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Climate Change and Indigenous Peoples: A Primer

The information presented in this report is believed to current as of the time of production.
The information, law, and policies involving Indian tribes and indigenous peoples are in a
continual state of flux, both domestically and internationally.

Prepared for the Advisory Committee on Climate Change and Natural Resource Science

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Please provide comments and suggestions using line numbers for reference to:

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Climate Change and Indigenous Peoples: A Primer

Table of Contents

Purpose i

Forward i

Executive Summary..... ii

Importance of Engaging Indigenous Peoples in Climate Change 1

About Indigenous Peoples and Indian Tribes in the United States 3

 Indigenous peoples 3

 Free, Prior, and Informed Consent. 3

 Indigenous Peoples in the United States. 4

 Federally Recognized Tribes. 5

 Consultation Obligations For Federally Recognized Tribes..... 6

 About treaties. 8

 About Indian Reservations..... 9

 About Trust Responsibility..... 9

 State Recognized Tribes..... 11

 Other Indigenous Peoples of the United States. 11

Indigenous Peoples and Climate Change 12

 Traditional Knowledges. 12

 Climate Change Impacts on Indigenous Peoples..... 18

 Special Science Needs of Indigenous People 25

Interacting With Indigenous Peoples..... 27

 Emergencies and Disasters Involving Indigenous Peoples 28

 Tips for Interacting With Indigenous Peoples..... 29

Funding Disparities for Indigenous Peoples..... 30

 Funding for Participation in DOI Cooperative Landscape Conservation Program..... 32

 The Playing Field Is Not level 42

Conclusion..... 45

48

49

Climate Change and Indigenous Peoples: A Primer

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Purpose - Provide tribal perspectives on foundational information on Climate Change, Indigenous Peoples, and Tribes to the Advisory Committee on Climate Change and Natural Resource Science on three major topics: 1) the impact of climate change on tribal and Indigenous Peoples; 2) relationships between Indigenous Peoples and the Federal-Government; and 3) the availability of funding to support the participation of Indigenous Peoples in federal climate initiatives.

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Forward

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A Primer and TK Guidelines have been produced to provide foundational information to the Advisory Committee on Climate Change and Natural Resources Science (ACCCNRS) on intergovernmental relationships and science when engaging Tribal and Indigenous Peoples in federal climate change initiatives. A crosswalk between these two reports and the duties of ACCCNRS as set forth in its charter is summarized in the following table.

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ACCCNRS Charter Duties	Informational Reports
Advising on the contents of a national strategy identifying key science priorities to advance the management of natural resources in the face of climate change.	Primer - inform ACCCNRS of unique science needs of tribes & indigenous peoples as governments and managers to advance natural resource management on the landscape and ecosystem.
Advising on the nature, extent, and quality of relations with and engagement of key partners at the regional/CSC level.	Primer – provide foundational information on tribes and Indigenous Peoples to increase awareness and sensitivities regarding governmental structures, treaties, rights, responsibilities, cultural differences regarding human relationships to the environment, traditional knowledge, and limitations on funding and capacity to participate when engaging individual tribes in climate initiatives Guidelines – provide foundational information and suggested guidance on processes involving federal-tribal engagement on issues related to traditional knowledges (TKs)
Advising on the nature and effectiveness of mechanisms to ensure the identification of key priorities from management partners and to effectively deliver scientific results in useful forms.	Primer & Guidelines - inform ACCCNRS of issues relating to the significance of TK, scale of scientific information to support tribal decision making, and the need to employ culturally appropriate protocols for braiding TK and WS.
Advising on mechanisms that may be employed by the NCCWSC to ensure high standards of scientific quality and integrity in its products, and to review and evaluate the performance of individual CSCs, in advance of opportunities to re-establish expiring agreements.	Guidelines - inform ACCCNRS, tribal communities, federal entities, and researchers interested in accessing and employing TKs on tribal perspectives regarding traditional knowledges, western science, and decision-making processes.
Coordinating as appropriate with any Federal Advisory Committee established for the DOI Landscape Conservation Cooperatives.	Primer & Guidelines - inform LCCs, CSCs, (and other federal entities).

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62 **Executive Summary**

63 To indigenous peoples, climate change is not about theories, obtuse mathematics, fancy graphs, model
64 abstractions, statistics, voluminous reports,, media hype, slogans, or dire projections for a distant future.
65 It is reality. They experience it everyday in countless ways because of their economic and cultural
66 dependence on place and natural resources. As noted by workgroups II and III in the April 2014 Fifth
67 Assessment prepared by the International Panel on Climate Change and Chapter 12 of the May 2014,
68 National Climate Assessment, indigenous peoples among the most vulnerable human populations to
69 climate change. Sea level rise, dead zones, ocean acidification, melting glaciers, invasive species,
70 drought, severe storm events, wildfire, invasive species, and infestations from insects and disease
71 among the many manifestations of local, regional, national, and global causal factors that are disrupting
72 the ecological process that lie at the very core of their lifeways.

73 For indigenous peoples, the impacts of climate change extend beyond the physical environment to their
74 responsibilities as governments and cultural continuity. Indigenous peoples have their own inherent
75 governmental structures, powers and special rights and interests in land, natural, and cultural resources.
76 Yet their role in climate governance is being ignored. They are rarely recognized or even acknowledged
77 as having a legitimate need to be at the table as full partners when climate policies and programs are
78 being developed and implemented.

79 The governments of indigenous peoples take many forms, from federally-recognized tribes to self-
80 recognized communities. Each form of governance has different implications with attendant
81 responsibilities and processes for federal entities when engagement in climate change initiatives is
82 sought. For example, federal entities are required to undertake consultation on a government-to-
83 government basis with federally-recognized tribes and to fulfill fiduciary responsibilities for lands and
84 resources held in trust by the United States for the benefit of Indians.

85 There is great diversity in the organizational structures of tribal government and the roles of written and
86 customary law and cultural traditions and practices. Legal rights and responsibilities of tribal
87 governments vary widely as well. Some have reserved treaty-protected rights and co-management
88 authorities for shared resources like fish, wildlife, and water. Some have rights established by Executive
89 Order or Statute. Others have neither. Because the governments and cultures of indigenous peoples are
90 distinctively different, federal entities must be especially careful to avoid stereotyping and “one size fits
91 all” approaches and work with indigenous communities with awareness, respect and sensitivity,
92 whether undertaking research, implementing programs, or responding to emergencies. The Primer
93 provides suggestions for interacting with indigenous peoples generally and in emergency situations.

94 Corporate memory is an important consideration when interacting with indigenous communities.
95 Because these communities are closely knit with relationships that span multiple generations, Federal
96 staff, agencies, and other entities should be mindful that contacts will be viewed in the context of prior
97 experiences of interactions with outsiders. No matter how unfair it may seem, the reality is that
98 outsiders will be carrying baggage left behind from previous contacts and will leave behind legacies that
99 those who follow will have to contend with.

WORKING DRAFT

100 Indigenous peoples have gained intimate, intergenerational understandings of interconnections
101 between people and the environment gained through thousands of years of living with the land,
102 learning how to prepare and adapt to change in order to survive. These understandings and rules of
103 governance for their sharing are commonly referred to as Traditional Knowledge(s) or TKs. Because TKs
104 are uniquely kept and shared within indigenous communities, access and use must be arranged
105 separately with each indigenous community. A companion piece to this Primer provides some general
106 guidelines to help inform keepers and would be users of TKs of helpful principles and protocols.

107 The experience, science, and wisdom of indigenous peoples can add a critical local dimension as the
108 world seeks to develop effective policies and programs to contend with climate challenges. The need for
109 and value of including TKs and local observation to inform understanding and devise climate strategies
110 are becoming increasingly acknowledged.

111 TKs and western science are founded in fundamentally different, culturally-determined world views and
112 values. TKs reflect long-term, holistic perspectives in which everything is interconnected, i.e., man is a
113 part of nature. In contrast, western science reflects a short-term, segmented perspective that tends to
114 result in segmentation and isolation, i.e., that man is a part from nature. These different cultural
115 underpinnings lead to vastly different views on the value and importance of science and information to
116 decision-making. To indigenous peoples, science informs decision processes that include consideration
117 of economic, cultural, and environmental implications for today and future generations in a holistic,
118 integrated fashion. In contrast, western societies often put science in a subservient role narrowly
119 focused on isolated cause-effect relationships and short-term cost-benefit consequences of individual
120 decisions. This difference in world views affects attitudes towards science.

121 Indigenous peoples have long understood the folly of trying to dissect the world into component parts
122 and attempting to view science in isolation from economics, law, policy, and culture. The controversy
123 that has festered for nearly two decades over the remains of *The Ancient One* (aka Kennewick Man)
124 serves as a prime example of the conflict that can result from the melange of tribal rights, science, law
125 and culture. The Native American Graves Protection and Repatriation Act requires ancestral human
126 remains and cultural artifacts to be returned to Tribes for reburial. Scientists oppose repatriation and
127 reburial of *The Ancient One*, asserting that further study can provide valuable information on ancestral
128 origin, diet, and the source of a stone point found in the hip. Tribes argue that the remains should not
129 be treated as an object of scientific curiosity, but rather should be reburied as a sacred ancestor.

130 Cultural differences are also apparent in the values attributed to scientific information and data. For
131 example, western science relies on artificial constructions such as calendars and atomic clocks to try to
132 record regularity and measure time with increasing precision. To Indigenous peoples, calendar dates or
133 the ability to measure time in nanoseconds is of little significance to the natural processes that
134 determine when plants bloom, berries ripen, fish arrive in the rivers, or how and when wildlife and
135 plants migrate.

136 The rights and interests of indigenous governments also create needs for special types of information
137 for climate science. For example, decisions of indigenous communities are usually made at relatively
138 small, local scales so there is a need to: (a) access downscaled information from regional data and
139 models along with information on uncertainty; and (b) provide a means to upscale, i.e., understand how

WORKING DRAFT

140 local decisions will interact at the landscape, regional, and even global scales to evaluate their effects on
141 the resources and values of interest. Another example illustrates how science may be called upon to
142 inform decisions regarding interactions between the special rights of indigenous communities and
143 impacts of climate change. Climate change is expected to result in sea level rise, more violent water
144 surges and changes in meander of river beds with increased frequency and intensity of storm events;
145 since tribes often own shorelines to mean high water lines and river meander areas, information may be
146 needed to evaluate implications of potential conflicts between tribal and individual property rights
147 arising from climate change impacts. Another example is the information needed by tribal governments
148 to evaluate implications of federal actions or policies affected by conflicts of interest between duties
149 relating to the trust responsibility and general administration of agency programs and missions or the
150 implications of shifting the conservation responsibility for ESA listed species onto tribal lands due to
151 habitat deterioration in other areas.

152 TKs and western science each have their own strengths and weaknesses; neither is superior to the
153 other. Braided together, both can retain their own identity while strengthening the whole body of
154 knowledge regarding climate science.

155 Because of the heightened awareness that traditional knowledge has potential commercial value, the
156 need for international protection of the rights and interests of indigenous peoples is receiving increasing
157 attention. For example, the United Nations Convention on Biodiversity and Declaration on the Rights of
158 Indigenous Peoples (UNDRIP) contains tenets intended to discourage unprincipled exploitation of the
159 traditional territories and knowledge of indigenous peoples, such as the need for Free, Prior, and
160 Informed Consent.

161 Tribal communities typically suffer from disparities in infrastructure, capacity, economic development,
162 health, and social services. Their ability to substantively engage in climate initiatives is greatly affected
163 by confusing bureaucratic and administrative structures and the lack of federal funding to support
164 capacity development and active participation. Moreover their ability to collaborate is often impeded by
165 agency administrative restrictions, such as information technology policies and procedures that affect
166 access to data, analysis, and file sharing.

167 Funding available to the Bureau of Indian Affairs (BIA) and federally recognized tribes continues to fall
168 far short of that provided to other entities within the Department of the Interior. In FY12, less than
169 \$200,000 was provided to support BIA and tribal involvement in Interior's \$200 million Cooperative
170 Landscape Conservation and Adaptive Science (LCAS) program, and that meager funding was
171 repurposed from a realty account. In FY13, the less than \$1 million made available to support
172 participation by the BIA and 566 federally recognized tribes was also not new funding, but was rather
173 repurposed from other BIA accounts. This modest amount of funding supported a single staff position
174 and a competitive grant program. The FY14 operating budget for the BIA provides nearly \$10 million for
175 participation in LCAS and other climate related activities, along with youth initiatives and landscape
176 management improvements. The President's FY15 budget proposes just under \$10 million for BIA and
177 tribal participation in climate-related initiatives. In addition to inequitable funding for participation in
178 the LCAS, federally recognized tribes are not eligible to receive funding from several sources available to
179 states and other entities.

WORKING DRAFT

180 There are huge and growing demands for tribal participation on at least ten federal climate planning
181 strategies and a plethora of ever increasing federal, state, regional, international, academic and non-
182 governmental fora and processes, such as landscape conservation cooperatives, climate science centers,
183 conferences, workshops, and climate hubs. Yet the availability of adequate, dedicated funding to
184 support tribal involvement is rare. The proliferation of climate-related processes is overwhelming. Few,
185 if any, tribes have the capacity, the resources, staff, and expertise, to engage in climate change activities
186 on their own behalf.

187 Tribes must have both technical and political capacity to engage in climate change initiatives. They must
188 have access to western science and the ability to incorporate the wisdom, insight, and TKs from their
189 own communities into decision processes. Their governments must be able to bring special legal and
190 political rights and interests to local, regional, national, and international fora to help overcome
191 impediments to the development of a collaborative framework to address climate change.

192 The long, proven history of balanced stewardship of indigenous peoples can help build partnerships
193 across political jurisdictional that reconcile views among a multitude of divergent interests. Federal
194 climate initiatives and indigenous peoples stand to benefit greatly by working together to establish and
195 support the development and implementation of viable approaches for addressing the diverse and
196 difficult economic, social, and ecological challenges confronting climate change.

197 Land and resources are integral to the cultures and economies of tribes and indigenous peoples. As
198 climate change affects local ecological processes, generations of place-based knowledge within their
199 communities can provide information and guidance for preparation, adaptation, and mitigation.
200 Moreover, tribes and indigenous peoples have unique political status as governmental sovereigns, own
201 substantial quantities of land and resources, possess reserved rights on large areas of federal land, and
202 have co-management authorities and responsibilities for shared resources. Federal, state, and regional
203 entities in landscape scale climate initiatives will need to encourage and support the substantive
204 engagement of tribes and indigenous people. This primer is intended to provide information to help
205 participants in landscape level processes fulfill needs for knowledge exchange and build partnerships
206 with tribal communities.

207 **Importance of Engaging Indigenous Peoples in Climate Change**

208 Engagement of indigenous peoples could prove vital to developing an inclusive and
209 effective strategy for contending with climate change. All our futures are at stake.

- 210 • As resource managers with a long history of successful, sustained, broadly
211 acknowledged stewardship, indigenous peoples are able to press for a balanced
212 approach encompassing both conservation and utilization to implement
213 practices that protect critical resources, habitats, and ecological processes. In
214 addition, reserved rights and status as co-managers of shared resources of
215 some groups of indigenous peoples enables them to assert their influence
216 across a landscape of ownerships.
- 217 • Federally recognized tribes have the authority to establish standards for regulation of air and water
218 quality which are more stringent than those of neighboring political jurisdictions.
- 219 • Traditional knowledges¹ (TKs) accumulated by generations of indigenous peoples with intimate ties
220 to place and resources, provide an invaluable source of information and experience to detect and
221 monitor important impacts of climate change on culturally and economically important resources.
- 222 • Federally recognized tribes are in a unique position to press for actions to protect their rights and
223 interests given the fiduciary trust responsibility of the United States both on and off reservation
224 lands.²



¹ Although the word “knowledge” is considered to be plural as well as singular, the “s” is deliberately and purposefully added to emphasize that TKs are unique to each indigenous community and knowledge holder. There are many types of TKs; they represent traditional knowledge systems that are deeply embedded in indigenous ways of life.

² President Obama’s June 2013 Climate Action Plan states: *“The Administration will continue to assist tribal communities on preparedness through the Bureau of Indian Affairs, including through pilot projects and by supporting participation in federal initiatives that assess climate change vulnerabilities and develop regional solutions.”* The President recently appointed two Natives to serve on the White House Task Force on Climate Preparedness and Resilience: Karen Diver (Fond du Lac Band of Lake Superior Chippewa) and Mayor Reggie Joule (Northwest (Alaska) Arctic Borough). In addition, there are three tribal seats on the LCC National Council, and there is a tribal co-Chair on the National Fish, Wildlife, and Plants Climate Adaptation Strategy Joint Implementation Working Group (the follow on entity to the NFWPCAS mandated by Congress, but establishment and operation of the Group are not Congressionally mandated).

- 225 • As political sovereigns,
226 indigenous governments are
227 in a strong position to
228 persuade other political
229 sovereigns to prevent
230 despoliation of the
231 environment under the
232 public trust doctrine (see
233 sidebar).³
- 234 • Tribal signatories to treaties
235 are able to call upon the
236 obligations of the United
237 States to protect their
238 reserved rights that depend
239 on the ability to sustain
240 essential ecological
241 functions.
- 242 • Lastly, several statutes and
243 Executive Orders call for protection of sacred sites, cultural resources, religious freedoms, and
244 consultation requirements for administrative actions, policies, rules, and regulations that affect
245 tribal rights and interests.⁴

The “Atmospheric Public Trust Doctrine”

Frustrated by the inability or unwillingness of their governments to take action to contend with climate change, citizen groups, and even children (several members of indigenous peoples) have turned to litigation to try to force their governments to act. Plaintiffs in the United States seek to compel regulation of greenhouse gas emissions, alleging that governments have breached its fiduciary public trust duties by failing to protect the atmosphere for them personally, for other children across the country, and for future generations. Defendants in the federal cases include the current Secretaries of the: Department of Interior, Department of Commerce, Department of Energy, Department of Agriculture, Department of Defense, and the Environmental Protection Agency; defendants in the state complaints are state governors.

Climate change has a multitude of global causes, but international action requires the agreement of independent sovereigns through negotiations, such as the Kyoto protocol and climate accords. In the United States, however, with principles of fiduciary trust, recognized co-management of shared resources, and government-to-government relations, federally recognized Indian Tribes may be in a position to press for protection of the atmospheric commons under principles of co-tenancy along with the public trust doctrine.

³ The *public trust doctrine* is a concept derived from common law which requires governments to preserve and maintain certain resources for reasonable use by the public. A variation of this doctrine has begun to emerge – the so-called “Atmospheric Public Trust Doctrine” (ATL). ATL litigation has been filed in venues around the world to try to force governments to take actions to address greenhouse gas emissions. Several of the plaintiffs are children, including natives. See <http://indiancountrytodaymedianetwork.com/2013/12/30/fight-war-13-year-old-calls-his-generation-save-world-152888>. In the U.S. ATL cases turn on the courts’ views on the concept of separation of powers and their ability to enforce duties that Congress and the Administration have not clearly established as a matter of establish public policy. For an interesting case study, see Shearer, C. 2011. “Kivalina: A Climate Change Story.” Haymarket Books, 240p and Sorenson, Q. 2012. “Native Village of Kivalina v. ExxonMobil Corp.: The end of “climate change” tort litigation?” Trends Vol. 44 (3). The 9th Circuit Court dismissed the Kivalina case because the court said the argument is a political issue - which is precisely what the case and other like it are about - the failure of state and federal governments to protect the public trust, whether through legislation of administration. A recent book, Wood, M. 2013. “Natures Trust: Environmental Law for a New Ecological Age”, Cambridge University Press. 457p. contains an extensive discussion of the Public Trust Doctrine and the shortcomings of environmental law. Additional information on the public trust doctrine can be found at: <http://ourchildrenstrust.org/legal-action/lawsuits>; <http://www.climatelawyers.com/post/2013/04/29/Climate-Change-Legal-Theories-The-Atmospheric-Public-Trust-Doctrine-Moves-Another-Step-Forward.aspx>; <http://www.coastalstates.org/publications-news/public-trust-doctrine/>.

⁴ Indian law is extremely complex as federal and state statutes, executive orders, and court decrees often apply to only specified tribes. For the most part, federal statutes pertaining to Indian tribes are collected as part of Title 25 of the US Code. Federal agencies issue regulations, directives, handbooks, and guidelines for interactions with Indian tribes which relate to their missions.

246 The engagement and involvement of Indian tribes and other indigenous peoples in the development and
247 implementation of policies and programs dealing with climate change could prove pivotal. Tribes are
248 sovereign governments, have intimate relationships and knowledge of place, and have reserved rights
249 protected by treaties with the United States and the U.S. Constitution. As such, the U.S. government has
250 an enforceable fiduciary obligation to fulfill trust responsibilities. The diverse and impressive suite of
251 powers and authorities that federally recognized tribes possess as sovereigns with a long, proven history
252 of stewardship can help protect essential ecological functions and overcome the intransigence of
253 political and economic interests that has stymied progress on global climate change initiatives.

254 **About Indigenous Peoples and Indian Tribes in the United States**

255 **Indigenous peoples** have inherent rights derived from their historical relationships
256 to specific territories, distinctive cultures and forms of governance. Indigenous
257 peoples are also commonly referred to as Native Peoples, First Nations, First Peoples,
258 and Indians. Worldwide, it is estimated that the number of indigenous peoples
259 approaches 5000, with a total population of nearly 400 million located in 100
260 countries.



261 Indigenous peoples are widely viewed as the first and primary stewards of the
262 planet, caretakers of the forests, water, soils, plants and animals upon which their cultures and survival
263 depend. Because their territories contain resources coveted by others, indigenous peoples are coming
264 under increasing assault from interests seeking to benefit from minerals, water, wood, medicinals, agro-
265 pharma-industrial development, and ecosystem services. The need to protect their rights and interests
266 was recently recognized by the United Nations Declaration on the Rights of Indigenous Peoples
267 (UNDRIP), that no country today opposes. Although UNDRIP is not legally enforceable, it establishes
268 international norms and standards for treatment of indigenous peoples, exemplified by Article 31:

269 *"Indigenous peoples have the right to maintain, control, protect and develop their*
270 *cultural heritage, traditional knowledge and traditional cultural expressions, as well as*
271 *the manifestations of their sciences, technologies and cultures, including human and*
272 *genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral*
273 *traditions, literatures, designs, sports and traditional games and visual and performing*
274 *arts. They also have the right to maintain, control, protect and develop their intellectual*
275 *property over such cultural heritage, traditional knowledge, and traditional cultural*
276 *expressions."*⁵

277 **Free, Prior, and Informed Consent.** The concept and principles of *Free, Prior and*
278 *Informed Consent* (FPIC). appear repeatedly in UNDRIP and in other instruments of international
279 law and climate negotiations, including discussions relating to the Kyoto Protocol and REDD+
280 (Reducing Emissions from Deforestation and Forest Degradation). Each of the terms in FPIC has
281 specific meaning (see sidebar). Understanding and applying FPIC will provide a solid foundation
282 when engaging indigenous peoples in climate change initiatives, consultation processes, and
283 other matters.

⁵ Frequently Asked Questions on UNDRIP can be found at:
<http://www.un.org/esa/socdev/unpfii/documents/FAQsindigenousdeclaration.pdf>

284 **Indigenous Peoples in the United States.** In the
285 United States, indigenous peoples are often referred to as
286 *Indians*, although the term is objectionable to several
287 groups. The terms “American Indian” and “Alaska Native”
288 are still commonly used to denote cultural and historical
289 distinctions between persons belonging to the indigenous
290 tribes of the continental United States (American Indians)
291 and the communities and villages of Alaska (Alaska
292 Natives, i.e., Eskimos, Aleuts, and Indians). In the 1970’s
293 the term “Native American” began to be widely employed
294 and its definition has since been expanded to include
295 *all* Native peoples of the United States and its trust
296 territories, i.e., American Indians, Alaska Natives, Native
297 Hawaiians, Chamorros, and American Samoans, as well as
298 persons from Canada First Nations and indigenous
299 communities in Mexico and Central and South America
300 who are U.S. citizens.

301 There are dozens of legal definitions of “Indian” found in
302 federal legislation. The 1978 [American Indian Religious](#)
303 [Freedom Act](#) contains a definition that is most commonly
304 relied upon today – an Indian is a member of an Indian
305 tribe, which in turn is a group that *“is recognized as eligible for the special programs and services*
306 *provided by the United States to Indians because of their status as Indians.”*

307 According to the U.S. Census, about 4.5 million people (1.5% of the U.S. population) self identified as
308 being Indian (including those of more than one race). In the BIA’s 2005 American Indian Population and
309 Labor Force Report, the total number of enrolled members of the (then) 561 federally recognized tribes
310 was just under 2 million, less than half the Census number.

311 There are several types of indigenous peoples in the United States and its territories: Federally
312 recognized tribes, State-recognized tribes, and tribal or native communities that are not formally
313 recognized by Federal or State governments. The rights of and responsibilities toward these groups
314 differ legally and politically. Recognition constitutes formal acknowledgement by the Federal or State
315 government of political relationships with tribes as units of government; policies, laws, and regulations
316 are commonly used to establish duties and responsibilities for intergovernmental relations and to
317 characterize tribal rights and authorities within the jurisdiction of the recognizing entity. The full scope
318 of the powers and authorities of recognized tribes and other groups of indigenous peoples is based on
319 their inherent sovereignty and do not depend on external acknowledgement by Federal or State
320 governments. The territories, languages, traditions, practices, cultures, and relationships transcend the
321 boundaries of the political jurisdictions of modern-day nation states.

322 A tribe is a group of Indigenous people that is bound together by shared qualities and characteristics,
323 such as language, traditions, practices, religions, or economies, which make it a unique societal entity. At

FPIC

"Free" means that consent is not given as a result of force, intimidation, manipulation, coercion, or other pressure by any government, agency, company, or external entity.

"Prior" means Indigenous Peoples (IP) must be engaged before alternatives are identified and actions or decisions are made. Prior often also means ensuring that IP have the opportunity to influence the structure of collaboration, cooperation and or any other form of joint action that serves to guide decision-making. For traditional knowledges, prior refers to obtain consent before use or dissemination.

"Informed" means that all relevant information must be made available and provided in language/forms understandable to IP and that IP must have access to independent information and experts on law and technical issues upon request.

"Consent" means that Indigenous Peoples have the right to say "yes" or "no" at

WORKING DRAFT

324 the time of first European contact in North America, tribes seldom had permanent formal political
325 structures. Rather, indigenous peoples were usually organized as bands and largely independent
326 communities that tended to have common languages and cultural characteristics. These bands and
327 communities gathered periodically for purposes, such as fishing, hunting, collection of foods, ceremonial
328 and religious gatherings, to make war and mutual defense. When these groups came together, business
329 was conducted through structures such as councils of village or band chiefs.

330 Fur trade with Europeans changed these traditional organizational structures as small, mobile villages
331 were formed to satisfy demand from French, British, and American traders. When necessary, these
332 largely independent entities gathered to make decisions through a multi-village council. Such tribal
333 councils could not compel compliance by individual communities; rather each village was free to decide
334 whether or not to follow the collective decision.

335 After formation of the United States, more formalized political agreements with Indians were sought.
336 Because of the difficulty of trying to develop agreements or treaties with individual villages, the United
337 States pursued treaties with leaders gathered from different villages and communities; village leaders
338 quickly learned that they had more power by working collectively. After the villages ceded lands and
339 people were relocated to reservations set aside for their use and occupancy, tribal councils began to
340 become more formalized political entities, tribes, to conduct relations with the United States.

341 **Federally Recognized Tribes.** A tribe becomes federally recognized when the United States
342 acknowledges its right to exist as a sovereign entity. Tribes with treaties or other well-established
343 political relationships have long been federally recognized (sometimes referred to as "federally
344 acknowledged tribes"). Other tribes can gain recognition by following an administrative process for
345 federal acknowledgement.

346 The United States currently recognizes 566 Indian Tribes that possess inherent rights of sovereign
347 government, except those relinquished through treaty with the United States or extinguished by
348 Congress or limited by rulings of the federal courts. Federally recognized tribes can establish legal
349 requirements for membership, enact and enforce civil and criminal laws, tax, zone, and license and
350 regulate activities.

351 Tribal and state governments are separate and distinct parts of the federal system of governance.
352 Federal governance derives from general authorities, responsibilities, and protections as determined by
353 provisions of the U.S. Constitution and statute. State governance is determined by the limits of their
354 constitutions and laws, as constrained by the U.S. Constitution and federal law. Federally recognized
355 tribes have their own inherent rights as sovereigns, and, subject to limitations of federal law, authority
356 to regulate activities on their lands independently from states. For environmental protection, federally-
357 recognized tribes can enact and enforce stricter or more lenient laws and regulations than those of the
358 surrounding or neighboring state(s) where they are located. States have no authority over tribal
359 governments unless expressly determined otherwise by Congress or courts of competent jurisdiction.
360 Tribes are generally not subordinate to states, but can enter into inter-governmental agreements with
361 states; tribes frequently collaborate and cooperate with states through compacts or other agreements
362 on matters of mutual concern such as environmental protection and law enforcement.

WORKING DRAFT

363 The Bureau of Indian Affairs (BIA) within the Department of the Interior maintains and publishes a list of
364 federally-recognized tribes (required under the Federally Recognized Indian Tribe List Act of 1994).⁶
365 Some tribes are federally recognized by virtue of treaties with the United States; others are recognized
366 by Executive Order, or administrative processes. The list of federally recognized tribes changes as
367 petitions for federal recognition are administratively considered. Since 1980, 17 Indian Tribes have been
368 formally recognized while petitions from 34 groups have been denied. Some 16 petitions are currently
369 under administrative review.⁷

370 Federally recognized tribes enjoy immunities and privileges by virtue of their government-to-
371 government political/legal relationships with the United States. The application and administration of
372 federal statutes, laws, and judicial determinations to Indian Tribes are affected by federal recognition.
373 For example, the Native American Graves Protection and Repatriation Act, the American Indian Religious
374 Freedom Act, and the National Historic Preservation Act. Because of their historic relationships to land
375 and natural resources, federally-recognized tribes are treated distinctively under general conservation
376 statutes like the Endangered Species Act and Marine Mammals Protection Act. Special guidance is
377 required for agencies when administering such laws when federally-recognized tribes are involved.⁸

378 Great diversity in forms of governance among federally-recognized tribes exists, from very large, multi-
379 departmental governments to small single person operations. Each has its own organizational structure
380 and operational protocols. Federally recognized tribes can assume responsibility for operating programs
381 administered by the Department of Interior on their behalf under Indian Self-Determination and
382 Education Assistance Act (PL93-638) contracts or self-governance compacts entered into under the
383 Tribal Self-Governance Act of 1994 (25 U.S.C. 458aa et seq.). Many tribes have their own natural
384 resource programs, some of which are quite sophisticated with local knowledge, expertise, skills and
385 capabilities that rival or exceed those operated by state and federal government agencies.

386 ***Consultation Obligations For Federally Recognized Tribes.*** A particularly important obligation of
387 the United States that stems from the government-to-government relationship with federally-
388 recognized tribes is the duty to “consult” on federal actions, programs, regulations, policies, procedures,
389 and other matters that may affect tribal rights or interests.⁹ On November 5, 2009, President Obama

⁶ Indian Entities Recognized and Eligible to Receive Services from the United States Bureau of Indian Affairs: Federal Register, Volume 78, Number 87 dated May 6, 2013 (78 FR 26384-26389). A list of tribal governments can be found at: <http://www.usa.gov/Government/Tribal-Sites/index.shtml>. A directory of tribal leaders is maintained by the BIA at: <http://bia.gov/WhoWeAre/BIA/OIS/TribalGovernmentServices/TribalDirectory/>

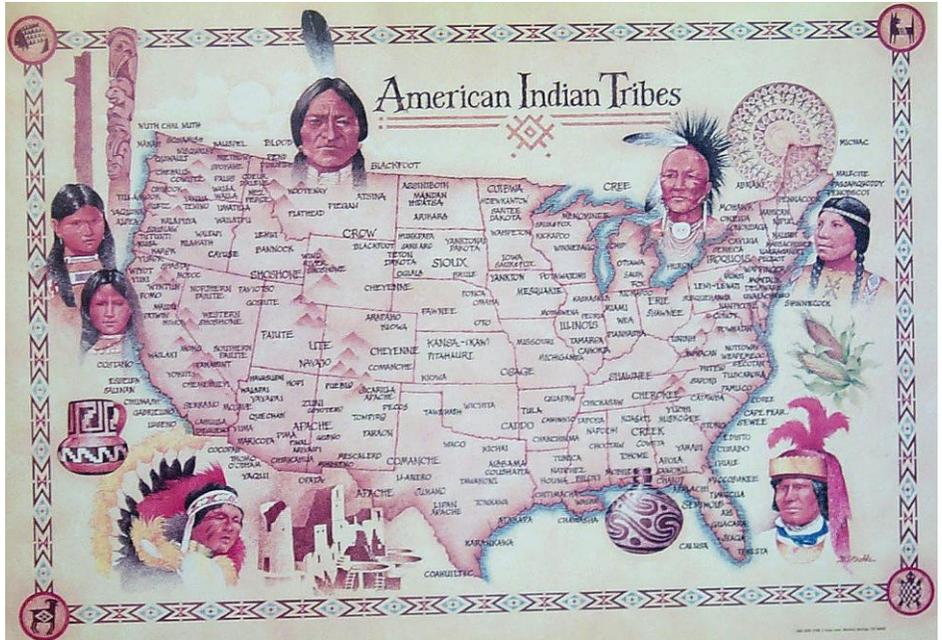
⁷ List of approved petitions: <http://www.bia.gov/WhoWeAre/AS-IA/OFA/ADCList/index.htm>. List of resolved petitions: <http://www.bia.gov/WhoWeAre/AS-IA/OFA/ADCList/PetitionsResolved/index.htm>

⁸ See for example, the Department of Interior and Department of Commerce Joint Secretarial Order 3206 and 3225 which provide guidance for reconciling trust responsibilities, self-government, and administrative obligations under the Endangered Species Act “American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act” <http://www.fws.gov/nativeamerican/laws.html>.

⁹ Under PL101-199 as amended by PL 108-447, federal agencies are required to consult with Alaska Native Corporations established under the Alaska Native Claims Settlement Act. On August 10, 2012, the Secretary of Interior adopted a policy to formalize consultation processes for ANCSA corporations while giving deference to views of federally recognized tribes should conflict arise with comments provided by ANCSA corporate entities.

390 issued an executive memorandum reaffirming Executive Order 13175, Consultation and Coordination
391 with Indian Tribal Governments, requiring each federal agency and bureau to fully implement the
392 Executive Order.¹⁰ The Environmental Protection Agency has produced a useful guide for consultation
393 on environmental decision-making.¹¹

394 Agency-specific approaches to
395 consultation have been of
396 major concern to tribes. First,
397 each federal agency has
398 developed its own policies,
399 procedures, and principles for
400 consultation; tribal
401 governments have been
402 forced to contend with a
403 multitude consultation
404 processes in their interactions
405 with federal agencies. There is
406 no process to reconcile
407 differences among agencies.
408 Consequently, government-
409 to-government relationships
410 have morphed into tribe-to-agency consultation.



411 Second, agencies have initiated consultation at their own convenience and discretion. Tribes can
412 become victims of consultation overload as numerous agency request tribal “input” on many different
413 topics.

414 Third, individual agency policies have tended to adopt a “one size fits all” approach that fails to
415 distinguish between different social, economic, political and cultural protocols of individual tribes. Some
416 tribes, like the Quinault Nation, have adopted their own consultation policies to inform federal agencies
417 of the manner in which they wish to participate in consultation processes.¹²

Other federal laws, such as the American Indian Religious Freedom Act and Native American Graves and Repatriation Act require consultation with Native Hawaiians.

¹⁰ Interior’s consultation policy is set forth in Secretarial Order 3317 “Department of the Interior Policy on Consultation with Indian Tribes, dated December 1, 2011. In addition, the December 10, 2013 “Report of the Commission on Indian Trust Administration and Reform” contains a number of recommendations to improve consultation processes.

¹¹ National Environmental Justice Advisory Council Indigenous Peoples Subcommittee. 2000. Guide on Indian Tribal Governments and the Public Participation of Indigenous Groups and Tribal Members in Environmental Decision Making. National Environmental Justice Advisory Council Indigenous Peoples Subcommittee, A Federal Advisory Committee to the U.S. Environmental Protection Agency. November 22, 2000.

¹² The University of Arizona maintains a WWW site: <http://www.tribalconsultation.arizona.edu/> that provides information and assistance to tribal governments in developing their own consultation policies and laws to establish requirements and expectations for government-to-government consultation. A compilation of

WORKING DRAFT

418 Last, and most importantly, for many tribal governments, the manner in which Federal agencies
419 “consult” does not adequately reflect government-to-government relationships because the agencies
420 retain sole decision-making responsibility.

421 Consultation should not be considered an end in itself, but rather an integral part of collaborative
422 relationships between sovereigns that depend on respectful engagement in dialogue to mutually
423 identify, explore, and try to resolve issues and concerns.¹³

424 There is no “one-size fits all” with tribal governments, whether for consultation or other matters;
425 understanding and appreciating uniqueness is key to developing working relationships. Until the mid
426 20th Century, Native American communities governed themselves through tribal laws, cultural traditions,
427 accepted practices, religious customs, and kinship systems (e.g., clans and societies). Today, most
428 modern tribal governments are democratic with elected leadership.

429 **About treaties.** From 1778 to 1871, political relationships between Indian tribes and the United States
430 were defined and conducted largely through negotiated treaties that recognized and established unique
431 contractual sets of rights, benefits, and conditions. Through treaties, tribes ceded millions of acres of
432 their traditional territories to the United States, expressly retained rights to fish, hunt, gather, and trap
433 to maintain their lifestyles, and reserved for themselves any rights not granted. Indian treaties are
434 recognized by the United States Constitution as “the supreme law of the land.”¹⁴ Treaties are the
435 foundation upon which much of federal Indian law, trust responsibility, and federal trust relationships
436 are based.

437 Not all federally-recognized tribes have treaties. Those that do, however, often have rights of self or co-
438 management of shared resources, both on and off reservation, including federal and other lands. Tribes
439 signed treaties with the understanding that the federal government had the trust obligation to ensure
440 that tribes’ reserved resources would persist forever. Treaties defined a place-based regime of rights.
441 Tribes reserved a land base and off-reservation fishing, trapping, hunting and gathering rights that they
442 believed would support their cultures.

443 The impetus for the federal government’s active engagement with tribes on climate change adaptation
444 is compelled by tribes’ status as sovereign nations with certain rights established under treaties, as well
445 as the U.S. Constitution, historical relationships, statutes, case law, and executive orders. As trustee for
446 the lands and resources held in trust for Indians, the federal government has a fiduciary responsibility
447 which requires it to protect tribal land and resources. As a matter of policy, the United States also has
448 the obligation to consult and interact with tribes on a government-to government basis.

consultation protocols, policies, and best practices is available at
http://www.tribalconsultation.arizona.edu/CompilationConsultationMemo_2_03_14.pdf.

¹³ Morishima, G.S., 2009. Ruminations About Tribal Consultation. Intertribal Timber Council Newsletter. Spring 2010, p16.

¹⁴ Supremacy Clause: Article VI, Clause 2. *“This Constitution, and the Laws of the United States which shall be made in Pursuance thereof; and all Treaties made, or which shall be made, under the Authority of the United States, shall be the supreme Law of the Land; and the Judges in every State shall be bound thereby, any Thing in the Constitution or Laws of any State to the Contrary notwithstanding.”*

WORKING DRAFT

449 **About Indian Reservations.** For many federally recognized tribes, their homelands of today are
450 defined by the boundaries of reservations that were set aside for their exclusive use and occupancy
451 under treaties and Executive Orders. There are over 300 Indian reservations in the United States,
452 ranging in size from hundreds of square miles to a few acres. With the exception of Annette Island in
453 Alaska, all reservations are located in the continental United States. Some tribes have no reservations or
454 recognized land ownership boundaries.

455 In the continental United States and Alaska combined, the 566 federally recognized tribes collectively
456 control nearly 100 million acres of land. Some 56 million acres of land are held in trust for Indians, within
457 reservations and in isolated parcels of land outside reservation boundaries; another 44 million acres in
458 Alaska is not held in trust, but is owned and managed by Alaska Native Villages and Alaska Native
459 Corporations.

460 **About Trust Responsibility.** Relationships with federally recognized tribes involve a concept known as
461 the “trust responsibility.” This concept is rooted in a variety of sources, including principles embodied in
462 the Christian-based “Doctrine of Discovery”¹⁵, treaties, allotment¹⁶, and federal statutory and case law.
463 The basic premise underlying the trust responsibility is that tribal peoples and lands need to be
464 protected because concepts of property ownership, resource use, and western law were so alien to their
465 traditions and practices.

466 Indian lands are not public lands and are not subject to statutes and regulations pertaining thereto. The
467 United States holds title to much of the land and resources on Indian reservations in trust for the benefit
468 of tribes and individual Indians. The United States has a fiduciary responsibility to ensure that the assets
469 that comprise the corpus of the trust are properly managed, protected and productive and to accurately
470 account for and distribute any proceeds that are generated from their utilization.¹⁷

471 The Department of the Interior hosts a wide variety of agencies and bureaus involved in the
472 management and administration of public lands in addition to the BIA. Conflicts of interest have

¹⁵ See Newcomb. S. Five hundred Years of Injustice: The Legacy of Fifteenth Century Religious Prejudice. *Shaman's Drum*. Fall 1992, p. 18-20. Available at: http://ili.nativeweb.org/sdrm_art.html. An article by Peter d'Errico in the March 20, 2014 edition of Indian Country Today, “U.N. Permanent Forum Raises Stakes on Christian Discovery Doctrine”, at <http://indiancountrytodaymedianetwork.com/2014/03/20/un-permanent-forum-raises-stakes-christian-discovery-doctrine> reports on recent scholarship concerning the Doctrine of Discovery and a session of the U.N. Permanent Forum on Indigenous Issues scheduled for May 2014.

¹⁶ The General Allotment Act was passed in 1887 to break up Indian reservations set aside for tribal use into individually owned parcels of land (allotments). The motivation was intended destroy collective tribal use of land and force Indians to adopt the values and ways of farmers and settlers; allotment also opened the way for the disposition of reservation lands remaining after allotment to non-Indians. Under the allotment policy, the Indian land base was reduced by some 100 million acres. For a brief history of allotment, see <http://www.iltf.org/resources/land-tenure-history/allotment>

¹⁷ “Report of the Commission on Indian Trust Administration and Reform.” Department of the Interior. December 10, 2013. See also the history of the Office of the Special Trustee www.doi.gov/ost/about_us/history.cfm, trust principles http://www.doi.gov/ost/about_us/trust.cfm; BIA Office of Trust Services <http://www.indianaffairs.gov/WhoWeAre/BIA/OTS/index.htm>

WORKING DRAFT

473 commonly arisen when duties of fiduciary trust administration for Indian affairs clash with agency
474 missions, public land laws, and general administrative policies and regulations.¹⁸

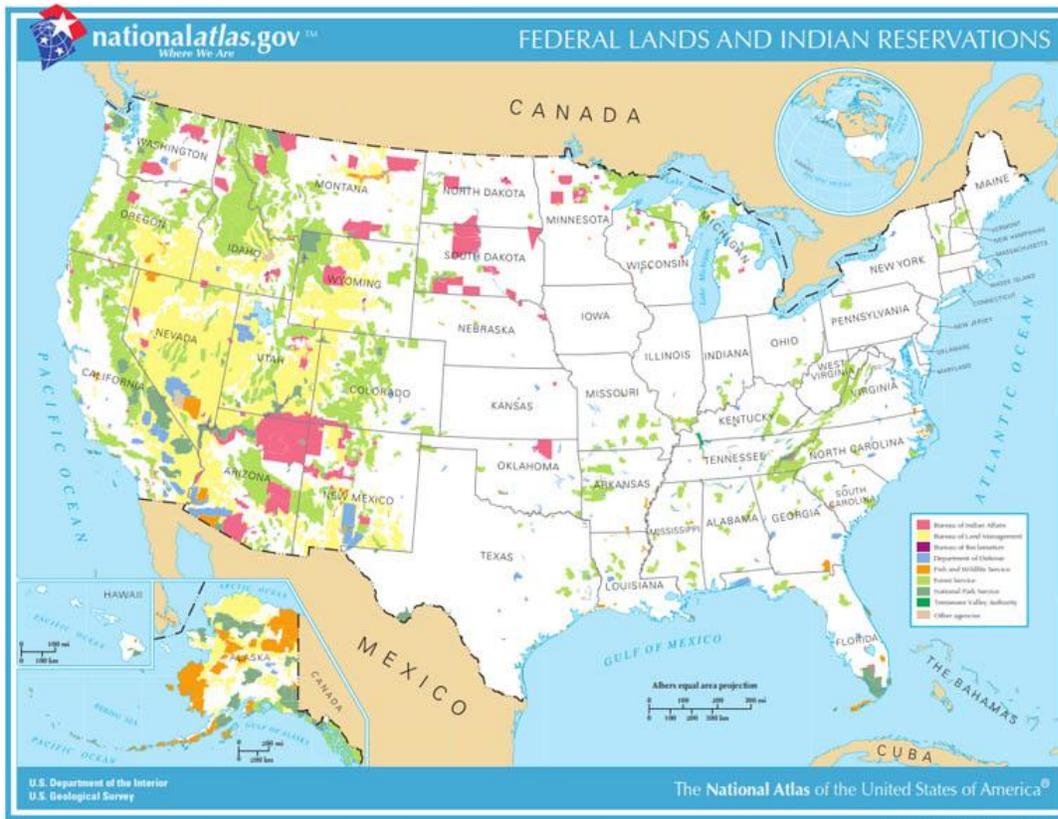
475 The federal trust responsibility has not been specifically defined and its contours are constantly
476 changing. However, it is clear that this responsibility is broader in scope than the fiduciary duty to care
477 for trust assets. The United States is also required to protect tribal treaty rights, carry out the mandates
478 of federal law with respect to American Indian and Alaska Native tribes and villages, and fulfill
479 understandings and expectations that have arisen over the entire course of relationships with individual
480 Indian tribes.

481 The trust responsibility also includes the obligation to support tribal governance and self-determination.
482 Although the BIA is the principal trustee-designate of the United States for Indian affairs, the federal
483 trust responsibility applies to all federal agencies and entities as they administer programs, undertake
484 projects, or develop policies that affect tribal reserved rights, cultural resources, religious practices, or
485 resources (see section on tribal consultation). Reconciliation of the concept of the trust responsibility to
486 protect tribal rights and interests with current policies of Indian self-determination is the subject of
487 continued debate and study.¹⁹

488 A comprehensive treatment of the federal trust responsibility is beyond the scope of this Primer.
489 Federal-tribal relationships are extremely complex because they involve unique circumstances
490 surrounding government-to-government relationships and their respective authorities, responsibilities,
491 limitations, and obligations as independent sovereigns. Consequently, the nature, scope, and substance
492 of the federal trust responsibility must be considered within a specific legal and factual context.

¹⁸ North Dakota Law Review 51(2) 1995 contains a number of articles regarding conflicts of interest and trust responsibility.

¹⁹ Report of the Commission on Indian Trust Administration and Reform; Slade, L. "The Federal Trust Responsibility In A Self-Determination Era" <http://library.findlaw.com/1999/May/20/132928.html>; Gover, K. 2006. *An Indian Trust for the Twenty-First Century*, 46 NAT. RESOURCES J. 317 (2006); Morishima, G. 2005. "Perspectives: The Past, Present and Future of Tribal Self-Governance and the Federal Trust Relationship." Prepared for the CLE Conference on the Federal Indian Trust Responsibility & Transactions on Indian Lands. Arizona State University College of Law, December 1&2, 2005; Senate Committee on Indian Affairs hearing on "Fulfilling the Federal Trust Responsibility: The Foundation of the Government-to-Government Relationship." May 17, 2012.



493
 494 **State Recognized Tribes.** Some Indian tribes are not recognized by the United States as sovereign
 495 entities, but are recognized by individual states for internal governmental purposes. State recognition
 496 confers limited benefits and some protection of autonomy. In some cases, land reserves have been
 497 established where state recognized tribes exercise limited rights of self-government. A list of federally
 498 and state recognized Indian tribes by state is maintained by the National Council of State Legislatures at
 499 <http://www.ncsl.org/research/state-tribal-institute/list-of-federal-and-state-recognized-tribes.aspx>.

500 **Other Indigenous Peoples of the United States.** Other groups of indigenous peoples exist outside
 501 the continental United States and Alaska, such as Native Hawaiians, the Commonwealth of Puerto Rico,
 502 American Samoa – unincorporated territory of the US; Micronesia & Marshall Islands, Guam and U.S.
 503 Virgin Islands. Some groups, such as Native Hawaiians are recognized in limited way in federal statutes
 504 and regulations, but are not federally-recognized. Agencies and entities involved in climate initiatives
 505 must be aware of these rights when implementing policies and programs.²⁰ The powers and authorities
 506 of such groups are based on the exercise of inherent sovereign authority and may or may not be
 507 recognized externally by the United States or other nation states. The United States generally has the
 508 obligation to provide protection from intrusion by other foreign states, but concepts such as the federal

²⁰ The status and rights of Native Hawaiians is a matter of continuing discussion within the United States. See Benjamin, S.M. 1996. Equal Protection and the Special Relationship: The Case of Native Hawaiians. *Tale Law Journal* 106:537-612. Several legal primers on various aspects of Native Hawaiian rights are available at: <https://www.law.hawaii.edu/native-hawaiian-and-indigenous-legal-resources>. See also: Kidani, L. 2007. Index to Law Review Articles on Native Hawaiian Law. W.S. Richardson School of Law, University of Hawaii, Manoa.

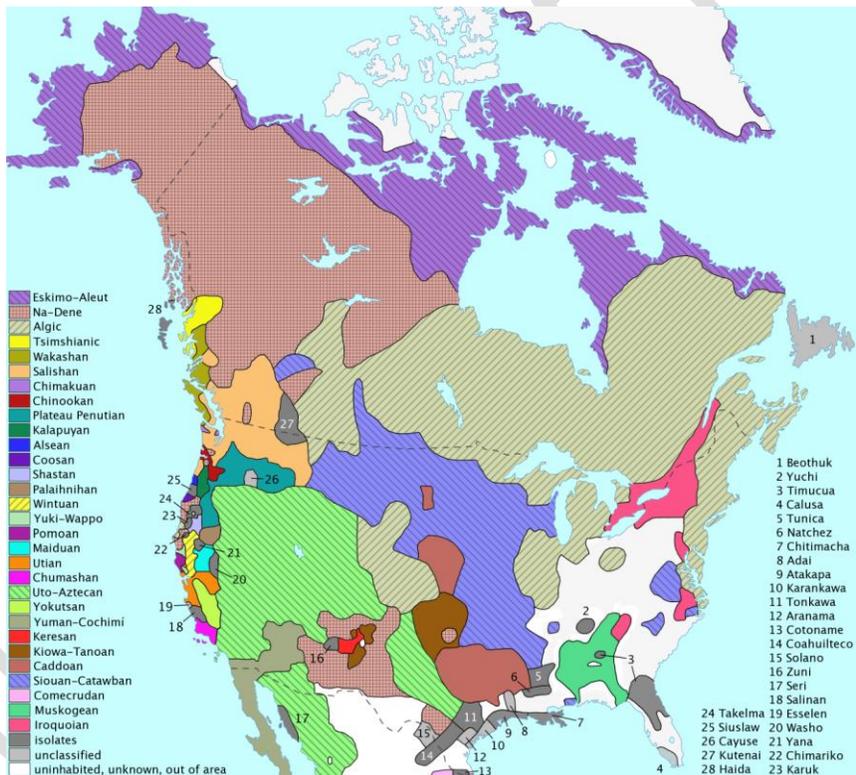
509 trust responsibility do not apply. In some cases, relationships with the United States are specified in
510 contractual arrangements such as the Compact of Free Association with the former Trust Territory of
511 the Pacific Islands of the US.

512 While current policy does not require Federal agencies to formally consult with groups that are not
513 Federally recognized, the previously mentioned concept of *Free, Prior and Informed Consent*, embodied
514 in UNDRIP provides general guidance for the conduct of inter-governmental relationships with
515 indigenous peoples.

516 **Indigenous Peoples and Climate Change**

517 Climate change is caused by
518 global factors, but its impacts
519 on indigenous peoples are
520 manifest locally within the
521 context of specific places,
522 resources and communities.

523 Biological and cultural
524 diversity are closely
525 intertwined. Because place
526 and resources are vital to
527 cultures, economies, and
528 religions in myriad ways, such
529 as foods, medicines, fuel,
530 shelter, transportation,
531 religion, language, stories,
532 traditions, customs, practices,
533 economies, recreational
534 pursuits, and artistic
535 expression, Indigenous people
536 consider themselves and all
537 other things to be part of an interconnected environment.



538 **Traditional Knowledges.** Through generations of experience living intimately with their
539 environments and learning to adapt to change in order to sustain cultural continuity and simply survive
540 under conditions where sustained access and use of natural resources are paramount and depend on
541 the capacity to sustain ecological functions, indigenous peoples have gained a wealth of traditional
542 knowledges (TKs). “TKs” is a shorthand way of referring to "traditional knowledge systems" that are
543 deeply embedded in indigenous ways of life. There are different forms of TK, each with its attendant
544 protocol, some may be secret, or highly sacred, and held by one or a few individuals, some may only be
545 used in special rituals or ceremonies, others may be used publically, but still held by particular
546 individuals, families, or clans (e.g., a song may be shared with an audience without transferring and
547 rights to listeners to record or sing that song without permission). TKs are often embedded in stories,

WORKING DRAFT

548 language, traditions, and practices; they may be widely distributed within a tribe, and used in gathering,
549 hunting, cooking and other daily activities, and still accompanied by stewardship obligations.

550 Some tribal communities may find the term “traditional knowledge” or “TK” to be unacceptable or
551 inappropriate, preferring to use “*indigenous knowledge*” or “*knowledge of the land*” instead. There are
552 as many forms of TKs as there are indigenous peoples, as that information is learned, kept, and
553 transmitted through culturally distinct and appropriate ways.

554 It is important to recognize and understand that perceptions of science depending on fundamental
555 differences between world views in TK and western science. Mason et. al.²¹ contrasted attributes of
556 these two ways of knowing in tabular form reflecting fundamental culturally-based differences in world
557 views.

Traditional Knowledges	Western Science
Abstract (characteristic not tied to a specific object or instance) Cosmological understandings of how things work, where everything is alive, interconnected, and affected by supernatural forces or spirits with sometimes mysterious or supernatural motivations and influence.	Concrete (characteristic tied to a specific object or instance) Clinical understandings of how things work, where fundamental physical laws govern response to stimuli.
Qualitative (conceptual understandings pertaining to relative differences in a quality of an object or circumstances within a multidimensional context)	Quantitative (absolute measurements within segregated boundaries and linear dimensions)
Inclusive (considering everything; interrelationships with the web of life)	Exclusive (limited to the specific object or instance, ignoring all else; isolation in islands)
Intuitive (inferred characteristic or relationship based on repeated observations and intuition)	Intellectual (relational hypothesis-driven and tested through experimentation to obtain observations under controlled circumstances to produce predictable outcomes, systematic accumulation of data, and replicability; characteristic or relationship derived from assumption or circumstantial deduction, logic, or analysis)
Holistic (an item or event only exists and has meaning as a part of the whole and its relationship to all other things). The glass of knowledge and understanding is "full" because it contains all that is known that is relevant to a given decision.	Reductionist (seek broad generalities that explain fundamental relationships by breaking a phenomenon or object into its individual components and theorizing the simplest, most basic physical mechanisms at play that are responsible for behavior). The glass of knowledge is "empty" until valid scientific proofs are found.
Spiritual (mind and environment are related; social value-laden relationships between objects, events, or circumstances which are based in psychological or emotional significance, as well as physical characteristics of an object or event in itself). Personal perspective, reflecting moral and ethical beliefs are an essential part of knowledge gathering. Meaning and interpretation of observations become personal knowledge that is passed to trusted caretakers over generations; actions are influenced by emotions and motives within a communal context.	Clinical (mind and matter are separate; physical relationships are mechanistic and can be explained in objective, dispassionate “value free” ways). Impersonal perspective, that moral beliefs introduce biases that impede research and handicap the discovery of “truth.” Results in “wicked” problems that are impossible to solve because the lack of clear problem definition and differing perspectives of “stakeholders” result in circumstances where information is incomplete or contradictory or methods of analysis or interpretation of results are controversial.
Coexistence (an object or event considered in conjunction with all other things)	Control (dominance or exertion of will to accomplish a desired outcome)
Diachronic (change is continual and multi-dimensional; knowledge is gained by repeated, place-based observation over extended periods of time)	Synchronic (time consists of discrete, sequential episodes; observations at particular points in time, often over a large area or under diverse circumstances provide data that can be analyzed to account for differences, apart from historical antecedents or impacts of relationships to other factors that are not considered or measured)
People are part of nature (all things are connected, principle of reciprocity involving sharing and stewardship, through which benefits	People apart from nature (man is in competition with all else and seeks to dominate or control to attain desired outcomes; exploitative

²¹ Mason L, G. White, G. Morishima, E. Alvarado, L. Andrew, F. Clark, M. Durglo, J. Durglo, J. Eneas, J. Erickson, M. Friedlander, K. Hamel, C. Hardy, T. Harwood, F. Haven, E. Isaac, L. James, R. Kenning, A. Leighton, P. Pierre, C. Raish, B. Shaw, S. Smallsalmon, V. Stearns, H. Teasley, M. Weingart, and S. Wilder. 2012. “Listening and learning from traditional knowledge and Western science: a dialogue on contemporary challenges of forest health and wildfire.” *Journal of Forestry* 110:187–193.

WORKING DRAFT

are received in exchange for value or care given)	for human purposes)
Communal knowledge, based on shared insights and empirical observations accumulated over generations of resource users and via trial and error experience. TKs are not “owned” by an individual, but rather entrusted to individuals to hold for safekeeping on behalf of the community and future generations. TKs are transferred to individuals via culturally distinct traditions and practices involving personalized teaching and learning by doing. Individual knowledge is commonly subjected to communal vetting. Over time, agreements among practitioners develop an evolving accumulation of a shared cosmological understanding.	Individual knowledge. Data are collected and analyzed by researchers and specialists; attributed to individual contribution imparting a sense of “ownership”, and shared by credited publication or held in proprietary reserve. Progression of episodic disagreements that settle only temporarily into agreed upon “state of the knowledge.” Progressions in the state of knowledge require the legacy of accepted “state of knowledge” to be overcome and evidence is accepted that the new is superior to the old.

558 Among the most striking contrasts is the “fullness” of TKs with the “emptiness” of western science.
 559 “Fullness” refers to the accumulation of knowledge as a whole from a foundation of shared
 560 understandings that develops over time within a context that demands moral accountability and ethical
 561 conduct. At any particular point in time, the state of knowledge on which to base decisions is complete.
 562 Practitioners must make decisions using the information at hand aware of the specific locations,
 563 resources, and community values involved. They are personally and directly affected by the application
 564 of TKs. For instance, if a burning treatment of the land is not performed properly, the capacity of the
 565 land to sustain the animals and plants vital to community continuity can be lost. Concepts that condone
 566 waste or despoliation of the environment are not condoned because the consequences can be so
 567 severe. The very survival of indigenous communities can depend upon the validity and proper use of
 568 knowledge. Misrepresentation or fraud would be unthinkable, morally repugnant, and societally
 569 intolerable.

570 “Emptiness” refers to a disconnection between western science and societal accountability. Because the
 571 quest for new science and information is unending when the “glass” can never be full, even tentative,
 572 inclusive, or erroneous results can be rewarded by making more funds and resources available to
 573 conduct further research or gather more data. Moreover, individuals can be and are rewarded for the
 574 production of “science” regardless of the consequences that result from the application of that
 575 knowledge. While achievements of western science have been many and profound, there have been
 576 numerous occasions where application of knowledge has produced unanticipated and destructive
 577 results. For example, scientists received accolades for developing the tenets of physics even though
 578 those discoveries may lead to the proliferation of nuclear weaponry. Scientists can be rewarded for
 579 developing herbicides or insecticides or technology for genetic manipulation even though their
 580 application may have severe environmental consequences. Concepts such as efficiency in exploitation of
 581 valuable materials or waste disposal can be pursued with little regard for collateral impacts since the
 582 society in which science is applied may condone such impacts as an acceptable externalized cost of
 583 “doing business.” Compared to keepers of TKs, the vision and perspective of western scientists is
 584 empty; they are usually far removed, temporally or spatially, from application of knowledge, oblivious to
 585 uncertainties and risks to community values, the vagaries and uniqueness of place and interdependence
 586 between circumstance and resources. Absent a solid foundation of moral and cultural accountability,
 587 fraud, targeted messaging, and misrepresentation can leave decision makers so confused that problem
 588 solving can become intractable.

589 Due in large part to the influence of teachings by academic institutions that are dominated by tenets of
 590 western science, western science has been presumed to represent true “science” while TKs have been

591 relegated to the status of hearsay or “folklore.” However, the global nature of climate change
592 necessitates a more holistic view of approaches to preparation, adaptation and mitigation, one more
593 consistent with the world views reflected by TKs than western science. There are practical reasons,
594 beyond preservation of cultural heritage, why TKs are important for resource conservation and climate
595 change (Berkes²²). More recently, Vinyeta and Lynn²³ provided a synthesis of published literature
596 regarding the potential use of TKs in assessing and adapting to climate change, while also discussing
597 challenges with braiding TKs with western science. Despite their marked contrasts, there is no need or
598 reason to try to argue for the superiority of one way of knowing over the other. Rather, TKs and western
599 science can be braided, each retaining its own identity while contributing to the strength of the whole.

600 *“...broad generalizations tend to overlook similarities such as systematic observation and*
601 *objectives of reliable predictability. These different realms of knowledge share a common*
602 *understanding that the natural world is amenable to explanation and human influence. Both*
603 *develop sophisticated knowledge used to inform cause and effect relationships from which*
604 *strategies for action emerge. Both can contribute to broader understanding of opportunities to*
605 *adapt to a changing environment.”²⁴*

606 Each of these different ways of knowing has its own strengths. Western science can draw upon a broad
607 range of peer reviewed literature and information to develop theoretical general conceptualizations of
608 causal relationships, apply them at large scales and provide projections of expectations. But western
609 science can be stymied by complex interactions between people, land, and resources in specific
610 situations. TKs can draw upon centuries of intergenerational observational experience to detect and
611 interpret implications of climate change impacts in-situ, and help identify preparation, adaptation, and
612 mitigation measures to sustain culturally important ecological processes and resources. Together, they
613 can complement each other and help inform the development of theoretical and practical approaches
614 to contend with climate change.

615 Western and TKs operate at different scales and there is a need to improve their synergy. The global and
616 regional models and assessments need to be downsized to make them relevant to decision makers at
617 the scales they require. Similarly, climate change is the result of countless actions taken around the
618 world and tribal, state, regional, and international measures are being adopted or considered at various
619 scales. A means to upsize and evaluate the impact of actions and efficacy of policies and programs is
620 needed to incorporate this information into regional, global models and assessments.

621 The perceived value and appropriate role of science is affected by the manner in which it affects
622 decisions and contributes to the attainment of desired outcomes. A few examples are summarized in
623 the following table:

²² Berkes, F. 1993. “Traditional Ecological Knowledge in Perspective.” In *Traditional Ecological Knowledge: Concepts and Cases*, ed. J.T. Inglis. International Program on Traditional Ecological Knowledge and International Development Research Centre. 1993. 151 p Note that this publication contains several case studies involving the application of TKs in resource management..

²³ Vinyeta, K. and K. Lynn. 2013. “Exploring the Role of Traditional Ecological Knowledge in Climate Change Initiatives.” USDA Forest Service, PNW Research Station, GTR 879.

²⁴ Mason et.al. P192.

WORKING DRAFT

Governments	High level, “Actionable Science” at federal level, states, tribes and counties operate at different levels. Distinguish between regulators (sufficient to withstand political and legal challenges) and resource managers (sufficient for decision making)
Tribes	Observational, based on accessing intergenerational reservoirs of experience in specific places. High unemployment rates, infrastructure inadequate, limited opportunities, frightening prospects for escalating social costs
Scientists	Research Value. Can results withstand peer review. Much of climate science is not experimental or replicable for validation, but rather is based on hypothetical constructs and statistical inferences. There is a substantial area of climate science that is empirical, involving long-term observed trends and research, such as paleo-climate research.
Natural resource management agencies, entities and organizations	Operational Science – clients of CSCs & LCCs, tied closely to agency missions and jurisdictional domains
Mega Corporations	Utilitarian (competitive) Science – profit motivation driven. Focused on economic uncertainties and risks (consequences), forecasts of supply and demand over the investment horizon, and politically constrained goals and objectives; often based on proprietary data and methods to gain/maintain competitive advantage
Small entrepreneurs	Minimal Investment in Science – small decisions, limited in scope with available data and methods
The Public	Death by a thousand cuts – decisions often made in ignorance, unaware of their implications for the environment. There is a wide gap between the scientific consensus on the fundamentals of anthropogenic climate change and the American public’s perceptions and social responses necessary to adapt and/or mitigate. This gap appears not to be solely a climate science literacy issue, but also a cultural issue.

624 Historically, indigenous peoples were able to assert their spheres of influence under conditions where
 625 their ability to survive was affected by boundaries of ecological processes. Today, indigenous peoples
 626 are facing much different circumstances with fragmented landscapes dominated by a multitude of
 627 political and jurisdiction boundaries. Confined to reservation boundaries, and confused jurisdictional
 628 ecology of decision-making, indigenous peoples have very limited capability to directly control local
 629 environments because the actions that influence ecosystem health are outside their direct control. They
 630 must rely on government regulators and enforcement (including the courts) to encourage, constrain and
 631 compel behavior, often being forced to rely upon judicial processes to try to control the decisions and
 632 actions of others. Indigenous peoples commonly feel that enforcement of environmental and cultural
 633 resource laws and regulations intended to preserve important resources and functions is often lax.
 634 Courts of competent jurisdiction can be hard to find. Judicial, administrative, and political processes to
 635 try to timely remedy causal factors are fraught with ambiguous laws and regulations, conflicting and
 636 uncertain science and information, and actions that are costly to undertake with uncertain outcomes. It
 637 is difficult to even determine just who the culprits and decision makers are.

WORKING DRAFT

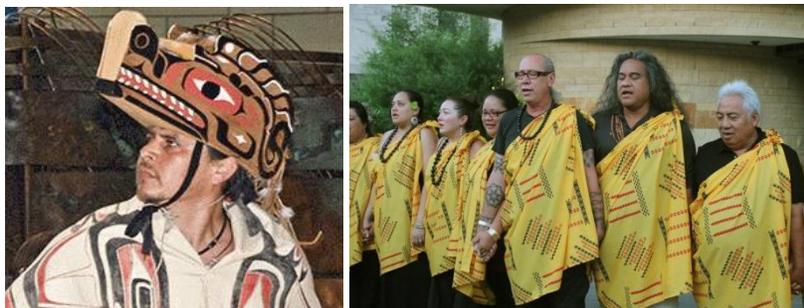
638 Indigenous peoples are sharing their TKs with other indigenous peoples, providing invaluable insights to
639 scientific efforts to understand climate change, and reviving ancestral practices that are time-tested,
640 climate resilient, and are
641 inherently effective
642 adaptation techniques.
643 There is increasing
644 awareness of the need for
645 and value of including TKs
646 as an integral part of
647 climate science.

648 Recognizing that TKs are
649 uniquely kept and shared
650 within indigenous
651 communities, it is
652 important to understand
653 that access and use must
654 be arranged separately
655 with each community of
656 indigenous people.

657 However, some general
658 guidelines can be provided
659 to help inform keepers and
660 would be users of TKs
661 (proposed guidelines are
662 presently under
663 development as a
664 companion piece to this
665 Primer).



668



669



670



671 **Climate Change Impacts on Indigenous Peoples.** Because places and resources are location-
672 specific, and because values are socially and culturally determined, each population of indigenous
673 people will be uniquely impacted by climate change.

674 Many indigenous peoples, lands, and communities are disproportionately vulnerable to the impacts of
675 climate change due to geographic isolation and lack or condition of existing infrastructure. Published
676 literature is beginning to call attention to the dire situation faced by indigenous peoples worldwide.²⁵

²⁵ See, for example: Climate Change and Indigenous Peoples in the United States: Impacts, Experiences and Actions. Special Issue of Climate Change. Volume 120, Issue 3, October 2013; Abate, R. S., & Kronk, E. A. (2013). Climate Change and Indigenous Peoples: The Search for Legal Remedies: Edward Elgar Publishing, Macci, M., G. Oviedo, S. Gotheil, K. Cross, A. Boedihartono, C. Wolfangel, M. Howell. 2008. Indigenous and Traditional Peoples and Climate Change. International Union for Conservation of Nature *Issues Paper* March 2008; Climate Change and Indigenous Peoples: Background. Undated. United Nations Permanent Forum on Indigenous Issues. Contact:

677 The Third Climate Assessment Report issued by the Intergovernmental Panel on Climate Change (IPCC)
678 in 2001 scarcely mentions indigenous and traditional peoples and the importance of their own capacity
679 to adapt to climate change. In contrast, the Fourth Assessment Report issued in 2007 contains much
680 more extensive materials that provide an overview of observed and projected impacts of climate change
681 on natural and human environments, including recognition of the extreme vulnerability of indigenous
682 peoples in Polar Regions, North America, Australia, New Zealand, and Africa to impacts of climate
683 change, including case studies with historical examples of coping mechanisms. The report also mentions
684 the circumstances confronting indigenous peoples in small island states, Andean communities, Asia and
685 the Amazon or their TKs in contending with environmental changes such as sea level rise and strategies
686 for contending with water scarcity.

687 In Part I of the Fourth Assessment, IPCC states that changes in the cryosphere led to *"changes in the*
688 *migration patterns, health, and range of animals and plants on which they depend for their livelihood*
689 *and cultural identity."*

690 This led to a recommendation for the climate change research community to further study indigenous
691 knowledge systems, which could prove to be valuable sources of information for Climate Change
692 Impact, Adaptation and Vulnerability (CCIAV) assessments.

693 Part II recommends that indigenous peoples be specifically considered in climate change research and
694 policy making processes because of their vulnerability and long-place based experience and
695 management practices.

696 Part III of the fourth assessment while reemphasizing the high variability in the vulnerability of
697 indigenous peoples to impacts of climate change, recommends that TKs be incorporated into adaptation
698 and sustainability research and formation of public policy. While promoting the use of innovative
699 technology, IPCC cautions that blind application of technology can negatively affect indigenous cultures.

700 A 2012 special report by IPCC workgroups I and II includes information about impacts of climate change
701 and indigenous peoples, including TKs, adaptation, and cultural perceptions of risk and methods of
702 coping.²⁶ Some excerpts from that report follow:

703 *"Displacement for any group can be distressing, but for indigenous peoples it can result*
704 *in particularly severe impacts. The environment and ties to land are considered to be*
705 *essential elements in the survival of indigenous societies and distinctive cultural*
706 *identities (Colchester, 2000). The displacement and resettlement process has been*
707 *consistently shown to disrupt and destroy those networks of social relationships on which*
708 *the poor depend for resource access, particularly in times of stress (Cernea, 1996;*
709 *Scudder, 2005)." p80*

710 *"The cultural dimension also includes the potential vulnerability of aboriginal and native*
711 *peoples in the context of climate extremes. Globally, indigenous populations are*

Mirian Masaquiza, Secretariat of UNPFII, tel: 917-367-6006, e-mail: IndigenousPermanentForum@un.org; Cozetto, K., K. Chief, K. Dittmer, M.Brubaker, R. Gough, K. Souza, F. Ettawageshik, S. Wotkyns, S. Opitz-Stapleton, S. Duren P. Chavan. 2013. "Climate Change Impacts on the Water Resources of American Indians and Alaska Natives in the U.S." Springer Science+Business Media Dordrecht 2013.

²⁶ IPCC, 2012: Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change [Field, C.B., V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.-K. Plattner, S.K. Allen, M. Tignor, and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, UK, and New York, NY, USA, 582 pp.

712 frequently dependent on primary production and the natural resource base while being
713 subject to (relatively) poor socioeconomic conditions (including poor health, high
714 unemployment, low levels of education, and greater poverty). This applies to groups from
715 Canada (Turner and Clifton, 2009), to Australia (Campbell et al., 2008), to the Pacific
716 (Mimura et al., 2007). Small island states, often with distinct cultures, typically show
717 high vulnerability and low adaptive capacity to climate change (Nurse and Sem, 2001).
718 However, historically, indigenous groups have had to contend with many hazards and, as
719 a consequence, have developed capacities to cope (Campbell, 2006) such as the use of
720 traditional knowledge systems, locally appropriate building construction with indigenous
721 materials, and a range of other customary practices (Campbell, 2006).

722 Given the degree of cultural diversity identified, the importance of understanding
723 differential risk perceptions in a cultural context is reinforced (Marris et al., 1998).
724 Cultural Theory has contributed to an understanding of how people interpret their world
725 and define risk according to their worldviews: hierarchical, fatalistic, individualistic, and
726 egalitarian (Douglas and Wildavsky, 1982). Too often policies and studies focus on 'the
727 public' in the aggregate and too little on the needs interests, and attitudes of different
728 social and cultural groups". p97

729 On April 17, 2014, the fifth IPCC assessment report was released. As with the 4th IPCC report,
730 workgroups note the special vulnerabilities of indigenous peoples to climate change. Workgroup II
731 mentions indigenous peoples repeatedly, finding that

732 *"Among the most vulnerable are indigenous peoples due to their complex relationship with their*
733 *ancestral lands and higher reliance on subsistence economies, and those urban centers where*
734 *high concentrations of populations and economic activities in risk-prone areas combine with*
735 *several socio-economic and environmental sources of vulnerability."* WGII ARS Chapter 26, p5.

736 Workgroup III contains extensive treatment of indigenous peoples, summarizing concerns as follows:

737 *"Because they depend on natural resources and inhabit biodiversity-rich but fragile ecosystems,*
738 *indigenous peoples are particularly vulnerable to climate change and have only limited means of*
739 *coping with such change (Henriksen, 2007; Permanent Forum on Indigenous Issues, 2008). They*
740 *are often marginalized in decision making and unable to participate adequately in local,*
741 *national, regional, and international climate-change mechanisms. Yet, it is increasingly being*
742 *recognized that indigenous peoples can impart valuable insights into ways of managing*
743 *mitigation and adaptation (Nakashima et al., 2012), including forest governance and conserving*
744 *ecosystems (Nepstad et al., 2006; Hayes and Murtinho, 2008; Persha et al., 2011)."* WGIII ARS
745 Chapter 3, p69.

746 On May 5, 2014, the National Climate Assessment and Development Advisory Committee released the
747 third National Climate Assessment, which includes a special chapter 12 devoted to climate change and
748 indigenous peoples.²⁷ The chapter contains key messages and summarizes its findings as:

²⁷ Bennett, T. M. B., N. G. Maynard, P. Cochran, R. Gough, K. Lynn, J. Maldonado, G. Voggesser, S. Wotkyns, and K. Cozzetto, 2014: Ch. 12: Indigenous Peoples, Lands, and Resources. Climate Change Impacts in the United States: The Third National Climate Assessment, J. M. Melillo, Terese (T.C.) Richmond, and G. W. Yohe, Eds., U.S. Global Change Research Program, 297-317. doi:10.7930/J09G5JR1.

WORKING DRAFT

749 *The peoples, lands, and resources of indigenous communities in the United States,*
750 *including Alaska and the Pacific Rim, face an array of climate change impacts and*
751 *vulnerabilities that threaten many Native communities. The consequences of observed*
752 *and projected climate change have and will undermine indigenous ways of life that have*
753 *persisted for thousands of years. Key vulnerabilities include the loss of traditional*
754 *knowledge in the face of rapidly changing ecological conditions, increased food*
755 *insecurity due to reduced availability of traditional foods, changing water availability,*
756 *Arctic sea ice loss, permafrost thaw, and relocation from historic homelands.*

757 *Climate change impacts on many of the 566 federally recognized tribes and other tribal*
758 *and indigenous groups in the U.S. are projected to be especially severe, since these*
759 *impacts are compounded by a number of persistent social and economic problems. The*
760 *adaptive responses to multiple social and ecological challenges arising from climate*
761 *impacts on indigenous communities will occur against a complex backdrop of centuries-*
762 *old cultures already stressed by historical events and contemporary conditions.*
763 *Individual tribal responses will be grounded in the particular cultural and environmental*
764 *heritage of each community, their social and geographical history, spiritual values,*
765 *traditional ecological knowledge, and world-view. Furthermore, these responses will be*
766 *informed by each group's distinct political and legal status, which includes the legacy of*
767 *more than two centuries of non-Native social and governmental institutional*
768 *arrangements, relationships, policies, and practices. Response options will be informed*
769 *by the often limited economic resources available to meet these challenges, as well as*
770 *these cultures' deeply ingrained relationships with the natural world).*



Sea Level Rise



Frequency and intensity of storms



Floods



Wildfire

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Droughts



Wildlife habitat changes



Tribal villages



Traditional Foods



Fish kill from hypoxia event



Knotweed – invasive species



Livelihoods and economies

771 Due to their close ties to the land and natural resources, indigenous peoples witness first-hand impacts
772 to hunting, fishing and gathering, watch land disappear and water reliability decline. Indigenous peoples
773 have experienced not only changes to resource availability but also impacts to traditional practices and

WORKING DRAFT

774 cultural, archaeological, and ethnographic resources.²⁸ Because climate change is altering their
775 environments so dramatically, traditional lifeways, from which indigenous identity is derived, are being
776 threatened to their very core.

777 Climate change is having profound and disproportionate impacts right now in indigenous communities.²⁹
778 In Alaska, where temperatures are rising at twice the rate than other parts of the world, 184 out of 213
779 (86%) of Alaska Native villages are susceptible to flooding and erosion. Four villages—Kivalina, Koyukuk,
780 Newtok, and Shishmaref—are in imminent danger from flooding and erosion and are planning to
781 relocate. Moose populations that indigenous peoples in the northern latitudes depend on for
782 subsistence are declining because of the impact of rising temperatures on their biology and habitat.
783 Tribes in the Great Plains must travel longer distances to find native plants, such as chokecherry and
784 wild turnip that they utilize for subsistence and medicinal purposes.

785 Indigenous peoples are heavily dependent on natural resources for cultural and economic vitality. They
786 are witnessing the disappearance of those resources. Native foods and fisheries are declining.
787 Economies, cultures, lifeways, and TKs are directly threatened. Fish and shellfish that indigenous
788 peoples depend on in the Pacific Northwest are being starved of oxygen by wild swings in ocean
789 upwelling of phytoplankton, hypoxia events (“dead zones”), and acidification along the coast. Scientists
790 predict that the next 40 to 80 years will witness upwards of a 50% loss of salmon and trout habitat
791 across the U.S., species that an overwhelming number of indigenous peoples rely upon for survival.
792 Indigenous peoples in the interior west that rely on timber harvesting for revenue are witnessing the
793 decline of their forests from the attack of pine beetles.

794 Climate change is destabilizing plant and animal habitats and disrupting relationships within them. Some
795 species are shifting northward and upward in elevation, and invasive species are moving into their place.

²⁸ *Archeological Resource* means any material remains or physical evidence of past human life or activities which are or archeological interest, including the record of the effects of human activities on the environment. An archeological resource is capable of revealing scientific or humanistic information through archeological research (NPS Management Policies 2006).

Cultural Resource means an aspect of a cultural system that is valued by or significantly representative of a culture, or that contains significant information about a culture. A cultural resource may be a tangible entity or a cultural practice. Tangible cultural resources are categorized as districts, sites, buildings, structures, and objects for the National Register of Historic Places, and as archeological resources, cultural landscapes, structures, museum objects, and ethnographic resources for NPS management purposes. (NPS Management Policies 2006).

Ethnographic Resources mean objects and places, including sites, structures, landscapes, and natural resources, with traditional cultural meaning and value to associated peoples. Research and consultation with associated people identifies and explains the places and things they find culturally meaningful. Ethnographic resources eligible for the National Register of Historic Places are called traditional cultural properties (NPS Management Policies 2006). This would include the living fish, game, and plants inherently a part of the Tribes’ cultures. Species that live entirely within the ONP and those that migrate or reseed across its boundaries, as well as their habitat, are all of tribal concern.

²⁹ Turner, N.J. and H. Clifton, 2009: “It’s so different today”: Climate change and indigenous lifeways in British Columbia, Canada. *Global Environmental Change*, 19, 180-190.

The Ancient One

A Melange of Science, Law, Economics, Politics, and Cultures

In the late 19th century, increasing interest in anthropology and archaeology led to the founding of museums and studies of Native American peoples. Graves were looted to provide human remains and artifacts for researchers, private collectors and museums worldwide. By 1990, federal agencies were reported to have accumulated remains of 14,500 deceased Natives in their possession. Many institutions said the remains were important to study to gain more information about humans in the Americas. However, the remains were also used for more sinister political reasons by the Army Medical Museum to try to prove the racial inferiority of Native Americans.

In 1990, the Native American Graves Protection and Repatriation Act (NAGPRA, PL 101-601, 25 U.S.C. 3001 et seq., 104 Stat. 3048), was enacted to try to reconcile the desire of western scientists to study human remains and artifacts with the desires of tribes that their ancestors be treated with respect.

The law requires federal agencies and institutions that receive federal funding to return human remains, funerary objects, sacred objects, and objects of cultural patrimony to lineal descendants and culturally affiliated Indian tribes and Native Hawaiian organizations. Under NAGPRA, remains of approximately 32,000 individuals, 670,000 funerary objects, 120,000 unassociated funerary objects, and 3,500 sacred objects have been returned to tribes. NAGPRA can also restrict excavation of areas where American Indian remains and cultural objects are found, affecting economic activity and potentially limiting research.

The discovery of "The Ancient One", aka Kennewick Man, on the Columbia River in 1996 led to a prolonged legal battle to determine patrimony. A long, bitter controversy ensued as local tribes objected to efforts of scientists to study the human remains. Scientists opposed repatriation and reburial, asserting that further study can provide valuable information on ancestral origin, diet, and the source of a stone point found in the hip. Tribes argued that the remains should not be treated as an object of scientific curiosity but rather should be reburied as a sacred ancestor. A panel of scientists performed a comparative analysis based on precise cranial measurements, facial structure, and genetic information. In 2004, the Ninth Circuit Court found that the bones are too old, and the context of their discovery too void of archaeological evidence, to assign membership genetically or culturally to any modern-day tribe. The University of Washington's Burke Museum was appointed by the court as a neutral repository for the remains (not on exhibit). Legally, the remains are still considered to belong to the US Army Corps of Engineers because they were found on land under its custody.

827

Local landscapes are changing, soils are drying, lake and river levels are declining, and droughts and wildfires are occurring with increasing frequency, length, and breadth.

Climate change is unraveling ecosystems, causing culturally important species to shift their ranges so that they are becoming rare or disappearing from tribal territories and reserved lands altogether. The disturbed ecosystems are becoming vulnerable to invasion by exotic species from other regions. Indigenous peoples are unlikely to have traditions or experience related to these species, and their incursion can disrupt the ecosystems even further. When these kinds of changes occurred historically, tribes could often adjust by shifting on the landscape; this is an option foreclosed by the modern reservation system. Climate impacts are affecting reserved to hunt, fish and gather native plants within their lands and in their usual and accustomed places.

Despite these threats, many indigenous communities are proactively addressing climate change, demonstrating great resilience and adding unique knowledge and practices of value both within and beyond tribal communities. Only a few of the 566 federally-recognized tribes, such as the Swinomish Tribe, Confederated

828 Salish and Kootenai Tribes and Jamestown S'Klallam Tribe, have developed or are developing adaptation
829 plans, calculating their carbon footprints, and collaborating with states, local governments and federal
830 agencies in joint climate adaptation efforts.³⁰ By comparison, at least 36 of the 50 states have climate
831 action plans.

³⁰ See Terri Hansen article published in Indian Country Today October 15, 2013. "8 Tribes That Are Way Ahead of the Climate-Adaptation Curve. <http://indiancountrytodaymedianetwork.com/2013/10/15/8-tribes-are-way-ahead-climate-adaptation-curve-151763>. Some tribes are beginning to make their presence know in international climate processes as well. See for example: <http://indiancountrytodaymedianetwork.com/2013/11/08/quinault-nations->

832 **Special Science Needs of Indigenous Peoples**

833 Decisions of indigenous communities are usually made at relatively small, local scales so there is a need
834 to: (a) access downscaled information from regional data and models along with information on
835 uncertainty; and (b) provide a means to upscale, i.e., understand how local decisions will interact at the
836 landscape, regional, and even global scales to evaluate their effects on the resources and values of
837 interest.

838 Since indigenous communities are especially vulnerable to climate change, events that were considered
839 occasional natural disasters are expected to occur more frequently as storm events, floods, droughts,
840 and wildfires increase in intensity and severity. Scientific information to provide advance warning, help
841 prepare or mitigate for future events, and to repair damage quickly, efficiently, and effectively.

842 Tribal leadership and members need convenient access to credible western science explained in
843 language and form that can be easily and quickly understood so that it can be taken into account along
844 with TKs during their community deliberations. In today's world of tweets and media teaspoons, bullets,
845 and elevator talk, leaders and members of indigenous communities lack the time, background and
846 capacity to separate fact from fiction, propaganda from science, and evaluate alternatives and risks.
847 Poor or ill-advised decisions can result in extremely costly consequences, economically,
848 environmentally, socially, and culturally. Conversely, tribes may request assistance to help communicate
849 concepts embodied in tribal customs and TKs to western scientists and the lay public.

850 The rights of indigenous governments and legal/political relationships with the United States create
851 situations where special types of information is needed from climate science. For example, science can
852 be called upon to inform decisions regarding interactions between rights of indigenous communities and
853 private individuals due to impacts of climate change. Climate change is expected to result in sea level
854 rise, more violent water surges and changes in meander of river beds with increased frequency and
855 intensity of storm events; since tribes often own shorelines to mean high water lines and river meander
856 areas, information may be needed to evaluate implications of potential conflicts between tribal and
857 individual property rights arising from climate change impacts for planning and potential legal
858 proceedings. The lack of consistency in terminology and jargon has long been a source of
859 misunderstanding and confusion in western science. This is the case with scientific characterization of
860 watercourses, where different symbols can be employed to represent values, data can be collected
861 using different methods and protocols and reported in different units, and parameter definitions and
862 methodologies vary. Care in fully describing the information presented is especially important for
863 scientists involved in contentious situations.

864 It is an unfortunate reality that indigenous peoples are often forced to resort to judicial processes to
865 protect their resources, rights, and interests. Legal proceedings often involve expert scientific opinion
866 which is also affected by training rooted in methods and principles of western science. The controversy
867 over the ancestry of "The Ancient One", also known as the Kennewick Man, provides a prime example of
868 how science and law interact in the context of burden of proof. Under the Native American Graves

[new-era-international-diplomacy-152145](#) and <http://indiancountrytodaymedianetwork.com/2013/11/02/world-conference-indigenous-women-urges-speaking-same-voice-152039>.

869 Protection and Repatriation Act, human remains and cultural artifacts are to be returned to the Indian
870 Tribe of ancestry for reburial. Scientists seeking access to the remains for study filed litigation to prevent
871 return to local tribes who believed that the ancestral remains were sacred and had to be cared for with
872 respect. An expert panel convened to study the remains produced a report that contained data from
873 precise skeletal and cranial measurements, characteristics of facial structure, and genetic information.
874 The report concluded that insufficient evidence existed to tie the human remains to a modern-day tribe.



oo.1

In this case, the glass of western science came up empty³¹, but tribes remain convinced that *The Ancient One* is their ancestor. Without definitive proof, the federal Ninth Circuit Court of Appeals placed the remains in the care of the Burke Museum as a neutral custodian. At its core, the controversy spawned by the litigation was rooted not in science, but in fundamental differences in world views and values. Indigenous communities usually find themselves in courts that are not of their own making where decisions are made by judges who lack awareness,

882 understanding or appreciation for customary law and nuances of tribal language and where procedures
883 and rules of evidence have been developed to serve western societies. Indigenous peoples often
884 experience difficulty in presenting their views in such forums because proceedings are so alien to their
885 customary laws and traditional practices. Societies that depend on oral histories require special scientific
886 skills to collect, verify, interpret, and translate information into persuasive forms for legal proceedings
887 while protecting the confidentiality of materials considered confidential or sensitive. For indigenous
888 peoples, science cannot be isolated from the forces of economics, law, policy and culture.

889 The need for full disclosure and clarity in scientific findings become paramount when agencies and
890 bureaus of the Department of Interior strive to fulfill fiduciary and statutory trust responsibilities
891 towards Indians while performing agency missions under laws and regulations intended to serve the
892 public. Science is called upon to inform decisions regarding endangered species, habitat conservation
893 plans, allocation of resources, implementation of policies and programs that involve different interests
894 of indigenous communities and the general public. For example, ambiguity and the failure to account for
895 reserved or treaty-protected rights when considering environmental baselines, identifying critical
896 habitat, and evaluating habitat conservation plans can prove detrimental to tribal interests, e.g.,
897 redistribution of the conservation responsibility for protecting Endangered Species Act (ESA) listed
898 species onto tribal lands. To address this situation, special administrative guidance for administering the
899 ESA when tribal rights and interests are involved was provided in Secretarial Order 3206.

900 For administrative actions required to use “best available science”, indigenous peoples feel that
901 guidance and training are needed for agency scientists to provide for full consideration of TKs with equal
902 legitimacy and relevance as information provided by western science sources. Additionally, there is a
903 need for guidance and training for scientists involved in the formulation, interpretation, and application
904 of administrative rules, regulations, and standards to include impacts on indigenous communities,
905 rights, and interests.

³¹ At the time of the investigation, DNA technology was unable to extract usable information from ancient bones. If technological developments eventually provide definitive proof of ancestry in the future, the remains may yet be repatriated to Indian tribes for reburial.

906 **Interacting With Indigenous Peoples.**

907 Interactions with indigenous peoples can be initiated for a wide variety of purposes. For example,

908 Initiated by indigenous peoples.

- 909 • Consultation or government-to-government discussions may be requested over a matter of
910 concern
- 911 • Traditional practitioners may seek permission to access sacred sites and privacy during
912 ceremonial events
- 913 • Individual may seek access to animal parts in a federal repository or use of plants or animals in
914 regalia.

915 Initiated by agencies.

- 916 • Try to consult on policies or projects that affect tribal rights, natural or cultural resources, or the
917 ability to exercise traditional practices
- 918 • Seek access to data, TKs, or entry onto reservations to gather information
- 919 • First responders may be called upon to render aid and assistance under emergency situations

920 Regardless of the reason, interactions with indigenous peoples can produce unexpected or disconcerting
921 results unless undertaken with mutual sensitivity and respect. The diversity of indigenous peoples can
922 be daunting or even intimidating to the point where engagement becomes hesitant or tenuous.

923 Further, there is a strong potential that suspicion and distrust will color the interaction before it begins.

924 Community memory is strong and the influence of legacy issues is long lasting. Experience with federal
925 policies such as removal, termination, forced assimilation, mis/malfeasance in federal administration,
926 the failure to fulfill treaty promises, expropriation of lands, resources, artifacts, or human remains, or
927 the devastating impacts of distant events such as the devastation wrought from the introduction of
928 infectious diseases could form undercurrents that will be difficult to overcome despite best intentions.

929 Because indigenous communities are closely knit with relationships that span multiple generations,
930 Federal staff, agencies, and other entities should be mindful that their contacts will be viewed in the
931 context of prior experiences of interactions with outsiders. No matter how unfair it may seem, the
932 reality is that outsiders will be carrying baggage left behind from previous contacts and will leave behind
933 legacies that those who follow will have to contend with.

934 Yet interactions with indigenous peoples need not be approached with trepidation. While there is no
935 substitute for cultural competency with the history and ways of the indigenous peoples with whom
936 interactions are being sought, it would be helpful to give special attention to a few fundamental areas:

- 937 (1) Initiate interactions at the appropriate level with a clearly stated purpose;
- 938 (2) When consulting with indigenous peoples or requesting information or discussing programs or
939 programs that could affect their rights or interests, listen attentively to try to understand the
940 reasons underlying their perspectives and adhere to the spirit and intent of free, prior, and
941 informed consent;

- 942 (3) Be cognizant of the cultural identity of participants from the indigenous community, e.g.,
943 elected official, staff, elders, veterans, spiritual leader;
- 944 (4) Understand that indigenous peoples have their own forms of governance, with inherent rights
945 of sovereignty, and protocols for delegation and decision making;
- 946 (5) Be sensitive to cultural
947 differences in norms and
948 protocols for receiving and
949 processing requests and
950 communicating responses. In
951 Native American
952 communities, the role of
953 humor is important to
954 recognize. Humor is often
955 used to try to defuse tense
956 situations, gently remind
957 participants of past injustices,
958 or establish rapport. Humor is
959 a type of healing and coping
960 mechanism that Native
961 Americans often turn to
962 maintain their cultural identity
963 and contend with perceived inequities, injustices, and racism;
- 964 (6) Be aware of and seek to avoid stereotypes, preconceptions, and cultural or personal biases;
- 965 (7) Recognize and be sensitive to differences in capabilities, information, and familiarity;
- 966 (8) Communicate in a straightforward manner, do not evade, mislead or obfuscate. Avoid promises
967 or commitments that are outside spheres of authority. Understand that trust must be earned,
968 and can be destroyed in an instant with repercussions far beyond the immediate interaction. Be
969 mindful that all things are connected, past, present and future in indigenous communities.

The air hangs heavy with the smell of cigarette smoke and silence. The Tribal Council is about to make a decision on a hotly debated issue. Tension fills the room as they stand at the crossroads of decisions, a decision that will affect the future of the whole tribe. The tension and silence are very much like the calm before the storm, or a dam about to burst. The strain of human mentality can be seen in the eyes, and the beads of sweat forming on frowning foreheads as the scene approaches its climax. Then, in the midst of it all someone cracks a joke. A tidal wave of laughter shatters what seemed like an eternity of silence and all is back to normal again as tensions are eased and the atmosphere becomes more comfortable to work in. The humor of Native Americans, which always seems to surface at the right time and place, has always been a source of good medicine for the Indian man. The humor of the Native American is usually a mixture of the "here and now" exaggerated causes, reasons, or anything else that may sound outrageous.

Noah White Lance, "Native American Humor". Radio KINI, St. Francis, SD

970 **Emergencies and Disasters Involving Indigenous Peoples**

971 Events that were considered occasional natural disasters are expected to occur more frequently as
972 climate change progresses. Storm events, floods, droughts, and wildfires will likely become more
973 frequent and intense. Remoteness and lack of infrastructure are likely to create emergencies for many
974 tribal communities. Emergency and disaster first responders will suddenly be thrust in situations where
975 unfamiliarity with tribal cultures, customs, and traditions can interfere with their ability to perform their
976 responsibilities or cause discomfort.

977 To help prepare first responders and others working with American Indian or Alaska Native (AI/AN)
978 communities under emergency situations, the Substance Abuse and Mental Health Services

979 Administration developed a “Culture Card”³² that provides fundamental information for cultural
980 competency. The Culture Card is a small, pocket-sized brochure that is intended to increase awareness
981 of potential legacy effects of historical relationships, communication protocols, tribal sovereignty,
982 cultures, and rights.

983 **Tips for Interacting With Indigenous Peoples**

984 The Culture Card provides a list of reminders and “do’s” and “don’ts” regarding etiquette in social
985 interactions with AI/AN communities in emergency situations. The tips from the Culture Card
986 reproduced below for convenience can also serve as a quick reference for engaging tribal communities
987 in climate-change related initiatives.

- 988 • *Prior to making contact with a community, examine your own belief system about AI/AN people related to*
989 *social issues, such as mental health stigma, poverty, teen suicide, and drug or alcohol use.*
- 990 • *You are being observed at all times, so avoid making assumptions and be conscious that you are laying the*
991 *groundwork for others to follow.*
- 992 • *Adapt your tone of voice, volume, and speed of speech patterns to that of local community members to fit*
993 *their manner of communication style.*
- 994 • *Preferred body language, posture, and concept of personal space depend on community norms and the*
995 *nature of the personal relationship. Observe others and allow them to create the space and initiate or ask*
996 *for any physical contact.*
- 997 • *You may experience people expressing their mistrust, frustration, or disappointment from other situations*
998 *that are outside of your control. Learn not to take it personally.*
- 999 • *If community members tease you, understand that this can indicate rapport-building and may be a form of*
1000 *guidance or an indirect way of correcting inappropriate behavior. You will be more easily accepted and*
1001 *forgiven for mistakes if you can learn to laugh at yourself and listen to lessons being brought to you*
1002 *through humor.*
- 1003 • *Living accommodations and local resources will vary in each community. Remember that you are a guest.*
1004 *Observe and ask questions humbly when necessary.*
- 1005 • *Rapport and trust do not come easily in a limited amount of time; however, don’t be surprised if*
1006 *community members speak to you about highly charged issues (e.g., sexual abuse, suicide) as you may be*
1007 *perceived as an objective expert.*
- 1008 • *Issues around gender roles can vary significantly in various AI/AN communities. Males and females*
1009 *typically have very distinct social rules for behavior in every day interactions and in ceremonies.*
- 1010 • *Common behaviors for service providers to be aware of as they relate to gender issues are eye contact,*
1011 *style of dress, physical touch, personal space, decision making, and the influence of male and/or female*
1012 *elders.*
- 1013 • *Careful observation and seeking guidance from a community member on appropriate gender-specific*
1014 *behavior can help service providers to follow local customs and demonstrate cultural respect.*

³² Substance Abuse and Mental Health Services Administration (SAMHSA). 2009. “Culture Card: A Guide To Build Cultural Awareness – American Indians and Alaska Natives.” <http://store.samhsa.gov/shin/content/SMA08-4354/SMA08-4354.pdf>

WORKING DRAFT

Do's	Don'ts
<p><i>Learn how the community refers to itself as a group of people (e.g., Tribal name).</i></p> <p><i>Be honest and clear about your role and expectations and be willing to adapt to meet the needs of the community.</i></p> <p><i>Show respect by being open to other ways of thinking and behaving.</i></p> <p><i>Listen and observe more than you speak. Learn to be comfortable with silence or long pauses in conversation by observing community members' typical length of time between turns at talking.</i></p> <p><i>Casual conversation is important to establish rapport, so be genuine and use self-disclosure (e.g., where you are from, general information about children or spouse, personal interests).</i></p> <p><i>Avoid jargon. An AI/AN community member may nod their head politely, but not understand what you are saying.</i></p> <p><i>It is acceptable to admit limited knowledge of AI/AN cultures, and invite people to educate you about specific cultural protocols in their community.</i></p> <p><i>If you are visiting the home of an AI/AN family, you may be offered a beverage and/or food, and it is important to accept it as a sign of respect.</i></p> <p><i>Explain what you are writing when making clinical documentation or charting in the presence of the individual and family.</i></p> <p><i>During formal interviews, it may be best to offer general invitations to speak, then remain quiet, sit back, and listen.</i></p> <p><i>Allow the person to tell their story before engaging in a specific line of questioning.</i></p> <p><i>Be open to allow things to proceed according to the idea that "things happen when they are supposed to happen."</i></p> <p><i>Respect confidentiality and the right of the tribe to control information, data, and public information about services provided to the tribe.</i></p>	<p><i>Avoid stereotyping based on looks, language, dress, and other outward appearances.</i></p> <p><i>Avoid intrusive questions early in conversation.</i></p> <p><i>Do not interrupt others during conversation or interject during pauses or long silences.</i></p> <p><i>Do not stand too close to others and/or talk too loud or fast.</i></p> <p><i>Be careful not to impose your personal values, morals, or beliefs.</i></p> <p><i>Be careful about telling stories of distant AI/AN relatives in your genealogy as an attempt to establish rapport unless you have maintained a connection with that AI/AN community.</i></p> <p><i>Be careful about pointing with your finger, which may be interpreted as rude behavior in many tribes.</i></p> <p><i>Avoid frequently looking at your watch and do not rush things.</i></p> <p><i>Avoid pressing all family members to participate in a formal interview.</i></p> <p><i>During a formal interview, if the person you are working with begins to cry, support the crying without asking further questions until they compose themselves and are ready to speak.</i></p> <p><i>Do not touch sacred items, such as medicine bags, other ceremonial items, hair, jewelry, and other personal or cultural things.</i></p> <p><i>Do not take pictures without permission.</i></p> <p><i>NEVER use any information gained by working in the community for personal presentations, case studies, research, and so on, without the expressed written consent of the tribal government or Alaska Native Corporation.</i></p>

1015 **Funding Disparities for Indigenous Peoples**

1016 Federal appropriations for federally-recognized tribes have a long history of inadequate and inequitable
 1017 funding. In July 2002, the U.S. Civil Rights Commission issued a comprehensive report summarizing
 1018 funding levels for tribal programs titled "A Quiet Crisis: Federal Funding and Unmet Needs In Indian
 1019 Country." An excerpt from the Executive Summary of that report reads:

1020 *"The federal government has a long-established special relationship with Native Americans*
 1021 *characterized by their status as governmentally independent entities, dependent on the United*
 1022 *States for support and protection. In exchange for land and in compensation for forced*
 1023 *removal from their original homelands, the government promised through laws, treaties, and*
 1024 *pledges to support and protect Native Americans. However, funding for programs associated*
 1025 *with those promises has fallen short, and Native peoples continue to suffer the consequences of*
 1026 *a discriminatory history. Federal efforts to raise Native American living conditions to the*
 1027 *standards of others have long been in motion, but Native Americans still suffer higher rates of*
 1028 *poverty, poor educational achievement, substandard housing, and higher rates of disease and*
 1029 *illness. Native Americans continue to rank at or near the bottom of nearly every social, health,*
 1030 *and economic indicator.*

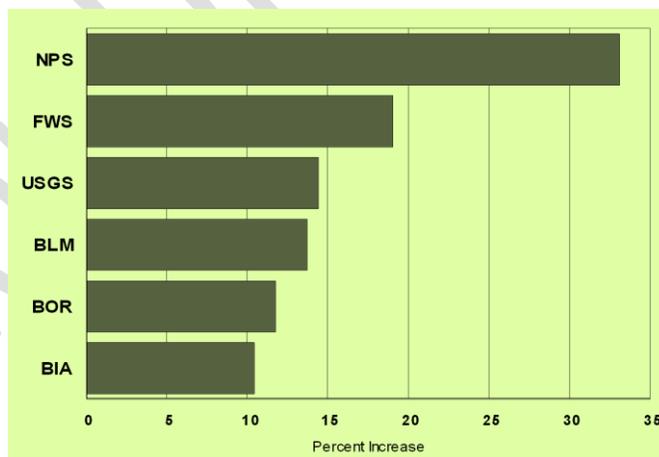
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1031 *Small in numbers and relatively poor, Native Americans often have had a difficult time*
1032 *ensuring fair and equal treatment on their own. Unfortunately, relying on the goodwill*
1033 *of the nation to honor its obligation to Native Americans clearly has not resulted in*
1034 *desired outcomes. Its small size and geographic apartness from the rest of American*
1035 *society induces some to designate the Native American population the “invisible*
1036 *minority.” To many, the government’s promises to Native Americans go largely*
1037 *unfulfilled. Thus, the U.S. Commission on Civil Rights, through this report, gives voice to*
1038 *a quiet crisis.*

1039 *Over the last 10 years, federal funding for Native American programs has increased*
1040 *significantly. However, this has not been nearly enough to compensate for a decline in*
1041 *spending power, which had been evident for decades before that, nor to overcome a*
1042 *long and sad history of neglect and discrimination.*

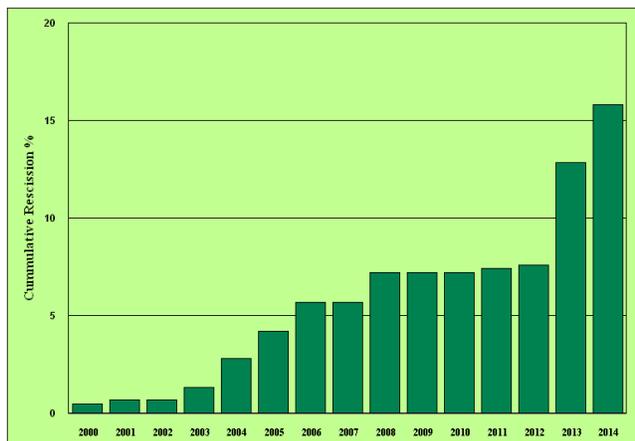
1043 *Thus, there persists a large deficit in funding Native American programs that needs to*
1044 *be paid to eliminate the backlog of unmet Native American needs, an essential*
1045 *predicate to raising their standards of living to that of other Americans. Native*
1046 *Americans living on tribal lands do not have access to the same services and programs*
1047 *available to other Americans, even though the government has a binding trust*
1048 *obligation to provide them.”*

1049 Funding levels for the BIA and tribal programs
1050 have not kept pace with those provided for other
1051 agencies within the Department of the Interior.
1052 The budget increase provided for the BIA
1053 compared with other Interior agencies budgets is
1054 shown in the figure below. Based on funding
1055 levels through the FY 2013 Full Year Continuing
1056 Resolution, over the last 10 fiscal years the
1057 budget for the National Park Service has grown
1058 by 33%; the Fish and Wildlife Service by 19%; the
1059 US Geological Survey by 14.5% ; The Bureau of
1060 Land Management by 14%; and last and
1061 apparently least, the BIA by only 10.5%.



1062 The Bureau of Indian Affairs (BIA) Trust Natural
1063 Resources (TNR) Program represents the largest
1064 amount of base, federal funding for tribal
1065 natural resource management. Even with
1066 modest increases in the last few years, base
1067 programs that fund tribes’ daily conservation
1068 responsibilities are funded at levels less than a
1069 decade ago.

1070 In 1999, the BIA reported that tribes had more
1071 than \$356 million of unmet annual needs for
1072 natural resource management. Since then,



WORKING DRAFT

1073 there were numerous funding cuts to natural resource management, which were only partially offset by
1074 recent funding increases. The BIA and tribes have lagged significantly behind in funding compared to
1075 other Interior agencies.

1076 Funding for tribal programs has also suffered from Congressional rescissions and sequestration. The
1077 figure below illustrates the cumulative effect of rescissions and sequestration on tribal program funding
1078 since FY2000.

1079 There are other insidious ways that funding practices have disproportionately impacted Indian tribes.
1080 One of these is through pay cost shortfalls. Current and prior Administrations and Congressional
1081 Appropriations Committees have excluded pay cost increases for some tribally operated programs while
1082 allowing them for federal employees, the capacity of tribes to exercise self determination has been
1083 severely impacted. The following table is based on data provided by BIA several years ago. It shows, for
1084 just a four year period, the damage done by pay cost shortfalls. The shortfalls were the result of the
1085 Administration requesting only partial funding for Pay Costs in the budget, and OMB imposing additional
1086 restrictions on the amount of Fixed Costs BIA was allowed to include.

1087 **Indian Affairs Pay Shortages FY 2003-2006.**

FY	Funded	Shorted	% Shorted	Cumulative Shortfall
2003	\$9,211,732	\$14,248,267	60.7%	\$14,248,267
2004	\$7,068,540	\$19,483,707	73.4%	\$33,731,974
2005	\$3,949,170	\$16,975,262	81.2%	\$50,707,236
2006	\$12,325,279	\$7,089,744	36.5%	\$57,796,980

1088 **Funding for Participation in DOI Cooperative Landscape Conservation Program**

1089 DOI began a Climate Change Adaptation Initiative in 2009³³ (hereafter termed the DOI Cooperative
1090 Landscape Conservation and Adaptive Science, CLCAS³⁴), an undertaking that Indian tribes support in
1091 principle.

1092 On November 5, 2009, President Obama issued an executive memorandum reaffirming Executive Order
1093 13175, Consultation and Coordination with Indian Tribal Governments, requiring each federal agency
1094 and bureau to fully implement the Executive Order. On September 14, 2009, Interior Secretary Ken
1095 Salazar issued Secretarial Order 3289 setting a course for protecting the nation's natural resources,
1096 cultural heritage, and tribal lands and resources from the effects of climate change, and requiring each

³³ Secretarial Order 3289: Addressing the Impacts of Climate Change on America's Land, Water and Other Natural and Cultural Resources.

³⁴ See DOI Press Release dated February 11, 2011, "President's \$12.2 Billion 2012 Budget for Interior Focuses on Spending Discipline, Strategic Investments, and Vital Missions." Terminology is often confusing. The Cooperative Landscape Conservation Act established the Cooperative Landscape Conservation Program in 2001. Secretarial Order 3289 established the DOI Climate Change Initiative. Cooperative Landscape Conservation and Adaptive Science is referenced in appropriations as part of DOI activities.

WORKING DRAFT

1097 Department bureau and office to address climate change in its planning efforts and decision-making.
1098 Section 5 of the Order (as amended on February 22, 2010) refers explicitly to tribes:

1099 *"American Indians and Alaska Natives. Climate change may disproportionately affect*
1100 *tribes and their lands because they are heavily dependent on their natural resources for*
1101 *economic and cultural identity. As the Department has the primary trust responsibility*
1102 *for the Federal government for American Indians, Alaska Natives, and tribal lands and*
1103 *resources, the Department will ensure consistent and in-depth government-to-*
1104 *government consultation with tribes and Alaska Natives on the Department's climate*
1105 *change initiatives. Tribal values are critical to determining what is to be protected, why,*
1106 *and how to protect the interests of their communities. The Department will support the*
1107 *use of the best available science, including traditional ecological knowledge, in*
1108 *formulating policy pertaining to climate change. The Department will also support*
1109 *substantial participation by tribes in deliberations on climate-related mechanisms,*
1110 *agreements, rules, and regulations."*

1111 Taken together, these orders establish the protocol for working with tribes on climate change, and
1112 provide ample justification for funding support for tribal participation in the CLCAS.

1113 In FY11 the CLCAS was formally established and funded \$419,000 to support 1 FTE for coordination and
1114 limited climate change activities. This funding was distributed for a coordinator's salary (\$50,000),
1115 support of the BIA Northwest Region's participation in the North Pacific Landscape Conservation
1116 Cooperative, and tribal grants for training (conference and similar technical session attendance),
1117 (including Northwest Indians: \$20,000; The Columbia River Inter-Tribal Fish Commission: \$15,000; The
1118 Northwest Indian Fish and Wildlife Commission: \$15,000), and \$319,000 for grants to tribes and tribal
1119 organizations on a competitive basis to fund climate change skills training, vulnerability assessments and
1120 adaptation planning activities. Requests for assistance were received for 600% of available funding.

1121 The Administration's FY12 budget request for CLCAS was \$175 million, an increase of \$39 million over FY
1122 2010/2011 Continuing Resolution. The \$136 million in FY 2010/2011 CR did not include any funding for
1123 tribes. Despite a substantial increase in the overall funding request for the CLCAS, the situation for tribes
1124 worsened. Of the \$175 million request, only \$200,000 (taken from an existing BIA Real Estate Services
1125 account, became available to involve and assist Indian tribes and the tribal grant program was
1126 discontinued. Tribes were accorded a mere .001% of the funding for participation in the North Pacific
1127 Landscape Conservation Cooperative (LCC), only one of twenty-one Landscape Conservation
1128 Cooperatives. DOI's statement that it *"is working collaboratively across its bureaus, with other Federal*
1129 *agencies, State, and tribal governments, and non-governmental organizations to leverage fiscal*
1130 *resources and expertise and focus them on conservation of the Nation's different ecosystems"* is not
1131 supported by the funding levels provided for tribal engagement. It is troubling that the BIA would have
1132 to repurpose appropriated funds to cover the costs for tribal participation in CLCAS. The lack of funding
1133 for tribal and BIA engagement in the CLCAS efforts is particularly disturbing in light of federal trust
1134 responsibilities towards Indians and the disproportionate effect of climate change on tribes and their
1135 homelands. Sovereign tribes must have the means to substantively participate in the CLCAS and deserve
1136 a more equitable share of available funding.

WORKING DRAFT

1137 Because BIA spending on natural resources in the last 11 years has been relatively flat compared to
1138 inflation and BIA's budget has been historically inadequate to meet the natural resource needs of Indian
1139 tribes, their needs have multiplied.

1140 Despite the difficulty in quantifying the costs and benefits of adaption measures, climate change is
1141 compelling governments across the world to take action. The challenge is especially great for tribal
1142 governments and Alaska Native Villages as they are hampered by pre-existing disparities in
1143 infrastructure, capacity, economic development, health, social services, and other aspects of
1144 governance. Dedicated funding is needed to support and enable tribes to substantively participate in the
1145 CLCAS.

1146 Clearly, indigenous peoples in the U.S. are not being provided with the resources necessary to support
1147 substantive participation in the implementation of federal programs, including those dealing with
1148 climate change. The disproportional treatment denies tribes equitable access to federal resources and
1149 economic development opportunities. Fundamental principles of equity and fairness, and meaningful
1150 implementation of the trust responsibility across all federal agencies calls for tribal access to such
1151 programs.³⁵ Efforts are needed to identify and remedy these exclusions across all federal agencies
1152 consistent with the government-to-government relationships and the federal trust responsibility.

1153 Without additional funding at levels sufficient to support substantive participation, tribal governments
1154 do not have sufficient personnel to implement programs for climate adaptation. Despite having some of
1155 the most pristine habitat in the United States, tribes have been historically underfunded for wildlife and
1156 natural resource management and conservation. Tribal lands contain more than 997,000 acres of lakes,
1157 13,000 miles of rivers, and 18 million acres of forested lands. Tribal lands provide vital habitat for more
1158 than 525 federally listed plants and animals, many of which are both ecologically and culturally
1159 significant to tribes. The nearly 100 million acres of Tribal lands encompass 11 million acres more than
1160 NPS, yet the Administration proposed nearly 50 times more funding for NPS in FY 2012. The following
1161 table is based on Fiscal Year 2012 The Interior Budget in Brief, DH-37.

³⁵ Issues of equity and fairness are involved in concepts of *environmental justice*. President Clinton's Executive Order 12898 of February 1994, "Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations" <http://www.epa.gov/fedreg/eo/eo12898.htm>. Section 2.2 of the Order states: "Federal Agency Responsibilities For Federal Programs. *Each Federal agency shall conduct its programs, policies, and activities that substantially affect human health or the environment, in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons (including populations) from participation in, denying persons (including populations) the benefits of, or subjecting persons (including populations) to discrimination under, such, programs, policies, and activities, because of their race, Color, or national origin.* " Section 6-6 makes it explicitly clear that the Order applies to Indian Tribes "*Native American Programs. Each Federal agency responsibility set forth under this order shall apply equally to Native American programs. In addition the Department of the Interior, in coordination with the Working Group, and, after consultation with tribal leaders, shall coordinate steps to be taken pursuant to this order that address Federally- recognized Indian Tribes.*"

WORKING DRAFT

Agency	Acres (million)	CLCAS Funding Level (millions \$)
BLM	258	\$17.5
FWS	150	\$67.5
NPS	84	\$9.9
USGS	NA	\$72.9
Reclamation	NA	\$7.0
BIA/Tribes	95	\$0.02
TOTAL	587	\$175

1162 Tribal lands comprise 4 percent of the U.S. land base, but represent a higher percentage if compared to
1163 the federal lands involved in the CLCAS. Tribal lands comprise 95 million acres, which, divided by the
1164 total 587 million acres of federal land in the Initiative, equal 16 percent.

1165 The continuing resolution for FY13, allowed for \$1 million for tribal climate-related efforts. Similar to
1166 FY12, this was not new funding, but was repurposed from other BIA accounts. This modest amount of
1167 funding supports a single staff position and a competitive grant program accessible to 566 federally-
1168 recognized tribes. Funding for the competitive tribal grant program for climate change is anticipated to
1169 approximate \$600,000. According a February 8, 2012 report by the Congressional Research Service titled
1170 *Federal Land Ownership: Overview and Data*, the total number of acres owned and managed by DOI for
1171 the Bureau of Land Management, the U.S. Fish and Wildlife Service, and the National Park Service
1172 collectively totals 417 million acres. DOI holds 56.2 million acres of land in trust for Indian tribes and
1173 individual Indians. DOI's Indian trust landholdings, therefore, represent more than 13 percent of these
1174 three agencies' total. Despite the proportionately large amount of Indian land the DOI oversees, tribes,
1175 via the BIA, have consistently received less than 1 percent of CLCAS funding.

1176 The BIA's recently released operating plan for FY14 provides \$9.9 million for CLCAS for the BIA and
1177 tribes. The President's proposed FY15 budget provides for nearly the same level of funding to continue
1178 efforts to remedy this inequity and enable the BIA and tribes to address tribal natural resource
1179 management in an effective manner and to build tribal capacity to plan and implement programs in the
1180 face of climate change.

1181 Through an extensive intertribal outreach
1182 effort, tribes have managed to secure seats
1183 at the table in developing the National Fish,
1184 Wildlife, and Plants Climate Adaptation
1185 Strategy led by the U.S. Fish and Wildlife
1186 Service, National Oceanic and Atmospheric
1187 Administration, and Association of Fish and
1188 Wildlife Agencies. However, this effort
1189 could only raise sufficient funding to defray
1190 minimal travel costs for tribal participants;



Lernaean Hydra of climate bureaucracy

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1191 no resources could be found to cover staff/participant time.

1192 There are huge and growing demands for tribal participation on at least ten federal climate planning

1193 strategies and a plethora of ever increasing federal, state, regional, international, academic and non-

1194 governmental fora and processes, such as landscape conservation cooperatives, climate science centers,

1195 conferences, workshops, and climate hubs, but the availability of adequate, dedicated funding to

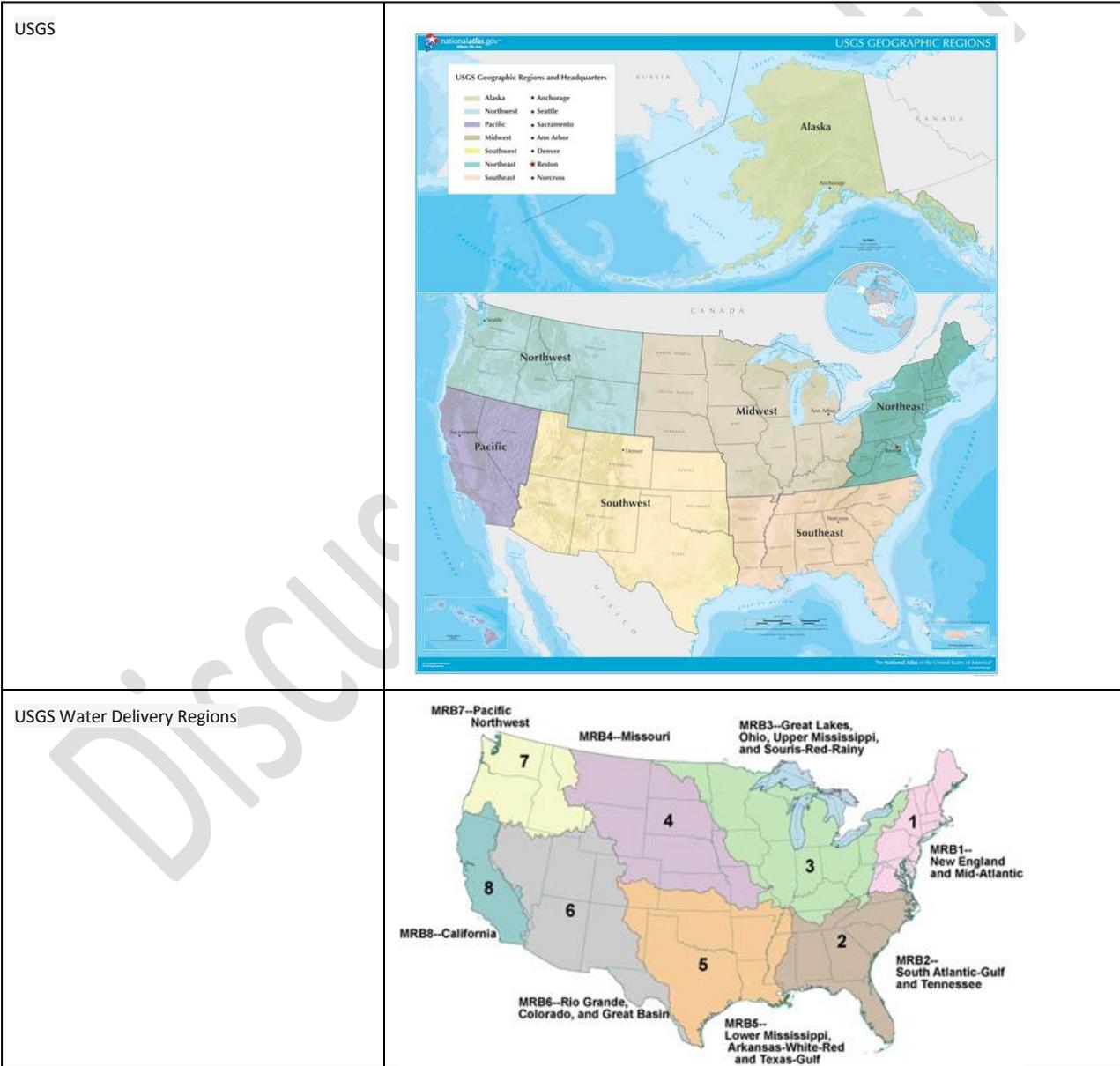
1196 support tribal involvement is rare. Imagine the difficulty that individual tribes have trying to contend

1197 with enormous challenges trying to contend with the confusion and multiple interfaces with agencies

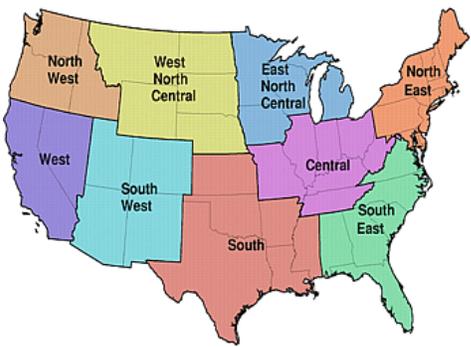
1198 caused by differences in geographic service regions and various types of biological, geological,

1199 atmospheric, and water-related constructs. Added to this already daunting challenge, the proliferation

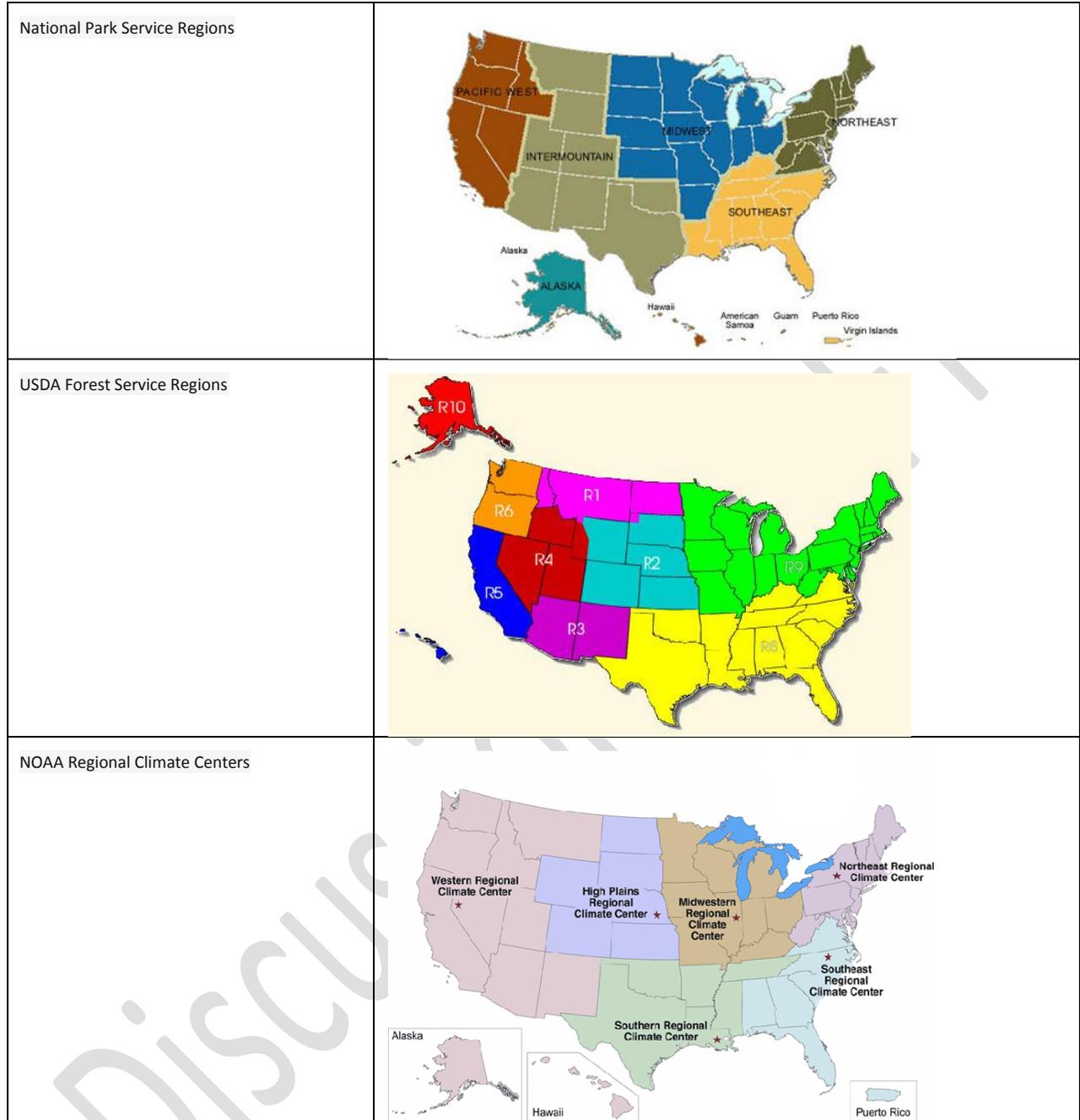
1200 of climate-related acronyms and processes becomes even more overwhelming.



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<p>Standard regions for Temperature & Precipitation</p>	<p style="text-align: center;">U.S. Standard Regions for Temperature & Precipitation</p>  <p style="text-align: center;">National Climatic Data Center, NOAA</p>
<p>US Fish & Wildlife Service Regions</p>	
<p>Bureau of Indian Affairs Regions</p>	

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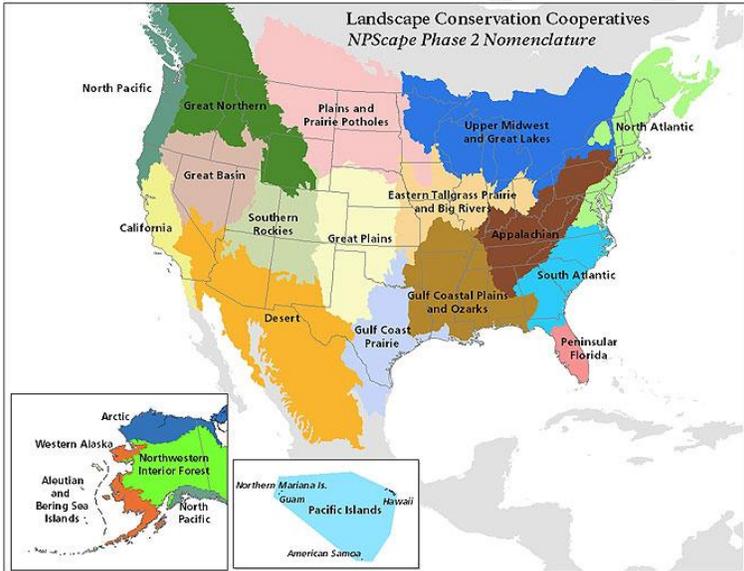
<p>Environmental Protection Agency Regions</p>	
<p>Bureau of Land Management</p>	
<p>The Advisory Committee on Climate Change and Natural Resource Science (ACCCNRS) advises the Secretary of the Interior on the establishment and operations of the U.S. Geological Survey (USGS) National Climate Change and Wildlife Science Center (NCCWSC) and the Department of the Interior (DOI) Climate Science Centers (CSCs).</p>	
<p><i>The mission of the National Climate Change and Wildlife Science Center (NCCWSC) is to provide natural resource managers with the tools and information they need to develop and execute management strategies that address the impacts of climate change on fish, wildlife and their habitats.</i></p> <p>Collectively, the NCCWSC, the Climate Science Centers (CSCs), and Landscape Conservation Cooperatives (LCCs) form the cornerstones of DOI’s integrated approach to climate change science and adaptation, addressing the full range of natural and cultural resources. CSCs prioritize delivery of usable science, research data products, and decision-support tools to meet the</p>	

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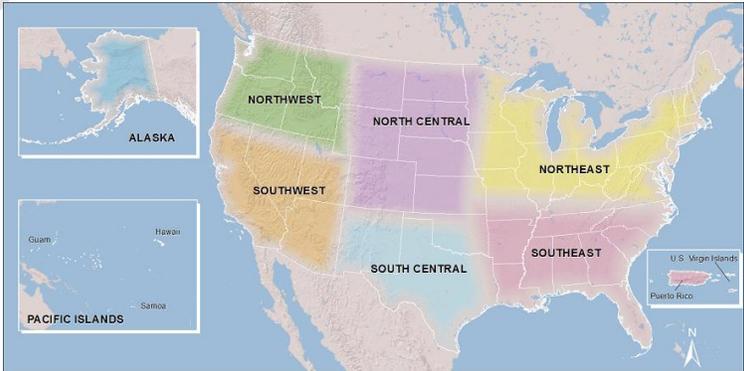
needs of the LCCs and other resource managers within their respective regions.

The NCCWSC relies on [stakeholder input](#) for the identification of research needs, the prioritization of projects, and the elevation of research products. The NCCWSC has three primary vehicles for stakeholder input - each representing slightly different segments of the stakeholder community: LCCs, CSCs, and the [Federal Advisory Committee on Climate Change and Natural Resource Science](#) (ACCCNRS).

LCCs are applied conservation science partnerships with two main functions. The first is to provide the science and technical expertise needed to support conservation planning at landscape scales – beyond the reach or resources of any one organization. Through the efforts of in-house staff and science-oriented partners, LCCs are generating the tools, methods and data managers need to design and deliver conservation using the [Strategic Habitat Conservation](#) (SHC) approach. The second function of LCCs is to promote collaboration among their members in defining shared conservation goals. With these goals in mind, partners can identify where and how they will take action, within their own authorities and organizational priorities, to best contribute to the larger conservation effort. LCCs don't place limits on partners; rather, they help partners to see how their activities can "fit" with those of other partners to achieve a bigger and more lasting impact.



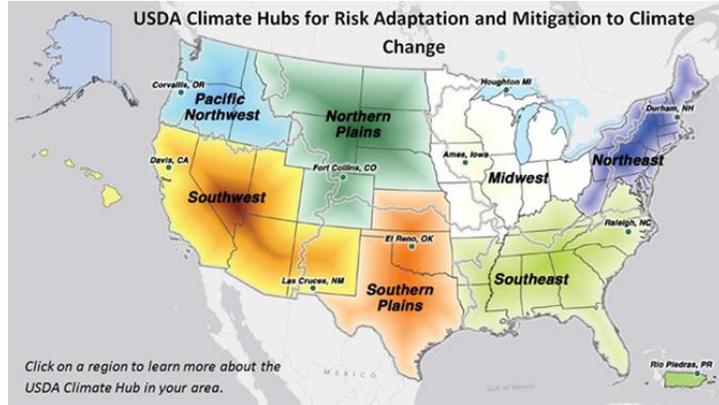
*The mission of the **DOI Climate Science Centers** (CSCs) is to provide natural and cultural resource managers with the tools and information they need to develop and execute management strategies that address the impacts of climate change on a broad range of natural and cultural resources. CSCs provide scientific information, tools, and techniques that land, water, wildlife, and cultural resource managers and other interested parties can apply to anticipate, monitor, and adapt to climate change impacts. Much of the information and tools provided by the CSCs, including physical and biological research, ecological forecasting, and multi-scale modeling, will be in response to the*



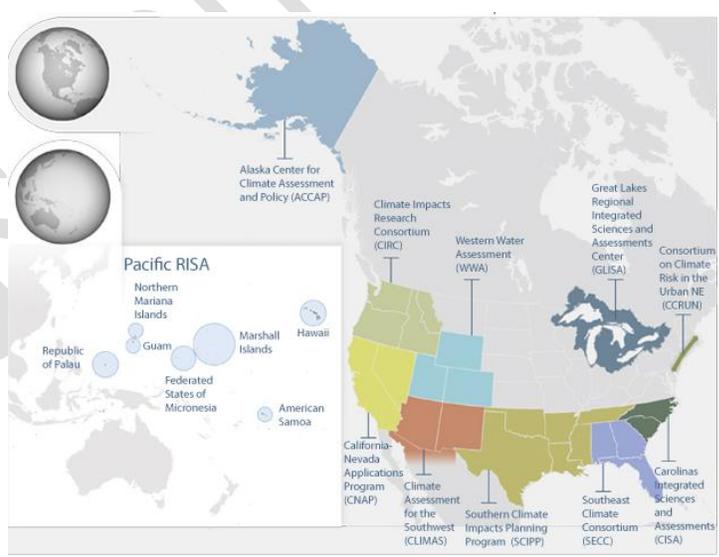
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landscape-level priority needs identified by the Landscape Conservation Cooperatives, as well as the cross-sector needs of other agencies and communities in the region.

USDA's seven regional and three subsidiary **climate hubs** will deliver information to farmers, ranchers and forest landowners to help them adapt to climate change and weather variability. The Hubs will build capacity within USDA to provide science-based, practical information to farmers, ranchers, forest landowners, and resource managers to support decision-making related to mitigation of, and adaptation to, climate change. The hubs are intended to help maintain and strengthen agricultural production, natural resource management, and rural economic development under increasing climate variability by information and guidance on technologies and risk management practices at regional and local scales. Subsidiary hubs provide information for some regions relating to biogeography, production systems, sector needs or demographics.



NOAA's **Regional Integrated Sciences and Assessments (RISA)** program supports research teams that help expand and build the nation's capacity to prepare for and adapt to climate variability and change. Central to the RISA approach are commitments to process, partnership, and trust building. RISA teams work with public and private user communities to: (1) advance understanding of policy, planning and management contexts; (2) develop knowledge on impacts, vulnerabilities, and response options through interdisciplinary research and participatory processes; (3) innovate products and tools to enhance the use of science in decision making; and; (4) test diverse governance structures for managing scientific research.



1201 Few, if any, tribes have the capacity, the resources, staff, and expertise, to engage in climate change
 1202 activities on their own behalf. Consequently, an effective means of communication will be especially
 1203 important to keep tribes informed of important developments and opportunities to participate.
 1204 Networks, newsletters, internet blogs, conferences, and various forms of electronic communication are
 1205 beginning to materialize.³⁶ These methods of dissemination and exchange are largely directed at

³⁶ For example, the Institute for Tribal Environmental Professionals at Northern Arizona University produces a *Tribal Climate Change Newsletter and profiles of tribal climate change projects* (see:

1206 technical staff; there is a glaring need to provide tribal leadership and communities with convenient
1207 access to credible information that can be easily and quickly understood by a lay audience. An
1208 opportunity to seek the advice of tribal participants that are already involved with efforts such as
1209 Landscape Conservation Cooperatives, Climate Science Centers, and other processes opportunity to
1210 share experiences and develop recommendations for increasing tribal engagement is sorely needed.

1211 **The Playing Field Is Not level**

1212 There is a lengthy history of funding tribal natural resource management and conservation efforts at
1213 levels that are insufficient to meet fiduciary obligations for maintaining the health and productivity of
1214 the trust corpus and protecting the natural resources which support the ability of tribes to exercise
1215 reserved rights. In addition, there are many instances where tribes are not eligible to receive funding
1216 available to other entities. The following information was extracted from material compiled by the
1217 consortium of intertribal organizations involved with the *Our Natural Resources* alliance for the purpose
1218 of increasing awareness, presence, and influence of Indian tribes in the development and
1219 implementation of domestic and international programs and policies affecting natural resources:

1220 *“Tribes are not eligible for funding under federal wildlife and fishery restoration*
1221 *programs such as the Federal Aid in Wildlife Restoration Act (Pittman-Robertson) or the*
1222 *Federal Aid in Sport Fish Restoration Act (Dingell-Johnson) that fund activities through*
1223 *an excise tax on hunting and fishing equipment. Although tribal members pay taxes that*
1224 *support this funding, they remain excluded from receiving the benefits and only states*
1225 *and territories are allowed to access them. In FY 2010/2011 CR, states received nearly*
1226 *\$1 billion from the Pittman-Robertson, Dingell-Johnson, and State Wildlife Grants*
1227 *programs. On the other hand, tribes were allocated \$7 million from the U.S. Fish and*
1228 *Wildlife Service Tribal Wildlife Grants (TWG) program, which constituted only .007% of*
1229 *the amount states received. Since the inception of the TWG program in 2002, no more*
1230 *than \$7 million per year has been made available on a competitive basis to the nation’s*
1231 *565 federally-recognized tribes. From 2002-2010, states received nearly 86 times more*
1232 *FWS funding than tribes for fish and wildlife conservation, or \$6.25 billion for states*
1233 *compared to \$72.2 million for tribes.*

1234 **1) Access to Federal Funding**

1235 *Indian tribes are polities recognized in the U.S. Constitution whose governments have all*
1236 *of the privileges and immunities routinely reserved to other governments in the U.S.*
1237 *federal structure. Nonetheless, tribal governments often are not given the same*
1238 *opportunities provided to state or local governments. For example, in the natural*
1239 *resources arena, Tribal nations are excluded by law or policy from dozens of federal*
1240 *natural resources programs providing funding to states and local governments*
1241 *collectively worth billions of dollars every year. Tribal exclusion in federal programs*
1242 *includes signature programs in major media such as the Coastal Zone Management Act,*

<http://www4.nau.edu/tribalclimatechange/tribes/index.asp>); the University of Oregon and USDA Forest Service Pacific NW Research Station are collaborating on a Northwest Tribal Climate Change Project that produces a variety of information for tribal communities (see: <http://tribalclimate.uoregon.edu/publications/>), the paper entitled "Fostering Tribal Engagement in Climate Science Centers and Landscape Conservation Cooperatives" may be of particular interest to CSCs and LCCs); the North Pacific Landscape Conservation Cooperative produces a *Climate Science Digest* to help keep tribes and others abreast of development.

1243 *the Community Forestry Assistance Act, and the Land and Water Conservation Fund.*
1244 *Academic research and/or federal agencies should identify these kinds of exclusions*
1245 *across all of their programs, recommend solutions, and implement those solutions under*
1246 *their authority. This strategy can be a politically compelling and effective way to channel*
1247 *to tribes, diminishing federal funds.*

1248 **2) Statutory Definitions of “Federal Lands”**

1249 *Relatedly, within the architecture of some federal statutes, tribal lands are included in*
1250 *the definition of federal lands to the detriment of tribal nations, and excluded from the*
1251 *definition of federal lands to the detriment of tribal nations. For example, tribal lands are*
1252 *included as federal lands in National Environmental Policy Act, the Endangered Species*
1253 *Act, the Coastal Zone Management Act (and related acts) and the levying of a \$6500 fee*
1254 *for an application for a permit to drill on federal lands. These inclusions result in*
1255 *substantial administrative burdens and fees upon tribes not applicable to other entities*
1256 *and landowners, placing tribes at a distinct competitive disadvantage, and tribal*
1257 *exclusion from federal funding. In the latter case, the Tribal Forest Protection Act*
1258 *excludes tribal lands from the definition of federal lands for purposes of funding*
1259 *eligibility. Academic research should be done to examine these exclusions across all*
1260 *federal agencies, recommend solutions, and press Congress and federal agencies to*
1261 *implement solutions.*

1262 **3) Treatment of Tribal Governments as Corporations**

1263 *Tribal disadvantages occur when tribes are not treated as governments but as*
1264 *corporations or businesses. Examples include revenue rulings from the Internal Revenue*
1265 *Service (IRS) requiring 1099 reporting from tribes for education and cultural benefits*
1266 *provided to their members; the use of “essential government function” analysis used to*
1267 *determine if tribal programs qualify for tax-exempt financing (which is not used to*
1268 *analyze state programs); and general taxing inequities which favor states’ encroachment*
1269 *into the taxing jurisdiction of Indian tribes.*

1270 *However, when tribes are treated as sovereign nations, and given the flexibility to build*
1271 *their own programs and develop their own economies, they have shown the ability to*
1272 *succeed. For instance, the Indian Self-Determination and Education Assistance Act*
1273 *(ISDEA), through the advent of 638 compacting, contributed immensely towards Indian*
1274 *tribes’ ability to fund tribal public safety programs, develop their own educational and*
1275 *health standards and facilities, as well as establish tribal colleges, enabling tribes to*
1276 *provide higher learning institutions for tribal youth within their own communities.*
1277 *Through greater exercise of control, and within the spirit of self-governance, tribal*
1278 *programs have not only grown, but have improved in a manner which reflects tribal*
1279 *values and addresses specific community needs.*

1280 **4) Bureaucratic Streamlining**

1281 *Tribal governments must juggle a plethora of federal grants and other assistance from*
1282 *different agencies for modest sums of money. Many of these grants can be consolidated in*
1283 *thematic areas, reducing excessive time on grant management and directing more*
1284 *resources to the actual implementation of the program’s mission. The Commission can*
1285 *address these inefficiencies by initiating interagency efforts to consolidate funding*
1286 *provided tribes by various federal agencies for similar or related issue areas, such as*
1287 *natural resources under an ecosystem model, water infrastructure, energy development,*
1288 *and energy efficiency.*

1289 *For example, tribal environmental programs must often juggle multiple, modest grants*
1290 *with limited and varying timelines provided by various agencies and sub-agencies. One*
1291 *tribe's environmental and natural resources department manages over twenty programs*
1292 *through 32 grants from 17 different federal funding sources. The Department addresses a*
1293 *plethora of tribal needs, including: 1) natural resources (e.g., water quality, forestry,*
1294 *wetlands, wildlife management); 2) hazardous materials (solid waste, hazardous waste,*
1295 *underground storage tanks) and 3) energy (renewable energy, energy efficiency, and*
1296 *energy planning). The average size of the grants is about \$75K per year, ranging from*
1297 *\$20K to \$250K per year, distributed by multiple agencies. Each agency requires*
1298 *reporting for every grant. The tribe estimates that the tribal personnel spend about 2*
1299 *months per year per grant, on grant administration, diverting scarce resources away*
1300 *from tangible on-the-ground activities and towards the fulfillment of bureaucratic*
1301 *requirements.*

1302 *This theme has been explored and in many cases implemented through the Indian Self-*
1303 *Determination and Educational Assistance Act (P.L. 93-638) and the Indian*
1304 *Employment, Training, and Related Services Demonstration Act of 1992 (P.L. 102-477).*
1305 *It can be replicated across the federal family. Federal agencies should come together*
1306 *with tribes to creatively expand the design and implementation of the 638 and 477*
1307 *models. Academic research is needed to identify the similar programs existing across*
1308 *agencies applicable for particular projects that can be bundled and layered to streamline*
1309 *efficiencies. For example, a water infrastructure project can start from aquifer to pipes to*
1310 *treatment plant to pipes to tap – involving several agencies with roles within that project.*
1311 *Overall aspects like project planning, design and EIS, funded and/or required by federal*
1312 *agencies, conceptually can be bundled.*

1313 **5) Avoided Social Costs**

1314 *Henry Cagey told me that the number of Lummi Tribal members engaged in fishing has*
1315 *declined precipitously over the past 10 years, perhaps 80% due to environmental*
1316 *degradation and climate change (not of the tribes' making). The tribe's social and*
1317 *cultural fabric frays in many ways unimaginable, touching the core of identity. However*
1318 *evidence might be quantifiable by academia in ways recognizable to mainstream*
1319 *audiences such as policy makers. It's likely indices of social decay (unemployment*
1320 *benefits, domestic violence, substance abuse, crime, incarceration) such as the Lummi*
1321 *example, climb. Federal, tribal, state, and local police, justice, health and social service*
1322 *agencies bear an increased resource burden (e.g., the annual cost of an incarcerated*
1323 *person). Can we quantify those costs, and the avoided costs if investment were directed*
1324 *towards improved natural resource management, jobs training, and other activities to*
1325 *support what the peoples are already doing? What is the cost to governments and society*
1326 *of an unemployed person and a distressed community versus an employed person and a*
1327 *functioning community? From the capitalist angle on this argument (which I believe they*
1328 *are also recognizing) distressed communities do not make for reliable consumers. Can*
1329 *we get some social and economic data on these dynamics, applied to the tribal context?*
1330 *The same goes for climate change impacts, and the "cost of inaction" studies done on the*
1331 *state level, to be applied to tribal governments."*

1332 To participate in the CLCAS, tribes must have the means to build and sustain both technical and political
1333 capacity. Their ability to do so will require a precarious balance between the needs to prepare for an
1334 uncertain future under a changing climate against pressing demands of today to provide health and
1335 elder care, education, public safety, housing, and countless needs for their communities.

1336

1337 **Conclusion**

1338 Engagement with indigenous peoples in
1339 climate initiatives will require far more than
1340 just funding. While funding to develop and
1341 sustain capacity is essential, concerted and
1342 directed efforts by various federal initiatives
1343 like Interior’s LCCs and CSCs, Commerce’s
1344 RISAs, and USDA’s Climate Hubs will be
1345 required. The information needs of indigenous
1346 peoples must be met. Ways to access and
1347 incorporate the wisdom, insight, and TKs from
1348 intimate relationships of indigenous peoples
1349 with the land will be invaluable in helping to
1350 recognize and contend with place-based
1351 manifestations of climate change. Indigenous
1352 governments can bring special legal and
1353 political rights and interests to local, regional,
1354 national, and international processes to help
1355 overcome impediments to the development of
1356 a collaborative framework to address climate
1357 change.

1358 Adaptation has long been part and parcel of
1359 indigenous communities; indeed their very
1360 survival and continuity as peoples depended
1361 on successful response to change. Examples of how indigenous peoples’ approaches to meet the
1362 challenges of climate change can serve as models for Native and non-Native communities alike can be
1363 found in McNutt (2009)³⁷ and Grossman and Parker (2012).³⁸ *“Having survived the historical and
1364 ecological wounds inflicted by colonization, industrialization, and urbanization, Indigenous peoples are
1365 using tools of resilience that have enabled them to respond to sudden environmental changes and
1366 protect the habitat of salmon and other culturally vital species. They are creating defenses to strengthen
1367 their communities, mitigate losses, and adapt where possible.”*

1368 The long, proven history of balanced stewardship can help build partnerships across political
1369 jurisdictional that reconcile divergent views among a multitude of special interests. Federal climate

“Our lands and resources are the basis of our spiritual life. That’s been our way since time began. By preparing for further environmental changes, we can mitigate threats to our way of life. Our traditions rely on abundant populations of native fish and wildlife, healthy plant communities, clean air, water, undisturbed spiritual sites, prehistoric and historic campsites, dwellings, burial grounds, and other cultural sites because these areas reaffirm the presence of our ancestors. These resources also provide our future leaders with a connection to their ancestors and native traditions.

Our culture committees remind us that many of these foods, medicinals and cultural resources are non-renewable. Our survival is woven together with the land. This plan is the foundation that will support new strategic efforts to preserve and protect the local environment. These recent efforts are a continuation of the work our elders have done for years in observing and considering climate changes on our lands. As is our practice, we look ahead to prepare for coming challenges and apply the values taught by our ancestors. This is how we’ve always survived, and how we will continue to thrive as a people.”

Proclamation by Joe Durglo, President,
Confederated Salish & Kootenai Tribes of the
Flathead Reservation, Climate Change Strategic
Plan, September 2013.

³⁷ “Northwest Tribes: Meeting the Challenge of Climate Change.” 2009. Ed. Debra McNutt for the Northwest Indian Applied Research Institute of The Evergreen State College, Olympia Washington. Brochure

³⁸ “Asserting Native Resilience: Pacific Rim Indigenous Nations Face the Climate Crisis.” 2012. Ed. Grossman, Z. and A. Parker. 2011. Oregon State University Press, 240p; Parker, A., Z. Grossman, E. Whitesell, B. Stephenson, T. Williams, P. Hardison, L. Ballew, B. Burnham, J. Bushnell, and R. Klosterman. 2006. “Climate Change and Pacific Rim Indigenous Nations.” Northwest Indian Applied Research Institute of The Evergreen State College, Olympia Washington. 79p.; Grossman, Z. 2008. Indigenous Nations’ Responses to Climate Change. Am Ind Cult Res J 32(3):5-27.

WORKING DRAFT

1370 initiatives and indigenous peoples stand to benefit greatly by working together to establish and support
1371 the development and implementation of viable approaches for addressing the diverse and difficult
1372 economic, social, and ecological challenges confronting climate change.

Discussion DRAFT