & C. Elizabeth Abeyta-Price, Note, *From Imprudence to Crime: Anti-Stalking Laws*, 68 Notre Dame L. Rev. 819, 821 (1993).

<sup>&</sup>lt;sup>79</sup> Id.

<sup>&</sup>lt;sup>80</sup> Cal. Penal Code § 646.9.

<sup>&</sup>lt;sup>81</sup> Ark. Code Ann. § 5-71-229(f)(1)(A).

purpose."<sup>82</sup> Louisiana also requires a "series of acts" for the conduct to rise to the level of stalking.<sup>83</sup>

State stalking laws also differ in whether they require general or specific intent. For stalking laws requiring specific intent, you are only guilty of stalking if you intended to harass or threaten the person alleging the violation; for those requiring general intent, you can be guilty of stalking even if you did not intend to harass the person(s) alleging that you stalked them.

If the relevant state defines stalking as a specific intent crime, it is unlikely that your work as a citizen scientist will expose you to liability for stalking because the purpose of your activity is to conduct research, not to harass anyone.

If the relevant state defines stalking as a general intent crime, however, then you may want to take the extra step of notifying anyone residing on or near the property on which you want to conduct research. You might, for example, post flyers in the neighborhood notifying individuals that you are conducting a citizen science project. If people understand what you are doing in or around their neighborhood, then they should not have reason to be threatened by your presence. It might also mobilize the local community around your citizen science project, in keeping with the spirit of citizen science.

While stalking is generally a crime, thirteen states—Arkansas, California, Kentucky, Michigan, Nebraska, Oregon, Rhode Island, South Dakota, Tennessee, Texas, Virginia, Washington, and Wyoming—also allow civil lawsuits for stalking,<sup>84</sup> so that individuals may recover damages for the emotional distress they experience. As with the criminal stalking laws, these are included in Appendices <u>1</u> and <u>2</u>.

<sup>&</sup>lt;sup>82</sup> Ala. Code. § 13A-6-92 (1975).

<sup>&</sup>lt;sup>83</sup> La. Rev. Stat. 14:40.2 (2015).

<sup>&</sup>lt;sup>84</sup> STALKING RESOURCE CENTER, *Civil Stalking Laws by State*, https://victimsofcrime.org/our-programs/stalking-resource-center/stalking-laws/civil-stalking-laws-by-state (last visited May 1, 2017).

#### 4. Invasion of Privacy

**Summary**: Privacy laws are relevant when you are working in or around residential areas. If this is true of your project, you should try to notify area residents of your project ahead of time to ease any apprehension they may otherwise feel about your presence. You should also avoid taking and, in particular, publishing photos or videos of people in their homes.

Repeated contact with the same individual(s), especially involving photographing or video recording, may constitute an invasion of privacy. Privacy claims are only available to individual persons and not corporate entities.<sup>85</sup>

There are four basic kinds of legal causes of action for invasion of privacy: (i) unauthorized use of name or likeness; (ii) public disclosure of private matters; (iii) publicity placing one in a highly offensive false light; and (iv) intrusion upon private affairs.<sup>86</sup> Intrusion upon private affairs occurs when someone intentionally intrudes, physically or otherwise, upon another's solitude or private affairs in a manner that would be offensive to a reasonable person.<sup>87</sup> This could occur when the person alleging the intrusion was at his or her own home or yard when another is taking photographs of him/her; one who enters public space cannot reasonably expect a great degree of privacy.<sup>88</sup>

<sup>&</sup>lt;sup>85</sup> Id.; see also Ion Equipment Corp. v. Nelson, 110 Cal. App. 3d 868, 879 (Cal. App. 1980).

<sup>&</sup>lt;sup>86</sup> VINCENT R. JOHNSON, ADVANCED TORT LAW: A PROBLEM APPROACH 312 (1st ed. 2010).

<sup>&</sup>lt;sup>87</sup> Restatement (Second) of Torts § 652(B).

<sup>&</sup>lt;sup>88</sup> Phillip Hassman, *Taking Unauthorized Photographs as Invasion of Privacy*, 86 A.L.R. 3d 374; *see also Truxes v Kenco Enterprises, Inc.* 119 N.W.2d 914 (S.D. 1963) (post office worker's invasion of privacy claim for an unauthorized photo taken of him while at work failed due to his place of employment not being a private space).

In general, you can go a long way in avoiding claims of intrusion upon private affairs if you (i) do not enter people's private space and (ii) exercise caution when taking pictures or videos around people's homes or publishing those pictures or videos.<sup>89</sup> If your work occurs near private residences and entails visual evidence, make sure that any materials you publish do not include images of persons within those residences. Taking photographs of individuals who are standing outside on their own property, so long as the photographer does not enter the private property, is not considered an invasion of privacy because the conduct is clearly visible to passersby and is therefore effectively public conduct.<sup>90</sup> It can be worthwhile to notify any community members around whom you are working of your project's goal and scope. Let people know why you are working near their properties, and they will have less reason to feel that you are intentionally intruding upon their privacy.

**Summary**: Drones may be subject to three different kinds of law: state drone statutes, Federal Aviation Administration (FAA) regulations, and common law. Because state drone law is still developing, you should routinely check state laws. In addition, you should always comply with FAA regulations by appropriately registering your drone. Moreover, you should be careful about using drone photography, as certain states have passed laws criminalizing drone footage of industrial facilities. Finally, drone footage of people in their private residences is also likely forbidden in your state, either by statute or common law.

#### 5. Drone Laws

Drones, or unmanned aircraft systems ("UAS"), are an increasingly popular tool for environmental data collection. UAS have been used for, among other things, identifying the trajectory of an oil spill, tracking toxic algae blooms, measuring water temperature, detecting air contaminants, producing high resolution aerial surveys, and taking water samples. Lawmakers are just beginning to respond to UAS use. As such, the current body of law related to drone use is still developing. It is very likely that some of the information contained in this section, especially the status of state drone legislation, may have changed by the time you read this manual. Therefore,

<sup>&</sup>lt;sup>89</sup> See Hassman, note 29.

<sup>&</sup>lt;sup>90</sup> Swerdlich v. Koch, 721 A.2d 849, 857 (R.I. 1998); see Sundheim v. Board of County Comm'nrs, 904 P.2d 1337, 1351 (Colo. App. 1995).

you should be careful to double check the status of drone laws in the state(s) where you are conducting citizen science.

Currently, drone usage is governed by (i) federal law, (ii) state statutes, and (iii) state common law. The following subsections cover each of these categories in turn.

#### a. <u>Federal Law</u>

The FAA has statutory authority to regulate airspace to the extent necessary to maintain its safety.<sup>91</sup> Drones are considered to be "aircraft" and as such are subject to federal regulation. The treatment of small drones (those weighing less than 55 pounds) varies, depending upon whether they are being used for commercial or recreational purposes. As long as the person operating the drone for a citizen science project is not being paid to do so, citizen scientist use of drones probably falls on the "recreational" side of this dichotomy.<sup>92</sup>

Recreational use of small drones is governed by the Special Rule for Model Aircraft, which Congress adopted as part of the FAA Modernization and Reform Act of 2012.<sup>93</sup> The Special Rule requires that UAS operators follow a community-based set of safety guidelines; fly the UAS within visual line-of-sight; give way to manned aircraft; and provide prior notification to the airport and air traffic control tower, if one is present, when flying within 5 miles of an airport.<sup>94</sup> Operators who comply with the Special Rule do not need to get pre-approval from the FAA or a Remote Pilot Certificate.<sup>95</sup> The FAA has also required that operators who seek to use UAS pursuant to the

93 Pub. L. No. 112–95, § 336, 126 Stat. 11, 77 (2012) (codified at 49 U.S.C. § 40101 note).

<sup>&</sup>lt;sup>91</sup> The use of small drones, defined as those weighing fewer than 55 pounds, is governed by 14 C.F.R. pt. 107. While small drones do not need to undergo the extensive airworthiness certification requirements imposed on larger aircrafts, they are still subject to many of the same rules. Drones weighing more than 55 pounds will need to undergo the airworthiness exemption process outlined in Section 333 of the FAA Modernization and Reform Act of 2012. *See* FAA, *Waivers to Certain Small UAS Operating Rules*, <u>https://www.faa.gov/uas/beyond\_the\_basics/</u> (last visited May 1, 2017).

<sup>&</sup>lt;sup>92</sup> Commercial use of drones is governed by the "Part 107" rules. *See* 14 CFR Part 107. Under these rules, an operator must obtain a Remote Pilot Certificate or be under the direct supervision of someone who holds such a certificate, register the UAS with the FAA, and adhere to a set of operating rules, including: (1) fly within Class G airspace; (2) keep aircraft in visual line-of-sight; (3) fly under 400 ft.; (4) fly during the day; (5) fly at or below 100 mph; (6) yield right of way to manned aircraft; (7) not fly over people; and (8) not fly from a moving vehicle. *See* FAA, *Fly for Work/Business*, https://www.faa.gov/uas/getting\_started/fly\_for\_work\_business/ (last visited Apr. 24, 2017).

<sup>&</sup>lt;sup>94</sup> *Id.* § 336(a).

<sup>&</sup>lt;sup>95</sup> See "Fly for Fun," U.S. Department of Transportation: Federal Aviation Administration (last visited Apr. 16, 2017), available at <u>https://www.faa.gov/uas/getting\_started/fly\_for\_fun/</u>.

Special Rule register their UAS with the agency, but a federal court recently struck down that requirement.<sup>96</sup>

Because the FAA is primarily tasked with enforcing the safety of public airways, federal law does not touch upon issues of privacy implicated by drone use.<sup>97</sup> The federal government has instead left this area of lawmaking to individual states. Once you have verified that your drone complies with the relevant federal laws and regulations, you should determine whether your state has passed any drone privacy laws.

#### b. <u>State Statutes - Drone Privacy Laws</u>

Many states have begun to pass statutes pertaining to drone usage and privacy. To date, 16 states impose criminal liability for unlawful drone usage, including the unauthorized surveillance of individuals and certain types of industrial facilities. For an overview of these states, including their specific language, *see* Appendices <u>1</u> and <u>2</u>. Importantly, these laws apply to drone photography rather than ordinary handheld photography. In most instances, taking pictures and video on your own, without drone assistance, will be less susceptible to legal challenges.

The most common and potentially problematic drone privacy statutes prohibit the use of a drone to surveil the operations of critical infrastructure. Arizona, Arkansas, Delaware, Louisiana, Nevada, Oregon, Oklahoma, Tennessee, and Texas each have such a law. Arkansas's law provides that:

"A person commits the offense of unlawful use of an unmanned aircraft system if he or she knowingly uses an unmanned aircraft system to conduct surveillance of, gather evidence or collect information about, or photographically or electronically record critical infrastructure without the prior written consent of the owner of the critical infrastructure."<sup>98</sup>

While the definition of critical infrastructure varies by state, it generally includes power plants and factories. If the target **site** of your project fits this description, you will generally want to avoid the use of a drone to take pictures or video of that **site**.

<sup>96</sup> Taylor v. Huerta, 856 F.3d 1089 (D.C. Cir. 2017).

<sup>&</sup>lt;sup>97</sup> Patrice Hendriksen, Note, Unmanned and Unchecked: Confronting the Unmanned Aircraft System Privacy Threat Through Interagency Coordination, 82 Geo. Wash. L. Rev. 207, 228-38 (2013).

<sup>&</sup>lt;sup>98</sup> Ark. Code Ann. § 5-60-103(b).

Some drone privacy laws contain exceptions. The Arkansas statute excerpted above, for example, provides an exception for "[a]n unmanned aircraft system used under a certificate of authorization issued by the Federal Aviation Administration."<sup>99</sup> Certificates of authorization, however, are available only to public operators of UAS (e.g. state or local governments).<sup>100</sup> A few states, including Louisiana<sup>101</sup> and Texas,<sup>102</sup> have exceptions for UAS that are flown by universities for research or educational purposes.

Some drone privacy statutes only impose liability for drone surveillance in furtherance of a criminal offense. Arizona's for example, states that "[i]t is unlawful for a person to operate or use an unmanned aircraft or unmanned aircraft system to intentionally photograph or loiter over or near a critical facility in the furtherance of any criminal offense."<sup>103</sup> Thus, this statute is presumably inapplicable to drone usage around critical infrastructure in Arizona so long as the conduct does not further a criminal offense, such as trespass. There is not yet any court interpretation of the law, however.

In summary, you should ascertain whether your state has passed a drone privacy law before using a drone for surveillance. Indeed, it may be worth considering alternative ways of gathering the information you seek.

#### c. Common Law Causes of Action

Even when states have not adopted drone privacy laws, civil common law causes of action against drone use may apply. These include nuisance, trespass, and privacy.

#### i. Nuisance

<sup>99</sup> Ark. Code Ann. § 5-60-103(a)(2)(B)(v).

<sup>&</sup>lt;sup>100</sup> See FAA, Certificates of Waiver or Authorization (COA),

https://www.faa.gov/about/office\_org/headquarters\_offices/ato/service\_units/systemops/aaim/organizations/uas/coa/ (last visited June 19, 2017).

<sup>&</sup>lt;sup>101</sup> La. Stat. Ann. § 14:337(D)(2).

<sup>&</sup>lt;sup>102</sup> Tex. Gov't Code Ann. § 423.002(a)(1).

<sup>&</sup>lt;sup>103</sup> Ariz. Rev. Stat. Ann. § 13-3729(B).

A private nuisance claim is typically brought when a landowner's quiet enjoyment of his or her land is disturbed.<sup>104</sup> To succeed on a nuisance claim, a plaintiff must prove: (i) substantial harm; and (ii) that the imposition of the harm is unreasonable.<sup>105</sup>

To date, we are not aware of any cases in which a plaintiff has brought a common law nuisance claim against a drone operator; however, plaintiffs have brought common law nuisance claims and succeeded against airplane operators.<sup>106</sup> Most of these claims have depended on factors like dust production, noise, vibration, and flight frequency.<sup>107</sup> While each of these factors would likely be considered in the context of a nuisance claim brought against a drone operator, they are arguably less applicable to drones than to airplanes. After all, drones produce significantly less dust, noise, and vibrations than airplanes.

There are various steps you can take to avoid claims of nuisance. For example, you can avoid flying your drone over the same space with great frequency. In addition, you can determine whether the noise emitted by your drone exceeds your locality's noise ordinances, which often outline acceptable levels of noise by property type and time of day. Many localities make this information available online.<sup>108</sup>

#### ii. Trespass

Operating a drone over someone's private airspace may also constitute common law trespass. This is less likely than in the case of physical, ground-level trespass because ownership of airspace above a property is not as clearly established. Landowners own as much space above the ground as can be *reasonably* used in connection with the land.<sup>109</sup> What constitutes *reasonable* use of this airspace remains uncertain; however, one thing is clear: a person's ownership of airspace above a property is not infinite. At some point, the airspace is in the public domain.

<sup>&</sup>lt;sup>104</sup> Restatement (Second) of Torts §821D.

<sup>&</sup>lt;sup>105</sup> Id.

<sup>&</sup>lt;sup>106</sup> See Michelle Bolos, A Highway in the Sky: A Look at Land Use Issues that will Arise with the Integration of Drone Technology, 2015 U. Ill. J.L. Tech. & Pol'y 411, 422 (2015).

<sup>&</sup>lt;sup>107</sup> See Jack L. Litwin, Airport Operations or Flight of Aircraft as Nuisance, 79 A.L.R.3d 253 (1977).

<sup>&</sup>lt;sup>108</sup> See, e.g., Noise Control Ordinance of the City of Cambridge, available at <u>http://www.tomstohlman.org/2009ElectionBlog/wp-content/uploads/2009/10/2009-Cambridge-Noise-Ordinance.pdf</u> (last visited May 1, 2017).

<sup>&</sup>lt;sup>109</sup> United States v. Causby, 328 U.S. 256, 264 (1945).

Ultimately, the higher you fly your drone, the less likely you are to commit a trespass.<sup>110</sup> Recall, however, that federal law includes both implicit and explicit height limitations for drone operators—recreational users under the Special Rule must maintain a direct line of sight to the drone and commercial users under the Part 107 rules must operate the drone below 400 feet.

#### ii. Privacy

A final type of claim worth mentioning in relation to drone use is common law privacy, which has already been covered in this chapter. Many of the suggestions relating to privacy that were previously given are equally applicable in the context of drone use: avoid flying your drone near private residences; try to maintain a healthy distance and keep flight frequency to a minimum; and make sure to notify any local residents of your citizen science project before commencing drone operation. If your drone carries a camera, you should avoid taking and, in particular, publishing pictures of people on their private property.

**Summary**: This subsection pertains only to public property, which is managed by different agencies at several levels of government. If your project's site of interest is on public property, you should first identify which agency manages that property. You should then locate that agency's regulations to identify the permitted uses of that property. Oftentimes, personally contacting the agency is good way to learn about permitted uses of its properties.

#### 6. Agency Regulations

If your project's **site** of interest is on public property, you should first identify which agency manages that property. You should then locate that agency's regulations to identify the permitted

<sup>&</sup>lt;sup>110</sup> The Restatement (Second) of Torts provides an indication as to how this rule might be interpreted: "[i]n the ordinary case, flight at 500 feet or more above the surface is not within the 'immediate reaches,' while flight within 50 feet, which interferes with actual use, clearly is, and flight within 150 feet, which also so interferes, may present a question of fact." *See* The Restatement (Second) of Torts § 159(2), comment 1. You should remain attentive to any developments in this area occurring after the publication of this manual. To that end, many online blogs and journals offer up-to-date posts on major developments in drone law. *See, e.g.*, DRONE LAW JOURNAL, http://dronelawjournal.com/ (last visited May 1, 2017); Rupprecht Law, DRONE LAW BLOG, http://jrupprechtlaw.com/drone-law-blog (last visited May 1, 2017).

uses of that property. Some agencies are very permissive with respect to the public's use of their lands.

The BLM, for example, does not require a permit for "casual uses" of the lands it manages.<sup>111</sup> "Casual use" is defined as "any short term non-commercial activity which does not cause appreciable damage or disturbance to the public lands, their resources or improvements, and which is not prohibited by closure of the lands to such activities."<sup>112</sup> Thus, if your research does not noticeably damage BLM lands, then, you should be able to conduct research on this land without fear of repercussion.

Likewise, the United States Forest Service permits data collection that does not cause appreciable damage. For example, it allows: "[t]he collection of minor forest products, such as flowers, plants, berries, acorns, nuts, or small amounts of medicinal roots, from areas other than designated recreation, research, natural, or other areas closed to such activities. However, such collections are limited to reasonable quantities for personal use; there can be no disturbance of surface resources; and the products must not be protected by Federal or State laws or regulations."<sup>113</sup>

Of course, not all agencies will make guidance materials available to the public, nor will those materials always be clear. In the above excerpted regulation from the Forest Service Manual, for example, you may have questions as to what constitutes "reasonable quantities for personal use" or "disturbance of surface resources." The answers to these questions might affect the extent of sample collection you feel comfortable conducting in national forests. If you encounter any ambiguity like this in your background research, a logical first step is to contact the agency directly for clarification. Generally, an agency's contact information is available on its website. Your inquiry should be as specific as possible. While the response will not constitute binding legal advice, it will often be the most authoritative feedback you can get on the particular rules governing publicly-held property.

<sup>&</sup>lt;sup>111</sup> 43 C.F.R. § 2920.0–5(k).

<sup>&</sup>lt;sup>112</sup> 43 C.F.R. § 2920.1–2(a).

<sup>&</sup>lt;sup>113</sup> FOREST SERVICE MANUAL § 2719.

### CHAPTER 5: INFORMATION GENERATION – DESIGN OF SAMPLE COLLECTION, SAMPLE ANALYSIS, AND DATA INTERPRETATION METHODOLOGIES

Why You Should Read this Chapter: Most citizen science projects that you join or initiate will require generating information that was previously uncollected, unknown, unreported, or unestablished in the realm of public knowledge. Because most projects will involve this type of "information generation," it is important, and often critical, to your long-term success to think about how you will perform: (i) sample collection (*i.e.*, how will you gather samples of air, water, soil, etc.?); (ii) sample analysis (*i.e.*, how will you examine the samples you collect?); and (iii) data interpretation (*i.e.*, how will you interpret the results of your sample analyses?).



#### Graphic Legend:

*Your purpose for* generating information might vary over time. For example, you might be interested in performing a preliminary site evaluation before *beginning a detailed* evaluation. Regardless of your purpose for generating information, it can be helpful to consider various technical concerns that can impact the quality of the information that you generate before you begin your field work.

#### Introduction

The focus of this chapter is to help you generate high quality information. For some, this may seem like a daunting process. We emphasize that even if it is currently too difficult or expensive for you to comply with the most stringent state or federal quality assurance requirements, any information that you generate can have some use (discussed in Chapter 2). Indeed, in some instances this information could – and perhaps should – still suffice to trigger agency action. In this way, you can play the critical role of alerting the agency to potential environmental problems and enabling the agency to follow-up by utilizing appropriate **information collection** protocols. Nonetheless, understanding how the design and performance of your project impacts information quality will help assure that your project ultimately meets your goals.

As discussed previously, the use of citizen scientist-generated information can be limited by the information's quality (discussed in <u>Chapter 2</u>). At one extreme, state and federal agency regulations require that only high quality information be used to form the underpinnings of their actions (*see* Appendix <u>1</u> and <u>2</u>). For example, the Minnesota Pollution Control Agency requires that citizen monitoring data meet the credibility requirements established in its "Volunteer Surface Monitoring Guide" when implementing the state clean water act.<sup>114</sup> Likewise, many federal regulations include specific requirements to assure information quality. Although these requirements vary in different contexts, EPA-funded programs generally require the preparation of an EPA-approved Quality Assurance Protection Plan (QAPP) *before* people begin collecting samples.<sup>115</sup>

Ultimately, high quality information has the highest utility or usefulness. Therefore, this discussion explains several technical suggestions that can increase the quality of the information you generate. In particular, we distill general suggestions that the EPA has established to promote information credibility and provide you with supplemental resources for additional information. We draw upon public EPA documents including "The Volunteer Monitor's Guide to Quality Assurance Project Plans," "The Citizen Science QAPP Guidance," and "Guidance for Choosing a

<sup>&</sup>lt;sup>114</sup> Minn. Stat. Ann. §114D.

<sup>&</sup>lt;sup>115</sup> See CIO §2105.0

Sampling Design for Environmental Data Collection."<sup>116</sup> Other resources, such as the Federal Crowdsourcing and Citizen Science Toolkit,<sup>117</sup> are available to aid citizen scientists in the design of sample collection, sample analysis, and data interpretation methodologies.

<sup>&</sup>lt;sup>116</sup> See Environmental Protection Agency, *Citizen Science QAPP Template* (April 2013); Environmental Protection Agency, *Guidance for Choosing a Sampling Design for Environmental Data Collection*, EPA/240/R-02/005 (December 2002); Environmental Protection Agency, *The Volunteer Monitor's Guide to Quality Assurance Project Plans*, EPA 841-B-96-003 (September 1996).

<sup>&</sup>lt;sup>117</sup> Federal Crowdsourcing and Citizen Science Toolkit, https://crowdsourcing-toolkit.sites.usa.gov/ (last visited May 1, 2017).

Making Connections Between Chapters: Before designing your data collection, sample analysis, or data interpretation methodologies, it is helpful to review key points from the preceding chapters:

- What is your site of interest and which pollutant or combination of pollutants will you be examining? (discussed in <u>Chapter 1</u>).
- Who will use the information you collect and for what purpose? (*e.g.*, what legal standards might limit the use of information you generate) (discussed in <u>Chapter 2</u>).
- What is known about the pollutant or combination of pollutants you will be examining? (*e.g.*, stability, detection limits, detection methodologies, environmental baseline levels, reporting thresholds, etc.) (discussed in <u>Chapter 3</u>).
- What is already known about the source of the pollutant of which you are concerned? (*e.g.*, the source's current permit requirements and compliance records) (discussed in <u>Chapter 3</u>).
- What are potential sources of liability to which you might be exposed when collecting the information (*e.g.*, trespass, stalking, etc.) (discussed in <u>Chapter 4</u>).

Answering these questions will shed light on the type and quality of information that is currently lacking (e.g., information that you may seek to generate) and how to acquire the information.

#### Assessing Information Quality

When you present information that you have collected or generated (*e.g.*, a summary of your tests of the water quality in a stream) to a **decision maker**, he or she must assess the quality of the information without having a chance to perform his or her own data collection or testing. Instead, **decision makers** often look for "indicators" of high quality data. Examples include: precision, accuracy, representativeness, completeness, comparability and

#### Indicators of Quality Data

- 1) Precision
- 2) Accuracy
- 3) Representativeness
- 4) Completeness
- *5) Comparability*
- *6) Instrumentation*

instrumentation. Therefore, by considering these elements as you design and conduct your project, you will increase both your confidence in the information that the project generates and the ability of a **decision maker** to consider and rely on your findings. The indicators of quality data are each discussed below.

<u>Precision</u> relates to the degree of agreement (*i.e.*, similarity) between (i) multiple measurements taken from a single sample or (ii) measurements taken from multiple samples collected as close together in time and place as possible. Collecting multiple independent samples from a single **site** at roughly the same time in the same manner (*i.e.*, "replica" samples) and analyzing the samples at the same time and in the same manner, allows for robust statistical calculations of precision (*e.g.*, calculation of standard deviation, standard error, or relative percent difference). A high level of precision suggests that your sampling and testing methods are consistent and can be reproduced; this is an indication of high quality information.

<u>Accuracy</u> ensures that your data represents reality. You can facilitate the measurement of accuracy by collecting quality control samples that have known values. Examples of various quality control samples are discussed in greater detail in the next section of this chapter. Quality control samples should be collected along with, and in ways that mimic your collection of field samples, and they should be analyzed using the same instrumentation. When the values reported from the control samples consistently and precisely reflect their known values, it suggests that the accuracy of your field samples is high; this is an indication of high quality information.

<u>Representativeness</u> relates to whether a sample collected from a **site** is actually representative of that **site**. Here, the central concern is to avoid biases in the generated information. How, when, where, and by whom samples are collected will influence the representativeness of

your information. For example, if you are collecting samples to determine the *typical concentration* of a pollutant *in* a stream, the following factors could bias your results:

- How: the samples were collected with unclean tools. This creates a risk of bias because any pollutant detected in the analysis of the samples may have actually arisen from the unclean tools.
- When: the samples were collected just after heavy rainfalls. This may create a risk of bias because various pollutants that are not normally in the river might be washed there from various sources due to the rain. Note: this risk of bias would not be present if rain is typical of the location studied or, alternatively, if you were interested in determining the concentration of a pollutant in a stream following heavy rainfalls.
- Where: the samples were collected just below a pipe outfall that is entering the stream. This creates a risk of bias because the concentration of pollutant just below the pipe will be higher than the concentration of pollutant in the stream generally. Note: this risk of bias would not be present if you were interested in determining the concentration of a pollutant just below the pipe or, alternatively, if you were interested in determining the abundance of pollution entering the stream from the pipe.
- By Whom: samples were collected by a person untrained in proper sampling technique. This creates a risk of bias because it will be less certain that the samples were collected properly (*i.e.*, in a way that is representative).

As demonstrated in these examples, what constitutes a bias that impacts representativeness may be different in each situation.

<u>Completeness</u> involves a comparison of the number of measurements you originally planned to collect (*i.e.*, the number that you anticipated would be necessary for the information to be useful) and the number that you actually collected. Collecting more samples than you think will be necessary can help assure information completeness; this is an indication of high quality information.

<u>Comparability</u> refers to the relationship between results of multiple studies or a single study over time. Multiple studies that report similar conclusions suggests that data quality is high. Moreover, information reported from a single study that presents realistic results over time (*e.g.*, consistent, gradual changes, or explainable rapid changes) is of higher quality than information reported from a single study that presents sporadic, unexplained fluctuations in values. Instrumentation used to analyze the samples you collect can also impact the quality of the generated information. Each analytical instrument has a range of values, such as the amount of a pollutant in a sample, which it can detect in a reliable manner. If the presence of a pollutant in a sample (sometimes referred to as an analyte abundance) is below the instrument's lowest detection limit (*i.e.*, limit of blank, limit of detection, or limit of quantitation) the pollutant in a sample is greater than the instrument's highest quantifiable limit, the pollutant's presence will be reported with a value of zero, or less than zero. If the presence of a pollutant in a sample is greater than the instrument's highest quantifiable limit, the pollutant's presence will be reported with a value that is no greater than the instrument's maximum reportable value. As readings approach these detection limits, they become less reliable. In short, if reported values fall within an instrument's measurement range, it suggests that the values are reliable, which is an indication of high quality information.

**Information Quality Needs Can Change Over Time**: Your anticipated use of the information can change over the lifetime of your project, causing its information quality requirements to increase or decrease (*see Chapter 2*). Your purpose for collecting data can change over time. For example, your project might originally be directed at monitoring a currently unthreatened natural resource to facilitate a rapid response to any potential increases in pollution. The information quality that you seek may change if a pollution increase is detected.

Likewise, you might perform a general preliminary site survey to verify the identity of a potential pollutant or pollutant source before performing a detailed site evaluation. A preliminary site evaluation can include documentation of evidence of: the scent of air at the site of interest; oil slicks on the surface of water; stained soil or pavement; stressed vegetation on land or in water; solid waste (*e.g.*, mounds or depressions suggesting solid waste disposal); wastewater entering a stream; or unmaintained septic systems. In some instances, you might collect and analyze a few field samples from the site to identify pollutants on the site. Perhaps, in this instance, the information quality that you seek will increase after the pollutant or pollutant site has been verified.

Ultimately, **information generation** is, in many instances, an iterative process, so the type of information that you seek to generate can change over time.

#### General Quality Assurance Protection Plan Guidelines

A **Quality Assurance Protection Plan** (QAPP) is a formal document that describes how a project will achieve its information quality requirements. In other words, a QAPP lists the quality assurance mechanisms that will be used to assure that the information generated by the project meets the quality criteria discussed above. Importantly, this document is prepared *prior* to any sample collection. Ultimately, the QAPP is a project feature that **decision makers** will

Prepare or review a project's QAPP before collecting samples or information. Put your QAPP into a written format that can be shared with volunteers and decision makers.

use to assess the overall quality of the generated information. Preparing a QAPP is part of a project's quality assurance (QA) activities. (Another term you may see is quality control (QC), which refers to the overall system of technical activities that are designed to *measure* the quality of information.)

Although the EPA lists twenty-four distinct issues that can be addressed in a QAPP, we focus here on various themes that we deem especially important and useful in the context of citizen science projects: (i) management description, (ii) sampling design, (iii) sample collection methodology, (iv) sample handling and custody, (v) sample analysis, (vi) quality controls, and (vii) data interpretation. We stress that the nature or type of pollutant and the **pollutant source** heavily

dictate the content of the QAPP. The EPA has issued a vast number of very specific and detailed protocols for the measurement of pollutants in various contexts (*i.e.*, "EPA Reference Methods" or "EPA Standard Protocols"). A collection of these methods and protocols can be found on EPA's website.<sup>118</sup> They delineate detailed descriptions of accepted sampling methodologies, quality controls, instrumentation functionalities, etc. Including this level of detail here is impractical. Instead, we offer broad, generalizable suggestions and provide additional resources for those who seek greater detail for their individual project needs.<sup>119</sup>

#### Key elements of QAPPs

- 1. Management description
- 2. Sampling design
- 3. Sampling collection
- 4. Sample handling & custody
- 5. Sample analysis
- 6. Quality controls
- 7. Data interpretation

<sup>&</sup>lt;sup>118</sup> Environmental Protection Agency, *Collection of Methods*, https://www.epa.gov/measurements/collection-methods (last visited May 1, 2017).

<sup>&</sup>lt;sup>119</sup> *Id*.

#### Project Management Description

While some projects are small enough that a single person can successfully complete them, many will require the coordinated efforts of many individuals. Indeed, the most successful projects may involve a "community" of individuals. When projects involve groups of individuals, establishing and describing management roles at the onset of the project is important for ensuring project consistency and cohesiveness.

Project managers must (among many other things): identify funding resources and control expenditures of funds; establish what, when, how, and by whom samples will be collected, analyzed, and interpreted; ensure that volunteers understand how to clean and calibrate instrumentation; and assure, if needed, the proper training of those involved in the project (*e.g.*, in proper sample collection) and otherwise ensure information quality.

Project managers should also seek to maximize the use of community expertise. For example, even if you lack the training or expertise to design or complete a project, your community may include individuals with technical or scientific training who are willing and eager to participate (e.g., teachers or professors, scientists and engineers, or even members of environmental agencies).

#### Sampling Design

Sampling design includes considering the types of samples that will be collected and when and where they will be collected. Sampling design decisions implicate multiple factors that impact information quality, but it is primarily concerned with the representativeness of the information. A well-developed sampling design plays a central role in ensuring that conclusions are adequately supported by data. Thinking about your sampling design at the beginning of a project can help avoid introducing bias at the onset of **information generation**. Avoiding bias is important; as the saying goes, "Garbage in, is garbage out."

In some aspects, your sampling design will be dependent on the type of sample you are collecting. For example, the placement of air monitors depends on the sampling objective: ground level monitoring, air mass (*i.e.*, circulating air), or source-oriented (*e.g.*, as the air exist a smoke stack), and it is important for air flow around the monitor to be representative of the general air flow in the area to prevent sampling bias. Likewise, water and soil sampling designs can include details concerning the location and depth at which samples will be collected. When contemplating

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the types of samples that will be collected, you should consider the chemical/physical properties of the pollutant and the potential source of the pollutant (discussed in Chapter 3).

The sampling design should include documentation of when and where samples will be collected, including, for example, the following types of information:

- The number of times that a sample will be collected per week, month or year;
- The duration of the sampling program (*e.g.*, the period of time during which samples will be collected);
- At what time of the day or night the samples will be taken (*e.g.*, during or after an industrial facility's hours of operation);
- How weather will impact sample collection (*e.g.*, will samples be collected during rain, wind, or unusual temperature events); and
- Where samples will be collected. The chemical/physical properties of the pollutant and the source of the pollutant, along with potential sources of liability (discussed in Chapter 3), should be central to determinations of where to collect samples.

Addressing these issues will help reduce potential bias in the ultimate conclusions and promote the quality of the information generated in a project.

Selecting sampling **locations** typically involves one of two approaches: (i) random or probabilistic sampling and (ii) judgmental sampling. While each approach has advantages and disadvantages that can be discussed at length, this discussion merely serves to introduce the topics. In random sampling, as its name implies, sampling locations are chosen randomly. It is most useful when the pollutant of interest is relatively homogeneous in the sampling medium (*i.e.*, it is uniformly distributed, and thus, there are no expected "hot spots"). Because citizen science projects concerned with environmental problems often focus on a **pollutant source**, random sampling may be less commonly used relative to judgmental sampling. Judgmental sampling, as its name implies, involves the selection of sampling locations based on judgment. Judgmental sampling is most useful when there is historical or physical knowledge of the feature or condition under investigation: for example, when the impact of the pollutant can be visually discerned or when the location of pollutant release is known.

Ultimately, the sampling design should match the needs of the project with the resources available (*e.g.*, recognizing constraints of resources related to finances, time, expertise, and geographic access).

#### Sample Collection Methodology

A well-designed sample collection methodology helps ensure the precision and accuracy of the information that is ultimately generated. The primary question addressed by a sample collection methodology is: how will samples be collected during each sampling event (*e.g.*, **site** visit)? The answer to this question may include, among other things, a description of: (i) the number of samples to be collected during each sampling event (*i.e.*, the number of "replica" samples that will be collected); (ii) how samples will be taken; (iii) the equipment and containers used to collect the samples (*e.g.*, their composition and procedures for their decontamination); and (iv) holding time length (*i.e.*, the time between taking samples and analyzing them).

Some aspects of sample collection methodologies are highly generalizable across projects. For example:<sup>120</sup>

- Sample collection should be documented (*e.g.*, time, place, name of collector, equipment used, etc.).
- The collector should wear "a clean pair of new, non-powdered, disposable gloves each time a different location is sampled and the gloves should be donned immediately prior to sampling. The gloves should not come in contact with the media being sampled and should be changed any time during sample collection when their cleanliness is compromised."<sup>121</sup>
- The collection equipment should be clean and sterilized.
- "Sample collection activities shall proceed progressively from the least suspected contaminated area to the most suspected contaminated area."<sup>122</sup> Samples that are expected to contain high levels of contaminated media should be kept separate from samples thought to contain low levels of contaminated media.
- "All . . . control samples shall be collected and placed in separate ice chests or shipping containers."<sup>123</sup>

<sup>&</sup>lt;sup>120</sup> See, e.g., Environmental Protection Agency, SESD Operating Procedure: Soil Sampling, SESDPROC-300-R3 (August 2014); Environmental Protection Agency, SESD Operating Procedure: Surface Water Sampling, SESDPROC-201-E3 (February 2013); Environmental Protection Agency, SESD Operating Procedure: Pore Water Sampling, SESDPROC-513-R2 (February 2013); Environmental Protection Agency, SESD Operating Procedure; Groundwater Sampling, SESDPROC-301-R3 (March 2013).

<sup>&</sup>lt;sup>121</sup> *Id*.

 $<sup>^{122}</sup>$  Id.

<sup>&</sup>lt;sup>123</sup> Id.

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- "During sample collection, if transferring the sample from a collection device, make sure that the device does not come in contact with the sample containers."<sup>124</sup>
- "All samples requiring preservation must be preserved as soon as practically possible, ideally immediately at the time of sample collection."<sup>125</sup>

Other aspects of a project's sample collection methodology may be specific to the medium being sampled or type of instrument being used. For example, air sample collection methodologies are generally highly specific to the instrumentation used.<sup>126</sup> Water and soil sampling designs, however, have various aspects that are more generalizable.

Water samples should be collected with as little agitation to the water as possible. Wading or streamside sampling increases the probability of agitation. In instances when agitation is a concern, samples should be collected while facing upstream. Moreover, water sample containers should be filled to their capacity (*i.e.*, no bubbles or headspace should be present after the container is capped). Unpreserved and preserved samples have holding times of one week and two weeks, respectively. (Holding times indicate the period during which the samples should be tested.)

Soil samples must be "thoroughly mixed to ensure that the sample is as representative as possible of the sample media;" this rule does not apply if the soil sample will be analyzed for the presence of volatile organic compounds (VOCs).<sup>127</sup> Moreover, the collector should "place the sample into an appropriate, labeled container(s) by using the alternate shoveling method and secure the cap(s) tightly. The alternate shoveling method involves placing a spoonful of soil in each container in sequence and repeating until the containers are full or the sample volume has been exhausted."<sup>128</sup> Unpreserved samples have a forty-eight-hour holding time.

Sample collection methodologies may also contemplate other ways of documenting sample collection. For example, a methodology could direct volunteers to photograph, videotape, or otherwise record the actual sample collection to demonstrate that the activity complies with the sample collection methodology. Typically, notes of visual and olfactory observations should be recorded in a log book to describe, for example, the depth of each sample, whether its color and

 $<sup>^{124}</sup>$  Id.

<sup>&</sup>lt;sup>125</sup> Id.

 <sup>&</sup>lt;sup>126</sup> See, e.g., Environmental Protection Agency, List of Designated Reference and Equivalent Methods (June 2016).
<sup>127</sup> See Operating Procedure: Soil Sampling supra, note 38.

<sup>&</sup>lt;sup>128</sup> *Id*.

texture, any odors, etc. The log can also be used for demonstrating sample handling and custody and any field analyses of the samples.

#### Sample Handling and Custody

Precision and accuracy are the main information quality concerns addressed by the establishment of sample handling procedures. These procedures apply to projects that do not perform sample analysis in the field. In these instances, the samples must be transported to an alternative **site**, such as a laboratory. All samples should be properly labeled including: (i) the sample location; (ii) the date and time of collection; (iii) the sampler's name; and (iv) whether the sample was preserved, and if so, how. Chain-of-custody procedures should be established to keep track of all samples that will be shipped or transported to a laboratory for analysis (*i.e.*, documentation requirements for any changes in the handler of the sample or the sample's storage location). This information is important for authentication of any information generated by analysis of the samples (discussed in Chapter 2).

#### Sample Analysis

Analysis of samples may occur in the field or in a laboratory. In either case, the analytical methods and equipment used in the analysis should be documented. For example, if an EPA Reference Method or approved protocol is used, the method/protocol number should be listed; if the methodology differs from the Reference Method or approved protocol, list the ways in which it differs. In addition, documentation of instrumental calibration, inspection and maintenance should be provided. These procedures promote precision and accuracy of the data.

Generally, analytical tools that are EPA approved are documented in the Federal Register. In some instances, the EPA provides lists of analytical tools that are EPA-approved when used in specific contexts. <sup>129</sup> Other EPA approved devices can be found in EPA-approved operating procedures or reference methods (*see Appendix 5*).

<sup>&</sup>lt;sup>129</sup> See, e.g., Environmental Protection Agency, List of Designated Reference and Equivalent Methods (June 2016).

#### Quality Control Samples

The design of a project should include methods for collecting and testing quality control samples; examples include field controls, equipment controls, split samples, replica samples, and spiked samples.

- A <u>field control</u> is a sample "collected" in the field that lacks a detectable quantity of the analyte of interest (*i.e.*, the pollutant). While regular sample containers are filled with air, water, or soil from the field, a field control is filled in the same way but with air, water, or soil with a known composition that is brought to the **site**. If preservation steps are performed to the field samples, they should likewise be performed on the field control sample.
- <u>Equipment controls</u> are samples used to verify the cleanliness of sample collection or analysis equipment. Generally, distilled water is used to test equipment's cleanliness.
- A <u>split sample</u> is one that is divided into two or more sample containers and subsequently analyzed independently.
- <u>Replica samples</u> or duplicate samples are samples that are collected and analyzed at the same time and in tandem (*i.e.*, they are representative of the same environmental condition).
- <u>Spiked samples</u> are samples to which a known amount of the analyte has been added.

Because the abundance of the analyte (*i.e.* pollutant) is known in each of these control samples, they are useful in assessing the precision and accuracy of the data that is ultimately generated.

#### Data Interpretation

The project design should include considerations of how the data generated from sample analysis will be interpreted. It is from this interpretation that conclusions will be drawn. In some instances, you, the citizen scientist, may be able to interpret the data. However, as mentioned in Chapter 2, some uses of information generated from your project will require expert interpretation. When data is interpreted by a qualified expert, the quality of the information is enhanced. There are likely to be qualified experts in your community who are willing to assist you. Think about universities, community colleges, high schools, and locally-based environmental engineering companies.

## CHAPTER 6: INFORMATION USE – MAKING THE MOST OUT OF YOUR INFORMATION

Why You Should Read this Chapter: After all your efforts in carrying out your project, you should put your results to good use. Here we provide suggestions concerning the presentation and sharing of your information.



#### General Suggestions

After you, the citizen scientist, have put forth the effort to identify the problem (discussed in Chapter 1), to collect currently available pubic information (discussed in Chapter 3), and to generate new information (discussed in Chapter 5), you should put the results of your efforts to good use. As delineated in Chapter 2, there is a broad spectrum of potential uses of your

information (*e.g.*, to stimulate public awareness, to influence lawmaking, for enforcement mechanisms, etc.). There are various ways to make the most out of your information. Here, we provide a few suggestions.

First, structure your information to make it presentable. Begin by considering ways in which you can present your work concisely and clearly to a broad audience. In many instances, simplicity empowers an argument. Translate your results into plain language and use graphs, tables, and other visualization techniques to facilitate emphasis and rapid understanding of your arguments. Next, consider your primary target audience. In some instances, this audience will require that the information be submitted in a certain format (*e.g.*, documents submitted for court proceedings). Take time to research whether your **information use** has a formatting requirement. Importantly, when in doubt, seek outside advice and guidance.

Second, use your information in any way you can. Although you may have begun your work as a citizen scientist with a specific use or goal in mind, consider other ways in which your information can be used. Maximize the value of your efforts by thinking creatively about other uses of your information.

Finally, build upon the information that you have collected and generated. In some instances, you can consider collecting or generating more information to make your argument more sound and convincing with increased evidence. In other instances, your work may bring to light additional issues that merit exploration. Alternatively, you can provide opportunities for others to build upon your work by making your information as accessible as possible. For example, you can consider making your information publicly available on an internet platform. To some extent, this sharing can serve as a "peer-reviewing" mechanism. When other independent individuals reproduce your results, the credibility (*i.e.*, quality) of your information increases. In this way, quantity can be equated with quality.

# APPENDICES

## Appendix I: State Law Analysis Overview

| W7T | W V | WV  | WA  | VA  | VT  | Π   | X       | 1          | 2 8   | ŝ    | SC  | RI  | PA  | R | OK  | OH  | 2 N  | i NC     | 111   | VV  | NM  | IJ  | HN | NN | NE  | TIM | NTT I | Mo I | MS  | MN  | MI  | MA  | ð   | ME  | LA | KY  | KS  | AT A | 1    | N   | F  | Ħ | H   | GA  | FL | DE | CT  | СО  | CA | AR | ΑZ | AK  | AL  |                     |                       |                          | _                                     |              |                         |
|-----|-----|-----|-----|-----|-----|-----|---------|------------|-------|------|-----|-----|-----|---|-----|-----|------|----------|-------|-----|-----|-----|----|----|-----|-----|-------|------|-----|-----|-----|-----|-----|-----|----|-----|-----|------|------|-----|----|---|-----|-----|----|----|-----|-----|----|----|----|-----|-----|---------------------|-----------------------|--------------------------|---------------------------------------|--------------|-------------------------|
| Ŷ   |     |     |     | Ŷ   |     |     |         |            |       |      |     | Ý   | Y   | Y | ~   |     | \$   |          |       |     | Y   | Ý   | Y  |    |     |     |       |      |     |     | Ŷ   |     | Y   | Y   |    | Y   |     |      | <    | ×   | Ý  | Y | Ŷ   | Y   | Ŷ  |    | Ý   | Y   | Y  |    |    | Y   |     | involvment?         | open for public       | or state level) that are | mgoing projects (federal              | P 4 Cut I    | <b>Ongoing</b> Projects |
| 4   |     | ,   | Y   | Y   |     |     |         |            |       |      |     | Y   |     |   | Y   |     |      |          | 4 -   | v   |     |     | Y  |    |     |     |       |      |     | Y   | Y   |     |     |     |    |     |     |      |      | Y   |    |   | Y   |     |    |    |     |     |    |    |    | Y   |     | TIONNII TO          | allow use collection? | laws that explicitly     | Does the State have                   |              | Collectio               |
|     |     |     |     |     |     |     |         |            |       |      |     |     |     |   |     |     |      |          |       |     |     |     |    |    |     |     |       |      |     |     |     |     |     |     |    |     |     |      |      | Y   |    |   |     |     |    |    |     |     |    |    |    |     |     | Law                 | Tresnass              | collection               | explicit                              | Doos the St  | n of Inform             |
|     |     |     |     |     |     | 4   |         | ŀ          | <     | <    | ~   |     |     | × | 4   | -   | : -  | -        | 1     |     |     | _   |    |    |     | -   | <     |      | ×   |     |     | ×   |     |     | ×  | -   | -   | <    | <    | _   | ×  | _ |     | Y   |    |    |     |     |    |    |    |     | Y   | Law                 | Ao-Gao 1              | of informat              | are nave iav<br>ly <u>prohibit</u> ti | ate have lav | tion                    |
|     |     | -   |     |     |     |     |         | -          | <     | +    | _   |     |     |   |     | -   | -    | -        | 4     | +   |     | _   | Y  |    |     | ╞   | +     | +    | _   | _   |     |     |     |     | ~  |     | +   | ╞    | +    | +   | -  | Y |     |     | Y  |    |     |     | Y  | 4  | ×  |     |     | Law lac             | mme tres              | ion?                     |                                       | re that n    |                         |
| 4   |     | <(: | zl  | z   | z   | z   |         | 1-         |       |      | ×   | z   | z   |   |     |     | 12   | 12       | 42    | <   | z   | z   | z  | z  | z   | 2   | 4-    |      | z   | z   | Z   | z   | z   | z   | z  |     |     | 2    |      |     | ×  | z | Y   | N   | N  | Ÿ  | N   | Y   | N  | N  | R  | N   | N   | k of notice?        | pass despite          | iability for             | ose criminal                          | 0            | Tressp                  |
| ¥   |     |     |     | Ý   |     | Y   | ×       |            |       | <    | Y   |     |     | Y |     |     |      | e        | <     |     |     | Ý   | Ý  |    | 4   |     | <.    | ~    | Y   | Ý   | Ŷ   | Y   |     |     | Y  | Y   | 1   | <    | <    | Y   | Y  | Ý |     | Ŷ   | Y  | Ŷ  | Y   | Ý   | Y  | y  | Y  | Y   | Y   | scientists?         | impact citizen        | provision that           | other trespass                        |              | ass Laws                |
| 4   |     | 21: | z   | z   | z   |     |         |            | (12   | <    | z   | z   | z   |   |     |     |      |          | :12   | z   | z   | Z)  | Y  | Y  | z   | (1± | 41-   | <    | z   | Y   | ×   | z   | Y   | z   | Y  |     |     |      |      | 2   | z  | Y | N   | N   | Ā  | Y  | z   | N   | Y  | Y  | Y  | N   | N   | scientists?         | citizen               | that impact              | have drone laws                       | 2            | Dro                     |
|     | :[2 | z[; | N/A | N/A | N/A | N/A | <br>  ~ | <br>  <br> | ANN A | NIV. | N/A | N/A | N/A | Y | N/A | N/A |      | <br>:[+- | e NIN | N/A | N/A | N/A | N  | Y  | N/A | N/A | NT/   | z    | N/A | N/A | N/A | N/A | N/A | N/A | Y  | N/A | N/A | NIA  | AllA | N/A | NA | N | N/A | N/A | Y  | Y  | N/A | N/A | N  | N  | Y  | N/A | N/A | scientists?         | may help citizen      | drone laws that          | exceptions to the                     | -            | ne Laws                 |
| 4   |     | <0  | <(  | Y   | Y   | ×   |         | (I +-      | <1    | <    | <0  | Ā   | Y   | Y |     |     | (r.~ | () ==    | -     | <0  | ×   | Ý   | Y  | Y  |     | a   | <1+   | <    | ~   | Y   | Y   | Y   | Y   | Y   | Y  |     |     | <    | <1.  | ~   | 4  | Y | Ÿ   | Ŷ   | Ϋ́ | Ϋ́ | Ÿ   | Ŷ   | Y  | Y  | Y  | Y   | Y   | scientists?         | impact citizen        | stalking laws that       | have criminal                         | 7            | Stalki                  |
|     | 12  | zı  | v   | Ā   | z   | z   |         |            | <1-   | <    | z   | Ā   | z   | 4 | Z   | 2   | (12  | 12       | ( 2   | zc  | z   | Z   | z  | z  | Y   | (12 | \$(\$ | z    | z   | z   | Ŷ   | z   | z   | z   | z  | Y   |     | < 2  | <.   | z   | z  | N | N   | N   | N  | N  | N   | N   | Y  | Y  | z  | N   | N   | CHIZCH SCIERIUSIS : | alizan azientiete?    | have civil stalking      | Does the State                        |              | ng Laws                 |
|     |     |     | Y   |     |     |     |         |            |       |      |     |     |     |   |     |     |      |          |       |     |     |     |    |    |     |     |       |      |     |     |     |     |     |     |    |     |     |      |      |     |    |   |     |     |    |    |     |     | Y  |    |    |     |     | scientists?         | citizen               | that impact              | have mise. laws                       | 7 4 04       | Misc. Laws              |
|     | -   | Y   |     | Y   | Y   | Y   | 4       | :          | -     | ~    |     | γ   | Y   | Y | 4   |     | -    |          | -     | v   | Y   | γ   | Y  |    |     |     |       |      |     | Y   | Y   |     |     |     |    |     |     |      |      | Y   |    |   |     |     |    |    |     | Y   |    |    |    |     |     | information?        | the use of            | explicitly allow         | have laws that                        | 1            |                         |
|     |     |     |     | γ   | Y*  | Y   |         | 1,         | V*    |      |     |     |     |   |     |     |      | 1,       | X74   |     |     |     |    | Y* |     |     |       |      |     |     |     |     |     |     |    |     |     |      |      |     |    |   |     |     | Y  |    |     |     |    |    |    |     |     | of information?     | prohibit the use      | explicitly               | have laws that                        | 1            | Use of 1                |
|     | -   | V   | Y   |     |     |     | Y       | :          | -     | v    |     |     | Y   |   |     |     | Y    | :        |       |     |     |     |    |    |     |     |       |      |     | Y   |     |     |     |     |    |     |     |      | v    |     |    |   |     |     |    |    |     |     |    |    |    |     |     | requirements?       | credibility           | information              | laws that impose                      |              | Information             |
|     | -   | <1  | ~   | Ŷ   | ~   |     |         |            |       | <    | <   | Y   | ×   |   |     |     |      |          | -     | <   | Y   | Ý   | Ÿ  | Y  |     | a   | <1-   | <    | ×   | Y   | Y   | Y   | Y   | Y   | Y  |     |     |      | <1-  | ~   | 4  | Y | Ŷ   | Ŷ   | Ϋ́ | Ϋ́ | Y   | Ÿ   | γ  | Y  | Y  | Y   | Y   | standards?          | evidentiary           | impose                   | have laws that                        | 7            |                         |
Appendix II: Individual State Law Summaries

| Alabama  |   |
|--|---|
|  |   |
|  |   |
|  |   |
| <b>Collection of Infor</b>   | mation:   |
| Ag-Gag Law:  | "It shall be unlawful for any person to do any of the following:  |
|  | (3) Obtain access to an animal or crop facility by false pretenses for the  |
|  | purpose of performing acts not authorized by that facility.   |
|  | (5) Knowingly obtain control by there or deception that is unauthorized, or to  |
|  | depriving the rightful owner or facility of records data  |
|  | (6) Possess or use records data in any way to copy or reproduce   |
|  | records or data of an animal or crop facility knowing or reasonably believing   |
|  | that the records, data, have been obtained by theft or deception, or  |
|  | without authorization of the rightful owners or administrators of the animal or   |
|  | crop facility.  |
|  | (7) Enter or remain on an animal or crop facility with the intent to commit an  |
|  | act prohibited under this section." Ala. Code § 13A-11-153.   |
| Trespass Laws:   |   |
| Criminal Liability   | No. A person is not liable for criminal trespass if she enters "unimproved,   |
| for Trespass   | apparently unused land, neither fenced nor otherwise enclosed unless  |
| Notice:  | communicated personally by the owner. Ala Code & 13A, 7, 1  |
| Other Provisions:  | Trespass against "critical infrastructure" carries a heightened penalty. Ala  |
| Other Provisions.  | Code § 13A-7-4 3. Critical infrastructure "includes, but is not limited to"   |
|  | facilities that manufacture, store, process, treat, or transmit chemicals, oil, gas,  |
|  | electricity, and water. <i>Id.</i>  |
|  |   |
|  | See supra "Ag-Gag Law."   |
| Stalking Laws:   |   |
| Criminal stalking:   | "(a) A person who, acting with an improper purpose, intentionally and   |
|  | repeatedly follows, harasses, telephones, or initiates communication, verbally,   |
|  | electronically, or otherwise, with another person, any member of the other  |
|  | person's immediate family, or any third party with whom the other person is   |
|  | acquainted, and causes material narm to the mental or emotional health of the   |
|  | employment business or career is threatened and the perpetrator was   |
|  | previously informed to cease that conduct is guilty of the crime of stalking in   |
| Notice:<br>Other Provisions:<br>Stalking Laws:<br>Criminal stalking: | <ul> <li>communicated personally by the owner. Ala. Code § 13A-7-1.</li> <li>Trespass against "critical infrastructure" carries a heightened penalty. Ala.</li> <li>Code § 13A-7-4.3. Critical infrastructure "includes, but is not limited to," facilities that manufacture, store, process, treat, or transmit chemicals, oil, gas, electricity, and water. <i>Id.</i></li> <li><i>See supra</i> "Ag-Gag Law."</li> <li>"(a) A person who, acting with an improper purpose, intentionally and repeatedly follows, harasses, telephones, or initiates communication, verbally, electronically, or otherwise, with another person, any member of the other person's immediate family, or any third party with whom the other person is acquainted, and causes material harm to the mental or emotional health of the other person, or causes such person to reasonably fear that his or her employment, business, or career is threatened, and the perpetrator was previously informed to cease that conduct is guilty of the crime of stalking in</li> </ul> |

|   | the second degree.   |  |
|---|--|--|
|   | (b) The crime of stalking in the second degree is a Class B misdemeanor."          |  |
|   | Ala. Code § 13A-6-90.1.  |  |
| Use of Information:   |  |  |
| Although incomplete, our research has not found any provisions relating to the use of information |  |  |
| collected by citizens in enforcement or administrative/legislative actions.                       |  |  |
| Evidentiary Standards:  |  |  |
| Pleading a Claim:   | Requires certification that "there is good ground to support" the claim. AL ST     |  |
|   | RCP Rule 11.   |  |
| Authentication or   | "The requirement of authentication or identification as a condition precedent      |  |
| Chain of Custody:   | to admissibility is satisfied by evidence sufficient to support a finding that the |  |
|   | matter in question is what its proponent claims." Ala. R. Evid. 901.               |  |
| Expert Testimony:   | Daubert standard for DNA evidence; Frye standard for other scientific              |  |
|   | evidence. See Bagley v. Mazda Motor Corp., 864 So. 2d 301, 310 (Ala. 2003).        |  |

## Alaska



| <b>Ongoing Projects:</b>  |   |  |
|---|---|--|
| Federal Project<br>Operating in the<br>State:   | The University of Alaska has established a program called the Alaska Center for<br>Unmanned Aircraft Systems Integration ("ACUASI") "to maintain a world<br>class research center for unmanned aircraft systems, providing integration of<br>unique payloads and supporting pathfinder missions within government and<br>science communities, with a special emphasis on the Arctic and sub-Arctic<br>regions." ACUASI, <i>About Us</i> , http://acuasi.alaska.edu/about (last visited<br>Apr. 10, 2017); <i>see also</i> Alaska Stat. § 14.40.082 ("The University of Alaska<br>may establish a training program in the operation of unmanned aircraft<br>systems."). The program was selected as a test site by the FAA in 2013.<br>ACUASI, <i>About Us</i> , http://acuasi.alaska.edu/about (last visited Apr. 10,<br>2017). |  |
| <b>Trespass Laws:</b>   |   |  |
| Criminal Liability<br>for Trespass<br>Despite Lack of<br>Notice:  | No. A person is not liable for trespass if she enters "unimproved and apparently unused land, which is neither fenced nor otherwise enclosed unless notice against trespass is given" by signs posted on the property or personally by the owner. Alaska Stat. § 11.46.350(b).  |  |
| Other Provisions:   | "A person who trespasses upon the land of another to gather geotechnical data is liable to the owner for treble the amount of damages that may be assessed in a civil action." Alaska Stat. § 09.45.735. If the trespass was unintentional, however, only actual damages may be recovered. <i>Id</i> .  |  |
| Stalking Laws:  |   |  |
| Criminal Law:   | <ul> <li>"(a) A person commits the crime of stalking in the second degree if the person knowingly engages in a course of conduct that recklessly places another person in fear of death or physical injury, or in fear of the death or physical injury of a family member</li> <li>(c) Stalking in the second degree is a class A misdemeanor." Alaska Stat. § 11.41.270.</li> </ul>  |  |
| Use of Information  | :   |  |
| Although incomplete, our research has not found any provisions relating to the use of information collected by citizens in enforcement or administrative/legislative actions. |   |  |
| Evidentiary Standards:  |   |  |
| Pleading a Claim:   | Requires certification that "the factual contentions have evidentiary support or, if specifically so identified, will likely have evidentiary support after a reasonable opportunity for further investigation or discovery." Alaska R. Civ. P. 11.   |  |
| Authentication or<br>Chain of Custody:  | "The requirement of authentication or identification as a condition precedent to<br>admissibility is satisfied by evidence sufficient to support a finding that the<br>matter in question is what its proponent claims, except as provided in paragraphs<br>(a) and (b) below:  |  |

|                   | (a) Whenever the prosecution in a criminal trial offers (1) real evidence which      |
|-------------------|--|
|                   | is of such a nature as not to be readily identifiable, or as to be susceptible to    |
|                   | adulteration, contamination, modification, tampering, or other changes in form       |
|                   | attributable to accident, carelessness, error or fraud, or (2) testimony describing  |
|                   | real evidence of the type set forth in (1) if the information on which the           |
|                   | description is based was acquired while the evidence was in the custody or           |
|                   | control of the prosecution, the prosecution must first demonstrate as a matter of    |
|                   | reasonable certainty that the evidence is at the time of trial or was at the time it |
|                   | was observed properly identified and free of the possible taints identified by this  |
|                   | paragraph.   |
|                   | (b) In any case in which real evidence of the kind described in paragraph (a) of     |
|                   | this rule is offered, the court may require additional proof before deciding         |
|                   | whether to admit or exclude evidence under Rule 403." Alaska R. Evid. 901.           |
| Expert Testimony: | Daubert standard. See Thompson v. Cooper, 290 P.3d 393, 399-400 (Alaska              |
|                   | 2012).   |
|                   |  |

#### Arizona



| Collection of Information:                                       |   |
|--|---|
| Drone Law  | See infra "Drone Laws."   |
| <b>Trespass Laws:</b>  |   |
| Criminal Liability<br>for Trespass<br>Despite Lack of<br>Notice: | No. Liability for trespass requires "reasonable notice prohibiting entry." Ariz. Rev. Stat. § 13-1502.  |
| Other Provisions:  | Trespass against a "critical public service facility" is a felony. A critical public service facility is "[a] structure or fenced yard that is posted with signage indicating it is a felony to trespass or signage indicating high voltage or high pressure and that generates, transmits, or otherwise provides natural gas, liquefied petroleum gas, electricity, or a combustible substance[;]" or "is used to manufacture extract, transport, distribute, or store gas, including natural gas or liquefied petroleum gas, oil, electricity, water or hazardous materials, unless it is a retail-only facility." Ariz. Rev. Stat. § 13-1501(1)(a)–(b).  |
| Drong Laws.  | See also infra "Drone Laws."  |
| Law:   | "It is unlawful for a person to operate or use an unmanned aircraft or unmanned aircraft system to intentionally photograph or loiter over or near a critical facility in the furtherance of any criminal offense." Ariz. Rev. Stat. § 13-3729.<br>"Critical facility" includes: a petroleum or alumina refinery; a petroleum, chemical or rubber production, transportation, storage or processing facility; a chemical manufacturing facility; a water or wastewater treatment facility and water development, distribution or conveyance system, including a dam; an electric generation facility, and any associated substation or switchyard; an electrical transmission or distribution substation; an electrical transmission line of at least sixty-nine thousand volts; an electronic communication station or tower; an energy control center; a distribution operating center; a facility that transfers or distributes natural gas, including a compressor station, regulator station, city gate station or pressure limiting station or a liquefied natural gas facility or supplier tap facility; any railroad infrastructure or facility. <i>Id.</i> |
| Limitation:  | Arizona law prohibits a city, town or county from enacting certain ordinances, policies or rules regulating the use of unmanned aircraft. <i>See</i> Ariz. Rev. Stat. § 13-3729.  |
| Stalking Laws:   |   |
| Criminal laws:   | "A person commits stalking if the person intentionally or knowingly engages in<br>a course of conduct that is directed toward another person and if that conduct<br>either:   |

|   | 1. Would cause a reasonable person to fear for the person's safety or the safety     |  |
|---|--|--|
|   | of that person's immediate family member and that person in fact fears for the       |  |
|   | person's safety or the safety of that person's immediate family member.              |  |
|   | 2. Would cause a reasonable person to fear death of that person or that              |  |
|   | person's immediate family member and that person in fact fears death of that         |  |
|   | person or that person's immediate family member." Ariz. Rev. Stat. § 13-2923.        |  |
| Use of Information:   |  |  |
| Although incomplete, our research has not found any provisions relating to the use of information |  |  |
| collected by citizens in enforcement or administrative/legislative actions.                       |  |  |
| Evidentiary Standards:  |  |  |
| Pleading a Claim:   | Requires certification that "the factual contentions have evidentiary support or, if |  |
|   | specifically so identified, will likely have evidentiary support after a reasonable  |  |
|   | opportunity for further investigation or discovery." Ariz. R. Civ. P. Rule 11.       |  |
| Authentication or   | "To satisfy the requirement of authenticating or identifying an item of evidence,    |  |
| Chain of Custody:   | the proponent must produce evidence sufficient to support a finding that the item    |  |
|   | is what the proponent claims it is." Ariz. R. Evid. 901.                             |  |
| Expert Testimony:   | Daubert standard. See State v. Miller, 316 P.3d 1219, 1229 (2013).                   |  |

#### Arkansas



| Collection of Information:                                       |   |
|--|---|
| Drone Law:   | See infra "Drone Laws."   |
| Trespass Laws:   |   |
| Criminal Liability<br>for Trespass<br>Despite Lack of<br>Notice: | No. A person is not liable for trespass if she enters "unimproved and apparently unused land not fenced or otherwise enclosed in a manner designed to exclude an intruder does so with license and privilege unless: notice not to enter or remain is personally communicated to the person by the owner or a person authorized by the owner; or notice is given by a posting in a conspicuous manner." Ark. Code. § 5-39-101.  |
| Other Provisions:  | See infra "Drone Laws."   |
| Drone Laws:  |   |
| Law:<br>Exceptions:  | <ul> <li>"(b) A person commits the offense of unlawful use of an unmanned aircraft system if he or she knowingly uses an unmanned aircraft system to conduct surveillance of, gather evidence or collect information about, or photographically or electronically record critical infrastructure without the prior written consent of the owner of the critical infrastructure." Ark. Code § 5-60-103.</li> <li>"Critical infrastructure" means: an electrical power generation or delivery system; a petroleum refinery; a chemical or rubber manufacturing facility; or a petroleum or chemical storage facility. <i>Id.</i> "Unmanned aircraft system" does not include: "[a]n unmanned aircraft system used under a certificate of authorization issued by the Federal Aviation Administration." <i>Id.</i></li> <li>A person retained by the owner of the critical infrastructure. <i>See</i> Ark. Code § 5-60-102.</li> </ul> |
| Stalling Laws  | 60-103.   |
| Criminal Laws:   | "A parson commits stalking in the third degree if he or she knowingly commits   |
| Criminal Law:  | an act that would place a reasonable person in the victim's position under<br>emotional distress and in fear for his or her safety or a third person's safety."<br>Ark. Code. § 5-71-229.   |
| Civil Law:   | "A person may recover actual damages, and if applicable, punitive damages, reasonable attorney's fees, and court costs against another person if he or she proves by a preponderance of the evidence that another person knowingly engaged in a course of conduct towards the person that would place a reasonable person in the person's position under emotional distress or in fear for his or her safety or a third person's safety." Ark. Code. § 16-127-102.  |
| Miscellaneous Laws:  |   |
| Drone Law (by effect):   | "(a) It is unlawful to use any camera, videotape, photo-optical, photoelectric, or<br>any other image recording device for the purpose of secretly observing, viewing,<br>photographing, filming, or videotaping a person present in a residence, place of  |

|   | business, school, or other structure, or any room or particular location within that |  |
|---|--|--|
|   | structure, if that person: (1) Is in a private area out of public view; (2) Has a    |  |
|   | reasonable expectation of privacy; and (3) Has not consented to the                  |  |
|   | observation." Ark. Code § 5-16-101.  |  |
| Ag-Gag Law:   | "(3) A person commits an offense if, without the effective consent of the owner      |  |
|   | and with the purpose to disrupt or damage the enterprise conducted at the animal     |  |
|   | facility, the person:  |  |
|   | (A) Enters an animal facility, not then open to the public, with the purpose to      |  |
|   | commit an act prohibited by this section;  |  |
|   | (B) Remains concealed, with the purpose to commit an act prohibited by this          |  |
|   | section, in an animal facility; or   |  |
|   | (C) Enters an animal facility and commits or attempts to commit an act               |  |
|   | prohibited by this section.  |  |
|   | (4) A person commits an offense if, without the effective consent of the owner       |  |
|   | and with the purpose to disrupt or damage the enterprise conducted at the animal     |  |
|   | facility, the person:  |  |
|   | (A) Enters or remains in an animal facility; and                                     |  |
|   | (B) Had notice that the entry was forbidden or received notice to depart but         |  |
|   | failed to depart." Ark. Code § 5-62-203. Violation of this section is a Class D      |  |
|   | felony. Id.  |  |
| Use of Information  | :  |  |
| Although incomplet  | e, our research has not found any provisions relating to the use of information      |  |
| collected by citizens in enforcement or administrative/legislative actions. |  |  |
| Evidentiary Standards:  |  |  |
| Pleading a Claim:   | Requires certification that "the factual contentions have evidentiary support."      |  |
| Ū.  | Ark. R. Civ. P. 11.  |  |
| Authentication or   | "The requirement of authentication or identification as a condition precedent to     |  |
| Chain of Custody:   | admissibility is satisfied by evidence sufficient to support a finding that the      |  |
|   | matter in question is what its proponent claims." Ark. R. Evid. 901.                 |  |
| Expert Testimony:   | Daubert standard. See Farm Bureau Mut. Ins. Co. of Arkansas v. Foote, 14             |  |
|   | S.W.3d 512, 519 (2000).  |  |

## California



| <b>Ongoing Projects:</b>   |   |
|--|---|
| Federal Project<br>Operating in the<br>State:                    | The Elkhorn Slough National Estuarine Research Reserve, which is managed by NOAA, and the Monterey County Water Resources Agency have run a volunteer water quality monitoring program since 1988. <i>See Elkhorn Slough Research: Volunteer Water Quality Monitoring</i> , ELKHORN SLOUGH, <a href="http://elkhornslough.org/research/waterquality_volunteer.htm">http://elkhornslough.org/research/waterquality_volunteer.htm</a> (last visited Apr. 3, 2017). Through the program, volunteers take monthly samples at twenty-six   |
|  | stations within the reserve. See id.  |
| Trespass Laws:   |   |
| Limits:  | Cities and towns are prohibited from passing ordinances that would require<br>written permission to enter private lands that are not fenced, enclosed, under<br>cultivation, or posted against trespass. Cal. Penal Code § 602.2.   |
| Criminal Liability<br>for Trespass<br>Despite Lack of<br>Notice: | No. For liability to attach to an intruder on uncultivated and unenclosed land, the land must be marked against trespass by three signs per mile and at every road or trail entering the property in order and the intruder must refuse to leave when asked. Cal. Penal Code § 602(1).  |
| Drone Laws:  |   |
| Privacy Law:   | <ul> <li>"(a) A person is liable for physical invasion of privacy when the person knowingly enters onto the land or into the airspace above the land of another person without permission or otherwise commits a trespass in order to capture any type of visual image, sound recording, or other physical impression of the plaintiff engaging in a private, personal, or familial activity and the invasion occurs in a manner that is offensive to a reasonable person.</li> <li>(b) A person is liable for constructive invasion of privacy when the person attempts to capture, in a manner that is offensive to a reasonable person, any type of visual image, sound recording, or other physical impression of the plaintiff engaging in a private, personal, or familial activity, through the use of any device, regardless of whether there is a physical trespass, if this image, sound recording, or other physical impression could not have been achieved without a trespass unless the device was used." Cal. Civ. Code § 1708.8 [otherwise known as the "Anti-Paparazzi Law"].</li> </ul> |
| Criminal Law:  | "Any person who willfully, maliciously, and repeatedly follows or willfully and<br>maliciously harasses another person and who makes a credible threat with the<br>intent to place that person in reasonable fear for his or her safety, or the safety of<br>his or her immediate family is guilty of the crime of stalking, punishable by<br>imprisonment in a county jail for not more than one year, or by a fine of not<br>more than one thousand dollars (\$1,000), or by both that fine and imprisonment,   |
|  | or by imprisonment in the state prison." Cal. Penal Code § 646.9.   |

| Civil Law:  | "A person is liable for the tort of stalking when the plaintiff proves all of the    |
|---|--|
|   | following elements of the tort:  |
|   | (1) The defendant engaged in a pattern of conduct the intent of which was to         |
|   | follow, alarm, place under surveillance, or harass the plaintiff. In order to        |
|   | establish this element, the plaintiff shall be required to support his or her        |
|   | allegations with independent corroborating evidence                                  |
|   | (2) As a result of that pattern of conduct, either of the following occurred:        |
|   | $(\Delta)$ The plaintiff reasonably feared for his or her safety or the safety of an |
|   | immediate family member. For purposes of this subparagraph [FR1]                     |
|   | "immediate family" means a spouse parent child any person related by                 |
|   | consanguinity or affinity within the second degree, or any person who regularly      |
|   | resides, or, within the six months preceding any portion of the pattern of           |
|   | conduct, regularly resided, in the plaintiff's household.                            |
|   | (B) The plaintiff suffered substantial emotional distress, and the pattern of        |
|   | conduct would cause a reasonable person to suffer substantial emotional distress.    |
|   | (3) One of the following:  |
|   | (A) The defendant, as a part of the pattern of conduct specified in paragraph        |
|   | (1), made a credible threat with either (i) the intent to place the plaintiff in     |
|   | reasonable fear for his or her safety, or the safety of an immediate family          |
|   | member, or (ii) reckless disregard for the safety of the plaintiff or that of an     |
|   | immediate family member. In addition, the plaintiff must have, on at least one       |
|   | occasion, clearly and definitively demanded that the defendant cease and abate       |
|   | his or her pattern of conduct and the defendant persisted in his or her pattern of   |
|   | conduct unless exigent circumstances make the plaintiff's communication of the       |
|   | demand impractical or unsafe.  |
|   | (B) The defendant violated a restraining order, including, but not limited to,       |
|   | any order issued pursuant to Section 527.6 of the Code of Civil Procedure,           |
|   | prohibiting any act described in subdivision (a)." Cal. Civ. Code § 1708.7.          |
| Miscellaneous Law   | /s:  |
| Loitering Law:  | It is illegal to "loiter" in the immediate vicinity of "industrial property" that is |
|   | posted against trespass. Cal. Penal Code § 555.2. For this offense, oil facilities,  |
|   | gas facilities, hydroelectric facilities, waste management facilities, reservoirs,   |
|   | munitions facilities, rail yards, and quarries are defined as "industrial property." |
|   | Cal. Penal Code § 554.   |
| Privacy Law:  | See supra "Drone Laws" (Cal. Civ. Code § 1708.8).                                    |
| Use of Information  | :  |
| Although incomplet  | e, our research has not found any provisions relating to the use of information      |
| collected by citizens in enforcement or administrative/legislative actions. |  |
| <b>Evidentiary Standa</b>   | ards:  |
| Pleading a Claim:   | "A person verifying a pleading need not swear to the truth or his or her belief in   |
|   | the truth of the matters stated therein but may, instead, assert the truth or his or |
|   | her belief in the truth of those matters 'under penalty of perjury.'" Cal. Civ.      |
|   | Proc. Code § 446.  |

| Authentication or | "Authentication of a writing means (a) the introduction of evidence sufficient to     |
|-------------------|---|
| Chain of Custody: | sustain a finding that it is the writing that the proponent of the evidence claims it |
|                   | is or (b) the establishment of such facts by any other means provided by law."        |
|                   | Cal. Evid. Code § 1400.   |
| Expert Testimony: | Kelly-Frye standard (but does not apply to medical opinion). See People v.            |
|                   | Leahy, 882 P.2d 321, 337 (1994).  |

### Colorado



| <b>Ongoing Projects:</b>   |  |  |
|--|--|--|
| Federal Project<br>Operating in the<br>State:                    | EPA and NPS sponsor the Keep It Clean – Neighborhood Environmental Trios (KIC-NET) program in Denver, through which students collect and analyze local water samples. <i>See Earth Force's KIC-NET</i> , FED. CROWDSOURCING AND CITIZEN SCI. CATALOG, <u>https://ccsinventory.wilsoncenter.org/#projectId/136</u> (last visited Apr. 10, 2017). Students then present their work to city engineers responsible for managing stormwater runoff. <i>See id</i> .   |  |
| Trespass Laws:   |  |  |
| Criminal Liability<br>for Trespass<br>Despite Lack of<br>Notice: | Yes. A person is liable for trespass if she simply "unlawfully enters or remains<br>upon the premises of another." Colo. Rev. Stat. § 18-4-504. "Premises"<br>includes real property. <i>See</i> Colo. Rev. Stat. § 18-4-504.5.  |  |
| Other Provisions:  | Trespass against property classified as "agricultural land" by a county assessor carries a heightened penalty. Colo. Rev. Stat. § 18-4-504(2).   |  |
| Stalking Laws:   |  |  |
| Criminal Law:  | "A person commits stalking if directly, or indirectly, through another person, the person knowingly:<br>(c) Repeatedly follows, approaches, contacts, places under surveillance, or makes any form of communication with another person, a member of that person's immediate family, or someone with whom that person has or has had a continuing relationship in a manner that would cause a reasonable person to suffer serious emotional distress and does cause that person, a member of that person's immediate family, or someone with whom that person has or has had a continuing relationship to suffer serious emotional distress. For purposes of this paragraph (c), a victim need not show that he or she received professional treatment or counseling to show that he or she suffered serious emotional distress." Colo. Rev. Stat. § 18-3-602. |  |
| Use of Information:  |  |  |
| Although our resear<br>information collecte                      | ch is incomplete, these provisions could be construed to allow the use of d by citizens.   |  |
| Explicitly Allow:  | "[P]hotographs, video tapes, or films of property obtained unlawfully are competent evidence[.]" Colo. Rev. Stat. § 18-4-514.  |  |
| <b>Evidentiary Standa</b>  | ards:  |  |
| Pleading a Claim:  | Requires certification that the claim "is well grounded in fact." C.R.C.P. 11.   |  |
| Authentication or<br>Chain of Custody:                           | "The requirement of authentication or identification as a condition precedent to<br>admissibility is satisfied by evidence sufficient to support a finding that the<br>matter in question is what its proponent claims." CRE 901.  |  |
| Expert Testimony:  | <i>Schreck-Daubert</i> standard, but court may apply CRE 702 broadly to determine reliability of evidence. <i>See People v. Shreck</i> , 22 P.3d 68, 70 (Colo. 2001).  |  |

## Connecticut



| <b>Ongoing Projects:</b>   |   |
|--|---|
| State Project:   | The CT Department of Energy and Environmental Protection (DEEP) manages a volunteer water quality monitoring group: Riffle Bioassessment by Volunteers (RBV). See Riffle Bioassessment by Volunteers Program, CONN. DEP'T OF ENERGY & ENVTL. PROTECTION,<br>http://www.ct.gov/deep/cwp/view.asp?a=2719&q=325606&deepNav_GID=165<br>4%20 (last visited Apr. 3, 2017). We were unable to find statutory authorization for RBV, which DEEP appears to have created on its own initiative. Through the program, volunteers collect data on macroinvertebrate populations, which DEEP uses as an indication of water quality. See id. However, "[b]ecause it is a screening approach and not a more in-depth assessment methodology, RBV cannot provide a detailed water quality assessment not can it be used to identify low or impaired water quality." CONN. DEP'T OF ENERGY AND ENVTL.<br>PROTECTION, 2015 RBV PROGRAM ANNUAL SUMMARY REPORT 2 (2015), available at<br>http://www.ct.gov/deep/lib/deep/water/volunteer_monitoring/2015_rbv_report.p_df. |
| <b>Trespass Laws:</b>  |   |
| Criminal Liability<br>for Trespass<br>Despite Lack of<br>Notice: | No. To commit criminal trespass, a person entering private property must "know[] that such person is not licensed or privileged to do so" Conn. Gen. Stat. § 53a-110a.  |
| Other Provisions:  | A person who trespasses against public land is guilty of second degree trespass (a Class B Misdemeanor), whereas a person who trespasses against private land is guilty of third degree trespass (a Class C Misdemeanor). <i>Compare</i> Conn. Gen. Stat. § 53a-108 (2nd Degree trespass) <i>with</i> Conn. Gen. Stat. § 53a-109 (3rd degree trespass).   |
| Stalking Laws:   |   |
| Criminal Law:  | <ul> <li>"(a) For the purposes of this section, "course of conduct" means two or more acts, including, but not limited to, acts in which a person directly, indirectly or through a third party, by any action, method, device or means, <ul> <li>(1) follows, lies in wait for, monitors, observes, surveils, threatens, harasses, communicates with or sends unwanted gifts to, a person, or</li> <li>(2) interferes with a person's property.</li> </ul> </li> <li>(b) A person is guilty of stalking in the second degree when: <ul> <li>(1) Such person knowingly engages in a course of conduct directed at a specific person that would cause a reasonable person to fear for such person's physical safety or the physical safety of a third person; or</li> <li>(2) Such person intentionally, and for no legitimate purpose, engages in a course of conduct directed at a specific person that such person's employment, business or career is threatened,</li> </ul> </li> </ul>   |

|   | <ul> <li>where (A) such conduct consists of the actor telephoning to, appearing at or initiating communication or contact at such other person's place of employment or business, provided the actor was previously and clearly informed to cease such conduct, and (B) such conduct does not consist of constitutionally protected activity.</li> <li>(c) Stalking in the second degree is a class A misdemeanor." Conn. Gen. Stat. § 53a-181d.</li> </ul> |  |
|---|---|--|
| Use of Information:   |   |  |
| Although incomplete, our research has not found any provisions relating to the use of information collected by citizens in enforcement or administrative/legislative actions. |   |  |
| Evidentiary Standards:  |   |  |
| Pleading a Claim:   | "A pleading should allege facts upon which plaintiff proposes to rely in such a way as fairly to apprise court and opposing party as to basis upon which plaintiff claims relief." Conn. Gen. Stat. § 52-91.  |  |
| Authentication or   | "The requirement of authentication as a condition precedent to admissibility is   |  |
| Chain of Custody:   | satisfied by evidence sufficient to support a finding that the offered evidence is what its proponent claims it to be." Conn. Code Evid. 9-1.   |  |
| Expert Testimony:   | Porter-Daubert standard. See State v. Porter, 698 A.2d 739, 743 (1997).   |  |

## Delaware



| <b>Trespass Laws:</b> |   |
|-----------------------|---|
| Criminal Liability    | Yes. Third degree trespass requires only that a person "knowingly enters or             |
| for Trespass          | remains unlawfully upon real property." Del. Code tit. 11, § 821.                       |
| Despite Lack of       |   |
| Notice:               |   |
| Other Provisions:     | Trespass when a person "knowingly enters or remains unlawfully in a building or         |
|                       | upon real property which is fenced or otherwise enclosed in a manner manifestly         |
|                       | designed to exclude intruders" carried a heightened penalty, and trespass against       |
|                       | a "building used to shelter, house, milk, raise, feed, breed, study or exhibit          |
|                       | animals" carries an even more heightened one. Del. Code tit. 11, § 823(a).              |
| Drone Laws:           |   |
| Drone Law:            | "(b) Prohibited ActsExcept as provided in this section, no person shall                 |
|                       | knowingly operate, direct, or program an unmanned aircraft system to fly:               |
|                       | (2) over any critical infrastructure" Del. Code tit. 11, § 1334.                        |
|                       |   |
|                       | "(2) 'Critical infrastructure' means petroleum refineries, petroleum storage            |
|                       | facilities, chemical storage facilities, chemical manufacturing facilities, fuel        |
|                       | storage facilities, electric substations, power plants, electric generation facilities, |
|                       | military facilities, commercial port and harbor facilities, rail yard facilities,       |
|                       | drinking water treatment or storage facilities, correctional facilities, government     |
|                       | buildings, and public safety buildings or facilities." Id.                              |
| Limitations:          | "(e) PreemptionOnly the State may enact a law or take any other action to               |
|                       | prohibit, restrict, or regulate the testing or operation of an unmanned aircraft        |
|                       | systems in the State. This Section preempts the authority of a county or                |
|                       | municipality to prohibit, restrict, or regulate the testing or operating of unmanned    |
|                       | aircraft systems and supersedes any existing law or ordinance of a county or            |
|                       | municipality that prohibits, restricts, or regulates the testing or operating of        |
|                       | unmanned aircraft systems." Del. Code tit. 11, § 1334.                                  |
| Exceptions:           | "(c) ExemptionsThe prohibitions set forth in subsection (b) of this section shall       |
|                       | not apply to: (3) an unmanned aircraft system operated by an institution of             |
|                       | higher education for educational purposes in compliance with Federal Aviation           |
|                       | Administration regulations; (4) an unmanned aircraft system that is being used          |
|                       | for a commercial or other purpose if the operator is authorized by the Federal          |
|                       | Aviation Administration." Del. Code tit. 11, § 1334.                                    |
| Stalking Laws:        |   |
| Criminal Law:         | "(a) A person is guilty of stalking when the person knowingly engages in a course       |
|                       | of conduct directed at a specific person and that conduct would cause a                 |
|                       | reasonable person to:   |
|                       | (1) Fear physical injury to himself or herself or that of another person; or            |

|   | (2) Suffer other significant mental anguish or distress that may, but does not necessarily, require medical or other professional treatment or counseling." Del. Code tit. 11, § 1312.   |  |
|---|--|--|
| Use of Information  | Use of Information:  |  |
| Although incomplete, our research has not found any provisions relating to the use of information collected by citizens in enforcement or administrative/legislative actions. |  |  |
| Evidentiary Standards:  |  |  |
| Pleading a Claim:   | Requires certification that "the allegations and other factual contentions have<br>evidentiary support or, if specifically so identified, are likely to have evidentiary<br>support after a reasonable opportunity for further investigation or discovery."<br>Del. Super. Ct. Civ. R. 11. |  |
| Authentication or<br>Chain of Custody:  | "The requirement of authentication or identification as a condition precedent to<br>admissibility is satisfied by evidence sufficient to support a finding that the<br>matter in question is what its proponent claims." D.R.E. 901.   |  |
| Expert Testimony:   | Daubert standard. See M.G. Bancorporation, Inc. v. Le Beau, 737 A.2d 513, 522 (Del. 1999).   |  |

## Florida



| <b>Ongoing Projects:</b> |   |  |  |
|--------------------------|---|--|--|
| Federal Project          | EPA supports the Florida Keys Water Watch, a program of the University of           |  |  |
| Operating in the         | Florida IFAS Monroe County Extension. See Florida Keys Water Watch,                 |  |  |
| State:                   | UNIVERSITY OF FLORIDA IFAS MONROE COUNTY EXTENSION,                                 |  |  |
|                          | http://monroe.ifas.ufl.edu/environment/florida_keys_water_watch.shtml (last         |  |  |
|                          | visited Apr. 3, 2017). The program enlists volunteers to monitor water quality in   |  |  |
|                          | coastal habitats. See id. In order to participate, volunteers must attend a four-   |  |  |
|                          | hour workshop. See id.  |  |  |
| State Project:           | A regional office of the Florida Department of Environmental Protection (DEP)       |  |  |
|                          | has partnered with local volunteer groups to create the Charlotte Harbor            |  |  |
|                          | Estuaries Volunteer Water Quality Monitoring Network, which trains volunteers       |  |  |
|                          | on data collection protocols, and sends them out to monitor water quality once a    |  |  |
|                          | month. See Charlotte Harbor Estuaries Volunteer Water Quality Monitoring            |  |  |
|                          | Network, FLA. DEP'T OF ENVTL. PROTECTION,   |  |  |
|                          | http://www.dep.state.fl.us/coastal/sites/charlotte/volunteer/waterquality.htm (last |  |  |
|                          | visited Apr. 3, 2017). We were unable to find statutory authorization for the       |  |  |
|                          | network, which DEP appears to have created on its own initiative.                   |  |  |
| Collection of Inform     | nation:   |  |  |
| Drone Law:               | See infra "Drone Laws."   |  |  |
| Trespass Laws:           |   |  |  |
| Criminal Liability       | No. Notice against trespassing must be given by "posting, fencing, or               |  |  |
| for Trespass             | cultivation." Fla. Stat. § 810.09.  |  |  |
| Despite Lack of          |   |  |  |
| Notice:                  |   |  |  |
| Other Provisions:        | Trespass against "commercial horticulture property," an "agricultural site for      |  |  |
|                          | testing or research purposes," or an "agricultural chemicals manufacturing          |  |  |
|                          | facility" is a felony. Fla. Stat. § 810.09 9(e)–(f), (i).                           |  |  |
|                          |   |  |  |
|                          | See infra "Drone Laws."   |  |  |
| Drone Laws:              | Drone Laws:   |  |  |
| Law:                     | "(3) Prohibited use of drones. — (b) A person, a state agency, or a political       |  |  |
|                          | subdivision may not use a drone equipped with an imaging device to record           |  |  |
|                          | an image of privately owned real property with the intent to conduct                |  |  |
|                          | surveillance on the property captured in the image in violation of such             |  |  |
|                          | person's reasonable expectation of privacy without his or her written consent.      |  |  |
|                          | For purposes of this section, a person is presumed to have a reasonable             |  |  |
|                          | expectation of privacy on his or her privately owned real property if he or she is  |  |  |
|                          | not observable by persons located at ground level in a place where they have a      |  |  |
|                          | legal right to be, regardless of whether he or she is observable from the air with  |  |  |
|                          | the use of a drone." Fla. Stat. § 934.50.   |  |  |

| Exception:           | "(4) EXCEPTIONS. — This section does not prohibit the use of a drone: (d)   |  |  |
|----------------------|---|--|--|
| -                    | By a person or an entity engaged in a business or profession licensed by the  |  |  |
|                      | state, or by an agent, employee, or contractor thereof, if the drone is used only to                                  |  |  |
|                      | perform reasonable tasks within the scope of practice or activities permitted   |  |  |
|                      | under such person's or entity's license. However, this exception does not apply                                       |  |  |
|                      | to a profession in which the licensee's authorized scope of practice includes   |  |  |
|                      | obtaining information about the identity, habits, conduct, movements,   |  |  |
|                      | whereabouts, affiliations, associations, transactions, reputation, or character of                                    |  |  |
|                      | any society, person, or group of persons; (f) To capture images by or for an  |  |  |
|                      | electric, water, or natural gas utility; for conducting environmental monitoring,                                     |  |  |
|                      | as provided by federal, state, or local law, rule, or permit; (g) For aerial  |  |  |
|                      | mapping, if the person or entity using a drone for this purpose is operating in                                       |  |  |
|                      | compliance with Federal Aviation Administration regulations." Fla. Stat.  |  |  |
|                      | § 934.50.   |  |  |
| Stalking Laws:       |   |  |  |
| Criminal Law:        | "A person who willfully, maliciously, and repeatedly follows, harasses, or  |  |  |
|                      | cyberstalks another person commits the offense of stalking, a misdemeanor of  |  |  |
|                      | the first degree." Fla. Stat. § 784.048.  |  |  |
| Use of Information:  |   |  |  |
| Although our resear  | ch is incomplete, these provisions could be construed to prohibit the use of  |  |  |
| information collecte | information collected by citizens.  |  |  |
| Explicitly           | "Evidence obtained or collected in violation of this act [which prohibits the   |  |  |
| Prohibits:           | recording of images of private property by a drone without written consent] is  |  |  |
|                      | not admissible as evidence in a criminal prosecution in any court of law in this                                      |  |  |
|                      | state." Fla. Stat. § 934.50(6).   |  |  |
| Evidentiary Standa   | ards:   |  |  |
| Pleading a Claim:    | Requires a description of "the ultimate facts showing that the pleader is entitled to relief." Fla. R. Civ. P. 1.110. |  |  |
| Authentication or    | "Authentication or identification of evidence is required as a condition precedent                                    |  |  |
| Chain of Custody:    | to its admissibility. The requirements of this section are satisfied by evidence                                      |  |  |
|                      | sufficient to support a finding that the matter in question is what its proponent                                     |  |  |
|                      | claims." Fla. Stat. § 90.901.   |  |  |
| Expert Testimony:    | Daubert standard. See Hernandez v. State, 180 So. 3d 978, 1008 (Fla. 2015).   |  |  |

## Georgia



| <b>Ongoing Projects:</b>   |   |
|--|---|
| Ongoing Projects:<br>State Project:<br>Collection of Inform<br>Ag-Gag Law: | The Georgia Environmental Protection Division (EPD) manages the Georgia<br>Adopt-A-Stream program, which uses volunteers to collect water quality<br>baseline data across the state. <i>See About Georgia Adopt-A-Stream</i> , GEORGIA<br>ADOPT-A-STREAM, http://www.georgiaadoptastream.com/db/about.html (last<br>visited Nov. 20, 2016). We could not find statutory authority for the program,<br>which EPD appears to have created on its own initiative using a Clean Water Act<br>Section 319(h) grant. <i>See id.</i><br><b>mation:</b><br>"(c)(1) A person commits an offense if, without the consent of the owner, the<br>person enters or remains on an animal facility with the intent to disrupt or<br>damage the enterprise conducted at the animal facility, and the person:<br>(A) Had notice that the entry was forbidden;<br>(B) Knew or should have known that the animal facility was or had closed to<br>the public; or<br>(C) Received notice to depart but failed to do so.<br>(c.1)(1) A person commits an offense if, without the consent of the owner, the<br>person enters or remains on a crop facility with the intent to disrupt or<br>damage the enterprise conducted at the crop facility was or had closed to<br>the public; or<br>(C) Received notice to depart but failed to do so.<br>(c.1)(1) A person commits an offense if, without the consent of the owner, the<br>person enters or remains on a crop facility with the intent to disrupt or<br>damage the enterprise conducted at the crop facility, and the person:<br>(A) Had notice that the entry was forbidden;<br>(B) Knew or should have known that the crop facility was or had closed to<br>the public; or<br>(C) Received notice to depart but failed to do so."<br>(C) Received notice to depart but failed to do so."<br>(C) Received notice to depart but failed to do so." Ga. Code § 4-11-32.<br>"'Animal facility' includes any vehicle, building, structure, pasture, paddock,<br>pond, impoundment, or premises where an animal is kept, handled, housed, |
|  | exhibited, bred, or offered for sale and any office, building, or structure where records or documents relating to an animal or to animal production are maintained." Ga. Code § 4-11-31. "Crop facility' means any field, building, greenhouse, structure, or premises where crops are grown or offered for sale and any office, building, or structure where records, documents, or electronic data relating to crops or crop production are maintained." <i>Id</i>   |
| Trespass Laws:   | Teluing to crops of crop production are maintained Id.  |
| Criminal Liability   | No. A person is guilty of trespass if she enters land "after receiving notice   |
| for Trespass   | from the owner" that such entry is prohibited. Ga. Code § 16-7-21(b). The   |
| Despite Lack of  | statute does not define "notice."   |
| Notice:  |   |
| Other Provisions:  | See supra "Ag-Gag Law."   |
| Stalking Laws:   |   |
| Criminal Law:  | "A person commits the offense of stalking when he or she follows, places under  |
|  | surveillance, or contacts another person at or about a place or places without the  |

|   | consent of the other person for the purpose of harassing and intimidating the         |  |
|---|---|--|
|   | other person." Ga. Code § 16-5-90.  |  |
| Use of Information  | :   |  |
| Although incomplete, our research has not found any provisions relating to the use of information |   |  |
| collected by citizens in enforcement or administrative/legislative actions.                       |   |  |
| Evidentiary Standards:  |   |  |
| Pleading a Claim:   | Requires a "showing that the pleader is entitled to relief." Ga. Code § 9-11-8.       |  |
|   |   |  |
| Authentication or   | "The requirement of authentication or identification as a condition precedent to      |  |
| Chain of Custody:   | admissibility shall be satisfied by evidence sufficient to support a finding that the |  |
|   | matter in question is what its proponent claims." Ga. Code § 24-9-901.                |  |
| Expert Testimony:   | Daubert standard for civil suits; Harper standard for criminal suits. See Vaughn      |  |
| i v   | v. State, 646 S.E.2d 212, 215 (2007).   |  |
|   |   |  |

## Hawaii



| <b>Ongoing Projects:</b>  |  |  |
|---|--|--|
| State Project:  | The Hawaii Legislature has established a Hawaii Unmanned Aerial Systems<br>Test Site as part of the Pan-Pacific Unmanned Aerial Systems Test Range<br>Complex. Haw. Rev. Stat. § 201-72.7. In establishing the test site, the<br>legislature cited the many "existing and potential civilian uses of unmanned<br>aerial systems," including watershed management, surveys, agricultural<br>monitoring, air quality monitoring, flood and pollution control, and land use<br>surveys. 2015 Haw. Sess. Laws, Act 208, § 1. |  |
| <b>Trespass Laws:</b>   |  |  |
| Criminal Liability<br>for Trespass<br>Despite Lack of<br>Notice:  | Yes. The offense of simple trespass requires only that a person "knowingly<br>enters or remains unlawfully in or upon premises" owned by another. Haw.<br>Rev. Stat. § 708-815.  |  |
| Limitations:  | It is a defense against trespass that "the defendant entered upon and passed along<br>or over established and well-defined roadways, pathways, or trails leading to<br>public beaches over government lands" Haw. Rev. Stat. § 708-816.  |  |
| <b>Stalking Laws:</b>   |  |  |
| Criminal Law:   | "A person commits the offense of harassment by stalking if, with intent to<br>harass, annoy, or alarm another person, or in reckless disregard of the risk<br>thereof, that person engages in a course of conduct involving pursuit,<br>surveillance, or non-consensual contact upon the other person on more than one<br>occasion without legitimate purpose." Haw. Rev. Stat. § 711-1106.5.  |  |
| Use of Information:   |  |  |
| Although incomplete, our research has not found any provisions relating to the use of information collected by citizens in enforcement or administrative/legislative actions. |  |  |
| <b>Evidentiary Standa</b>   | irds:  |  |
| Pleading a Claim:   | Requires certification that "the allegations and other factual contentions have<br>evidentiary support or, if specifically so identified, are likely to have evidentiary<br>support after a reasonable opportunity for further investigation or discovery."<br>Haw. R. Civ. P. 11.   |  |
| Authentication or<br>Chain of Custody:  | "The requirement of authentication or identification as a condition precedent to<br>admissibility is satisfied by evidence sufficient to support a finding that the<br>matter in question is what its proponent claims." Haw. Rev. Stat. § 626-1, Rule<br>901.   |  |
| Expert Testimony:   | "Adopted" <i>Frye</i> standard but Hawaii's Rules of Evidence are more similar to <i>Daubert</i> standard; <i>Daubert</i> is instructive. <i>See State v. Vliet</i> , 19 P.3d 42, 53 (2001); <i>State v. Montalbo</i> , 828 P.2d 1274, 1279 (1992).  |  |

## Idaho



| Ongoing Projects:     |   |  |
|-----------------------|---|--|
| Federal Project       | EPA sponsors the IDAH20 Master Water Stewards program, which the                  |  |
| Operating in the      | University of Idaho Extension operates. See IDAH20 Master Water Stewards,         |  |
| State:                | FEDERAL CROWDSOURCING AND CITIZEN SCI. CATALOG,                                   |  |
|                       | https://ccsinventory.wilsoncenter.org/#projectId/68 (last visited Apr. 10, 2017). |  |
|                       | The program trains volunteers about regional water quality issues and             |  |
|                       | monitoring protocols. See id. All data collected through the program is made      |  |
|                       | available in a public database. See Water Quality Database, IDAH20,               |  |
|                       | http://www.uidaho.edu/extension/idah2o/database (last visited Apr. 10, 2017).     |  |
| State Project:        | The Idaho Department of Environmental Quality (DEQ) runs the Citizen              |  |
|                       | Volunteer Monitoring Program, through which it uses volunteer data for            |  |
|                       | "education, problem identification, and decision-making." See IDAHO DEP'T OF      |  |
|                       | ENVTL. QUALITY, IDAHO'S CITIZEN VOLUNTEER MONITORING PROGRAM (2013),              |  |
|                       | available at http://www.deq.idaho.gov/media/1060462-                              |  |
|                       | citizen_volunteer_monitoring_program.pdf. In order to participate, volunteers     |  |
|                       | must attend a training run by DEQ. See id. We have been unable to find            |  |
|                       | statutory authority for the program, which DEQ appears to have created on its     |  |
|                       | own initiative.   |  |
| Collection of Inform  | mation:   |  |
| Drone Law:            | See infra "Drone Laws."   |  |
| <b>Trespass Laws:</b> |   |  |
| Criminal Liability    | No. Notice against trespass must be given by signage or blazes (e.g. orange       |  |
| for Trespass          | fenceposts or signs). Idaho Code § 18-7008.                                       |  |
| Despite Lack of       |   |  |
| Notice:               |   |  |
| Other Provisions:     | See infra "Drone Laws."   |  |
| Drone Laws:           |   |  |
| Law:                  | "[N]o person, entity or state agency shall use an unmanned aircraft system to     |  |
|                       | intentionally conduct surveillance of, gather evidence or collect information     |  |
|                       | about, or photographically or electronically record specifically targeted persons |  |
|                       | or specifically targeted private property including, but not limited to:          |  |
|                       | (ii) A farm, dairy, ranch or other agricultural industry without the written      |  |
|                       | consent of the owner of such farm, dairy, ranch or other agricultural industry."  |  |
|                       | Idaho Code § 21-213.  |  |
| Stalking Laws:        |   |  |
| Criminal Law:         | "A person commits the crime of stalking in the second degree if the person        |  |
|                       | knowingly and maliciously:  |  |
|                       | (a) Engages in a course of conduct that seriously alarms, annoys or harasses      |  |
|                       | the victim and is such as would cause a reasonable person substantial emotional   |  |
|                       | distress; or  |  |
|                       |   |  |

|   | (b) Engages in a course of conduct such as would cause a reasonable person to be in fear of death or physical injury, or in fear of the death or physical injury of a family or household member." Idaho Code § 18-7906.                   |  |
|---|--|--|
| Use of Information  |  |  |
| Although incomplete, our research has not found any provisions relating to the use of information |  |  |
| collected by citizens in enforcement or administrative/legislative actions.                       |  |  |
| Evidentiary Standards:  |  |  |
| Pleading a Claim:   | Requires certification that "the factual contentions have evidentiary support or, if specifically so identified, will likely have evidentiary support after a reasonable opportunity for further investigation or discovery." I.R.C.P. 11. |  |
| Authentication or<br>Chain of Custody:  | "The requirement of authentication or identification as a condition precedent to<br>admissibility is satisfied by evidence sufficient to support a finding that the<br>matter in question is what its proponent claims." I.R.E. 901.       |  |
| Expert Testimony:   | Use some parts of <i>Daubert</i> standard, but not others. <i>See State v. Merwin</i> , 962 P.2d 1026, 1030 (1998).  |  |

## Illinois



| <b>Ongoing Projects:</b>   |   |
|--|---|
| State Project:   | The state of Illinois has created a state task force to develop regulations<br>governing use of unmanned aerial systems. <i>See</i> 20 Ill. Comp. Stat. 5065/1, <i>et</i><br><i>seq</i> . This may offer an opportunity for advocates to help shape the law.<br>"(e) The Task Force shall consider commercial and private uses of drones,<br>landowner and privacy rights, as well as general rules and regulations for safe<br>operation of drones, and prepare comprehensive recommendations for the safe<br>and lawful operation of UAS in this State.<br>(g) The Task Force shall submit a report with recommendations to the<br>Governor and General Assembly no later than July 1, 2017." 20 Ill. Comp. Stat.<br>5065/15.   |
| Collection of Inform   | mation:   |
| Ag-Gag Law:  | <ul> <li>"It shall be unlawful for any person:</li> <li>(3) to obtain access to an animal facility by false pretenses for the purpose of performing acts not authorized by that facility;</li> <li>(4) to enter into an animal facility with an intent to destroy, alter, duplicate, or obtain unauthorized possession of records, data, materials, equipment, or animals;</li> <li>(6) to enter or remain on an animal facility with the intent to commit an act prohibited under this Section." 720 Ill. Comp. Stat. 5/48-2.</li> <li>"Animal facility" means "any facility engaging in agricultural production of or involving the use of animals including any organization with a primary purpose of representing livestock production or processing, any organization with a primary purpose of promoting or marketing livestock or livestock products, and any organization with a primary purpose of representing any such person, organization, or institution. 'Animal facility' shall include the owner, operator, and employees of any animal facility and any premises where animals are located." <i>Id</i>.</li> </ul> |
| Trespassing Laws:  |   |
| Criminal Liability<br>for Trespass<br>Despite Lack of<br>Notice: | No. In order to commit trespass, a person must first receive "notice from the owner or occupant [of the land] that the entry is forbidden[.]" 720 Ill. Comp. Stat. 5/21-3. Such notice is given if communicated personally or if "a printed or written notice forbidding entry has been conspicuously posted or exhibited at the main entrance to the land or the forbidden part thereof." <i>Id</i> .  |
| Other Provisions:  | See supra "Ag-Gag Law."   |
| Stalking Laws:   |   |
| Criminal Law:  | "A person commits stalking when he or she knowingly engages in a course of<br>conduct directed at a specific person, and he or she knows or should know that<br>this course of conduct would cause a reasonable person to:<br>(1) fear for his or her safety or the safety of a third person; or  |

|   | (2) suffer other emotional distress." 720 Ill. Comp. Stat. 5/12-7.3(a).  |  |
|---|--|--|
|   | However, the Appellate Court of Illinois has held that this statute "lacks a <i>mens rea</i> requirement and is therefore facially unconstitutional under the due process clause of the fourteenth amendment." <i>People v. Relerford</i> , 2016 IL App (1st) 132531, ¶ 27, 56 N.E.3d 489, 495–96, <i>appeal allowed</i> , 65 N.E.3d 845 (Ill. 2016). This decision is currently under appeal at the Illinois Supreme Court. |  |
| Use of Information:   |  |  |
| Although incomplete, our research has not found any provisions relating to the use of information collected by citizens in enforcement or administrative/legislative actions. |  |  |
| Evidentiary Standards:  |  |  |
| Pleading a Claim:   | "No complaint should not be dismissed for failure to state cause of action unless  |  |
|   | it clearly appears that no set of facts could be proved under pleadings which  |  |
|   | would entitle plaintiff to relief." 735 Ill. Comp. Stat. 5/2-612.  |  |
| Authentication or   | "The requirement of authentication or identification as a condition precedent to   |  |
| Chain of Custody:   | admissibility is satisfied by evidence sufficient to support a finding that the  |  |
|   | matter in question is what its proponent claims." IL R EVID Rule 901.  |  |
| Expert Testimony:   | Frye standard but subject to de novo review; only for "new" or "novel"   |  |
|   | evidence. See People v. McKown, 924 N.E.2d 941, 944 (2010); In re  |  |
|   | Commitment of Simons, 821 N.E.2d 1184, 1189 (2004); Donaldson v. Central   |  |
|   | Illinois Public Service Co. 767 N E 2d 314 324 5 (2002)  |  |

| Indiana                  |   |
|--------------------------|---|
| <b>Ongoing Projects:</b> |   |
| State Project:           | The state Department of Environmental Management has been tasked with   |
|                          | creating a volunteer water quality monitoring program. <i>See infra</i> "Use of Information" (Ind. Code § 14-25-7-12.5) |
| Collection of Inform     | mation.   |
| Trespass-like I aw:      | "A person who knowingly or intentionally places a camera or electronic  |
| Trespuss like Law.       | surveillance equipment that records images or data of any kind while unattended   |
|                          | on the private property of another person without the consent of the owner or   |
|                          | tenant of the private property commits [an offense]." Ind. Code § 35-46-8.5-1.  |
| Trespass Laws:           |   |
| Criminal Liability       | No. An element of trespass is that the intruder be "denied entry" by the owner.   |
| for Trespass             | Ind. Code § 35-43-2-2(b)(1). A person may be "denied entry" by notice against   |
| Despite Lack of          | trespassing that is either posted or personally communicated. Ind. Code § 35-   |
| Notice:                  | 43-2-2(c)(2).   |
| Other Provisions:        | Trespass committed on "a scientific research facility, on a key facility, [or] on a                                     |
|                          | facility belonging to a public utility" is a felony. Ind. Code § 35-43-2-2. "Key  |
|                          | facility" is not defined.   |
|                          |   |
|                          | "A person who:  |
|                          | (5) not having a contractual interest in the property, knowingly or   |
|                          | intentionally enters the:   |
|                          | (A) property of an agricultural operation that is used for the production,  |
|                          | processing, propagation, packaging, cultivation, harvesting, care, management,  |
|                          | or storage of an animal, plant, or other agricultural product, including any  |
|                          | pasturage or land used for timber management, without the consent of the owner  |
|                          | of the agricultural operation or an authorized person;  |
|                          | commits criminal trespass." Ind. Code § 35-43-2-2.  |
|                          |   |
|                          | See supra "Collection of Information."  |
| Stalking Laws:           |   |
| Criminal Law:            | "A person who stalks another person commits stalking, a Class D felony." Ind.   |
|                          | Code § 35-45-10-5.  |
|                          |   |
|                          | "As used in this chapter, 'stalk' means a knowing or an intentional course of   |
|                          | conduct involving repeated or continuing harassment of another person that  |
|                          | would cause a reasonable person to feel terrorized, frightened, intimidated, or   |
|                          | interestened and that actually causes the victim to feel terrorized, frightened,  |
|                          | intimidated, or threatened. The term does not include statutorily or  |
| Ligo of Information      | constitutionally protected activity. Ind. Code § 35-45-10-1.  |
| Use of information:      |   |
| information collecte     | d by citizens:  |

| Explicitly Allow:      | The state Department of Environmental Management "shall establish a               |
|------------------------|---|
|                        | program under which volunteers may monitor the water resource and provide         |
|                        | monitoring data[.]" Ind. Code § 14-25-7-12.5. Data collected through the          |
|                        | program may be "collected and disseminated by the commission and                  |
|                        | used by the commission in conducting the continuing assessment of the             |
|                        | availability of the water resource[.]" Id.  |
| Evidentiary Standards: |   |
| Pleading a Claim:      | Requires certification that "there is good ground to support" the claim. Ind. R.  |
|                        | Trial P. 11.  |
| Authentication or      | "To satisfy the requirement of authenticating or identifying an item of evidence, |
| Chain of Custody:      | the proponent must produce evidence sufficient to support a finding that the item |
|                        | is what the proponent claims it is." Ind. R. Evid. 901.                           |
| Expert Testimony:      | Daubert standard is instructive but not controlling. See Turner v. State, 953     |
|                        | N.E.2d 1039, 1050 (Ind. 2011).  |
| 1                      |   |

#### Iowa



| <b>Ongoing Projects:</b>   |   |
|--|---|
| State Project:   | The Iowa Department of Natural Resources (DNR) runs a volunteer water<br>quality monitoring program: IOWATER. <i>See Iowater</i> , IA. DEP'T OF NAT.<br>RESOURCES, <u>http://www.iowadnr.gov/Environmental-Protection/Water-<br/>Quality/Water-Monitoring/IOWATER</u> (last visited Apr. 10, 2017). We have<br>been unable to find statutory authority for this program, which DNR appears to<br>have created it on its own initiative.   |
| <b>Collection of Inform</b>                                      | mation:   |
| Ag-Gag Law:  | "A person shall not, without the consent of the owner c. (1) Enter onto or<br>into an animal facility, or remain on or in an animal facility, if the person has<br>notice that the facility is not open to the public, if the person has an intent to<br>(a) Disrupt operations conducted at the animal facility, if the operations directly<br>relate to agricultural production [or] animal maintenance." Iowa Code<br>§ 717A.2. Private parties can recover treble damages in a civil suit. <i>Id</i> .<br>"A person is guilty of agricultural production facility fraud if the person<br>willfully does any of the following:<br>a. Obtains access to an agricultural production facility by false pretenses.<br>b. Makes a false statement or representation as part of an application or<br>agreement to be employed at an agricultural production facility, if the person<br>knows the statement to be false, and makes the statement with an intent to<br>commit an act not authorized by the owner of the agricultural production facility,<br>knowing that the act is not authorized." Iowa Code § 717A.3A.<br>"'Agricultural production facility' means an animal facility as defined [below],<br>or a crop operation property." "Animal facility' means any of the following: a.<br>A location where an agricultural animal is maintained for agricultural production<br>purposes, including but not limited to a location dedicated to farming , a<br>livestock market, exhibition, or a vehicle used to transport the animal." Iowa<br>Code § 717A.1. |
| <b>Trespass Laws:</b>  |   |
| Criminal Liability<br>for Trespass<br>Despite Lack of<br>Notice: | No. An intruder must have been "notified or requested to abstain from entering" the property of another for such entry to constitute trespass. Iowa Code $\$716.7(2)(a)(2)$ .   |
| Other Provisions:  | Criminal trespass carries a heightened penalty if the trespasser entered the property "with the intent to place anything inanimate" thereon. Iowa Code § 716.7(2)(a)(1).<br>See supra "Ag-Gag Law."   |

| Stalking Laws:                              |  |
|---|--|
| Criminal Stalking                           | "A person commits stalking when all of the following occur:<br>a. The person purposefully engages in a course of conduct directed at a<br>specific person that would cause a reasonable person to fear bodily injury to, or<br>the death of, that specific person or a member of the specific person's immediate<br>family.  |
|   | b. The person has knowledge or should have knowledge that the specific person will be placed in reasonable fear of bodily injury to or the death of, that specific person or a member of the specific person's immediate family by the course of conduct.  |
|   | c. The person's course of conduct induces fear in the specific person of bodily injury to, or the death of, the specific person or a member of the specific person's immediate family." Iowa Code § 708.11.  |
| Use of Information                          | :  |
| Although our research information collected | ch is incomplete, these provisions could be construed to prohibit the use of d by citizens.  |
| Prohibitive by<br>Effect:                   | In order to submit water quality data, volunteer monitoring groups must first submit a "volunteer water quality monitoring plan" for department approval. Iowa Admin. Code 567-61.11(455B). The plan must include a "statement of intent[,]" the names of all participants, the duration of the monitoring effort, the "[1]ocation and frequency of sample collection[,]" the "[m]ethods of data collection and analysis[,]" and "[r]ecord keeping and data reporting procedures." <i>Id.</i> In addition to this, citizen-submitted data must be approved before it considered credible. Iowa Admin. Code 567-61.12(455B). To be approved, data must be submitted by a "qualified volunteer" who must request that it be deemed credible at the time of submission. <i>Id.</i> "[Q]ualified volunteers must have the training and experience to ensure quality assurance and quality control for the data being produced, or be under direct supervision of a person having such qualifications" Iowa Admin. Code 567-60 2(455B). |
| Evidentiary Standards:                      |  |
| Pleading a Claim:                           | Requires certification that the claim "is well grounded in fact." Iowa R. Civ. P. 1.423.   |
| Authentication or<br>Chain of Custody:      | "The requirement of authentication or identification as a condition precedent to<br>admissibility is satisfied by evidence sufficient to support a finding that the<br>matter in question is what its proponent claims." Iowa R. Civ. P. 5.901.  |
| Expert Testimony:                           | Ad Hoc Hall test; Daubert is instructive. See Ranes v. Adams Labs., Inc., 778 N.W.2d 677, 685-86 (Iowa 2010).  |

#### Kansas



| Collection of Information: |   |
|----------------------------|---|
| Ag-Gag Law:                | "(c) No person shall, without the effective consent of the owner and with the   |
|                            | intent to damage the enterprise conducted at the animal facility:   |
|                            | (1) Enter an animal facility, not then open to the public, with intent to commit  |
|                            | an act prohibited by this section;  |
|                            | (2) remain concealed, with intent to commit an act prohibited by this section,  |
|                            | in an animal facility;  |
|                            | (3) enter an animal facility and commit or attempt to commit an act prohibited  |
|                            | by this section; or   |
|                            | (4) enter an animal facility to take pictures by photograph, video camera or by any other means.                          |
|                            | (d)(1) No person shall, without the effective consent of the owner and with the   |
|                            | intent to damage the enterprise conducted at the animal facility, enter or remain<br>on an animal facility if the person: |
|                            | (A) Had notice that the entry was forbidden: or   |
|                            | (B) received notice to depart but failed to do so " Kan. Stat. § 47-1827  |
|                            | Private parties can recover treble damages in civil suits. Kan. Stat. § 47-1828.  |
|                            |   |
|                            | "Animal facility" "includes any vehicle, building, structure, research facility or  |
|                            | premises where an animal is kept, handled, housed, exhibited, bred or offered for   |
|                            | sale." Kan. Stat. § 47-1826.  |
| <b>Trespass Laws:</b>      |   |
| Criminal Liability         | No. Notice against trespass must be given by signage or blazes. Kan. Stat. § 21-  |
| for Trespass               | 5808(a) (referencing Kan. Stat. § 32-1013).   |
| Despite Lack of            |   |
| Notice:                    |   |
| Other Provisions:          | See supra "Ag-Gag Law."   |
| Stalking Laws:             |   |
| Criminal Law:              | "(a) Stalking is:   |
|                            | (1) Recklessly engaging in a course of conduct targeted at a specific person  |
|                            | which would cause a reasonable person in the circumstances of the targeted  |
|                            | person to fear for such person's safety, or the safety of a member of such  |
|                            | person's immediate family and the targeted person is actually placed in such  |
|                            | fear;   |
|                            | (2) engaging in a course of conduct targeted at a specific person with  |
|                            | knowledge that the course of conduct will place the targeted person in fear for   |
|                            | such person's safety or the safety of a member of such person's immediate   |
|                            | family; or  |
|                            | (3) after being served with, or otherwise provided notice of, any protective  |
|                            | order included in K.S.A. 21-3843, prior to its repeal or K.S.A. 2011 Supp. 21-  |
|                            | 5924, and amendments thereto, that prohibits contact with a targeted person,  |

|   | recklessly engaging in at least one act listed in subsection $(f)(1)$ that violates the provisions of the order and would cause a reasonable person to fear for such   |  |
|---|--|--|
|   | person's safety, or the safety of a member of such person's immediate family and<br>the targeted person is actually placed in such fear  |  |
|   | (b) Stalking as defined in:  |  |
|   | (1) Subsection (a)(1) is a:  |  |
|   | (A) Class A person misdemeanor, except as provided in subsection   |  |
|   | (b)(1)(B); and   |  |
|   | (B) severity level 7, person felony upon a second or subsequent conviction;  |  |
|   | (2) subsection (a)(2) is a:  |  |
|   | (A) Class A person misdemeanor, except as provided in subsection   |  |
|   | (b)(2)(B); and   |  |
|   | (B) severity level 5, person felony upon a second or subsequent conviction;  |  |
|   | and  |  |
|   | (3) subsection $(a)(3)$ is a:  |  |
|   | (A) severity level 9, person felony, except as provided in subsection  |  |
|   | (b)(3)(B); and   |  |
|   | (B) severity level 5, person felony, upon a second or subsequent   |  |
|   | conviction." Kan. Stat. § 21-5427.   |  |
| Use of Information  | :  |  |
| Although incomplete, our research has not found any provisions relating to the use of information |  |  |
| collected by citizens in enforcement or administrative/legislative actions.                       |  |  |
| Evidentiary Standa  | Evidentiary Standards:   |  |
| Pleading a Claim:   | Requires certification that "the factual contentions have evidentiary support or, if specifically so identified, will likely have evidentiary support after a reasonable opportunity for further investigation or discovery." Kan. Stat. § 60-211. |  |
| Authentication or   | "Authentication of a writing is required before it may be received in evidence.  |  |
| Chain of Custody:   | Authentication may be by evidence sufficient to sustain a finding of its authenticity or by any other means provided by law." Kan. Stat. § 60-464.   |  |
| Expert Testimony:   | Daubert standard. See Kan. Stat. § 60-456(b).  |  |

# Kentucky



| Ongoing Projects:     |   |
|-----------------------|---|
| State Project:        | The Kentucky Department of Environmental Protection (DEP) runs a volunteer  |
|                       | water quality monitoring program: Kentucky Water Watch. See Kentucky Water  |
|                       | Watch, Ky. Dep't for Envtl. Protection,   |
|                       | http://water.ky.gov/ww/Pages/default.aspx (last visited Apr. 10, 2017). We were   |
|                       | unable to find statutory authority for the program, which DEP appears to have   |
|                       | created it on its own initiative.   |
| Collection of Inform  | mation:   |
| Ag-Gag Law:           | <ul> <li>"(3) A person commits an offense if, without the effective consent of the owner and with the intent to disrupt or damage the enterprise conducted at the animal facility, the person enters an animal facility, not then open to the public, with the intent to commit an act prohibited by this section, remains concealed, with the intent to commit an act prohibited by this section, in an animal facility, or enters an animal facility and commits or attempts to commit an act prohibited by this section.</li> <li>(4) A person commits an offense if, without the effective consent of the owner and with the intent to disrupt or damage the enterprise conducted at the animal facility, the person enters or remains on an animal facility, and the person had notice that the entry was forbidden, or received notice to depart but failed to do so." Ky. Rev. Stat. § 437.420.</li> </ul> |
|                       | Violators "shall be subject to a fine of not more than five thousand dollars (\$5,000) or imprisoned for not less than six (6) months but not more than one (1) year, or both, for each violation." Ky. Rev. Stat. § 437.429.<br>"Animal facility" means "any vehicle, building, structure, or premises, where an   |
|                       | animal or animal records are kept, handled, housed, exhibited, bred, or offered for sale" Ky Rev Stat § 437 410   |
| <b>Trespass Laws:</b> |   |
| Criminal Liability    | No. Third degree criminal trespass requires only that a person "knowingly   |
| for Trespass          | enters or remains unlawfully in or upon premises." Ky. Rev. Stat. § 511.080(1).   |
| Despite Lack of       |   |
| Notice:               |   |
| Other Provisions:     | See supra "Ag-Gag Law."   |
| Stalking Laws:        |   |
| Criminal Law:         | <ul><li>(1) A person is guilty of stalking in the second degree when he intentionally:</li><li>(a) Stalks another person; and</li><li>(b) Makes an explicit or implicit threat with the intent to place that person in</li></ul>  |
|                       | reasonable fear of: sexual contact as defined in KRS 510.010; physical injury; or death.  |
|                       | (2) Stalking in the second degree is a Class A misdemeanor." Ky. Rev. Stat. § 508.150.  |

| Civil Law:  | "A civil action may be maintained under this section against any person who commits the conduct prohibited under KRS 508.140 or 508.150. A civil action may be maintained under this section whether or not the individual who is alleged to have violated KRS 508.140 or 508.150 has been charged or convicted of the alleged crime. Liability under this section shall include the actual damages caused by the violation and may include punitive damages, court costs, and reasonable attorney's fees. An action under this section shall be brought within two (2) years of the last act of conduct in violation of this section." Ky. |  |
|---|---|--|
|   | Rev. Stat. § 411.220.   |  |
| Use of Information:   |   |  |
| Although incomplete, our research has not found any provisions relating to the use of information collected by citizens in enforcement or administrative/legislative actions. |   |  |
| Evidentiary Standards:  |   |  |
| Pleading a Claim:   | Requires certification that the claim is "is well grounded in fact." Ky. R. Civ. P. 11.   |  |
| Authentication or<br>Chain of Custody:  | "The requirement of authentication or identification as a condition precedent to<br>admissibility is satisfied by evidence sufficient to support a finding that the<br>matter in question is what its proponent claims." Ky. R. Evid. 901.  |  |
| Expert Testimony:   | <i>Daubert</i> standard, but don't need to establish steps for DNA evidence. <i>See</i><br><i>Fugate v. Com.</i> , 993 S.W.2d 931, 937–938 (Ky. 1999); <i>Mitchell v. Com.</i> , 908<br>S.W.2d 100, 101 (Ky, 1995).   |  |

## Louisiana



| Collection of Information: |   |
|----------------------------|---|
| Ag-Gag Law:                | "A. It shall be unlawful for any person:  |
|                            | (6) To knowingly obtain or exert unauthorized control, by theft or deception,   |
|                            | over records, data, material, equipment, or animals of any animal research  |
|                            | facility or animal management facility for the purpose of depriving the legal   |
|                            | owner of an animal research facility or animal management facility of records,  |
|                            | material, data, equipment, or animals or for the purpose of using, concealing,  |
|                            | abandoning, or destroying such records, material, data, equipment, or animals.<br>(7) To possess or use records, material, data, equipment, or animals or in any<br>way to copy or reproduce records or data of an animal research facility or animal |
|                            | management facility, knowing or reasonably believing such records, material,<br>data, equipment, or animals to have been obtained by theft or deception or  |
|                            | without authorization of that facility  |
|                            | B.  |
|                            | (2) "Animal management facility" as used herein means that portion of any vehicle, building, structure, or premises, where an animal is kept, handled, housed exhibited hered or offered for sele, and any agricultural trade                         |
|                            | association properties. Animal management facility also means that portion of   |
|                            | any vehicle building structure premises property or equipment used in the   |
|                            | conduction of authorized wildlife management practices including but not  |
|                            | limited to the control of animals that damage property natural resources or   |
|                            | human health and safety." La Stat 8 14.228  |
| Drone Law:                 | See infra "Drone Laws."   |
| Trespass Laws:             |   |
| Criminal Liability         | No. Notice against trespass must be given orally or in writing, which includes  |
| for Trespass               | the posting of signs. La. Stat. § 14:63.3(A).   |
| Despite Lack of            |   |
| Notice:                    |   |
| Other Provisions:          | See supra "Ag-Gag Law."   |
|                            | See infor "Drong Lows"  |
| Drono Lower                | See infra Drone Laws.   |
| Conorol Lovy               | Unlawful use of an unmanned aircreft system includes: "Itlbs intentional use of   |
| General Law.               | an unmanned aircraft system to conduct surveillance of gather evidence or   |
|                            | collect information about, or photographically or electronically record a targeted  |
|                            | facility without the prior written consent of the owner of the targeted facility."  |
|                            | La Stat 8 14:337  |
|                            | Lu. Suu. y 11.557.  |
|                            | "Targeted facility" includes petroleum and alumina refineries: chemical and   |
|                            | rubber manufacturing facilities: and nuclear power electric generation facilities.  |
|                            | Id.   |

| Exceptions to              | "(3) The provisions of Paragraph (1) of this Subsection shall not apply to any  |
|----------------------------|---|
| General Law:               | person operating an unmanned aircraft system in compliance with federal law or  |
|                            | Federal Aviation Administration regulations or authorization." La. Stat. § 14:63.   |
| Drone/Trespass             | "(1) No person shall enter upon immovable property owned by another without   |
| Law:                       | express, legal, or implied authorization [T]he phrase "enter upon   |
|                            | immovable property" as used in this Subsection, in addition to its common   |
|                            | meaning, signification, and connotation, shall include the operation of an  |
|                            | unmanned aircraft system as defined by R.S. 14:337 in the air space over  |
|                            | immovable property owned by another with the intent to conduct surveillance of  |
|                            | the property or of any individual lawfully on the property.   |
|                            | (3) The provisions of Paragraph (1) of this Subsection shall not apply to any   |
|                            | person operating an unmanned aircraft system in compliance with federal law or  |
|                            | Federal Aviation Administration regulations or authorization." La. Stat. § 14:63.   |
| Drone/Privacy              | "Peeping Tom' as used in this Section means one who peeps through windows or  |
| Law:                       | doors, or other like places, situated on or about the premises of another or uses an  |
|                            | unmanned aircraft system for the purpose of spying upon or invading the privacy of  |
|                            | persons spied upon without the consent of the persons spied upon. It is not a necessary   |
|                            | element of this offense that the "Peeping Tom" be upon the premises of the person   |
| Drong/Maxauriam            | Wideo voyourism is: (1) The use of any camera videotane, photo optical photo  |
| Low:                       | electric or any other image recording device for the purpose of observing viewing   |
| Law.                       | photographing filming or videotaping a person where that person has not consented to  |
|                            | the observing, viewing, photographing, filming, or videotaping and it is for a lewd or  |
|                            | lascivious nurnose "La Stat § 14:283  |
|                            | laservious purpose La. Stat. § 14.203.  |
| Stalking:                  | laservious purpose La. Stat. § 14.205.  |
| Stalking:<br>Criminal Law: | "A. Stalking is the intentional and repeated following or harassing of another  |
| Stalking:<br>Criminal Law: | "A. Stalking is the intentional and repeated following or harassing of another<br>person that would cause a reasonable person to feel alarmed or to suffer  |
| Stalking:<br>Criminal Law: | "A. Stalking is the intentional and repeated following or harassing of another<br>person that would cause a reasonable person to feel alarmed or to suffer<br>emotional distress. Stalking shall include but not be limited to the intentional  |
| Stalking:<br>Criminal Law: | "A. Stalking is the intentional and repeated following or harassing of another<br>person that would cause a reasonable person to feel alarmed or to suffer<br>emotional distress. Stalking shall include but not be limited to the intentional<br>and repeated uninvited presence of the perpetrator at another person's home,  |
| Stalking:<br>Criminal Law: | "A. Stalking is the intentional and repeated following or harassing of another<br>person that would cause a reasonable person to feel alarmed or to suffer<br>emotional distress. Stalking shall include but not be limited to the intentional<br>and repeated uninvited presence of the perpetrator at another person's home,<br>workplace, school, or any place which would cause a reasonable person to be   |
| Stalking:<br>Criminal Law: | "A. Stalking is the intentional and repeated following or harassing of another<br>person that would cause a reasonable person to feel alarmed or to suffer<br>emotional distress. Stalking shall include but not be limited to the intentional<br>and repeated uninvited presence of the perpetrator at another person's home,<br>workplace, school, or any place which would cause a reasonable person to be<br>alarmed, or to suffer emotional distress as a result of verbal, written, or  |
| Stalking:<br>Criminal Law: | "A. Stalking is the intentional and repeated following or harassing of another<br>person that would cause a reasonable person to feel alarmed or to suffer<br>emotional distress. Stalking shall include but not be limited to the intentional<br>and repeated uninvited presence of the perpetrator at another person's home,<br>workplace, school, or any place which would cause a reasonable person to be<br>alarmed, or to suffer emotional distress as a result of verbal, written, or<br>behaviorally implied threats of death, bodily injury, sexual assault, kidnapping,   |
| Stalking:<br>Criminal Law: | "A. Stalking is the intentional and repeated following or harassing of another<br>person that would cause a reasonable person to feel alarmed or to suffer<br>emotional distress. Stalking shall include but not be limited to the intentional<br>and repeated uninvited presence of the perpetrator at another person's home,<br>workplace, school, or any place which would cause a reasonable person to be<br>alarmed, or to suffer emotional distress as a result of verbal, written, or<br>behaviorally implied threats of death, bodily injury, sexual assault, kidnapping,<br>or any other statutory criminal act to himself or any member of his family or any  |
| Stalking:<br>Criminal Law: | "A. Stalking is the intentional and repeated following or harassing of another<br>person that would cause a reasonable person to feel alarmed or to suffer<br>emotional distress. Stalking shall include but not be limited to the intentional<br>and repeated uninvited presence of the perpetrator at another person's home,<br>workplace, school, or any place which would cause a reasonable person to be<br>alarmed, or to suffer emotional distress as a result of verbal, written, or<br>behaviorally implied threats of death, bodily injury, sexual assault, kidnapping,<br>or any other statutory criminal act to himself or any member of his family or any<br>person with whom he is acquainted.  |
| Stalking:<br>Criminal Law: | "A. Stalking is the intentional and repeated following or harassing of another<br>person that would cause a reasonable person to feel alarmed or to suffer<br>emotional distress. Stalking shall include but not be limited to the intentional<br>and repeated uninvited presence of the perpetrator at another person's home,<br>workplace, school, or any place which would cause a reasonable person to be<br>alarmed, or to suffer emotional distress as a result of verbal, written, or<br>behaviorally implied threats of death, bodily injury, sexual assault, kidnapping,<br>or any other statutory criminal act to himself or any member of his family or any<br>person with whom he is acquainted.<br>B.  |
| Stalking:<br>Criminal Law: | "A. Stalking is the intentional and repeated following or harassing of another<br>person that would cause a reasonable person to feel alarmed or to suffer<br>emotional distress. Stalking shall include but not be limited to the intentional<br>and repeated uninvited presence of the perpetrator at another person's home,<br>workplace, school, or any place which would cause a reasonable person to be<br>alarmed, or to suffer emotional distress as a result of verbal, written, or<br>behaviorally implied threats of death, bodily injury, sexual assault, kidnapping,<br>or any other statutory criminal act to himself or any member of his family or any<br>person with whom he is acquainted.<br>B.<br>(1)   |
| Stalking:<br>Criminal Law: | "A. Stalking is the intentional and repeated following or harassing of another<br>person that would cause a reasonable person to feel alarmed or to suffer<br>emotional distress. Stalking shall include but not be limited to the intentional<br>and repeated uninvited presence of the perpetrator at another person's home,<br>workplace, school, or any place which would cause a reasonable person to be<br>alarmed, or to suffer emotional distress as a result of verbal, written, or<br>behaviorally implied threats of death, bodily injury, sexual assault, kidnapping,<br>or any other statutory criminal act to himself or any member of his family or any<br>person with whom he is acquainted.<br>B.<br>(1)<br>(a) Notwithstanding any law to the contrary, on first conviction, whoever  |
| Stalking:<br>Criminal Law: | "A. Stalking is the intentional and repeated following or harassing of another<br>person that would cause a reasonable person to feel alarmed or to suffer<br>emotional distress. Stalking shall include but not be limited to the intentional<br>and repeated uninvited presence of the perpetrator at another person's home,<br>workplace, school, or any place which would cause a reasonable person to be<br>alarmed, or to suffer emotional distress as a result of verbal, written, or<br>behaviorally implied threats of death, bodily injury, sexual assault, kidnapping,<br>or any other statutory criminal act to himself or any member of his family or any<br>person with whom he is acquainted.<br>B.<br>(1)<br>(a) Notwithstanding any law to the contrary, on first conviction, whoever<br>commits the crime of stalking shall be fined not less than five hundred dollars   |
| Stalking:<br>Criminal Law: | "A. Stalking is the intentional and repeated following or harassing of another<br>person that would cause a reasonable person to feel alarmed or to suffer<br>emotional distress. Stalking shall include but not be limited to the intentional<br>and repeated uninvited presence of the perpetrator at another person's home,<br>workplace, school, or any place which would cause a reasonable person to be<br>alarmed, or to suffer emotional distress as a result of verbal, written, or<br>behaviorally implied threats of death, bodily injury, sexual assault, kidnapping,<br>or any other statutory criminal act to himself or any member of his family or any<br>person with whom he is acquainted.<br>B.<br>(1)<br>(a) Notwithstanding any law to the contrary, on first conviction, whoever<br>commits the crime of stalking shall be fined not less than five hundred dollars<br>nor more than one thousand dollars and shall be imprisoned for not less than   |
| Stalking:<br>Criminal Law: | "A. Stalking is the intentional and repeated following or harassing of another<br>person that would cause a reasonable person to feel alarmed or to suffer<br>emotional distress. Stalking shall include but not be limited to the intentional<br>and repeated uninvited presence of the perpetrator at another person's home,<br>workplace, school, or any place which would cause a reasonable person to be<br>alarmed, or to suffer emotional distress as a result of verbal, written, or<br>behaviorally implied threats of death, bodily injury, sexual assault, kidnapping,<br>or any other statutory criminal act to himself or any member of his family or any<br>person with whom he is acquainted.<br>B.<br>(1)<br>(a) Notwithstanding any law to the contrary, on first conviction, whoever<br>commits the crime of stalking shall be fined not less than five hundred dollars<br>nor more than one thousand dollars and shall be imprisoned for not less than<br>thirty days nor more than one year. Notwithstanding any other sentencing   |
| Stalking:<br>Criminal Law: | "A. Stalking is the intentional and repeated following or harassing of another<br>person that would cause a reasonable person to feel alarmed or to suffer<br>emotional distress. Stalking shall include but not be limited to the intentional<br>and repeated uninvited presence of the perpetrator at another person's home,<br>workplace, school, or any place which would cause a reasonable person to be<br>alarmed, or to suffer emotional distress as a result of verbal, written, or<br>behaviorally implied threats of death, bodily injury, sexual assault, kidnapping,<br>or any other statutory criminal act to himself or any member of his family or any<br>person with whom he is acquainted.<br>B.<br>(1)<br>(a) Notwithstanding any law to the contrary, on first conviction, whoever<br>commits the crime of stalking shall be fined not less than five hundred dollars<br>nor more than one thousand dollars and shall be imprisoned for not less than<br>thirty days nor more than one year. Notwithstanding any other sentencing<br>provisions, any person convicted of stalking shall undergo a psychiatric   |
| Stalking:<br>Criminal Law: | "A. Stalking is the intentional and repeated following or harassing of another<br>person that would cause a reasonable person to feel alarmed or to suffer<br>emotional distress. Stalking shall include but not be limited to the intentional<br>and repeated uninvited presence of the perpetrator at another person's home,<br>workplace, school, or any place which would cause a reasonable person to be<br>alarmed, or to suffer emotional distress as a result of verbal, written, or<br>behaviorally implied threats of death, bodily injury, sexual assault, kidnapping,<br>or any other statutory criminal act to himself or any member of his family or any<br>person with whom he is acquainted.<br>B.<br>(1)<br>(a) Notwithstanding any law to the contrary, on first conviction, whoever<br>commits the crime of stalking shall be fined not less than five hundred dollars<br>nor more than one thousand dollars and shall be imprisoned for not less than<br>thirty days nor more than one year. Notwithstanding any other sentencing<br>provisions, any person convicted of stalking shall undergo a psychiatric<br>evaluation. Imposition of the sentence shall not be suspended unless the   |
| Stalking:<br>Criminal Law: | <ul> <li>"A. Stalking is the intentional and repeated following or harassing of another person that would cause a reasonable person to feel alarmed or to suffer emotional distress. Stalking shall include but not be limited to the intentional and repeated uninvited presence of the perpetrator at another person's home, workplace, school, or any place which would cause a reasonable person to be alarmed, or to suffer emotional distress as a result of verbal, written, or behaviorally implied threats of death, bodily injury, sexual assault, kidnapping, or any other statutory criminal act to himself or any member of his family or any person with whom he is acquainted.</li> <li>B. (1) <ul> <li>(a) Notwithstanding any law to the contrary, on first conviction, whoever commits the crime of stalking shall be fined not less than five hundred dollars nor more than one thousand dollars and shall be imprisoned for not less than thirty days nor more than one year. Notwithstanding any other sentencing provisions, any person convicted of stalking shall undergo a psychiatric evaluation. Imposition of the sentence shall not be suspended unless the offender is placed on probation and participates in a court-approved counseling</li> </ul></li></ul>   |
| Stalking:<br>Criminal Law: | "A. Stalking is the intentional and repeated following or harassing of another<br>person that would cause a reasonable person to feel alarmed or to suffer<br>emotional distress. Stalking shall include but not be limited to the intentional<br>and repeated uninvited presence of the perpetrator at another person's home,<br>workplace, school, or any place which would cause a reasonable person to be<br>alarmed, or to suffer emotional distress as a result of verbal, written, or<br>behaviorally implied threats of death, bodily injury, sexual assault, kidnapping,<br>or any other statutory criminal act to himself or any member of his family or any<br>person with whom he is acquainted.<br>B.<br>(1)<br>(a) Notwithstanding any law to the contrary, on first conviction, whoever<br>commits the crime of stalking shall be fined not less than five hundred dollars<br>nor more than one thousand dollars and shall be imprisoned for not less than<br>thirty days nor more than one year. Notwithstanding any other sentencing<br>provisions, any person convicted of stalking shall undergo a psychiatric<br>evaluation. Imposition of the sentence shall not be suspended unless the<br>offender is placed on probation and participates in a court-approved counseling<br>which could include but shall not be limited to anger management, abusive   |
| Stalking:<br>Criminal Law: | "A. Stalking is the intentional and repeated following or harassing of another<br>person that would cause a reasonable person to feel alarmed or to suffer<br>emotional distress. Stalking shall include but not be limited to the intentional<br>and repeated uninvited presence of the perpetrator at another person's home,<br>workplace, school, or any place which would cause a reasonable person to be<br>alarmed, or to suffer emotional distress as a result of verbal, written, or<br>behaviorally implied threats of death, bodily injury, sexual assault, kidnapping,<br>or any other statutory criminal act to himself or any member of his family or any<br>person with whom he is acquainted.<br>B.<br>(1)<br>(a) Notwithstanding any law to the contrary, on first conviction, whoever<br>commits the crime of stalking shall be fined not less than five hundred dollars<br>nor more than one thousand dollars and shall be imprisoned for not less than<br>thirty days nor more than one year. Notwithstanding any other sentencing<br>provisions, any person convicted of stalking shall undergo a psychiatric<br>evaluation. Imposition of the sentence shall not be suspended unless the<br>offender is placed on probation and participates in a court-approved counseling<br>which could include but shall not be limited to anger management, abusive<br>behavior intervention groups, or any other type of counseling deemed |
| Stalking:<br>Criminal Law: | "A. Stalking is the intentional and repeated following or harassing of another person that would cause a reasonable person to feel alarmed or to suffer emotional distress. Stalking shall include but not be limited to the intentional and repeated uninvited presence of the perpetrator at another person's home, workplace, school, or any place which would cause a reasonable person to be alarmed, or to suffer emotional distress as a result of verbal, written, or behaviorally implied threats of death, bodily injury, sexual assault, kidnapping, or any other statutory criminal act to himself or any member of his family or any person with whom he is acquainted. B. (1) (a) Notwithstanding any law to the contrary, on first conviction, whoever commits the crime of stalking shall be fined not less than five hundred dollars nor more than one thousand dollars and shall be imprisoned for not less than thirty days nor more than one year. Notwithstanding any other sentencing provisions, any person convicted of stalking shall undergo a psychiatric evaluation. Imposition of the sentence shall not be suspended unless the offender is placed on probation and participates in a court-approved counseling which could include but shall not be limited to anger management, abusive behavior intervention groups, or any other type of counseling deemed appropriate by the courts." La. Stat. § 14:40.2.         |

| Although incomplete, our research has not found any provisions relating to the use of information |  |  |
|---|--|--|
| collected by citizens in enforcement or administrative/legislative actions.                       |  |  |
| Evidentiary Standards:  |  |  |
| Pleading a Claim:   | Requires certification that "[e]ach allegation or other factual assertion in the |  |
|   | pleading has evidentiary support or, for a specifically identified allegation or |  |
|   | factual assertion, is likely to have evidentiary support after a reasonable      |  |
|   | opportunity for further investigation or discovery." La. Code Civ. P. 863.       |  |
| Authentication or   | "The requirement of authentication or identification as a condition precedent to |  |
| Chain of Custody:   | admissibility is satisfied by evidence sufficient to support a finding that the  |  |
|   | matter in question is what its proponent claims." La. Code Evid. 901.            |  |
| Expert Testimony:   | Daubert standard. See State v. Foret, 628 So. 2d 1116, 1123 (La. 1993).          |  |
## Maine



| Ongoing Projects:   |   |  |
|---|---|--|
| State Project:  | The Maine Department of Environmental Protection (DEP) runs a volunteer                     |  |
| 0   | water quality monitoring program: the Volunteer River Monitoring Program                    |  |
|   | (VRMP). See Volunteer River Monitoring Program, MAINE DEP'T OF ENVTL.                       |  |
|   | PROTECTION,   |  |
|   | https://www1.maine.gov/dep/water/monitoring/rivers_and_streams/vrmp/index.                  |  |
|   | <u>html</u> (last visited Apr. 10, 2017). We were unable to find statutory authority for    |  |
|   | VRMP, which DEP appears to have created on its own initiative after a "2007                 |  |
|   | report assessed the need for a statewide citizen-based monitoring program and               |  |
|   | demonstrated the benefits of such an initiative." <i>Id</i> .                               |  |
| <b>Trespassing Laws:</b>  |   |  |
| Criminal Liability  | No. In order for entry upon property to constitute criminal trespass, the property          |  |
| for Trespass  | must be "posted in a manner reasonably likely to come to the attention of                   |  |
| Despite Lack of   | intruders or [be] fenced or otherwise enclosed" Me. Rev. Stat. tit. 17-A §                  |  |
| Notice:   | 402.  |  |
| Stalking Laws:  |   |  |
| Criminal Law:   | "A person is guilty of stalking if:   |  |
|   | A. The actor intentionally or knowingly engages in a course of conduct                      |  |
|   | directed at or concerning a specific person that would cause a reasonable person:           |  |
|   | (1) To suffer serious inconvenience or emotional distress;                                  |  |
|   | (2) To fear bodily injury or to fear bodily injury to a close relation;                     |  |
|   | (3) To fear death or to fear the death of a close relation;                                 |  |
|   | (4) To fear damage or destruction to or tampering with property; or                         |  |
|   | (5) To fear injury to or the death of an animal owned by or in the possession               |  |
|   | and control of that specific person." Me. Rev. Stat. tit. 17-A § 210-A.                     |  |
| Use of Information:   |   |  |
| Although incomplete, our research has not found any provisions relating to the use of information |   |  |
| collected by citizens in enforcement or administrative/legislative actions.                       |   |  |
| Evidentiary Standards:  |   |  |
| Pleading a Claim:   | Requires certification that there "is good ground to support" the claim. Me. R. Civ. P. 11. |  |
| Authentication or   | "To satisfy the requirement of authenticating or identifying an item of evidence,           |  |
| Chain of Custody:   | the proponent must produce evidence sufficient to support a finding that the item           |  |
|   | is what the proponent claims it is." Me. R. Evid. 901.                                      |  |
| Expert Testimony:   | Searles standard, which is a derivative of the Daubert standard. See Searles v.             |  |
| - •   | Fleetwood Homes of Pennsylvania, Inc., 878 A.2d 509, 515–516 (Me. 2005).                    |  |
|   |   |  |

# Maryland



| <b>Ongoing Projects:</b> |   |
|--------------------------|---|
| State Project:           | The Maryland Department of Natural Resources (DNR) runs a volunteer water             |
|                          | quality monitoring program: Stream Waders. See Stream Waders, MD. DEP'T OF            |
|                          | NAT. RESOURCES, http://dnr.maryland.gov/streams/Pages/streamWaders.aspx               |
|                          | last visited Apr. 10, 2017). We were unable to find statutory authority for the       |
|                          | program, which DNR appears to have created on its own initiative.                     |
| Place of Collection      |   |
| Criminal Liability       | In order for entry upon property to constitute trespass, the property must either     |
| for Trespass             | be "planted with a crop or orchard" or be "posted conspicuously against               |
| Despite Lack of          | trespass" by signs or paint marks on trees or posts at road entrances and             |
| Notice:                  | "adjacent to public roadways, public waterways, and other land adjoining the          |
|                          | property." Md. Code Ann., Crim. Law §§ 6-402; 6-406(b).                               |
| Drone Laws:              |   |
| Limits:                  | "Only the State may enact a law or take any other action to prohibit, restrict, or    |
|                          | regulate the testing or operation of unmanned aircraft systems in the State." Md.     |
|                          | Code Ann., Econ. Dev § 14-301.  |
|                          |   |
|                          | Encourages Depart of Business and Economic Development, University of                 |
|                          | Maryland, Department of Transportation, and other "interested groups" to work         |
|                          | together to evaluate benefits and risks of drones to develop further law/policy in    |
|                          | Maryland regarding drones.  |
| Stalking Laws:           |   |
| Criminal Law:            | "(a) Stalking" defined In this section, "stalking" means a malicious course of        |
|                          | conduct that includes approaching or pursuing another where the person intends        |
|                          | to place or knows or reasonably should have known the conduct would place             |
|                          | another in reasonable fear:   |
|                          | (1)   |
|                          | (i) of serious bodily injury;   |
|                          | (ii) of an assault in any degree;   |
|                          | (iii) of rape or sexual offense as defined by §§ 3-303 through 3-308 of this          |
|                          | article or attempted rape or sexual offense in any degree                             |
|                          | (iv) of false imprisonment; or  |
|                          | (v) of death; or  |
|                          | (2) that a third person likely will suffer any of the acts listed in item (1) of this |
|                          | subsection.   |
|                          | (b) Prohibited The provisions of this section do not apply to conduct that is:        |
|                          | (1) performed to ensure compliance with a court order;                                |
|                          | (2) performed to carry out a specific lawful commercial purpose; or                   |
|                          | (3) authorized, required, or protected by local, State, or federal law.               |
|                          | (c) Applicability A person may not engage in stalking.                                |

|   | <ul> <li>(d) Penalty A person who violates this section is guilty of a misdemeanor and on conviction is subject to imprisonment not exceeding 5 years or a fine not exceeding \$ 5,000 or both.</li> <li>(e) Sentence A sentence imposed under this section may be separate from and consecutive to or concurrent with a sentence for any other crime based on the acts establishing a violation of this section." Md. Code Ann., Crim. Law § 3-802</li> </ul> |  |
|---|--|--|
|   |  |  |
| Use of Information:   |  |  |
| Although incomplete, our research has not found any provisions relating to the use of information collected by citizens in enforcement or administrative/legislative actions. |  |  |
|   |  |  |

| Evidentiary Standards: |  |
|------------------------|--|
| Pleading a Claim:      | Requires certification that "there is good ground to support" the claim. Md. R.  |
|                        | Evid. 1-311.   |
| Authentication or      | "The requirement of authentication or identification as a condition precedent to |
| Chain of Custody:      | admissibility is satisfied by evidence sufficient to support a finding that the  |
|                        | matter in question is what its proponent claims." Md. R. Evid. 5-901.            |
| Expert Testimony:      | Frye standard, but Maryland court have not rejected the Daubert standard (case-  |
|                        | by-case basis). See Smith v. State, 880 A.2d 288, 304 (2005); Reed v. State, 391 |
|                        | A.2d 364, 367–68 (1978).   |
|                        |  |

#### Massachusetts



| Collection of Inform                       | Collection of Information:   |  |  |
|--|--|--|--|
| Ag-Gag Law:                                | "Whoever enters any premises in which animals are being housed and,<br>without authority, injures, damages, commits any trespass upon, removes or<br>carries away any data, equipment, facility or property shall, if such injury,<br>damage, trespass, removal, carrying away, interference or release is malicious<br>and wilful, be punished [by a maximum of ten years in prison or \$25,000 and<br>two and one-half years jail] or if such injury, damage, trespass, removal,<br>carrying away, interference or release is wilful but not malicious, be punished<br>[by a maximum of five years or \$5,000 and two and one-half years jail]." Mass.<br>Gen. Laws ch. 266, § 104B.   |  |  |
| Criminal Liability                         | No. In order to be guilty of trespass, a person entering land must "hav[e] been  |  |  |
| for Trespass<br>Despite Lack of<br>Notice: | forbidden so to do whether directly or by notice posted thereon" Mass. Gen. Laws ch. 266, § 120.   |  |  |
| Other Provisions:                          | Trespass against "any public source of water or public water supply facilities or land" carries a heightened penalty. Mass. Gen. Laws ch. 266, § 123A.   |  |  |
|  | See supra "Ag-Gag Law."  |  |  |
| Stalking Laws:                             |  |  |  |
| Criminal Law:                              | "Whoever (1) willfully and maliciously engages in a knowing pattern of conduct<br>or series of acts over a period of time directed at a specific person which<br>seriously alarms or annoys that person and would cause a reasonable person to<br>suffer substantial emotional distress, and (2) makes a threat with the intent to<br>place the person in imminent fear of death or bodily injury, shall be guilty of the<br>crime of stalking and shall be punished by imprisonment in the state prison for<br>not more than 5 years or by a fine of not more than \$1,000, or imprisonment in<br>the house of correction for not more than 21/2 years or by both such fine and<br>imprisonment. The conduct, acts or threats described in this subsection shall<br>include, but not be limited to, conduct, acts or threats conducted by mail or by<br>use of a telephonic or telecommunication device or electronic communication<br>device including, but not limited to, any device that transfers signs, signals,<br>writing, images, sounds, data, or intelligence of any nature transmitted in whole<br>or in part by a wire, radio, electromagnetic, photo-electronic or photo-optical<br>system, including, but not limited to, electronic mail, internet communications,<br>instant messages or facsimile communications." Mass. Gen. Laws ch. 265, § 43. |  |  |
| Use of Information                         | :<br>a our research has not found any provisions relating to the use of information  |  |  |
| Annough incomplet                          | c, our research has not round any provisions relating to the use of information  |  |  |

collected by citizens in enforcement or administrative/legislative actions.

| Evidentiary Standards: |  |
|------------------------|--|
| Pleading a Claim:      | Requires certification that "there is a good ground to support" the claim. Mass.   |
|                        | R. Civ. P. 11.   |
| Authentication or      | "To satisfy the requirement of authenticating or identifying an item of evidence,  |
| Chain of Custody:      | the proponent must produce evidence sufficient to support a finding that the item  |
|                        | is what the proponent claims it is." Mass. R. Evid. 901.   |
| Expert Testimony:      | <i>Daubert</i> standard with emphasis on general acceptance. <i>See Com. v. Hoose</i> , 467 5 N.E.3d 843, 861 (2014); <i>Com. v. Lanigan</i> , 641 N.E.2d 1342, 1349 (1994). |

# Michigan



| <b>Ongoing Projects:</b>   |   |
|--|---|
| State Project:   | The Michigan Department of Environmental Quality (DEQ) runs a volunteer water quality monitoring group, the Michigan Clean Water Corps, which was created by executive order in 2003. <i>See</i> Exec. Order No. 2003-15 (2003). "The primary responsibility of the Corps shall be to assist the DEQ in establishing a comprehensive statewide volunteer water quality monitoring network and to encourage the participation of other water quality monitoring programs in the Corps." <i>Id.</i> The Corps shall "[s]olicit and organize volunteer monitors[;] [a]ssist the DEQ in educating Michigan citizens about water quality issues[;] assist the DEQ in gathering and exchanging reliable and meaningful water quality data for water resources management and protection programs[;]" recruit volunteers online; and "[d]evelop a volunteer monitoring recognition program." <i>Id.</i>  |
| <b>Trespass Laws:</b>  |   |
| Criminal Liability<br>for Trespass<br>Despite Lack of<br>Notice: | No. A person must have been "forbidden" to enter another's land for such entry to constitute criminal trespass. Mich. Comp. Laws 750.552(1)(a).   |
| Other Provisions:  | Trespass against a "key facility" is a felony. Mich. Comp. Laws Ann.<br>§ 750.552c(1). Key facilities are chemical manufacturing facilities, refineries,<br>electric utility facilities, water treatment facilities, LNG facilities, transportation<br>facilities, pulp or paper manufacturing facilities, pharmaceutical manufacturing<br>facilities, waste treatment or disposal facilities, or "substantially similar"<br>facilities. Mich. Comp. Laws Ann. § 750.552c   |
| Stalking Laws:   | · · · · · · · · · · · · · · · · · · ·   |
| Criminal Law:  | <ul> <li>"(1) As used in this section: <ul> <li>(a) 'Course of conduct' means a pattern of conduct composed of a series of 2</li> </ul> </li> <li>or more separate noncontinuous acts evidencing a continuity of purpose. <ul> <li>(b) 'Emotional distress' means significant mental suffering or distress that</li> <li>may, but does not necessarily, require medical or other professional treatment or counseling.</li> <li>(c) 'Harassment' means conduct directed toward a victim that includes, but is not limited to, repeated or continuing unconsented contact that would cause a reasonable individual to suffer emotional distress and that actually causes the victim to suffer emotional distress. Harassment does not include constitutionally protected activity or conduct that serves a legitimate purpose.</li> <li>(d) 'Stalking' means a willful course of conduct involving repeated or continuing harassment of another individual that would cause a reasonable person to feel terrorized, frightened, intimidated, threatened, harassed, or molested and that actually causes the victim to feel terrorized, frightened, intimidated, threatened, harassed, or molested.</li> <li>(e) 'Unconsented contact' means any contact with another individual that is</li> </ul></li></ul> |

|                           | initiated or continued without that individual's consent or in disregard of that |
|---------------------------|--|
|                           | individual's expressed desire that the contact be avoided or discontinued.       |
|                           | Unconsented contact includes, but is not limited to, any of the following:       |
|                           | (i) Following or appearing within the sight of that individual.                  |
|                           | (ii) Approaching or confronting that individual in a public place or on          |
|                           | private property.  |
|                           | (iii) Appearing at that individual's workplace or residence.                     |
|                           | (iv) Entering onto or remaining on property owned, leased, or occupied by        |
|                           | that individual.   |
|                           | (v) Contacting that individual by telephone.                                     |
|                           | (vi) Sending mail or electronic communications to that individual.               |
|                           | (vii) Placing an object on, or delivering an object to, property owned,          |
|                           | leased, or occupied by that individual.  |
|                           | (f) 'Victim' means an individual who is the target of a willful course of        |
|                           | conduct involving repeated or continuing harassment.                             |
|                           | (2) An individual who engages in stalking is guilty of a crime as follows:       |
|                           | (a) Except as provided in subdivision (b), a misdemeanor punishable by           |
|                           | imprisonment for not more than 1 year or a fine of not more than \$1,000.00, or  |
|                           | both.  |
|                           | (b) If the victim was less than 18 years of age at any time during the           |
|                           | individual's course of conduct and the individual is 5 or more years older than  |
|                           | the victim, a felony punishable by imprisonment for not more than 5 years or a   |
|                           | fine of not more than \$10,000.00, or both." Mich. Comp. Laws Ann.               |
|                           | § 750.411h.  |
| Civil Law:                | "(1) A victim may maintain a civil action against an individual who engages in   |
|                           | conduct that is prohibited under section of the Michigan penal code, Act No. 328 |
|                           | of the Public Acts of 1931, being sections of the Michigan Compiled Laws, for    |
|                           | damages incurred by the victim as a result of that conduct. A victim may also    |
|                           | seek and be awarded exemplary damages, costs of the action, and reasonable       |
|                           | attorney fees in an action brought under this section.                           |
|                           | (2) A civil action may be maintained under subsection (1) whether or not the     |
|                           | individual who is alleged to have engaged in conduct prohibited under section of |
|                           | Act No. 328 of the Public Acts of 1931 has been charged or convicted under       |
|                           | section of Act No. 328 of the Public Acts of 1931 for the alleged violation."    |
|                           | Mich. Comp. Laws Ann. § 600.2954.  |
| Use of Information        | :  |
| Although our resear       | ch is incomplete, these provisions could be construed to allow the use of        |
| information collecte      | d by citizens:   |
| Explicitly Allows:        | The Michigan Clean Water Corps may "assist the DEQ in gathering and              |
|                           | exchanging reliable and meaningful water quality data for water resources        |
|                           | management and protection programs." See Exec. Order No. 2003-15.                |
| <b>Evidentiary Standa</b> | ards:  |
| Pleading a Claim:         | Requires certification that the claim "is well grounded in fact." Mich. Ct. R.   |
|                           | 2.114.   |

| Authentication or<br>Chain of Custody: | "The requirement of authentication or identification as a condition precedent to<br>admissibility is satisfied by evidence sufficient to support a finding that the<br>matter in question is what its proponent claims." Mich. R. Evid. 901. |
|--|--|
| Expert Testimony:                      | Daubert standard. See Gilbert v. DaimlerChrysler Corp., 685 N.W.2d 391, 408 (Mich. 2004).  |

#### Minnesota



| Collection of Information:  |   |  |
|---|---|--|
| Explicitly Allow:   | The Minnesota Pollution Control Agency (PCA) "may encourage citizen   |  |
|   | monitoring of ambient water quality for public waters[.]" Minn. Stat. § 115.06.   |  |
| <b>Trespass Laws:</b>   |   |  |
| Criminal Liability<br>for Trespass<br>Despite Lack of<br>Notice:  | No. In order for a person's entry upon property to constitute criminal trespass, either (1) the person must "refuse[] to depart from the premises on demand of the lawful possessor;" or (2) the property must be "locked or posted[.]" Minn. Stat. § 609.605.  |  |
| Other Provisions:   | Trespasses against a property on which "species of domestic animals for commercial production are kept" and against "critical public service facilit[ies], utilit[ies], [and] pipeline[s]" carry a heightened penalty. <i>See</i> Minn. Stat. § 609.605(5)(a) (commercial agriculture); Minn. Stat. § 609.6055 (critical public service facility). "Critical public service facility' includes enclosed property of mass transit facilities; oil refineries; and storage areas or facilities for hazardous materials, hazardous substances, or hazardous wastes." Minn. Stat. § 609.6055.   |  |
| Stalking Laws   |   |  |
| Criminal Laws:  | "As used in this section, 'stalking' means to engage in conduct which the actor<br>knows or has reason to know would cause the victim under the circumstances to<br>feel frightened, threatened, oppressed, persecuted, or intimidated; and causes this<br>reaction on the part of the victim regardless of the relationship between the actor<br>and victim." Minn. Stat. § 609.749.   |  |
| Use of Information  | :   |  |
| Although our research is incomplete, these provisions address the use of information collected by citizens. |   |  |
| Explicitly Allow:   | PCA should "maximize use of available resources including use of citizen monitoring and citizen monitoring data that meets the requirements of the Volunteer Surface Monitoring Guide" in implementing the state clean water act. Minn. Stat. § 114D.20. Additionally, PCA "may encourage citizen monitoring of ambient water quality for public waters by: (1) providing technical assistance; (2) integrating citizen monitoring data into water quality assessments and agency programs provided that the data adheres to agency quality assurance and quality control protocols; and seeking public and private funds" to develop guidelines and improve monitoring activities. Minn. Stat. § 115.06. |  |
| Prohibitive by<br>Effect:   | PCA may only consider citizen-collected data that "meets the requirements of the Volunteer Surface Monitoring Guide," Minn. Stat. § 144D.20, or that "adheres to agency quality assurance and quality control protocols." Minn. Stat. § 115.06.   |  |

| Evidentiary Standards:                 |  |
|--|--|
| Pleading a Claim:                      | Requires certification that "the allegations and other factual contentions have<br>evidentiary support or, if specifically so identified, are likely to have evidentiary<br>support after a reasonable opportunity for further investigation or discovery."<br>Minn. R. Civ. P. 11.02. |
| Authentication or<br>Chain of Custody: | "The requirement of authentication or identification as a condition precedent to<br>admissibility is satisfied by evidence sufficient to support a finding that the<br>matter in question is what its proponent claims." Minn. R. Evid. 901.   |
| Expert Testimony:                      | Mack-Frye standard. See State v. Mack, 292 N.W.2d 764, 768 (Minn. 1980).   |

# Mississippi



| Collection of Information: |  |  |
|----------------------------|--|--|
| Ag-Gag Law:                | "A person shall not, without the effective consent of the owner, with the intent to  |  |
| 0 0                        | disrupt or damage the enterprise conducted at the animal facility:   |  |
|                            | (a) Enter an animal facility, not then open to the public, with intent to commit   |  |
|                            | an act prohibited by this act;   |  |
|                            | (b) Remain concealed, with intent to commit an act prohibited by this act, in  |  |
|                            | an animal facility; or   |  |
|                            | (c) Enter an animal facility and commit or attempt to commit an act  |  |
|                            | prohibited by this act." Miss. Code Ann. § 69-29-309. If convicted, penalty  |  |
|                            | shall be "a fine of not more than Ten Thousand Dollars (\$10,000.00) or by   |  |
|                            | imprisonment for not more than three (3) years, or both." Miss. Code . Ann. §  |  |
|                            | 69-29-315.   |  |
|                            | "(1) A person shall not, without the effective consent of the owner, enter or  |  |
|                            | remain in an animal facility with the intent to disrupt or damage the enterprise   |  |
|                            | conducted at the animal facility if the person:  |  |
|                            | (a) Had notice that the entry was forbidden; or  |  |
|                            | (b) Received notice to depart but failed to do so. Miss. Code. Ann. § 69-29-   |  |
|                            | 311. If convicted, penalty shall be a fine of not more than Five Thousand $\mathbf{D}_{\text{eff}}$  |  |
|                            | Miss. Code. Ann. § 69-29-315.  |  |
|                            | "Animal facility" includes "a vehicle, building, separately secured yard, pad,<br>pond, enclosure, structure or premises where an animal is kept, shown, handled,<br>housed, exhibited, bred or offered for sale and any building in which any<br>commercial or academic enterprise is using warm-blooded or cold-blooded<br>animals for food or fiber production, agriculture, research, testing,<br>experimentation or education." Miss. Code. Ann. § 69-29-303. |  |
| Trespass Laws:             |  |  |
| Criminal Liability         | No. In order for entry upon property to constitute criminal trespass, that entry   |  |
| for Trespass               | must have "been forbidden either orally or by such sign or signs posted  |  |
| Despite Lack of            | at a place where such signs may reasonably be seen." Miss. Code Ann. §   |  |
| Notice:                    | 97-17-97.  |  |
| Other Provisions:          | It is a felony to "willfully enter or trespass within the premises of any [nuclear   |  |
|                            | facility]." Miss. Code Ann. § 97-17-95.  |  |
|                            | See supra "Ag-Gag Law."  |  |
| Stalking Laws:             |  |  |
| Criminal Law               | "(1)(a) Any person who purposefully engages in a course of conduct directed at   |  |
|                            | a specific person, or who makes a credible threat, and who knows or should   |  |
|                            | know that the conduct would cause a reasonable person to fear for his or her own   |  |

|   | safety, to fear for the safety of another person, or to fear damage or destruction<br>of his or her property, is guilty of the crime of stalking.   |  |
|---|---|--|
|   | (b) A person who is convicted of the crime of stalking under this section shall   |  |
|   | be punished by imprisonment in the county jail for not more than one (1) year or by a fine of not more than One Thousand Dollars ( $\$1,000,00$ ), or by both such  |  |
|   | fine and imprisonment." Miss. Code Ann. § 97-3-107.   |  |
| Drone Laws:   |   |  |
| Criminal Liability<br>for<br>Trespass/Peeping<br>Tom by Drone   | "Any person who enters upon real property whether the original entry is legal or<br>not, and thereafter pries or peeps through a window or other opening in a<br>dwelling or other building structure for the lewd, licentious and indecent purpose<br>of spying upon the occupants thereof, shall be guilty of a felonious trespass<br>[and upon conviction] shall be imprisoned in the custody of the Department of<br>Corrections not more than five (5) years." Miss. Code Ann. § 97-29-61. |  |
| Use of Information  | •   |  |
| Although incomplete, our research has not found any provisions relating to the use of information collected by citizens in enforcement or administrative/legislative actions. |   |  |
| <b>Evidentiary Standa</b>   | Evidentiary Standards:  |  |
| Pleading a Claim:   | Requires certification that "there is good ground to support" the claim. Miss. R. Civ. P. 11.   |  |
| Authentication or<br>Chain of Custody:  | "To satisfy the requirement of authenticating or identifying an item of evidence,<br>the proponent must produce evidence sufficient to support a finding that the item<br>is what the proponent claims it is." Miss. R. Evid. 901.  |  |
| Expert Testimony:   | Daubert standard. See Mississippi Transp. Comm'n v. McLemore, 863 So. 2d 31, 35 (Miss. 2003).   |  |

#### Missouri



| Collection of Information:                                       |   |
|--|---|
| Ag-Gag Law:  | <ul> <li>"3. A person commits the offense of prohibited acts against animal research and production facilities if he or she:</li> <li>(3) Obtains access to an animal facility by false pretenses for the purpose of performing acts not authorized by the facility;</li> <li>(4) Enters or otherwise interferes with an animal facility with the intent to destroy, alter, duplicate or obtain unauthorized possession of records, data, material, equipment, or animals;</li> <li>(6) Enters or remains on an animal facility with the intent to commit an act prohibited by this section." Mo. Rev. Stat. § 578.405.</li> <li>"Animal facility" is defined as "any facility engaging in agricultural production or involving the use of animals, including any organization with a primary purpose of representing livestock production or processing, any organization with a primary purpose of promoting or marketing livestock or livestock products and any organization, or institution. The term shall include the owner, operator, and employees of any animal facility and the offices and vehicles of any such persons while engaged in duties related to the animal facility, and any premises where animals are located." Mo. Rev. Stat. § 578.405(2)(2).</li> </ul> |
| Criminal Liability<br>for Trespass<br>Despite Lack of<br>Notice: | Yes. Second degree criminal trespass does not require notice; it is "an offense of absolute liability." Mo. Rev. Stat. § 569.150.   |
| Other Provisions:  | "A person commits the crime of trespass in the first degree if he knowingly<br>enters unlawfully or knowingly remains unlawfully in a building or inhabitable<br>structure or upon real property or uses an unmanned aircraft over another<br>person's real property without that person's consent." Mo. Rev. Stat. § 569.140.<br>"A person does not commit the offense of trespass in the first degree by entering<br>or remaining upon real property unless the real property is fenced or otherwise<br>enclosed in a manner designed to exclude intruders or as to which notice against<br>trespass is given by: (1) Actual communication to the actor; or (2) Posting in a<br>manner reasonably likely to come to the attention of intruders." <i>Id.</i><br><i>See supra</i> "Ag-Gag Law."   |
| Drone Laws:  |   |
| Trespass by Drone Use:   | See supra "Trespass Laws."  |

| Stalking Laws:                           |  |
|--|--|
| Criminal Law:<br>Use of Information      | "A person commits the offense of stalking in the first degree if he or she<br>purposely, through his or her course of conduct, disturbs or follows with the<br>intent of disturbing another person" and "[m]akes a threat communicated with<br>the intent to cause the person who is the target of the threat to reasonably fear for<br>his or her safety, the safety of his or her family or household member, or the<br>safety of domestic animals or livestock." Mo. Rev. Stat. § 565.225.<br>"A person commits the offense of stalking in the second degree if he or she<br>purposely, through his or her course of conduct, disturbs, or follows with the<br>intent to disturb another person." Mo. Ann. Stat. § 565.227.   |
| Although incomplet collected by citizens | e, our research has not found any provisions relating to the use of information<br>in enforcement or administrative/legislative actions.   |
| <b>Evidentiary Standa</b>                | ards:  |
| Pleading a Claim:                        | Requires certification that "[t]he allegations and other factual contentions have<br>evidentiary support or, if specifically so identified, are likely to have evidentiary<br>support after a reasonable opportunity for further investigation or discovery."<br>Mo. Sup. Ct. R. 55.03.  |
| Authentication or<br>Chain of Custody:   | Missouri Statutes do not contain an equivalent general provision to FRE 901.<br>Different types of evidence have different requirements for authentication.<br>These requirements are enacted in Mo. Ann. Stat. § 490.680. Generally, courts<br>have held that "the authenticity of a document cannot be assumed, and what it<br>purports to be must be established by proof. Thus, before a writing can be<br>admitted into evidence and considered by the trial court, its proponent must<br>show that it is, in fact, what it is purported to be." <i>Robin Farms, Inc. v.</i><br><i>Bartholome</i> , 989 S.W.2d 238, 252 (Mo. App. W.D.1999).  |
| Expert Testimony:                        | <ul> <li>"1. In any civil action, if scientific, technical or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education may testify thereto in the form of an opinion or otherwise.</li> <li>2. Testimony by such an expert witness in the form of an opinion or inference otherwise admissible is not objectionable because it embraces an ultimate issue to be decided by the trier of fact.</li> <li>3. The facts or data in a particular case upon which an expert bases an opinion or inference may be those perceived by or made known to him at or before the hearing and must be of a type reasonably relied upon by experts in the field in forming opinions or inferences upon the subject and must be otherwise reasonably reliable.</li> <li>4. If a reasonable foundation is laid, an expert may testify in terms of opinion or inference and give the reasons therefor without the use of hypothetical questions, unless the court believes the use of a hypothetical question will make the expert's opinion more understandable or of greater assistance to the jury due to the particular facts of the case." Mo. Rev. Stat. § 490.065.</li> </ul> |

#### Montana



| <b>Ongoing Projects:</b> |  |
|--------------------------|--|
| State Project:           | The Montana Department of Environmental Quality (DEQ) supports a volunteer water quality monitoring group, Montana Watercourse, with grants. <i>See Water Monitoring</i> , MONTANA WATER CENTER, |
|                          | http://www.montanawatercenter.org/water-monitoring (last visited Apr. 10.  |
|                          | 2017). We were unable to find any statutory authority for these grants, which  |
|                          | DEO appears to have issued on its own initiative.  |
| Collection of Infor      | mation:  |
| Ag-Gag Law:              | "A person who does not have the effective consent of the owner and who intends   |
|                          | to damage the enterprise conducted at an animal facility may not:  |
|                          | (a) damage or destroy an animal facility or an animal or property in or on the   |
|                          | premises of an animal facility.  |
|                          | (b) enter an animal facility that is at the time closed to the public with the   |
|                          | intent to commit an act prohibited by this chapter:  |
|                          | (c) remain concealed in an animal facility with the intent to commit an act  |
|                          | prohibited by this chapter:  |
|                          | (d) enter an animal facility and commit or attempt to commit an act prohibited   |
|                          | by this chapter: [or]  |
|                          | (e) enter an animal facility to take pictures by photograph, video camera, or  |
|                          | other means with the intent to commit criminal defamation" Mont. Code Ann. §   |
|                          | 81-30-103. "A person convicted of an act that violates [this provision] and that   |
|                          | results in more than \$500 in damage or destruction shall be fined not more than   |
|                          | \$50,000 or be imprisoned in the state prison for a term not to exceed 10 years or   |
|                          | both " Mont Code Ann & 81-30-105   |
|                          | (f) enter or remain on the premises of an animal facility if the person:   |
|                          | (i) had notice that the entry was forbidden. or  |
|                          | (i) received notice to depart but failed to do so " Mont Code Ann § 81-  |
|                          | 30-103   |
|                          | 50 105.  |
|                          | "Animal facility" includes "a vehicle building structure research facility or  |
|                          | premises where an animal is lawfully kept handled housed exhibited bred or   |
|                          | offered for sale " Mont Code Ann 8 81-30-102   |
|                          | offered for sale. Wont. Code runit. § 01 50 102.   |
|                          | "A person convicted of an act that violates $[81-30-103](2)(a)$ through $(2)(e)$ and   |
|                          | that results in more than $500$ in damage or destruction shall be fined not more   |
|                          | than \$50,000 or be imprisoned in the state prison for a term not to exceed 10   |
|                          | vears or both " Mont. Code Ann § 81-30-105   |
| Trespass Laws            |  |
| Criminal Liability       | No "Privilege to enter or remain upon land is extended by the failure of the   |
| for Trespass             | landowner to post notice denving entry[]" Mont Code Ann 8/45-6-201   |
| Despite Lack of          | nandowner to post notice denying endy[.] Mont. Code Fain. § 45-0-201.  |
| Notice                   |  |
|                          |  |

| Other Provisions:   | See supra "Ag-Gag Law."   |  |
|---|---|--|
| Stalking Laws:  |   |  |
| Criminal Law:   | <ul> <li>"A person commits the offense of stalking if the person purposely or knowingly causes another person substantial emotional distress or reasonable apprehension of bodily injury or death by repeatedly:</li> <li>(a) following the stalked person; or</li> <li>(b) harassing, threatening, or intimidating the stalked person, in person or by mail, electronic communication, as defined in 45-8-213, or any other action, device, or method." Mont. Code Ann. § 45-5-220.</li> </ul> |  |
| Use of Information:   |   |  |
| Although incomplete, our research has not found any provisions relating to the use of information collected by citizens in enforcement or administrative/legislative actions. |   |  |
| Evidentiary Standards:  |   |  |
| Pleading a Claim:   | Requires certification that "the factual contentions have evidentiary support or, if specifically so identified, will likely have evidentiary support after a reasonable opportunity for further investigation or discovery." Mont. R. Civ. P. 11.  |  |
| Authentication or<br>Chain of Custody:  | "The requirement of authentication or identification as a condition precedent to<br>admissibility is satisfied by evidence sufficient to support a finding that the<br>matter in question is what its proponent claims." Mont. R. Evid. 901.  |  |
| Expert Testimony:   | <i>Daubert</i> standard, but only for novel science. <i>See State v. Damon</i> , 119 P.3d 1194, 1198 (Mont. 2005); <i>State v. Moore</i> , 885 P.2d 457, 471 (Mont. 1994).  |  |

#### Nebraska



| <b>Trespass Laws:</b>   |  |  |
|---|--|--|
| Criminal Liability  | No. "A person commits criminal trespass if he or she enters or remains   |  |
| for Trespass  | in any place as to which notice against trespass is given by [a]ctual  |  |
| Despite Lack of   | communication[,] [p]osting[,] or [f]encing or other enclosure." Neb.   |  |
| Notice:   | Rev. Stat. § 28-521.   |  |
| Other Provisions:   | Trespass against a "public power infrastructure facility" carries a heightened<br>penalty. Neb. Rev. Stat. § 28-520. "[P]ublic power infrastructure facility means<br>a power plant, electrical station or substation, or any other facility which is used<br>by a public power supplier to support the generation, transmission, or<br>distribution of electricity and which is surrounded by a fence or is otherwise<br>enclosed." <i>Id</i> . |  |
| Stalking Laws:  |  |  |
| Criminal Law:   | "Any person who willfully harasses another person or a family or household   |  |
|   | member of such person with the intent to injure, terrify, threaten, or intimidate  |  |
|   | commits the offense of stalking." Neb. Rev. Stat. § 28-311.03.   |  |
| Civil Law:  | "A person against whom a violation of section 28-111 has been committed may  |  |
|   | bring a civil action for equitable relief, general and special damages, reasonable   |  |
|   | attorney's fees, and costs." Neb. Rev. Stat. § 28-113.   |  |
| Use of Information:   |  |  |
| Although incomplete, our research has not found any provisions relating to the use of information |  |  |
| collected by citizens in enforcement or administrative/legislative actions.                       |  |  |
| Evidentiary Standards:  |  |  |
| Pleading a Claim:   | Requires certification that "there is good ground for the filing of the pleading."   |  |
|   | Neb. Rev. Stat. § 25-824.  |  |
| Authentication or   | "The requirement of authentication or identification as a condition precedent to   |  |
| Chain of Custody:   | admissibility is satisfied by evidence sufficient to support a finding that the  |  |
|   | matter in question is what its proponent claims." Neb. Rev. Stat. § 27-901.  |  |
| Expert Testimony:   | <i>Daubert</i> standard. <i>See Carlson v. Okerstrom</i> , 675 N.W.2d 89, 106 (Neb. 2004);   |  |
|   | Schafersman v. Agland Coop., 631 N.W.2d 862, 867 (Neb. 2001).  |  |

#### Nevada



| Trespass Laws:     |   |
|--------------------|---|
| Criminal Liability | No. In order for a person's entry upon land to constitute trespass, that person   |
| for Trespass       | must "hav[e] been warned by the owner not to trespass." Nev. Rev. Stat. §   |
| Despite Lack of    | 207.200. Signs, fluorescent orange blazes, and fencing can amount to a warning  |
| Notice:            | not to trespass. See id.  |
| Drone Laws:        |   |
| Law:               | "A person shall not operate an unmanned aerial vehicle within:  |
|                    | (a) A horizontal distance of 500 feet or a vertical distance of 250 feet from a   |
|                    | critical facility without the written consent of the owner of the critical facility."   |
|                    | Nev. Rev. Stat. § 493.109.  |
|                    | "Critical facility' means a petroleum refinery, a petroleum or chemical   |
|                    | production, transportation, storage or processing facility, a chemical  |
|                    | manufacturing facility, a pipeline and any appurtenance thereto, a wastewater   |
|                    | treatment facility, a water treatment facility, a mine , a power generating   |
|                    | station, plant or substation and any appurtenances thereto, any transmission line   |
|                    | that is owned in whole or in part by an electric utility The term does not  |
|                    | include any facility or infrastructure of a utility that is located underground."   |
|                    | Nev. Rev. Stat. § 493.020.  |
|                    | An individual may bring an action for trespass against someone who flies a  |
|                    | drone over private property at less than 250 ft. if "[t]he owner or operator of the   |
|                    | [drone] has flown [it] over the property at a height of less than 250 feet on at  |
|                    | least one previous occasion;" and "[t]he person who owns or occupies the real   |
|                    | property notified the owner or operator of the [drone] that the person did not  |
|                    | authorize the flight of the [drone] over the property[.]" Nev. Rev. Stat.   |
|                    | § 493.103.  |
| Exception:         | "An individual may not bring suit pursuant to subsection 1 if:  |
|                    | (d) The unmanned aerial vehicle was under the lawful operation of a business  |
|                    | registered in this State or a land surveyor if: (1) The operator is licensed or   |
|                    | Aviation Administration: (2) The unmanned aerial vehicle is being operated  |
|                    | Aviation Administration; (2) The unmanned aerial vehicle is being operated within the scope of the lewful activities of the business or surveyor; and (2) The |
|                    | operation of the unmanned aerial vehicle does not unreasonably interfere with   |
|                    | the existing use of the real property" Nev Rev Stat 8 493 103   |
| Stalking Laws      | the existing use of the real property. They, hev, blat, § 495,165.  |
| Criminal Law       | "A person who, without lawful authority, willfully or maliciously engages in a  |
| Crimmur Duw.       | course of conduct that would cause a reasonable person to feel terrorized   |
|                    | frightened, intimidated, or harassed, or fearful for the immediate safety of a  |
|                    | family or household member, and that actually causes the victim to feel   |
|                    | terrorized, frightened, intimidated, or harassed, or fearful for the immediate  |
|                    | safety of a family or household member, commits the crime of stalking. Except   |

|   | where the provisions of subsection 2 or 3 are applicable, a person who commits the crime of stalking: |
|---|---|
|   | (a) For the first offense, is guilty of a misdomeanor   |
|   | (a) For any subacquent offense, is guilty of a misuchied more misuchied mean and "New Dev             |
|   | (b) For any subsequent offense, is guilty of a gross misdemeanor. Nev. Kev.<br>Stat 8 200 575         |
| Use of Information                      | ·   |
| Although our resear                     | ch is incomplete these provisions could be construed to prohibit the use of                           |
| information collecte                    | d by citizens:  |
| Explicitly                              | "Any photograph image recording or other information that is acquired by a                            |
| Drohibite                               | Any photograph, image, recording of other information that is acquired by a                           |
| FIOIDOILS.                              | aw enforcement agency of that is acquired from any other person of<br>governmental entity             |
|   | governmental entity that obtained the photograph, image, recording, of other                          |
|   | information in a manner inconsistent with the requirements of this section,                           |
|   | [which prohibits the use of a drone "for the purpose of gathering evidence                            |
|   | upon any property at which a person has a reasonable expectation of                                   |
|   | privacy" without a warrant except under emergency circumstances,] and any                             |
|   | evidence derived therefrom:   |
|   | (a) Is not admissible in and must not be disclosed in a judicial, administrative                      |
|   | or other adjudicatory proceeding; and   |
|   | (b) May not be used to establish reasonable suspicion or probable cause as the                        |
|   | basis for investigating or prosecuting a crime or offense." Nev. Rev. Stat.                           |
|   | § 493.112.  |
| <b>Evidentiary Standa</b>               | ards:   |
| Pleading a Claim:                       | Requires certification that "the allegations and other factual contentions have                       |
|   | evidentiary support or, if specifically so identified, are likely to have evidentiary                 |
|   | support after a reasonable opportunity for further investigation or discovery."                       |
|   | Nev. R. Civ. P. 11.   |
| Authentication or                       | "The requirement of authentication or identification as a condition precedent to                      |
| Chain of Custody:                       | admissibility is satisfied by evidence or other showing sufficient to support a                       |
|   | finding that the matter in question is what its proponent claims." Nev. Rev. Stat.                    |
|   | § 52.015.   |
| Expert Testimony:                       | Other/Statute though Daubert standard is instructive. See Higgs v. State, 222                         |
| 1 · · · · · · · · · · · · · · · · · · · | P.3d 648, 126 (Nev. 2010); Hallmark v. Eldridge. 189 P.3d 646, 650 (Nev.                              |
|   | 2008).  |
|   | /   |

| New Hamp   | shire  |
|--|--|
| Ongoing Projects   |  |
| State Projects:  | The New Hampshire Department of Environmental Services (DES) has been tasked with creating a volunteer water quality monitoring program. <i>See infra</i> "Use of Information."  |
| <b>Collection of Inform</b>                                      | mation:  |
| Drone Law:   | See infra "Drone Laws."  |
| Trespass Laws:   |  |
| Criminal Liability<br>for Trespass<br>Despite Lack of<br>Notice: | No. For entry upon property to constitute criminal trespass, the intruder must "know[] that he is not licensed or privileged to do so[.]" N.H. Rev. Stat. Ann. § 635:2.  |
| Other Provisions:  | See infra "Drone Laws."  |
| Drone Laws:  |  |
| Law:   | "No person shall purposely obstruct or impede the participation of any<br>individual in the lawful activity of hunting, fishing or trapping. No person shall<br>purposely obstruct or impede the participation of any individual in the lawful<br>activity of hunting, fishing or trapping. No person shall purposely engage in an<br>activity that will tend to disturb wild animals, with intent to prevent their lawful<br>taking. No person shall use a drone or UAV with the intent to conduct video<br>surveillance of private citizens who are lawfully hunting, fishing, or trapping<br>without obtaining the written consent of the persons being surveilled prior to<br>conducting the surveillance." N.H. Rev. Stat. Ann. § 207:57. |
| Stalking Laws:   |  |
| Criminal Law:  | <ul> <li>"A person commits the offense of stalking if such person:</li> <li>(a) Purposely, knowingly, or recklessly engages in a course of conduct targeted at a specific person which would cause a reasonable person to fear for his or her personal safety or the safety of a member of that person's immediate family, and the person is actually placed in such fear" N.H. Rev. Stat. Ann. § 633:3-a.</li> </ul>  |
| Use of Information   | :  |
| Although our resear-<br>information collecte                     | ch is incomplete, these provisions could be construed to allow the use of d by citizens:   |
| Explicitly Allows:   | "There is established within the department of environmental services the New<br>Hampshire volunteer river assessment program to provide: I. Water quality and<br>related environmental data to the state and federal governments to define water<br>quality trends; II. Data for river protection, management, and restoration<br>programs; III. Information to classify New Hampshire waters; and IV. Data for<br>surface water assessment reports." N.H. Rev. Stat. Ann. § 487:38. In organizing<br>the program, the DES shall "[p]rovide technical assistance ; [e]ducate<br>citizens about the methods of sampling ; [p]rovide the water quality data<br>to other state programs the federal government and municipalities                |

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|                        | ; [p]rovide volunteer monitoring organizations with an annual monitoring report ; and [l]end sampling equipment to volunteer monitoring organizations as needed." N.H. Rev. Stat. Ann. § 487:40. A similar program for monitoring the state's lakes exists. <i>See</i> N.H. Rev. Stat. Ann. § 487:31. |
|------------------------|---|
| Evidentiary Standards: |   |
| Pleading a Claim:      | Requires certification that "there is a good ground to support" the claim. N.H.   |
|                        | Super. Ct. R. Civ. 7.   |
| Authentication or      | "The requirement of authentication or identification as a condition precedent to  |
| Chain of Custody:      | admissibility is satisfied by evidence sufficient to support a finding that the   |
|                        | matter in question is what its proponent claims." N.H. R. Evid. 901.  |
| Expert Testimony:      | Daubert standard. See Baker Valley Lumber, Inc. v. Ingersoll-Rand Co., 813<br>A.2d 409, 415 (N.H. 2002).  |

## New Jersey



| <b>Ongoing Projects:</b> |  |
|--------------------------|--|
| Federal Project          | In 2009, EPA awarded the Ironbound Community Corporation (ICC), a non-               |
| Operating in the         | profit in Newark, a \$100,000 CARE Level I grant to conduct monitoring of            |
| State:                   | pollution coming from 34 waste facilities in the area. See ICC Envtl.                |
|                          | Monitoring, FED. CROWDSOURCING AND CITIZEN SCI. CATALOG,                             |
|                          | https://ccsinventory.wilsoncenter.org/#projectId/76 (last visited Apr. 10, 2017).    |
|                          | In 2015, EPA lent ICC four air quality sensors to assist their monitoring efforts.   |
|                          | See id. EPA considers this a "proof of concept program," which it will use to        |
|                          | help determine whether it is effective to lend equipment to citizen science groups   |
|                          | in other communities. See id.  |
| State Project:           | DEP runs a volunteer water monitoring program: The New Jersey Watershed              |
|                          | Watch Network. See New Jersey Watershed Watch Network, THE CORNELL LAB               |
|                          | OF ORNITHOLOGY,  |
|                          | http://www.birds.cornell.edu/citscitoolkit/projects/njdep/watershedwatch/ (last      |
|                          | visited Apr. 10, 2017). We have been unable to find statutory authority for this     |
|                          | program, which the DEP appears to have created on its own initiative.                |
| Trespass Laws:           |  |
| Criminal Liability       | No. Notice against trespass must be given by "[a]ctual communication,"               |
| for Trespass             | "[p]osting," or "[f]encing." N.J. Stat. Ann. § 2C:18-3(b).                           |
| Despite Lack of          |  |
| Notice:                  |  |
| Other Provisions:        | Trespass against "any research facility, structure, or separately secured or         |
|                          | occupied portion thereof, of [against a] utility company property, or in the sterile |
|                          | area or operational area of an airport" carries a heightened penalty. N.J. Stat.     |
|                          | Ann. § 2C:18-3.  |
| Stalking Laws:           |  |
| Criminal Law:            | "A person is guilty of stalking, a crime of the fourth degree, if he purposefully or |
|                          | knowingly engages in a course of conduct directed at a specific person that          |
|                          | would cause a reasonable person to fear for his safety or the safety of a third      |
|                          | person or suffer other emotional distress." N.J. Stat. Ann. § 2C:12-10.              |
| Use of Information       | :  |
| Although our researce    | ch is incomplete, these provisions could be construed to allow the use of            |
| information collecte     | d by citizens.   |
| Explicitly Allows:       | The Department of Environmental Protection (DEP) shall "[i]nvestigate and            |
|                          | provide responses to al citizen complaints [regarding wetlands protection]           |
|                          | submitted under Department procedures[.]" N.J. Admin. Code § 7:7A-16.19.             |
| Evidentiary Standa       | ards:  |
| Pleading a Claim:        | Requires a listing of "the facts on which the claim is based." N.J. Ct. R. 4:5-2.    |

| Authentication or<br>Chain of Custody: | "The requirement of authentication or identification as a condition precedent to<br>admissibility is satisfied by evidence sufficient to support a finding that the<br>matter is what its proponent claims." N.J. R. Evid. 901. |
|--|---|
| Expert Testimony:                      | Frye standard. See State v. Harvey, 699 A.2d 596, 621 (N.J. 1997).  |

#### New Mexico



| Ongoing Projects:                  |   |  |
|------------------------------------|---|--|
| Federal Project                    | In 2013, EPA awarded a \$59,818 Urban Waters Program grant to Amigos                  |  |
| Operating in the                   | Bravos, a local conservation organization, to fund "community-based water             |  |
| State:                             | quality monitoring" at the Valle de Oro National Wildlife Refuge. See Urban           |  |
|                                    | Waters Small Grants, U.S. ENVTL. PROT. AGENCY,  |  |
|                                    | https://www.epa.gov/urbanwaters/urban-waters-small-grants#newmexico (last             |  |
|                                    | visited Apr. 10, 2017). The project aims to help MS4 permittees eliminate             |  |
|                                    | impairments on the Rio Grande. See id.  |  |
| Trespass Laws:                     |   |  |
| Criminal Liability                 | No. "Criminal trespass consists of knowingly entering or remaining upon <i>posted</i> |  |
| for Trespass                       | private property without possessing written permission from the owner or person       |  |
| Despite Lack of                    | in control of the land." N.M. Stat. Ann. § 30-14-1 (emphasis added); see also id.     |  |
| Notice:                            | § 30-14-1.1.  |  |
|                                    |   |  |
| Stalking Laws:                     |   |  |
| Criminal Laws:                     | "Stalking consists of knowingly pursuing a pattern of conduct, without lawful         |  |
|                                    | authority, directed at a specific individual when the person intends that the         |  |
|                                    | pattern of conduct would place the individual in reasonable apprehension of           |  |
|                                    | death, bodily harm, sexual assault, confinement or restraint of the individual or     |  |
|                                    | another individual." N.M. Stat. Ann. § 30-3A-3.                                       |  |
| Use of Information                 | :   |  |
| Although our resear                | ch is incomplete, these provisions could be construed to allow the use of             |  |
| information collected by citizens. |   |  |
| Explicitly Allows:                 | "Whenever, on the basis of any information, a constituent agency determines           |  |
|                                    | that a person has violated or is violating a requirement, regulation or water         |  |
|                                    | quality standard the constituent agency may" take enforcement action. N.M.            |  |
|                                    | Stat. Ann. § 74-6-10; see also N.M. Stat. Ann. § 74-2-12 (authorizing the use of      |  |
|                                    | "any information" in enforcement of the state's Air Quality Control Act).             |  |
| Evidentiary Standards:             |   |  |
| Pleading a Claim:                  | Requires certification that "there is good ground to support" the claim. N.M. R.      |  |
|                                    | Civ. P. 1-011.  |  |
| Authentication or                  | "To satisfy the requirement of authenticating or identifying an item of evidence,     |  |
| Chain of Custody:                  | the proponent must produce evidence sufficient to support a finding that the item     |  |
|                                    | is what the proponent claims it is." N.M. R. Evid. 11-901.                            |  |
| Expert Testimonv:                  | Daubert standard, but only for scientific evidence. See State v. Alberico. 861        |  |
|                                    | P.2d 192, 194 (N.M. 1993).  |  |

## **New York**



| <b>Ongoing Projects:</b>   |  |
|--|--|
| State Project:<br>State Project:                                 | DEC runs a voluntary water quality monitoring program that focuses on the state's rivers and streams: Water Assessments by Volunteer Evaluators (WAVE). See Water Assessments by Volunteer Evaluators, N.Y. DEP'T OF ENVTL. CONSERVATION, http://www.dec.ny.gov/chemical/92229.html (last visited Apr. 10, 2017). Through WAVE, volunteers monitor macroinvertebrate populations, using them as indicator species for water quality. See id.; see also generally Charles Gottlieb, et al., Bug Catching for the State, 32 VA. ENVTL. L. J. 61 (2014). We were unable to find statutory authorization for WAVE, which DEC appears to have created on its own initiative.<br>The New York Department of Environmental Conservation (DEC) "shall establish a program which shall be known as the 'citizens statewide lake assessment program [(CSLAP)].' The purpose of this program is to establish a network of volunteers [who] will sample the assigned lakes on a weekly basis between May and September." N.Y. Envtl. Conserv. Law § 17-0305.   |
| <b>Trespassing Laws:</b>   |  |
| Criminal Liability<br>for Trespass<br>Despite Lack of<br>Notice: | No. Entry "upon unimproved and apparently unused land, which is neither fenced nor otherwise enclosed in a manner designed to exclude intruders" is licensed "unless notice against trespass is personally communicated or given by posting in a conspicuous manner." N.Y. Penal Law § 140.00; <i>see also id.</i> §§ 140.05–140.10.   |
| Stalking Laws:   |  |
| Criminal Law:  | "A person is guilty of stalking in the fourth degree when he or she intentionally,<br>and for no legitimate purpose, engages in a course of conduct directed at a<br>specific person, and knows or reasonably should know that such conduct:<br>1. is likely to cause reasonable fear of material harm to the physical health,<br>safety or property of such person, a member of such person's immediate family<br>or a third party with whom such person is acquainted; or<br>2. causes material harm to the mental or emotional health of such person,<br>where such conduct consists of following, telephoning or initiating<br>communication or contact with such person, a member of such person's<br>immediate family or a third party with whom such person is acquainted, and the<br>actor was previously clearly informed to cease that conduct; or<br>3. is likely to cause such person to reasonably fear that his or her employment,<br>business or career is threatened, where such conduct consists of appearing,<br>telephoning or initiating communication or contact at such person's place of<br>employment or business, and the actor was previously clearly informed to cease<br>that conduct." N.Y. Penal Law § 120.45. |

| Use of Information   | •  |  |
|----------------------|--|--|
| Although our resear  | Although our research is incomplete, these provisions could be construed to allow the use of |  |
| information collecte | information collected by citizens.   |  |
| Explicitly Allows:   | "In case any written complaint shall be filed with the commissioner and he shall             |  |
|                      | have cause to believe that any person is violating any code, rule or regulation              |  |
|                      | [governing air pollution] [she] shall cause a prompt investigation thereof to                |  |
| -                    | be made." N.Y. Envtl. Conserv. Law § 19-0503.  |  |
| Explicitly Allows:   | The DEC has been tasked with running CSLAP, a volunteer water quality                        |  |
|                      | monitoring program. See N.Y. Envtl. Conserv. Law § 17-0305. DEC "shall                       |  |
|                      | prepare an annual report which will include a summary of the information                     |  |
|                      | collected on the monitored waters during the previous season. This information               |  |
| -                    | shall be distributed to the program participants and other interested parties." <i>Id.</i>   |  |
| Evidentiary Standa   | ards:  |  |
| Pleading a Claim:    | "Statements in a pleading shall be sufficiently particular to give the court and             |  |
|                      | parties notice of the transactions, occurrences, or series of transactions or                |  |
|                      | occurrences, intended to be proved and the material elements of each cause of                |  |
|                      | action or defense." N.Y. C.P.L.R. 3013.  |  |
| Authentication or    | There is no equivalent general provision to FRE 901 in the NY CPLR; although,                |  |
| Chain of Custody:    | there are specific rules for authenticating specific types of evidence.                      |  |
|                      | Additionally, these methods of authentication are not exclusive and correspond               |  |
|                      | with standards used in other states and the federal courts. See People v.                    |  |
|                      | Patterson, 93 N.Y.2d 80, 104 (N.Y. 1999). Photographs and other records can                  |  |
|                      | be authenticated by witnesses of the recorded events, operators or installers, or            |  |
|                      | by expert testimony that the evidence truly and accurately represents what was               |  |
|                      | before the camera. See id.; see also N.Y. C.P.L.R. 45; People v. Byrnes, 33                  |  |
|                      | N.Y.2d 343 (N.Y. 1974).  |  |
| Expert Testimony:    | Frye standard. See People v. Wesley, 633 N.E.2d 451 (N.Y. 1994).                             |  |

## North Carolina



| Collection of Information:                                       |   |
|--|---|
| Ag-Gag Law:  | <ul> <li>"(a) Any person who intentionally gains access to the nonpublic areas of another's premises and engages in an act that exceeds the person's authority to enter those areas is liable to the owner or operator of the premises for any damages sustained. For the purposes of this section, "nonpublic areas" shall mean those areas not accessible to or not intended to be accessed by the general public.</li> <li>(b) For the purposes of this section, an act that exceeds a person's authority to enter the nonpublic areas of another's premises is any of the following:</li> <li>(1) An employee who enters the nonpublic areas of an employer's premises for a reason other than a bona fide intent of seeking or holding employment or doing business with the employer and thereafter without authorization captures or removes the employer's data, paper, records, or any other documents and uses the information to breach the person's duty of loyalty to the employer.</li> <li>(2)and thereafter without authorization records images or sound occurring within an employer's premises and uses the recording to breach the person's duty of loyalty to the employer.</li> <li>(3) Knowingly or intentionally placing on the employer's premises an unattended camera or electronic surveillance device and using that device to record images or data." N.C. Gen. Stat. § 99A-2.</li> </ul> |
| Trespass I aws   | See ingra Dione Laws.   |
| Criminal Liability<br>for Trespass<br>Despite Lack of<br>Notice: | No. Entry upon property constitutes criminal trespass only if the property is "so enclosed or secured as to demonstrate clearly an intent to keep out intruders," N.C. Gen. Stat. § 14-159.12 (first degree trespass), or "posted, in a manner reasonably likely to come to the attention of intruders with notice not to enter the [property]." N.C. Gen. Stat. § 14-159.13 (second degree trespass). Entering or remaining on a property after being "notified not to enter or remain there by the owner, by a person in charge of the premises, by a lawful occupant, or by another authorized person" is also second degree trespass. <i>Id</i> .   |
| Other Provisions:  | Trespass against a "facility owned or operated by an electric power<br>supplier[,]" a water treatment facility, a natural gas facility, or "[a]ny facility<br>used or operated for agricultural activities" carries a heightened penalty. N.C.<br>Gen. Stat. § 14-159.12.<br>See infra "Drone Laws."  |

| Drone Laws:  |  |  |
|--|--|--|
| Law:   | <ul> <li>"Except as otherwise provided in this section, no person shall use an unmanned aircraft system to [c]onduct surveillance of [p]rivate real property without the consent of the owner, easement holder, or lessee of the property." N.C. Gen. Stat. § 15A-300.1(b).</li> <li>"(d) Limitations on Use of Special Imaging TechnologyCommercial and private unmanned aircraft systems may be equipped with infrared or other thermal imaging technology subject to the provisions of this subsection. Infrared or other similar thermal imaging technology equipment shall be for the sole purpose of scientific investigation; scientific research; mapping and evaluating the earth's surface, including terrain and surface water bodies and other features; investigation or evaluation of crops, livestock, or farming operations; investigation of forests and forest management; and other similar investigations</li> </ul> |  |
| C4 II · · · · ·  | of vegetation or wildlife." N.C. Gen. Stat. § 15A-300.1.   |  |
| Stalking Laws:   |  |  |
| Criminal Law:  | "A defendant is guilty of stalking if the defendant willfully on more than one<br>occasion harasses another person without legal purpose or willfully engages in a<br>course of conduct directed at a specific person without legal purpose and the<br>defendant knows or should know that the harassment or the course of conduct<br>would cause a reasonable person to do any of the following:<br>(1) Fear for the person's safety or the safety of the person's immediate family<br>or close personal associates.<br>(2) Suffer substantial emotional distress by placing that person in fear of<br>death bodily injury or continued harassment." N C Gen Stat § 14-277.3A   |  |
| Use of Information   | •  |  |
| Although our research is incomplete, these provisions could be construed to prohibit the use of information collected by citizens. |  |  |
| Explicitly<br>Prohibits:   | "Evidence obtained or collected in violation of this section [which prohibits the  |  |
| FIOIDIUS.  | criminal prosecution in any court of law in this State except when obtained or collected under the objectively reasonable, good-faith belief that the actions were lawful." N.C. Gen. Stat. § 15A-300.1.   |  |
| Evidentiary Standards:   |  |  |
| Pleading a Claim:  | Requires certification that the claim "is well grounded in fact." N.C. Gen. Stat. § 1A-1, 11.  |  |
| Authentication or<br>Chain of Custody:   | "The requirement of authentication or identification as a condition precedent to<br>admissibility is satisfied by evidence sufficient to support a finding that the<br>matter in question is what its proponent claims." N.C. Gen. Stat. § 8C-1, 901.  |  |
| Expert Testimony:  | Daubert standard. See State v. McGrady, 753 S.E.2d 361, 367 (N.C. 2014).   |  |

## North Dakota



| Collection of Information: |   |  |
|----------------------------|---|--|
| Ag-Gag Law:                | "No person without the effective consent of the owner may:  |  |
|                            | 1. Intentionally damage or destroy an animal facility, an animal or property in   |  |
|                            | or on the animal facility, or any enterprise conducted at the animal facility.  |  |
|                            |   |  |
|                            | 3. Enter an animal facility, not then open to the public, with intent to commit   |  |
|                            | an act prohibited by this section.  |  |
|                            | 4. Enter an animal facility and remain concealed with intent to commit an act<br>prohibited by this section   |  |
|                            | 5. Enter an animal facility and commit or attempt to commit an act prohibited   |  |
|                            | by this section."   |  |
|                            | 6. Enter an animal facility and use or attempt to use a camera, video recorder,   |  |
|                            | or any other video or audio recording equipment."   |  |
|                            | N.D. Cent. Code § 12.1-21.1-02.   |  |
|                            |   |  |
|                            | Private parties can recover treble damages in a civil suit for violations of  |  |
|                            | subsections (5) or (6) above. N.D. Cent. Code § 12.1-21.1-05.   |  |
| Drone Law:                 | See infra "Drone Laws."   |  |
| Trespass Laws:             |   |  |
| Criminal Liability         | No. Entry upon property only constitutes criminal trespass if the property is "so   |  |
| for Trespass               | enclosed as to manifestly exclude intruders," if "notice against trespass is given  |  |
| Despite Lack of            | by posting in a manner reasonably likely to come to the attention of  |  |
| Notice:                    | intruders, or if the individual enters of remains in any place as to which house  |  |
|                            | against trespass is given by actual communication to the actor by the individual<br>in charge of the promises or other outhorized individual" N.D. Cont. Code § |  |
|                            | 12 1 22 03  |  |
| Other Provisions:          | 12.1-22-03.<br><b>See supra</b> "A α Gaα Law"   |  |
| Other I fovisions.         | see supru Ag-Oag Law.   |  |
|                            | See infra "Drone Laws."   |  |
| <b>Drone Laws:</b>         |   |  |
| Law:                       | "1. Information obtained from an unmanned aerial vehicle is not admissible in a   |  |
|                            | prosecution or proceeding within the state unless the information was obtained:   |  |
|                            | a. Pursuant to the authority of a search warrant; or  |  |
|                            | b. In accordance with exceptions to the warrant requirement.  |  |
|                            | 2. Information obtained from the operation of an unmanned aerial vehicle may  |  |
|                            | not be used in an attidavit of probable cause in an effort to obtain a search   |  |
|                            | warrant, unless the information was obtained under the circumstances described  |  |
|                            | in subdivision a or b of subsection 1 or was obtained through the monitoring of multiplands or international horders? N.D. Caut. Calls 8 20 20 4 02             |  |
| Examples                   | public lands or international borders. N.D. Cent. Code § 29-29.4-02.  |  |
| Exception:                 | Exceptions. This Act does not promibit any use of an unmanned aerial vehicle for surgicillance during the course of $(A)$ Because duration training testing     |  |
|                            | for survemance during the course of(4) Research, education, training, testing,  |  |

|   | or development efforts undertaken by or in conjunction with a school or<br>institution of higher education within the state and its political subdivisions, nor<br>to public and private collaborators engaged in mutually supported efforts<br>involving research, education, training, testing, or development related to<br>unmanned aerial vehicle systems or unmanned aerial vehicle system   |
|---|--|
|   | technologies and potential applications." N.D. Cent. Code § 29-29.4-04.  |
| Stalking Laws:  |  |
| Criminal Law:   | <ul> <li>"1. As used in this section:</li> <li>a. "Course of conduct" means a pattern of conduct consisting of two or more acts evidencing a continuity of purpose. The term does not include constitutionally protected activity.</li> <li>b. "Immediate family" means a spouse, parent, child, or sibling. The term also includes any other individual who regularly resides in the household or who within the prior six months regularly resided in the household.</li> <li>c. "Stalk" means : <ul> <li>(1) To engage in an intentional course of conduct directed at a specific person which frightens, intimidates, or harasses that person and which serves no legitimate purpose. The course of conduct may be directed toward that person or a member of that person's immediate family and must cause a reasonable person to experience fear, intimidation, or harassment; or</li> <li>(2) The unauthorized tracking of the person's movements or location through the use of a global positioning system or other electronic means that would cause a reasonable person to be frightened, intimidated, or harassed and which serves no legitimate purpose.</li> </ul> </li> <li>2. A person may not intentionally stalk another person." N.D. Cent. Code § 12.1-17-07.1.</li> </ul> |
| Use of Information  | :  |
| Although our research is incomplete, these provisions address the use of information collected by citizens. |  |
| Explicitly Allow:   | "[A]ny credible evidence may be used for the purpose of establishing whether a person has violated or is in violation of this article[,]" which regulates air pollution. N.D. Admin. Code § 33-15-01-17.   |
| Prohibitive by<br>Effect:   | Evidence is presumed to be credible it if is collected in accordance with "any procedures and methods promulgated pursuant to sections 504(b) or 114(a)(3) of the Federal Clean Air Act." N.D. Admin. Code § 33-15-14-06.  |
| Use of Information<br>collected by<br>Drones:   | See supra "Drone Laws."  |
| <b>Evidentiary Standa</b>   | ards:  |
| Pleading a Claim:   | Requires certification that "the factual contentions have evidentiary support or will likely have evidentiary support after a reasonable opportunity for further investigation or discovery." N.D. R. Civ. P. 11.  |

| Authentication or<br>Chain of Custody: | "To satisfy the requirement of authenticating or identifying an item of evidence,<br>the proponent must produce evidence sufficient to support a finding that the item<br>is what the proponent claims it is." N.D. R. Evid. 901.  |
|--|--|
| Expert Testimony:                      | "A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue." N.D. R. Evid. 702; <i>see also State v. Hernandez</i> , 707 N.W. 2d 449, 453–454 (N.D. 2005). |

## Ohio



| Ongoing Projects:         |   |  |
|---------------------------|---|--|
| State Project:            | The Ohio Department of Natural Resources (DNR) runs a volunteer water   |  |
|                           | quality monitoring program: Stream Quality Monitoring (SQM). See Stream   |  |
|                           | Quality, OHIO DEP'T OF NAT. RESOURCES, http://watercraft.ohiodnr.gov/sqm  |  |
|                           | (last visited Apr. 10, 2017). Through SQM, volunteers monitor   |  |
|                           | macroinvertebrate populations, using them as indicator species for water quality.   |  |
|                           | See id. We were unable to find statutory authorization for SQM, which DNR   |  |
|                           | appears to have created on its own initiative.  |  |
| Collection of Information | mation:   |  |
| Ag-Gag Law:               | "(B) No person shall commit a specified offense [which includes trespass]   |  |
|                           | involving any agricultural product or equipment with the intent to do any of the  |  |
|                           | following:  |  |
|                           | (1) Intimidate or coerce a civilian population;   |  |
|                           | (2) Influence the policy of any government by intimidation or coercion;   |  |
|                           | (3) Affect the conduct of any government;   |  |
|                           | (4) Interrupt or interfere with agricultural production, agricultural research,   |  |
|                           | or equipment for purposes of disrupting or influencing, through intimidation or   |  |
|                           | other means, consumer confidence or agricultural production methods."   |  |
|                           | Ohio Rev. Code Ann. § 901.511.  |  |
|                           | Private parties can recover treble damages in civil suits. Id.  |  |
|                           | There are also criminal penalties; for a first offense, the violation is classified as "one degree higher than the penalty for the most serious underlying specified offense," except that when the underlying offense is a first-degree felony, it is also a first-degree felony. <i>See</i> Ohio Rev. Code Ann. § 901.99. |  |
| Trespass Laws:            |   |  |
| Criminal Liability        | No. Entry upon property does not constitute criminal trespass unless "notice  |  |
| for Trespass              | against unauthorized access is given by posting in a manner reasonably  |  |
| Despite Lack of           | calculated to come to the attention of potential intruders, or by fencing or other  |  |
| Notice:                   | enclosure." Ohio Rev. Code Ann. § 2911.21.  |  |
| Other Provisions:         | See supra "Ag-Gag Law."   |  |
| Stalking Laws:            |   |  |
| Criminal Law:             | "No person by engaging in a pattern of conduct shall knowingly cause another  |  |
|                           | person to believe that the offender will cause physical harm to the other person  |  |
|                           | or a family or household member of the other person or cause mental distress to   |  |
|                           | the other person or a family or household member of the other person. In  |  |
|                           | addition to any other basis for the other person's belief that the offender will  |  |
|                           | cause physical harm to the other person or the other person's family or   |  |
|                           | household member or mental distress to the other person or the other person's   |  |

|   | family or household member, the other person's belief or mental distress may be  |  |
|---|--|--|
|   | based on words or conduct of the offender that are directed at or identify a     |  |
|   | corporation, association, or other organization that employs the other person or |  |
|   | to which the other person belongs." Ohio Rev. Code Ann. § 2903.211.              |  |
| Use of Information:   |  |  |
| Our research has not found any provisions relating to the use of information collected by citizens in |  |  |
| enforcement or administrative/legislative actions.  |  |  |
| Evidentiary Standards:  |  |  |
| Pleading a Claim:   | Requires certification that "there is good ground to support" the claim. Ohio    |  |
|   | Civ. R. 11.  |  |
| Authentication or   | "The requirement of authentication or identification as a condition precedent to |  |
| Chain of Custody:   | admissibility is satisfied by evidence sufficient to support a finding that the  |  |
|   | matter in question is what its proponent claims." Ohio Evid. R. 901.             |  |
| Expert Testimony:   | Daubert standard. See State v. Martens, 629 N.E.2d 462, 466 (Ohio 1993).         |  |
|   |  |  |

## Oklahoma



| <b>Ongoing Projects:</b> |  |
|--------------------------|--|
| State Program:           | The Oklahoma Conservation Commission (OCC) is required to "[a]dminister the                                |
|                          | Blue Thumb Program," Okla. Stat. tit. 2/a, § 3-2-106(A)(29), which is a                                    |
|                          | "nonpoint source educational program emphasizing water quality education,                                  |
|                          | including volunteer monitoring[.]" Okla. Stat. tit. 27a, § 3-1-103(18).                                    |
|                          | "The primary goal of this program is to educate Oklahoma[ns] about [non-                                   |
|                          | point sourcel pollution, pollution prevention, and stream health." Okla, Admin.                            |
|                          | Code 155:40-1-5. "The program is designed to recruit, educate, train, and equip                            |
|                          | volunteer groups across the state to monitor streams of local interest." Id. Its                           |
|                          | activities include "volunteer monitor training sessions, data management                                   |
|                          | analysis and presentation, maintenance and distribution of water quality                                   |
|                          | monitoring kits and supplies, quality assurance sessions, provision of                                     |
|                          | educational materials for loan, and distribution of curb-marking supplies." Id.                            |
| Collection of Inform     | mation:  |
| Ag-Gag Law:              | "A. No person shall, without the effective consent of the owner and with intent                            |
|                          | to damage the enterprise conducted at the animal facility:   |
|                          |  |
|                          | 3. Enter an animal facility, not open to the public, with intent to commit an                              |
|                          | A Enter on animal facility and commit or attempt to commit on act prohibited                               |
|                          | 4. Enter an annual facility and commit of attempt to commit an act promoted by this section:               |
|                          | 5 Remain concealed in an animal facility, with intent to commit or attempt to                              |
|                          | commit an act prohibited by this section:  |
|                          | 6. Enter or remain on an animal facility when the person has notice that entry                             |
|                          | is forbidden by any of the following:  |
|                          | a. written or oral communication with the owner or a person with apparent                                  |
|                          | authority to act for the owner,  |
|                          | b. fencing or other enclosure obviously designed to exclude intruders or                                   |
|                          | contain animals, or  |
|                          | c. a sign or signs posted on the property of at the entrance to the building $Oklo Stat tit 21 \pm 1680.2$ |
| Trespass Laws.           | OKIa. Stat. ut. 21, § 1060.2.  |
| Criminal Liability       | No. In order for entry upon property to constitute criminal trespass such entry                            |
| for Trespass             | must have been "expressly forbidden[.]" or made "without permission by the                                 |
| Despite Lack of          | owner or lawful occupant when such property [was] posted" with signs                                       |
| Notice:                  | forbidding entry. Okla. Stat. tit. 21, § 1835. "Property that is fenced or not                             |
|                          | fenced must have such signs placed conspicuously and at all places where entry                             |
|                          | to the property is normally expected." Id.   |

| Other Provisions:                      | Trespass against "private land of another that is primarily devoted to farming,  |
|--|--|
|  | ranching, or forestry" carries a heightened penalty. Okla. Stat. tit. 21, § 1835.2.  |
|  |  |
| Ctalleta a Larra                       | See supra "Ag-Gag Law."  |
| Stalking Laws:                         |  |
| Criminal Law:                          | "Any person who willfully, maliciously, and repeatedly follows or harasses<br>another person in a manner that:<br>1. Would cause a reasonable person or a member of the immediate family of<br>that person as defined in subsection F of this section to feel frightened,<br>intimidated, threatened, harassed, or molested; and<br>2. Actually causes the person being followed or harassed to feel terrorized,<br>frightened, intimidated, threatened, harassed, or molested, shall, upon<br>conviction, be guilty of the crime of stalking, which is a misdemeanor<br>punishable by imprisonment in a county jail for not more than one (1) year, or by<br>a fine of not more than One Thousand Dollars (\$1,000.00), or by both such fine<br>and imprisonment." Okla. Stat. tit. 21, § 1173. |
| Use of Information                     | :  |
| Although our researce                  | ch is incomplete, these provisions could be construed to allow the use of  |
| information collecte                   | d by citizens.   |
| Explicitly Allows:                     | "For the purpose of submitting compliance certifications or establishing whether<br>or not a person has violated or is in violation of any provision of the Oklahoma<br>[Clean Air Act] implementation plan, nothing shall preclude the use, including<br>the exclusive use, of any credible evidence or information, relevant to whether a<br>source would have been in compliance with applicable requirements[.]" Okla.<br>Admin. Code § 252:100-43-6. "Credible evidence" is not defined.  |
| Explicitly Allows:                     | OCC manages a volunteer program that monitors nonpoint source water<br>pollution. <i>See supra</i> "Ongoing Projects." Among other things, OCC uses the<br>program to "provide[] support to cities to help meet the requirements of their<br>Phase II stormwater permits[,]" Okla. Admin. Code §155:40-1-5(7), and targets<br>areas "where volunteer data indicate a need." Okla. Admin. Code § 155:40-1-<br>5(6).   |
| <b>Evidentiary Standa</b>              | ards:  |
| Pleading a Claim:                      | Requires certification that "[t]he allegations and other factual contentions have<br>evidentiary support or, if specifically so identified, are likely to have evidentiary<br>support after a reasonable opportunity for further investigation or discovery."<br>Okla. Stat. tit. 12, § 2011.  |
| Authentication or<br>Chain of Custody: | "The requirement of authentication or identification as a condition precedent to admissibility is satisfied by evidence sufficient to support a finding that the matter in question is what its proponent claims it to be." Okla. Stat. tit. 12, § 2901.   |
| Expert Testimony:                      | Daubert standard. See Christian v. Gray, 65 P.3d 591, 600 (Okla. 2003).  |

| Oregon   | STATE OF OREGON   |
|--|---|
| <b>Ongoing Projects:</b>   |   |
| Federal Project<br>Operating in the<br>State:                    | EPA Region 10 operates a project in Portland that aims to incorporate citizen science into decision making as the city develops plans for school bus routes and stops. <i>See Making a Visible Difference (MVD) In N/NE Portland</i> , FED. CROWDSOURCING AND CITIZEN SCI. CATALOG, <u>https://ccsinventory.wilsoncenter.org/#projectId/228</u> (last visited Apr. 10, 2017). The project's goal is "to make a visible difference with citizen science such that it becomes a bridge for the community to independently uncover links and solutions to local environmental concerns." <i>Id.</i>  |
| Collection of Information:                                       |   |
| Ag-Gag Law:  | <ul> <li>"(1) A person commits the crime of interference with livestock production when the person, with the intent to interfere with livestock production:</li> <li>(a) Takes, appropriates, obtains or withholds livestock from the owner thereof, or causes the loss, death or injury of any livestock maintained at a livestock production facility;</li> <li>(b) Damages, vandalizes or steals any property located on a livestock production facility; or</li> <li>(c) Obtains access to a livestock production facility to perform any act contained in this subsection or any other act not authorized by the livestock production facility." Or. Rev. Stat. § 167.388.</li> </ul>  |
| Trespass Laws:   |   |
| Criminal Liability<br>for Trespass<br>Despite Lack of<br>Notice: | No. A person does not commit trespass if she enters land where "physical nature, function, custom, usage, notice or lack thereof would cause a reasonable person to believe that no permission to enter or remain is required." Or. Rev. Stat. § 164.205; <i>see also id.</i> § 164.245.  |
| Other Provisions:  | See supra "Ag-Gag Law."   |
| Drone Laws:  |   |
| Law:   | <ul> <li>"(1) Except as provided in subsections (2) and (3) of this section, a person who owns or lawfully occupies real property in this state may bring an action against any person or public body that operates an unmanned aircraft system that is flown over the property if: (a) The operator of the unmanned aircraft system has flown the unmanned aircraft system over the property on at least one previous occasion; and (b) The person notified the owner or operator of the unmanned aircraft system flown over the property.</li> <li>(2) A person may not bring an action under this section if: (a) The unmanned aircraft system is lawfully in the flight path for landing at an airport, airfield or runway; and (b) The unmanned aircraft system is in the process of taking off or landing.</li> <li>(3) A person may not bring an action under this section if the unmanned aircraft system is operated for commercial purposes in compliance with authorization</li> </ul> |
|                | granted by the Federal Aviation Administration. This subsection does not<br>preclude a person from bringing another civil action, including but not limited to  |
|----------------|---|
|                | an action for invasion of privacy or an action for invasion of personal privacy<br>under ORS 30.865."   |
|                | Or. Rev. Stat. § 837.380.   |
|                | <ul> <li>"(2) Except as provided in subsection (3) of this section, a person commits a violation if the person intentionally or knowingly:</li> <li>(a) Operates an unmanned aircraft system over a critical infrastructure facility at an altitude not higher than 400 feet above ground level; or</li> <li>(b) Allows an unmanned aircraft system to make contact with a critical infrastructure facility, including any person or object on the premises of or within the facility."</li> </ul>                          |
|                | 2016 Or. Laws Ch. 72, § 13 (to be codified at Or. Rev. Stat. §§ 837.300–837.390).   |
|                | "Critical infrastructure facility" includes, but is not limited to "if completely<br>enclosed by a fence or other physical barrier that is obviously designed to<br>exclude intruders, or if marked with a sign conspicuously posted on the property<br>that indicates that entry is forbidden": facilities that manufacture, store, process,<br>treat, or transmit chemicals, oil, gas, electricity, and water. <i>Id</i> .  |
| Exception:     | (3) This section does not apply to [among others]: "A person under contract with or otherwise acting under the direction or on behalf of the federal government, a public body or a law enforcement agency"; "A person operating an unmanned aircraft system for commercial purposes in compliance with authorization granted by the Federal Aviation Administration" 2016 Or. Laws Ch. 72, § 13 (to be codified at Or. Rev. Stat. § 837.300–837.390).  |
| Limits:        | "Except as expressly authorized by state statute, the authority to regulate the ownership or operation of unmanned aircraft systems is vested solely in the Legislative Assembly. Except as expressly authorized by state statute, a local government, as defined ORS 174.116, may not enact an ordinance or resolution that regulates the ownership or operation of unmanned aircraft systems or otherwise engage in the regulation of the ownership or operation of unmanned aircraft systems." Or. Rev. Stat. § 837.385. |
| Stalking Laws: |   |
| Criminal Law:  | <ul> <li>A person commits the crime of stalking if:</li> <li>(a) The person knowingly alarms or coerces another person or a member of that person's immediate family or household by engaging in repeated and unwanted contact with the other person;</li> <li>(b) It is objectively reasonable for a person in the victim's situation to have</li> </ul>   |
|                | been alarmed or coerced by the contact; and<br>(c) The repeated and unwanted contact causes the victim reasonable<br>apprehension regarding the personal safety of the victim or a member of the<br>victim's immediate family or household." Or. Rev. Stat. § 163.732.  |

| Civil Law:   | <ul> <li>"A person may bring a civil action in a circuit court for a court's stalking protective order or for damages, or both, against a person if: <ul> <li>(a) The person intentionally, knowingly or recklessly engages in repeated and unwanted contact with the other person or a member of that person's immediate family or household thereby alarming or coercing the other person;</li> <li>(b) It is objectively reasonable for a person in the victim's situation to have been alarmed or coerced by the contact; and</li> <li>(c) The repeated and unwanted contact causes the victim reasonable apprehension regarding the personal safety of the victim or a member of the</li> </ul> </li> </ul> |  |
|--|--|--|
|  | victim's immediate family or household." Or. Rev. Stat. § 30.866.  |  |
| Use of Information:  |  |  |
| Although our research is incomplete, these provisions could be construed to allow the use of |  |  |
| information collected by citizens.   |  |  |
| Explicitly Allows:   | "[A]ny credible evidence may be used for the purpose of establishing whether a person has violated or is in violation of stationary source reporting   |  |
|  | requirements under the state's air pollution control law. Or Admin R 340-214-  |  |
|  | 0120. "Credible evidence" is not defined.  |  |
| Evidentiary Standards:   |  |  |
| Pleading a Claim:  | Requires certification that the claims "are supported by evidence." Or. R. Civ. P. 17.   |  |
| Authentication or  | "The requirement of authentication or identification as a condition precedent to   |  |
| Chain of Custody:  | admissibility is satisfied by evidence sufficient to support a finding that the matter in question is what its proponent claims." Or. Rev. Stat. § 40.505.   |  |
| Expert Testimony:  | Brown-Daubert standard. See State v. O'Key, 899 P.2d 663, 676 (Or. 1995).  |  |

# Pennsylvania



| <b>Ongoing Projects:</b> |   |
|--------------------------|---|
| State Project:           | DEP solicits data collected by volunteers, provided that it complies with the   |
| -                        | quality assurance protocol developed by the state. See Data Submission Form,  |
|                          | PA Dep't of Envtl. Prot. (2016), available at   |
|                          | http://files.dep.state.pa.us/water/Drinking%20Water%20and%20Facility%20Reg  |
|                          | ulation/WaterQualityPortalFiles/2016_Data_Solicitation_Document.pdf. DEP  |
|                          | uses this data to comply with the Clean Water Act § 303(d) listing requirement.   |
|                          | Id.   |
|                          | Smell PGH is a smartphone application available for smartphone users in   |
|                          | Pittsburgh, allowing them to report foul odors and related symptoms. This app   |
|                          | has the capability to alert the Allegheny County Health Department. See Ashley  |
|                          | Murray, Carnegie Mellon Scientists Use App to Track Foul Odors in Pittsburgh,   |
|                          | PITTSBURGH POST-GAZETTE (Jul. 3 2017), available at http://www.post-  |
|                          | gazette.com/business/tech-news/2017/07/03/smell-pgh-app-carnegie-mellon-  |
|                          | university-cmu-create-lab-foul-smell-pittsburgh/stories/201706300430  |
| <b>Trespassing Laws:</b> |   |
| Criminal Liability       | No. A person commits criminal trespass if, "knowing that he is not licensed to  |
| for Trespass             | do so, he enters or remains in any place as to which notice against trespass is   |
| Despite Lack of          | given by: posting [or] fencing[.]" 18 Pa. Cons. Stat. § 3503.   |
| Notice:                  |   |
| Stalking Laws:           |   |
| Criminal Law:            | "A person commits the crime of stalking when the person either:   |
|                          | (1) engages in a course of conduct or repeatedly commits acts toward another  |
|                          | person, including following the person without proper authority, under  |
|                          | circumstances which demonstrate either an intent to place such other person in  |
|                          | reasonable fear of bodily injury or to cause substantial emotional distress to such   |
|                          | other person; or  |
|                          | (2) engages in a course of conduct or repeatedly communicates to another  |
|                          | person under circumstances which demonstrate or communicate either an intent  |
|                          | to place such other person in reasonable fear of bodily injury or to cause  |
| TI                       | substantial emotional distress to such other person." 18 Pa. Cons. Stat. § 2/09.1.  |
| Use of information       | as the use of information collected by sitirance  |
| Fundicidary Allower      | The Depression of Department of Environmental Protection (DED) is outh original   |
| Explicitly Allows:       | to receive sitizen collected sin quality information. See 25 De. Cons. Stat   |
|                          | s 120.2   |
| Drohihitiya hu           | § 159.2.  |
| Effoct:                  | been given reasonable notice of the sampling and testing and has been given   |
|                          | reasonable opportunity to observe and participate in the sampling and testing   |
|                          | (2) The sampling and testing is conducted under the direct supervision of $(2)$   |
|                          | (2) The sampling and testing is conducted under the uncert supervision of persons qualified by training and experience, to conduct the sampling and |
|                          | testing (3) Procedures for the sampling and testing are in accord with IDFP's   |

|                           | standard]. (4) The reports of the sampling and testing are accurate and              |  |
|---------------------------|--|--|
|                           | comprehensive." 25 Pa. Cons. Stat. § 139.2.  |  |
| <b>Evidentiary Standa</b> | Evidentiary Standard:  |  |
| Pleading a Claim:         | Requires certification that "the factual allegations have evidentiary support or, if |  |
|                           | specifically so identified, are likely to have evidentiary support after a           |  |
|                           | reasonable opportunity for further investigation or discovery." Pa. R. Civ. P.       |  |
|                           | No. 1023.1.  |  |
| Authentication or         | "To satisfy the requirement of authenticating or identifying an item of evidence,    |  |
| Chain of Custody:         | the proponent must produce evidence sufficient to support a finding that the item    |  |
|                           | is what the proponent claims it is." Pa. R. Evid. 901.                               |  |
| Expert Testimony:         | Frye for novel science. See Com. v. Walker, 92 A.3d 766, 789-90 (Pa. 2014);          |  |
|                           | Grady v. Frito-Lay, Inc., 839 A.2d 1038, 1047 (Pa. 2003).                            |  |

## **Rhode Island**



| Ongoing Projects  |   |  |
|---|---|--|
| State Drojact   | The Phode Island Environmental Monitoring Collaborative has been tasked with  |  |
| State 1 10ject.   | "organizing coordinating maintaining and supporting the environmental   |  |
|   | monitoring systems within [the state ]" including citizen science groups. Sag   |  |
|   | <i>infra</i> "Use of Information "  |  |
| Trocnoss I aws.   |   |  |
| Criminal Liability  | No. One entering upon the property of enother must have "been forbidden to do   |  |
| for Trespass  | so by the owner" to be guilty of criminal traspass. <b>P I</b> Can Laws 8 11 44 26  |  |
| Despite Lack of   | so by the owner to be gunty of erminiar trespass. R.I. Gen. Laws § 11-44-20.  |  |
| Notice:   |   |  |
| Stellzing Lower   |   |  |
| Criminal Laws:  | "(a) Any person wher (1) hereases another persons or (2) willfully maliciously  |  |
| Criminal Law:   | (a) Any person who: (1) harasses another person, or (2) with uny, manciously,<br>and repeatedly follows another person with the intent to place that person in        |  |
|   | reasonable foor of bodily injury is guilty of the crime of stelling   |  |
|   | (b) Stalking shall be deemed a follow punishable by imprisonment for not more   |  |
|   | (b) Starking shall be deemed a reform pullishable by imprisonment for not more than five (5) years by a fine of not more than ten thousand dollars ( $\$ 10,000$ ) or |  |
|   | both " R I Gen Laws & 11-59-2   |  |
| Civil I aw:   | "(a) Any person who suffers harm pursuant to [R I Gen I aws 8 11-50-2] may  |  |
| CIVII Law.  | (a) Any person who suffers harm pursuant to [K.I. Och. Laws § 11-5)-2] may  |  |
|   | Laws 8 9-1-2 1  |  |
| Drong Laws  | Laws g 7 1 2.1.   |  |
| "Subject to federal law, the state of Dhode Jelend and the Dhode Jelend Atment Comparties shall have  |   |  |
| Subject to rederal law, the state of Knode Island and the Knode Island Airport Corporation shall have |   |  |
| autonomously through software controlled flight plans embedded in the object's system by a clobal     |   |  |
| nosition system commonly known as unpiloted aerial vehicles, remotely piloted aircraft dropes, or     |   |  |
| unmanned aircraft systems " R I Gen I aws 8 1-8-1   |   |  |
| unmanned aneralt systems. K.I. Och. Laws y 1-0-1.   |   |  |
| Use of Information:   |   |  |
| Although our research is incomplete, these provisions could be construed to allow the use of          |   |  |
| information collected by citizens.  |   |  |
| Explicitly Allows:  | In 2004, the R.I. Legislature created the Rhode Island Environmental Monitoring   |  |
| 1 0   | Collaborative "for the purposes of organizing, coordinating, maintaining and  |  |
|   | supporting the environmental monitoring systems within [the state]." R.I. Gen.  |  |
|   | Laws § 46-23.2-5. It consists of 10 unpaid members, who sit ex officio from   |  |
|   | various governmental and educational organizations (e.g. Dep't of Envtl. Mgmt.;   |  |
|   | Univ. of R.I. Graduate Sch. of Oceanography), id., one of which, Univ. of R.I.  |  |
|   | Watershed Watch, is a dedicated citizen science organization. See URI   |  |
|   | Watershed Watch, Univ. of R.I., http://web.uri.edu/watershedwatch/ (last visited  |  |
|   | Apr. 10, 2017). The Collaborative "shall work with other organizations and  |  |
|   | agencies that monitor watersheds to perform [its duties]." R.I. Gen. Laws §   |  |
|   | 46-23.2-5.  |  |
|   |   |  |

| Evidentiary Standards: |  |
|------------------------|--|
| Pleading a Claim:      | Requires certification that the claim "is well grounded in fact." R.I. Super. R. |
|                        | Civ. P. 11.  |
| Authentication or      | "The requirement of authentication or identification as a condition precedent to |
| Chain of Custody:      | admissibility is satisfied by evidence sufficient to support a finding that the  |
|                        | matter in question is what its proponent claims." R.I. R. Evid. 901.             |
| Expert Testimony:      | Daubert standard. See In re Odell, 672 A.2d 457, 459 (R.I. 1996).                |

## South Carolina



| Collection of Information: |  |  |
|----------------------------|--|--|
| Ag-Gag Law:                | "Without the effective consent of the owner, and with the intent to disrupt or   |  |
|                            | damage the enterprise conducted at the animal facility, it is unlawful for a person  |  |
|                            | to:  |  |
|                            | (1) enter an animal facility, not then open to the public, with intent to commit   |  |
|                            | an act prohibited by this section;   |  |
|                            | (2) remain concealed, with intent to commit an act prohibited by this section,   |  |
|                            | in an animal facility; or  |  |
|                            | (3) enter an animal facility and commit or attempt to commit an act  |  |
|                            | prohibited by this section." S.C. Code Ann. § 47-21-50.  |  |
| <b>Trespass Laws:</b>      |  |  |
| Criminal Liability         | No. "Notice prohibiting entry" is a necessary element of criminal  |  |
| for Trespass               | trespass, and it may be provided by posting notice in four places around the   |  |
| Despite Lack of            | perimeter of the property. S.C. Code Ann. § 16-11-600.   |  |
| Notice:                    |  |  |
| Other Provisions:          | See supra "Ag-Gag Law."  |  |
| <b>Stalking Laws:</b>      |  |  |
| Criminal Law:              | "As used in this article:  |  |
|                            | (A) "Harassment in the first degree" means a pattern of intentional,   |  |
|                            | substantial, and unreasonable intrusion into the private life of a targeted person   |  |
|                            | that serves no legitimate purpose and causes the person and would cause a  |  |
|                            | reasonable person in his position to suffer mental or emotional distress.  |  |
|                            | Harassment in the first degree may include, but is not limited to:   |  |
|                            | (1) following the targeted person as he moves from location to location:   |  |
|                            | (2) visual or physical contact that is initiated maintained or repeated after  |  |
|                            | a person has been provided oral or written notice that the contact is unwanted or  |  |
|                            | after the victim has filed an incident report with a law enforcement agency:   |  |
|                            | (3) surveillance of or the maintenance of a presence near the targeted   |  |
|                            | (5) survemance of of the maintenance of a presence near the targeted   |  |
|                            | (a) residence:   |  |
|                            | (b) place of work:   |  |
|                            | (c) school: or   |  |
|                            | (d) another place regularly occupied or visited by the targeted person:  |  |
|                            | and  |  |
|                            | (A) vandalism and property damage  |  |
|                            | (B) "Harassment in the second degree" means a pattern of intentional   |  |
|                            | (b) manassment in the second degree means a pattern of intentional,<br>substantial and unreasonable intrusion into the private life of a targeted person |  |
|                            | that serves no legitimate nurpose and causes the person and would cause a  |  |
|                            | reasonable person in his position to suffer montal or amotional distrass   |  |
|                            | Leasonable person in his position to surfer mental of enfotional distress.   |  |
|                            | manassment in the second degree may include, but is not nimited to, verbal,  |  |
|                            | written, or electronic contact that is initiated, maintained, or repeated." S.C.   |  |
|                            | Code Ann. § 16-3-1/00; cf. S.C. Code Ann. §§ 16-3-1710, 1720.  |  |

| Use of Information     | :  |
|------------------------|--|
| Our research has not   | t found any provisions relating to the use of information collected by citizens in |
| enforcement or adm     | inistrative/legislative actions.   |
| Evidentiary Standards: |  |
| Pleading a Claim:      | Requires certification that "there is good ground to support" the claim. S.C. R.   |
|                        | Civ. P. 11.  |
| Authentication or      | "The requirement of authentication or identification as a condition precedent to   |
| Chain of Custody:      | admissibility is satisfied by evidence sufficient to support a finding that the    |
|                        | matter in question is what its proponent claims." S.C. R. Evid. 901.               |
| Expert Testimony:      | Jones standard to determine reliability; Daubert standard is instructive. See      |
|                        | State v. Council, 515 S.E.2d 508, 518 (S.C. 1999); State v. Jones, 259 S.E.2d      |
|                        | 120, 124 (S.C. 1979).  |
|                        |  |

## South Dakota



| Collection of Information:                                       |   |  |
|--|---|--|
| Ag-Gag Law:  | <ul> <li>"No person, without consent, may: <ul> <li>(1) Intentionally damage or destroy an animal facility, an animal, or property in or on the animal facility, or obstruct any enterprise conducted at the animal facility;</li> <li>(3) Enter an animal facility, not then open to the public, with intent to commit any act prohibited by this section;</li> <li>(4) Enter an animal facility and remain concealed, with intent to commit any act prohibited by this section;</li> <li>(5) Enter an animal facility and commit or attempt to commit any act prohibited by this section;</li> <li>(5) Enter an animal facility and commit or attempt to commit any act prohibited by this section;</li> <li>(7) Enter an animal facility, enter or remain on an animal facility, if the person had notice that the entry was forbidden or received notice to depart but failed to do so." S.D. Codified Laws § 40-38-3.</li> </ul> </li> </ul> |  |
|  | § 40-38-5.  |  |
| <b>Trespass Laws:</b>  |   |  |
| Criminal Liability<br>for Trespass<br>Despite Lack of<br>Notice: | No. In order for entry upon property to constitute criminal trespass, "notice against trespass [must be] given by: [p]osting or fencing." S.D. Codified Laws § 22-35-6.   |  |
| Other Provisions:  | See supra "Ag-Gag Law."   |  |
| Stalking Laws:   |   |  |
| Criminal Law:  | <ul> <li>"No person may: <ol> <li>Willfully, maliciously, and repeatedly follow or harass another person;</li> <li>Make a credible threat to another person with the intent to place that</li> </ol> </li> <li>(2) Make a credible threat to another person with the intent to place that</li> <li>person in reasonable fear of death or great bodily injury; or <ol> <li>Willfully, maliciously, and repeatedly harass another person by means of</li> <li>any verbal, electronic, digital media, mechanical, telegraphic, or written</li> <li>communication.</li> </ol> </li> <li>A violation of this section constitutes the crime of stalking. Stalking is a Class 1 misdemeanor. However, any second or subsequent conviction occurring within ten years of a prior conviction under this section is a Class 6 felony." S.D. Codified Laws § 22-19A-1. </li> </ul>   |  |
|  | cause of action for malicious harassment. The victim of malicious harassment<br>may recover both special and general damages, including damages for emotional<br>distress, reasonable attorney fees and costs, and punitive damages. The civil  |  |

|   | cause of action for malicious harassment is in addition to any other remedies,        |  |
|---|---|--|
|   | criminal or civil, otherwise available under law." S.D. Codified Laws § 20-9-32.      |  |
| Use of Information:   |   |  |
| Although our research is incomplete, these provisions address the use of information collected by |   |  |
| citizens.   |   |  |
| Explicitly Allows:  | "Notwithstanding any other provision, any credible evidence may be used for the       |  |
|   | purpose of establishing whether a person has violated or is in violation of a[n air   |  |
|   | pollution control] plan." S.D. Admin. R. 74:36:13:07.                                 |  |
| Prohibitive by  | "Credible evidence is as follows:   |  |
| Effect:   | (2) The following testing, monitoring, or information gathering methods are           |  |
|   | presumptively credible testing, monitoring, or information-gathering methods;         |  |
|   | (a) Any federally enforceable monitoring or   |  |
|   | testing methods, including those in 40 C.F.R. Pts. 51, 60, 61, and 75;                |  |
|   | (b) Other testing, monitoring or information-   |  |
|   | gathering methods that produce information comparable to that produced by any         |  |
|   | method in [this section]." S.D. Admin. Rule 74:36:13:07.                              |  |
| Evidentiary Standards:  |   |  |
| Pleading a Claim:   | Requires certification that "[t]he allegations and other factual contentions have     |  |
|   | evidentiary support or, if specifically so identified, are likely to have evidentiary |  |
|   | support after a reasonable opportunity for further investigation or discovery."       |  |
|   | S.D. Codified Laws § 15-6-11(b).  |  |
| Authentication or   | "To satisfy the requirement of authenticating or identifying an item of evidence,     |  |
| Chain of Custody:   | the proponent must produce evidence sufficient to support a finding that the item     |  |
|   | is what the proponent claims it is." S.D. Codified Laws § 19-19-901.                  |  |
| Expert Testimony:   | Daubert standard. See State v. Hofer, 512 N.W.2d 482, 484 (S.D. 1994).                |  |
| 1 0   |   |  |

## Tennessee



| Collection of Information:                                       |   |  |
|--|---|--|
| Ag-Gag Law:  | <ul> <li>"A person commits an offense if, without the consent of the owner, the person</li> <li> enters or remains on an animal facility with the intent to disrupt or damage</li> <li>the enterprise conducted at the animal facility, and the person:</li> <li>(A) Had notice that the entry was forbidden;</li> <li>(B) Knew or should have known that the animal facility was or had closed to</li> <li>the public; or</li> <li>(C) Received notice to depart but failed to do so." Tenn. Code Ann. § 39-14-803.</li> </ul>   |  |
| Drone Law:   | See infra "Drone Laws."   |  |
| <b>Trespass Laws:</b>  |   |  |
| Criminal Liability<br>for Trespass<br>Despite Lack of<br>Notice: | Yes. Entry of private land without the owner's consent constitutes trespass. <i>See</i> Tenn. Code Ann. § 39-14-405. Consent is inferred when the "owner has communicated [her] intent that the property be open to the general public." <i>Id.</i>   |  |
| Other Provisions:  | See infra "Drone Laws."   |  |
| <b>Drone Laws:</b>   |   |  |
| Law:   | <ul> <li>"(a) Subject to the exceptions set forth in § 39-13-902(a), a person commits an offense if the person: <ul> <li>(1) Uses an unmanned aircraft to capture an image of an individual or privately owned real property in this state with the intent to conduct surveillance on the individual or property captured in the image;</li> <li>(6)(A) Without the business operator's written consent, knowingly uses an unmanned aircraft within two hundred fifty feet (250') of the perimeter of any critical infrastructure facility for the purpose of conducting surveillance of, gathering evidence or collecting information about, or photographically or electronically recording, critical infrastructure data." Tenn. Code Ann. § 39-13-903.</li> </ul> </li> <li>"Critical infrastructure facility" includes, but is not limited to facilities that manufacture, store, process, treat, or transmit chemicals, oil, gas, electricity, and water. <i>Id.</i></li> </ul> |  |
| Exception:   | "(C) This subdivision (a)(6) shall not prohibit an unmanned aircraft system from operating for commercial purposes in compliance with authorization granted by the Federal Aviation Administration." Tenn. Code Ann. § 39-13-903.   |  |
| Exception:   | <ul> <li>"(a) Notwithstanding § 39-13-903, it is lawful to capture an image using an unmanned aircraft in this state:</li> <li>(9) If the image is captured by state or local law enforcement authorities, or a person who is under contract with or otherwise acting under the direction or on behalf of state authorities, for the purpose of:</li> <li>(C) Conducting routine air quality sampling and monitoring, as provided by state or local law;</li> </ul>   |  |

|                     | (10) At the scene of a spill, or a suspected spill, of hazardous materials."   |  |
|---------------------|--|--|
|                     | Tenn. Code Ann. § 39-13-902.   |  |
| Trespass Law:       | "(a) A person commits criminal trespass if the person enters or remains on   |  |
|                     | property, or any portion of property, without the consent of the owner. Consent  |  |
|                     | may be inferred in the case of property that is used for commercial activity   |  |
|                     | available to the general public or in the case of other property when the owner  |  |
|                     | has communicated the owner's intent that the property be open to the general   |  |
|                     | public.  |  |
|                     | "(d) For purposes of this section, "enter" means intrusion of the entire body or   |  |
|                     | when a person causes an unmanned aircraft to enter that portion of the airspace  |  |
|                     | above the owner's land not regulated as navigable airspace by the federal  |  |
|                     | aviation administration." Tenn. Code Ann. § 39-14-405.   |  |
| Stalking Laws:      |  |  |
| Criminal Law:       | harassment of another individual that would cause a reasonable person to feel<br>terrorized, frightened, intimidated, threatened, harassed, or molested, and that<br>actually causes the victim to feel terrorized, frightened, intimidated, threatened,<br>harassed, or molested; |  |
|                     |  |  |
|                     | (D)<br>(1) A person commits on offense who intentionally encages in stalling   |  |
|                     | (1) A person commus an offense who intentionally engages in starking.  |  |
|                     | (2) Starking is a Class A misdemeanor.   |  |
|                     | Tenn. Code Ann. § 39-17-315.   |  |
| Civil Law:          | "(a) There is hereby created a civil cause of action for malicious harassment.   |  |
|                     | (b) A person may be liable to the victim of malicious harassment for both special and general damages, including, but not limited to, damages for emotional  |  |
|                     | distress, reasonable attorney's fees and costs, and punitive damages." Tenn.   |  |
|                     | Code Ann. § 4-21-701.  |  |
| Use of Information: |  |  |
| Although our resear | ch is incomplete, these provisions address the use of information collected by   |  |
| citizens.           |  |  |
| Explicitly          | "[A]n image captured in violation of § 39-13-903, (1) May not be used as   |  |
| Prohibits:          | evidence in any criminal or juvenile proceeding, civil action, or administrative   |  |
|                     | proceeding." Tenn. Code Ann. § 39-13-905.  |  |
| Evidentiary Standa  | ard:   |  |
| Pleading a Claim:   | Requires certification that "the allegations and other factual contentions have  |  |
|                     | evidentiary support or, if specifically so identified, are likely to have evidentiary  |  |
|                     | support after a reasonable opportunity for further investigation or discovery."  |  |
| A (1 (* (*          | Tenn. R. Civ. P. 11.02.  |  |
| Authentication or   | The requirement of authentication or identification as a condition precedent to  |  |
| Chain of Custody:   | admissibility is satisfied by evidence sufficient to the court to support a finding  |  |
|                     | Tenn R Evid 901  |  |
| Expert Testimony    | Daubert standard is instructive See McDaniel v CSY Transp. Inc. 055 S W 2d   |  |
| Expert resumony.    | 257 265 (Tenn 1997)  |  |
|                     | 201, 200 (Tohn: 1777).   |  |

### Texas

| Trespass Laws:   |   |  |
|--|---|--|
| Criminal Liability<br>for Trespass<br>Despite Lack of<br>Notice: | No. In order to commit criminal trespass, a person must "ha[ve] notice that [her] entry was forbidden." Tex. Penal Code Ann. § 30.05.   |  |
| Other Provisions:  | Trespass against a "critical infrastructure facility" or a superfund site carries a heightened penalty. Tex. Penal Code § $30.05(d)(3)$ . Critical infrastructure facility is defined as "a chemical manufacturing facility; a refinery; an electric power generation facility or distribution facility; a water intake structure, water treatment facility, wastewater treatment plant, or pump station; a natural gas transmission compressor station; a liquid natural gas terminal or storage facility; a freight transportation facility; [or] a gas processing plant, including a plant used in the processing, treatment, or fractionation of natural gas[.]" Tex. Penal Code Ann. § $30.05(7)$ .  |  |
| Drone Laws:  |   |  |
| Law:   | "A person commits an offense if the person intentionally or knowingly:<br>(1) operates an unmanned aircraft over a critical infrastructure facility and the<br>unmanned aircraft is not higher than 400 feet above ground level;<br>(2) allows an unmanned aircraft to make contact with a critical infrastructure<br>facility, including any person or object on the premises of or within the facility;<br>or<br>(3) allows an unmanned aircraft to come within a distance of a critical<br>infrastructure facility that is close enough to interfere with the operations of or<br>cause a disturbance to the facility." Tex. Gov't Code Ann. § 423.0045.<br>"Critical infrastructure facility" includes, but is not limited to facilities that<br>manufacture, store, process, treat, or transmit chemicals, oil, gas, electricity, and<br>water "if completely enclosed by a fence or other physical barrier that is<br>obviously designed to exclude intruders, or if clearly marked with a sign or signs<br>that are posted on the property, are reasonably likely to come to the attention of<br>intruders, and indicate that entry is forbidden:"; or "any portion of an<br>aboveground oil, gas, or chemical pipeline that is enclosed by a fence or other<br>physical barrier that is obviously designed to exclude intruders." <i>Id</i> . |  |
| Exception:   | The prohibition "does not apply to [drone use] that is committed by: (9) an operator of an unmanned aircraft that is being used for a commercial purpose, if the operator is authorized by the Federal Aviation Administration to conduct   |  |
| Stalking Laws  | operations over that an space. Tex. Gov t Code Ann. § 423.0045.   |  |
| Criminal Law:  | (a) A person commits an offense if the person, on more than one occasion and pursuant to the same scheme or course of conduct that is directed specifically at  |  |

another person, knowingly engages in conduct that:

|                           | (1) constitutes an offense under Section 42.07, or that the actor knows or        |  |  |  |
|---------------------------|---|--|--|--|
|                           | reasonably should know the other person will regard as threatening:               |  |  |  |
|                           | (A) bodily injury or death for the other person;                                  |  |  |  |
|                           | (B) bodily injury or death for a member of the other person's family or           |  |  |  |
|                           | household or for an individual with whom the other person has a dating            |  |  |  |
|                           | relationship: or  |  |  |  |
|                           | (C) that an offense will be committed against the other person's property:        |  |  |  |
|                           | (2) causes the other person, a member of the other person's family or             |  |  |  |
|                           | household or an individual with whom the other person has a dating relationship   |  |  |  |
|                           | to be placed in fear of bodily injury or death or in fear that an offense will be |  |  |  |
|                           | committed against the other person's property or to feel barassed approved        |  |  |  |
|                           | alarmed abused tormented embarrassed or offended and                              |  |  |  |
|                           | (3) would cause a reasonable person to fear:                                      |  |  |  |
|                           | $(\Delta)$ fear bodily injury or death for himself or herself:                    |  |  |  |
|                           | (B) fear bodily injury or death for a member of the person's family or            |  |  |  |
|                           | household or for an individual with whom the person has a dating relationship:    |  |  |  |
|                           | or  |  |  |  |
|                           | (C) fear that an offense will be committed against the person's property: or      |  |  |  |
|                           | (D) feel barassed annoved alarmed abused tormented embarrassed or                 |  |  |  |
|                           | offended " Tex Penal Code Ann. 8 42 072   |  |  |  |
| Civil I ow:               | "A defendant is liable as provided by this chapter to a claimant for demages      |  |  |  |
| CIVII Law.                | A defendant is hable, as provided by this chapter, to a chammant for damages      |  |  |  |
|                           | Code 8 85 002   |  |  |  |
| Use of Information        | Code § 85.002.  |  |  |  |
| Although our resear       | •   |  |  |  |
| citizens.                 | ch is incomplete, these provisions address the use of information confected by    |  |  |  |
| Explicitly Allows:        | The Texas Commission on Environmental Quality (CEQ) may use "information          |  |  |  |
|                           | provided by [a] private individual" if the executive director judges it to be "of |  |  |  |
|                           | sufficient value and credibility to warrant the initiation of an enforcement      |  |  |  |
|                           | action." 30 Tex. Admin. Code § 70.4.  |  |  |  |
| Prohibitive by            | "[I]f [CEQ] relies on any physical or sampling data submitted by an individual    |  |  |  |
| Effect:                   | to prove one or more elements of an enforcement case, such data must have been    |  |  |  |
|                           | collected or gathered in accordance with relevant agency protocols. The           |  |  |  |
|                           | individual submitting the physical or sampling data must be willing to submit a   |  |  |  |
|                           | sworn affidavit demonstrating that the individual followed relevant agency        |  |  |  |
|                           | protocols when collecting the data." 30 Tex. Admin. Code § 70.4.                  |  |  |  |
| <b>Evidentiary Standa</b> | ards:   |  |  |  |
| Pleading a Claim:         | Requires certification that the claim "is not groundless." Tex. R. Civ. P. 13.    |  |  |  |
| Authentication or         | "To satisfy the requirement of authenticating or identifying an item of evidence, |  |  |  |
| Chain of Custody:         | the proponent must produce evidence sufficient to support a finding that the item |  |  |  |
|                           | is what the proponent claims it is." TX R EVID Rule 901.                          |  |  |  |
| Expert Testimony:         | Daubert standard is instructive. See E.I. du Pont de Nemours & Co. v.             |  |  |  |
|                           | Robinson, 923 S.W.2d 549, 557 (Tex. 1995).  |  |  |  |

## Utah



| Collection of Information:                                       |  |  |  |
|--|--|--|--|
| Ag-Gag Law:  | <ul> <li>"A person is guilty of agricultural operation interference if the person: <ul> <li>(a) without consent from the owner of the agricultural operation, or the owner's agent, knowingly or intentionally records an image of, or sound from, the agricultural operation by leaving a recording device on the agricultural operation;</li> <li>(b) obtains access to an agricultural operation under false pretenses;</li> <li>(c)(i) applies for employment at an agricultural operation;</li> <li>(ii) knows, at the time that the person accepts employment at the agricultural operation, that the owner of the agricultural operation prohibits the employee from recording an image of, or sound from, the agricultural operation;</li> <li>(iii) while employed at, and while present on, the agricultural operation, records an image of, or sound from, the agricultural operation;</li> <li>(d) without consent from the owner of the operation or the owner's agent, knowingly or intentionally records an image of, or sound from, the agricultural operation;</li> <li>(b) obtains access to a agricultural operation and image of, or sound from, the agricultural operation prohibits the employee from recording an image of, or sound from, the agricultural operation;</li> <li>(a) without consent from the owner of the operation or the owner's agent, knowingly or intentionally records an image of, or sound from, an agricultural operation while the person is committing criminal trespass, as described in Section 76-6-206, on the agricultural operation." Utah Code Ann. § 76-6-112 was declared unconstitutional by a federal judge on July 7, 2017. <i>Animal Legal Def. Fund v. Herbert</i>, No. 2: 13-cv-00679-RJS, 2017</li> <li>U.S. Dist. LEXIS 105331 (D. Utah 2017).</li> </ul> </li> </ul> |  |  |
| <b>Trespass Laws:</b>  |  |  |  |
| Criminal Liability<br>for Trespass<br>Despite Lack of<br>Notice: | No. Notice against trespass must be given by "personal communication fencing or other enclosure or [the] posting of signs[.]" Utah Code Ann. § 76-6-206.   |  |  |
| Other Provisions:  | See supra "Ag-Gag Law."  |  |  |
| Stalking Laws:   |  |  |  |
| Criminal Law:  | <ul> <li>"A person is guilty of stalking who intentionally or knowingly engages in a course of conduct directed at a specific person and knows or should know that the course of conduct would cause a reasonable person:</li> <li>(a) to fear for the person's own safety or the safety of a third person; or</li> <li>(b) to suffer other emotional distress." Utah Code Ann. § 76-5-106.5.</li> </ul>   |  |  |
| Use of Information:  |  |  |  |
| Although our researce citizens.                                  | ch is incomplete, these provisions address the use of information collected by   |  |  |
| Explicitly Allows:   | "The Division [of Environmental Quality] will investigate and provide [a] written response to all citizen complaints" that a permit to discharge into state waters has been violated. Utah Admin. Code r. R317-8(1.9).   |  |  |

| Explicitly         | "(1) A law enforcement agency may not obtain, receive, or use data acquired           |  |  |
|--------------------|---|--|--|
| Prohibits:         | through an unmanned aircraft system unless the data is obtained [among others]:       |  |  |
|                    | (c) subject to Subsection (2), from a person who is a nongovernment actor;            |  |  |
|                    | (d) at a testing site   |  |  |
|                    | (2) A nongovernment actor may only disclose data acquired through an                  |  |  |
|                    | unmanned aircraft system to a law enforcement agency if: (a) the data appears to      |  |  |
|                    | pertain to the commission of a crime; or (b) the nongovernment actor believes,        |  |  |
|                    | in good faith, that: (i) the data pertains to an imminent or ongoing emergency        |  |  |
|                    | involving danger of death or serious bodily injury to an individual; and (ii)         |  |  |
|                    | disclosing the data would assist in remedying the emergency.                          |  |  |
|                    | (3) A law enforcement agency that obtains, receives, or uses data acquired under      |  |  |
|                    | Subsection (1)(d) or (e) shall destroy the data as soon as reasonably possible        |  |  |
|                    | after the law enforcement agency obtains, receives, or uses the data." Utah Code      |  |  |
|                    | Ann. § 63G-18-103.  |  |  |
|                    | " 'Nongovernment actor' means a person that is not: (a) an agency department.         |  |  |
|                    | division, or other entity within state government: (b) a person employed by or        |  |  |
|                    | otherwise acting in an official capacity on behalf of the state; (c) a political      |  |  |
|                    | subdivision of the state; or (d) a person employed by or otherwise acting in an       |  |  |
|                    | official capacity on behalf of a political subdivision of the state." Utah Code       |  |  |
|                    | Ann. § 63G-18-102.  |  |  |
|                    | "(1) Except as provided in this section, a law enforcement agency: (a) may not        |  |  |
|                    | use, copy, or disclose data collected by an unmanned aircraft system on a             |  |  |
|                    | person, structure, or area that is not a target; and (b) shall ensure that data       |  |  |
|                    | described in Subsection (1)(a) is destroyed as soon as reasonably possible after      |  |  |
|                    | the law enforcement agency collects or receives the data.                             |  |  |
|                    | (2) A law enforcement agency is not required to comply with Subsection (1) if:        |  |  |
|                    | (a) deleting the data would also require the deletion of data that: (i) relates to    |  |  |
|                    | the target of the operation; and (ii) is requisite for the success of the operation;  |  |  |
|                    | (b) the law enforcement agency receives the data: (ii) from a person who is a         |  |  |
|                    | nongovernment actor;  |  |  |
|                    | (c)(i) the data was collected inadvertently; and (ii) the data appears to pertain     |  |  |
|                    | to the commission of a crime;   |  |  |
|                    | (d)(i) the law enforcement agency reasonably determines that the data                 |  |  |
|                    | pertains to an emergency situation; and (ii) using or disclosing the data would       |  |  |
|                    | assist in remedying the emergency; or   |  |  |
|                    | (e) the data was collected through the operation of an unmanned aircraft              |  |  |
|                    | system over public lands outside of municipal boundaries." Utah Code Ann. §           |  |  |
| <b>F</b>           | 030-18-104.   |  |  |
| Evidentiary Standa | ras:  |  |  |
| Pleading a Claim:  | Requires certification that "the allegations and other factual contentions have       |  |  |
|                    | evidentiary support or, it specifically so identified, are likely to have evidentiary |  |  |
|                    | Support after a reasonable opportunity for further investigation of discovery.        |  |  |
| 1                  |   |  |  |

| Authentication or<br>Chain of Custody: | "To satisfy the requirement of authenticating or identifying an item of evidence,<br>the proponent must produce evidence sufficient to support a finding that the item<br>is what the proponent claims it is." Utah R. Evid. 901. |  |
|--|---|--|
| Expert Testimony:                      | <i>Frye</i> standard, but other standards, similar to <i>Daubert</i> , for novel science. <i>See Alder v. Bayer Corp.</i> , 61 P.3d 1068, 1083–84 (2002).   |  |

## Vermont



| Trespass:  |   |  |  |
|--|---|--|--|
| Criminal Liability   | No. Entry upon property does not constitutes criminal trespass unless "notice   |  |  |
| for Trespass   | against trespass is given by signs or placards so designed and situated as to   |  |  |
| Despite Lack of  | give reasonable notice." Vt. Stat. Ann. tit. 13, § 3705.  |  |  |
| Notice:  |   |  |  |
| Stalking Laws:   |   |  |  |
| Criminal Law:  | "Any person who intentionally stalks another person shall be imprisoned not<br>more than two years or fined not more than \$ 5,000.00, or both." Vt. Stat. Ann.<br>tit. 13, § 1062.   |  |  |
|  | "Stalk' means to engage purposefully in a course of conduct directed at a specific person that the person engaging in the conduct knows or should know would cause a reasonable person to fear for his or her safety or the safety of another or would cause a reasonable person substantial emotional distress." Vt. Stat. Ann. tit. 13, § 1061(4).  |  |  |
| <b>Drone Laws:</b>   |   |  |  |
| "Any use of drones by any person, including a law enforcement agency, shall comply with all applicable Federal Aviation Administration requirements and guidelines." Vt. Stat. Ann. tit. 20,<br>§ 4623(a). |   |  |  |
| Use of Information   | :   |  |  |
| Although our resear  | ch is incomplete, these provisions address the use of information collected by  |  |  |
| citizens.  |   |  |  |
| Explicitly Allows:   | "The [Vermont Department of Environmental Conservation] shall investigate all citizen complaints of a violation of a federally authorized or delegated program and shall respond to known complaints in writing." Vt. Stat. Ann. tit. 10, § 8020.   |  |  |
| Explicitly<br>Prohibits:   | "[L]aw enforcement shall not use a drone or information acquired through the<br>use of a drone for the purpose of investigating, detecting, or prosecuting crime"<br>unless the drone is operated "for a purpose other than the investigation,<br>detection, or prosecution of crime, including search and rescue operations and<br>aerial photography for the assessment of accidents" or pursuant to a warrant. Vt.<br>Stat. Ann. tit. 20, § 4622. "Information or evidence gathered in violation of this<br>section shall be inadmissible in any judicial or administrative proceeding." <i>Id</i> . |  |  |
| Evidentiary Standards:   |   |  |  |
| Pleading a Claim:  | Requires certification that "the allegations and other factual contentions have<br>evidentiary support, or, if specifically so identified, are likely to have evidentiary<br>support after a reasonable opportunity for further investigation or discovery."<br>Vt. R. Civ. P. 11.  |  |  |
| Authentication or  | "The requirement of authentication or identification as a condition precedent to  |  |  |
| Chain of Custody:  | admissibility is satisfied by evidence sufficient to support a finding that the matter in question is what its proponent claims." Vt. R. Evid. 901.   |  |  |

| Expert Testimony: | Daubert standard. | See State v. | Brooks, 643 A.2d 226, 229 (1993). |
|-------------------|-------------------|--------------|-----------------------------------|
|-------------------|-------------------|--------------|-----------------------------------|

| Virginia                 |  |  |
|--------------------------|--|--|
| <b>Ongoing Projects:</b> |  |  |
| State Projects:          | The Virginia Department of Environmental Quality has been tasked with  |  |
|                          | creating a citizen water quality monitoring program and with providing grants to   |  |
|                          | volunteer citizen science groups. See Va. Code Ann. § 62.1-44.19:5.  |  |
| Trespass Laws:           |  |  |
| Criminal Liability       | No. Notice against trespass must be given by signage. Va. Code Ann. § 18.2-  |  |
| for Trespass             | 119.   |  |
| Despite Lack of          |  |  |
| Notice:                  |  |  |
| Other Provisions:        | It is a misdemeanor to shine a light on agricultural property. <i>See</i> Va. Code Ann. § 18.2-121.2.  |  |
| Stalking Laws:           |  |  |
| Criminal Law:            | "Any person, except a law-enforcement officer, as defined in § 9.1-101, and acting in the performance of his official duties, and a registered private investigator, as defined in § 9.1-138, who is regulated in accordance with § 9.1-139 and acting in the course of his legitimate business, who on more than one occasion engages in conduct directed at another person with the intent to place, or when he knows or reasonably should know that the conduct places that other person in reasonable fear of death, criminal sexual assault, or bodily injury to that other person or to that other person's family or household member is guilty of a Class 1 misdemeanor. If the person contacts or follows or attempts to contact or follow the person does not want to be contacted or followed, such actions shall be prima facie evidence that the person intended to place that other person, or reasonably should have known that the other person was placed, in reasonable fear of death, criminal sexual assault, or bodily injury to himself or a family or household member." Va. Code Ann. § 18.2-60.3. |  |
| Civil Law:               | "A victim has a civil cause of action against an individual who engaged in<br>conduct that is prohibited under § 18.2-60.3, whether or not the individual has<br>been charged or convicted for the alleged violation, for the compensatory<br>damages incurred by the victim as a result of that conduct, in addition to the<br>costs for bringing the action. If compensatory damages are awarded, a victim<br>may also be awarded punitive damages." Va. Code Ann. § 8.01-42.3.  |  |
| Drone Laws:              |  |  |
|                          |  |  |

"No locality may regulate the use of a privately owned, unmanned aircraft system as defined in § 19.2-60.1 within its boundaries." Va. Code Ann. § 15.2-926.3.

Governor McAuliffe established a commission in 2015 to track Unmanned Aircraft System technology and provide recommendations to the legislature for further regulations. Va. Exec. Order No. 43 (2015), *available at* <u>https://governor.virginia.gov/newsroom/newsarticle?articleId=8593</u>.

| Use of Information:  |  |  |
|--|--|--|
| ch is incomplete, these provisions address the use of information collected by                 |  |  |
| citizens.  |  |  |
| "The Department of Environmental Quality shall establish a citizen water                       |  |  |
| quality monitoring program to provide technical assistance and may provide                     |  |  |
| grants <sup>130</sup> to support citizen water quality monitoring groups if (i) the monitoring |  |  |
| is done pursuant to a memorandum of agreement with the Department, (ii) the                    |  |  |
| project or activity is consistent with the Department of Environmental Quality's               |  |  |
| water quality monitoring program, (iii) the monitoring is conducted in a manner                |  |  |
| consistent with the Virginia Citizens Monitoring Methods Manual, and (iv) the                  |  |  |
| location of the water quality monitoring activity is part of the water quality                 |  |  |
| control plan required under [a separate provision]." Va. Code Ann. § 62.1-                     |  |  |
| 44.19:5. However, "[t]he results of such citizen monitoring shall not be used in               |  |  |
| any enforcement action." Id.   |  |  |
| Select information shall not be used in enforcement actions. See supra                         |  |  |
| "Explicitly Allows."   |  |  |
| Evidentiary Standards:   |  |  |
| Requires certification that the claim "is well grounded in fact." Va. Code Ann. §              |  |  |
| 8.01-271.1.  |  |  |
| "The requirement of authentication or identification as a condition precedent to               |  |  |
| admissibility is satisfied by evidence sufficient to support a finding that the thing          |  |  |
| in question is what its proponent claims." Va. Sup. Ct. R. 2:901.                              |  |  |
| Other/Statute though Daubert is instructive. See Va. Code Ann. § 8.01-401;                     |  |  |
| John v. Im, 559 S.E.2d 694, 696-97 (2002).   |  |  |
|  |  |  |

<sup>&</sup>lt;sup>130</sup> In summer 2016, the VA DEQ issued a Request for Proposals for grants under this program. *See* 2017 Citizen Water Quality Monitoring Program Grant RFP, Va. DEQ, July 17, 2016, http://www.deq.virginia.gov/Portals/0/DEQ/Water/WaterQualityMonitoring/CitizenMonitoring/2017\_CMG\_RFP.p

<sup>&</sup>lt;u>df</u>. Grants range from \$1,000 - \$10,000.

## Washington



| Collection of Information:  |   |  |  |
|---|---|--|--|
| Explicitly:   | The Washington Department of Ecology (DE) has been directed to use citizen-   |  |  |
| 1 7   | collected water quality information. See Wash Rev. Code § 90.48.570(1)(b).  |  |  |
| <b>Trespass Laws:</b>   |   |  |  |
| Criminal Liability  | No. "A person who enters or remains upon unimproved and apparently unused   |  |  |
| for Trespass  | land, which is neither fenced nor otherwise enclosed in a manner designed to  |  |  |
| Despite Lack of   | exclude intruders, does so with license and privilege unless notice against   |  |  |
| Notice:   | trespass is personally communicated to him or her or unless notice is given   |  |  |
|   | by posting in a conspicuous manner." Wash. Rev. Code § 9A.52.010.   |  |  |
| Stalking Laws:  |   |  |  |
| Criminal Law:   | <ul><li>"A person commits the crime of stalking if, without lawful authority and under circumstances not amounting to a felony attempt of another crime:</li><li>(a) He or she intentionally and repeatedly harasses or repeatedly follows</li></ul>  |  |  |
|   | another person; and   |  |  |
|   | (b) The person being harassed or followed is placed in fear that the stalker  |  |  |
|   | intends to injure the person, another person, or property of the person or of   |  |  |
|   | another person. The feeling of fear must be one that a reasonable person in the   |  |  |
|   | same situation would experience under all the circumstances; and  |  |  |
|   | (c) The stalker either:   |  |  |
|   | (i) Intends to frighten, intimidate, or harass the person; or   |  |  |
|   | (ii) Knows or reasonably should know that the person is afraid, intimidated,  |  |  |
|   | or harassed even if the stalker did not intend to place the person in fear or   |  |  |
| Civil Low   | "In addition to the ariginal genelity growided in DCW 0A 26 080 for committing  |  |  |
| Civil Law:  | a crime of malicious harassment, the victim may bring a civil cause of action for malicious harassment against the harasser. A person may be liable to the victim of malicious harassment for actual damages, punitive damages of up to ten thousand dollars, and reasonable attorneys' fees and costs incurred in bringing the action." Wash. Rev. Code § 9A.36.083. |  |  |
| Miscellaneous Laws:   |   |  |  |
| "While the criminal   | code, particularly the malicious mischief crimes, adequately covers those who   |  |  |
| intentionally and without authority damage or destroy farm animals, the code does not adequately  |   |  |  |
| cover similar misconduct directed against research and educational facilities." Wash. Rev. Code § |   |  |  |
| 9.08.080. This language suggests that there is another provision which protects farm animals or   |   |  |  |
| maybe even farm animal facilities. However, our research has not found any such provision.        |   |  |  |
| Use of Information:   |   |  |  |
| Although our research is incomplete, these provisions address the use of information collected by |   |  |  |
| citizens.   |   |  |  |
| Prohibitive by  | "[D]ata is considered credible data if:   |  |  |
| Effect:   | (a) Appropriate quality assurance and quality control procedures were   |  |  |
|   | tollowed and documented in collecting and analyzing water quality samples;  |  |  |
|   | and   |  |  |

|                        | (d) Sampling and laboratory analysis conform to methods and protocols              |  |  |
|------------------------|--|--|--|
|                        | generally acceptable in the scientific community as appropriate for use in         |  |  |
|                        | assessing the condition of water." Wash. Rev. Code § 90.48.585.                    |  |  |
| Evidentiary Standards: |  |  |  |
| Pleading a Claim:      | Requires certification that the claim "is well grounded in fact." Wash. Super. Ct. |  |  |
|                        | Civ. R. 11.  |  |  |
| Authentication or      | "The requirement of authentication or identification as a condition precedent to   |  |  |
| Chain of Custody:      | admissibility is satisfied by evidence sufficient to support a finding that the    |  |  |
|                        | matter in question is what its proponent claims." Wa. R. Rev. ER 901.              |  |  |
| Expert Testimony:      | Frye standard. See State v. Copeland, 922 P.2d 1304, 1315 (1996); State v.         |  |  |
| - · ·                  | <i>Riker</i> , 869 P.2d 43 (Wash. 1994).   |  |  |

| West Virgi               | nia   |  |
|--------------------------|---|--|
| <b>Ongoing Projects:</b> |   |  |
| State Project:           | The West Virginia Department of Environmental Protection (DEP) runs a volunteer water quality monitoring program: WV Save our Streams. <i>See WV Save Our Streams</i> , W. VA. DEP'T OF ENVTL. PROTECTION, <u>http://www.dep.wv.gov/WWE/getinvolved/sos/Pages/default.aspx</u> (last visited Apr. 10, 2017). Through the program, volunteers monitor macroinvertebrate populations, using them as indicator species for water quality. <i>See id</i> . We were unable to find statutory authorization for the program, which DEP appears to have created on its own initiative. |  |
| <b>Trespass Law:</b>     |   |  |

| <u></u>   |  |  |  |  |
|---|--|--|--|--|
| Criminal Liability  | No. Entry upon property does not constitute criminal trespass unless "notice   |  |  |  |
| for Trespass  | against entering or remaining is either given by actual communication or by  |  |  |  |
| Despite Lack of   | posting, fencing, or cultivation." W. Va. Code § 61-3B-3.  |  |  |  |
| Notice:   |  |  |  |  |
|   |  |  |  |  |
| Stalking Laws:  |  |  |  |  |
| Criminal Law:   | "Any person who repeatedly follows another knowing or having reason to know<br>that the conduct causes the person followed to reasonably fear for his or her<br>safety or suffer significant emotional distress, is guilty of a misdemeanor and, |  |  |  |
|   | upon conviction thereof, shall be incarcerated in the county or regional jail for  |  |  |  |
|   | not more than six months or fined not more than one thousand dollars. or both."  |  |  |  |
|   | W. Va. Code § 61-2-9a.   |  |  |  |
| Use of Information:   |  |  |  |  |
| Although our research is incomplete, these provisions address the use of information collected by |  |  |  |  |
| citizens.   |  |  |  |  |
| Explicitly Allows:  | "In enforcing emission limitations in any rule, including any rule which has been  |  |  |  |
|   | incorporated into the [SIP] by [EPA], any credible evidence may be used by the   |  |  |  |
|   | Director for the purpose of establishing whether a person has violated or is in  |  |  |  |
|   | violation." W. Va. Code R. § 45-38-5.  |  |  |  |
| Prohibitive by  | "[M]onitoring or information gathering methods that produce information  |  |  |  |
| Effect:   | comparable to that produced by any method listed in [40 C.F.R. Pts. 51, 60, 61,  |  |  |  |
|   | 63. 751" is presumptively credible. W. Va. Code R. § 45-38-5   |  |  |  |
| <b>Evidentiary Standa</b>   | ards:  |  |  |  |
| Pleading a Claim:   | Requires certification that "the allegations and other factual contentions have  |  |  |  |
| 0   | evidentiary support or, if specifically so identified, are likely to have evidentiary  |  |  |  |
|   | support after a reasonable opportunity for further investigation or discovery."  |  |  |  |
|   | W Va R Civ P 11  |  |  |  |
| Authentication or   | "To satisfy the requirement of authenticating or identifying an item of evidence   |  |  |  |
| Chain of Custody:   | the proponent must produce evidence sufficient to support a finding that the item  |  |  |  |
| Chain of Custody.   | is what the proponent claims it is." W. Va. R. Evid. 901.  |  |  |  |
| Expert Testimony  | Wilt-Daubert standard, but only for scientific knowledge. See Gentry v   |  |  |  |
| rent resumony.  | Mangum 466 S E 2d 171 185-86 (1995): Wilt v Buracker 443 S E 2d 196 203  |  |  |  |
|   | (1003)   |  |  |  |
|   | (1775).  |  |  |  |

| Wisconsin  | WISCONSIN<br>1848   |
|--|---|
| <b>Ongoing Projects:</b>   |   |
| State Project:   | "The department [of natural resources] shall establish a stream watch program to<br>encourage volunteer activities of the community to monitor and improve<br>stream quality[.]" Wisc. Stat. § 23.094.  |
| <b>Trespass Laws:</b>  |   |
| Criminal Liability<br>for Trespass<br>Despite Lack of<br>Notice: | A person commits trespass by entering the land of another without "express or implied consent[.]" Wisc. Stat. § 943.13. However, this prohibition does not apply to "open land," which is land that is not "in the immediate vicinity[] of a structure or improvement." <i>Id</i> . |
| Other Provisions:  | Trespass against "energy provider property," which is "property that is part of an electric generation, distribution, or transmission system or part of a natural gas distribution system," including decommissioned nuclear power plants, is a felony. Wisc. Stat. § 943.143.      |

| Drone Laws:                            |   |  |  |
|--|---|--|--|
| Drone Law                              | "No person may interfere or attempt to interfere with lawful hunting, fishing, or trapping with the intent to prevent the taking of a wild animal, or intentionally interfere with or intentionally attempt to interfere with an activity associated with lawful hunting, fishing, or trapping, by [p]hotographing, videotaping, audiotaping, or through other electronic means, monitoring or recording the activities of the person." The prohibited conduct explicitly includes "using a drone" to carry out these activities." Wisc. Stat. § 29.083(2).   |  |  |
| Stalking Laws:                         |   |  |  |
| Criminal Law:                          | <ul> <li>"Whoever meets all of the following criteria is guilty of a Class I felony:</li> <li>(a) The actor intentionally engages in a course of conduct directed at a specific person that would cause a reasonable person under the same circumstances to suffer serious emotional distress or to fear bodily injury to or the death of himself or herself or a member of his or her family or household.</li> <li>(b) The actor knows or should know that at least one of the acts that constitute the course of conduct will cause the specific person to suffer serious emotional distress or place the specific person in reasonable fear of bodily injury to or the death of himself or herself or a member of his or her family or household.</li> <li>(c) The actors acts cause the specific person to suffer serious emotional distress or induce fear in the specific person of bodily injury to or the death of himself or herself or a member of bodily injury to or the death of himself or herself or a member of his or her family or household.</li> <li>(c) The actors acts cause the specific person to suffer serious emotional distress or induce fear in the specific person of bodily injury to or the death of himself or herself or a member of bodily injury to act the death of himself or herself or a member of bodily injury to act.</li> </ul> |  |  |
| Use of Information:                    |   |  |  |
| Although our researce citizens.        | ch is incomplete, these provisions address the use of information collected by  |  |  |
| Explicitly Allows:                     | The state Department of Natural Resources has been ordered to create a volunteer water quality monitoring group. <i>See supra</i> "Ongoing Projects."   |  |  |
| Prohibitive by<br>Effect:              | However, to be a part of that group, a would-be citizen scientist must "[a]ttend a department-sponsored training and demonstrate requisite skill in monitoring protocol[,]" Wis. Admin. Code § 192.05, and "register[] with the department." Wis. Admin. Code § 192.06.   |  |  |
| <b>Evidentiary Standa</b>              | urds:   |  |  |
| Pleading a Claim:                      | Requires certification that "[t]he allegations and other factual contentions stated<br>in the paper have evidentiary support or, if specifically so identified, are likely to<br>have evidentiary support after a reasonable opportunity for further investigation<br>or discovery." Wis. Stat § 802.05.  |  |  |
| Authentication or<br>Chain of Custody: | "The requirements of authentication or identification as a condition precedent to<br>admissibility are satisfied by evidence sufficient to support a finding that the<br>matter in question is what its proponent claims." Wis. Stat. § 909.01.   |  |  |
| Expert Testimony:                      | <i>Daubert</i> standard. <i>See</i> Wis. Stat. § 907.02(1); <i>In re Commitment of Alger</i> , 858 N.W.2d 346, 365 (2015).  |  |  |

# Wyoming

#### **Collection of Information:**

| Explicitly               | "A person is guilty of trespassing to unlawfully collect resource data from   |  |  |
|--------------------------|---|--|--|
| Explicitly<br>Prohibits: | "A person is guilty of trespassing to unlawfully collect resource data from<br>private land if he: [e]nters onto private land for the purpose of collecting<br>resource data; and [d]oes not have: [a]n ownership interest in the real<br>property or, statutory, contractual or other legal authorization to enter the private<br>land to collect the specified resource data; or [w]ritten or verbal permission<br>of the owner to enter the private land to collect the specified resource data."<br>Wyo. Stat. Ann. § 6-3-414. Additionally, A person is guilty of trespassing to<br>access adjacent or proximate land if she "[c]rosses private land to access<br>adjacent or proximate land where he collects resource data" and does not have<br>written or verbal permission to do so. <i>Id.</i> These offenses are punishable by up |  |  |
|                          | to one year imprisonment and/or a \$1,000 fine. <i>Id</i> .   |  |  |
|                          |   |  |  |

|                            | "[R]esource data" means "data relating to land or land use including but not          |  |  |  |
|----------------------------|---|--|--|--|
|                            | limited to data regarding agriculture minerals geology history cultural               |  |  |  |
|                            | artifacta archaeology air water soil concernation habitat vagatation or animal        |  |  |  |
|                            | artifacts, archaeology, air, water, soil, conservation, habitat, vegetation or animal |  |  |  |
|                            | species." Id.   |  |  |  |
|                            |   |  |  |  |
|                            | The conduct described above gives rise to civil liability. Wyo. Stat. Ann. § 40-      |  |  |  |
|                            | 27-101.   |  |  |  |
| <b>Place of Collection</b> |   |  |  |  |
| Criminal Liability         | Yes. A person must have "[w]ritten or verbal permission of the owner to               |  |  |  |
| for Trespass               | enter private land to collect resource data." regardless of whether or not            |  |  |  |
| Despite Lack of            | notice against trespass has been given. Wyo Stat Ann 8 6-3-414                        |  |  |  |
| Notice:                    | notice against trespuss has been given. Wyb. Stat. Thin. 3 6 5 111.                   |  |  |  |
| Stalking Laws              |   |  |  |  |
| Staiking Laws.             | (//) A 1 in this  |  |  |  |
| Criminal Law:              | (a) As used in this section:  |  |  |  |
|                            | (1) Course of conduct' means a pattern of conduct composed of a series of             |  |  |  |
|                            | acts over any period of time evidencing a continuity of purpose;                      |  |  |  |
|                            | (ii) 'Harass' means to engage in a course of conduct, including but not limited       |  |  |  |
|                            | to verbal threats, written threats, lewd or obscene statements or images,             |  |  |  |
|                            | vandalism or nonconsensual physical contact, directed at a specific person or the     |  |  |  |
|                            | family of a specific person, which the defendant knew or should have known            |  |  |  |
|                            | would cause a reasonable person to suffer substantial emotional distress, and         |  |  |  |
|                            | which does in fact seriously alarm the person toward whom it is directed              |  |  |  |
|                            | which does in fact schodsly alarm the person toward whom it is directed.              |  |  |  |
|                            | <br>(d) Exact as provided under subsection (a) of this section stalking is a          |  |  |  |
|                            | (d) Except as provided under subsection (e) of this section, starking is a            |  |  |  |
|                            | misdemeanor punishable by imprisonment for not more than six (6) months, a            |  |  |  |
|                            | fine of not more than seven hundred fifty dollars (\$750.00), or both."               |  |  |  |
|                            |   |  |  |  |
|                            | Wyo. Stat. Ann. § 6-2-506.  |  |  |  |
| Civil Law:                 | "(a) A person who is the victim of stalking as defined by [Wyoming criminal           |  |  |  |
|                            | law] may maintain a civil action against an individual who engages in a course        |  |  |  |
|                            | of conduct that is prohibited under for damages incurred by the victim as a result    |  |  |  |
|                            | of that conduct. The aggrieved party may also seek and be awarded exemplary           |  |  |  |
|                            | damages, reasonable attorney's fees and costs of the action.                          |  |  |  |
|                            | "(b) A civil action may be maintained under this section whether or not the           |  |  |  |
|                            | individual who is alleged to have engaged in a course of conduct prohibited           |  |  |  |
|                            | under [Wyoming criminal law]has been charged or convicted under for the               |  |  |  |
|                            | alloged grime " Wyo Stat Ann 811126   |  |  |  |
|                            | anegeu chine. wyo. Stat. Ann. y 1-1-120.  |  |  |  |
|                            |   |  |  |  |
| Miccolloncourse            |   |  |  |  |
| Wyoming's data tra         | spass law saa supra "Collection of Information for Traspass]" was passed after        |  |  |  |

Wyoming's data trespass law, *see supra* "Collection of Information [or Trespass]," was passed after the Wyoming Department of Environmental Quality used citizen-collected information to list three streams as impaired. *See* Amended Complaint at 3–4, *Western Watersheds Project, et al. v. Michael, et al.*, No. 2:15-cv-00169-SWS, 2016 W.L. 3681441 (D. Wyo. July 6, 2016). Western Watersheds Project (WWP), joined by other environmental groups, challenged the law as unconstitutional, alleging that it violated the 1st Amendment and the 14th Amendment's equal protection clause. *See*  *Western Watersheds Project v. Michael*, 196 F. Supp. 3d 1231 (D. Wyo. 2016). The court dismissed the case for failure to state a claim. *See id.* at 1248. The plaintiffs have appealed that decision to the Tenth Circuit Court of Appeals. *Western Watersheds Project v. Michael*, Case No. 16-08083 (10th Cir.).

| Use of Information:                    |  |  |  |
|--|--|--|--|
| Although our resear                    | ch is incomplete, these provisions address the use of information collected by   |  |  |
| citizens.                              |  |  |  |
| Explicitly Allows:                     | "Any person at any time may petition the department or the council to change<br>the classification, add or remove a designated use, or establish site-specific<br>criteria on any surface water." Wyo. Admin. Code § ENV WQ Ch. 1 § 33(a).   |  |  |
| Explicitly<br>Prohibits:               | No resource data collected on private land in violation [Wyoming's trespass law, <i>see supra</i> "Trespass"] is admissible in evidence in any civil, criminal or administrative proceeding[.]" Wyo. Stat. Ann. § 6-3-414. Additionally, "[r]esource data collected on private land in violation of [Wyoming's trespass law] in the possession of any governmental entity shall be expunged by the entity from all files and data bases, and shall not be considered in determining any agency action." <i>Id.</i>   |  |  |
| Prohibitive by<br>Effect:              | [A]ll changes to use designations shall include the consideration of credible data relevant to the decision." Wyo. Admin. Code § ENV WQ Ch. 1 § 35(c). Credible data shall "[c]onsist of data collection using accepted referenced laboratory and field methods employed by a person who has received specialized training and has field experience in developing a monitoring plan, a quality assurance plan, and employing the methods outlined in such plans or works under the supervision of a person who has these qualifications. Specialized training includes a thorough knowledge of written sampling protocols and field methods such that the data collection and interpretation are reproducible, scientifically defensible and free from preconceived bias[.]" <i>Id.</i> § 35(a). |  |  |
| Evidentiary Standards:                 |  |  |  |
| Pleading a Claim:                      | Requires certification that "[t]he allegations and other factual contentions have<br>evidentiary support or, if specifically so identified, are likely to have evidentiary<br>support after a reasonable opportunity for further investigation or discovery."<br>Wyo. R. Civ. P. 11.   |  |  |
| Authentication or<br>Chain of Custody: | "The requirement of authentication or identification as a condition precedent to<br>admissibility is satisfied by evidence sufficient to support a finding that the<br>matter in question is what its proponent claims." Wyo. R. Evid. 901.  |  |  |
| Expert Testimony:                      | Daubert standard. See Bunting v. Jamieson, 984 P.2d 467, 471 (Wyo. 1999).  |  |  |

Appendix III: Resources Related to Pollutants Monitored by the EPA

| Resources for Learning About a Pollutant                   |   |  |  |
|--|---|--|--|
| Resources that are Highlighted Report Pollutant Quantities |   |  |  |
| Pollutant Type   | Description   | Description References   |  |
| Air Pollutants   | List of Hazardous Air Pollutants                                | https://www.epa.gov/haps/initial-list-<br>hazardous-air-pollutants-modifications; Clean<br>Air Act Section 112(b)            |  |
|  | National Primary and Secondary<br>Ambient Air Quality Standards | 40 CFR 50  |  |
|  | National Emission Standards for<br>Hazardous Air Pollutants     | https://www.epa.gov/compliance/national-<br>emission-standards-hazardous-air-pollutants-<br>compliance-monitoring; 40 CFR 61 |  |
|  | National Ambient Air Quality<br>Standards Table                 | https://www.epa.gov/criteria-air-<br>pollutants/naaqs-table%20   |  |
| 0  | Class I Controlled Substances                                   | 40 CFR 82, Appendix A to Subpart A   |  |
| Depleting<br>Substances                                    | Class II Controlled Substances                                  | 40 CFR 82, Appendix B to Subpart A   |  |
|  | Listing of Ozone-Depleting<br>Chemicals                         | 40 CFR 82, Appendix F to Subpart A   |  |
| Water Pollutanta   | List of Hazardous Substances                                    | CWA Section 311(b)(4)  |  |
| water Pollutants   | Alphabetical and by CAS number                                  | 40 CFR 116.4   |  |

| Resources for Learning About a Pollutant                         |  |   |  |
|--|--|---|--|
| Resources that are Highlighted Report Pollutant Quantities       |  |   |  |
| <b>Pollutant Type</b>  | Description  | References  |  |
|  | Reportable Quantities of<br>Hazardous Substances Designated<br>Pursuant to Section 311 of the<br>Clean Water Act                                       | 40 CFR 117.3  |  |
|  | Toxic Pollutant Effluent<br>Standards  | 40 CFR 129  |  |
|  | Ground Water Monitoring List   | 40 CFR 264, Appendix IX   |  |
|  | Toxic Pollutant List   | 40 CFR 401.15   |  |
|  | Priority Pollutant List  | 40 CFR 423, Appendix A  |  |
|  | Table of Regulated Drinking<br>Water Contaminants  | https://www.epa.gov/ground-water-and-<br>drinking-water/national-primary-drinking-<br>water-regulations |  |
|  | Maximum Contaminant Levels for Organic Contaminants  | 40 CFR 141.61   |  |
|  | Maximum Contaminant Levels<br>for Inorganic Contaminants   | 40 CFR 141.62   |  |
| Drinking Water   | Maximum Contaminant Levels<br>for Microbiological Contaminants   | 40 CFR 141.63   |  |
| Standards  | Maximum Contaminant Levels for Disinfection Byproducts   | 40 CFR 141.64   |  |
|  | Maximum Residual Disinfectant<br>Levels  | 40 CFR 141.65   |  |
|  | Maximum Contaminant Levels of Radionuclides  | 40 CFR 141.66   |  |
|  | Monitoring Requirements for<br>Lead and Copper in Tap Water  | 40 CFR 141.86   |  |
|  | Monitoring Requirements for<br>Lead and Copper in Source Water   | 40 CFR 141.88   |  |
|  | Hazardous Wastes from Non-<br>Specific Sources   | 40 CFR 261.31   |  |
| Hazardous  | Hazardous Wastes from Specific<br>Sources  | 40 CFR 261.32   |  |
| Wastes Under the<br>Resource<br>Conservation and<br>Recovery Act | Discarded Commercial Chemical<br>Products, Off-Specification<br>Species, Container Residues, and<br>Spill Residues Thereof (Acute<br>and Toxic Wastes) | 40 CFR 261.33   |  |
|  | Hazardous Constituents List  | 40 CFR 261, Appendix VIII   |  |
|  | Wastes Excluded from Specific Sources  | 40 CFR 261, Appendix IX, Table 1  |  |

| Resources for Learning About a Pollutant                   |                                  |                            |  |
|--|----------------------------------|----------------------------|--|
| Resources that are Highlighted Report Pollutant Quantities |                                  |                            |  |
| Pollutant Type   | Description                      | References                 |  |
| Hazardous  |                                  |                            |  |
| Substances Under   |                                  |                            |  |
| the  |                                  |                            |  |
| Comprehensive  | List of Hazardous Substances and | 40 CER 302 4               |  |
| Environmental  | Their Reportable Quantities      | 40 CI K 502.4              |  |
| Response,  |                                  |                            |  |
| Compensation,  |                                  |                            |  |
| and Liability Act  |                                  |                            |  |
| Extremely  | The List of Extremely Hazardous  |                            |  |
| Hazardous  | Substances and Their Threshold   | 40 CFR 355, Appendix A – B |  |
| Substances Under   | Planning Quantities              |                            |  |
| the Emergency  |                                  |                            |  |
| Planning and   | Alphabatical by CAS number       |                            |  |
| Community  | and chemical category            | 40 CFR 372.65              |  |
| Right-to-Know  | and chemical category            |                            |  |
| Act  |                                  |                            |  |

| Resources for Learning About a Pollutant Source |  |   |  |
|---|--|---|--|
| Category  | Description  | References  |  |
| General:<br>EPA                                 | Description of how the EPA measures compliance   | https://www.epa.gov/compliance/<br>how-we-monitor-compliance/                       |  |
| Compliance                                      | Compilation of EPA Compliance Records  | https://echo.epa.gov/   |  |
|   | Compilation of EPA Resources   | https://www.epa.gov/caa-<br>permitting/caa-permitting-tools-<br>related-resources   |  |
|   | Title V Permits: General Information   | https://www.epa.gov/title-v-<br>operating-permits                                   |  |
|   | <u>Title V Permits</u> : Who has to obtain a Title V<br>Permit?  | https://www.epa.gov/title-v-<br>operating-permits/who-has-<br>obtain-title-v-permit |  |
|   | Title V Permits: EPA Issued Operating Permits  | https://www.epa.gov/title-v-<br>operating-permits/epa-issued-<br>operating-permits  |  |
|   | <u>Title V Permits</u> : Links to Resources of Regional<br>Office Websites   | https://www.epa.gov/caa-<br>permitting  |  |
|   | Integrated Compliance Information System - Air<br>(ICIS-AIR): a. "ICIS-AIR contains compliance and<br>permit data for stationary sources of air pollution<br>(such as electric power plants, steel mills, factories,<br>and universities) regulated by EPA, state and local<br>air pollution agencies. The information in ICIS-AIR<br>is used by the states to prepare State<br>Implementation Plans (SIPs) and to track the<br>compliance status of point sources with various<br>regulatory programs under Clean Air Act." | https://www.epa.gov/enviro/icis-<br>air-search                                      |  |
| Clean Water                                     | National Pollutant Discharge Elimination System<br><u>General Permit Inventory</u> : "This search tool allows<br>users to search for NPDES general permits by<br>permit number, permit name, state, EPA region,<br>date issued, date expired, or permit category."   | https://ofmpub.epa.gov/apex/aps/<br>f?p=GPWI:HOME:                                  |  |
|   | Permit Compliance System - Integrated Compliance<br>Information (PCS-ICIS): a. "This search allows you<br>to retrieve selected data regarding facilities<br>registered with the federal enforcement and<br>compliance (FE&C) and holding National Pollutant<br>Discharge Elimination System (NPDES) permits."  | https://www.epa.gov/enviro/pcs-<br>icis-search                                      |  |
|   | Clean Water Act DMR Pollutant Loading Tool:<br>"This tool helps users determine who is<br>discharging, what pollutants they are discharging<br>and how much, and where they are discharging."  | https://cfpub.epa.gov/dmr/  |  |

#### Appendix IV: Public Compliance and Permit Records

| Resources for Learning About a Pollutant Source    |  |  |  |
|--|--|--|--|
| Category   | Description  | References   |  |
|  | The Assessment TMDL Tracking &<br>Implementation System (ATTAINS): "Provides<br>information reported by the states to EPA about the<br>conditions in their surface waters and allows users<br>to view tables and charts summarizing state-<br>reported data for the nation as a whole, individual<br>states, individual waters and the 10 EPA regions."  | https://www.epa.gov/waterdata/a<br>ssessment-and-total-maximum-<br>daily-load-tracking-and-<br>implementation-system-attains |  |
| Clean<br>Drinking<br>Water                         | Consumer Confidence Reports  | https://ofmpub.epa.gov/apex/safe<br>water/f?p=136:102:::::)  |  |
|  | Safe Drinking Water Information System (SDWIS):<br>"Contains information about public water systems<br>and their violations of EPA's drinking water<br>regulations. Searching SDWIS will allow you to<br>locate your drinking water supplier and view its<br>violations and enforcement history for the last ten<br>years."  | https://www.epa.gov/enviro/sdwi<br>s-search  |  |
|  | General Permitting Resources   | https://www.epa.gov/hwpermitti<br>ng   |  |
| Resource<br>Conservation<br>and<br>Recovery<br>Act | Hazardous Waster Permitting in Your State:<br>Provides "a map and an alphabetically linked list of<br>state hazardous waste permit websites In some<br>cases, states have posted lists of permitted<br>treatment, storage and disposal facilities (TSDFs)."  | https://www.epa.gov/hwpermitti<br>ng/hazardous-waste-permitting-<br>your-state)  |  |
|  | Resource Conservation and Recovery Act<br>Information (RCRAInfo): a. "You may use the<br>RCRAInfo Search to determine identification and<br>location data for specific hazardous waste handlers,<br>and to find a wide range of information on<br>treatment, storage, and disposal facilities regarding<br>permit/closure status, compliance with Federal and<br>State regulations, and cleanup activities." | https://www3.epa.gov/enviro/fac<br>ts/rcrainfo/search.html   |  |

| Resources for Learning About a Pollutant Source |  |  |  |
|---|--|--|--|
| Category  | Description  | References   |  |
|   | Toxics Release Inventory (TRI): "The Toxics<br>Release Inventory (TRI) tracks the management of<br>over 650 toxic chemicals that pose a threat to<br>human health and the environment. U.S. facilities in<br>certain industry sectors that manufacture, process,<br>or otherwise use these chemicals in amounts above<br>established levels must report how each chemical is<br>managed through recycling, energy recovery,<br>treatment, and releases to the environment. A<br>"release" of a chemical means that it is emitted to<br>the air or water, or placed in some type of land<br>disposal. The information submitted by facilities to<br>the EPA and states is compiled annually as the<br>Toxics Release Inventory or TRI."   | https://www.epa.gov/toxics-<br>release-inventory-tri-program |  |
| Other<br>Resources                              | <u>Biennial Reports Search</u> : "The Hazardous Waste<br>Report (Biennial Report) collects data on the<br>generation, management, and minimization of<br>hazardous waste. This provides detailed data on the<br>generation of hazardous waste from large quantity<br>generators and data on waste management practices<br>from treatment, storage, and disposal facilities. The<br>Biennial Report data provide a basis for trend<br>analyses. Data about hazardous waste activities is<br>reported for odd number years (beginning with<br>1989) to EPA. EPA then provides reports on<br>hazardous waste generation and management<br>activity that accompany the data files. You may use<br>a variety of data retrieval options in the BR Search<br>to search for other facilities that interest you." | <u>https://www.epa.gov/enviro/br-search</u>                  |  |
|   | <u>Envirofacts</u> : Provides links to various public databases. Also provides a search functionality that incorporates various databases into one.  | https://www3.epa.gov/enviro/                                 |  |

| Resources Related to EPA Reference Methods, Standard Protocols, Etc. |                                  |   |   |
|--|----------------------------------|---|---|
| Sample<br>Type   | Sample<br>Subcategory            | Description   | References  |
| All  | -                                | General Resources   | https://www.epa.gov/measurements/<br>collection-methods; Index to EPA<br>Test Methods (April 2003 Revised)  |
| Air  | Source<br>Emission<br>Methods    | <u>Promulgated Methods</u> : those that<br>have been promulgated in the<br>Federal Register and <u>Codified in</u><br><u>the CFR</u> (Method - #)   | https://www.epa.gov/emc/emc-<br>promulgated-test-methods; 40 CFR<br>51, Appendix M; 40 CFR 60,<br>Appendix A, Appendix B, Appendix<br>F, Appendix J; 40 CFR 61,<br>Appendix B; 40 CFR 63, Appendix<br>A |
|  |                                  | <u>Proposed Methods</u> : those that<br>have been published in the<br>Federal Register as proposed<br>rules, but have not yet been<br>promulgated   | https://www.epa.gov/emc/emc-<br>proposed-test-methods   |
|  |                                  | <u>Approved Alternative</u> : those<br>approved under 40 CFR Parts<br>60, 601, and 63 (ALT - #)   | https://www.epa.gov/emc/broadly-<br>applicable-approved-alternative-test-<br>methods  |
|  |                                  | <u>Conditional Methods</u> : methods<br>that were at one point labeled<br>this way, so they have remained<br>so for consistency (CTM - #)   | https://www.epa.gov/emc/emc-<br>conditional-test-methods  |
|  |                                  | Other Methods: methods which<br>have not yet been subject to the<br>federal rulemaking process<br>(Premiliminary Methods [PRE -<br>#]; Preliminary Performance<br>Specification [PPS - #]; and<br>Other Test Methods [OTM - #]) | https://www.epa.gov/emc/emc-other-<br>test-methods  |
|  | Ambient<br>Monitoring<br>Methods | <u>Criteria Pollutants</u> : TSP,<br>Particulate Matter – PM10,<br>Particulate Matter – PM2.5,<br>Particulate Matter – PM10-2.5,<br>SO2, O3, CO, NO2, Pb  | List of Designated Reference and<br>Equivalent Methods (Dec. 2016)  |
|  |                                  | <u>Air Toxins - Inorganic</u><br><u>Compendium</u> (Method IO - #)  | https://www3.epa.gov/ttn/amtic/inor<br>g.html   |
|  |                                  | <u>Air Toxins - Organic</u><br><u>Compendium</u> (Method IO - #)  | https://www3.epa.gov/ttn/amtic/airto<br>x.html#compendium   |

#### Appendix V: EPA Reference Methods, Standard Protocols, Etc.
| <b>Resources Related to EPA Reference Methods, Standard Protocols, Etc.</b> |  |  |   |
|---|--|--|---|
| Sample<br>Type  | Sample<br>Subcategory                      | Description  | References  |
| Water   | Drinking<br>Water<br>Analytical<br>Methods | Disinfection Byproduct Rules   | https://nepis.epa.gov/Exe/ZyPDF.cgi<br>?Dockey=P100PHKC.txt; 40 CFR<br>141.131; 40 CFR Part 141, Appendix<br>A of Subpart C   |
|   |  | <u>Alternative Testing Methods</u> :<br>methods which have been<br>approved under the Safe<br>Drinking Water Act | http://www.ecfr.gov/cgi-<br>bin/retrieveECFR?gp=1&SID=3dd5<br>22e2d428d7cb3b40da85488eb956&t<br>y=HTML&h=L&mc=true&r=APPE<br>NDIX&n=ap40.25.141_129.a; 40<br>CFR 40 CFR 141, Appendix A of<br>Subpart C   |
|   |  | Ground Water Rule  | https://www.epa.gov/sites/productio<br>n/files/2017-<br>02/documents/gwr_approved_metho<br>ds.pdf; 40 CFR 40 CFR 141,<br>Appendix A of Subpart C  |
|   |  | Inorganic Contaminants and<br>Other Inorganic Constituents   | https://nepis.epa.gov/Exe/ZyPDF.cgi<br>?Dockey=P100PHGZ.txt; 40 CFR<br>141.23; 40 CFR 141, Appendix A to<br>Subpart C   |
|   |  | Long Term 2 Enhanced Surface<br>Water Treatment Rule   | https://www.epa.gov/sites/productio<br>n/files/2015-<br>09/documents/methods_lt2.pdf;<br>methods for Cryptosporidium are<br>listed at 40 CFR 141.704, methods<br>for enumeration of E. coli in source<br>water are listed in Table 1H at 40<br>CFR 136.3(a) and the methods for<br>turbidity are listed at 40 CFR 141.74.<br>Additional methods are listed in 40<br>CFR 141, Appendix A to Subpart C.<br>The monitoring requirements for<br>these contaminants are specified in<br>40 CFR 141.701-703 |
|   |  | Organic Contaminants   | https://nepis.epa.gov/Exe/ZyPDF.cgi<br>?Dockey=P100PHJC.txt; 40 CFR 40<br>CFR 141, Appendix A to Subpart C  |
|   |  | Radionuclides  | https://nepis.epa.gov/Exe/ZyPDF.cgi<br>?Dockey=P100PHIN.txt; 40 CFR<br>141.25; 40 CFR 40 CFR 141,<br>Appendix A to Subpart C  |
|   |  | Revised Total Coliform Rule  | https://www.epa.gov/sites/productio<br>n/files/2017-<br>02/documents/rtcr_approved_metho<br>ds.pdf; 40 CFR 141.852(a)(5); 40<br>CFR 141, Appendix A to Subpart C  |

| <b>Resources Related to EPA Reference Methods, Standard Protocols, Etc.</b> |                              |  |  |
|---|------------------------------|--|--|
| Sample<br>Type  | Sample<br>Subcategory        | Description  | References   |
|   |                              | Secondary Contaminants   | https://nepis.epa.gov/Exe/ZyPDF.cgi<br>?Dockey=P100PHL2.txt; methods<br>for copper, fluoride and pH are listed<br>in 40 CFR 141.23; methods for the<br>remaining contaminants are in 40<br>CFR 143.440; CFR 40 CFR 141,<br>Appendix A to Subpart C |
|   |                              | Surface Water Treatment<br>Methods   | https://www.epa.gov/sites/productio<br>n/files/2017-<br>02/documents/swtr_approved_metho<br>ds.pdf; 40 CFR 141.74(a)(1); 40<br>CFR 141, Appendix A to Subpart C<br>Appendix A  |
|   |                              | <u>Chemical Methods</u> : Inorganic<br>Non-Metals  | https://www.epa.gov/cwa-<br>methods/approved-cwa-test-<br>methods-inorganic-non-metals; 40<br>CFR 136; 40 CFR 401 – 503  |
|   |                              | Chemical Methods: Metals   | https://www.epa.gov/cwa-<br>methods/approved-cwa-test-<br>methods-metals; 40 CFR 136; 40<br>CFR 401 - 503  |
|   |                              | Chemical Methods: Organic  | https://www.epa.gov/cwa-<br>methods/approved-cwa-test-<br>methods-organic-compounds; 40<br>CFR 136; 40 CFR 401 - 503   |
|   | Act<br>Analytical<br>Methods | Microbial Methods: wastewater<br>and sewage sludge and ambient<br>water  | https://www.epa.gov/cwa-<br>methods/approved-cwa-<br>microbiological-test-methods; 40<br>CFR 136; 40 CFR 401 - 503   |
|   |                              | <u>Whole Effluent Toxicity</u><br><u>Methods</u> : acute, chronic<br>freshwater, and chronic<br>marine/estuarine | https://www.epa.gov/cwa-<br>methods/whole-effluent-toxicity-<br>methods; 40 CFR 136.3, Table 1A  |
|   |                              | Radiochemical Methods  | https://www.epa.gov/cwa-<br>methods/approved-cwa-<br>radiochemical-test-methods; 40 CFR<br>136; 40 CFR 401 – 503   |
|   |                              | Industry-Specific Methods  | https://www.epa.gov/cwa-<br>methods/approved-industry-specific-<br>cwa-test-methods  |
| Other Clean<br>Water Act<br>Methods   | Other Clean                  | Chemical Methods   | https://www.epa.gov/cwa-<br>methods/other-clean-water-act-test-<br>methods-chemical  |
|   | Microbial Methods            | https://www.epa.gov/cwa-<br>methods/other-clean-water-act-test-<br>methods-microbiological                       |  |

| Resources Related to EPA Reference Methods, Standard Protocols, Etc. |                       |                                    |  |
|--|-----------------------|------------------------------------|--|
| Sample<br>Type   | Sample<br>Subcategory | Description                        | References   |
|  |                       | <u>Biosolids</u>                   | https://www.epa.gov/cwa-<br>methods/other-clean-water-act-test-<br>methods-biosolids                   |
|  | Unapproved            | Environmental Chemistry<br>Methods | https://www.epa.gov/pesticide-<br>analytical-methods/environmental-<br>chemistry-methods-ecm-index-0-9 |
| Solid<br>Waste and<br>Emergency<br>Response                          | Approved              | SW-846 Methods                     | https://www.epa.gov/hw-sw846/sw-<br>846-compendium   |
|  | Unapproved            | Validated Methods                  | https://www.epa.gov/hw-<br>sw846/validated-test-methods-<br>recommended-waste-testing                  |

# Texas Appendix to A Manual For Citizen Scientists Starting Or Participating In Data Collection And Environmental Monitoring Projects<sup>1</sup>

In the wake of Hurricane Harvey, this Appendix is designed to support citizens who are interested in researching and responding to the public health and environmental health effects of the hurricane.

Citizen science, in which ordinary citizens collect, generate, and distribute information, either for educational purposes or to respond to environmental and public health issues, can play a significant role in understanding and responding to the impacts of events like Hurricane Harvey. Whether working alone or in coordination with professional scientists, organizations, or government agencies, citizen scientists can assist in activities such as: monitoring environmental and public health conditions, verifying reported releases of pollutants, identifying environmental and public health concerns, redressing known problems, and identifying sources of concern.

Although this Appendix can be read as a standalone document, it is part of a larger Manual for Citizen Scientists, prepared by Harvard Law School's Emmett Environmental Law & Policy Clinic, which provides more comprehensive background and guidance relevant to the practice of citizen science. The Manual includes chapters that are not duplicated in this appendix regarding:

- 1. Identifying Your Project's Focus and Designing its Approach
- 2. Identifying Your Project's Goal Evaluating Potential Information Uses
- 3. Information Collection Gathering Publicly Available Information
- 4. Information Generation Potential Liability
- 5. Information Generation Design of Sample Collection, Sample Analysis, and Data Interpretation Methodologies
- 6. Information Use Making the Most out of Your Information

This Appendix provides information particularly relevant to citizen scientists operating in Texas and, more specifically, the Houston/Galveston area. For instance, the Appendix includes information about:

**NOTE:** Neither the Manual nor this Appendix is intended to operate as a substitute for legal representation, nor do they create an attorney-client relationship. The Manual and this Appendix generally describe the legal framework within which citizen collection of data and environmental monitoring may occur. They identify legal issues citizens should be aware of and offer general suggestions. However, if you have specific questions or you encounter legal threats in the course of conducting a citizen science project, you should consult a lawyer with expertise in the geographic locale in which you are working. Please understand that laws vary from state to state and from locale to locale. Laws also frequently change so it is important to educate yourself about the current laws in the area in which you plan to work. The Manual and this Appendix will help get you started. Neither the Clinic nor any of the authors assumes any liability for the actions taken (or not taken) by any party in reliance on this manual.

- Ways in which citizen science projects can support the identification and remediation of known or suspected hurricane-related public health or environmental impacts in the Houston/Galveston area.
- Getting involved in ongoing citizen projects related to Hurricane Harvey.
- Texas-specific protocols for gathering and preserving information and evidence about environmental conditions.
- Where to find existing information relevant to public health and the environment, including federal, state, and local agencies responsible for monitoring and responding to threats to public health and the environment.
- Chemicals known or suspected to have been released in the wake of Hurricane Harvey.
- State and local laws that may make it harder for citizens to gather information.
- Accessing technologies and sensors needed to conduct certain citizen science activities.
- A health registry with information for residents about ongoing health risks in the Houston/Galveston area.
- Protecting yourself from exposure to pollutants.

#### I. IDENTIFYING YOUR PROJECT'S FOCUS AND DESIGNING ITS APPROACH

Chapter 1 of the Manual describes the initial steps of a citizen science project, which include: (i) defining your project's focus, *i.e.*, the environmental or public health question or problem you want to address; and (ii) designing your project's approach, including identifying sites of interest to you (*e.g.*, a playground, industrial facility, neighborhood) and pollutant(s) of concern. Here we address potential roles of citizen science in responding to Hurricane Harvey.

You may choose to find and collaborate on pre-existing projects, which may be organized by professional citizen science organizations, neighborhood organizations, or environmental agencies. For example, Air Alliance Houston is active in responding to the impacts of Hurricane Harvey and the <u>SkyTruth Spill Tracker</u> allows citizens to use mobile phones and computer desktops to quickly report oil and hazardous waste spills and other pollution incidents resulting from Hurricane Harvey.

Alternatively, you may decide to design and initiate your own project. You can start by identifying an issue in your community (*e.g.*, groundwater pollution, mold from flooding, contaminated silt), and then develop a plan to collect and analyze samples near potential sources of the problem and exposed populations. You can then use these results for many purposes, including to educate community members and decision-makers, to petition governments to take

action necessary to protect the community both in the short-term and in the future (e.g., initiate cleanup efforts and implement better emergency response plans), or to file lawsuits to enforce environmental laws and ensure remediation.

It is often important after a natural disaster to make a record of impacts that might be hard to measure months or years later. For example, if receding flood waters leave accumulated sludge on sidewalks or on house walls, it is useful to photograph and, where possible, sample the substances before they are removed. Even if you are not yet involved in a particular citizen science project, you can document effects of the hurricane. This Appendix, and the Manual, will help you take these actions in a manner that creates good quality data without exposing yourself to unnecessary legal risks.

Having an example of an environmental or public health problem in mind when reading the Manual and this Appendix may help highlight the relevance and application of the topics discussed. The following are hypothetical scenarios in which citizen science could be used in the wake of Hurricane Harvey:

<u>First Scenario</u>: Imagine that you own a home in Houston that has been flooded. Immediately after Hurricane Harvey, your home was filled with foul-smelling water. The flooding was so extensive that, while wading through your living room and kitchen to collect valuables that escaped the worst damage, a fish brushed by your rubber waders. Now the waters have mostly receded, but they left behind a black or colored sediment, similar to sand, that coats the walls of your house and the sidewalks around your home. Neighborhood children who have been playing in the sediment have developed rashes. A waste water treatment plant a mile from your home flooded during the storm, and you suspect that the sediment contains harmful levels of <u>E. coli</u> contamination in addition to the many possible chemical pollutants that leaked into the Houston area during the storm. How would you design a project to determine whether there are pollutants in the sediment that are causing health impacts? How do you plan to share this information with your neighbors and regulators, or eventually to hold any polluters responsible for their role in creating or contributing to the toxic sediment?

<u>Second Scenario</u>: Imagine that you purchased a home in Galveston a decade ago, and since then you have watched as many of the properties in your neighborhood have been bought by a nearby refinery, chemical manufacturer, or other industrial plant. To expand its operations, the plant owner demolishes the homes and builds over the vacant lots. Your neighborhood did not experience extensive flooding, but the plant owner nonetheless shut down operations and left only a small crew for emergency work during the storm. Plant officials assure you that there have been no leaks or other potentially harmful effects from the storm. However, you have heard that many of the state monitoring systems that normally check for violations of pollution emission standards have been malfunctioning and/or redeployed to other parts of the city where there has been more extensive flooding. In the absence of this monitoring equipment, how would you initiate a project to monitor emissions in your neighborhood associated with the plant's operations?

#### II. IDENTIFYING YOUR PROJECT'S GOAL - EVALUATING POTENTIAL INFORMATION USES

Chapter 2 of the Manual assists you in brainstorming the potential goals of your efforts before you begin collecting existing information or taking samples to create new information. Thinking about who will use the information, and for what purpose, may help you identify what, if any, legal or other quality standards must be met so that you can use the information you collect or generate to meet your goals. How you plan to use information may inform the process you use in collecting, generating, storing, and presenting the data. For example, there are often more stringent standards that would apply if you intend to use your data to support enforcement actions or serve as evidence in lawsuits.

If you are unsure how the information you generate will be used, you may choose to default to following the highest quality standards so that you keep your options open. If, on the other hand, you know that you will be sampling soil or floodwater simply for your own peace of mind, you may find that the quality standards are informative, but not essential.

In addition to the quality assurance and sampling protocols and standards addressed in the Manual, there are specific guidelines relevant to data generation in Texas. For example, the director of the Texas Commission on Environmental Quality (TCEQ) is authorized to initiate an enforcement action based on information provided by a private individual. 30 TEX. ADMIN. CODE §70.4. Enforcement can take the form of either an administrative enforcement action, *i.e.*, a case before the agency, or a lawsuit in court. If you want the information you collect/generate to be eligible to be the basis of an enforcement action, you must follow the applicable TCEQ protocols/guidelines when collecting the information.

Regardless of which protocol applies, there are a few overarching guidelines to keep in mind.

- 1. If a protocol has specific training requirements, you or whoever collects the information must complete that training before submitting information. Although not explicitly required by TCEQ, we suggest completing such training before doing the work addressed by the training, especially if you will be signing an affidavit that your work was done in accordance with a protocol.
- 2. If you collect physical samples, such as soil samples, any analysis of those samples must be completed by a laboratory that follows established protocols to produce scientifically reliable information. A TCEQ list of approved laboratories is available <u>here</u>.
- 3. If you want the agency to use the information you provide as evidence in an enforcement case, you cannot remain anonymous and must complete a notarized affidavit stating that you followed the relevant TCEQ protocols when collecting the data. Your contact information will be handled as confidential, but you must be willing to testify in any formal enforcement hearing about your data collection.
- 4. Following TCEQ's protocols does not authorize you to enter the property of another person for purposes of gathering information.

TCEQ's specific protocols, available on its <u>website</u>, include directives relevant to:

- Documenting outdoor odors causing a nuisance, see <u>Odor Log with Instructions</u>.
- Photographic (digital or non-digital) or video documentation of violations, see *Photographic Documentation Procedures* (PDF version).
- Sampling water quality or water quality indicators in lakes, streams, or other surface water bodies, see *Surface Water Quality Monitoring Procedures Manual*.
- Sampling water quality in a public water supply system (not your private well), see *Public Water Supply Chemical Sampling Procedures* (<u>PDF version</u>).<sup>2</sup>
- Sampling water from wastewater discharge points, see *Water Quality Sampling and Shipping Procedures* in <u>PDF</u>.
- Sampling and analytical methods for hazardous waste, see *Quality Assurance Project Plan for Environmental Monitoring and Measurement Activities Relating to the Resource Conservation and Recovery Act (RCRA) and Underground Injection Control (UIC)* in PDF at: <u>RCRA/UIC QAPP</u>.

If you have questions about which protocol to use for your project, or how to obtain a copy of a protocol, you can call TCEQ at 1-888-777-3186.

EPA standards beyond those discussed in the Manual that may be particularly relevant post-Harvey include those used for:

- Measuring stack opacity (i.e., the degree to which the visibility of background sky is obscured by particulate matter from smoke stacks) using EPA Method 9, Visible Determination of Opacity of Emissions from Stationary Sources or Smoke School—The Visible Emissions Evaluation Certification (VEEC) Program (see <u>Smoke School: Visible Emissions Evaluators</u> or visit the EPA website at <u>www.epa.gov/ttn/emc/</u>).
- Evaluating opacity from fugitive sources (see the EPA website at <u>https://www.epa.gov/emc</u>).
- All other EPA-approved test methods for air quality evaluation (see the EPA website at <u>www.epa.gov/emc/)</u>.

Chapter 5 of the Manual provides additional information on standard good practices for (i) collecting samples, *i.e.*, how will you gather samples of air, water, soil, etc.; (ii) analyzing samples, *i.e.*, how will you examine the samples you collect; and (iii) interpreting data, *i.e.*, how will you interpret the results of your sample analyses.

# III. INFORMATION COLLECTION - GATHERING PUBLICLY AVAILABLE INFORMATION

Rarely do citizen science projects start from scratch; there is likely existing information that will be useful to or support your project. Chapter 3 of the Manual therefore provides guidance on how to acquire publicly available information with respect to pollutants and pollutant sources.

<sup>&</sup>lt;sup>2</sup> For information on disinfecting or sampling water quality in a private well, visit EPA's website at <u>Private</u> <u>Drinking Water Wells</u>.

This information may not be enough to resolve the problem you have identified, but given limited resources (*e.g.*, limited time, finances, volunteer involvement, etc.), it can be a good starting point for answering questions such as:

- What is known about the pollutant or combination of pollutants you will be examining? (*e.g.*, health impacts, stability, detection limits, detection methodologies, environmental baseline levels, reporting thresholds, etc.); and
- What is already known about the source(s) of the pollutant about which you are concerned? (*e.g.*, the source's current permit requirements and compliance records).

This Appendix supplements the Manual by identifying potential sources of information regarding known and suspected releases of chemicals and pollutants that have occurred in the Houston/Galveston area in the wake of Hurricane Harvey, their sources, and their impacts. It includes links to publicly available databases and contacts at federal, state, and local agencies that may have additional relevant data about releases, their sources, and potential impacts.

According to news reports and information reported to the Texas Commission on Environmental Quality, examples of chemicals that are known or suspected to have been released in large quantities during or immediately after Hurricane Harvey include: benzene, 1,3-butadiene, hexane, hydrogen sulfide, sulfur dioxide, toluene, xylene, propane, crude oil, isohutane, carbon monoxide, nitrogen dioxide, acetone, argon, naphthalene, particulate matter, volatile organic compounds, opacity, and dioxins. The following public databases, which are often available online, may be helpful in confirming and obtaining additional information regarding releases and pollutants of concern, areas of concern, and/or sources of concern. Also copied below are several visual representations of locations and potential sources of Hurricane Harvey-related pollution.

- Identifying Potential Sources of Pollution:
  - EPA's <u>Envirofacts</u> website pulls together databases with information about air and water pollution and hazardous waste sites.



Toxic waste sites flooded in the wake of Hurricane Harvey.<sup>3</sup>

- Identifying Releases:
  - The United States Coast Guard (USCG) keeps reports of oil spills, chemical releases, and maritime security incidents that can be found <u>here</u>.



Air pollutants released across the Houston area in the wake of Hurricane Harvey.<sup>4</sup>

<sup>&</sup>lt;sup>3</sup> Troy Griggs, Andrew W. Lehren, Nadja Popovich, Anjali Singhvi & Hiroko Tabuchi, *More Than 40 Sites Released Hazardous Pollutants Because of Hurricane Harvey*, N.Y. TIMES, Sept. 8, 2017, *available at* <u>https://www.nytimes.com/interactive/2017/09/08/us/houston-hurricane-harvey-harzardous-chemicals.html?mcubz=3&\_r=0</u>.



Oil spills and other hazardous releases reported across the Houston area in the wake of Hurricane Harvey.<sup>5</sup>

- Accessing Monitoring Reports:
  - <u>STORET</u>. This EPA database includes water quality monitoring data from many different sources.
  - <u>National Water Information System</u>. The United States Geological Survey puts water quality data for rivers, streams, lakes, and groundwater on this website.
  - <u>EPA's Discharge Monitoring Report (DMR) Pollutant Loading Tool</u> provides access to EPA's Integrated Compliance Information System for the National Pollutant Discharge Elimination System (ICIS-NPDES) to help you determine who is discharging, what pollutants they are discharging and how much, and where they are discharging.
- Identifying Prior Violations:
  - <u>Enforcement and Compliance History Online (ECHO)</u>. This database compiles EPA and state agency inspections, records of violations, and enforcement actions under the Clean Water Act, Clean Air Act, and hazardous waste laws.
  - If you are not sure which pollutant(s) or chemicals are of greatest concern, you can obtain additional information on potential hazards, including health and environmental ones, from sources such as Material Safety Data Sheets.

Additional information beyond that available in public databases may be available from agencies at the federal, state, and local levels. In some instances, agencies will generate data themselves,

<sup>&</sup>lt;sup>5</sup> Id.

but they also are often repositories for monitoring, operating, and emissions data that private companies are required to collect pursuant to federal, state, and local laws and permits.

You can call or write to agencies to ask what information they have, and if appropriate, make an appointment to visit the agency's offices to review their files. If you are unable to obtain information that you think should be available to the public, you can file formal written requests for the material, pursuant to either the federal Freedom of Information Act or the Texas Public Information Act. To assist in this outreach, the following tables provide information about some of the agencies and local governmental bodies that collect or generate environmental and public-health related data in the Houston/Galveston area:

| Agency                  | Contact for Public Record         | Examples of Potentially Relevant             |
|-------------------------|-----------------------------------|--|
|                         | Requests                          | Information                                  |
| Environmental           | Regional FOIA Officer             | EPA collects a wide range of                 |
| Protection Agency       | U.S. EPA, Region 6                | information from regulated facilities,       |
| (EPA) – Region 6        | (6MD-OE)                          | including monitoring, emissions, and         |
| (covering Texas)        | 1445 Ross Avenue                  | chemical storage (EPCRA Tier II)             |
|                         | Dallas, TX 75202-2733             | reports. EPA also conducts its own           |
|                         | Tel: (214) 665-7202               | monitoring and oversees the cleanup of       |
|                         |                                   | Superfund sites.                             |
| Center for Disease      | Roger Andoh                       | The CDC's Emergency Operations               |
| Control and             | FOIA Officer                      | Center maintains a webpage on                |
| <b>Prevention (CDC)</b> | Building 16, D-54                 | Hurricane Harvey with safety tips for        |
|                         | 1600 Clifton Road, N.E.           | post-storm cleanup.                          |
|                         | Atlanta, GA 30333                 |  |
|                         | (770) 488-6399 (Telephone)        | CDC's Dept. of Health and Human              |
|                         | FOIARequests@cdc.gov              | Services has a <u>webpage</u> with resources |
|                         |                                   | for public health crises and tools the       |
|                         |                                   | federal government uses to track them.       |
|                         |                                   |  |
|                         |                                   | CDC's Community Assessment for               |
|                         |                                   | Public Health Emergency Response             |
|                         |                                   | toolkit provides guidelines developing       |
|                         |                                   | and implementing methodologies for           |
|                         |                                   | data collection and analysis.                |
| Federal Emergency       | FEMA Information Management       | FEMA coordinates the federal response        |
| Management              | Division                          | to emergency situations and may              |
| Agency (FEMA)           | FOIA Request                      | receive reports or data on pollutant         |
|                         | 500 C Street, S.W., Mailstop 3172 | releases and public health impacts from      |
|                         | Washington, D.C. 20472            | other agencies. FEMA has a webpage           |
|                         | fema-foia@fema.dhs.gov            | with resources dedicated to Hurricane        |
|                         |                                   | Harvey.                                      |
| Department of           | Patrick McLoughlin                | The Natural Resources and                    |
| Agriculture –           | National FOIA/PA Officer          | Conservation Service maintains               |
| Natural Resources       | USDA, NRCS                        | information on soil, water and air           |
| Conservation            | 375 Jackson St., Suite 600        | quality, wildlife habitat and wetlands       |
| Service (NRCS)          | St. Paul, MN 55101                | preservation, particularly on farmland.      |
|                         | Tel: (202)-590- 6168              |  |

## Table 1: Federal Agencies

| Agency                              | Contact for Public Record        | Examples of Potentially Relevant        |
|-------------------------------------|----------------------------------|---|
|                                     | Patrick meloughlin@wdc.usda.gov  | Information                             |
| United States Fish                  | David Mondias                    | Through the Natural Pasource Damage     |
| ond Wildlife Service                | US Fish and Wildlife Service     | Assessment and Restoration program      |
| (EWS) Design 2                      | U.S. FISH and whome Service      | Assessment and Restoration program,     |
| $(\mathbf{FWS}) = \text{Keglon } 2$ | ESA Litigation/FOIA Coordinator  | the Fish and wildlife Service collects  |
| (covering Texas)                    | USFWS-Ecological Services        | data about how fish, migratory birds,   |
|                                     | 500 Gold Ave SW                  | endangered species, and other animals   |
|                                     | Albuquerque, NM 87102            | are affected by hazardous substances.   |
|                                     | Tel: 505-248-6929                |   |
|                                     | Email: fw2foia@fws.gov           |   |
| Department of                       | Mark Graff                       | After hazardous chemicals are released, |
| Commerce –                          | FOIA Officer                     | NOAA's Office of Response and           |
| National Oceanic                    | Room 9719 - NOAA FOIA Office     | Restoration helps to conduct scientific |
| and Atmospheric                     | (SOU 10000)                      | studies to identify the extent of       |
| Administration                      | 1315 East-West Highway           | contamination and environmental         |
| (NOAA)                              | Silver Spring, MD 20910          | damage.                                 |
|                                     | (301) 628-5658 (Telephone)       | C                                       |
|                                     | FOIA@noaa.gov                    |   |
|                                     |                                  |   |
| National Institute of               | Regina Stabile                   | NIEHS maintains the Superfund           |
| Health - National                   | NIEHS                            | Research Program, which facilitates     |
| Institute of                        | Mail Drop K3-16                  | research about environmental            |
| Environmental                       | P.O. Box 12233                   | contamination and health risks from     |
| Health Sciences                     | Research Triangle Park, NC 27709 | Superfund hazardous waste sites         |
| (NIEHS)                             | Tel 919-541-3365                 | <b>F</b>                                |
| (- ())                              | regina.stabile@nih.gov           |   |

# Table 2: State and Local Agencies

| Agency                                   | Contact for Public Record<br>Requests  | Examples of Potentially Relevant<br>Information  |
|--|--|--|
| Texas Commission<br>on Environmental     | Region 12, Houston:<br>5425 Polk St, Ste H   | TCEQ collects a wide range of<br>information from regulated facilities,  |
| Quanty (ICEQ)                            | Tel: 713-767-3500  | hazardous spills, sewage sludge analysis,<br>and chemical storage reports.   |
|  | Waste: Jason Ybarra<br>Air: Andy Goodridge<br>Water: Valerie Lara<br>Spill Reporting: 800-832-8224 |  |
| Railroad<br>Commission of Texas<br>(RRC) | List of <u>district offices</u><br>Phone: (512) 463-6947<br>Fax: (512) 463-6684                    | The RCC regulates contamination arising<br>from oil and gas exploration activities,<br>including petroleum spills that release |
|  | Email: <u>open.records@rrc.texas.gov</u>   | pollutants such as benzene.  |

| Agency              | Contact for Public Record            | Examples of Potentially Relevant        |
|---------------------|--------------------------------------|---|
|                     | Requests                             | Information                             |
| Department of State | Mail: Patrice Kennemer,              | DSHS' website includes Harvey updates   |
| Health Services     | Customer Service Coordinator,        | http://www.dshs.texas.gov/news/updates. |
| (DSHS)              | PO Box 149347, MC-1913,              | shtm#Harvey, fact sheets on topics such |
|                     | Austin, Texas 78714-9347             | as mold and mosquitos, and a Disaster   |
|                     |                                      | Supplemental Nutrition Assistance       |
|                     | (512) 776-2150 or                    | Program ( <u>information</u> ).         |
|                     | 1-888-963-7111, ext. 2150;           |   |
|                     | TDD 1-800-735-2989                   |   |
|                     |                                      |   |
|                     | customer.service@dshs.texas.gov      |   |
| County Resources    | County pages:                        | Both counties provide information on    |
|                     | Galveston: website, county site,     | recovering from Hurricane Harvey and    |
|                     | Facebook                             | are collecting information on flood     |
|                     | Harris: website, county site, Public | damage (individuals may submit a report |
|                     | Health Preparedness, Facebook,       | via the websites).                      |

## IV. INFORMATION GENERATION - POTENTIAL LIABILITY<sup>6</sup>

If you determine that the information you have gathered from other sources does not provide a complete answer to your questions, you may then need to generate your own information by, for example, collecting air or water samples and having them tested in a laboratory. Most of the time, this kind of sampling will not implicate legal concerns. Nevertheless, there are some laws that might limit your ability to do some kinds of sampling in some places. Chapter 4 of the Manual gives an overview of the laws behind legal claims that have been asserted (rightly or wrongly) against citizen scientists and provides suggestions on how to remain in compliance with them. It also describes areas where you may have a legal privilege to engage in certain activity, so that you can assert your rights if someone challenges you. This Appendix supplements the discussion in the Manual with information about Houston and Galveston laws that may be relevant to your work as a citizen scientist. You can find the Houston code of ordinances online here and Galveston's code of ordinances online here.

Because many types of potential liability relate to actions you might take on private property, Chapter 4 of the Manual includes tips for determining whether a property you want to enter, either to make observations or to take samples, is privately owned. Knowing the property lines and ownership status of properties you want to access is an important first step when it comes to determining what you are allowed to do on the property. Knowing who owns the property on which you want to conduct research may have another benefit: in many cases, reaching out to the property owner or managing agency ahead of time to see if you can conduct your citizen science project on their land will resolve any disputes at the outset.

<sup>6</sup> The information in this Appendix does not provide complete and detailed answers about the applicable laws; instead, it is intended to give you a broad overview of them. We encourage you to use the tools at your disposal, such as local libraries and the Internet, to conduct further research about the laws where you live. Laws change and evolve; please remember that the resources in the Manual and this Appendix do not constitute legal advice, and that you should seek representation should you encounter any legal issues.

## a. Trespass

Broadly defined, a trespasser is someone who physically enters or remains on another person's property without that person's consent. If you stay on public or private lands where you have permission to be, then trespass laws will not be a problem for your research. If you need to take samples on private land or cross private land to get to your sampling location, then you can seek permission from the property owner.

Liability for trespass generally takes two forms: criminal (prosecution by the government) and civil (private lawsuits). In Texas, to be guilty of criminal trespass, an individual must have had notice that his or her entry onto the property was forbidden or have received notice to depart and failed to comply. TEX. PENAL CODE ANN. § 30.05(a). Notice can take the form of:

- Oral or written communication by the owner or someone with apparent authority to act for the owner;
- Fencing or other enclosure obviously designed to exclude intruders or to contain livestock;
- Sign(s) posted on the property or at the entrance to a building indicating that entry is forbidden;
- Purple paint marks on trees or posts on the property; or
- The visible presence of a crop grown for human consumption that is under cultivation, in the process of being harvested, or marketable if harvested at the time of entry.

TEX. PENAL CODE ANN. § 30.05(b)(2). So, while using GIS or other devices to determine property boundaries could still be helpful, common sense should suffice to avoid *criminal* liability, *i.e.*, avoid entering fenced or marked-off areas without permission. Landowners can also bring civil lawsuits for trespass. These suits are generally governed by common law, which means there is no statutory definition of what constitutes a trespass. In a civil suit, you may be liable for any damage you cause to someone else's property while conducting research on that property.

Texas imposes heightened penalties against trespass at a "critical infrastructure facility" or at Superfund sites. TEX. PENAL CODE ANN. § 30.05(d)(3). Critical infrastructure facilities include: chemical manufacturing facilities; refineries; electric power generating facilities, substations, switching stations, electrical control centers, or electrical transmission or distribution facilities; water intake structures, water treatment facilities, wastewater treatment plants, or pump stations; natural gas transmission compressor stations; liquid natural gas terminal or storage facilities; telecommunications central switching offices; ports, railroad switching yards, trucking terminals, or other freight transportation facilities; gas processing plants, including plants used in the processing, treatment, or fractionation of natural gas; and transmission facilities used by federally licensed radio or television stations. Tex. PENAL CODE ANN. § 30.05(7)(b).

Houston and Galveston also have additional laws that may limit access to or activities on "secure areas" owned by the City of Houston and on property adjacent to the Galveston Ship Channel and Galveston Harbor. For instance, Houston's local ordinances include the following provisions:

- *Entry into secure areas on city premises:* Individuals are prohibited from entering "city premises" to which access is controlled by a security system or security post unless they comply with the applicable security provisions.<sup>7</sup> The penalty for violating this ordinance is a \$100-\$500 fine. Houston Code Ch. 2, art. XII, § 2-419.
- *Trespass at night:* Houston prohibits any person from being "found on the premises of another in the nighttime, under suspicious circumstances," which does not appear to be a defined term. Houston Code Ch. 28, Art. I, § 28-24.

Galveston's ordinances also include provisions that could hinder your ability to conduct citizen science in specified areas:

- *Trespass generally:* It is unlawful for any person "to enter or remain upon the premises of another without the effective consent of the owner or occupier of the premises." A violation of this prohibition is a class C misdemeanor and punishable by a fine up to \$500.00. Ord. No. 97-105, § 2, 12-11-97." Galveston, Tex., Code of Ordinances ("Galveston Code"), pt. II, ch. 24, § 24-9.
- *Pelican Island Causeway & Grain Cars entry at night:* Between 10:00 p.m. 6:00 a.m., individuals cannot:
  - Be on any part of Pelican Island Causeway between its southernmost terminus on Galveston Island, being approximately one hundred seventy-six (176) feet north of Winnie Street and the northernmost terminus on Pelican Island; or
  - Be at, near or enter any grain cars or other cars on the wharf, or railway tracks, or elevator tracks
- "where he has no right or permission to be, under suspicious circumstances, and without being able to give a satisfactory account of the same." Galveston Code pt. II, ch. 16, art. I, § 16-5.

Several Galveston laws may also impact how you travel to sites that you want to access for observations or sampling. For example, the City prohibits parking on areas of the Pelican Island Causeway and on "waterfront property" on land adjacent to the Galveston Ship Channel or the Galveston Harbor. And if you are collecting data from a boat or other vessel, there are restriction on leaving vessels in front of wharves for more than an hour. Galveston Code pt. II, ch. 16, art. I § 16-8.

*NOTE: TCEQ* will not accept as evidence for enforcement actions or civil suits any data that was gathered in the course of an unlawful trespass.

<sup>&</sup>lt;sup>7</sup> Hous., Tex., Code of Ordinances ("Houston Code") ch. 2, art. XII, § 2-414, provides that "city premises" include "a property or portion of a property that is owned by the city or is in the possession of the city by a lease or other right and is regularly maintained or occupied by employees of the city and utilized for the conducting of business of the city."

## b. Loitering

Loitering is a second offense potentially relevant to your citizen science project. Defined broadly, loitering means hanging around a public place or business without an apparent legal purpose. However, you generally cannot be liable for loitering just because you are hanging around a public place; rather, you must be loitering in connection with some otherwise illegal activity. Loitering laws are typically passed at the local level, but neither Houston nor Galveston has passed specific loitering laws. Your potential liability for loitering is likely low if you are not also breaking a separate *criminal* law.

#### c. Stalking

If your project involves recurring interaction with or surveillance of the same individuals (e.g., photographing or video recording), you will want to familiarize yourself with the state's stalking laws. Generally, you can avoid stalking liability if you spread your research out over time and if you avoid repeated contact with the same individuals (unless they have invited the contact or interaction).

Texas has both criminal and civil anti-stalking laws. On the criminal side, a person may be guilty of stalking if he or she *knowingly* engages in conduct *on more than one occasion*, pursuant to a scheme or course of conduct that is *directed specifically at another person*, that:

- He or she knows or reasonably should know that the other person (*i.e.*, the "target" of the stalking) will regard as threatening either (i) bodily injury or death to the target or a member of the target's family/household, or (ii) an offense to the subject's property.
- Causes the target, a member of the target's family/ household, or an individual with whom the target has a dating relationship to i) fear bodily injury or death or ii) fear that an offense will be committed against the target's property, or to iii) feel harassed, annoyed, alarmed, abused, tormented, embarrassed, or offended; *and* would cause a reasonable person to i) fear bodily injury or death for himself or herself, ii) fear bodily injury or death for a member of the person's family or household or for an individual with whom the person has a dating relationship, iii) fear that an offense will be committed against the members of the person's property, or iv) feel harassed, annoyed, alarmed, abused, tormented, embarrassed, or offended.

TEX. PENAL CODE ANN. § 42.072. Because Texas requires specific intent for criminal stalking, you are only guilty of stalking if you intended to harass or threaten the person alleging the violation.

Texas also has a civil stalking law, which allows private civil lawsuits for stalking under which individuals may recover damages for the emotional distress they experience from stalking activities. Like criminal stalking, however, specific intent is required, as the necessary

"harassing behavior" for a civil claim must include conduct *directed specifically* toward the person claiming to have been stalked. TEX. CIV. PRAC. & REM. CODE ANN. § 85.001.

It is unlikely that your work as a citizen scientist will expose you to criminal liability for stalking because the purpose of your activity is to conduct research, not to harass anyone. However, particularly if you intend to revisit the same site multiple times, you might want to take the extra step of notifying anyone residing on or near the property on which you want to conduct research about your plans. You might, for example, post flyers in the neighborhood notifying individuals that you are conducting a citizen science project. If people understand what you are doing in or around their neighborhood, then they should not have reason to be threatened by your presence. It might also mobilize the local community around your citizen science project, in keeping with the spirit of citizen science.

## d. Invasion of Privacy

Similar to stalking, repeated contact with the same individual(s), especially involving photographing or video recording, may constitute an invasion of privacy. There are four basic kinds of legal causes of action for invasion of privacy: (i) unauthorized use of name or likeness; (ii) public disclosure of private matters; (iii) publicity placing one in a highly offensive false light; and (iv) intrusion upon private affairs.

To avoid concerns about invading privacy, you should try to avoid taking pictures or videos of people in their home, and be particularly wary of publishing or distributing such material without the subject's consent. If an individual does consent to pictures or videos being published, try to get that consent in writing, even if the pictures or videos are just of the house itself (*e.g.*, mold on interior walls) without the individual in the picture. As discussed above, notifying area residents of your activities in advance may also help allay concerns about invasions of privacy.

## e. Drone Laws

Drones, or unmanned aircraft systems (UAS), are an increasingly popular tool for environmental data collection, and have been used for tasks such as: identifying the trajectory of an oil spill, detecting air contaminants, producing high resolution aerial surveys, and taking water samples. Because private drones are relatively new, the laws related to their use are still developing. However, in Texas, drone usage is governed by (i) federal law, (ii) state statutes, and (iii) state common law claims on grounds of nuisance, trespass, and privacy.

At the federal level, the Federal Aviation Administration regulates drones as "aircraft." As discussed in the Manual, citizen scientists using small drones (weighing less than 55 pounds), without being paid to do so, may be considered to be conducting a recreational activity for which pre-approval from the FAA is not required if specified rules are followed. In the past, the FAA has required such operators to register their UAS; this requirement was recently struck down by a court but could return in a different iteration.

Texas law makes it a Class C misdemeanor to use an unmanned aircraft to "capture an image of an individual or privately owned real property in [Texas] with the intent to conduct surveillance

on the individual or property captured in the image." You can avoid prosecution under this law if you destroy any image as soon as you have knowledge that the image was captured in violation of the law without disclosing, displaying, or distributing the image to a third party. TEX. GOV'T CODE ANN. § 423.003.

Texas also has specific restrictions on the use of unmanned aircraft over critical infrastructure facilities, correctional facilities, detention facilities, and sports venues. With respect to critical infrastructure facilities, people are prohibited from intentionally or knowingly operating an unmanned aircraft within 400 vertical feet of such facilities, within a distance close enough to interfere with or disturb the operations of such facilities, or in a way that makes contact with the facilities or any person or object on or in the premises. TEX. GOV'T CODE ANN. § 423.0045. In this instance, critical facilities must be enclosed by a fence or other physical barrier that is "obviously designed to exclude intruders," or be clearly marked with a sign(s) that are likely to come to the attention of intruders and indicate that entry is forbidden. *Id*.

Civil suits against drone users are also possible in Texas. An owner or tenant of privately owned real property may bring a suit against a person for illegally capturing images of the property or the owner/tenant while on the property. Damages can include penalties from \$5,000 - \$10,000 depending on whether any of the images have been disclosed, and actual damages are available if images were disclosed with malice. TEX. GOV'T CODE ANN. § 423.006.

There are situations, however, where it is lawful to capture images using unmanned aircrafts, including:

- At the scene of a spill, or a suspected spill, of hazardous materials;
- For the purpose of professional or scholarly research and development or for another academic purpose by a person acting on behalf of an institution of higher education or a private or independent institution of higher education;
- With the consent of the individual who owns or lawfully occupies the real property captured in the image;
- From a height no more than eight feet above ground level in a public place, if the image was captured without using any electronic, mechanical, or other means to amplify the image beyond normal human perception; and
- Of public real property or a person on that property.

TEX. GOV'T CODE ANN. § 423.002. Because state drone laws are still developing, you should routinely check Texas' laws on this issue and be sure to understand what latitude is provided by the exceptions noted above.

The possibility of common law claims against drone usage, and suggestions for limiting your risk to such claims, are discussed in the Manual.

#### f. Agency Regulations

If your project involves collecting samples on public lands, you should determine (i) which agency owns the land, and (ii) whether it has any regulations that would affect or impede your desired activities. For example, some agencies may allow sampling if you return the site to its original condition, but others may limit sampling activities. Reaching out to an agency directly, by phone or email, is often a good way to learn about permitted uses of its properties.

#### V. INFORMATION GENERATION - DESIGN OF SAMPLE COLLECTION, SAMPLE ANALYSIS, AND DATA INTERPRETATION METHODOLOGIES

Most citizen science projects that you join or initiate will require generating information that was previously uncollected, unknown, unreported, or unestablished in the realm of public knowledge. This will often entail collecting samples for testing. Keeping in mind TCEQ's protocols and restrictions for uses of information you generate, outlined in Part II of this Appendix, you are encouraged to consult Chapter 5 of the Manual for additional information on (i) sample collection (i.e., how you will gather samples of air, water, soil, etc.); (ii) sample analysis (i.e., how you will examine the samples you collect); and (iii) data interpretation (i.e., how you will interpret the results of your sample analyses). The Manual addresses these questions by providing advice on assessing information quality and developing and implementing quality assurance protection plans. The higher the quality of your data, the more options you will have for using it going forward. At the same time, however, do not avoid taking action because you are worried that you cannot meet all the recommended standards; there will likely still be value in the information you develop.

This Appendix supplements the Manual with information on types of equipment that you may use to generate information and suggestions on how to access the technologies and sensors needed to start or participate in your citizen science project.

Evaluating the impacts of Hurricane Harvey, and how to respond, will require understanding what pollutants, in what quantities, are in the soil, water, and air in the Houston/Galveston area. To contribute to this understanding, you might collect samples that someone else will test in a lab. If you do this, it is important to follow appropriate protocols so that the samples can be used for their intended purpose. In other instances, you may have access to the sensors needed to do the analysis yourself. The type of sensor you need will depend on the information you are trying to learn, or, the type of information you collect will depend on the sensor you have. Federal, state and local agencies, as well as labs at area universities, such as the University of Houston, University of Texas, Texas A&M, and Rice University, may be able to provide information on the type of sensors you need and, in some instances, provide sensors for you to use.

Additionally, funding may be available from government agencies, private organizations, and/or universities to support citizen science projects. Just one example is <u>EPA's Community Action</u> for <u>Renewed Environment (CARE) grant</u>, which can be used to establish a cooperative agreement between your community group and the EPA to design and fund projects to reduce risk and improve the environment in your community. Contacts for the grant program in EPA's

Region 6, which includes Texas, are listed at <u>https://www.epa.gov/grants/grants-your-region-information-specific-epa-region-6</u>.

# VI. INFORMATION USE - MAKING THE MOST OUT OF YOUR INFORMATION

Chapter 6 of the Manual provides suggestions on how best to present the information you have collected and generated during your project. For actions taken in response to Hurricane Harvey, it will be helpful to think about the people, educational institutions, nonprofit organizations, news groups, and government agencies with whom you can share or aggregate your information to create as broad an understanding of the issues as possible. As you begin your project, it may make sense to contact local universities, nonprofit organizations, and government agencies that are researching the impacts of the hurricane and determine how you can collect information that either best supports their efforts or fills gaps that they are not addressing. You can also conduct outreach to neighbors to ask them what form or presentation of information they would find helpful, for example, would they like periodic updates on your findings or one final report.

# VII. ADDITIONAL INFORMATION FOR RESPONDING TO HURRICANE HARVEY

Provided below is information specific to recovery efforts in the Houston/Galveston area in the wake of Hurricane Harvey.

# a. Health Registry

Rice University is coordinating the development of a health registry that will include information on environmental health and housing concerns related to Hurricane Harvey, such as persistent mold on walls.

# b. Protect Yourself from Chemicals

If you suspect that you will be exposed to harmful chemicals that have been released in the wake of Hurricane Harvey, or if you want to monitor potentially harmful chemicals in the future, be sure to take proper safety precautions. The University of Texas' Health Science Center at Houston has compiled a set of manuals on Safety, Health, Environment, and Risk Management that can be found <u>here</u>. You can also contact your local public health officials at the <u>Houston Health Department</u> (HHD) and the <u>Galveston County Health District</u> (GCHD). Both the <u>HHD</u> and the <u>GCHD</u> provide post-Harvey safety information. The federal Center for Disease Control and Prevention has also maintains a <u>webpage</u> on Hurricane Harvey with safety tips for post-storm cleanup.