

**Table S1.** Resolved and proposed tribal water rights in the western U.S.  
(table last updated March 2018)

Federally recognized tribe(s)	Number of federally recognized tribes	State(s)	Total rights: diversions (acre-feet per year (AFY))	Total rights: depletions (AFY)	Rights exclusively to surface water: diversions (AFY)	Rights exclusively to surface water: depletions (AFY)	Rights to use surface water or groundwater: diversions (AFY)	Rights to use surface water or groundwater: depletions (AFY)	Rights exclusively to groundwater: diversions (AFY)	Rights exclusively to groundwater: depletions (AFY)	Groundwater received (Y/N)?	Status	Geographic extent of resolution of federal reserved rights claims	Resolution of reserved rights to groundwater (Y/N)?	Total federal settlement funding (million USD, 2017)	Year resolved
Ak-Chin Indian Community of the Maricopa (Ak Chin) Indian Reservation	1	Arizona	85,000 (1)	--	85,000	--	0 (1)	--	0 (1)	--	No (1)	Settlement	No geographic restriction (1)	Yes (1)	392.82 (2)	1984 (1, 3)
Arapaho Tribe of the Wind River Reservation, Shoshone Tribe of the Wind River Reservation	2	Wyoming	504,710 (4-6)	--	504,710 (4-6)	--	0 (7, 8)	--	0 (7, 8)	--	No (7, 8)	Fully litigated	Wyoming Water Division 3 (4)	No (7, 8)	N/A	1989 (4)
Assiniboine and Sioux Tribes of the Fort Peck Indian Reservation (9, 10)	1	Montana	1,050,472	525,236	0	--	1,050,472	525,236	0	0	Yes	Settlement	No geographic restriction	Yes	N/A	2001
Blackfeet Tribe of the Blackfeet Indian Reservation	1	Montana	>750,000 (11)	--	>750,000 (11)	--	>0 (12)	--	>0. Nearly all groundwater on reservation (12).	--	Yes (12)	Settlement	Blackfeet Indian Reservation (12)	Yes (12)	430.5 (2)	2017 (12-14)
Chemehuevi Indian Tribe of the Chemehuevi Reservation (15-17)	1	California	11,340	--	0	--	11,340	--	0	--	Yes	Fully litigated	Consumptive uses of Colorado River mainstream downstream of Lee Ferry within the U.S. for the Chemehuevi Indian Reservation, including water drawn from the mainstream by underground pumping.	Yes	N/A	1964
Chickasaw Nation of Oklahoma,	2	Oklahoma	>38,292 (18, 19)	--	>32,774 (18)	--	0 (18)	--	>5,518 (18)	--	Yes (18)	Settlement	Settlement area mapped in settlement agreement; coincides	Yes	190.65 (20)	2016 (13, 18)

Choctaw Nation of Oklahoma													with Chickasaw and Choctaw tribal statistical areas (18)			
Chippewa-Cree Indians of the Rocky Boy's Reservation	1	Montana	20,000 (21)	--	17,325 (21)	--	2,675 (21)	--	0 (21)	--	Yes (21)	Settlement	Montana (21)	Yes (21)	67.99 (2)	2000 (21, 22)
Cocopah Tribe of Arizona (15-17)	1	Arizona	9,707	--	0	--	9,707	--	0	--	Yes	Fully litigated	Consumptive uses of Colorado River mainstream downstream of Lee Ferry within the U.S. for the Cocopah Indian Reservation, including water drawn from the mainstream by underground pumping.	Yes	N/A	1964
Colorado River Indian Tribes of the Colorado River Indian Reservation (15-17)	1	Arizona, California	719,248	--	0	--	719,248	--	0	--	Yes	Fully litigated	Consumptive uses of Colorado River mainstream downstream of Lee Ferry within the U.S. for the Colorado River Indian Reservation, including water drawn from the mainstream by underground pumping.	Yes	N/A	1964
Confederated Salish and Kootenai Tribes of the Flathead Reservation	1	Montana	>590,333 (excludes tribal instream flow rights, the largest of which is 5,000 cubic feet per second (cfs)) (23, 24)	--	>590,333 (23, 24)	--	>0 (23, 24)	--	>0 (23, 24)	--	Yes (23, 24)	Proposed but not final	No geographic restriction (24)	Yes (23, 24)	N/A	2015 (24)
Confederated Tribes and Bands of the Yakama Nation	1	Washington	>460,173 (25)	--	>460,173 (25)	--	0 (25)	--	0 (25)	--	No (25, 26)	Proposed but not final	Yakima River basin, WA adjudication (26)	No (26, 27)	N/A	1996 (26)
Confederated Tribes of the Colville Reservation (28, 29)	1	Washington	894	--	308	--	586	--	0	--	Yes	Fully litigated	No Name Creek, WA	Yes	N/A	1985
Confederated Tribes of the Warm Springs	1	Oregon	>325,786 (excludes tribal instream flow	--	>0	--	>325,786	--	0	--	Yes	Settlement	Reservation	Yes	N/A	2003

Reservation (30)			rights, the largest of which is ≤3,500 cfs)													
Crow Tribe of Montana	1	Montana	>847,000 (31)	--	300,000 (31)	--	>547,000 (31)	--	0 (31)	--	Yes (31)	Settlement	No geographic restriction (31)	Yes (31)	516.64 (2)	2012 (31-33)
Death Valley Timbi-Sha Shoshone Band of California (34)	1	California, Nevada	507	--	0	--	92	--	415	--	Yes	Legislation (presented with settlements in Figure 1B)	Five tribal trust lands: 1) Furnace Creek, CA; 2) Death Valley Junction, CA; 3) Centennial, CA; 4) Scotty's Junction, NV; 5) Lida, NV	N/A	N/A	2000
Fort Belknap Indian Community of the Fort Belknap Reservation (35)	1	Montana	>477,408	--	0	--	>477,408	--	>0	--	Yes	Proposed but not final	Montana	Yes	N/A	2001
Fort McDowell Yavapai Nation	1	Arizona	36,350 (36)	35,223 (36)	36,350 (36)	35,223 (36)	>0 (36)	>0 (36)	>0 (36)	>0 (36)	Yes (36)	Settlement	Reservation (36)	Yes (36)	43.84 (2)	1993 (36, 37)
Fort Mojave Indian Tribe of Arizona, California, and Nevada (15-17)	1	Arizona, California, Nevada	132,789	--	0	--	132,789	--	0	--	Yes	Fully litigated	Consumptive uses of Colorado River mainstream downstream of Lee Ferry within the U.S. for the Fort Mojave Indian Reservation, including water drawn from the mainstream by underground pumping.	Yes	N/A	1964
Gila River Indian Community of the Gila River Indian Reservation	1	Arizona	653,500 (38)	--	496,800 (38)	--	0 (38)	--	156,700 (38)	--	Yes (38)	Settlement	Reservation, Off-Reservation Trust Land, and Fee Land (38)	Yes (38)	552.42 (2)	2005 (38, 39)
Hualapai Indian Tribe of the Hualapai Indian Reservation	1	Arizona	694 (40-42)	--	0	--	694 (40-42)	--	0 (40-42)	--	Yes (40-42)	Settlement	Trust Parcels 1-3 (depicted in exhibit 2.10 to Big Sandy River-Planet Ranch Water Rights Settlement Agreement) (40-42)	Yes (40, 41)	N/A	2014 (40-43)
Hualapai Indian Tribe of the Hualapai Indian Reservation (44)	1	Arizona	4,000	--	4,000	--	0	--	0	--	No	Proposed but not final	Arizona and Colorado River	Yes	N/A	2017
Jicarilla Apache Nation	1	New Mexico	45,646 (45-49)	38,210 (45-49)	45,629 (45-49)	38,191 (45-49)	0 (45-49)	0 (45-49)	17 (45-49)	19 (45-49)	Yes (45-48)	Settlement	San Juan and Rio Chama basin adjudications, NM (45)	Yes (45)	10.55 (2)	1992 (45, 50)
Kickapoo Tribe of Indians of the	1	Kansas	4,705	--	0	--	4,705	--	0	--	Yes	Proposed but not final	Delaware River basin	Yes	N/A	2016

Kickapoo Reservation (51)																
Klamath Tribes, Oregon	1	California, Oregon	>100,653 (52-54)	--	>100,653 (52-54)	--	0 (52)	--	0 (52)	--	No (52)	Proposed but not final	Klamath River basin, OR adjudication (55)	No (55, 56)	N/A	2013 (55)
La Jolla Band of Luiseño Mission Indians of the La Jolla Reservation, Pala Band of Luiseño Mission Indians of the Pala Reservation, Pauma Band of Luiseño Mission Indians of the Pauma and Yuima Reservation, Rincon Band of Luiseño Mission Indians of the Rincon Reservation, San Pasqual Band of Diegueño Mission Indians of California	5	California	16,000 (13, 57)	--	16,000 (13, 57)	--	0 (13, 57)	--	0 (13, 57)	--	No (13)	Settlement	No geographic restriction (13)	No (13)	62.97 (2)	2017 (13, 58)
Las Vegas Paiute Tribe of the Las Vegas Indian Colony (59)	1	Nevada	2,000	--	0	--	0	--	2,000	--	Yes	Settlement	Las Vegas Artesian basin	Yes	N/A	1996
Lummi Tribe of the Lummi Reservation (60)	1	Washington	685	--	0	--	0	--	685	--	Yes	Settlement	Case Area (portion of reservation defined in settlement agreement)	Yes	N/A	2007
Mescalero Apache Tribe of the Mescalero Reservation (61, 62)	1	New Mexico	2,322	2,322	0	--	2,322	--	0	--	Yes	Fully litigated	Rio Hondo basin, NM adjudication	Yes	N/A	1993
Navajo Nation	1	New Mexico	606,660 (63, 64)	325,670 (63, 64)	604,660 (63, 64)	323,670 (63, 64)	0 (63, 64)	0 (63, 64)	>2,000 (63, 64)	2,000 (63, 64)	Yes (63, 64)	Settlement	San Juan basin, NM adjudication (64)	Yes (64)	1,131.83 (2)	2013 (63-65)

Navajo Nation (66, 67)	1	Utah	>314,851	81,500	0	--	>314,851	81,500	0	--	Yes	Proposed but not final	Utah	Yes	N/A	2011
Nez Perce Tribe of Idaho	1	Idaho	50,000 (68, 69) (excludes state instream flow rights, the largest of which is ≤31,000 cfs )	50,000 (68, 69)	12,178 (69)	12,178 (69)	33,629 (69)	33,629 (69)	4,193 (69)	4,193 (69)	Yes (69)	Settlement	Snake River basin, ID adjudication (69)	Yes (69)	159.05 (2)	2007 (68, 69)
Northern Cheyenne Tribe of the Northern Cheyenne Indian Reservation	1	Montana	91,330 (70)	Tongue River depletions limited to 29,375 (70)	57,500 (70)	Tongue River depletions limited to 20,000 (70)	33,830 (70)	Tongue River depletions limited to 9,375 (70)	0 (70)	0 (70)	Yes (70)	Settlement	Reservation (70)	Yes (70)	128.37 (2)	1992 (70, 71)
Paiute Indian Tribe of Utah (Shivwits Band)	1	Utah	4,000 (72) (excludes state instream flow right of 3 cfs)	--	3,900 (72)	--	0 (72)	--	100 (72)	--	Yes (72)	Settlement	Shivwits Reservation, including future trust acquisitions contiguous to the Shivwits Reservation (72)	Yes (72)	34.53 (2)	2001 (72, 73)
Paiute-Shoshone Tribe of the Fallon Reservation and Colony	1	Nevada	10,588 (74)	--	10,588 (74)	--	0 (74)	--	0 (74)	--	No (74)	Settlement	Newlands Project water (74, 75)	No (74)	81.96 (2)	1990 (74)
Pechanga Band of Luiseño Mission Indians of the Pechanga Reservation	1	California	4,994 (76)	--	0	--	4,994 (76)	--	0 (76)	--	Yes (76)	Settlement	Santa Margarita River watershed, CA adjudication (76)	Yes	29.21 (2)	2017 (13, 77)
Pueblo of Taos	1	New Mexico	14,058 (78, 79)	7,249 (78)	12,443 (78)	5,634 (78)	0 (78)	0 (78)	1,615 (78)	1,615 (78)	Yes (78)	Settlement	Taos Valley; Rio Grande mainstream or its tributaries (78)	Yes	138.97 (2)	2016 (32, 78, 80)
Pueblos of Nambé, Pojoaque, San Ildefonso, and Tesuque	4	New Mexico	--	6,467 (81)	--	2,806 (81)	--	3,661 (81)	--	0 (81)	Yes (81)	Settlement	Pojoaque Basin (81)	Yes	195.34 (2)	2012 (32, 81, 82)
Pyramid Lake Paiute Tribe of the Pyramid Lake Reservation	1	Nevada	520,000 (75)	--	520,000 (75)	--	0	--	0	--	No	Settlement	Tribe maintains unresolved groundwater claims (83-85)	No (83-85)	123.9 (2)	1990 (86)
Quechan Tribe of the Fort Yuma Reservation (15-	1	Arizona, California	77,966	--	0	--	77,966	--	0	--	Yes	Fully litigated	Consumptive uses of Colorado River mainstream downstream of Lee Ferry within the U.S. for the	Yes	N/A	1964

17)													Yuma Indian Reservation, including water drawn from the mainstream by underground pumping.			
Salt River Pima-Maricopa Indian Community of the Salt River Reservation	1	Arizona	122,400 (87)	--	99,150 (87)	--	0 (87)	--	23,250 (87)	--	Yes (87)	Settlement	Reservation (87)	Yes (87)	99.7 (2)	1988 (87, 88)
San Carlos Apache Tribe of the San Carlos Reservation	1	Arizona	>77,435 (89)	--	77,435 (89)	--	0 (89)	--	>0. All groundwater beneath Reservation (89).	--	Yes (89)	Settlement	Reservation (89, 90)	Yes	72.8 (2)	1999 (89, 90)
Shoshone-Bannock Tribes of the Fort Hall Reservation	1	Idaho	711,862 (91)	373,612 (91)	402,662 (91)	175,520 (91)	160,700 (91)	86,634 (91)	148,500 (91)	111,458 (91)	Yes (91)	Settlement	Upper Snake River Basin (91)	Yes	41.93 (2)	1990 (91, 92)
Shoshone-Paiute Tribes of the Duck Valley Reservation	1	Nevada	>114,082 (93)	--	111,476 (93)	--	0 (93)	--	2,606 (93)	--	Yes (93)	Settlement	East Fork Owyhee Basin, NV (93)	Yes	69.01 (2)	2015 (94)
Shoshone-Paiute Tribes of the Duck Valley Reservation (95)	1	Idaho	32,062	--	18,807	--	0	--	13,255	--	Yes	Settlement	Snake River basin, ID adjudication	Yes	N/A	2006
Soboba Band of Luiseño Indians	1	California	9,000 (96)	--	0	--	0 (96)	--	9,000 (96)	--	Yes (96)	Settlement	Reservation. Excludes Jones Ranch (in trust), Horseshoe Grande (fee), the Oaks (fee) parcels owned by the Soboba Tribe. (96)	Yes	24.16 (2)	2008 (96, 97)
Southern Ute Indian Tribe of the Southern Ute Reservation, Ute Mountain Ute Tribe of the Ute Mountain Reservation	2	Colorado	225,448 (98)	Animas-La Plata Project depletions limited to 33,050 (99, 100, 102)	At most 220,234 (98)	Animas-La Plata Project depletions limited to 33,050 (99, 100, 102)	0 (98)	--	At least 5,214 (98, 100, 101)	--	Yes (98)	Settlement	Colorado (100)	Yes	103.89 (2)	2000 (102)
Spokane Tribe of the Spokane	1	Washington	25,380 (excludes tribal instream)	--	>0	--	25,380	--	0	--	Yes	Fully litigated	Chamokane Creek basin, WA	Yes	N/A	1984

Reservation (103-106)			flow right to 24 cfs)													
Tohono O'odham Nation of Arizona	1	Arizona	79,200 (107)	--	66,000 (107)	--	0 (107)	--	13,200 (107)	--	Yes (107)	Settlement	San Xavier Reservation and eastern Schuk Toak District (the portion of the Schuk Toak District that is located within the Tucson Active Management Area, the Santa Cruz Active Management Area, and the Upper Santa Cruz Basin) (107)	Yes	102.49 (2)	2004 (39, 107, 108)
Ute Indian Tribe of the Uintah and Ouray Reservation	1	Utah	481,035 (109)	258,943 (109)	0 (109)	--	481,035 (109)	258,943 (109)	0 (109)	0 (109)	Yes (109)	Proposed but not final	No geographic restriction (109)	Yes	349.05 (2)	1992 (90)
White Mountain Apache Tribe of the Fort Apache Reservation	1	Arizona	99,000 (110)	52,000 (110)	25,000 (110)	25,000 (110)	74,000 (110)	27,000 (110)	0 (110)	0 (110)	Yes (110)	Settlement	Reservation and off-reservation trust land (110)	Yes	366.69 (2)	2014 (32, 110)
Yavapai-Prescott Tribe of the Yavapai Reservation	1	Arizona	>1,550 (111)	--	1,550 (111)	--	0 (111)	--	>0. Groundwater beneath reservation (111).	--	Yes (111)	Settlement	Reservation (111)	Yes	0.33 (2)	1995 (111, 112)
Zuni Tribe of the Zuni Reservation	1	Arizona	10,600 (113)	--	9,100 (113)	--	0 (113)	--	1,500 (113)	--	Yes (113)	Settlement	Zuni Heaven Reservation, Zuni trust lands, and Zuni fee lands in Arizona (113)	Yes	25.79 (2)	2004 (113-115)

**Legal and technical documents describing tribal reserved water rights**

1. U.S. Department of Interior, Ak-Chin Indian Community, "Agreement in Principle for Revised Ak-Chin Water Settlement" (1983).
2. C.V. Stern, "Indian Water Rights Settlements" (U.S. Congressional Research Service, Washington, D.C., 2017).
3. Ak-Chin Settlement Act of 1984, Public Law 98-530, H.R. 6206 (1984).
4. Wyoming Big Horn River Adjudication Court, Summary of the Big Horn Adjudication; [bhrac.courts.state.wy.us/History.aspx](http://bhrac.courts.state.wy.us/History.aspx).
5. Wyoming Big Horn River Adjudication Court, Big Horn Adjudication Searches: Walton Rights; [bhrac.courts.state.wy.us/Searches.aspx?SearchIndex=Wt](http://bhrac.courts.state.wy.us/Searches.aspx?SearchIndex=Wt).
6. Total rights calculated for the Wind River Tribes include 499,862 AFY of federally reserved *Winters* rights for the reservation and 4,848 AFY of federally reserved *Walton* rights held by the Eastern Shoshone and Northern Arapaho Tribes.
7. *In re the General Adjudication of the Big Horn System*, 753 P.2d 76 (1988).
8. The Wyoming Supreme Court's decision in *Big Horn* held that tribal reserved rights on the Wind River Indian Reservation did not include groundwater.
9. Fort Peck-Montana compact ratified, Montana Code Ann. § 85-20-201 (1985).

10. Memorandum Opinion, *In the Matter of the Adjudication of Existing and Reserved Rights to the Use of Water, both Surface and Underground, of the Assiniboine and Sioux Tribes of the Fort Peck Indian Reservation within the State of Montana in Basins 40E, 40EJ, 40O, 40Q, 40R, & 40*, Cause No. WC-92-1 (Water Ct., MT, 10 August 2001).
11. A.D. Belin, P.J. Kadzik, Letter from the U.S. Department of the Interior and the U.S. Department of Justice to Chairman Rob Bishop in regards to the Blackfeet Water Rights Settlement Act of 2016 (2016; [naturalresources.house.gov/uploadedfiles/blackfeet\\_letter\\_and\\_legislation.pdf](https://naturalresources.house.gov/uploadedfiles/blackfeet_letter_and_legislation.pdf)).
12. Water rights compact entered into by the Blackfeet Tribe of the Blackfeet Indian Reservation, the State of Montana, and the United States ratified, Montana Code Ann. § 85-20-1501 (2009).
13. Water Infrastructure Improvements for the Nation Act, Public Law 114-332, S. 612 (2016).
14. *Flathead Beacon* (21 April 2017); [flatheadbeacon.com/2017/04/21/blackfeet-nation-approves-water-compact/](https://flatheadbeacon.com/2017/04/21/blackfeet-nation-approves-water-compact/).
15. *Arizona v. California*, 376 U.S. 340 (1964).
16. *Arizona v. California*, 547 U.S. 150 (2006).
17. The U.S. Supreme Court's 1964 decree in *Arizona v. California* initially quantified Colorado River water rights for the Chemehuevi Indian Reservation, the Cocopah Indian Reservation, the Fort Yuma Indian Reservation, the Colorado River Indian Reservation, and the Fort Mojave Indian Reservation. The Court later allowed each of these tribes to intervene in the litigation, resulting in some changes to the volume of their water rights, with several tribes settling their water rights claims in subsequent U.S. Supreme Court decrees. Nevertheless, because the 1964 *Arizona v. California* decree initially quantified those rights through litigation, we categorize these water rights as having been fully litigated.
18. State of Oklahoma, Choctaw Nation of Oklahoma, Chickasaw Nation, City of Oklahoma City, "State of Oklahoma, Choctaw Nation of Oklahoma, Chickasaw Nation, City of Oklahoma City Water Settlement" (2016).
19. Because the Choctaw Nation and Chickasaw Nation water settlement does not specifically establish tribal reserved water rights but sets aside some water rights exclusively for tribes and some water rights for tribes and other local users, we include all of this water in our calculation of >38,292 AFY. For example, we include 20,000 AFY set aside in Sardis Reservoir for use by the Choctaw Nation, the Chickasaw Nation, and other local water users within the 10-county area where the Nations' tribal statistical areas exist. The >38,292 AFY figure includes the 20,000 AFY set aside in Sardis Reservoir; up to 12,000 AFY of future surface water development (500 AFY for non-domestic use on riparian Trust Lands in each of 24 hydrologic basins); existing uses of 274 AFY of surface water and 5,518 AFY of groundwater; 500 AFY to offset evaporative losses in the Choctaw Impoundment; and limited but unquantified future groundwater development on trust lands (>0 AFY).
20. U.S. Department of Interior, Press Releases; [www.doi.gov/pressreleases/secretary-jewell-announces-historic-186-million-settlement-chickasaw-and-choctaw](http://www.doi.gov/pressreleases/secretary-jewell-announces-historic-186-million-settlement-chickasaw-and-choctaw).
21. Chippewa Cree Tribe-Montana compact ratified, Montana Code Ann. § 85-20-601 (1997).
22. Chippewa-Cree Tribe of the Rocky Boy's Reservation Indian Reserved Water Rights Settlement and Water Supply Enhancement Act of 1999, Public Law 106-163, S. 438 (1999).
23. Montana Department of Natural Resources and Conservation, Summary of Water Rights Quantified by CSKT-Montana Compact 2015; [dnrc.mt.gov/divisions/reserved-water-rights-compact-commission/docs/cskt/1\\_cskt\\_water\\_rights\\_summary.pdf](http://dnrc.mt.gov/divisions/reserved-water-rights-compact-commission/docs/cskt/1_cskt_water_rights_summary.pdf).
24. Water rights compact entered into by the Confederated Salish and Kootenai Tribes of the Flathead Reservation, Montana, the State of Montana, and the United States ratified, Montana Code Ann. § 85-20-1901 (2015).
25. Washington Department of Ecology, Draft schedule of rights (Federal Reserved (Indian)); [fortress.wa.gov/ecy/wrx/wrx/fsvr/ecyclecyfsvrfile/WaterRights/wrwebpdf/DSORSBFI.pdf](http://fortress.wa.gov/ecy/wrx/wrx/fsvr/ecyclecyfsvrfile/WaterRights/wrwebpdf/DSORSBFI.pdf).
26. Conditional final order as a final judgment pursuant to CR 54(b) and RAP 2.2(d) and pretrial order number 8 as amended: Yakama Indian Nation court claim Nos. 2276 and 7253, *Ecology v. Acquavella et al.*, No. 77-2-01484-5 (Sup. Ct., Yakima Co., WA, 12 Sep 1996).
27. The Yakima River basin, WA adjudication is only quantifying surface water rights.
28. *Colville Confederated Tribes v. Walton*, 752 F.2d 397 (1985).
29. Total rights calculated for the Confederated Tribes of the Colville Reservation include 308 AFY of federally reserved rights for the Tribe's fishery and 586 AFY of federally reserved rights allocated to Indian allottees. The U.S. Ninth Circuit Appeals Court decision that quantified these rights allocated a total of 1,136 AFY among the Tribe (350 AFY), Indian allottees (666 AFY), and a non-Indian allottee (120 AFY). But because the court also upheld a district court's finding of 1,000 AFY of available water in the No Name Creek basin and held that any shortages should be shared proportionally among the Tribe and allottees, the values presented in the table represent a proportionate reduction of the Tribe and Indian allottees' rights to a total supply of 1,000 AFY.
30. Final Judgment, *In the Matter of the Determination of the Relative Rights to the Use of the Deschutes River and its Tributaries*, No. 99CV0380ST (Cir. Ct., Deschutes Co., OR, 7 January 2003).
31. Crow Tribe-Montana compact ratified, Montana Code Ann. § 85-20-901 (1999).
32. Claims Resolution Act of 2010, Public Law 111-291, H.R. 4783 (2010).
33. U.S. Department of Interior, Press Releases; [www.doi.gov/news/pressreleases/Crow-Tribe-United-States-and-State-of-Montana-Sign-Historic-Water-Compact](http://www.doi.gov/news/pressreleases/Crow-Tribe-United-States-and-State-of-Montana-Sign-Historic-Water-Compact).
34. Timbisha Shoshone Homeland Act, Public Law 106-423, S. 2102 (2000).



35. Fort Belknap-Montana compact ratified, Montana Code Ann. § 85-20-1001 (2001).
36. Fort McDowell Indian Community, United States of America, State of Arizona, Salt River Valley Water Users' Association, Salt River Project Agricultural Improvement and Power District, Roosevelt Water Conservation District, Central Arizona Water Conservation District, Cities of Phoenix, Scottsdale, Glendale, Mesa, Tempe, Chandler, Town of Gilbert, "Fort McDowell Indian Community Water Settlement" (1993).
37. Fort McDowell Indian Community Water Rights Settlement, Public Law 101-628, H.R. 5063 (1990).
38. United States of America, State of Arizona, Gila River Indian Community, Salt River Project Agricultural Improvement and Power District, Salt River Valley Water Users' Association, Roosevelt Irrigation District, Roosevelt Water Conservation District, Arizona Water Company, Cities of Casa Grande, Chandler, Coolidge, Glendale, Goodyear, Mesa, Peoria, Phoenix, Safford, Scottsdale, Tempe, Towns of Florence, Mammoth, Kearny, Duncan, Gilbert, Maricopa-Stanfield Irrigation and Drainage District, Central Arizona Irrigation and Drainage District, Franklin Irrigation District, Gila Valley Irrigation District, San Carlos Irrigation and Drainage District, Hohokam Irrigation and Drainage District, Buckeye Irrigation Company, Buckeye Water Conservation and Drainage District, Central Arizona Water Conservation District, Phelps Dodge Corporation, Arizona Game and Fish Commission, "Gila River Indian Community Water Rights Settlements Agreement (Final Version)" (2005).
39. Arizona Water Rights Settlement of 2004, Public Law 108-451, S. 437, 2004.
40. U.S. Department of Interior, the Hualapai Tribe, Freeport Minerals Corporation, "Amended and Restated Hualapai Tribe Bill Williams River Water Rights Settlement Agreement" (2015).
41. U.S. Department of Interior, Freeport Minerals Corporation, Arizona Game and Fish Commission, Arizona Department of Water Resources, Hualapai Tribe, "Big Sandy River-Planet Ranch Water Rights Settlement Agreement" (2014).
42. Total rights calculated for the Hualapai Tribe in the Bill Williams River watershed include 300 AFY of federally reserved water rights for Parcel 3 (held in trust by the United States for the Tribe and its members) and 394 AFY of federally reserved water rights for Parcels 1-2 (held in trust by the United States for allottees).
43. Bill Williams River Water Rights Settlement Act of 2014, Public Law 113-223, H.R. 4924, 2014.
44. Hualapai Tribe Water Rights Settlement Act of 2017, S. 1770, 2017.
45. U.S. Department of Interior, Jicarilla Apache Tribe, "Contract Between the United States and the Jicarilla Apache Tribe" (1992).
46. Partial Final Judgment and Decree of the Water Rights of the Jicarilla Apache Tribe, *State of New Mexico ex rel. State Engineer v. United States of America, et al.*, No. CIV 75-184 (Dist. Ct., San Juan Co., NM, 22 February 1999).
47. Joint Motion for Entry of a Partial Final Judgment and Decree on the Water Rights of the Jicarilla Apache Tribe, *State of New Mexico ex rel. State Engineer v. United States of America, et al.*, No. 75-184-1 (Dist. Ct., San Juan Co., NM, 3 November 1997).
48. Partial Final Judgment and Decree of the Water Rights of the Jicarilla Apache Tribe, *State of New Mexico ex rel. State Engineer v. Aragon, et al.*, No. CIV 7941 JC (D.N.M., 6 April 1998).
49. The San Juan and Rio Chama decrees for the Jicarilla Apache Tribe's water rights establish reserved rights for existing and historic uses beyond the 40,000 AFY allocated to the Tribe by the Jicarilla Apache Tribe Water Rights Settlement Act and the associated Settlement Contract. The decreed existing and historic uses specifically set forth diversion, depletion, and/or evaporation limits for various uses ranging from recreational lakes to irrigation to commercial and domestic uses. Moreover, the decreed existing and historic uses provide diversion, depletion, and evaporation limits for groups of stock ponds, wells, and springs, but the court decrees do not explicitly separate these groups of rights between surface water and groundwater. For purposes of calculating the Jicarilla Apache Tribe's reserved rights to groundwater from stock wells in the San Juan River basin, we assumed that each stock pond, well, and spring received an equal proportion of the relevant group's limit for diversions, depletions, and evaporation. Meanwhile, for groundwater rights for stock wells in the Rio Chama River basin, because we could not gain access to the U.S. Hydrographic Survey listing all stock ponds, wells, and springs for the Tribe, we assumed that each stock well would divert and deplete the same volume of water as our calculated volume per stock well in the San Juan basin. We also grouped decreed depletion and evaporation limits together as depletions.
50. Jicarilla Apache Tribe Water Rights Settlement Act, Public Law 102-441, H.R. 5122, 1992.
51. Kickapoo Tribe in Kansas, State of Kansas, "Kickapoo Tribe Water Rights Settlement Agreement" (2016).
52. Oregon Water Resources Department, Water Rights Information Query; [apps.wrd.state.or.us/apps/wr/wrinfo/](https://apps.wrd.state.or.us/apps/wr/wrinfo/).
53. U.S. Fish and Wildlife Service, Summary of the Klamath Basin Restoration Agreement; [www.fws.gov/arcata/fisheries/reports/tamwg/2008/March10-11/Attachment5.pdf](http://www.fws.gov/arcata/fisheries/reports/tamwg/2008/March10-11/Attachment5.pdf).
54. The Klamath Administrative Adjudication files that we accessed from the Oregon Water Resources Department include flowrate values for many nonconsumptive, instream flow water rights held by the Klamath Tribes, but they do not estimate the total volumetric size of these rights. Accordingly, we adopted the U.S. Department of Interior and Yurok Tribe's estimated reduction of 100,000 AFY for irrigation in dry years to satisfy these nonconsumptive, instream flow water rights from the Klamath Basin Restoration Agreement. The Klamath Basin Restoration Agreement represented a negotiated potential settlement, but the Agreement expired when the U.S. Congress did not pass legislation enacting the Agreement in 2015. The 100,000 AFY value represents an expired, negotiated value, meaning that is probably is a conservative estimate of the

volumetric size of these rights. Nevertheless, because we lack a better estimate of the volumetric size of these water rights, we have adopted a value of >100,000 AFY for the nonconsumptive, instream flow water rights in this table. The Klamath Administrative Adjudication files also show an additional 653 AFY of reserved consumptive water rights for the Klamath Tribes. We combine this value with the >100,000 AFY estimate for nonconsumptive, instream flow water rights to receive the value we report in the table, >100,653 AFY.

55. Oregon Water Resources Department, Findings of Fact and Final Order of Determination, 2013.
56. The Klamath River basin, OR adjudication is only quantifying surface water rights.
57. San Luis Rey Indian Water Rights Settlement Act, Public Law 100-675, S. 795 (1988).
58. *Valley Roadrunner* (27 July 2017); [www.valleycenter.com/articles/final-requirements-met-for-san-luis-rey-indian-water-rights-settlement/](http://www.valleycenter.com/articles/final-requirements-met-for-san-luis-rey-indian-water-rights-settlement/).
59. *In re* Rights to Waters of the Las Vegas Artesian Basin (Dist. Ct., Clark County, NV, 30 Sept. 1996).
60. Washington State Department of Ecology, Lummi Nation, “Settlement agreement regarding uses of groundwater on Lummi Peninsula” (2007).
61. Final Judgment, *State ex rel. Reynolds v. Lewis*, Nos. 20294 and 22600 (Dist. Ct., Chaves Co., NM, 11 July 1989).
62. *State ex rel. Reynolds v. Lewis*, 861 P.2d 235 (1993).
63. Omnibus Public Land Management Act of 2009, Public Law 111-11, H.R. 146 (2009).
64. U.S. Department of Interior, State of New Mexico, Navajo Nation, “Navajo Nation Water Rights Settlement Agreement” (2010).
65. Partial Final Judgment and Decree of the Water Rights of the Navajo Nation, *State of New Mexico ex rel. State Engineer v. United States of America, et al.*, No. CV-75-184 (Dist. Ct., San Juan Co., NM, 1 November 2013).
66. A.J. O’Donoghue, *Deseret News* (29 December 2011); [www.deseretnews.com/article/705396522/Navajo-water-rights-settlement-with-Utah-inching-closer.html](http://www.deseretnews.com/article/705396522/Navajo-water-rights-settlement-with-Utah-inching-closer.html).
67. S.M. Pollack, Navajo Nation Colorado River Issues; [www.crwua.org/documents/conferences/2013-conference/Pollack\\_NN.pdf](http://www.crwua.org/documents/conferences/2013-conference/Pollack_NN.pdf).
68. Snake River Water Rights Act of 2004, Public Law 108-447, H.R. 4818, 2004.
69. Consent Decree Approving Entry of Partial Final Decrees Determining the Rights of the United States as Trustee for the Benefit of the Nez Perce Tribe and the Nez Perce Tribe to the Use of Water in the Snake River Basin within Idaho and Partial Final Decrees Determining Minimum Stream Flow Water Rights Held by the Idaho Water Resources Board, *In re Snake River Basin Adjudication*, No. 39576 (Dist. Ct., Twin Falls Co., ID, 2007 January 30).
70. Northern Cheyenne-Montana compact ratified, Montana Code Ann. § 85-20-301 (1991).
71. Northern Cheyenne Indian Reserved Water Rights Settlement Act of 1992, Public Law 102-374, S. 1607 (1992).
72. Bloomington Canal Company, E. Bowler, Ivins Irrigation Company, Lower Gunlock Reservoir Corporation, New Santa Clara Field Canal Company, Shivwits Band of the Paiute Indian Tribe of Utah, Southgate Irrigation Company, City of St. George, St. George Clara Field Canal Company, United States of America, State of Utah, Washington County Water Conservancy District, “Shivwits Band of the Paiute Indian Tribe of Utah Water Rights Settlement Agreement” (2001).
73. Shivwits Band of the Paiute Indian Tribe of Utah Water Rights Settlement Act, Public Law 106-263, H.R. 3291 (2000).
74. Fallon Paiute Shoshone Indian Tribes Water Rights Settlement Act of 1990, Public Law 101-618, S. 3084, 1990.
75. B.G. Colby, J.E. Thorson, S. Britton, *Negotiating Tribal Water Rights: Fulfilling Promises in the Arid West* (Univ. of Arizona Press, Tucson, AZ, 2005).
76. Pechanga Band of Luiseño Mission Indians, Rancho California Water District, United States of America, “Pechanga Band of Luiseño Mission Indians Water Rights Settlement Agreement” (2016).
77. U.S. Department of Interior, Press Release; [www.bia.gov/sites/bia.gov/files/assets/public/press\\_release/pdf/Interior\\_Executes\\_Water\\_Rights\\_Settlement\\_Agreement\\_with\\_Pechanga\\_Band\\_of\\_Luiseno\\_Mission\\_Indians.pdf](http://www.bia.gov/sites/bia.gov/files/assets/public/press_release/pdf/Interior_Executes_Water_Rights_Settlement_Agreement_with_Pechanga_Band_of_Luiseno_Mission_Indians.pdf).
78. United States of America, Taos Pueblo, State of New Mexico, Taos Valley Acequia Association, Town of Taos, El Prado Water and Sanitation District, Taos Area Mutual Domestic Water Consumers’ Associations, “Abeyta Water Rights Adjudication: Settlement Agreement Among the United States of America, Taos Pueblo, the State of New Mexico, the Taos Valley Acequia Association and its 55 Member Acequias, the Town of Taos, El Prado Water and Sanitation District, and the 12 Taos Area Mutual Domestic Water Consumers’ Associations” (2012).
79. The Taos Pueblo Water Rights Settlement Agreement formally grants the Taos Pueblo rights to divert up to 22,508.35 AFY and consume up to 7,883.64 AFY to irrigate 5,712.78 acres or land, but it also requires the Taos Pueblo to forego diversions and consumption to that sufficient for irrigation of 2,322.45 acres of land. The Taos Pueblo may only expand its water use if non-Indian surface water rights in the Taos Valley are reduced through specified mechanisms. The diversion and depletion volumes presented in the table for the Taos Pueblo represent the proportion of the total Taos Pueblo water rights available under the Agreement. In addition to these irrigation water rights, these volumes include additional water rights assigned to the Taos Pueblo.
80. Partial Final Judgment and Decree on the Water Rights of the Taos Pueblo, *State of New Mexico ex rel. State Engineer v. Abeyta, et al.*, Nos. CV-69-7896 MV/WPL, CV-69-7939 MV/WPL (D.N.M., 11 February 2016).

81. United States of America, State of New Mexico, Pueblo of Nambé, Pueblo of Tesuque, Pueblo of Pojoaque, Pueblo of San Ildefonso, County of Santa Fe, City of Santa Fe, “Aamodt Litigation Settlement Agreement” (2012).
82. Partial Final Judgment and Decree of the Water Rights of the Pueblos of Nambé, Pojoaque, San Ildefonso, and Tesuque, *State of New Mexico ex rel. State Engineer v. Aamodt, et al.*, No. 66cv6639 WJ/WPL (23 March 2016).
83. Pyramid Lake Paiute Tribe-Fish Springs Ranch Settlement Act, Public Law 113-169, H.R. 3716 (2014).
84. Pyramid Lake Paiute Tribe of Indians, United States of America, Fish Springs Ranch, LLC, “Pyramid Lake Paiute Tribe-Fish Springs Ranch Settlement Agreement” (2007).
85. The Pyramid Lake Paiute Tribe-Fish Springs Ranch Settlement Agreement (84), dated 30 May 2007, states that “[t]he Tribe and the United States, acting through the Secretary, on behalf of the Tribe, and its members retain the right to ... [s]eek to obtain on behalf of the Tribe a reserved right to groundwater in the Honey Lake Valley Basin, the Smoke Creek Desert Basin, and the Pyramid Lake Valley Basin.” While this agreement does subordinate any groundwater rights held by the Tribe to water rights held by Fish Springs Ranch, because the agreement maintains that the Tribe holds unresolved reserved rights to groundwater, in table S1, we classify the Tribe’s groundwater claims as unresolved.
86. Truckee-Carson-Pyramid Lake Water Rights Act, Public Law 101-618, S. 3084, 1990.
87. United States of America, State of Arizona, Salt River Pima-Maricopa Indian Community, Salt River Project Agricultural Improvement and Power District, Salt River Valley Water Users’ Association, Roosevelt Water Conservation District, Roosevelt Irrigation District, Cities of Chandler, Glendale, Mesa, Phoenix, Scottsdale, Tempe, Town of Gilbert, Central Arizona Water Conservation District, “Salt River Pima-Maricopa Indian Community Water Rights Settlement Agreement” (1988).
88. Salt River Pima-Maricopa Indian Community Water Rights Settlement Act of 1988, Public Law 100-512, H.R. 4102 (1988).
89. United States of America, State of Arizona, San Carlos Apache Tribe, Salt River Project Agricultural Improvement and Power District, Salt River Valley Water Users’ Association, Roosevelt Water Conservation District, Buckeye Irrigation Company, Buckeye Water Conservation and Drainage District, Cities of Chandler, Glendale, Mesa, Scottsdale, Tempe, Town of Gilbert, Central Arizona Water Conservation District, “San Carlos Apache Tribe Water Rights Settlement Agreement” (1999).
90. Reclamation Projects Authorization and Adjustment Act of 1992, Public Law 102-575, H.R. 429 (1992).
91. Shoshone-Bannock Tribes of the Fort Hall Indian Reservation, State of Idaho, United States, and certain Idaho Water Users, “The 1990 Fort Hall Indian Water Rights Agreement” (1990).
92. Fort Hall Indian Water Rights Act of 1990, Public Law 101-602, H.R. 5308, 1990.
93. Nevada Office of the State Engineer, Order of Determination, In the Matter of the Determination Defining the Relative Rights in and to the Waters, Both Surface and Underground, Within the Drainage Area of the Owyhee River (Sometimes Called the East Fork Owyhee River) and Its Tributaries Located Within the East Fork Owyhee Area, Elko County, Nevada, 2012.
94. U.S. Department of Interior, Press Releases; [www.doi.gov/news/pressreleases/secretary-jewell-signs-historic-water-rights-agreement-with-shoshone-paiute-tribes-and-state-of-nevada](http://www.doi.gov/news/pressreleases/secretary-jewell-signs-historic-water-rights-agreement-with-shoshone-paiute-tribes-and-state-of-nevada).
95. Revised Consent Decree Approving Entry of Partial Decrees Determining the Rights of the United States as Trustee for the Benefit of the Shoshone-Paiute Tribes to the Use of Water in the Snake River Basin Within Idaho, *In re Snake River Basin Adjudication*, No. 39576 (Dist. Ct., Twin Falls Co., ID, 12 December 2006).
96. Soboba Band of Luiseño Indians, United States of America, Eastern Municipal Water District, Lake Hemet Municipal Water District, Metropolitan Water District of Southern California, “Soboba Band of Luiseño Indians Settlement” (2006).
97. Soboba Band of Luiseño Indians Settlement Act, Public Law 110-297, H.R. 4841 (2008).
98. U.S. Bureau of Reclamation, “Tribal Water Demand Scenario Quantification” in *Colorado River Basin Water Supply and Demand Study* (U.S. Bureau of Reclamation, Washington, D.C., 2012).
99. Colorado Ute Indians Water Rights Settlement Act of 1988, Public Law 100-585, H.R. 2642 (1988).
100. State of Colorado, Ute Mountain Ute Indian Tribe, Southern Ute Indian Tribe, U.S. Department of the Interior, U.S. Department of Justice, Animas-La Plata Water Conservancy District, Dolores Water Conservancy District, Florida Water Conservancy District, Mancos Water Conservancy District, Southwestern Water Conservation District, City of Durango, Town of Pagosa Springs, Florida Farmers Ditch Company, Florida Canal Company, Fairfield Communities, Inc., “Colorado Ute Indian Water Rights Final Settlement Agreement” (1986).
101. M.C. Condon, Colorado Ute Indian Water Rights Settlement Act of 1988; [www.crwua.org/documents/conferences/2013-conference/Condon\\_SUIT.pdf](http://www.crwua.org/documents/conferences/2013-conference/Condon_SUIT.pdf).
102. 2000 Amendments to Colorado Utes Settlement Act of 1988, Public Law 106-554, H.R. 4577 (2000).
103. Judgment, *U.S. v. Anderson*, No. 3643 (E.D. Wash., 12 September 1979).
104. *U.S. v. Anderson*, 591 F. Supp. 1 (1982).
105. *U.S. v. Anderson*, 736 F.2d 1358 (1984).
106. Tetra Tech/KCM, “Water Resource Inventory Area 54 (Lower Spokane) Watershed Plan Phase 2, Level 1 Data Compilation and Technical Assessment” (2007; [www.spokanewatersheds.org/files/documents/Phase-II-Level-1-Technical-Assessment.pdf](http://www.spokanewatersheds.org/files/documents/Phase-II-Level-1-Technical-Assessment.pdf)).

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109. Ute Indian Water Compact, Utah Code Ann. § 73-21-1 (1980).
110. White Mountain Apache Tribe Water Rights Quantification Settlement Judgment and Decree, *In re General Adjudication of All Rights to Use Water in the Little Colorado River System and Source*, No. cv. 6417-202 (Superior Ct., Apache Co., AZ, 18 December 2014).
111. United States, State of Arizona, Yavapai-Prescott Indian Tribe, City of Prescott, Chino Valley Irrigation District, “Yavapai-Prescott Indian Tribe Water Rights Settlement Agreement” (1995).
112. Yavapai-Prescott Indian Tribe Water Rights Settlement Act of 1994, Public Law 103-434, S. 1146 (1994).
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114. Zuni Indian Tribe Water Rights Settlement Act, Public Law 108-34, S. 222 (2003).
115. United States of America, Zuni Indian Tribe, State of Arizona, Arizona Game and Fish Commission, Arizona State Land Department, Arizona State Parks Board, St. Johns Irrigation and Ditch Company, Lyman Water Company, Round Valley Water Users’ Association, Salt River Project Agricultural Improvement and Power District, Tucson Electric Power Company, City of St. Johns, Town of Eagar, Town of Springerville, “Amendment No. 1 to the Zuni Indian Tribe Water Rights Settlement Agreement in the Little Colorado River Basin” (2004).