

BIOLOGICAL EVALUATION

June 2022

NPDES Permit Renewal for the City of Phoenix 91st Avenue Wastewater Treatment Plant
NPDES Permit No. AZ0020524

Project Description

The U.S. Environmental Protection Agency (EPA) has drafted this Biological Evaluation pursuant to its obligations under Section 7 of the Endangered Species Act (ESA), prior to reissuing a National Pollutant Discharge Elimination System (NPDES) permit authorizing discharges from the City of Phoenix 91st Avenue Wastewater Treatment Plant (hereinafter, 91st Ave. WWTP). The project area includes the publicly owned wastewater treatment plant, adjoining Tres Rios treatment wetland, and the two permitted Outfalls. The City of Phoenix (COP) is authorized to discharge pollutants from the 91st Ave. WWTP under the previous permit (referenced to hereafter as “previous permit”). Renewal of the NPDES permit allows COP to continue to discharge treated wastewater from the 91st Ave. WWTP, subject to the terms and conditions of the permit, for a five-year period. The background and rationale for the terms and conditions of the NPDES permit are described in the fact sheet developed in support of the permit.

As described in the fact sheet, the permit contains effluent limitations for all chemical-specific parameters for which EPA determined there is reasonable potential that the discharge could cause or contribute to in-stream excursions above the allowable ambient concentrations. The permit contains similar discharge conditions as the previous permit. This permit relies on the applicable Arizona water quality standards for the Salt River at the point of discharge the 91st Ave. WWTP to calculate permit limitations.

The permit is equally protective of the receiving waters and their uses as the previous permit, authorizing no backsliding or degradation from the terms and conditions of the previous permit. While effluent limits for Endrin and Endosulfan were removed, this was because the discharge no longer demonstrates reasonable potential to cause or contribute to an exceedance of any applicable water quality standards for these parameters.

Action Area

The “Action Area” is defined by the “effects of the Action.” The Action Area includes all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. To identify the areas that will be affected by the Action, EPA has considered all consequences to listed species or critical habitat that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur.

The Action Area is comprised of the wastewater treatment facilities, the area surrounding those facilities, and the waters receiving discharges from the facilities. Specifically, the Action Area includes the vicinity of the 91st Ave. WWTP; the associated Tres Rios Flow Regulating

Wetland (TRFRW); the Salt River from the City of Phoenix 23rd Ave. Wastewater Treatment Plant past the 91st Ave. WWTP discharge location, and downstream to the confluence with the Gila River; and the Gila River from the confluence with the Salt River to the Agua Fria River; an area that extends about ten miles on either side either east and west of the 91st Ave. WWTP, and forms a long rectangular area of about 100 square miles. See Appendix A.

There is consistent flow that averages about 70 MGD (varying from as low as about 30 MGD to about 140 MGD) from Outfall 005 into the Salt River. However, the effluent does not flow from the Wastewater Treatment Plant directly into the receiving water, i.e. the Salt River. The effluent leaves the WWTP and flows through the TRFRW (a treatment wetland constructed in uplands) where it is polished significantly via natural processes including dissipation of total residual chlorine, and reduction of ammonia, before entering the Salt River at Outfall 005. See Appendix B. for a diagram of this system.

Discharge is permitted in an emergency or during planned occurrences from Outfall 001 which flows directly into the Salt River a short distance upstream of Outfall 005. See Appendix B. for the relative locations of Outfall 001 and 005. There was no discharge from Outfall 001 during the previous permit cycle. If there is discharge from Outfall 001, the effluent must meet all permit limitations ammonia and total residual chlorine at end of pipe.

The Salt River flows to the Gila River about two miles west of Outfall 005. The Agua Fria joins the Gila River another three miles downstream, at which point the discharge from the 91st Ave WWTP is likely to be diluted to such an extent that it will have little or no effect on the water quality. Downstream of the confluence of the Agua Fria and Gila River consequences of the discharge authorized by this action are not reasonably certain to occur.

Environmental Baseline

The Lower Salt River at the 91st Avenue WWTP discharge location is an effluent dependent water. The Tres Rios Wetland and adjoining Overbank Wetlands provide a large surface area of water, wetland, and riparian habitat for many species of plants, birds and animals including some federally listed threatened and endangered species.

Prior to the construction and operation of the TRFRW, the flow in the river from the 91st Avenue WWTP was based on a diurnal pattern of effluent generation and was not conducive to substantive fish and wildlife habitat. The flow regulating nature of the Tres Rios Wetland has thus made the flow consistent and thus conducive to fish and wildlife habitat while increasing the viability of downstream in-stream and riparian habitat.

Prior to the construction and operation of the TRFRW, the 91st Ave. WWTP discharged secondary treated effluent directly into the Salt River. The Tres Rios Wetland “polishes” the effluent and naturally balances inorganic and organic compounds, as well as biological content, prior to discharge into the Salt River making the water more suitable for fish and wildlife habitat. Thus, the TRFRW is a net environmental improvement which provides supplemental wetland habitat for a wide variety of species including federally listed threatened and endangered species.

Historically the impact of the original construction of the TRFRW which lies wholly within the Project Action area for this permitting action was considered collectively by the United States Army Corps of Engineers (USACE) and reported in the USACE's Biological Assessment for the construction of the Tres Rios Wetlands. The USFWS' concurrence letter at that time stated that it was their conclusion that "...the Tres Rios Restoration Project including initial construction and O&M, may affect but is not likely to adversely affect" the species considered.¹

Subsequently in 2014, the City of Phoenix (COP) and the USFWS entered into a Safe Harbor Agreement (SHA) for City-owned lands along the Salt and Gila Rivers, and the Tres Rios area of southwest Phoenix. The purpose of the SHA is to provide and maintain environmental restoration along the Salt and Gila Rivers within the City's Tres Rios Project Area for the benefit of the covered species, along with other biological resources.

Under the SHA, COP agrees to enhance and/or maintain approximately 924 acres of COP owned land which include Desert and Riparian biotic communities within and adjacent to the Salt River (from 91st Avenue to the Gila River) and the Gila River channel. Enhancements included the construction of the TRFRW Overbank Wetlands (OBWs), and the planting and maintenance of native vegetation.

Pursuant to the SHA the COP is required to submit an Annual Report². The latest Report submitted by COP covering the period of January 1, 2021, to December 31, 2021, indicated that COP did not directly observe any Southwestern willow flycatchers, Yuma Ridgeway's rails, and Yellow-billed cuckoos, however, the Arizona Game and Fish Department survey detected two Yuma Ridgeway's rail in the overbank, which is recorded in Table 3 of The Annual Report. The Annual Report also indicated there was no authorized or unauthorized take of these species³. The California least tern is not covered under the SHA.

The Annual Report summarized the results of multiple surveys done for the covered species pursuant to the SHA from January 1, 2021 to December 31, 2021. These results were used to evaluate any impact to the threatened and endangered species found in the Action Area.

Potentially Affected Species

From the USFWS Information, Planning and Conservation System (IPAC) database, EPA found there are currently three federally listed endangered species which occur within the vicinity of the discharge and Action Area. California Least Tern, Southwestern Willow Flycatcher, and Yuma Ridgeway's Rail; one federally listed threatened species: Yellow-billed Cuckoo; and one candidate species: Monarch Butterfly. Additionally, there is an experimental, non-essential population of Sonoran Pronghorn also potentially found in the Action Area. There is no critical habitat for any of these species located in the Action Area.

¹ Letter from USFWS field office

² City of Phoenix. *Tres Rios Project Area Maricopa County, Arizona Safe Harbor Agreement (TE-75475A-1) 2021 Annual Report*. February 16, 2022.

³ *Ibid* at pg. 1

California Least Tern (*Sterna antillarum brownii*)

The Californian least tern is a subspecies of least tern that breeds primarily in the bays of the Pacific Ocean. It is generally found along the coast of California from North of San Francisco, to Southern California and Northern Mexico, including Baja California. It may also be found close to extensive shallow waters inland along rivers with broad exposed sandbars and lakes with salt flats nearby. In the winter it migrates to the tropical coasts of central and south America. No known breeding population is found in Arizona and any presence in the Action Area is likely incidental to migration.⁴ Any feeding activity or other interaction within the Action area is likely to be of a very transitory nature. Therefore, EPA has determined that its action may affect, but is not likely to adversely affect, the California Least Tern.

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

The southwestern willow flycatcher is another migratory bird that breeds in riparian habitats along Arizona rivers during the summer breeding months of late April to end of September. According to the Annual Report prepared pursuant to the SHA which summarized the results of multiple surveys done for the covered species no southwestern willow flycatchers were observed in the area.

The permit requires the discharge to meet water quality standards developed to protect aquatic life and to prevent effluent toxicity, meaning any potential southwestern willow flycatchers, as well as their food sources in the riparian habitats in the Action Area, would be protected during the periods when they are present. The permit is also anticipated to have beneficial effects on the flycatcher due to the relatively consistent flows which support riparian habitat within the Action Area during the summer months. Therefore, EPA has determined that its action may affect, but is not likely to adversely affect, the southwestern willow flycatcher.

Yuma Ridgway's Rail (*Rallus obsoletus yumanensis*)

The Yuma Ridgway's rail is associated with dense emergent riparian vegetation. It requires wet substrate (mudflats, sandbars) with dense herbaceous or woody vegetation for nesting and foraging. Fresh-water marshes dominated by cattail or bulrush are preferred habitat. The Action Area does indeed have habitat that may be suitable for Yuma Ridgway's rail and two Yuma Ridgway's rails (unknown if a pair) were detected during an Arizona Game and Fish Department survey on the OBW.

Important threats to the Yuma Ridgway's rail are loss of marshy habitat through dredging/filling activities, decline in quality of marsh habitat from build-up of residual vegetation that clog movement of water through the vegetation, and selenium contamination of the prey base. The permit requires the discharge to meet water quality standards developed to protect aquatic life and to prevent aquatic toxicity. Specifically, selenium effluent limitations in

⁴ Audobon Society. *Audubon Guide to North American Birds. Least Tern.* <https://www.audubon.org/field-guide/bird/least-tern>

the previous permit have been retained to ensure that the discharge meets the most stringent applicable water quality standards for the receiving and downstream waters. Therefore, EPA has determined that its action may affect, but is not likely to adversely affect, the Yuma Ridgway's rail.

Yellow-billed Cuckoo (*Coccyzus americanus*)

Yellow-billed cuckoos use wooded habitat with dense cover and water nearby, including dense thickets along streams and marshes. In the western United States, nests are often placed in willows along streams and rivers, with nearby cottonwoods serving as foraging sites. The western subspecies (*C.a. occidentalis*) has disappeared over much of the western United States and now occurs as a rare breeder in California, Arizona, New Mexico, and west Texas.

There have been unconfirmed sightings of the Yellow-billed cuckoo in the Action Area. However, the permit requires the discharge to meet water quality standards developed to protect aquatic life, including aquatic insects or other reptiles that may be consumed by the Yellow-billed cuckoo, and to prevent effluent toxicity. Therefore, the Yellow-billed cuckoos would be protected during the periods when they may be present in the Action Area. Discharge of treated effluent is likely to have beneficial effects on the cuckoo due to the presence of perennial water in channels and streams below riparian areas in the Action Area where the Yellow-billed cuckoo may on occasion forage. Thus, EPA has determined that the action may affect, but is not likely to adversely affect, the yellow-billed cuckoo.

Monarch Butterfly (*Danaus plexippus*)

Monarch butterflies in eastern and western North America represent the ancestral origin for the species worldwide. They exhibit long-distance migration and overwinter as adults in forested areas in Mexico and California. Adult monarch butterflies feed on nectar from a wide variety of flowers. Reproduction is dependent on the presence of milkweed, the sole food source for larvae.

The primary drivers affecting the health of the two North American migratory populations are primarily: loss and degradation of habitat from conversion of grasslands to agriculture, widespread use of herbicides, logging of overwintering sites in Mexico, senescence and incompatible management of overwintering sites in California, urban development, and drought, continued exposure to insecticides and effects of climate change.

Candidate species do not have statutory protection under the ESA, although USFWS encourages cooperative conservation efforts for these species. The permit is not expected to impact any of the primary drivers affecting the health of species, though the continued existence of the permitted wastewater treatment plant could indirectly affect human development.

Sonoran Pronghorn (*Antilocapra americana sonoriensis*)

In May 2011 the USFWS established a nonessential experimental population (NEP) of the Sonoran Pronghorn in its historical habitat in King Valley, Kofa National Wildlife Refuge, in

Yuma County, and the Barry M. Goldwater Range—East, Maricopa County, in southwestern Arizona.⁵ For the purposes of section 7 of the ESA an NEP is treated as a threatened species when the NEP is located within a National Wildlife Refuge or unit of the National Park Service, and section 7(a)(1) and the consultation requirements of section 7(a)(2) of the Act apply. Section 7(a)(1) requires all Federal agencies to use their authorities to carry out programs for the conservation of listed species. Section 7(a)(2) requires that Federal agencies, in consultation with the Service, ensure that any action authorized, funded, or carried out is not likely to jeopardize the continued existence of a listed species. When NEPs are located outside a National Wildlife Refuge or National Park Service unit, then for the purposes of ESA Federal agencies are not required to consult with us under section 7(a)(2)

These NEP areas of the Sonoran Pronghorn are not within the Action Area of this permitting action. Because the Action Area does not include a National Wildlife Refuge or unit of the National Park Service, EPA is not required to consult under Section 7(a)(2).

Conclusions

The renewal of the NPDES permit for the City of Phoenix's 91st Avenue WWTP will result in the discharge of secondary treated effluent that is vital to the existence of a key wetland habitat (the Tres Rios Flow Regulating Wetland and the Overbank Wetland Area) for a multitude of species, including over a hundred different bird species, and dozens of species of mammals, reptiles, insects, as well as plant species both listed and not.⁶ EPA therefore concludes that the reissuance of the NPDES permit for the City of Phoenix 91st Avenue Wastewater Treatment Plant may affect, but is not likely to adversely affect any listed species including the California least tern, the Southwestern willow flycatcher, Yuma Ridgway's rail, and Yellow-billed cuckoo.

Preparer

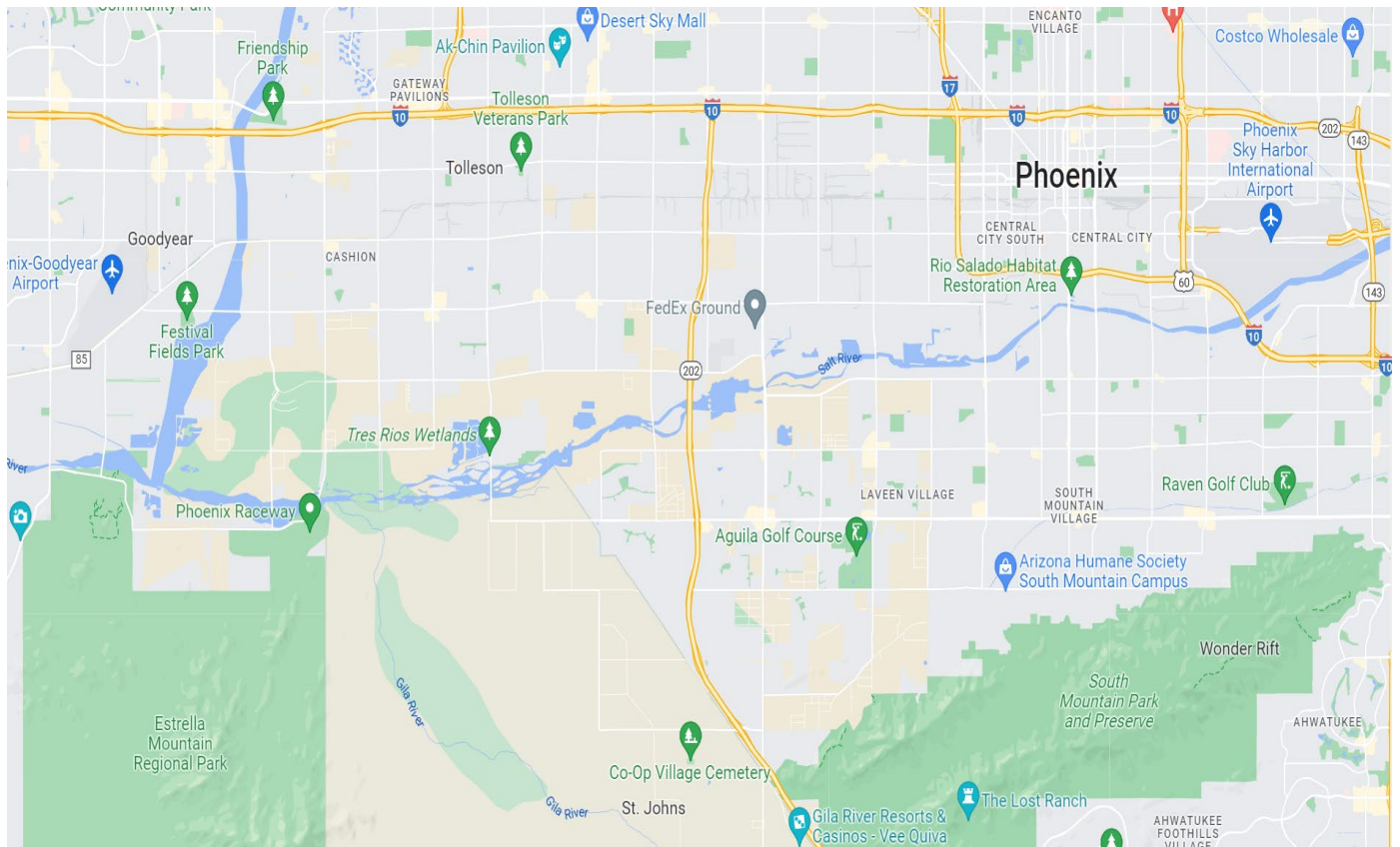
Gary Sheth (EPA Region 9)

⁵ Federal Register Vol. 76, No. 87 May 5, 2011., pg. 25593

⁶ See City of Phoenix Tres Rios Website at <https://www.phoenix.gov/waterservices/tresrios>

APPENDIX A.

Approximate Action Area from Central Phoenix to Confluence of Salt and Agua Fria Rivers.



APPENDIX B: Location Map of External Outfalls and Internal Monitoring Locations

Outfalls and Monitoring Stations for the 91st Ave WWTP NPDES Permit



001- Outfall a monitoring station to the Salt River from the 91st Ave Plant, used only for maintenance activities and emergency discharge only

005- Outfall (effluent) to the Salt River from the Tres Rios Flow Regulating Wetlands (FRW)

FRW 1- Monitoring station at the influent to the Tres Rios FRW

FRW 2- Monitoring station after the deep water but before the flow regulating portions of the wetland

FRW 3- Monitoring station within flow regulating portion of the wetland