5.9 Quechan Indian Tribe

5.9.1 Introduction

The Fort Yuma-Quechan Reservation (Reservation) is located along the Colorado River near Yuma, Arizona. The Reservation was established by Executive Order of President Chester A. Arthur on January 9, 1884. Reservation lands encompass portions of Arizona and California, and share a border with Mexico's Baja California. Encompassing 45,000 acres, the Reservation is bisected on the south by Interstate 8 (I-8), and Imperial Irrigation District's All-American Canal runs from its northeast to southwest corners. The Tribe's headquarters are located on the old Fort Yuma grounds in California, along the Reservation's southern boundary and directly across the Colorado River from the City of Yuma.

The Reservation encompasses a portion of the ancestral home of the Quechan People. Their aboriginal villages were located in or near the Colorado River's floodplain, which allowed annual floods to deposit rich soil from upriver. This ended with development of dams and diversions upstream from the Quechan homeland, which essentially cut off the historical flows to the area. According to the most recent data from the Quechan Indian Tribe (Quechan or Tribe) Enrollment Office, the Quechan population totals 3,870 members. Approximately 2,022 live on or adjacent to the Reservation.

Figure 5.9-A presents a general location map with Reservation boundaries, communities, and other important features.

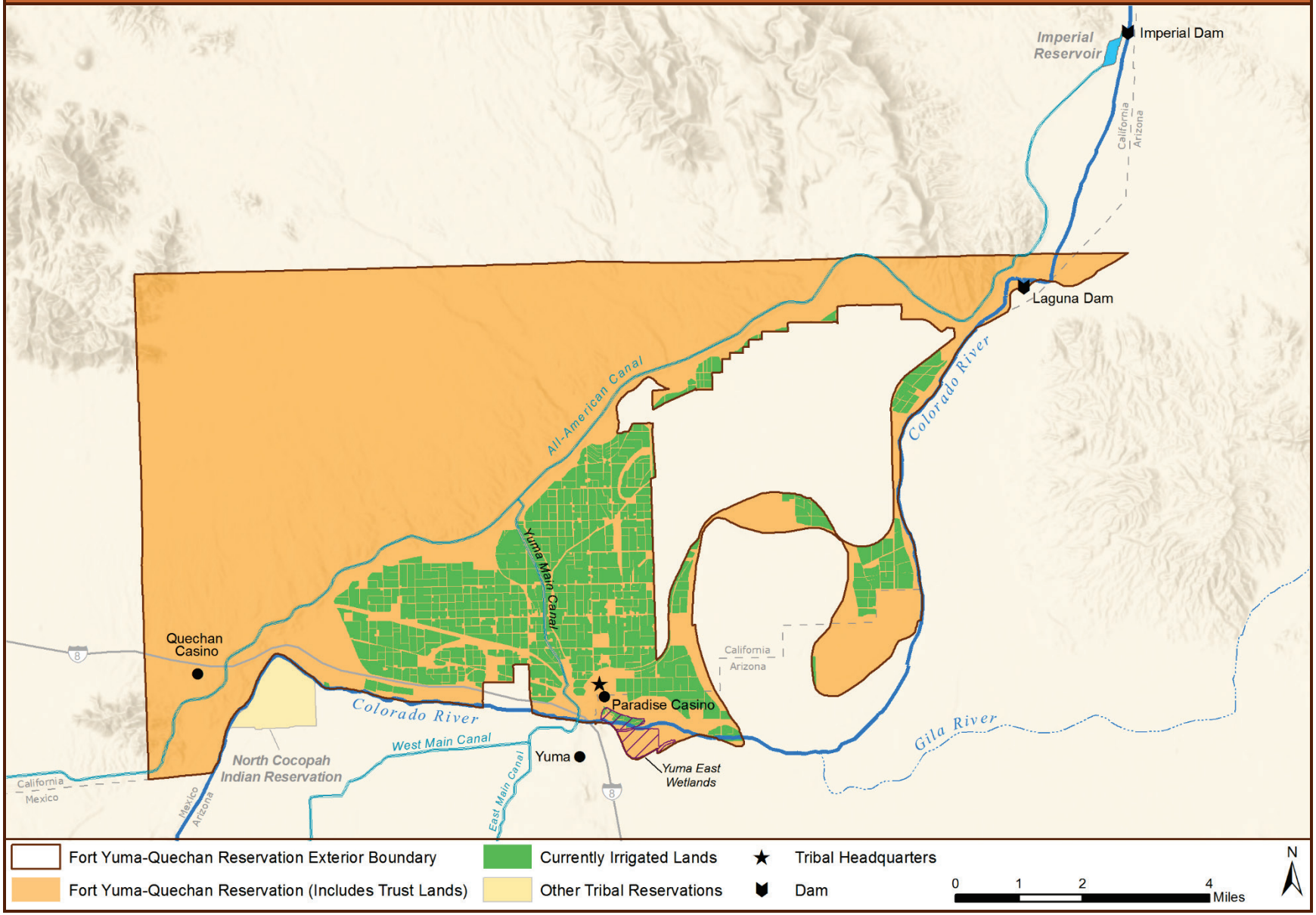
5.9.2 Physical Setting

The Fort Yuma Indian Reservation is located along the Colorado River in the southeastern corner of California and southwest corner of Arizona. The elevation on the reservation ranges from 125 to 1025 feet above mean sea level (MSL). The land below the All-American Canal (AAC) ranges from 125 to 180 feet MSL. The irrigable land above the canal on the reservation ranges from 180 to 500 feet MSL. Topography varies considerably, with the northwestern portions of the Reservation being rugged and mountainous, while the majority of the irrigable lands are located south of the AAC on nearly level floodplains.

5.9.2.1 Watersheds

The Colorado River roughly parallels much of the eastern and southern borders of the Reservation. Flows in this reach of the River are regulated by Imperial Dam while Laguna Dam regulates sluicing flows. The Reservation is cross-cut by major Colorado River distribution canals, including the AAC and the Yuma Main Canal, as well as many smaller irrigation and drainage ditches.

FIGURE 5.9-A
Fort Yuma-Quechan Reservation Map



See the Disclaimer and Introduction to Chapter 5.0.

5.9.2.2 Hydrogeology

The Reservation is located on part of the floodplain of the Colorado River in an area of undifferentiated alluvial sediments and sedimentary rocks of Quaternary age that include floodplain deposits and fanglomerate deposits derived from the surrounding mountains. Numerous domestic and irrigation wells can be found throughout the area.

5.9.2.3 Climate

The climate in the Reservation area is extreme in summer and mild in winter. Summer high average daily temperatures range from 104 to 108 °F. The area is almost entirely frost free. The average annual precipitation at the closest monitoring station (5.5 miles northeast) in nearby Yuma is only 2.86 inches with the majority falling in late summer and winter (Western Regional Climate Center, 2006). Spring and early summer are generally dry with some months receiving almost no precipitation.

5.9.3 Historical Use and Cultural Importance of Water

Historically the Quechan made good use of the Colorado River's natural annual flooding process to develop a robust agricultural economy. They lived in settlements scattered north and south of the River, and eastward along the Gila River. The number and precise locations of these settlements shifted from year to year and even from season to season within the year. The geographical arrangement of the settlements was thus closely geared to the condition of the rivers and the techniques of bottomland horticulture. The threat of enemy attack may have also been a factor. The settlements were gradually abandoned after the Reservation was created, and families moved within the Reservation boundaries to receive individual ten-acre plots of farmland allotted to them by the federal government.

Today, that agricultural use continues, although water is also used for domestic, commercial, municipal, and industrial purposes.

As for most tribes in the Basin, water is central to the Quechan Tribe's culture and heritage. The location of their ancestral settlements near the Colorado River meant that the River was a central part of their life, giving them a natural setting and irrigation for growing food and for sustaining their culture.

5.9.4 Quechan Indian Tribe Water Supply

As finally decreed by the United States Supreme Court (Supreme Court) in *Arizona v. California*, 547 U.S. 150 (2006) (commonly referred to as the 2006 Consolidated Decree), federal Indian reserved water rights for Colorado River water were quantified for the Fort Yuma-Quechan Indian Reservation in Arizona and California with a priority date of January 9, 1884. The amounts, priority dates, and states where the reserved water rights are perfected are presented in Table 5.9-A.

TABLE 5.9-A
Quechan Indian Tribe Colorado River Diversion Right

Reservation	State	Diversion Water Right (AFY)[1]	Net Acres	Priority Within State	Priority Date
Fort Yuma-Quechan Reservation	Arizona	6,350	952	1	Jan. 9, 1884
	California	71,616	10,742	1	Jan. 9, 1884
Total		**77,966**	**11,694**		

[1] Source: Supreme Court Consolidated Decree of March 27, 2006. (547 U.S. 150). The quantity of water in each instance is measured by (i) diversions or (ii) consumptive use required for irrigation of the respective acreage and for satisfaction of related uses, whichever of (i) or (ii) is less.

AFY – Acre-feet per year

5.9.5 Current Water Use and Operations

Largely an agricultural community, the Tribe and allottees lease some lands to other farmers. The Tribe also operates two casinos on the Arizona and California portions of the Reservation.

In addition to farming, the Reservation utilizes tourism and related business to support its economy. The relatively warm winter temperatures make the site a desirable winter vacation spot from November to March. To serve its members and a large population of winter visitors the Tribe manages an education complex, a small grocery store, two casinos, a utility company, a fish and game department, police department and court, two housing subdivisions, individual home sites, and an out-patient facility serving both Quechan and the Cocopah Indian Tribe.

Water for agricultural use on the Reservation is primarily diverted from the Colorado River at Imperial Dam and delivered through the Yuma Project Reservation Division-Indian Unit. Other agricultural lands on the Reservation are irrigated by water pumped directly from the Colorado River and from groundwater. Water used for domestic purposes on the Reservation is pumped from groundwater. The Tribe has other small uses at homestead sites south of Yuma, Arizona. Water use is documented in Reclamation's Colorado River Accounting and Water Use Reports: Arizona, California, and Nevada (Water Accounting Reports) (Reclamation, 2017).

5.9.5.1 Irrigated Agriculture and Livestock Water Use Category

Based on Reclamation's Water Accounting Reports, the average diversion for the Yuma Project Reservation Division – Indian Unit for the period from 2009 through 2013 at Imperial Dam was 42,768 acre-feet per year (AFY), primarily for agriculture and related uses. Ranch 5 is served by Yuma Project Reservation Division infrastructure but is not part of the Indian Unit and Reclamation has reported diversions to Ranch 5 separately in the past. From 2009 through 2013, the average diversion to Ranch 5 (in both Arizona and California) was 880 AFY. The average reported diversion from 2009 through 2013 to agricultural lands that pump water from the Colorado River and groundwater, which are all in California, was 2,873 AFY. The Tribe is concerned that the methods used to estimate water use may be inaccurate and is in the process of implementing a flow measurement and monitoring program to increase and improve the data available for water accounting purposes.

5.9.5.2 Domestic, Commercial, Municipal, and Industrial Water Use Category

Based on Reclamation's Water Accounting Reports, the Tribe's average domestic, commercial, municipal, and industrial use for the period from 2009 through 2013 was 795 AFY. This use includes water for the casinos, housing, and other Tribal municipal demands.

5.9.5.3 Environmental, Cultural, and Recreational Water Use Category

In 2004, habitat restoration activities began at the Yuma East Wetlands, located along the Colorado River near downtown Yuma, Arizona. The Tribe partnered with the City of Yuma, Yuma Crossing National Heritage Area, the Arizona Game and Fish Commission, and multiple federal and state agencies to restore 373 acres of habitat. Invasive salt cedar stands were cleared, backwater channels and shallow marshes were excavated, and native riparian and marsh vegetation were planted.

As part of the project the Tribe was able to develop a cultural park on the reservation side of the river and the City of Yuma was able to develop a municipal park on its side of the river.

Yuma East Wetlands
Source: Bureau of Reclamation

In 2013, the Lower Colorado River Multi-Species Conservation Program entered into a partnership with the Tribe, City of Yuma, the Arizona Game and Fish Commission, and the Yuma Crossing National Heritage Area to support the long-term management of the Yuma East Wetlands. The Yuma East Wetlands is now a mosaic of different vegetation communities, including cottonwood willow, honey mesquite, and marsh. The project is located within the Pacific Flyway, a major migration route for hundreds of species of birds, including southwestern willow flycatcher, yellow-billed cuckoo, and Sonoran yellow warbler. Marsh birds, such as the endangered Yuma clapper rail and western least bittern, have colonized the created habitat. Other species, like the western red bat, western yellow bat, and Yuma hispid cotton rat have also been confirmed to be using the site's restored cottonwood-willow land cover type.

The Tribe provides roughly 1,250 acre-feet of water per year for the Yuma East Wetlands project from its Arizona allocation recognized in the 2006 Consolidated Decree.

5.9.5.4 Diversion by The Metropolitan Water District of Southern California

Pursuant to the 2006 Consolidated Decree, the Metropolitan Water District of Southern California (MWD) is entitled to divert up to 13,000 AFY of water allocated to Quechan, if Quechan chooses to forbear using that water in any one year. In 2013, MWD was entitled to divert the full 13,000 AFY.

5.9.5.5 Reservoirs

There are no reservoirs on the Fort Yuma Reservation**.**

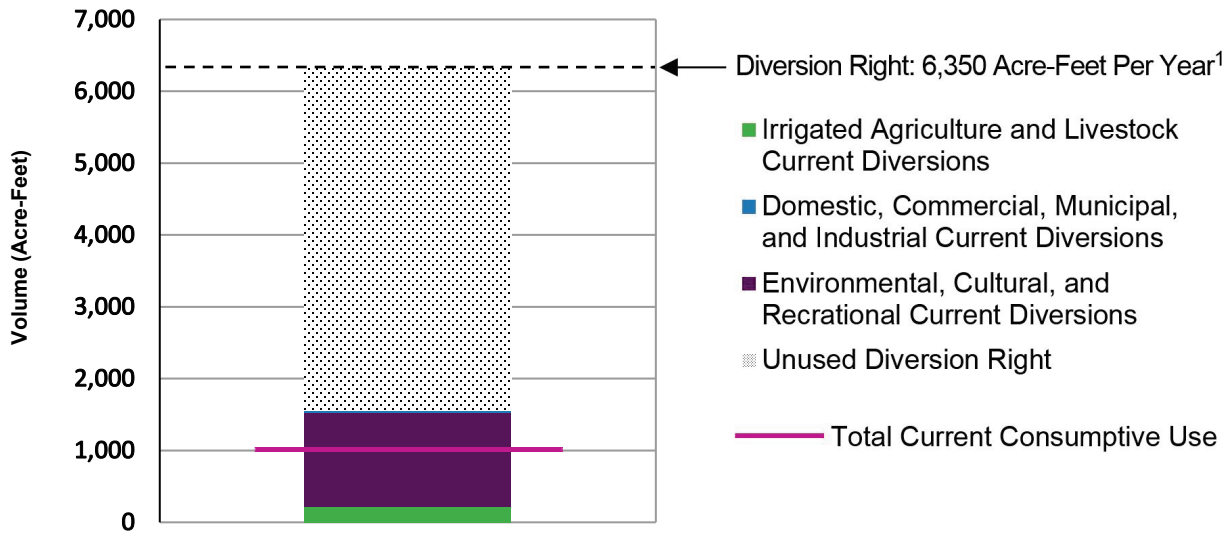
5.9.5.6 Water Use Efficiency and Conservation

The Tribe is currently developing a water management program to address these and other issues concerning water use and management.

5.9.5.7 Summary of Current Water Use

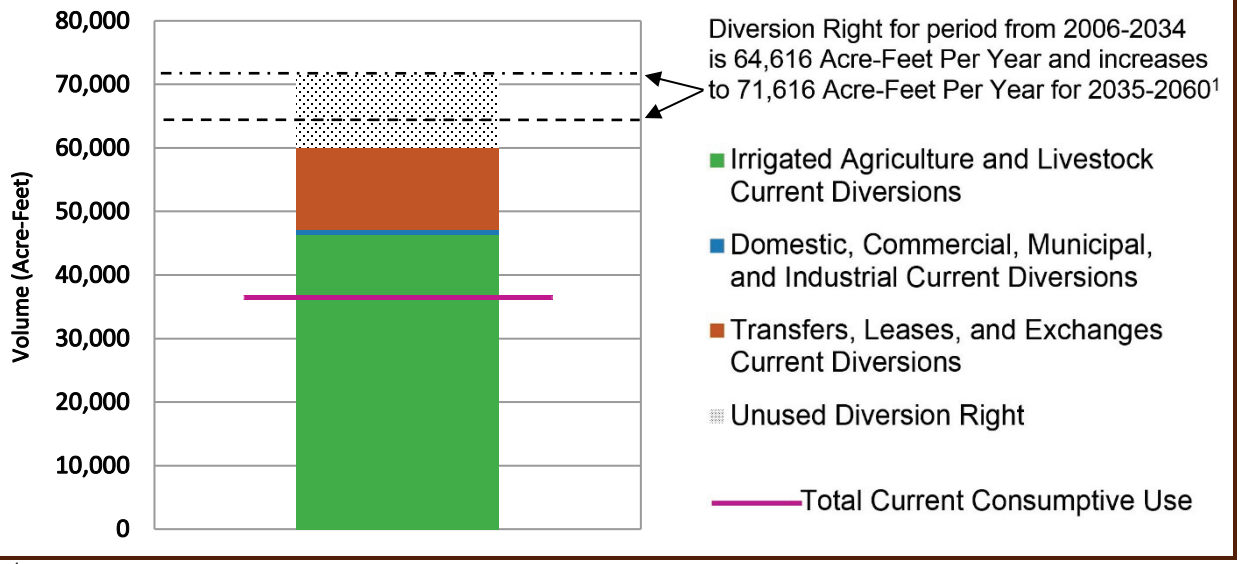
The Tribe's average annual water use for the period from 2009 through 2013 in Arizona is presented in Figure 5.9-B, for California in Figure 5.9-C, and in Table 5.9-B for both states. The average annual water use for the 2009 through 2013 period incorporates Reclamation's Water Accounting Report data, which was supplemented with water use information provided by the Tribe for the purpose of the Tribal Water Study. Therefore, direct comparisons between this report and the Water Accounting Reports would be inapposite. Consumptive use amounts were estimated using either efficiency factors in the Water Accounting Report or standard engineering efficiencies.

FIGURE 5.9-B
Quechan Indian Tribe Current Average Annual Water Use in Arizona (2009 – 2013)



[1] Source: Consolidated Decree of March 27, 2006. The quantity of water is measured by (i) annual diversions not to exceed 6,350 acre-feet or (ii) the quantity of mainstream Colorado River water necessary to supply the consumptive use required for the irrigation of 952 acres and for the satisfaction of related uses, whichever of (i) or (ii) is less.

FIGURE 5.9-C
Quechan Indian Tribe Current Average Annual Water Use in California (2009 – 2013)



[1] Source: Consolidated Decree of March 27, 2006. The quantity of water is measured by (i) annual diversions not to exceed 71,616 acre-feet or (ii) the quantity of mainstream Colorado River water necessary to supply the consumptive use required for the irrigation of 10,742 acres and for the satisfaction of related uses, whichever of (i) or (ii) is less.

TABLE 5.9-B
Quechan Indian Tribe Current Average Annual Water Use by State (2009 – 2013)

State	Water Use Category	Diversion (AFY)	Estimated Current Consumptive Use (AFY)
Arizona	AG	224	145
	DCMI	30	20
	ENV	1,300	845
	State Subtotal	***1,554***	***1,010***
California	AG	46,297	23,149
	DCMI	795	395
	TRAN	13,000	13,000
	State Subtotal	***60,092***	***36,554***
Total		**61,646**	**37,554**

AG – Irrigated Agriculture and Livestock
DCMI – Domestic, Commercial, Municipal, and Industrial
ENV – Environmental, Cultural, and Recreational
TRAN – Transfers, Leases, and Exchanges

5.9.6 Tribal Water Use Challenges

Barriers to greater use of tribal water include legal and policy level constraints of the federal government placing obstacles in the way of inter-state and inter-basin transfers of water and limitations on the Tribe's ability to dedicate water to off-Reservation instream flows.

5.9.7 Projected Future Water Development

The Tribe's future water development was assessed by first examining the location, quantity and type of current water use and then, by applying the Tribal Water Study's scenario planning process, envisioning a range of future water development.

The Tribal Water Study's scenarios and associated themes are listed below. Detailed descriptions of these scenarios (storylines) were created to consider a wide range of possible water development outcomes. For additional information, including the scenario storylines, see *Chapter 4 – Methodology for Assessing Current Tribal Water Use and Projected Future Water Development*.

- **Current Water Development Trends (Scenario A):** Current trends in on-reservation water development, governance, funding, and resolution of tribal claims remain the same.
- **Slow Water Development Trends (Scenario B):** Decreases flexibility in governance of tribal water, levels of funding, and resolution of tribal claims slow tribal economic development. This results in a decline in the standard of living and delays resolution of tribal claims.
- **Rapid Water Development Trends (Scenarios C1 and C2):** Increased flexibility in governance of tribal water allows innovative water development opportunities and increased funding availability leads to tribal economic development. This results in an increase in the standard of living, thereby contributing to the fulfilment of the purpose of the reservation as a homeland and supporting the future needs of tribal communities. Scenario C1 considers partial resolution of claims and/or implementation of decreed or settled rights; and Scenario C2 considers complete resolution of claims and implementation of decreed or settled rights.

The Tribe projected its future water development through 2060 by reviewing its current water use estimates and reflecting upon how these might change under the four scenarios. During this process, the Tribe considered such elements as the scenario conditions described in the storylines, current or future planned projects, and anticipated changes in water use by category. The Tribe contemplated future development in the four water use categories: Irrigated Agriculture and Livestock Water Use (AG); Domestic, Commercial, Municipal, and Industrial Water Use (DCMI); Environmental, Cultural, and Recreational Water Use (ENV); and Transfers, Leases, and Exchanges (TRAN).

From this examination, the Tribe extrapolated likely future use if current trends (Scenario A) continued through 2060 and prepared quantified water development schedules for its water rights in Arizona and California. The Tribe used this same approach to prepare future water development schedules reflective of how the other scenario storylines (Scenarios B, C1, and C2) could affect its future water development. The documentation for each development schedule is presented in the following sections.

5.9.7.1 Future Water Development Schedules

Future water development schedules were developed by the Tribe. The assumptions for each schedule are described below and the schedules presented graphically in Figure 5.9-D for Arizona and 5.9-E California, and numerically in Tables 5.9-E and 5.9-F.

Arizona

Current Water Development Trends (Scenario A)

If current trends in on-Reservation water development, governance, funding, and resolution of tribal claims remain the same, by 2060 the total water Arizona diversions on the Fort Yuma Reservation will increase to full development of the Tribe 6,350 acre-foot right. The AG water diversions would increase from 227 AFY to nearly 2,200 AFY by 2025 and remain relatively constant through 2060. DCMI water diversions would remain small and relatively consistent through 2060. ENV water diversions, including those currently used at the Yuma East Wetlands, would more than triple by 2060.

Slow Water Development Trends (Scenario B)

Future water development under Scenario B is the same as Current Trends (Scenario A).

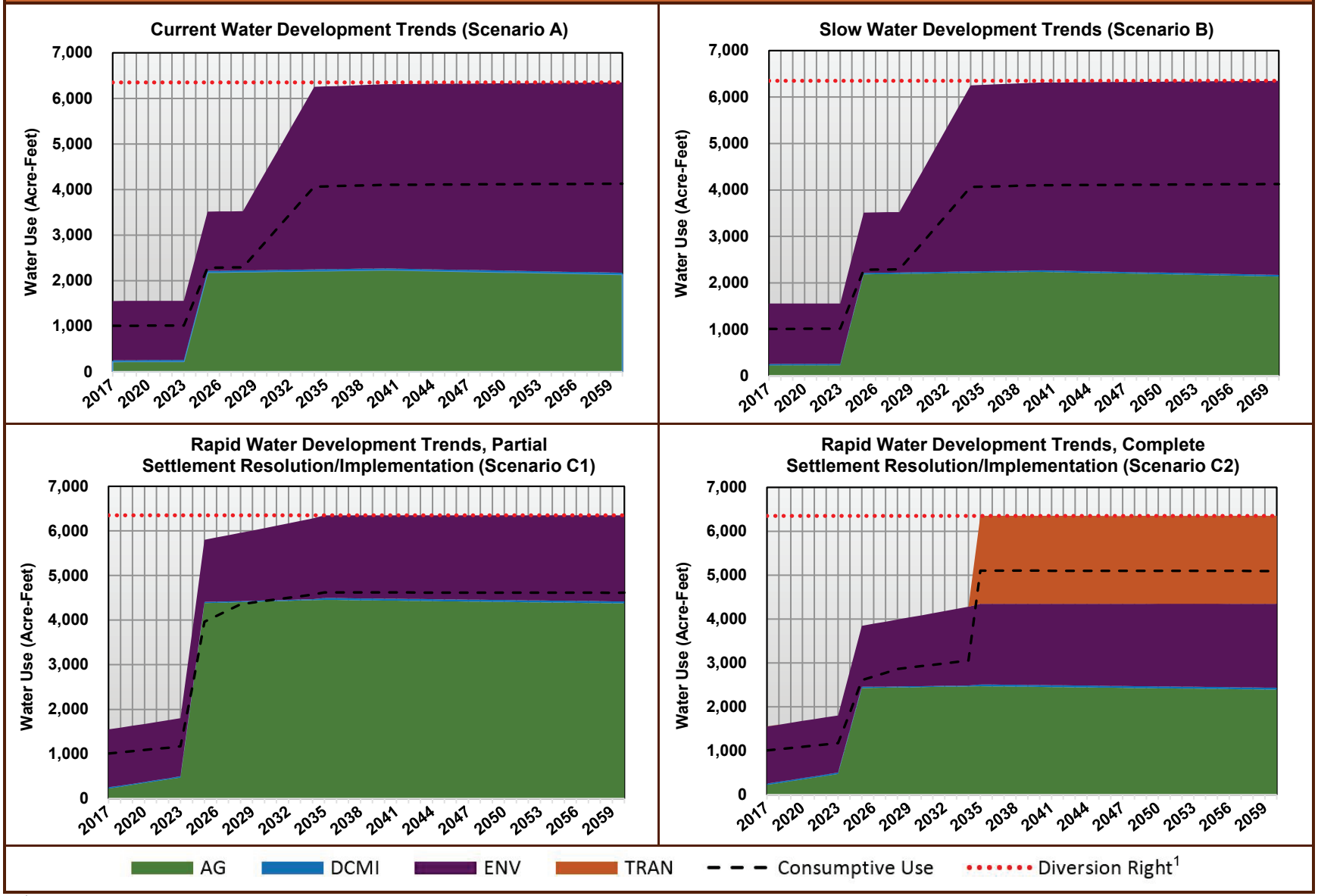
Rapid Water Development Trends, Partial Settlement Resolution/Implementation (Scenario C1)

Under Scenario C1, increased funding availability leads to tribal economic development. The Tribe assumed that additional agricultural lands would be developed by 2024, increasing AG water diversions from 473 AFY to nearly 4,400 AFY by 2025. In addition, irrigation efficiencies increase approximately 12 percent. DCMI water diversions would remain small and increase slightly through 2060; efficiencies increase about 20 percent. ENV water diversions, including those currently used at the Yuma East Wetlands, would increase about 45 percent by 2060.

Rapid Water Development Trends, Complete Settlement Resolution/Implementation (Scenario C2)

Scenario C2 builds on Scenario C1 by considering increased flexibility in the off-reservation use of the Tribe's decreed rights, which further increases water development opportunities. Under this scenario, Quechan assumed that AG water diversions increase five times by 2025 to approximately 2,400 AFY and remain relative constant through 2060. DCMI diversions increase by approximately 40 percent by 2060 and become more efficient. ENV use would increase about 45 percent by 2016. The largest water use change in this scenario is that the Tribe anticipated that the regulatory framework would change allowing it to divert 2,000 AFY for transfers.

FIGURE 5.9-D
Quechan Indian Tribe Projected Future Water Development in Arizona (Scenarios A, B, C1, and C2)



[1] Quechan Indian Tribe's decreed diversion right in Arizona is 6,350 AFY.

California

The Fort Yuma Reservation is near full utilization of its California Colorado River water right, for agricultural, DCMI and Metropolitan forbearance uses. Given the continuing drought and even modest population growth, full utilization is likely in the near future.

Current Water Development Trends (Scenario A)

If current trends continue in the Tribe's California water diversions, AG water diversions would remain relatively constant, DCMI water use would increase 30 percent, and ENV water diversions would remain constant. Water transfers would increase by 55 percent in 2035.

Slow Water Development Trends (Scenario B)

Future water development under Scenario B is the same as Current Trends (Scenario A).

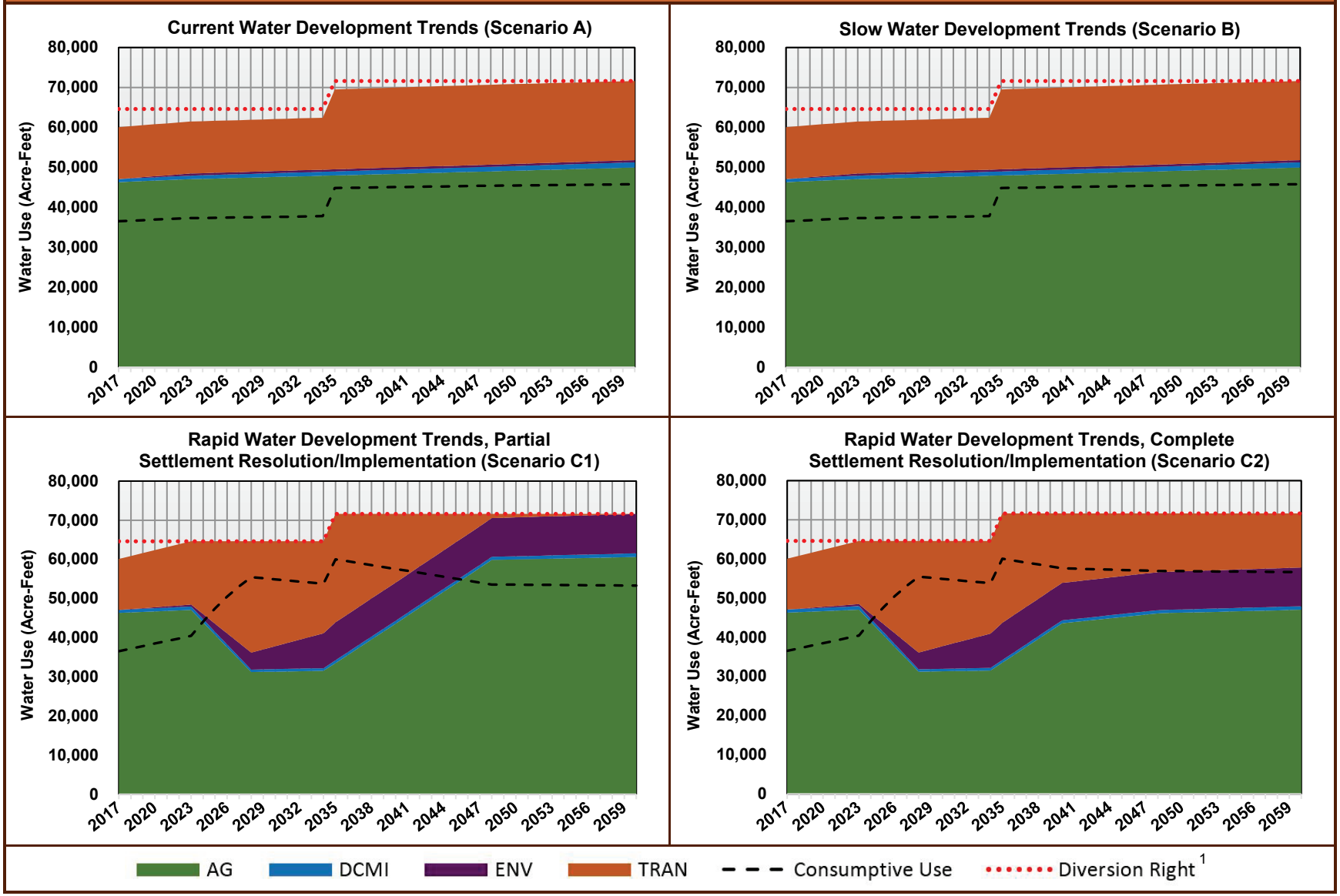
Rapid Water Development Trends, Partial Settlement Resolution/Implementation (Scenario C1)

Under Scenario C1, increased funding availability leads to tribal economic development. The Tribe assumed that additional agricultural lands would be developed between 2035 and 2048, increasing AG water diversions from 47,055 AFY to nearly 60,000 AFY by 2048. Irrigation efficiencies would increase approximately 25 percent. DCMI water diversions would remain small and relatively consistent through 2060; however, efficiencies would also increase about 25 percent. ENV water diversions would increase to nearly 10,000 AFY by 2035. Water transfers would reach a maximum of approximately 27,000 AFY by 2035 and decrease to 0 AFY by 2060.

Rapid Water Development Trends, Complete Settlement Resolution/Implementation (Scenario C2)

Scenario C2 builds on Scenario C1 by considering increased flexibility in the off-reservation use of the Tribe's decreed rights, which further increases water development opportunities. The Tribe assumed that AG water diversions would fluctuate between 47,055 and 31,515 AFY between 2023 and 2060, depending on use by other sectors; irrigation efficiencies would increase approximately 25 percent. DCMI water diversions would remain small and relatively consistent through 2060; however, efficiencies would also increase about 25 percent. ENV water diversions would increase to nearly 10,000 AFY by 2060. Water transfers would reach a maximum of approximately 27,000 AFY by 2040 and decrease to approximately 14,000 AFY by 2060.

FIGURE 5.9-E
Quechan Indian Tribe Projected Future Water Development in California (Scenarios A, B, C1, and C2)



[1] Quechan Indian Tribe's decreed diversion right in California is 64,616 AFY (2006-2034); 71,616 AFY (2035-2060).

5.9.7.2 Summary of Projected Future Water Development

The Tribe's current water use and projected future water development under the Tribal Water Study's water development scenarios, as modeled for analysis purposes, is presented in Table 5.9-E and 5.9-F.

TABLE 5.9-E
Summary of Quechan Indian Tribe Current Water Use and Projected Future Water Development in Arizona[1]

Water Use Timeframe and Category		Scenario A (AFY)		Scenario B (AFY)		Scenario C1 (AFY)		Scenario C2 (AFY)	
		Diversion	Consumptive Use	Diversion	Consumptive Use	Diversion	Consumptive Use	Diversion	Consumptive Use
Current Use	*AG*	224	145	224	145	224	145	224	145
	DCMI	30	20	30	20	30	20	30	20
	ENV	1,300	845	1,300	845	1,300	845	1,300	845
	TRAN	0	0	0	0	0	0	0	0
	Total	**1,554**	**1,010**	**1,554**	**1,010**	**1,554**	**1,010**	**1,554**	**1,010**
Use at 2040	*AG*	2,236	1,453	2,236	1,453	4,439	3,374	2,455	1,866
	DCMI	33	21	33	21	43	32	43	32
	ENV	4,043	2,628	4,043	2,628	1,868	1,214	1,852	1,204
	TRAN	0	0	0	0			2,000	2,000
	Total	**6,312**	**4,102**	**6,312**	**4,102**	**6,350**	**4,620**	**6,350**	**5,102**
Use at 2060	*AG*	2,137	1,389	2,137	1,389	4,376	3,326	2,393	1,819
	DCMI	36	23	36	23	44	33	44	33
	ENV	4,177	2,715	4,177	2,715	1,930	1,255	1,913	1,243
	TRAN	0	0	0	0			2,000	2,000
	Total	**6,350**	**4,127**	**6,350**	**4,127**	**6,350**	**4,614**	**6,350**	**5,095**

[1] Quechan Indian Tribe's decreed diversion right in Arizona is 6,350 AFY.

TABLE 5.9-F
Summary of Quechan Indian Tribe Current Water Use and Projected Future Water Development in California[1]

Water Use Timeframe and Category		Scenario A (AFY)		Scenario B (AFY)		Scenario C1 (AFY)		Scenario C2 (AFY)	
		Diversion	Consumptive Use	Diversion	Consumptive Use	Diversion	Consumptive Use	Diversion	Consumptive Use
Current Use	*AG*	46,297	23,149	46,297	23,149	46,297	23,149	46,297	23,149
	DCMI	795	395	795	395	795	395	795	395
	ENV	0	0	0	0	0	0	0	0
	TRAN	13,000	13,000	13,000	13,000	13,000	13,000	13,000	13,000
	Total	**60,092**	**36,544**	**60,092**	**36,544**	**60,092**	**36,544**	**60,092**	**36,544**
Use at 2040	*AG*	48,372	24,186	48,372	24,186	43,583	33,123	43,583	33,123
	DCMI	1,066	533	1,066	533	746	560	746	560
	ENV	535	348	535	348	9,756	6,341	9,577	6,225
	TRAN	20,000	20,000	20,000	20,000	17,531	17,531	17,710	17,710
	Total	**69,973**	**45,067**	**69,973**	**45,067**	**71,616**	**57,555**	**71,616**	**57,618**
Use at 2060	*AG*	49,968	24,984	49,968	24,984	60,635	46,083	47,035	35,747
	DCMI	1,297	649	1,297	649	903	677	903	677
	ENV	552	359	552	359	10,078	6,551	9,894	6,431
	TRAN	19,799	19,799	19,799	19,799	0	0	13,784	13,784
	Total	**71,616**	**45,791**	**71,616**	**45,791**	**71,616**	**53,311**	**71,616**	**56,639**

[1] Quechan Indian Tribe's decreed diversion right in California is 64,616 AFY (2006-2034); 71,616 AFY (2035-2060).