

# A Guide for Coastal and Marine Scientists and Their Volunteers In North Carolina



N.C. Coastal Reserve and National Estuarine Research Reserve

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## I. INTRODUCTION

The increasing participation of the average citizen within the scientific community has presented both scientists and the general public with exciting opportunities to work together to advance science and strengthen the understanding of the scientific process.

Government agencies, academic institutions and nonprofit organizations alike develop, support and participate in citizen science projects and conduct research to support citizen science activities.

But what is citizen science? While a variety of definitions exist,<sup>1</sup> the Federal Community of Practice on Crowdsourcing and Citizen Science defines the term as “a form of open collaboration where members of the public participate in the scientific process to address real-world problems in ways that include identifying research questions, collecting and analyzing data, interpreting results, making new discoveries, developing technologies and applications, and solving complex problems.”<sup>2</sup>

Consider the following hypothetical situation involving citizen scientists:

The *S.S. Cosco Busan*, an oil tanker, crashes into the Bay Bridge as it sails out of San Francisco. The wreck leaves the Bay churning with 58,000 barrels of oil. Wildlife perishes by the thousands, one of hundreds of pollution cases that occur annually. Farallones National Marine Sanctuary, under the National Oceanic and Atmospheric Administration (NOAA), volunteers in the program “Beach Watch” to monitor

beached marine birds and mammals, providing a baseline against which spill effects can be assessed. A group of citizen scientists volunteer through this organization and form the Beach Watch team.<sup>3</sup>

If you are the project coordinator for Beach Watch, what might be potential legal issues to consider? This white paper provides citizen science project coordinators with an overview of selected legal issues that could arise during a project that incorporates citizen science.

This paper is intended to increase awareness of potential legal issues in citizen science projects in North Carolina for scientists and volunteers. This knowledge may encourage project coordinators and volunteers to address potential legal issues before they become roadblocks.

Additionally, from a public policy standpoint, this new understanding can help promote public interest and participation in science, as well as a deeper understanding of the scientific process.

This white paper focuses on three major legal issues. Section II analyzes the major areas of intellectual property law and their relevance to citizen science. Section III focuses on a specific part of liability — federal laws regarding data collection. Section IV discusses trespass law and the public trust doctrine for North Carolina.

This paper will provide a conceptual overview, using North Carolina as an example where appropriate. It is not intended to offer a national or state-by-state overview of these issues.

## II. INTELLECTUAL PROPERTY

Intellectual property law protects intangible products of human intelligence and creation by making it illegal to copy or sell someone else's intellectual property without permission.<sup>4</sup> Just as someone has the legal right to own physical property, a person can maintain legal possession of intangible objects as well. While similar, the two types of rights are unique:

While there is a close relationship between intangible property and the tangible objects in which they are embodied, intellectual property rights are distinct and separate from property rights in tangible goods. For example, when a person posts a letter to someone, the personal property in the ink and parchment is transferred to the recipient. ... [T]he sender (as author) retains intellectual property rights in the letter.<sup>5</sup>

Distinct from the laws governing physical property, intellectual property law is primarily comprised of copyright, patent and trademark rights.<sup>6</sup> Copyright law protects a wide variety of creative forms such as art, music or intellectual "works," and gives the original creator exclusive rights. A patent protects an inventor's product or process, while a trademark protects particular signs or designs that distinguish one merchant's goods from another's.

When organizing citizen science projects, coordinators should be able to:

- Protect the intellectual property rights of their institutions; and
- Preemptively address any potential questions or issues volunteers or scientists may have during the life of the project.

Intellectual property rights regarding research, data and patentable subject matter gathered during citizen science endeavors generally is limited. However, project coordinators need to be transparent about these rights by informing volunteers about applicable intellectual property issues before they begin work on a project.

Research has shown that intellectual property in citizen science projects can generally be divided into four categories, which are defined in terms of the nature of participants' contributions:

1. Classifying or transcribing data;
2. Gathering data;

3. Participating as a research subject; and/or
4. Solving problems, sharing ideas or manipulating data.<sup>7</sup>

Some forms of participation are less likely to create intellectual property issues than others. The rights provided by the first three categories largely depend on which contributions are made. While gathering data in the form of images, videos and written works may raise copyright questions, help with transcriptions or entering data into online forms is unlikely to give rise to any intellectual property rights issues.<sup>8</sup>

However, participants' contributions in the fourth category could raise issues of inventorship or authorship and, therefore, intellectual property. Citizen science project coordinators also should understand how issues of authorship, inventorship and ownership may arise in relation to individual contributions and the product or products that result from the projects.

### A. Copyright

Copyright is a form of intellectual property protection provided to the creators of "original works of authorship," including literary, dramatic, musical, artistic and certain other intellectual works.<sup>9</sup> This protection is available to both published and unpublished works.<sup>10</sup> Section 106 of the 1976 Copyright Act generally gives the copyright owner the exclusive right to do and to authorize others to do the following:

- Reproduce the work in copies or phonorecords;
- Prepare derivative works based upon the work;
- Distribute copies or phonorecords of the work to the public by sale or other transfer of ownership, or by rental, lease or lending;
- Perform the work publicly, in the case of literary, musical, dramatic and choreographic works; pantomimes; and motion pictures and other audiovisual works;
- Display the work publicly, in the case of literary, musical, dramatic and choreographic works; pantomimes; and pictorial, graphic or sculptural works, including the individual images of a motion picture or other audiovisual work; and
- Perform the work publicly (in the case of sound recordings) by means of a digital audio transmission.<sup>11</sup>

## 1. Who Can Claim Copyright?

Copyright protection exists from the time the work is created in fixed form. The copyright in the work of authorship immediately becomes the property of the author who created the work. Only the author or those deriving their rights through the author can rightfully claim copyright.

In the case of works made for hire, the employer, and not the employee or contractor, is considered to be the author. Section 101 of the Copyright Act defines a “work made for hire” as: (1) a work prepared by an employee within the scope of his or her employment; or (2) a work specially ordered or commissioned for use as a:

- Contribution to a collective work;
- Part of a motion picture or other audiovisual work;
- Translation;
- Supplementary work;
- Compilation;
- Text or instructional text;
- Answer material for a test; or
- Atlas,

if the parties expressly agree in a signed, written instrument that the work shall be considered a work made for hire.<sup>12</sup>

The authors of a joint work are co-owners of the copyright in the work, unless there is an agreement to the contrary. Copyright in each separate contribution to a periodical or other collective work is distinct from copyright in the collective work as a whole and vests initially with the author of the contribution.

## 2. Copyright Limitations

It is illegal for anyone to violate any of the rights provided by the Copyright Act to the owner of the copyright. However, sections 107 through 122 of the act establish limitations on these rights. In some cases, these limitations are specified exemptions from copyright liability. In other instances, restrictions take the form of a “compulsory license” under which certain limited uses of copyrighted works are permitted upon payment of specified royalties and compliance with statutory conditions.

One substantial copyright limitation is the fair use doctrine, which allows individuals to use copyrighted material without

permission. Examples of fair use include research, teaching and scholarship. In determining whether or not copyrighted material falls under the fair use exemption, courts will consider the following four factors:

1. The purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit, educational purposes;
2. The nature of the copyrighted work;
3. The amount and substantiality of the portion used in relation to the copyrighted work as a whole; and
4. The effect of the use upon the potential market for or value of the copyrighted work.<sup>13</sup>

## 3. Copyright Case Study

Project coordinators should include statements on project materials noting how products created by citizen scientists could be used. These explanations help promote transparency and avoid the potential for conflict over intellectual property ownership.

One option is the implied waiver that explains how the volunteers’ photographs will be used, and the entities who might use them. Expanding upon the previous hypothetical Beach Watch case study, suppose that as part of its mission, the project calls for citizen volunteers to photograph the damage caused by the oil spill along the California coast. On its website, the project lists how volunteers’ photographs may be used, including a statement that the photos may be reproduced by various government agencies, nonprofit organizations and community organizations worldwide.

While these statements do not directly address copyright ownership, it serves as an implied waiver to the volunteers that if they submit photographs, the images can be used by multiple entities for multiple reasons.

As an alternative to an implied waiver, project coordinators may want to consider using an express waiver. Rather than simply referencing copyright ownership, the Beach Watch website could expressly state: “Please understand that by sharing your photos in this group you are giving the California Beach Watch Project permission to use your photos for noncommercial uses such as presentations and educational materials.”

By including such a waiver, the project is directly referencing the fair use exemption for copyright material, stating that all material gathered under the project falls under this exemption.

Should a copyright issue arise over the course of the project, an express waiver provides greater legal protection than an implied one.

## B. Patent Law

The U.S. Patent Act, 35 U.S.C. § 101 et seq, provides inventors with the right to exclude others from using a new technology. The act states that “Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof may obtain a patent therefor, subject to the conditions and requirements of this title.”<sup>14</sup>

However, in order for an invention to be patent-eligible subject matter, it must meet two requirements:

1. The invention must fall within one of the four statutory acceptable categories: process, machine, manufacture or composition of matter; and
2. The invention must not be directed to subject matter encompassing a “judicially recognized exception,” i.e., laws of nature, physical phenomena and abstract ideas.<sup>15</sup>

One of the key considerations in a citizen science project is whether an individual’s contribution of any particular activity during the project is such that he or she could be considered the co-inventor of a new technology. A technology will not be considered “new” if it has been disclosed to the public prior to the patent application.<sup>16</sup>

During the initial planning stage of a citizen science project that could result in patentable material, project coordinators should determine whether

1. Patenting is a necessary and desired outcome; or
2. If patenting is desirable, how to limit the involvement of volunteers to prevent jeopardizing patentability.

## C. Trademark Law

A trademark is a word, symbol or phrase that companies use to distinguish their products and services from their competitors. Trademarks are governed by both state and federal law. The

main federal statute, the Lanham Act, was enacted in 1946. In order to qualify for trademark, a mark must be considered “distinctive.”

When determining distinctiveness, courts use four different categories based on the relationship between the mark and the underlying product or service:

1. Arbitrary or fanciful;
2. Suggestive;
3. Descriptive; or
4. Generic.

The level of protection the trademark receives depends on which category it falls into. However, while government agencies may have trademark protection for their various marks and symbols, trademark protection has a commercial focus and is unlikely to be an issue during citizen science projects.

## D. Intellectual Property Law Case Study

While copyright, patent and trademark rights are all encompassed under the umbrella of intellectual property law, each potentially provides a unique challenge for citizen science project coordinators. When determining whether a project potentially has any intellectual property issues, a project coordinator should first consider the following questions:

- Is there any property or information that constitute a form of intellectual property? If so, what types of intellectual property law apply?
- Who owns the intellectual property and what rights do they have?
- Is the intellectual property going to be shared with others?
- Will sharing the intellectual property with others affect the rights held by the owner? What if others subsequently use the shared property?
- How can project coordinators ensure that they are handling all of these issues in a lawful way?

### III. LIABILITY

As data collection and its accompanying technology expand, scientists are finding more ways to increase the involvement of volunteers through citizen science. However, government agencies may avoid using data and research collected by citizen scientists because of potential liability concerns.

Liability is defined as the quality, state or condition of being legally accountable.<sup>17</sup> Failure of a person or entity to meet his or her responsibilities can result in a lawsuit or court order.<sup>18</sup>

The U.S. legal system provides protection for agencies involved in citizen science that should allow scientists to confidently use results from citizen science projects. There are two types of federal agencies: (1) regulatory (e.g., the Environmental Protection Agency), and (2) nonregulatory (e.g., U.S. Geological Survey).<sup>19</sup> Each may have different liability issues.

Many coastal or marine science projects that use citizen scientists may be funded in whole or in part by a federal agency and are subject to these regulations. However, individual states, state agencies, nonprofit organizations and academic institutions likely have their own laws governing liability. Therefore, project coordinators should be knowledgeable about liability laws and policies particular to their state and institution. Coordinators should contact their institution's legal, policy review or technology transfer office for specific policies and regulations on liability for the program or project.

The liability issues addressed below focus on federal laws. The Federal Tort Claims Act allows a citizen to sue the federal government for the negligent action of a federal employee.<sup>20</sup> Before beginning a citizen science project, a project coordinator should determine whether the actions of volunteers would cause them to fall under the act's definition of an employee. Furthermore, any federal employees involved should be informed of how to prevent potentially negligent activity stemming from a number of applicable statutes.

The Antideficiency Act restricts excessive spending by government agencies and can potentially limit the number of volunteers a project may use.<sup>21</sup> The Paperwork Reduction Act regulates any federal agency activity that involves the collection of information from 10 or more people,<sup>22</sup> and the Information Quality Act can create liability issues in any

information an agency disseminates to the general public.<sup>23</sup> Lastly, federal agencies conducting projects using mobile applications should be knowledgeable of all terms-of-service restrictions.<sup>24</sup>

This white paper provides a summary of these relevant federal laws. For more information, see "Crowdsourcing, Citizen Science, and the Law: Legal Issues Affecting Federal Agencies" by Robert Gellman, published by The Wilson Center.

#### A. Federal Tort Claims Act

Traditionally, a legal concept known as "sovereign immunity" proscribes citizens from suing their state.<sup>25</sup> However, in 1946, Congress passed the Federal Tort Claims Act (FTCA), which allowed private parties to pursue certain lawsuits against the federal government in specific circumstances.<sup>26</sup>

More narrowly, the act allows citizens to sue the federal government for negligence by a federal employee who was acting within the scope of his or her employment.<sup>27</sup> The FTCA holds the United States liable "in the same manner and to the same extent as a private individual under like circumstances."<sup>28</sup>

Federal courts maintain jurisdiction over these claims, although they also will apply the law of the state where the "act or omission complained of occurred."<sup>29</sup> The act imposes several limitations on liability, exempting claims based on the federal employee's performance of — or failure to perform — a discretionary function or duty.<sup>30</sup> An individual cannot sue the federal government if the employee's conduct involved an element of judgment.

As a result, the FTCA provides federal employees with a shield from citizen lawsuits. A member of the general public cannot sue an agency or employee for negligence in their research, unless they can show the government had a legal obligation toward that individual (i.e., a standard of reasonable care while conducting acts that could foreseeably harm another person).



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## B. The Antideficiency Act

The Antideficiency Act (AdA) was enacted by Congress to prevent excessive government agency expenditures.<sup>31</sup> This law would be applicable to citizen science projects administered by a federal agency. The AdA prohibits federal employees from:

- Making or authorizing an expenditure from, or creating or authorizing an obligation under, any appropriation or fund in excess of the amount available in the appropriation or fund unless authorized by law.<sup>32</sup>
- Involving the government in any obligation to pay money before funds have been appropriated for that purpose, unless otherwise allowed by law.<sup>33</sup>
- Accepting voluntary services for the United States, or employing personal services not authorized by law, except in cases of emergency involving the safety of human life or the protection of property.<sup>34</sup>
- Making obligations or expenditures in excess of an apportionment or reapportionment, or in excess of the amount permitted by agency regulations.<sup>35</sup>

Federal employees who violate the AdA are subject to two types of sanctions: (1) administrative and (2) penal.<sup>36</sup> Employees may be subject to appropriate administrative discipline including suspension from duty without pay or removal from office.<sup>37</sup> Additionally, employees may also be subject to fines, imprisonment or both.<sup>38</sup>

## C. Paperwork Reduction Act

Congress enacted the Paperwork Reduction Act of 1980 (PRA) with the goal of providing better management of information resources, minimizing the burden on the public, avoiding

duplication, and ensuring the practical utility of collected information.<sup>39</sup>

The statute regulates federal agency activities that involve collecting information from more than 10 people. When the law applies, a federal agency must create a formal information collection request, publish its plans in the Federal Register, consider public comments, publish a second Federal Register notice, and request approval from the Office of Management and Budget (OMB) for information collection.<sup>40</sup>

The PRA provides a five-step process through which an agency obtains OMB approval to collect information:

1. An agency seeking to collect information from 10 or more individuals develops the information-collection request in accordance with the requirements of the rule and obtains agency approval from the agency's chief information officer.
2. The agency publishes a notice in the Federal Register, giving the public 60 days to comment on the proposed information collection.
3. The agency evaluates the public comments.
4. The agency publishes a second notice in the Federal Register announcing the sending of the collection proposal to OMB for approval and inviting the public to submit comments to OMB within 30 days.
5. The agency submits its proposal for information collection to OMB concurrent with the publication of the second Federal Register notice. OMB then has 30 additional days from the end of the comment period (or 60 days in total) to take action on the proposal.<sup>41</sup>



## D. Information Quality Act

The Information Quality Act of 2001 (IQA) was designed to ensure the “quality, objectivity, utility, and integrity of information” distributed to the general public by federal agencies.<sup>42</sup> Under the guidance of the OMB, each agency has its own information quality guidelines.<sup>43</sup>

Citizens can use the IQA to file lawsuits to prevent an agency from disseminating information that fails to meet these requirements. Importantly, however, the information must have a clear and substantial impact on public policies or important private-sector decisions.<sup>44</sup>

Agencies are potentially subject to federal, state and institutional guidelines on disseminating information. Citizen science project coordinators should be familiar with these requirements in order to ensure they are in compliance.

The OMB guidelines impose three broad requirements on agencies:

1. Agencies must individually issue “information quality guidelines” that ensure the quality of the information;
2. Agencies must establish administrative procedures that allow people to obtain “correction of information maintained and disseminated by the agency that does not comply with the OMB guidelines”; and
3. Agencies must provide an annual report on the number and nature of IQA complaints and the complaints resolution.<sup>45</sup>

## E. Terms-of-Service Restrictions

Mobile applications have risen in popularity as a useful way for crowdsourcing information from the public for citizen science or other projects. However, if a federal agency develops a mobile application for citizen science, certain federal laws may apply.<sup>46</sup> Mobile applications typically use online facilities and services that operate under terms of service established by private companies. Generally, it is not permissible for agencies to accept them in their entirety.<sup>47</sup>

Robert Gellman offers an excellent example of potential legal issues that federal agencies that develop or use a mobile application should consider:

A mobile app is a computer program designed to run on a smartphone or other device. When an agency develops a mobile app, it is likely to act as other developers do. When

the app is ready for public release, the agency commonly distributes it through the app distribution platform operated by the owner of the mobile operating system. Each distribution platform operates under its own [terms of service], licensing rules, and other policies. App developers accept the terms of the platforms that they use, and there is typically little opportunity for negotiation or alteration of the standard [terms of service].

For an agency operating under the restrictions of federal law, the standard terms for app distribution create conflicts with the law and with federal policy. One example is the requirement that an app developer pay any legal costs that the platform incurs due to distribution of the app. The problem for a federal agency is that an indemnification agreement violates the Antideficiency Act if the agreement, without statutory authorization, imposes on the United States an open-ended, potentially unrestricted liability. A choice of law provision and a requirement for arbitration are other examples of [terms of service] that may conflict with federal law.<sup>48</sup>

Solutions to terms-of-service conflicts and helpful resources related to mobile applications already are available.<sup>49</sup> Agencies seeking to use mobile applications in citizen science face real, but not insurmountable, problems.



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## IV. TRESPASS

On occasion, the issue of trespass may arise during a citizen science project. For instance, a volunteer could unintentionally cross onto private property while collecting data. While sometimes it is easy to determine when property is private (for instance, there is a “Keep Out” or “Private Property” sign), there are other times when there is no sign or other indicator that property is private. This can be particularly true in the beachfront context, where it can be unclear where the public beach ends and private beach begins.

As with intellectual property and liability, trespass is a complex area of the law because of the interplay between private and public lands and waters. This is especially true when attempting to discern whether a trespass has, or will, take place on land that is adjacent to the coast.

Trespass is relevant to citizen science because projects may be conducted on public or private land. Volunteers must abide by trespass laws that govern each type of property. Trespass laws vary from state to state and, therefore, volunteers should look to their respective states for guidance.

This section of the white paper focuses on how North Carolina addresses trespass and how the legal concept known as the public trust doctrine may apply in the coastal citizen science context. Below is a summary of trespass law in North Carolina, and how it applies to lands and waters that may be included under the public trust doctrine.

At its most basic, the legal definition of trespass is an unprivileged intentional intrusion on property possessed by

another.<sup>50</sup> Here, “intentional” is a legal term that means a voluntary act.<sup>51</sup> Therefore, a trespass can still occur even if the intrusion onto another’s property was by mistake. However, a trespass has not occurred when the intrusion onto the property is done with the consent of the owner.<sup>52</sup> This consent can be either explicit or implicit.<sup>53</sup>

The concept of trespass can be split into two categories: criminal and civil trespass. In North Carolina, criminal trespass has two distinct degrees of culpability.

A person has committed first-degree trespass if, “without authorization, he enters or remains (1) on premises of another so enclosed or secured as to demonstrate clearly an intent to keep out intruders; or (2) in a building of another.”<sup>54</sup>

A person has committed second-degree trespass if, “he enters or remains on premises of another: (1) after he has been notified not to enter or remain there by the owner, by a person in charge of the premises; or (2) that are posted, in a manner reasonably likely to come to the attention of intruders, with notice not to enter the premises.”<sup>55</sup>

While it is possible that criminal trespass could arise in a citizen science context, it is more likely that a violation of some aspect of civil trespass could occur. Civil trespass is the injury to the property or an injury to the use of the property without the consent or permission of the person legally entitled to possession of the real estate.<sup>56</sup> Chapter 99A of the North Carolina General Statutes defines the civil remedies that a wronged property owner can seek against a violator.<sup>57</sup>

Generally, three factors are used to determine whether a trespass to real property has occurred. They are:

1. The plaintiff was in possession of the property at the time of the alleged trespass;
2. The defendant intentionally entered, caused entry, and/or remained present upon the plaintiff's property; and
3. The defendant's entry and/or continued presence was unauthorized.<sup>58</sup>

These three factors closely mirror the factors for first-degree and second-degree criminal trespass. On land that is clearly and conspicuously marked, knowing whether a trespass has occurred is relatively simple given that these factors are met. However, it can be significantly more difficult to discern whether a trespass has occurred on coastal lands due to the complexities of the public/private property distinction in those areas.

One of the main aspects of property law that is important in the citizen science context is the right of reasonable access to property open to the public. The legal distinction of types of property helps determine whether the owner of the respective property has the right to exclude nonowners. Owners of private property almost always have the right to exclude others.<sup>59</sup>

However, if the private property is generally "held open to the public," then the owner's right to exclude may be diminished depending on the circumstances.<sup>60</sup> The exclusion of the public from a business, such as a beachfront hotel or restaurant, also could arise during a citizen science project.

The public trust doctrine is critically important to understanding trespass law, especially as it relates to oceanfront beaches. The doctrine states that certain resources cannot be the subject of private ownership and must be vested within a state. Thus, the state holds these resources in trust for use by the public. Generally, this doctrine is applicable whenever navigable waters or the lands beneath are altered, developed, conveyed, or otherwise managed or preserved.<sup>61</sup>

Under current North Carolina law, the public has the right to access both what's known as the "wet sand beach" and the "dry sand beach."<sup>62</sup> Under the state's common law public trust doctrine, navigable-in-fact waters and submerged lands lying seaward of the mean high water mark are public trust waters. The wet sand beach is considered part of these state-owned public trust lands.<sup>63</sup>

However, public access is generally more limited on the dry sand beach, which is the area above the mean high water mark. Unless the dry sand beach has been nourished — where sand is added to the existing beach — as part of a publicly financed project, oceanfront property owners typically have legal title to the dry sand beach as part of their property.<sup>64</sup> As codified under state law, the oceanward title of the property owner extends to the mean high water mark.<sup>65</sup>

The extent to which the public enjoys a customary right to use the dry sand beach, whether the beach is nourished or natural, has been the subject of litigation in North Carolina. At the time of this writing, the North Carolina Court of Appeals affirmed the public's right to use all dry sand beaches in the state in a legal opinion in *Nies v. Town of Emerald Isle*.<sup>66</sup>



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## V. CONCLUSION

The increased use of citizen scientists has presented scientists, including coastal and marine researchers, and the public with exciting opportunities to work together to advance science and strengthen the link between research and decision making.

Volunteers gain a more robust understanding of the scientific process and increased awareness of the challenges facing local natural resources. For scientists, citizen science can be a powerful engagement tool to tap into local knowledge, increase public awareness of the value of their research to society, and strengthen stakeholder participation in the management process.

However, percolating underneath the surface are legal issues that scientists and volunteers should openly discuss before partnering on a citizen science project. While each citizen science project can present a variety of legal issues, depending on the nature of the project, the ones that tend to arise most often include ownership of intellectual property, liability and trespass. Each area of these laws is uniquely complex and includes both federal and state components, as well as common law (court opinions).

Ideally, legal issues should be addressed before conducting a citizen science project. Researchers need to be prepared to quickly address any other topics that arise during the life of a project. Addressing legal questions ahead of time ensures that volunteers are properly trained, and that scientists and their institutions are aware of their responsibilities to project volunteers.

While legal issues can be project specific, they need not become barriers to a citizen science project. Instead, potential roadblocks can become opportunities to think more meaningfully about the relationship between science and the public, so projects have robust results that can positively impact society.

The authors hope this white paper and accompanying fact sheets in the Legal Issues in Citizen Science series can inform coastal and marine researchers and project volunteers of some of the legal issues that may be pertinent to their next citizen science project. While the white paper and fact sheets are not intended as legal advice, the information contained in these publications can help scientists and volunteers become more familiar with legal concepts and encourage them to fully consider legal issues during their current and future projects.



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## ENDNOTES

<sup>1</sup>For example, the Crowdsourcing and Citizen Science Act of 2015, a bill introduced in the U.S. Senate in August 2015, defines citizen science as, “a form of open collaboration in which individuals or organizations participate in the scientific process in various ways, including — enabling the formulation of research questions; creating and refining project design; conducting scientific experiments; collecting and analyzing data; interpreting the results of data; developing technologies and applications; making discoveries; and solving problems.” Available at <https://www.congress.gov/bill/114th-congress/senate-bill/2113>.

<sup>2</sup>The Federal Community of Practice on Crowdsourcing and Citizen Science at <http://www.digitalgov.gov/communities/federal-crowdsourcing-and-citizen-science/>.

<sup>3</sup>Smith, Bailey (2014). *Agency Liability Stemming From Citizen-Generated Data*. Wilson Center Policy Memo Series, vol. 3. Available at [https://www.wilsoncenter.org/sites/default/files/AgencyLiability\\_final.pdf](https://www.wilsoncenter.org/sites/default/files/AgencyLiability_final.pdf).

<sup>4</sup>*Black’s Law Dictionary* (10th ed., 2014) defines intellectual property as “a category of intangible rights protecting commercially valuable products of the human intellect” (p. 930).

<sup>5</sup>*Id.* quoting Lionel Bently and Brad Sherman, *Intellectual Property Law* 1–2 (2001).

<sup>6</sup>*Id.*

<sup>7</sup>Scassa, Teresa and Haewon Chung (2015). *Typology of Citizen Science Projects From An Intellectual Property Perspective: Invention and Authorship Between Researchers and Participants*. Wilson Center Policy Memo Series, vol. 5. Available at [https://www.wilsoncenter.org/sites/default/files/Typology\\_of\\_Citizen\\_Science\\_IP\\_Rights\\_Scassa.pdf](https://www.wilsoncenter.org/sites/default/files/Typology_of_Citizen_Science_IP_Rights_Scassa.pdf). The authors state that “Ideally, these intellectual property issues should be addressed when drafting of the terms of participation (also referred to as ‘terms of use’) for a project. Scientists who seek to address intellectual property issues at this stage should consider two main questions: 1) Are the contributions that are being sought from the public ones in which participants may have intellectual property rights? 2) Is the public participation of a kind which may give some participants intellectual property rights in the research output?”

<sup>8</sup>*Id.*

<sup>9</sup>17 U.S.C. § 101 et seq. See also U.S. Copyright Office, Copyright Basics, Library of Congress (reviewed 2012). Available at <http://www.copyright.gov/circs/circ01.pdf>.

<sup>10</sup>*Id.*

<sup>11</sup>17 U.S.C. § 106. “Sound recordings are defined in the law as ‘works that result from the fixation of a series of musical, spoken, or other sounds, but not including the sounds accompanying a motion picture or other audiovisual work.’ Common examples include recordings of music, drama, or lectures. A sound recording is not the same as a phonorecord. A phonorecord is the physical object in which works of authorship are embodied. The word ‘phonorecord’ includes cassette tapes, CDs, and vinyl disks as well as other formats.”

<sup>12</sup>*Copyright Basics*, 2–3

<sup>13</sup>17 U.S.C. § 107.

<sup>14</sup>United States Patent Act, 35 U.S.C. §§ 1-376 (1952).

<sup>15</sup>*Id.*

<sup>16</sup>See 35 U.S.C. § 101. For more information about how the U.S. Patent and Trademark Office determines patent eligibility, see United States Patent and Trademark Office, 2106 *Patent Subject Matter Eligibility* [R-07.2015], <http://www.uspto.gov/web/offices/pac/mpep/s2106.html> (last visited April 22, 2016). See also United States Patent and Trademark Office, 2014 *Interim Guidance on Subject Matter Eligibility*, <http://www.uspto.gov/patent/laws-and-regulations/examination-policy/2014-interim-guidance-subject-matter-eligibility-0> (last updated July 2015).

<sup>17</sup>*Black’s Law Dictionary*, 1053.

<sup>18</sup>*Id.*

<sup>19</sup>Smith, 2.

<sup>20</sup>Federal Tort Claims Act, 28 U.S.C. 171 §§ 2671–2680.

<sup>21</sup>Antideficiency Act, 31 U.S.C. § 1341.

<sup>22</sup>Paperwork Reduction Act, 44 U.S.C. §§ 3501–3521.

<sup>23</sup>Information Quality Act, 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Public Law 106-554; H.R. 5658) (2001).

<sup>24</sup>Gellman, Robert (2015). *Crowdsourcing, Citizen Science, and the Law: Legal Issues Affecting Federal Agencies*. Wilson Center Policy Memo Series, vol. 3., pp. 16, 87-93. Available at <https://www.wilsoncenter.org/publication/crowdsourcing-citizen-science-and-the-law-legal-issues-affecting-federal-agencies>.

<sup>25</sup>*Black's Law Dictionary*, 868.

<sup>26</sup>FTCA 28 U.S.C 171 § 2671.

<sup>27</sup>*Id.*

<sup>28</sup>FTCA 28 U.S.C. § 2674.

<sup>29</sup>*Id.*

<sup>30</sup>Smith, 2.

<sup>31</sup>31 U.S.C. § 1517(a).

<sup>32</sup>31 U.S.C. § 1341(a)(1)(A).

<sup>33</sup>31 U.S.C. § 1341(a)(1)(B).

<sup>34</sup>31 U.S.C. § 1342.

<sup>35</sup>31 U.S.C. § 1517(a).

<sup>36</sup>Gellman, 13.

<sup>37</sup>*Id.*

<sup>38</sup>*Id.*

<sup>39</sup>44 U.S.C. § 3501.

<sup>40</sup>*Id.*

<sup>41</sup>Gellman, 27.

<sup>42</sup>*Id.*

<sup>43</sup>Section 515(b)(2) requires that “each Federal agency to which the guidelines apply — (A) issue guidelines ensuring and maximizing the quality, objectivity, utility, and integrity of information (including statistical information) disseminated by the agency, by not later than 1 year after the date of issuance of the guidelines under subsection (a); (B) establish administrative mechanisms allowing affected persons to seek and obtain correction of information maintained and disseminated by the agency that does not comply with the guidelines issued under subsection (a); and (C) report periodically to the Director — (i) the number and nature of complaints received by the agency regarding the accuracy of information disseminated by the agency and; (ii) how such complaints were handled by the agency.”

<sup>44</sup>Office of Management and Budget. *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies*. 67 Federal Register 8452 (Feb. 22, 2002). Available at <http://www.whitehouse.gov/sites/default/files/omb/assets/omb/fedreg/reproducible2.pdf>.

<sup>45</sup>*Id.*

<sup>46</sup>Gellman, 16.

<sup>47</sup>*Id.*

<sup>48</sup>Gellman, 16.

<sup>49</sup>Gellman, 91–93. *Citing General Services Administration, DigitalGov, Negotiated Terms of Service Agreements*, <http://www.digitalgov.gov/resources/negotiated-terms-of-service-agreements/>. See also General Services Administration, *DigitalGov Social Media Community of Practice*, <http://www.digitalgov.gov/communities/social-media/>.

<sup>50</sup>805.00 Trespass to Real Property, N.C.P.I.-CIVIL 805.00.

<sup>51</sup>27A N.C. Index 4th Trespass Summary.

<sup>52</sup>61 Causes of Action 2d 467.

<sup>53</sup>*Id.*

<sup>54</sup>N.C. Gen. Stat. Ann. § 14-159.12.

<sup>55</sup>N.C. Gen. Stat. Ann. § 14-159.13.

<sup>56</sup>N.C. Gen. Stat. Ann. § 99A-1.

<sup>57</sup>N.C. Gen. Stat. Ann. §§ 99A-1 and 99A-2.

<sup>58</sup>805.00 Trespass to Real Property, N.C.P.I.-CIVIL 805.00.

<sup>59</sup>27A N.C. Index 4th Trespass Summary.

<sup>60</sup>N.C. Const. art. I, § 19.

<sup>61</sup>*Id.*

<sup>62</sup>N.C. Gen. Stat. Ann. § 77-20; See Kalo, Joseph (2005). "North Carolina Oceanfront Property and Public Waters and Beaches: The Rights of Littoral Owners in the Twenty-First Century," *North Carolina Law Review*, vol. 83, 1428–1504.

<sup>63</sup>*Id.*

<sup>64</sup>N.C. Gen. Stat. Ann. § 146-6.

<sup>65</sup>*Id.*

<sup>66</sup>*Nies v. Town of Emerald Isle*, 2015 N.C. App. Lexis 958, 19 (N.C. Ct. App. Nov. 17, 2015). However, the North Carolina Supreme Court agreed to hear a challenge to this state appellate court opinion (*Nies v. Town of Emerald Isle*, 2016 N.C. Lexis 316).

## For More Information

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