

# Indigenous Knowledge and Data: Overview and Issues for Congress

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## Indigenous Knowledge and Data: Overview and Issues for Congress

Indigenous peoples have inhabited North America for millennia, developing deep cultural, spiritual, and subsistence ties to the landscape. Due to their historical connections, many Indigenous peoples maintain *Indigenous knowledge* (IK) about their current and ancestral landscapes. There is no single definition of IK, and different Indigenous peoples and federal agencies may define the term differently. One Indigenous author explained that IK generally represents “deep spatial experiential knowledges embedded in a People’s language, stories, songs, ceremonies, and everyday customs and habits.” IK may be held by an Indigenous group, a particular part of the group, or individuals who have been specially taught or initiated. IK holders are determined in accordance with Indigenous peoples’ own customs, laws, and practices and may include elders, cultural practitioners, and/or spiritual leaders.

IK may come in many forms. *Traditional environmental or ecological knowledge* (TEK) is a frequently cited form of IK that typically is based on a set of empirical observations about the local environment. TEK is both cumulative and dynamic, because it builds upon the experience of earlier generations and adapts to current conditions. *Indigenous data* is a newer term largely being used to reflect the increasing use of databases and data portals and the creation of datasets that capture IK collected by researchers and others. Indigenous data may include data about Indigenous people and territories in addition to forms of IK; these data may be collected by governments and other institutions.

For the past several decades, some federal agencies—including those with natural resource and public health-related missions—have been collecting and using IK to varying degrees. These policies and projects have been largely disparate and up to agency staff discretion, causing some Indigenous groups to ask for government-wide guidance. Some Indigenous peoples and policymakers view the incorporation of IK into federal decisionmaking as a way to improve outcomes and diversify the body of knowledge that informs such decisions. Furthermore, some Indigenous peoples and federal agencies have claimed that IK can help federal agencies meet statutory mandates.

At the same time, Congress and federal agencies may find it challenging to weigh some Indigenous peoples’ interest in including IK in federal decisionmaking, on the one hand, against other statutory mandates and congressional priorities, on the other hand. For example, the incorporation of IK into federal policy and decisionmaking may conflict with statutory requirements governing federal agency processes for considering information and making evidence-based decisions. Accurate, credible scientific information is important to policy development and decisionmaking processes, and there may be questions surrounding whether or how to verify the accuracy and credibility of IK shared with federal agencies. In addition, interest in promoting the transparency and accessibility of federal data to the public may conflict with some Indigenous peoples’ interest in *Indigenous data sovereignty* and *Indigenous data governance*, which involve control or ownership of IK. Indigenous peoples may want researchers to obtain *free, prior, and informed consent* prior to using IK. Although IK may be helpful in identifying potential impacts of federal actions, or generally informing federal decisionmaking, some Indigenous peoples may want to maintain the confidentiality of IK for various reasons.

As part of its oversight role, Congress might consider IK’s role in federal decisionmaking and whether additional legislative direction might be needed to clarify potentially conflicting guidance. Congress may continue to consider whether, and in what circumstances, to encourage or require federal agencies to incorporate IK into federal decisionmaking. Currently, numerous statutes and executive mandates have described the role IK should play at some federal agencies, including in the formation of policy, conduct of research, and consideration as evidence in making decisions. In particular, some statutes reference IK in the context of federal agency management of natural and cultural resources. Congress could expand or reduce IK’s role in decisionmaking at these agencies and others. Additional issues to consider may include if or how to approach Indigenous data sovereignty, confidentiality, and protection.

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## Introduction

Indigenous peoples have inhabited North America for millennia, developing cultural and subsistence ties to the landscape.<sup>1</sup> Due to their historical connections, many Indigenous peoples, including federally recognized Tribes (hereinafter, *Tribes*), often maintain specialized knowledge about their current and ancestral landscapes.<sup>2</sup> This knowledge can be both written and oral.<sup>3</sup> According to some tribal groups, this knowledge is intertwined with Indigenous peoples' identity, culture, values, and way of life and often is critical to their well-being and survival.<sup>4</sup> This specialized knowledge is sometimes called *Indigenous knowledge* (IK), which includes *traditional environmental or ecological knowledge* (TEK). The term *Indigenous data* refers to data generated by and about Indigenous peoples. These terms are further defined in the "Overview of Terminology" section of this report.

Indigenous peoples have advocated for federal agencies to consistently incorporate IK into federal research and decisionmaking, in consultation with Indigenous peoples.<sup>5</sup> From their perspective, IK may be essential to protecting their heritage, perhaps especially when unique natural features or resources are involved and become the potential subjects of federal action.<sup>6</sup> Some Indigenous peoples and policymakers also view the incorporation of IK into federal decisionmaking as a way to improve outcomes and diversify the knowledge that informs such decisions.<sup>7</sup> For example, some federal agencies and Tribes have asserted that IK helps assess and

<sup>1</sup> The term *Indigenous* is not consistently defined in the international or domestic legal context. Some entities, such as the United Nations, have developed general guidelines for identifying Indigenous groups based on various factors (see United Nations, "Who Are Indigenous Peoples?," fact sheet, [https://www.un.org/esa/socdev/unpfii/documents/5session\\_factsheet1.pdf](https://www.un.org/esa/socdev/unpfii/documents/5session_factsheet1.pdf)). Throughout this report, the term *Indigenous peoples* is used to refer to a diverse set of people in the United States that may be known by various terms including *Tribe*, *Native American*, *Alaska Native*, and *Native Hawaiian*.

<sup>2</sup> A *federally recognized Tribe* (hereinafter *Tribe*) is an entity recognized as having a government-to-government relationship with the United States, which makes the entity eligible for certain federal programs and services (25 C.F.R. 83).

<sup>3</sup> Department of the Interior (DOI), Bureau of Indian Affairs (BIA), *Draft Procedures for the Inclusion and Application of Indigenous Knowledge in Actions of the Department Handbook*, 301 DM 7, [https://www.bia.gov/sites/default/files/dup/tcinfo/301\\_dm\\_7\\_draft\\_indigenous\\_knowledge\\_handbook\\_consultation\\_11.8.24.pdf](https://www.bia.gov/sites/default/files/dup/tcinfo/301_dm_7_draft_indigenous_knowledge_handbook_consultation_11.8.24.pdf) (hereinafter DOI, *Draft IK Handbook*).

<sup>4</sup> National Congress of American Indians (NCAI), "Resolution #PDX-20-044-Supporting Tribal Communities That Utilize a Co-Production of Knowledge Approach in Research Engagement," p. 1, November 2020, <https://ncai.assetbank-server.com/assetbank-ncai/action/viewAsset?id=486> (hereinafter NCAI, "Co-Production Resolution"). See also Victoria Reyes-García, "The Values of Traditional Ecological Knowledge," in *Handbook of Ecological Economics*, eds. Joan Martínez-Alier and Roldan Muradian (Edward Elgar Publishing, 2015), pp. 283-306, see p. 290 (hereinafter Reyes-García, "Values").

<sup>5</sup> See, for example, NCAI, "Co-Production Resolution." See also Kirk Francis Sr., President, United South and Eastern Tribes (USET), "Honoring Traditional Ecological Knowledge is Critical," December 13, 2021, <https://www.usetinc.org/general/honoring-traditional-ecological-knowledge-is-critical/>.

<sup>6</sup> See, for example, National Association of Tribal Historic Preservation Officers, "What Is a THPO?," <https://www.nathpo.org/what-is-a-thpo/>.

<sup>7</sup> See, for example, Executive Office of the President, Council on Environmental Quality (CEQ) and Office of Science and Technology Policy (OSTP), "Guidance for Federal Departments and Agencies on Indigenous Knowledge," November 30, 2022, p. 5, <https://www.whitehouse.gov/wp-content/uploads/2022/12/OSTP-CEQ-IK-Guidance.pdf> (hereinafter CEQ/OSTP, "2022 IK Guidance"). See also Bears Ears Coalition, "The Tribal Proposal to President Obama for the Bears Ears National Monument," p. 2, <https://www.bearscoalition.org/wp-content/uploads/2015/01/ExecutiveSummaryBearsEarsProposal.pdf>.

respond to changes in the natural environment.<sup>8</sup> Furthermore, some Indigenous peoples and federal agencies have claimed that using IK can help federal agencies meet statutory mandates, especially to protect historic and cultural resources.<sup>9</sup> In addition, some Tribes and tribal organizations have argued the *federal trust responsibility* and certain tribal treaty rights require federal agency consideration of IK.<sup>10</sup>

Numerous statutes and executive mandates have described the role IK should play at some federal agencies, including in the formation of policy, in the conduct of research, and as evidence in making decisions. In particular, some statutes reference IK in the context of federal agency management of natural resources.<sup>11</sup> Executive orders also have established presidential direction on federal-tribal consultation broadly, and presidential memoranda have set out policies on federal agency incorporation of IK obtained through consultation.<sup>12</sup>

At the same time, Congress and federal agencies may find it challenging to weigh some Indigenous peoples' interest in including IK in federal decisionmaking, on the one hand, against other statutory mandates and legislative priorities, on the other hand. For example, the incorporation of IK into federal policy and decisionmaking may pose challenges to agency requirements for considering information and making evidence-based policy decisions, because IK may not be seen as meeting the same standards or criteria as other scientific information.<sup>13</sup> Furthermore, there is no single way to determine whether or when IK (including TEK) is evidence for policymaking and decisionmaking. Accurate, credible scientific information is important to many policy-development and decisionmaking processes, and questions may surround whether or how to verify the accuracy and credibility of IK shared with federal agencies. In addition, Indigenous peoples may want input into how agencies use and manage IK

<sup>8</sup> For example, a joint report issued in 2024 by the Alaska Native Tribal Health Consortium, the State of Alaska, and the National Oceanic and Atmospheric Administration (NOAA) stated that when Alaska Native people use their IK about how to adapt to changing environmental conditions, the results are “more effective, inclusive, and enduring” (Alaska Native Tribal Health Consortium, *The Unmet Needs of Environmentally Threatened Alaska Native Villages: Assessment and Recommendations*, p. 42, <https://www.anthc.org/news/anthc-publishes-report-unmet-needs-of-environmentally-threatened-alaska-native-villages/>).

<sup>9</sup> See the Advisory Council on Historic Preservation (ACHP), “Traditional Knowledge and the Section 106 Process: Information for Federal Agencies and Other Participants,” pp. 2-3, <https://www.achp.gov/sites/default/files/2021-05/TraditionalKnowledgePaper5-3-21.pdf> (hereinafter ACHP, “Traditional Knowledge”).

<sup>10</sup> The *federal trust responsibility* is a legal obligation under which the United States, through treaties, acts of Congress, and court decisions, “has charged itself with moral obligations of the highest responsibility and trust” toward Tribes (*Seminole Nation v. United States*, 316 U.S. 286, 296-297 (1942)). See also NCAI, “Resolution #PDX-20-003-Calling for the Advancement of Meaningful Tribal Co-management of Federal Lands,” 2020, p. 2, <https://archive.ncai.org/resources/resolutions/calling-for-the-advancement-of-meaningful-tribal-co-management-of-federal-lands>.

<sup>11</sup> See, for example, the Tribal Forest Protection Act (25 U.S.C. §3115a).

<sup>12</sup> See, for example, Executive Order 13175, “Consultation and Coordination with Indian Tribal Governments,” 65 *Federal Register* 67249, November 6, 2000. For a more complete list of executive branch authorities for tribal consultation, see CRS Report R48093, *Federal-Tribal Consultation: Background and Issues for Congress*, coordinated by Mariel J. Murray. See also CEQ and OSTP, “Indigenous Traditional Ecological Knowledge and Federal Decision Making,” November 15, 2021, <https://www.whitehouse.gov/wp-content/uploads/2021/11/111521-OSTP-CEQ-ITEK-Memo.pdf> (hereinafter CEQ/OSTP, “2021 IK Memo”).

<sup>13</sup> *Evidence-based decisionmaking* and *evidence-based decisions* are concepts broadly used in several disciplines. The concepts are believed to have emerged first in the practice of medicine and medical care. Across various disciplines, the concepts generally mean to use scientific evidence, with a preference usually for evidence generated from studies, trials, and other research that uses rigorous scientific methods to demonstrate with some degree of statistical confidence that something causes an effect or produces an outcome. This approach has since been extended to policymaking (i.e., *evidence-based policymaking*). See Ron Haskins, “Evidence-Based Policy: The Movement, the Goals, the Issues, the Promise,” *Annals of the American Academy of Political and Social Science*, vol. 678, no. 1 (July 2018), pp. 8-37.

or may not want IK to be disseminated and shared in ways required under the information transparency laws that agencies must follow.

This report begins with an overview of IK, including both TEK and Indigenous data. It then describes federal use of IK in policymaking and decisionmaking, followed by an overview of selected federal policies and statutory requirements for the general use of data, science, and evidence in federal agency decisionmaking. Finally, the report discusses selected issues and options for potential congressional consideration.

## Overview of Terminology

*IK*, *TEK*, and *Indigenous data* are among several terms used by researchers and practitioners to describe information that is generated by or originates from Indigenous people. Research has found that use of one term over another depends largely on context and subject area.<sup>14</sup> For example, *IK* and *TEK* are used more often in the context of biology and environmental studies, including in work on climate and conservation, whereas *Indigenous data* are used more often in the context of governance studies, public administration and policy, and quantitative social sciences, such as demography. Additionally, terms such as *IK* and *TEK* have been in use for many decades, whereas the term *Indigenous data* is relatively newer, with most use occurring since 2015 and primarily to account for the increasing use of databases and packaging of information, including as datasets, especially in the sciences.<sup>15</sup> This section discusses the concepts of *IK*, *TEK*, and *Indigenous data* to draw out their differences and contextualize these terms as they are used throughout the report.

## Indigenous Knowledge

There is no single definition of *IK*, and different Indigenous peoples and federal agencies may define the term differently.<sup>16</sup> A tribal coalition explained that different Indigenous peoples also

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<sup>14</sup> Marisa Elena Duarte et al., “‘Of Course, Data Can Never Fully Represent Reality’: Assessing the Relationship Between ‘Indigenous Data’ and ‘Indigenous Knowledge,’ ‘Traditional Ecological Knowledge,’ and ‘Traditional Knowledge,’” *Human Biology*, vol. 91, no. 3 (July 2019), pp. 163-178, see p. 170. (hereinafter Duarte et al., “Assessing the Relationship”).

<sup>15</sup> Ibid., pp. 165, 172.

<sup>16</sup> For example, DOI has stated,

The following are generally agreed upon universal concepts that are often used to describe Indigenous Knowledge. *IK* is a body of observations, oral and written knowledge, innovations, technologies, practices, and beliefs developed by Indigenous Peoples through interaction and experience with the environment. It is applied to phenomena across biological, physical, social, cultural, and spiritual systems. *IK* can be developed over millennia, continues to develop, and includes understanding based on evidence acquired through direct contact with the environment and long-term experiences, as well as extensive observations, lessons, and skills passed from generation to generation. *IK* is developed, held, and stewarded by Indigenous Peoples and is often intrinsic within Indigenous legal traditions, including customary law or traditional governance structures and decision-making processes. Other terms such as Traditional Knowledge(s), Traditional Ecological Knowledge, Genetic Resources associated with Traditional Knowledge, Traditional Cultural Expression, Tribal Ecological Knowledge, Native Science, Indigenous Applied Science, Indigenous Science, and others, are sometimes used to describe this knowledge system.

(DOI, “Departmental Responsibilities for Consideration and Inclusion of Indigenous Knowledge in Departmental Actions and Scientific Research,” in *Departmental Manual*, Part 301, December 5, 2023, p. 3, <https://www.doi.gov/document-library/departamental-manual/301-dm-7-departmental-responsibilities-consideration-and>; hereinafter DOI, “*IK Departmental Manual*.”)



may use terms such as *wisdom, knowledge, or life-ways*.<sup>17</sup> Oral histories, narratives, and spiritual practices and rituals are avenues for IK transmission.<sup>18</sup> In accordance with Indigenous customs and practices, IK may be held by an Indigenous group, a particular part of the group, or individuals who have been specially taught or initiated.<sup>19</sup>

Furthermore, IK has been described as representing Indigenous worldviews;<sup>20</sup> *worldviews* comprise beliefs or belief systems and associated social values. One Indigenous author explained that, in general, Indigenous worldviews are based on principles such as the following:

- knowledge depends on relationships and connections to living and nonliving beings and entities;
- there are many truths, and these truths are dependent upon individual experiences;
- everything is alive;
- the land is sacred; and
- the relationship between people and the spiritual world is important.<sup>21</sup>

## Traditional Environmental or Ecological Knowledge

Whereas IK may encompass knowledge broadly related to biological, physical, social, cultural, and spiritual systems, TEK, a frequently cited subset of IK, pertains to biological or ecological knowledge derived from interactions in a specific ecosystem.<sup>22</sup> TEK has been described as “built up by a group of people through generations of living in close contact with nature.”<sup>23</sup> TEK typically is based on a set of empirical observations about the local environment; it is both cumulative and dynamic, because it builds upon the experience of earlier generations and adapts to current conditions.<sup>24</sup> In this way, TEK (and IK generally) may continually evolve based on new observations.

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<sup>17</sup> West Coast Ocean Tribal Caucus, “Guidance and Responsibilities for Effective Tribal Consultation, Communication, and Engagement: A Guide for Agencies Working with West Coast Tribes on Ocean & Coastal Issues,” July 2020, p. 21, [https://static1.squarespace.com/static/5bc79df3a9ab953d587032ca/t/5f0cdc876f40e375a32305af/1594678422449/WestCoastTribalEngagmentGuidance\\_July2020.pdf](https://static1.squarespace.com/static/5bc79df3a9ab953d587032ca/t/5f0cdc876f40e375a32305af/1594678422449/WestCoastTribalEngagmentGuidance_July2020.pdf) (hereinafter West Coast Tribal Caucus, “Agency Guide”).

<sup>18</sup> Renee Pualani Louis, “Can You Hear Us Now? Voices from the Margin: Using Indigenous Methodologies in Geographic Research,” *Geographical Research*, Institute of Australian Geographers, vol. 45, no. 2 (June 2007), pp. 130-139, see p. 134.

<sup>19</sup> Ibid.

<sup>20</sup> J. De La Torre, “In the Trenches: A Critical Look at the Isolation of American Indian Political Practices in the Nonempirical Social Science of Political Science,” in *Indigenizing the Academy: Transforming Scholarship and Transforming Communities*, eds. Devon A. Mihesuah and Angela C. Wilson (Lincoln, NE: University of Nebraska Press, 2004), pp. 174-190. See also Marvin E. Olsen et al., *Viewing the World Ecologically* (San Francisco: Westview Press, 1992), p. 1.

<sup>21</sup> Leanne Simpson, “Anishinaabee Ways of Knowing,” in *Aboriginal Health, Identity, and Resources*, eds. Jill E. Oakes et al. (Winnipeg, Manitoba, Canada: Native Studies Press, 2000), pp. 165-185. Similarly, the U.S. Department of Agriculture’s (USDA’s) U.S. Forest Service has stated that IK is “often grounded in social, spiritual, cultural, and natural systems that are frequently intertwined and inseparable, offering a holistic perspective” (36 C.F.R. §219.19).

<sup>22</sup> National Park Service (NPS), “Indigenous Knowledge and Traditional Ecological Knowledge,” <https://www.nps.gov/subjects/tek/description.htm>.

<sup>23</sup> Martha Johnson, ed., “Introduction,” in *LORE: Capturing Traditional Environmental Knowledge*, ed. Martha Johnson (Fort Hay, Northwest Territories, Canada: Dene Cultural Institute and the International Development Research Centre, 1992), p. 4.

<sup>24</sup> Ibid.

## Indigenous Data

The term *Indigenous data* has emerged recently among Indigenous researchers and practitioners to reflect the ubiquity of information technologies in society at large and the rapid increase in the availability of information digitally and electronically. Specifically, the term arises in the context of the increasing use of databases and datasets that in some way organize and contain IK and TEK (e.g., electronic databases that catalog best practices developed by various Indigenous peoples or communities to address some issue they face).<sup>25</sup> These databases, including their availability online, create a source of information that others can access, use, and analyze, including to draw new insights and compute additional information.<sup>26</sup>

Some have described Indigenous data as being a term used to represent the collection of information about Indigenous people rather than a method by which information is created, distinguishing it from IK and TEK.<sup>27</sup> Indigenous data includes data generated by Indigenous peoples and data about Indigenous people, including that which is collected by governments and other institutions (e.g., universities, museums).<sup>28</sup> Examples of Indigenous data may include information that is considered IK and TEK (e.g., a particular plant is used during periods of famine). It also may be distinct from IK in instances when Indigenous data contain information about Indigenous people, such as their administrative, census, health, social, commercial, and corporate information.<sup>29</sup>

The term Indigenous data is often used in the context of another term, *Indigenous data sovereignty*.<sup>30</sup> Some researchers have described data sovereignty in a policy context to mean a nation's authority to develop laws and regulations concerning how data are managed within its borders (e.g., data collection laws).<sup>31</sup> Data sovereignty also has been described as a nation's right to manage data located within its borders according to its laws and practices.<sup>32</sup> Following from these ideas of what data sovereignty means, researchers have described Indigenous data sovereignty as “the right of Native nations to govern the collection, ownership, and application of its own data,” with sovereignty in this context being rooted in the tribal sovereignty of federally recognized tribes.<sup>33</sup>

Certain scholars have suggested the concepts of Indigenous data and Indigenous data sovereignty have become more relevant as big data, open data, open science, and data reuse have become key

<sup>25</sup> Arun Agrawal, “Indigenous Knowledge and the Politics of Classification,” *International Social Science Journal*, vol. 54, no. 173 (September 2002), pp. 287-297, see pp. 287-288.

<sup>26</sup> Duarte et al., “Assessing the Relationship,” p. 164.

<sup>27</sup> *Ibid.*, p. 170.

<sup>28</sup> Stephanie Russo Carroll et al., “The CARE Principles for Indigenous Data Governance,” *Data Science Journal*, vol. 19, no. 43 (November 2020), pp. 1-12, see pp. 2-3 (hereinafter Carroll et al., “The CARE Principles”).

<sup>29</sup> *Ibid.*, p. 3.

<sup>30</sup> Duarte et al., “Assessing the Relationship,” p. 169.

<sup>31</sup> Patrik Hummel, Matthias Brau, and Peter Dabrock, “Data Sovereignty: A Review,” *Big Data & Society*, vol. 8, no. 1 (January-June 2021), pp. 1-17, see pp 6-7.

<sup>32</sup> *Ibid.*; see also Rebecca Tsosie, “The Legal and Policy Dimensions of Indigenous Data Sovereignty,” in *Indigenous Data Sovereignty and Policy*, eds. Maggie Walter et al. (London: Routledge, 2020), p. 209. *Tribal digital sovereignty* is another term that has been used to mean “the exercise of sovereign authority over physical and virtual network infrastructure, and the intangible, virtual digital jurisdictional aspects of the acquisition, storage, transmission, access, and use of data including policy developments that impact a Tribal Nation’s digital footprint in both real world and virtual spaces” (NCAI, “Resolution #NC-24-008 Supporting Tribal Digital Sovereignty as an Exercise of Self-Determination,” June 2024, p. 1, <https://ncai.assetbank-server.com/assetbank-ncai/action/viewAsset?id=5502>).

<sup>33</sup> Carroll et al., “The CARE Principles,” p. 2.



parts of research and institutional practices.<sup>34</sup> Increasingly, genetics research, epidemiology, machine learning, and artificial intelligence rely on the proliferation of data that is relatively easy to access. The federal policy concerning open data, including the availability of federal data to the public and data from federally funded research, is discussed below. Indigenous data sovereignty is discussed in “Indigenous Data Sovereignty and Governance.”<sup>35</sup>

## Federal Use of Indigenous Knowledge

At various stages of federal decision- and policymaking, federal agencies may engage with Indigenous peoples and may consider IK shared during these engagements. For example, as part of the federal trust responsibility and the government-to-government relationship, federal agencies may consult with Tribes to hear their views on a proposed federal policy or decision.<sup>36</sup> Beyond the federal trust responsibility, according to various statutory and other legal mandates, federal agencies may engage with Indigenous peoples that are not federally recognized. For example, as for-profit corporations, Alaska Native Corporations (ANCs) lack a government-to-government relationship with the United States, although federal agencies often engage with ANCs.<sup>37</sup> Similarly, Native Hawaiians are not Tribes, although federal agencies may engage with them, including Native Hawaiian Organizations.<sup>38</sup> Congress has required federal agencies to consult with Indigenous peoples in certain situations, such as when federal actions may impact tribal historic, cultural, and religious sites, as outlined below.<sup>39</sup>

## Congressional Direction on the Federal Use of IK

Although some statutes may require federal agencies to consider IK in decisionmaking, they rarely explicitly define IK. For example, statutes may allow federal agencies to consider IK in tribally proposed projects or programs.<sup>40</sup> Separately, Congress has required federal agencies to consider IK to implement statutes relating to tribal culture or history. For example, the Native American Graves Protection and Repatriation Act (NAGPRA; 25 U.S.C. §§3001 et seq.) requires museums and federal agencies to identify Native American human remains, funerary items, and objects of cultural significance in their collections and on federal lands and then to repatriate the

<sup>34</sup> Ibid., p. 3. In general, *big data* refers to the large amount of data generated from various sources that lend themselves to analysis (see, for example, the discussion in Andrew McAfee and Erik Brynjolfsson, “Big Data: The Management Revolution,” *Harvard Business Review*, October 2012). The Biden Administration has described *open science* as “the principle and practice of making research products and processes available to all, while respecting diverse cultures, maintaining security and privacy, and fostering collaborations, reproducibility, and equity” (see OSTP, “Fact Sheet: Biden-Harris Administration Announces New Actions to Advance Open and Equitable Research,” <https://www.whitehouse.gov/ostp/news-updates/2023/01/11/fact-sheet-biden-harris-administration-announces-new-actions-to-advance-open-and-equitable-research/>).

<sup>35</sup> See “Indigenous Data Sovereignty and Governance.”

<sup>36</sup> For example, a 2022 presidential memorandum directed federal agencies to “respect and elevate Indigenous Knowledge, including cultural norms and practices” when conducting tribal consultation. U.S. President (Biden), “Memorandum of November 30, 2022: Uniform Standards for Tribal Consultation,” 87 *Federal Register* 74479, December 5, 2022. See also BIA, “What Is Tribal Consultation?,” <https://www.bia.gov/service/tribal-consultations/what-tribal-consultation>. For a detailed overview of federal-tribal consultation, see CRS Report R48093, *Federal-Tribal Consultation: Background and Issues for Congress*, coordinated by Mariel J. Murray.

<sup>37</sup> See Alaska Native Claims Settlement Act (ANCSA; 43 U.S.C. §§1601 et seq.).

<sup>38</sup> See 54 U.S.C. §300314 for a sample definition of *Native Hawaiian Organization*.

<sup>39</sup> See, for example, the National Historic Preservation Act of 1966 (NHPA; 54 U.S.C. §§300101 et seq.).

<sup>40</sup> For example, when considering a tribally proposed project under the Tribal Forest Protection Act (25 U.S.C. §3115a), the Secretary of Agriculture or of the Interior, as appropriate, may consider the Indigenous knowledge and skills of the tribal members proposing the project.

items.<sup>41</sup> NAGPRA allows for IK to show the cultural affiliation of *unassociated funerary objects*, which can include “geographical, kinship, biological, archaeological, anthropological, linguistic, folkloric, oral traditional, historical, or other relevant information or expert opinion.”<sup>42</sup> In addition, the National Historic Preservation Act (NHPA; 54 U.S.C. §§300101 et seq.) authorizes IK to play a role in the NHPA Section 106 process, which requires federal agencies to review the potential impacts of federal or federally assisted actions on historic properties and to consult with interested parties to seek ways to avoid, minimize, or mitigate any adverse effects.<sup>43</sup> Specifically, regulations require federal officials to acknowledge that Tribes and Native Hawaiian Organizations “possess special expertise in assessing the eligibility of historic properties that may possess religious and cultural significance to them.”<sup>44</sup>

Congress also has authorized state and tribal input in natural resource management, which in some cases has led to the incorporation of TEK in federal decisionmaking.<sup>45</sup> For example, the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. §1852) established Regional Fishery Management Councils to include state and, in some cases, tribal representatives.<sup>46</sup> Some of these Councils have sought to consider and incorporate TEK in fisheries management.<sup>47</sup> Similarly, the Marine Mammal Protection Act of 1972 (16 U.S.C. §§1361 et seq.) allows the Secretaries of Commerce and the Interior to enter into cooperative agreements with Alaska Native organizations “to conserve marine mammals and provide co-management of subsistence use of those resources by Alaska Natives.”<sup>48</sup> These agreements can include grants to collect and analyze data on marine mammal populations (including monitoring the harvest of marine mammals).<sup>49</sup> More recently, Congress has debated directing Department of the Interior (DOI) federal land management agencies, such as the U.S. Fish and Wildlife Service and the Bureau of Ocean Energy Management, to consider IK in their decisions.<sup>50</sup>

<sup>41</sup> See, generally, 25 U.S.C. §§3001 et seq. For an overview of Native American Graves Protection and Repatriation Act (25 U.S.C. §§3001 et seq.) requirements, see CRS In Focus IF12523, *Repatriation of Native American Remains and Cultural Items: Requirements for Agencies and Institutions*, by Mark K. DeSantis and Nik Taylor.

<sup>42</sup> 25 U.S.C. §3005(a)(4).

<sup>43</sup> 54 U.S.C. §306108. See also CRS Report R47543, *Historic Properties and Federal Responsibilities: An Introduction to Section 106 Reviews*, by Mark K. DeSantis.

<sup>44</sup> 36 C.F.R. §800.4.

<sup>45</sup> See, for example, 33 U.S.C. §3705 and 16 U.S.C. §1855, which govern NOAA’s activities.

<sup>46</sup> Congress directed the Pacific Council to include representatives from states and Pacific Northwest Tribes with treaty rights (16 U.S.C. §1852(a)(1)(F)). In the 18<sup>th</sup> and 19<sup>th</sup> centuries, the federal government removed many Indigenous peoples from their ancestral homelands through treaties and other means. Various treaties reserved rights to these groups, such as to continue hunting, fishing, or gathering on lands ceded to the federal government. For example, the Treaty Between the United States of America and the Nez Percé Indians, U.S.-Nez Percé Tribe, Article III, June 11, 1855, 12 Stat. 957, 958, gave the Tribe “the right of taking fish at all usual and accustomed places.”

<sup>47</sup> For example, in 2019, the North Pacific Fishery Management Council (NPFMC) published the Bering Sea Fishery Ecosystem Plan, which attempted to formalize “the use and review of local knowledge (LK) and traditional knowledge (TK) within and alongside natural and social science in the fisheries management process” (NPFMC, “The Bering Sea Fishery Ecosystem Plan,” January 2019, p. 15, <https://meetings.npfmc.org/CommentReview/DownloadFile?p=c334ad33-4139-4b5a-b205-a8b7c5028562.pdf&fileName=D6%20Final%20BS%20FEP%20Jan%202019.pdf>).

<sup>48</sup> 16 U.S.C. §1388. See also CRS Report R47511, *Subsistence Uses of Resources in Alaska: An Overview of Federal Management*, by Mark K. DeSantis and Erin H. Ward.

<sup>49</sup> 16 U.S.C. §1388.

<sup>50</sup> U.S. Congress, Senate Appropriations Committee, *Department of the Interior, Environment, and Related Agencies Appropriations Bill, 2025*, report to accompany S. 4802, 118<sup>th</sup> Cong., 2<sup>nd</sup> sess., July 25, 2024, S.Rept. 118-201 (Washington: GPO, 2024), pp. 24, 27, and 54.

## Executive Branch: IK Use and Direction

For the past several decades, scientists and some federal agencies have been collecting and using IK to varying degrees. Interest in using IK began to emerge in the 1980s, potentially due to increasingly visible Indigenous political movements and an increased scientific recognition of IK, especially TEK.<sup>51</sup> For example, one review of scientific research papers referencing IK, TEK, or “Indigenous Ecological Knowledge” found that five papers used those terms in 1990, compared with 1,404 in 2018.<sup>52</sup> Starting in the 1980s, some federal agencies began to consider and incorporate IK into their decisions and activities. More recently, the Biden Administration issued government-wide guidance on IK.<sup>53</sup> This history of the executive branch’s IK use and direction is outlined below.

### IK in Efforts Involving Natural Resources

In the 1980s and 1990s, many federal agencies with natural-resources-related missions began to consult with Indigenous peoples and integrate IK into specific projects or programs. Since the late 1980s, the U.S. Fish and Wildlife Service has been working with Indigenous peoples, for example, to collect and use IK for monitoring wildlife populations for the Federal Subsistence Management Program, as well as for Endangered Species Act (ESA; P.L. 93-205) listing decisions.<sup>54</sup> In 1995, the predecessor agency to the Bureau of Ocean Energy Management started discussing how to effectively incorporate IK into its decisions with the Alaska Native Science Commission.<sup>55</sup> Federal agencies such as the U.S. Forest Service (FS) have increasingly been collaborating with Indigenous peoples to adopt “cultural burning” practices to reduce wildfire risk across landscapes.<sup>56</sup> In the 2000s, several agencies began to issue policies referencing IK.<sup>57</sup> For example, in 2006, the National Park Service published a policy that provides for employees to include applicable traditional knowledge that will help park managers accomplish park objectives.<sup>58</sup> Similarly, in 2010, the U.S. Department of Agriculture’s (USDA’s) Natural Resources Conservation Service issued a guidebook for employees to incorporate IK into the service’s conservation practices.<sup>59</sup>

### IK in Efforts Involving Public Health

Several federal agencies focused on tracking or improving health outcomes have considered IK to varying degrees. Some federal agencies have asserted that Indigenous communities face unique health challenges because of federal policies and state laws that historically restricted the

<sup>51</sup> Reyes-García, “Values,” pp. 286-288.

<sup>52</sup> Tyler D. Jessen et al., “Contributions of Indigenous Knowledge to Ecological and Evolutionary Understanding,” *Frontiers in Ecology and the Environment*, vol. 20, no. 2 (March 2022), pp. 93-101.

<sup>53</sup> CEQ/OSTP, “2022 IK Guidance.”

<sup>54</sup> U.S. Fish and Wildlife Service, “TEK Factsheet,” p. 2. See also CRS Report R47511, *Subsistence Uses of Resources in Alaska: An Overview of Federal Management*, by Mark K. DeSantis and Erin H. Ward.

<sup>55</sup> Bureau of Ocean Energy Management, “Traditional Knowledge,” <https://www.boem.gov/about-boem/traditional-knowledge>.

<sup>56</sup> Frank Kanawha Lake, “Indigenous Fire Stewardship: Federal/Tribal Partnerships for Wildland Fire Research and Management,” *Fire Management Today*, vol. 79, no. 1 (January 2021), pp. 30-39.

<sup>57</sup> For a sample list of federal agencies with IK policies, see CEQ/OSTP, “2022 IK Guidance,” pp. 34-35.

<sup>58</sup> NPS, “Management Policies 2006,” p. 40, [https://www.nps.gov/subjects/policy/upload/MP\\_2006.pdf](https://www.nps.gov/subjects/policy/upload/MP_2006.pdf).

<sup>59</sup> USDA, Natural Resources Conservation Service, *Indigenous Stewardship Methods and NRCS Conservation Practices Guidebook*, 2010, p. 1, <https://efotg.sc.egov.usda.gov/references/public/va/IndigenousStewardship.pdf>.

traditional health practices of their communities.<sup>60</sup> In recent decades, these agencies have tried to address such challenges by allowing for more IK and traditional practices in federal health care policies and programs. For example, in 2000, the Environmental Protection Agency established a Tribal Environmental Health Research Program to identify tribally specific impacts of pollution, dietary exposure, cumulative risk, and climate change, as well as to inform decisions to reduce health risks in these areas.<sup>61</sup> The program has since funded tribally led research projects that “encompass traditional and nontraditional scientific approaches.”<sup>62</sup>

In addition, the Department of Health and Human Services (HHS) has tried to support Indigenous communities by supporting traditional practices. For example, in 2011, the Centers for Disease Control and Prevention’s (CDC’s) tribal advisory committee encouraged the agency to address health disparities among Indigenous peoples while respecting and incorporating IK.<sup>63</sup> After further research and consultation, in 2014, CDC launched the Good Health and Wellness in Indian Country initiative.<sup>64</sup> This initiative aims to reduce chronic disease and risk factors for chronic disease, as well as to increase health-promoting behaviors for Indigenous communities through community-proposed initiatives.<sup>65</sup> Similarly, the purpose of the Substance Abuse and Mental Health Services Administration’s Tribal Opioid Response Grant is to address opioid use in tribal communities by increasing access to “culturally appropriate and evidence-based treatment.”<sup>66</sup> Under the program guidance, grant recipients are encouraged to incorporate cultural practices, such as the use of traditional healers and traditional herbs, into their grant activities.<sup>67</sup>

More recently, in 2024, HHS’s Centers for Medicare & Medicaid Services (CMS) announced that it would allow, for the first time ever, state use of the Medicaid and State Children’s Health Insurance Program (CHIP) Section 1115 demonstration waiver authority to permit federal funding for coverage of traditional health care practices provided to program enrollees who receive services delivered by or through certain Indian Health Service facilities, tribal facilities, and urban Indian organizations.<sup>68</sup> As of October 16, 2024, CMS approved traditional health care

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<sup>60</sup> See Centers for Disease Control and Prevention (CDC), “Unfair and Unjust Practices and Conditions Harm American Indian and Alaska Native People and Drive Health Disparities,” <https://www.cdc.gov/tobacco-health-equity/collection/aian-unfair-and-unjust.html>.

<sup>61</sup> Environmental Protection Agency, “A Decade of Tribal Environmental Health Research: Results and Impacts from EPA’s Extramural Grants and Fellowship Programs,” 2015, p. 1, <https://www.epa.gov/sites/default/files/2015-08/documents/results-impacts.pdf>.

<sup>62</sup> Ibid. For example, one of these grants funded the Swinomish Indian Tribal Community’s development of “Indigenous Health Indicators” (Swinomish Indian Tribal Community, “IHI-Indigenous Health Indicators,” <https://swinomish-nsn.gov/ih2/index.html>).

<sup>63</sup> Thomas J. Lawrence and Rosalina D. James, “Good Health and Wellness: Measuring Impact Through an Indigenous Lens,” *Preventing Chronic Disease*, August 15, 2019.

<sup>64</sup> Ibid.

<sup>65</sup> CDC, “Good Health and Wellness in Indian Country (GHWIC),” <https://www.cdc.gov/healthy-tribes-ghwic/php/about/#:~:text=GHWIC%20seeks%20to%20improve%20American,blood%20pressure%2C%20and%20high%20cholesterol>. See also Great Lakes Inter-tribal Council Inc., “Good Health and Wellness in Indian Country (GHWIC),” <https://www.glitc.org/programs/epidemiology-and-education/great-lakes-inter-tribal-epidemiology-center/good-health-wellness-in-indian-country-ghwic/overview-ghwic/>.

<sup>66</sup> Substance Abuse and Mental Health Services Administration, “Tribal Opioid Response Grants,” <https://www.samhsa.gov/tribal-affairs/tribal-opioid-response-grants>.

<sup>67</sup> Ibid.

<sup>68</sup> See CRS Report R43357, *Medicaid: An Overview*, coordinated by Alison Mitchell.

Section 1115 demonstration waivers for tribal communities in Arizona, California, New Mexico, and Oregon.<sup>69</sup>

Some federal agencies also have been influenced by international legal developments on IK, as described in the textbox below.

### International Direction on Indigenous Knowledge

Various international bodies have issued direction on the collection and use of Indigenous knowledge (IK). For example, among other things, the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) recognized that “respect for indigenous knowledge, cultures and traditional practices contributes to sustainable and equitable development and proper management of the environment.” Furthermore, UNDRIP Article 31 establishes the right of Indigenous peoples to maintain, control, protect, and develop their traditional knowledge and associated intellectual property. Similarly, Article 8 of the Convention on Biological Diversity encourages countries to “respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity” as well as share benefits with Indigenous peoples.

The United States has not ratified these international documents; therefore, these documents are not legally binding in the United States. Nevertheless, some federal agencies have acknowledged or expressed support for some of these IK directives in agency policies and international negotiations. For example, in 2024, the U.S. Department of State announced an agreement in principle with Canada to update the Columbia River Treaty. As part of that update, the parties agreed to establish a tribal and Indigenous-led body that will provide recommendations on how treaty operations can support ecosystem needs and tribal and Indigenous cultural values.

**Sources:** United Nations, “Declaration on the Rights of Indigenous Peoples,” G.A. Res. 61/295, September 13, 2007, [https://www.un.org/development/desa/indigenouspeoples/wp-content/uploads/sites/19/2018/11/UNDRIP\\_E\\_web.pdf](https://www.un.org/development/desa/indigenouspeoples/wp-content/uploads/sites/19/2018/11/UNDRIP_E_web.pdf); U.S. Department of State, “Announcement of U.S. Support for the United Nations Declaration on the Rights of Indigenous Peoples,” January 12, 2011; Convention on Biological Diversity, “Article 8: In Situ Conservation,” 1992, Article 8j, <https://www.cbd.int/convention/articles/default.shtml?a=cbd-08>; U.S. Department of State, “Summary of the Agreement in Principle to Modernize the Columbia River Treaty Regime,” July 11, 2024, <https://www.state.gov/summary-of-the-agreement-in-principle-to-modernize-the-columbia-river-treaty-regime/>.

### Government-Wide Direction on IK

Historically, federal policies and practices regarding the use of IK were disparate and largely up to agency discretion, causing some Indigenous groups to ask for government-wide guidance.<sup>70</sup> In 2021, the Executive Office of the President’s Council on Environmental Quality (CEQ) and Office of Science and Technology Policy (OSTP) responded to these requests by publishing a presidential memorandum that initiated a process to develop government-wide guidance on TEK.<sup>71</sup> The memorandum also formally recognized TEK as “one of the many important bodies of knowledge that contributes to the scientific, technical, social, and economic advancements of the United States and our collective understanding of the natural world.”<sup>72</sup> After engaging with Indigenous peoples, federal agencies, and other stakeholders, CEQ and OSTP issued broader IK

<sup>69</sup> Department of Health and Human Services (HHS), Centers for Medicare & Medicaid Services, “Biden-Harris Administration Takes Groundbreaking Action to Expand Health Care Access by Covering Traditional Health Care Practices” October 16, 2024, <https://www.cms.gov/newsroom/press-releases/biden-harris-administration-takes-groundbreaking-action-expand-health-care-access-covering>.

<sup>70</sup> See NCAI, “Resolution #REN-13-035- Request for Federal Government to Develop Guidance on Recognizing Tribal Sovereign Jurisdiction over Traditional Knowledge,” June 2013, p. 1, <https://ewatlas.net/digital-heritage/request-us-federal-government-develop-guidance-recognizing-tribal-sovereign> (hereinafter NCAI, “Guidance Resolution”).

<sup>71</sup> The CEQ/OSTP Memo used the term *Indigenous Traditional Ecological Knowledge*, but for consistency, this report will continue to use the term *TEK*. CEQ/OSTP, “2021 IK Memo,” pp. 1-2.

<sup>72</sup> Ibid. p. 1.



guidance (to address IK generally, not just TEK) in 2022 (hereinafter CEQ/OSTP 2022 IK guidance).<sup>73</sup> The guidance sought to help federal agencies (1) understand IK; (2) grow and maintain relationships with Indigenous peoples; and (3) consider, include, and apply IK in federal research, policies, and decisionmaking.<sup>74</sup>

To implement the CEQ/OSTP 2022 IK guidance, many federal agencies issued agency-specific IK policies. For example, in 2023, NOAA issued an official policy that encouraged the inclusion of IK in employees' environmental science, policy and decisionmaking processes.<sup>75</sup> It also included IK in its definition of *best available science*.<sup>76</sup> In 2023, DOI issued an official policy promoting the inclusion of IK in the department's "decision making, resource management, program implementation, policy development, scientific research, and other actions."<sup>77</sup> DOI notes that bringing IK and other scientific approaches together "can generate a more holistic understanding of social and ecological processes," which in turn can improve program implementation.<sup>78</sup>

In particular, the CEQ/OSTP 2022 IK guidance encouraged federal agencies to consider IK in decisions about federal land management. The guidance stated that federal agencies should consider "co-management, collaborative management, and co-stewardship of lands and waters as opportunities" to include Tribes, Indigenous peoples, and IK in federal actions.<sup>79</sup> This direction built on existing federal agency practices and Secretarial Order 3403, which in 2021 directed DOI/USDA agencies to collaborate with Tribes based on their treaty, religious, subsistence, and cultural interests in the "co-stewardship of federal lands and waters."<sup>80</sup> Several DOI federal land management agencies issued policies to implement Secretarial Order 3403, which mentioned the inclusion of IK in federal decisionmaking.<sup>81</sup>

Although some agencies had experience with IK prior to the CEQ/OSTP 2022 IK guidance, federal agencies with less experience now also have begun to consider IK. For example, USDA's National Institute of Food and Agriculture stated that in response to the CEQ/OSTP guidance, it is encouraging applicants to include TEK in their grant proposals when appropriate.<sup>82</sup> The U.S. Army Corps of Engineers is working on publishing internal guidance that would include, among

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<sup>73</sup> CEQ/OSTP, "2022 IK Guidance."

<sup>74</sup> *Ibid.*, p. 1.

<sup>75</sup> NOAA, "Guidance and Best Practices for Engaging and Incorporating Indigenous Knowledge in Decision-Making," 2023, p. 1, [https://www.noaa.gov/sites/default/files/2023-07/NOAA\\_IK\\_Guidance\\_FINAL\\_2023.pdf](https://www.noaa.gov/sites/default/files/2023-07/NOAA_IK_Guidance_FINAL_2023.pdf) (hereinafter NOAA, "Guidance").

<sup>76</sup> *Ibid.* p. 4

<sup>77</sup> DOI, "IK Departmental Manual," p. 1.

<sup>78</sup> *Ibid.* p. 4

<sup>79</sup> *Ibid.*, p. 12. For an overview of tribal co-stewardship and comanagement of federal lands, see CRS Report R47563, *Tribal Co-management of Federal Lands: Overview and Selected Issues for Congress*, by Mariel J. Murray.

<sup>80</sup> Secretarial Order (S.O.) No. 3403, "Joint Secretarial Order on Fulfilling the Trust Responsibility to Indian Tribes in the Stewardship of Federal Lands and Waters," November 15, 2021, <https://www.doi.gov/sites/doi.gov/files/elips/documents/so-3403-joint-secretarial-order-on-fulfilling-the-trust-responsibility-to-indian-tribes-in-the-stewardship-of-federal-lands-and-waters.pdf>.

<sup>81</sup> See, for example, NPS, "Policy Memorandum 22-03, Fulfilling the National Park Service Trust Responsibility to Indian Tribes, Alaska Natives, and Native Hawaiians in the Stewardship of Federal Lands and Waters," September 2022, p. 7, [https://www.nps.gov/subjects/policy/upload/PM\\_22-03.pdf](https://www.nps.gov/subjects/policy/upload/PM_22-03.pdf).

<sup>82</sup> USDA, National Institute of Food and Agriculture, "Elevating Indigenous Ecological Knowledge," press release, March 3, 2022, <https://www.nifa.usda.gov/about-nifa/blogs/elevating-indigenous-traditional-ecological-knowledge>.



other topics, how to incorporate IK into USACE decisionmaking such as planning, engineering, and regulatory decisions.<sup>83</sup>

### **Rulemaking**

The CEQ/OSTP 2022 IK guidance outlined ways to incorporate IK into rulemaking. The federal rulemaking process is primarily governed by the Administrative Procedure Act (P.L. 79-404), which generally requires that, when regulating, agencies must (1) publish a proposed regulation; (2) provide an opportunity for public comment on the proposed regulation; and (3) publish final regulations, if the agency so chooses or if the regulation is required by law. All regulations must be based on the agency's statutory authority, and the agency must be able to provide support for the regulation.<sup>84</sup> The CEQ/OSTP 2022 IK guidance identified three specific aspects of the rulemaking process in which IK could be used:

- **Purpose.** “[IK] can serve as a source of evidence that explains why a rule is necessary, an approach has been selected, or alternative approaches have been rejected. For example, rules covering species protection and land use could include Indigenous Knowledge to explain why certain protections are necessary.”<sup>85</sup>
- **Benefit-Cost Analysis.** A benefit-cost analysis, conducted pursuant to OMB guidance (in Circular A-4), sometimes can include consideration of “intangible or difficult-to-monetize benefits and costs, distributional effects, and an analysis of environmental justice impacts.”<sup>86</sup> Therefore, IK “may provide relevant insights in these analyses in describing a particular rule’s costs and benefits based on the expertise of Tribes and Indigenous Peoples. ... For example, including Indigenous Knowledge may more accurately capture the impact of a rule on culturally or ecologically significant land.”<sup>87</sup>
- **Best Available Science.** “Several Agencies have already included Indigenous Knowledge in their definitions of best available science or expanded their understanding of what can be included as evidence in agency decision making. For example, the U.S. Forest Service allows ‘Native knowledge’ to be considered during the National Forest System land management planning process.”<sup>88</sup>

## **The Federal Use of Information and Science**

Several laws and executive branch policies have established requirements for how federal agencies collect, manage, disseminate, and use various types of information—including data, research, and analysis—to develop and evaluate agency practices and informing agency decisions, as outlined below. Agencies are required to comply with numerous statutory requirements when collecting, managing, and using information and data. These requirements

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<sup>83</sup> U.S. Army, “Overview of Tribal Engagement Efforts,” press release, February 12, 2024, [https://www.army.mil/article/273637/overview\\_of\\_tribal\\_engagement\\_efforts](https://www.army.mil/article/273637/overview_of_tribal_engagement_efforts).

<sup>84</sup> For background on federal regulations and rulemaking, see CRS In Focus IF10003, *An Overview of Federal Regulations and the Rulemaking Process*, by Maeve P. Carey.

<sup>85</sup> CEQ/OSTP, “2022 IK Guidance,” p.19.

<sup>86</sup> Ibid. See also OMB, “Regulatory Analysis,” Circular A-4, November 9, 2023, <https://www.whitehouse.gov/wp-content/uploads/2023/11/CircularA-4.pdf>.

<sup>87</sup> CEQ/OSTP, “2022 IK Guidance,” p.19.

<sup>88</sup> Ibid, pp. 19-20. See also 36 C.F.R. §§219.4(a)(3) and 219.19 (defining “Native knowledge”).

include government-wide laws, such as the Paperwork Reduction Act (PRA; 44 U.S.C. §§3501-3521), and agency-specific laws tailored to an agency's functions or roles in particular contexts or policy areas (e.g., natural resources). These legal requirements extend to agency use or management of IK, TEK, and Indigenous data.

## **The Paperwork Reduction Act and Information Resources Management**

The PRA provides direction to federal agencies on collecting, managing, and using information and data in agency operations generally.<sup>89</sup> One of the PRA's several purposes is to "improve the quality and use of federal information to strengthen decisionmaking, accountability, and openness in government and society."<sup>90</sup> Although many commentaries on the PRA focus primarily on how it controls and manages the *collection of information* from individuals, businesses, and other entities, the act also sought to improve management and efficiency in the federal government.<sup>91</sup> Nearly all federal agencies, including most independent regulatory agencies, are subject to the PRA's provisions.<sup>92</sup>

Under the PRA, federal agencies are expected to perform a range of activities related to *information resources management* (IRM), defined as a process for managing information to accomplish federal agency missions and improve performance.<sup>93</sup> IRM comprises several functional areas, including the following:

- developing IRM policies,
- reducing information collection burdens,
- disseminating information to the public,
- producing federal statistics,
- managing records,
- ensuring the privacy and security of information, and
- managing information technology.<sup>94</sup>

The PRA establishes general requirements for agencies in each of these functional areas.<sup>95</sup> For example, the PRA requires agencies to have a strategic IRM plan that describes how IRM activities support agency missions, an open data plan, and processes for ensuring IRM operations and IRM-related decisions are integrated with program decisions.<sup>96</sup> The PRA directs the Office of Management and Budget (OMB)—within the Executive Office of the President—to oversee implementation of the act in the executive branch and to fulfill certain responsibilities that

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<sup>89</sup> The PRA was first enacted as the Paperwork Reduction Act of 1980 (P.L. 95-511) and then amended and recodified in 1995 as the Paperwork Reduction Act of 1995 (P.L. 104-13).

<sup>90</sup> 44 U.S.C. §3501(4).

<sup>91</sup> Robert Gellman, "Crowdsourcing, Citizen Science, and the Law: Legal Issues Affecting Federal Agencies," Woodrow Wilson International Center for Scholars, p. 27, [https://www.wilsoncenter.org/sites/default/files/media/documents/publication/CS\\_Legal\\_Barriers\\_Gellman.pdf#page=28](https://www.wilsoncenter.org/sites/default/files/media/documents/publication/CS_Legal_Barriers_Gellman.pdf#page=28).

<sup>92</sup> 44 U.S.C. §3502(1). The independent regulatory agencies subject to the PRA are identified in 44 U.S.C. §3502(5).

<sup>93</sup> 44 U.S.C. §3502(7).

<sup>94</sup> U.S. Congress, Senate Committee on Governmental Affairs, *Paperwork Reduction Act of 1995*, report to accompany S. 244, 104<sup>th</sup> Cong., 1<sup>st</sup> sess., S.Rept. 104-8, February 14, 1995, pp. 15-32.

<sup>95</sup> Federal agency responsibilities under the PRA are contained in 44 U.S.C. §3506.

<sup>96</sup> 44 U.S.C. §3506(b)(2) and 44 U.S.C. §3506(b)(3)(A).

correspond to each of the PRA's functional areas, including developing uniform IRM policies, principles, standards, and guidelines.<sup>97</sup> One way OMB performs its role and exercises its authority under the PRA is by issuing memoranda and other guidance to agencies. As a general matter, OMB has advised federal agencies to consider the effects of their information management actions on Tribes and tribal access to federal information and also to ensure tribal consultation on information management actions, as appropriate.<sup>98</sup>

Agencies may manage IK, TEK, and Indigenous data according to the PRA's requirements. For example, an agency may collect IK, TEK, or Indigenous data through a *collection of information*, such as a survey.<sup>99</sup> Additionally, agencies may use IK, TEK, and Indigenous data that may be considered *public information*, which the PRA defines as "any information, regardless of form or format, that an agency discloses, disseminates, or makes available to the public."<sup>100</sup> The PRA's requirements for information dissemination to the public are pertinent to understanding the policy context in which agencies may consider use of IK and Indigenous data. Under the PRA, agencies are responsible for the following:

- ensuring the public has timely, equitable access to the agency's public information;
- consulting with the public on the agency's information-dissemination activities;
- providing adequate notice when beginning, changing, or ending significant information-dissemination products; and
- except where specifically authorized by statute, not hindering the availability of public information through exclusive distribution arrangements; regulating the use, resale, or re-dissemination of public information; charging fees or royalties for the resale or re-dissemination of public information; or establishing user fees for information that exceeds the cost to disseminate such information.<sup>101</sup>

Agencies' information dissemination practices also are informed by the Open, Public, Electronic, and Necessary (OPEN) Government Data Act, which is discussed below.<sup>102</sup>

## The Information Quality Act and Information Dissemination

The Information Quality Act (IQA; 44 U.S.C. §3516 note) sought to provide further direction to implement the PRA's purposes and provisions related to information disseminated by agencies.<sup>103</sup>

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<sup>97</sup> 44 U.S.C. §3504.

<sup>98</sup> OMB, "Managing Information as a Strategic Resource," Circular A-130, July 28, 2016, p. 16, [https://www.whitehouse.gov/wp-content/uploads/legacy\\_drupal\\_files/omb/circulars/A130/a130revised.pdf#page=16](https://www.whitehouse.gov/wp-content/uploads/legacy_drupal_files/omb/circulars/A130/a130revised.pdf#page=16).

<sup>99</sup> *Collection of information* is defined at 44 U.S.C. §3502(3). For an overview of the information-collection aspects of the PRA, see CRS In Focus IF11837, *The Paperwork Reduction Act and Federal Collections of Information: A Brief Overview*, by Maeve P. Carey and Natalie R. Ortiz. Agencies may come into possession of IK, TEK, and Indigenous data in ways that would not be necessarily be considered a collection of information under the PRA, including through tribal consultations (i.e., public meetings) and public comments to proposed rules. For an enumeration of what is not considered information for the purposes of a collection of information, see 5 C.F.R. §1320.3(h). As discussed in this section, however, the PRA establishes other requirements for information and data management, independent of whether its provisions for collections of information (44 U.S.C. §3507) specifically apply.

<sup>100</sup> 44 U.S.C. §3502(12).

<sup>101</sup> 44 U.S.C. §3506(d).

<sup>102</sup> See Title II of P.L. 115-435 (132 Stat. 5534). Discussed in "The Open, Public, Electronic, and Necessary Government Data Act and Public Access to Federal Data."

<sup>103</sup> The Information Quality Act (IQA) was enacted as Section 515 of H.R. 5658, which was incorporated as Appendix (continued...)

The IQA directs OMB and federal agencies to ensure and maximize the quality, utility, objectivity, and integrity of disseminated information.<sup>104</sup> The IQA's requirements would apply to IK and to Indigenous data when they are treated as *public information*. The CEQ/OSTP 2022 IK guidance directs federal agencies to incorporate IK that complies with the IQA's requirements for ensuring disseminated information meets the IQA's standards.<sup>105</sup>

The IQA charged OMB with providing guidance to agencies to ensure information disseminated to the public meets certain quality standards. In its guidance to agencies, OMB indicates that *quality* encompasses the following elements:

- utility (i.e., the usefulness of the information to the intended users);
- objectivity (i.e., (1) whether the disseminated information is being presented in an accurate, clear, complete, and unbiased manner and (2) whether the substance of the information is accurate, reliable, and unbiased); and
- integrity (i.e., the information is protected from unauthorized access or revision to ensure it is not compromised through corruption or falsification).<sup>106</sup>

OMB also directs federal agencies to ensure certain types of information—such as *influential information*—conform to additional requirements to ensure they meet higher quality standards.<sup>107</sup> Although OMB's guidelines permit each federal agency to tailor its definition of *influential* to reflect the agency's specific mission and issues, OMB generally defines *influential information* as scientific, financial, or statistical information for which “the agency can reasonably determine that dissemination of the information will have or does have a clear and substantial impact on important public policies or important private sector decisions.”<sup>108</sup> Additionally, the quality requirements for influential information apply to information supplied to a federal agency by a third party when such information is used as the factual basis for the federal agency's

C in P.L. 106-554 (114 Stat. 2763A-153). Section 515 was not accompanied by a short title in H.R. 5658 or P.L. 106-554; in practice, it is called the IQA. It is also sometimes referred to as the Data Quality Act.

<sup>104</sup> P.L. 106-554 §515(a); 114 Stat. 2763A-154.

<sup>105</sup> CEQ/OSTP, “2022 IK Guidance,” pp. 36-38.

<sup>106</sup> Executive Office of the President, Office of Management and Budget (OMB), “Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies; Republication,” 67 *Federal Register* 8453, February 22, 2002, <https://www.govinfo.gov/content/pkg/FR-2002-02-22/pdf/R2-59.pdf#page=2>.

<sup>107</sup> *Ibid.*, p. 8452. See also OMB, “Improving Implementation of the Information Quality Act,” M-19-15, April 24, 2019, p. 3, <https://www.whitehouse.gov/wp-content/uploads/2019/04/M-19-15.pdf> (hereinafter OMB, “Improving Implementation of the IQA”).

<sup>108</sup> 67 *Federal Register* 8460. Agency policies vary in the degree to which they identify what information is specifically considered *influential information*. For example, according to the Department of Energy's (DOE's) IQA guidelines, *influential information* is defined as (1) information the department routinely embargoes because of the information's potential effects on markets, (2) information on which a regulatory action with a \$100 million annual impact is based, and (3) other information products on a case-by-case basis (see DOE, *Final Report Implementing Updates to the Department of Energy's Information Quality Act Guidelines*, <https://www.energy.gov/cio/articles/2019-final-updated-version-doe-information-quality-guidelines>). The Department of Labor's (DOL's) IQA guidelines provide definitions for influential information in rulemaking and non-rulemaking contexts (see DOL, “Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by the Department of Labor,” <https://www.dol.gov/informationquality/guidelines>). In contrast, the National Agricultural Statistics Service (NASS) states that it “does not currently produce or sponsor the distribution of influential scientific information within the definitions promulgated by OMB (see NASS, “Information Quality Guidelines,” [https://www.nass.usda.gov/About\\_NASS/Information\\_Quality\\_Guidelines/index.php](https://www.nass.usda.gov/About_NASS/Information_Quality_Guidelines/index.php)).

decisionmaking.<sup>109</sup> Depending on the agency's actions, IK, TEK, or Indigenous data could be considered a type of influential third-party information.

Under OMB's guidelines, federal agencies are expected to enable third parties to reproduce influential information (*reproducibility*).<sup>110</sup> This may include making data and methods available if such transparency does not override other compelling interests such as privacy, intellectual property rights, trade secrets, or other confidentiality protections. Furthermore, federal agencies are expected to subject influential information to peer review practices that are characterized by both scientific and process integrity.<sup>111</sup>

## The Foundations for Evidence-Based Policymaking Act of 2018

The Foundations for Evidence-Based Policymaking Act of 2018 (FEBPA; P.L. 115-435) created additional requirements for how agencies use information, data, and analysis to advance evidence-building and evaluation capacity.<sup>112</sup> Among its requirements, FEBPA directs federal agencies to identify what evidence the agency intends to develop to address policy questions relevant to the agency's programs, policies, and regulations and, in turn, to develop evidence-building plans.<sup>113</sup> The act defines *evidence* as "information produced as a result of statistical activities conducted for a statistical purpose."<sup>114</sup> IK may meet the statutory definition of evidence when it is used in these ways. Some agencies, like the Census Bureau and the Department of Labor, collect what some Tribes might consider to be Indigenous data and what may be collected for statistical purposes, as discussed in a later section of this report.<sup>115</sup> Although these agencies may seek to produce evidence, these agencies must also ensure such evidence disseminated to the public meets the IQA's requirements.

Alternatively, in some of its guidance to agencies on the implementation of FEBPA, OMB says, "Evidence is broadly defined and includes foundational fact finding, performance measurement, policy analysis, and program evaluation."<sup>116</sup> Thus, OMB places less emphasis than FEBPA on the statistical aspects that define evidence. The Government Accountability Office (GAO) also notes that OMB has another definition of evidence used in the context of FEBPA—"the available body of facts or information indicating whether a belief of proposition is true or valid"—that is

<sup>109</sup> OMB, "Improving Implementation of the IQA," p. 9.

<sup>110</sup> 67 *Federal Register* 8459-8460.

<sup>111</sup> OMB, "Issuance of OMB's Final Information Quality Bulletin for Peer Review," M-05-03, December 16, 2004, p. 13, [https://www.whitehouse.gov/wp-content/uploads/legacy\\_drupal\\_files/omb/memoranda/2005/m05-03.pdf#page=13](https://www.whitehouse.gov/wp-content/uploads/legacy_drupal_files/omb/memoranda/2005/m05-03.pdf#page=13).

<sup>112</sup> *Evaluation* has a specific meaning given to it under the Foundations for Evidence-Based Policymaking Act of 2018 (FEBPA; P.L. 115-435); it "means an assessment using systematic data collection and analysis of one or more programs, policies, and organizations intended to assess their effectiveness and efficiency (5 U.S.C. §311(3)).

<sup>113</sup> P.L. 115-435, §101a (132 Stat. 5530); 5 U.S.C. §312(a).

<sup>114</sup> 44 U.S.C. §3561(6). Within this definition, *statistical activities* is defined to "(A) [mean] the collection, compilation, processing, or analysis of data for the purpose of describing or making estimates concerning the whole, or relevant groups or components within, the economy, society, or the natural environment; and (B) [include] the development of methods or resources that support those activities, such as measurement methods, models, statistical classifications, or sampling frames" (44 U.S.C. §3561(10)). *Statistical purposes* within the term *evidence* "(A) means the description, estimation, or analysis of the characteristics of groups, without identifying the individuals or organizations that comprise such groups; and (B) includes the development, implementation, or maintenance of methods, technical or administrative procedures, or information resources that support the purposes described in subparagraph (A)" (44 U.S.C. §3561(12)).

<sup>115</sup> This discussion occurs in the section, "Use of IK in Federal Decisions and Policies."

<sup>116</sup> OMB, "Phase I Implementation of the Foundations for Evidence-Based Policymaking Act of 2018: Learning Agendas, Personnel, and Planning Guidance," M-19-23, July 10, 2019, p. 1, <https://www.whitehouse.gov/wp-content/uploads/2019/07/m-19-23.pdf> (hereinafter OMB, "Phase I Implementation of FEBPA").



different from but complementary to the statutory definition.<sup>117</sup> OMB advises agencies to use evidence to support a range of agency processes, including (but not necessarily limited to) grantmaking, program administration, and service delivery. OMB also advises agencies to use evidence throughout the lifecycle of programs, policies, and operations.<sup>118</sup>

In practice, OMB and agencies refer to the evidence-building plans called for in statute as *learning agendas*.<sup>119</sup> OMB describes learning agendas as identifying, prioritizing, and establishing strategies to answer important short- and long-term strategic and operational questions.<sup>120</sup> OMB instructs agencies to determine what types of evidence are needed to answer these questions and to use methodological approaches that are appropriate for the questions, adopting the most rigorous methods and in consideration of timeline, feasibility, equity, and resources.<sup>121</sup> In guidance issued to federal agencies on the development of learning agendas under FEBPA, OMB reminded federal agencies that TEK is “a form of knowledge that can and should inform Federal Government decision making where appropriate,” including in answering questions on learning agendas and as part of annual evaluation plans.<sup>122</sup>

Within the context of building and using evidence, GAO states that agencies may use administrative data, statistical data, and research and analysis to inform decisions. GAO also reports that agencies should build a portfolio of high-quality, credible sources of evidence to support decisionmaking, versus relying on a single source, and that using evidence in decisionmaking requires an understanding of what conclusions can—and cannot—be drawn from information because of variation in information’s credibility.<sup>123</sup>

## The Open, Public, Electronic, and Necessary Government Data Act and Public Access to Federal Data

FEBPA also amended certain provisions of the PRA concerning information management. Specifically, under Title II of FEBPA—known as the Open, Public, Electronic, and Necessary (OPEN) Government Data Act—federal agencies are expected to make *data assets* (defined as a collection of data elements or data sets that may be grouped together) “open by default.”<sup>124</sup> This provision means these data are or can be made available to the public or otherwise would be accessible to the public under the Freedom of Information Act (FOIA; 5 U.S.C. §552).<sup>125</sup> The

<sup>117</sup> Government Accountability Office (GAO), *Evidence-Based Policymaking: Practices to Help Manage and Assess the Results of Federal Efforts*, GAO-23-105460, July 2023, p.7, <https://www.gao.gov/assets/gao-23-105460.pdf#page=13>.

<sup>118</sup> OMB, “Evidence-Based Policymaking: Learning Agendas and Annual Evaluation Plans,” M-21-27, June 30, 2021, p. 4 (hereinafter OMB, “Evidence-Based Policymaking: Learning Agendas”).

<sup>119</sup> OMB, “Phase I Implementation of FEBPA,” p. 7.

<sup>120</sup> *Ibid.*, p. 14. According to OMB, strategic questions include those that are related to how the agency meets its mission(s), including how programs, policies, and regulations function collectively and separately. Operational questions concern how the agency operates in areas such as human capital, grantmaking processes, financial management, and other internal processes.

<sup>121</sup> OMB, “Evidence-Based Policymaking: Learning Agendas,” p. 11

<sup>122</sup> OMB, “Preparation, Submission, and Execution of the Budget,” Circular A-11, Section 290.7, July 2024, <https://www.whitehouse.gov/wp-content/uploads/2018/06/a11.pdf#page=811>.

<sup>123</sup> GAO, *Evidence-Based Policymaking: Practices to Help Manage and Assess the Results of Federal Efforts*, GAO-23-105460, July 2023, p.8, <https://www.gao.gov/assets/gao-23-105460.pdf#page=14>.

<sup>124</sup> P.L. 115-435, §202(c) (132 Stat. 5536); 44 U.S.C. §3506(b)(6)(B).

<sup>125</sup> These data are defined as *public data assets* in 44 U.S.C. §3502(22). The Freedom of Information Act (FOIA; 5 U.S.C. §552) provides the public a right to access federal agency information. For an overview of FOIA, see CRS In Focus IF11450, *The Freedom of Information Act (FOIA): An Introduction*, by Benjamin M. Barczewski.



OPEN Government Data Act further instructs federal agencies to make such data an *open government data asset* that is, among other things, not encumbered by restrictions that would prevent use or reuse (other than intellectual property rights).<sup>126</sup> In practice, this type of data is often called *open data*.<sup>127</sup>

In May 2023, DOI announced its intention to hold a tribal consultation on tribal data priorities, noting that an Indian Country Data Working Group had been established among federal agencies.<sup>128</sup> Among other goals and actions, the working group stated that it wanted to improve federal agencies' capacity to balance tribal sovereignty with the PRA's open government data requirements to enhance data sharing and access between federal agencies and Tribes and explore how to allow the Census Bureau to receive a Tribe's administrative records to create new data sources.<sup>129</sup>

In guidance issued to federal agencies related to the IQA, OMB notes that the OPEN Government Data Act and other OMB directives related to information management require federal agencies to collect and create data that can be used by others and possibly for other purposes, including through secondary information dissemination and processing by third parties.<sup>130</sup> These third-party users may include entrepreneurs, nonfederal governments, scientists, private sector stakeholders, and nongovernment advocacy organizations.<sup>131</sup> OMB emphasizes that when federal data are made available to the public, users of such disseminated data must be provided with sufficient information to understand the data's quality, as well as its strengths, weaknesses, analytical limitations, security requirements, and processing options.<sup>132</sup>

Additionally, OMB instructs federal agencies to ensure data made available to the public include the appropriate privacy and confidentiality protections to prevent the disclosure of personally identifiable information.<sup>133</sup> These instructions to federal agencies largely are concerned with protecting the identity of an individual, including scenarios "threatening some other important interest such as security," particularly when data are combined and aggregated for statistical purposes.<sup>134</sup> At the same time, Title III of FEBPA—known as the Confidential Information Protection and Statistical Efficiency Act of 2018 (CIPSEA)—expects federal agencies, to the extent practicable, to make data assets available to any federal statistical agency for the purposes of developing evidence, unless there is a statute that prohibits such sharing.<sup>135</sup>

<sup>126</sup> 44 U.S.C. §3506(b)(6)(B). The definition of *open government data asset* is at 44 U.S.C. §3502(20).

<sup>127</sup> For more information on what data are made available to the public as open data, see [data.gov](https://data.gov).

<sup>128</sup> Letter from Bryan Newland, Assistant Secretary for Indian Affairs, to tribal leaders, May 8, 2023, [https://www.bia.gov/sites/default/files/dup/tcinfo/dtll-tribal-data-priorities-final\\_508\\_0.pdf](https://www.bia.gov/sites/default/files/dup/tcinfo/dtll-tribal-data-priorities-final_508_0.pdf).

<sup>129</sup> *Ibid.*

<sup>130</sup> OMB, "Improving Implementation of the IQA," pp. 4-5. See also OMB, "Managing Information as a Strategic Resource," Circular A-130, July 28, 2016, p. 15, [https://www.whitehouse.gov/wp-content/uploads/legacy\\_drupal\\_files/omb/circulars/A130/a130revised.pdf](https://www.whitehouse.gov/wp-content/uploads/legacy_drupal_files/omb/circulars/A130/a130revised.pdf).

<sup>131</sup> OMB, "Improving Implementation of the IQA," p. 5.

<sup>132</sup> *Ibid.*

<sup>133</sup> *Ibid.* Personally identifying information (PII) is not defined by OMB in this memorandum. In Circular A-130, OMB states that the term *PII* is necessarily broad, because there are many different types of information that can be used to distinguish or determine an individual's identity (OMB, "Managing Information as a Strategic Resource," Circular A-130, July 28, 2016, Appendix II-1, [https://www.whitehouse.gov/wp-content/uploads/legacy\\_drupal\\_files/omb/circulars/A130/a130revised.pdf](https://www.whitehouse.gov/wp-content/uploads/legacy_drupal_files/omb/circulars/A130/a130revised.pdf)).

<sup>134</sup> *Ibid.*, pp. 5-6.

<sup>135</sup> P.L. 115-435, §303(a) (132 Stat. 5554); 44 U.S.C. §3581(a-b). For an overview of the federal statistical system, see CRS Insight IN12197, *The Federal Statistical System: A Primer*, by Taylor R. Knoedl.

In an April 2024 tribal consultation, USDA sought input on a department policy that would add Indigenous data to the list of categories that are not required to be made publicly accessible;<sup>136</sup> this would provide an Indigenous data exemption from USDA's policy that digital scientific research data assets are subject to the OPEN Government Data Act.<sup>137</sup> During the consultation, USDA asked for input on proposed language that would restrict public access to "data that would violate tribal nations' data sovereignty, including data collected about their citizens, lands, and resources that is not authorized by tribal nations to be made publicly available."<sup>138</sup>

## Federal Policies on Scientific Integrity

In addition to statutory requirements, presidential directives and guidance issued by the Executive Office of the President, Office of Science and Technology Policy (OSTP), have established requirements governing how federal agencies produce, manage, communicate, and use scientific and technological information to develop evidence-based policies and execute their missions.<sup>139</sup> For example, President Biden's January 2021 "Memorandum on Restoring Trust in Government Through Scientific Integrity and Evidence-Based Policy Making" articulated the Administration's commitment to making evidence-based decisions guided by the best available science and data. The policy declaration also provided a general rationale for the use of scientific and technological information in policymaking, explaining their central role in the "development and iterative improvement of sound policies, and to the delivery of equitable programs, across every area of government."<sup>140</sup>

The memorandum tasked the OSTP director with ensuring that federal agencies establish and enforce scientific integrity policies that were expected to "ban improper political interference in the conduct of scientific research and in the collection of scientific or technological data, and that prevent the suppression or distortion of scientific or technological findings, data, information, conclusions, or technical results."<sup>141</sup>

OSTP responded to the directive in January 2023 by issuing uniform guidance to federal agencies on the specific components expected to be included in their scientific integrity policies. The guidance established the first federal-government-wide definition of *scientific integrity*, which emphasized "adherence to professional practices, ethical behavior, and the principles of honesty

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<sup>136</sup> USDA, "USDA Tribal Consultation: Public Access to USDA-Supported Research Results and Indigenous Data Sovereignty," April 11, 2024, pp. 2-3, <https://www.usda.gov/sites/default/files/documents/framing-paper-public-access-usda-supported-research-results.pdf> (hereinafter USDA, "Indigenous Data Sovereignty").

<sup>137</sup> USDA, *Public Access to Scholarly Publications and Digital Scientific Research Data*, DR 1020-006, effective July 20, 2022, expires July 20, 2027, <https://www.usda.gov/sites/default/files/documents/dr-1020-006.pdf>.

<sup>138</sup> USDA, "Indigenous Data Sovereignty."

<sup>139</sup> John H. Marburger III, Memorandum for the Heads of Executive Departments and Federal Agencies, "Subject: Principles for the Release of Scientific Research Results," Executive Office of the President, OSTP, Washington, DC, May 28, 2008, <https://www.arl.org/wp-content/uploads/2008/05/ostp-scientific-research-28may08.pdf>; President Barack Obama, Memorandum for the Heads of Executive Departments and Federal Agencies, "Subject: Scientific Integrity," Washington, DC, March 9, 2009, <https://obamawhitehouse.archives.gov/the-press-office/memorandum-heads-executive-departments-and-federalagencies-3-9-09>; and John Holdren, Memorandum for the Heads of Executive Departments and Federal Agencies, "Subject: Scientific Integrity," Executive Office of the President, OSTP, Washington, DC, December 17, 2010, at 2010, <https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/scientific-integrity-memo-12172010.pdf>.

<sup>140</sup> President Joseph R. Biden, Jr., Memorandum for the Heads of Executive Departments and Federal Agencies, "Subject: Restoring Trust in Government Through Scientific Integrity and Evidence-Based Policymaking," Washington, DC, January 27, 2021, <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/memorandum-on-restoring-trust-in-government-through-scientific-integrity-and-evidence-based-policymaking/>.

<sup>141</sup> *Ibid.*

and objectivity when conducting, managing, using the results of, and communicating about science and scientific activities.”<sup>142</sup>

The guidance also defined several key terms referenced in the federal *scientific integrity* definition, including *science* and the *conduct of science*, for agencies to consider incorporating into scientific integrity policies. In addition to highlighting their pliability for agency-specific use, the guidance offered broad interpretations of both terms, defining *science* as “the full spectrum of scientific endeavors, including basic science, applied science, evaluation, engineering, technology, economics, social sciences, and statistics, as well as the scientific and technical information derived from these endeavors,” and the *conduct of science* as “the formulation of hypotheses, study design, testing, data collection, systematic review, statistical analysis, interpretation, findings, conclusions, and peer review.”<sup>143</sup>

Largely in line with its presentation of these terms as both expansive in scope and contingent on context, the OSTP guidance also acknowledged that specific professional practices and standards associated with the conduct of science may vary according to specific research and disciplinary contexts. Thus, the guidance encouraged agencies to develop codes of scientific conduct or ethics to define the “accepted practices/standards of a relevant research or scientific community” to more directly connect the principles of scientific integrity to relatable professional contexts within an agency’s mission.<sup>144</sup>

In 2023, OSTP issued a model scientific integrity policy acknowledging that consideration of IK may require “expanded scientific integrity practices and expectations.”<sup>145</sup> The model policy further details the specific ways federal agencies may need to adjust scientific integrity policies, including “granting communities more autonomy over research questions and research designs, recognition of data and knowledge sovereignty, and inclusion of multiple forms of evidence, such as Indigenous Knowledge.”<sup>146</sup> Following the 2023 OSTP guidance, several federal agencies released updated scientific integrity policies that reference the use of IK. For example, DOI,<sup>147</sup> the National Institutes of Health,<sup>148</sup> NOAA,<sup>149</sup> and OSTP specifically reference the use of IK in their scientific integrity policies.<sup>150</sup> Other federal agencies have not included references to IK in their

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<sup>142</sup> Scientific Integrity Framework Interagency Working Group of the National Science and Technology Council, *A Framework for Federal Scientific Integrity Policy and Practice*, January 2023, p. 8, <https://www.whitehouse.gov/wp-content/uploads/2023/01/01-2023-Framework-for-Federal-Scientific-Integrity-Policy-and-Practice.pdf>.

<sup>143</sup> *Ibid.*, pp. 47 and 49.

<sup>144</sup> *Ibid.*, p. 29.

<sup>145</sup> OSTP, *Scientific Integrity*, May 17, 2023, pp. 4-5, <https://www.whitehouse.gov/wp-content/uploads/2023/06/OSTP-SCIENTIFIC-INTEGRITY-POLICY.pdf>.

<sup>146</sup> *Ibid.*, p. 5.

<sup>147</sup> DOI, Office of the Deputy Secretary, *Integrity of Scientific and Scholarly Activities*, 305 DM 3, August 20, 2024, pp. 7-8, <https://www.doi.gov/document-library/departamental-manual/305-dm-3-integrity-scientific-and-scholarly-activities-0>.

<sup>148</sup> National Institutes of Health (NIH), “Request for Information on the DRAFT Scientific Integrity Policy of the National Institutes of Health,” 88 *Federal Register* 65696, September 25, 2023, <https://www.federalregister.gov/documents/2023/09/25/2023-20733/request-for-information-on-the-draft-scientific-integrity-policy-of-the-national-institutes-of>.

<sup>149</sup> NOAA, *Scientific Integrity*, NOAA Administrative Order 202-735D.3, March 1, 2024, p. 18, <https://www.noaa.gov/organization/administration/nao-202-735d-2-scientific-integrity>.

<sup>150</sup> OSTP, *Scientific Integrity Policy*, May 17, 2023, p. 7, <https://www.whitehouse.gov/wp-content/uploads/2023/06/OSTP-SCIENTIFIC-INTEGRITY-POLICY.pdf>.

scientific integrity policies; for example, the National Science Foundation's 2024 scientific integrity policy does not reference IK.<sup>151</sup>

## Potential Issues and Options for Congress

As part of its oversight role, Congress may consider the role of IK in federal decisionmaking and whether additional legislative direction might be needed to clarify potentially conflicting guidance. Some of the issues that may arise for Congress include the following:

- use of IK in federal decisionmaking and policymaking;
- Indigenous data sovereignty and governance; and
- free, prior, and informed consent.

The next section discusses each of these issues and presents some of the specific options Congress may consider.

## Use of IK in Federal Decisions and Policies

No single standard determines whether IK is evidence, and no single approach determines whether IK meets the federal government's standards for information quality and scientific integrity. For the purposes of research, policymaking, and decisionmaking, the CEQ/OSTP 2022 IK guidance directs federal agencies to incorporate IK that complies with the IQA's requirements for ensuring disseminated information meets the IQA's standards.<sup>152</sup> Although the CEQ/OSTP guidance does not state that IK needs to be independently verified to ensure it meets IQA's standards, the guidance cites an example of an agency vetting IK: The U.S. Global Change Research Program National Climate Assessment's authors were instructed to substantiate that IK represented repeated observations maintained over time in continuous formats. The authors also were instructed to determine whether the quality control practices of IK holders were appropriate, such as through "iterative, equitable dialogue on the interpretation of the findings by community members, co-researchers, or collective knowledge systems."<sup>153</sup> Similarly, NOAA's 2023 IK guidance stated that IK should go through a systematic vetting process but that "different levels of 'validation' may be appropriate or inappropriate depending on the research question (or form of IK), method for collecting IK, and research and management goals."<sup>154</sup> On validating Indigenous data, NOAA's guidance suggests Indigenous peoples' own internal methods of defining, valuing, and validating their knowledge and data systems should be respected and trusted.<sup>155</sup>

At the same time, some federal agencies have maintained that IK does not need to be judged, validated, or evaluated using agency standards and procedures in order to be included in agency actions and research. For example, DOI's draft IK guidance states that agency staff should recognize that IK has been vetted within the Indigenous community over time.<sup>156</sup> Learning more about this historical verification and context would require the federal agency to engage with that

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<sup>151</sup> National Science Foundation (NSF), *Scientific Integrity Policy*, NSF 24-007, February 12, 2024, <https://www.nsf.gov/pubs/2024/nsf24007/nsf24007.pdf>.

<sup>152</sup> CEQ/OSTP, "2022 IK Guidance," pp. 36-38.

<sup>153</sup> *Ibid.*

<sup>154</sup> NOAA, "Guidance," p. 8.

<sup>155</sup> *Ibid.*, p. 5.

<sup>156</sup> DOI, *Draft IK Handbook*.

community. Some Indigenous groups have advocated for federal agencies to compensate them for sharing and integrating IK into federal decisions.<sup>157</sup> DOI's draft IK guidance also has encouraged hiring Indigenous peoples to assist with programs or projects to provide information or services as it relates to IK.<sup>158</sup>

Some Indigenous peoples are considering how to align IK with federal definitions of *science* to meet statutory requirements. For example, a new *Hawaiian science*, which is assessing how IK is gathered, assessed, and promulgated in Hawaii, may align with OSTP's suggested definition of the *conduct of science* in terms of its approach to observation, manipulation, testing, and the promulgation of knowledge.<sup>159</sup> At the same time, some have asserted that producing IK for federal agency use is a bureaucratic process that requires translating IK "into a format that fits federal requirements for information quality and evidence management."<sup>160</sup>

Statutory requirements that concern the use of information and dissemination of agency data may pose challenges for incorporating IK into federal policymaking. The IQA mandates that federal agencies rely on information that meets certain quality standards when making decisions. OMB's guidance to agencies defines *information* to mean "any communication or representation of knowledge such as facts or data, in any medium or form" and identifies the attributes of *quality*, but each agency ultimately issues and follows its own IQA guidelines.<sup>161</sup> Agency officials who are unfamiliar with the use of IK may be more likely to prioritize data produced by more familiar scientific methodologies over IK when evaluating evidence.<sup>162</sup>

Federal agencies also may grapple with how precisely IK is, or could be, incorporated into evidence building under FEBPA. In its FY2022-FY2026 learning agenda, DOI indicates it will examine as a priority learning question how the department "include[s] Indigenous Knowledge as part of the evidence base used in its decision-making."<sup>163</sup> Similarly, in a supplement to its FY2022-FY2026 learning agenda, the Department of Housing and Urban Development stated that research "on unique Indian and Tribal issues should harness indigenous knowledge in partnership with tribal communities as well as with Indigenous peoples of the U.S. territories."<sup>164</sup>

Another issue is how to collect consistent, reliable data about Indigenous peoples. There is no uniform definition of American Indian and Alaska Native populations or tribal enrollment. Federal agencies rely on different data sources, including those from Tribes and federal agencies

<sup>157</sup> NCAI, "Co-Production Resolution," p. 2. See also CEQ/OSTP, "2022 IK Guidance," p. 18.

<sup>158</sup> DOI, *Draft IK Handbook*, p. 30.

<sup>159</sup> ACHP, "Traditional Knowledge," p. 7. The Native Hawaiian Edith Kanaka'ole Foundation encourages use of the *Papakū Makawalu* method and offers trainings on the method. See Edith Kanaka'ole Foundation, "Papakū Makawalu," <https://edithkanakaolefoundation.org/papakuMakawalu.php>. See also Edith Kanaka'ole Foundation, "Research/Consulting," <https://edithkanakaolefoundation.org/research.php>.

<sup>160</sup> Edward Randall Ornstein, "Indigenous Knowledge as Evidence in Federal Rule-Making," *University of Miami Law Review*, vol. 78, no. 2 (January 2024), pp. 409-431, see p. 418.

<sup>161</sup> 67 *Federal Register* 8458-8460.

<sup>162</sup> Edward Randall Ornstein, "Indigenous Knowledge as Evidence in Federal Rule-Making," *University of Miami Law Review*, vol. 78 no. 2 (January 2024), pp. 409-431, see pp. 424-425.

<sup>163</sup> DOI, *FY 2022-2026 Learning Agenda: Annual Update FY 2023*, p. 7, <https://www.doi.gov/sites/default/files/documents/2024-03/fy-2023-annual-update-interior-fy-2022-2026-learning-agenda.pdf#page=9>. Federal agencies are required under 5 U.S.C. §306 to produce strategic plans that contain specific information. For example, these plans are required to identify "general goals and objectives, including outcome-oriented goals, for the major functions and operations of the agency" and "a description of how the goals and objectives are to be achieved" (5 U.S.C. §306(a)).

<sup>164</sup> Emphasis included in the original. Department of Housing and Urban Development, *Learning Agenda: Fiscal Years 2022-2026 Supplement*, August 2023, p. 5, <https://www.huduser.gov/portal/sites/default/files/pdf/Learning-Agenda-Fiscal-Years-Supplement.pdf#page=8>.



such as the Census Bureau.<sup>165</sup> In a report about the 2020 census, the Census Bureau noted that it “is a data collection agency, not a policy agency” and thus cannot dictate how other federal agencies use its tribal population data.<sup>166</sup> In 2022, the Department of Labor (DOL) released a report detailing some of its challenges meeting statutory requirements to produce employment and population data about American Indians and Alaska Natives using existing data sources.<sup>167</sup> The report noted DOL’s obligations under the IQA to use reliable data sources and sound analytical techniques, obtain review by qualified individuals, and adhere to generally accepted statistical and scientific standards.<sup>168</sup> Accordingly, the report stated that some of the issues in using tribally produced population data were related to whether there would be validation and verification procedures.<sup>169</sup>

Congress has several options regarding the federal use of IK. Congress could maintain the status quo. This would allow most federal agencies to continue to consider IK on an ad hoc basis and without regard to uniformity across agencies. Congress could also direct agencies to study the issue, for example, by establishing a federal tribal data advisory committee to provide recommendations on how federal agencies should interpret, collect, and process IK and Indigenous data.<sup>170</sup> Congress may also consider how to ensure that IK complies with statutory requirements surrounding information quality, including whether and how IK needs to be systematically vetted, for example, by directing OMB to issue government-wide guidance to agencies.

Alternatively, Congress could consider directing federal agencies to consider IK in specific contexts. For example, Congress could direct agencies with natural-resources-related missions to consider IK, such as in decisions related to federal land management planning, prescribed fire, climate change, and ESA listings.<sup>171</sup> Alternatively, or in addition, Congress could direct federal agencies with programs or funding that may improve health outcomes for Indigenous peoples to consider IK.<sup>172</sup>

## Indigenous Data Sovereignty and Governance

Although IK may help identify potential impacts of federal actions, or generally inform federal decisionmaking, some Indigenous peoples may want to control or limit information sharing for various reasons. For example, they may want to prevent non-Indigenous people from accessing Indigenous sacred sites, or Indigenous religious, cultural, and societal norms may restrict

<sup>165</sup> *Tribal enrollment* also may be known as *tribal citizenship* or *membership*. See CRS In Focus IF12612, *American Indian, Alaska Native, and Tribal Population Data*, by Ben Leubsdorf, Mariel J. Murray, and Nik Taylor, for further discussion about these population data sources and related issues.

<sup>166</sup> U.S. Census Bureau, *2020 Census Tribal Consultations with Federally Recognized Tribes*, final report, winter 2020, p. 6, <https://www.census.gov/content/dam/Census/library/publications/2020/dec/census-federal-tc-final-report-2020-508.pdf>.

<sup>167</sup> Indian Employment, Training, and Related Services Consolidation Act, P.L. 115-93. See also Social Policy Research Associates, *Challenges and Options in Developing Future American Indian Population and Labor Force Reports: An Issue Paper*, prepared for U.S. Department of Labor (DOL), Employment and Training Administration, January 2022, p. 18, [https://www.dol.gov/sites/dolgov/files/ETA/publications/ETAOP2022-06\\_IssuePaperAIPLFR.pdf](https://www.dol.gov/sites/dolgov/files/ETA/publications/ETAOP2022-06_IssuePaperAIPLFR.pdf) (hereinafter DOL, “DOL Report”).

<sup>168</sup> DOL, “DOL Report,” pp. 23-24.

<sup>169</sup> *Ibid.*, p. 43.

<sup>170</sup> See, for example, S. 5186 in the 117<sup>th</sup> Congress.

<sup>171</sup> See, for example, H.R. 1791, §5(b)(1), in the 115<sup>th</sup> Congress; H.R. 5243, §408, in the 117<sup>th</sup> Congress; H.R. 7665, §1208(b)(2)(D), in the 117<sup>th</sup> Congress; and H.R. 8790, H.R. 9695, and H.R. 7146 in the 118<sup>th</sup> Congress.

<sup>172</sup> See, for example, S. 3853 in the 118<sup>th</sup> Congress.



sharing.<sup>173</sup> In addition, some Indigenous peoples may be reluctant to share information about their homelands and cultural connections due to a historic distrust of the federal government. Indigenous peoples also may have protocols that dictate if, how, and/or when they can divulge or discuss information about properties of religious and cultural significance.

For these and other reasons, some Indigenous peoples have advocated for Indigenous data sovereignty. As introduced earlier, *Indigenous data sovereignty* has been described as “the right of Native nations to govern the collection, ownership, and application of its own data,” with sovereignty being rooted in tribal sovereignty.<sup>174</sup> Some Indigenous groups have argued that increasing their participation in data governance is fundamental to realizing Indigenous data sovereignty and avoiding misrepresentation.<sup>175</sup> *Indigenous data governance* includes the stewardship and processes necessary to implement the control of Indigenous data—including its collection, storage, analysis, use, and reuse—by Indigenous people.<sup>176</sup>

Some Indigenous groups have established Indigenous data governance-related policies and procedures.<sup>177</sup> Indigenous peoples increasingly are requiring prospective researchers to develop a data management plan detailing how data will be gathered, reported, owned, and stored.<sup>178</sup> Indigenous peoples also can enter into data-sharing agreements (e.g., memoranda of understanding) with prospective researchers.<sup>179</sup> In addition, whereas some tribal communities choose to work with the Indian Health Service, a tribal college, or other university in their geographic areas to regulate research, other Tribes have created tribal institutional review boards.<sup>180</sup> These boards develop research processes that ensure studies within tribal settings protect the community, including IK, “from cultural appropriation, exploitation, misuse, and harm.”<sup>181</sup> Through these tribally determined research review processes, Tribes can control

<sup>173</sup> University of California, Los Angeles (UCLA) School of Law, Native Nations Law & Policy Center, “The Need for Confidentiality Within Tribal Cultural Resource Protection,” December 2020, p. 6, [https://law.ucla.edu/sites/default/files/PDFs/Native\\_Nations/239747\\_UCLA\\_Law\\_publications\\_Confidentiality\\_R2\\_042021.pdf](https://law.ucla.edu/sites/default/files/PDFs/Native_Nations/239747_UCLA_Law_publications_Confidentiality_R2_042021.pdf). See also NCAI, “Guidance Resolution,” p. 1.

<sup>174</sup> Carroll et al., “The CARE Principles,” p. 2.

<sup>175</sup> Stephanie Russo Carroll, Desi Rodriguez-Lonebear, and Andrew Martinez, “Indigenous Data Governance: Strategies from United States Native Nations,” *Data Science Journal*, vol. 18 (July 2019), pp. 1-15, see p. 6. See also Jay T. Johnson et al., “Weaving Indigenous and Sustainability Sciences to Diversify Our Methods,” *Sustainability Science*, vol. 11, no. 1 (January 2016), pp. 1-11, see p. 6, <https://link.springer.com/article/10.1007/s11625-015-0349-x>.

<sup>176</sup> Carroll et al., “The CARE Principles,” p. 3.

<sup>177</sup> NCAI, “Preventing Evasion of Tribal Nation Data Sovereignty in the Health Research Sector by Means of Technological Modernization in an Unsettled Regulatory Frontier,” Resolution #SAC-022-026, p. 2, 2022, <https://ncai.assetbank-server.com/assetbank-ncai/action/viewAsset?id=3150>. See also West Coast Tribal Caucus, “Agency Guide,” p. 22.

<sup>178</sup> Nicole S. Kuhn, Myra Parker, and Clarita Lefthand-Begay, “Indigenous Research Ethics Requirements: An Examination of Six Tribal Institutional Review Board Applications and Processes in the United States,” *Journal of Empirical Research on Human Research Ethics*, vol. 15, no. 4 (October 2020), pp. 279-291 (hereinafter Kuhn et al., “Indigenous Research Ethics”). These data management plans may be separate from the data management plans required by federal agencies for scientific data resulting from federally funded research under the 2013 OSTP memorandum entitled “Increasing Access to the Results of Federally Funded Scientific Research” (see [https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/ostp\\_public\\_access\\_memo\\_2013.pdf](https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/ostp_public_access_memo_2013.pdf)) and the 2022 OSTP memorandum entitled “Ensuring Free, Immediate, and Equitable Access to Federally Funded Research” (see <https://www.whitehouse.gov/wp-content/uploads/2022/08/08-2022-OSTP-Public-Access-Memo.pdf>).

<sup>179</sup> West Coast Tribal Caucus, “Agency Guide,” p. 22.

<sup>180</sup> Kuhn et al., “Indigenous Research Ethics.” Institutional review boards (IRBs) generally review how researchers plan to conduct studies to ensure they comply with regulations, meet ethical standards, follow institutional policies, and adequately protect research participants (HHS, “What Are IRBs?,” <https://www.hhs.gov/ohrp/education-and-outreach/online-education/human-research-protection-training/lesson-3-what-are-irbs/index.html>).

<sup>181</sup> Kuhn et al., “Indigenous Research Ethics.”

decisionmaking throughout the research process, including research outputs, reports, and data use, including data access and any data reuse.<sup>182</sup>

At times, Indigenous data sovereignty may include a desire to keep some IK or Indigenous data confidential. However, once IK is shared with federal agencies, whether and how to maintain Indigenous peoples' confidentiality may be challenging. The CEQ/OSTP 2022 IK guidance stated that in discussions with Indigenous peoples, agencies should clarify the extent to which the agency will legally be able to maintain the confidentiality of IK if it is shared and what the agency will do to store, share, and access the IK.<sup>183</sup> Some Indigenous peoples have asked for statutory guidance to maintain the confidentiality of information provided to federal agencies.<sup>184</sup> In recent years, some federal agencies have committed to treating information received during federal-tribal consultation as confidential, as permitted by law, if disclosure would negatively impact cultural or other sensitive resources.<sup>185</sup> Certain federal agencies, such as NOAA, have recommended that prior to collection or use of IK, parties establish a clear understanding and agreement about data confidentiality.<sup>186</sup>

The White House and some federal agencies have expressed their intent to recognize Indigenous data sovereignty in their data management practices. For example, the 2023 Executive Order 14112 directs federal agencies to respect tribal data sovereignty and recognize IK by allowing Tribes to use self-certified data.<sup>187</sup> The National Institutes of Health (NIH)'s 2023 policy for data management and sharing responds to tribal recommendations related to Indigenous data governance, including aligning tribal sovereignty with rights to control how Indigenous data are collected, used, managed, and shared.<sup>188</sup>

At the same time, Indigenous data sovereignty may conflict with other policy priorities such as promoting the transparency and public accessibility of federal data, including from federally funded scientific research. As outlined in "The Federal Use of Information and Science," many federal laws govern the federal use of information and science, including several requiring public access to federal data. In general, federal agencies that fund extramural research and development are to ensure that scientific data from federally funded research is made available to the public to search, retrieve, and analyze.<sup>189</sup> For example, NIH's 2023 policy requires grant proposals to include a data-management plan listing types of data, the software or tools needed to use the data,

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<sup>182</sup> Ibid.

<sup>183</sup> CEQ/OSTP, "2022 IK Guidance," p. 16.

<sup>184</sup> For example, some Indigenous peoples have suggested amending FOIA to exempt culturally sensitive information shared with federal agencies during consultation (White House Council on Native American Affairs, "Best Practices for Identifying and Protecting Tribal Treaty Rights, Reserved Rights, and Other Similar Rights in Federal Regulatory Actions and Federal Decision-Making," November 30, 2022, p. 12, [https://www.bia.gov/sites/default/files/dup/inline-files/best\\_practices\\_guide.pdf](https://www.bia.gov/sites/default/files/dup/inline-files/best_practices_guide.pdf)).

<sup>185</sup> See, for example, DOI, "Procedures for Consultation with Alaska Native Claims Settlement Act Corporations," in *Departmental Manual*, Part 512, November 30, 2022, pp. 2-3, <https://www.doi.gov/sites/doi.gov/files/elips/documents/512-dm-7.pdf>.

<sup>186</sup> NOAA, "Guidance," p. 9.

<sup>187</sup> Executive Order 14112, "Reforming Federal Funding and Support for Tribal Nations," 88 *Federal Register* 86024, December 11, 2023.

<sup>188</sup> NIH, Office of the Director, "Supplemental Information to the NIH Policy for Data Management and Sharing: Responsible Management and Sharing of American Indian/Alaska Native Participant Data," NOT-OD-22-214, September 21, 2022, <https://grants.nih.gov/grants/guide/notice-files/NOT-OD-22-214.html>.

<sup>189</sup> John P. Holdren, "Memorandum for the Heads of Executive Departments and Federal Agencies. Subject: Increasing Access to the Results of Federally Funded Scientific Research," Executive Office of the President, OSTP, Washington, DC, February 22, 2013, p. 4, [https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/ostp\\_public\\_access\\_memo\\_2013.pdf](https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/ostp_public_access_memo_2013.pdf).

and the publicly accessible repositories where the data will be stored.<sup>190</sup> The scientific community has also emphasized sharing scientific data and information.<sup>191</sup> For example, the Ecological Society of America requires all underlying data in accepted manuscripts to be “made available in a permanent, publicly accessible data archive or repository ... with rare exceptions.”<sup>192</sup>

Some have asserted that tensions between Indigenous data sovereignty and some federal laws and policies can be addressed through the application of the CARE principles.<sup>193</sup> A global effort involving international and U.S.-based entities has produced principles for promoting Indigenous data governance. Known as the CARE Principles for Indigenous Data Governance, these principles are intended to guide how Indigenous people are included in processes that concern Indigenous data discovery, data access, data use, reuse, and attribution in a way that strengthens Indigenous peoples’ control over their data. The principles include the following:

- **Collective benefit**, including (1) inclusive development and innovation, (2) equitable outcomes, and (3) improved governance and citizen engagement;
- **Authority to control**, including (1) the governance of data, including protocols, (2) the data to support Indigenous governance and self-determination, and (3) the recognition of Indigenous peoples’ rights and interests with regard to their Indigenous data;
- **Responsibility**, including (1) expanding capability and capacity, (2) positive relationships, and (3) Indigenous languages and worldviews; and
- **Ethics**, including (1) minimizing harm and maximizing benefit, (2) promoting justice, and (3) determining future use.<sup>194</sup>

Congress may choose to address these issues in different ways. It could maintain the status quo and allow federal agencies to consider IK on an ad hoc basis. As part of its oversight role, it could require the disclosure of all IK, TEK and Indigenous data used by a federal agency in any action, or it could qualify this requirement by allowing agencies to redact potentially confidential or sensitive information. Alternatively, Congress could address some Indigenous concerns about Indigenous data sovereignty. For instance, Congress could direct federal agencies to adopt the CARE principles. It could also direct a federal agency, or agencies, to establish a repository for Indigenous data and IK to facilitate collaboration between Indigenous peoples and researchers.<sup>195</sup> Alternatively, Congress could direct agencies to use, or otherwise support, existing nonfederal scientific repositories that already, or could, include Indigenous data.<sup>196</sup> Congress may choose to exempt IK from FOIA requests, or otherwise enable federal agencies to maintain the confidentiality of IK.<sup>197</sup> For example, Congress provided a FOIA exemption that allows the

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<sup>190</sup> Jocelyn Kaiser and Jeffrey Brainard, “Ready, Set, Share!,” *Science*, vol. 379, no. 6630 (January 25, 2023).

<sup>191</sup> *Ibid.*

<sup>192</sup> Sandeep Ravindran, “Open with Care: Indigenous Researchers and Communities Are Reshaping How Western Science Thinks About Data Ownership,” *Science*, vol. 386, no. 6720 (October 24, 2024).

<sup>193</sup> DOI, *Draft IK Handbook*, p. 71.

<sup>194</sup> Carroll et al., “The CARE Principles,” pp. 5-6.

<sup>195</sup> See, for example, the Exchange for Local Observations and Knowledge of the Arctic, University of Colorado, <https://eloka-arctic.org/about-eloka>.

<sup>196</sup> For more information about data repositories, see Jocelyn Kaiser and Jeffrey Brainard, “Ready, Set, Share!,” *Science*, vol. 379, no. 6630 (January 25, 2023). See also National Science and Technology Council, “Desirable Characteristics of Data Repositories for Federally Funded Research,” May 2022, <https://www.whitehouse.gov/wp-content/uploads/2022/05/05-2022-Desirable-Characteristics-of-Data-Repositories.pdf>.

<sup>197</sup> The 2008 farm bill (P.L. 110-234, 25 U.S.C. §3053) authorizes the U.S. Forest Service to withhold information from (continued...)

government to withhold “trade secrets and commercial or financial information obtained from a person [that are] privileged or confidential,” and might consider a similar exemption for IK.<sup>198</sup> Congress might also direct a federal study on, or establish a legal mechanism for, IK protection in federally funded research.<sup>199</sup> This possibility is discussed in the textbox below.

### Protecting Indigenous Knowledge Through Intellectual Property Law

In most countries, including the United States, intellectual property (IP) laws protect creations of the human mind, including trade secrets, literary and artistic works, inventions, designs and symbols, and names and images used in commerce. In the United States, IP includes four main forms of legal protection: patents, copyrights, trademarks, and trade secrets, all of which bestow rights to exclude others from making, copying, or using certain creative works.

Protecting Indigenous knowledge (IK) through traditional IP mechanisms has proven challenging. For example, IP generally protects new and/or improved creations and innovations, which excludes many types of IK from protection. Some types of IK could qualify for copyright protection, but questions of authorship and duration arise because IK is often held communally and copyright terms of protection are limited. Some scholars have proposed that individual Tribes should determine whether copyright law or tribal law should apply to tribal products on tribal lands. Others have advocated for voluntary labeling; one organization created Traditional Knowledge labels that Indigenous peoples may use to “support the inclusion of local protocols for access and use to cultural heritage.”

**Sources:** CRS In Focus IF10986, *Intellectual Property Law: A Brief Introduction*, by Kevin J. Hickey; Trevor Reed, “Cultural Expression, Copyright & Tribal Sovereignty,” Native American Rights Fund Indigenous Peoples and IP Webinar, September 2020, [https://narf.org/wordpress/wp-content/uploads/2020/09/trevor\\_reed.pdf](https://narf.org/wordpress/wp-content/uploads/2020/09/trevor_reed.pdf); Local Contexts, “TK Labels,” <https://localcontexts.org/labels/traditional-knowledge-labels/>.

## Free, Prior, and Informed Consent

As part of Indigenous data sovereignty and governance, some Indigenous groups have asserted that the federal government should obtain *free, prior, and informed consent* (FPIC) before using IK in federal research and actions.<sup>200</sup> As a condition of providing FPIC, Indigenous peoples may want to become active participants in setting the research agenda and coproducing the knowledge or research.<sup>201</sup> The CEQ/OSTP 2022 IK guidance also encouraged federal IK coproduction, which it described as a research framework “based on equity and the inclusion of multiple knowledge systems.”<sup>202</sup> The practice of seeking Indigenous peoples’ FPIC is in contrast to historical practices, where Indigenous peoples were often viewed as passive recipients of policies, or as holding knowledge that scientists or industry could extract.<sup>203</sup>

the public relating to reburials, sites, human remains, or resources of traditional or cultural importance, including information provided in the course of research. See also S. 2441 in the 116<sup>th</sup> Congress and H.R. 3587, H.R. 8108, and S. 4421 in the 117<sup>th</sup> Congress.

<sup>198</sup> 5 U.S.C. §552(b)(4).

<sup>199</sup> See, for example, S. 2441 in the 116<sup>th</sup> Congress.

<sup>200</sup> Free, prior, and informed consent is an international principle from the United Nations Declaration on the Rights of Indigenous Peoples. UN General Assembly, “United Nations Declaration on the Rights of Indigenous Peoples: Resolution/Adopted by the General Assembly,” A/RES/61/295, 2 October 2007, Articles 19 and 32, <https://www.refworld.org/legal/resolution/unga/2007/en/49353>. See NCAI, “Joint Statement: United States to Consult with Tribal Nations on Protecting Tribal Intellectual Property,” October 27 2023, <https://www.ncai.org/news/joint-statement-united-states-to-consult-with-tribal-nations-on-protecting-tribal-intellectual-property>.

<sup>201</sup> NCAI, “Co-Production Resolution,” p. 2.

<sup>202</sup> CEQ/OSTP, “2022 IK Guidance,” p. 12.

<sup>203</sup> Michael Anthony Hart, “Indigenous Worldviews, Knowledge, and Research: The Development of an Indigenous Research Paradigm,” *Journal of Indigenous Voices in Social Work*, vol. 1, no. 1 (February 2010), pp. 1-16, see p. 5. See (continued...)

Several international bodies and federal agencies have issued policies directing staff to obtain FPIC from Indigenous peoples before including IK in agency actions and scientific research.<sup>204</sup> For example, the CEQ/OSTP 2022 IK guidance stated that agencies should defer to Indigenous peoples on whether their IK should be applied in federal contexts.<sup>205</sup> DOI's draft IK guidance states that agency staff must obtain FPIC to share and include IK in departmental actions or research.<sup>206</sup> FPIC requirements also were addressed in DOI's August 2024 Scientific Integrity Policy, which directs department staff to ensure the quality, accuracy, and transparency of scientific information used to support policy- and decisionmaking through numerous specific actions, including obtaining FPIC prior to including IK in federal policy, research, or decisionmaking.<sup>207</sup> Furthermore, the policy specifies that failure to protect IK, including failure to obtain FPIC, may be considered a violation of DOI's Scientific Integrity Policy.<sup>208</sup>

In addition, some federal agencies that fund extramural research and development (e.g., research performed by academic institutions) have incorporated FPIC and data governance principles. For example, in 2024, the National Science Foundation issued guidance that required those applying for federal research funding for projects that may impact Tribes to submit evidence of written approval (consent) from the Tribe.<sup>209</sup> Among other things, these projects could involve using tribally controlled information or data in research.<sup>210</sup> The Department of Transportation also issued guidance that required certain grantees to address the application of the CARE Principles in their data management plans.<sup>211</sup> Congress may continue considering requiring FPIC before federal agencies use IK in some or all federal decisions.<sup>212</sup>

At the same time, IK label, consent, or disclosure requirements may be considered burdensome on Indigenous peoples, federal agencies, researchers, and other stakeholders. Federal policies requiring Indigenous consent for federal actions or funding place demands that may strain capacity. For example, defining tribal interests, especially for remote or small Tribes, may not

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also Ruth L. Okediji, "Is the Public Domain Just?: Biblical Stewardship and Legal Protection For Traditional Knowledge Assets," *Columbia Journal of Law & the Arts*, vol. 45, no. 4 (2022), pp. 461-523, see p. 469.

<sup>204</sup> For example, the Convention on Biological Diversity notes that access to IK is subject to the approval and involvement of IK holders (Convention on Biological Diversity, "Article 8: In Situ Conservation," Article 8j, 1992, <https://www.cbd.int/convention/articles/default.shtml?a=cbd-08>). See also DOI, "IK Departmental Manual," p. 4.

<sup>205</sup> CEQ/OSTP, "2022 IK Guidance," p. 13.

<sup>206</sup> DOI, *Draft IK Handbook*, p. 10.

<sup>207</sup> DOI, Office of the Deputy Secretary, *Integrity of Scientific and Scholarly Activities*, 305 DM 3, August 20, 2024, <https://www.doi.gov/document-library/departmental-manual/305-dm-3-integrity-scientific-and-scholarly-activities-0>.

<sup>208</sup> *Ibid.*, pp. 7-8.

<sup>209</sup> NSF, "Proposal and Award Policies and Procedures Guide," May 20, 2024, p. II-42, [https://nsf.gov-resources.nsf.gov/files/nsf24\\_1.pdf](https://nsf.gov-resources.nsf.gov/files/nsf24_1.pdf).

<sup>210</sup> *Ibid.*, p. II-43.

<sup>211</sup> Department of Transportation, "SMART Grant, Stage 1 Data Management Plan Guidance," p.4, [https://www.transportation.gov/sites/dot.gov/files/2023-11/SMART%20Grant%20Recipient%20DMP%20Guidance\\_0.pdf](https://www.transportation.gov/sites/dot.gov/files/2023-11/SMART%20Grant%20Recipient%20DMP%20Guidance_0.pdf). Data management plans are an administrative requirement described in the 2013 OSTP memorandum entitled "Increasing Access to the Results of Federally Funded Scientific Research" (available at [https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/ostp\\_public\\_access\\_memo\\_2013.pdf](https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/ostp_public_access_memo_2013.pdf)) and the 2022 OSTP memorandum entitled "Ensuring Free, Immediate, and Equitable Access to Federally Funded Research" (available at <https://www.whitehouse.gov/wp-content/uploads/2022/08/08-2022-OSTP-Public-Access-Memo.pdf>). Data management plans are required for research funded by federal agencies, including research conducted by agency researchers.

<sup>212</sup> See, for example, H.R. 2689 in the 115<sup>th</sup> Congress; H.R. 2532 and S. 4331 in the 116<sup>th</sup> Congress; H.R. 9439 and H.R. 3587 in the 117<sup>th</sup> Congress; and S. 2756 in the 118<sup>th</sup> Congress.



always be straightforward and could delay research.<sup>213</sup> In addition, some Alaska Native communities reportedly are feeling “research fatigue” as scientists from around the world come to them to study climate impacts.<sup>214</sup> Federal employees also may lack the time or training to seek out Tribes and IK, and new federal consent or consultation requirements could make the federal-tribal consultation process “lengthy and unrealistic.”<sup>215</sup> Furthermore, expanded tribal consultation or consent requirements could hinder tribal economic and infrastructure development.<sup>216</sup> Additionally, in many cases, different Tribes have different views or beliefs about the same place.<sup>217</sup> It may be difficult for a federal agency to identify all of the tribal interests to an area, and to obtain FPIC for the use of IK associated with multiple Tribes.<sup>218</sup>

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<sup>213</sup> Jeffrey Mervis, “New NSF Rule Requires Tribal Approval for Research Affecting Their Interests,” *Science*, August 28, 2024, <https://www.science.org/content/article/new-nsf-rule-requires-tribal-approval-research-affecting-their-interests>.

<sup>214</sup> *Ibid.*

<sup>215</sup> See Statement of Rep. Paul Gosar in U.S. Congress, House Natural Resources Committee, *Legislative Hearing on H.R. 312, Mashpee Wampanoag Tribe Reservation Reaffirmation Act; H.R. 375, to Amend the Act of June 18, 1934, to Reaffirm the Authority of the Secretary of the Interior to Take Land into Trust for Indian Tribes, and for Other Purposes; and Discussion Draft of H.R. \_ RESPECT Act*, 116<sup>th</sup> Cong., 1<sup>st</sup> sess., April 3, 2019, H.Hrg. 35-971 (Washington: GPO, 2019), p. 49 (hereinafter 2019 RESPECT Act hearing).

<sup>216</sup> See Statement of Rep. Bruce Westerman, Ranking Member, 2019 RESPECT Act hearing, p. 7, <https://docs.house.gov/meetings/II/II24/20210520/112660/HHRG-117-II24-MState-W000821-20210520.pdf> (“While I strongly believe that federal agencies should conduct proper Tribal consultation, and projects should include tribal voices, this bill would be extremely harmful by significantly slowing down agency actions, which could hinder needed economic development and critical infrastructure development for Tribes.”).

<sup>217</sup> ACHP, “Traditional Knowledge,” p. 3.

<sup>218</sup> *Ibid.* ACHP notes that “additional outreach and consultation may be required for a federal agency to engage with multiple tribes to better understand a single place.”

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