

# RECLAMATION

*Managing Water in the West*

## 2016 Annual Compliance Report for the Bureau of Reclamation's Central Valley Project Long-term Water Transfers (2015- 2024)



U.S. Department of the Interior  
Bureau of Reclamation  
Mid Pacific Region  
Sacramento, California

January 2017

## **Mission Statements**

The Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

## **Introduction**

On June 4, 2015, the U.S. Fish and Wildlife Service (Service) issued the biological opinion, *Reinitiation of Programmatic Formal Consultation for Bureau of Reclamation's Proposed Central Valley Project Long Term Water Transfers (2015-2024) with Potential Effects on the Giant Garter Snake within Sacramento Valley, California (2015 BO)* (Service reference #08ESMF00-2015-F-0116), to the Bureau of Reclamation (Reclamation). The 2015 BO was the culmination of formal consultation with Reclamation under section 7 of the Endangered Species Act of 1973 (as amended) regarding Central Valley Project Long Term Water Transfers (2014-2024). This report is submitted to meet the annual reporting requirements contained in Term and Condition 4 as proposed by Reclamation and documented in the 2015 BO. Term and Condition 4 is:

“At the end of each water transfer year, Reclamation will submit to the Service a monitoring report that contains the following: (i) maps and GIS shape files of all cropland idling or cropland shifting actions that occurred within the range of potential transfer activities affected under this program; (ii) results of current scientific research and monitoring pertinent to water transfer actions; (iii) a discussion of conservation measure effectiveness; (iv) maps and GIS shape files indicating where rice was grown; (v) results of annual snake monitoring; (vi) snake detections; (vii) a cumulative history of the location and extent of crop idling/crop shifting; and (viii) report on water districts/sellers participation in voluntary best management practices. GIS shape files of the parcels that were fallowed will be in projected coordinate system NAD 1983 Zone 10 N. The report will be submitted to the Service no later than January 31 following each transfer year. Reclamation and the Service will establish annual meetings no later than February 28 of each year to discuss the contents and findings of the annual report and develop additional conservation measures if necessary.”

The following sections provide information on each element required by Term and Condition 4.

## **I. Acreage and Location of Parcels Idled Under the 2016 Transfers**

As documented in a July 11, 2016 memorandum from Reclamation to the Service, there were no transfers executed during 2016.

## **II. Monitoring and New Research**

### **Monitoring**

The USGS conducted research during 2016 in compliance with the 2015 BO. As a result, USGS provided Reclamation with preliminary data regarding the “Effects of Rice Idling on Occupancy Dynamics of Giant Gartersnakes (*Thamnophis gigas*) in the Sacramento Valley of California” (study) on December 31, 2016. The intent of the study is to examine the potential effects of water transfers on the snake and to analyze the effectiveness of project conservation measures. Being a multi-year study, most of the study objectives won't be analyzed until several years of data are obtained. Data collected during

the first year will analyze the distribution, occurrence, and detection probability of giant garter snakes (snake) in relation to several factors. While a final report on the 2016 monitoring efforts is not currently available for distribution, some of the information presented is summarized below:

- 83 sites within the action area were sampled from May through September 2016,
- 91 snakes were captured at 51 sites,
- There was evidence indicating a positive correlation between fish and frog presence at a site and snake occupancy.

Results from the first year of the study are promising. However, conclusions regarding occupancy dynamics will require several more years of data. Reclamation will forward the final report of 2016 monitoring efforts to the Service when it becomes available. In review of the preliminary data, there is no indication that water transfers are having unanticipated effects on snakes, or that conservation measures associated with the 2015 BO are ineffective.

### **New Research**

1) Reclamation received and reviewed a draft data summary of field observations regarding the “*Effects of the Relative Availability of Aquatic Habitat (water) on Giant Gartersnake (Thamnophis gigas) Demography in the Sacramento Valley, California*” from USGS. In review of the unpublished data, Reclamation did not identify any new information that would add to or change the status of the species there is no indication that water transfers are having unanticipated effects on snakes, or that conservation measures associated with the 2015 BO are ineffective..

2) Reclamation has located only one new literature source related to GGS:  
*Halstead BJ, Valcarcel P, Wylie GD, Coates PS, Casazza ML, Rosenberg DK. 2016. Active season microhabitat and vegetation selection by giant gartersnakes associated with a restored marsh in California. Journal of Fish and Wildlife Management 7(2):397–407; e1944-687X. doi: 10.3996/042016-JFWM-029*

While the habitat focus of the research was restored marsh lands, research efforts did occur near rice production and a notable result of the study was that there was a general negative response of adult female giant garter snakes to rice. In the discussion of results, aside from rice production only providing emergent vegetation habitat for approximately one-third of the snakes active season, it was suspected that the “high proportion of rice cover might result in underestimation of the selection for this habitat type because random locations within a rice field nearly always resulted in >75% rice cover.” The study results on the relative likelihood of use of locations indicates that a “mosaic of cover and water is likely beneficial” to snakes during the active season. Thus, the study findings appear to support the conservation measures detailed in the 2015 BO, specifically the requirements to maintain adequate water in drains and canals, with particular importance placed on those drains that have a mosaic of cover.

### III. Conservation Measures

Reclamation, in compliance with Term and Condition number 2 of the 2015 BO, submitted a “Supplement to the Conservation Measures” on December 30, 2015. The “Supplement to the Conservation Measures” was prepared by the U.S. Geological Survey (USGS) in the form of a *Scope of Work, Effects of Rice Idling on Occupancy Dynamics of Giant Gartersnakes (Thamnophis gigas) in the Sacramento Valley of California* (SOW). Reclamation funded USGS to implement this SOW during 2016. For more information on this effort see “Monitoring” below.

During March and April of 2016, Reclamation, in conjunction with USGS and the Service, held several informational meetings with water districts and farmers in order to provide information and recruit participation of landowners in the rice idling occupancy study. Several additional properties were included in the study area through this outreach effort.

No new data on GGS occurrences during 2016 are currently available; however, research conducted under various programs should be published in the upcoming months. At the time this report is being submitted, the most recent data available would be the current California Natural Diversity Database information on GGS.

### IV. GGS Detections within the Action Area

No reports of inadvertent GGS detections have been reported to Reclamation during 2016.

### V. Cumulative History of Crop Idling under June 4, 2015 BO

Because there were no transfers executed as part of this program since 2015, Table 1 includes some additional information from previous transfers to provide some context for amounts of acreage being idled from year to year. Crop idling for transfers occurred in 2009, 2014, and 2015. During 2014 23,120.3 acres of cropland were idled (USBR 2015). Table 1 also summarizes the amount of water made available for transfer and the amount of rice fallowed between 2009 and present.

**Table 1. Water Transfer Quantities 2009 to 2016 (AF) and Acreage of Rice Fallowed**

Water Year	Crop Idling, Water Made Available (AF)	Groundwater Substitution, Water Made Available (AF)	Acreage of Rice Fallowed
2009	21,045	58,881	5,946
2010	0	0	0
2011	0	0	0
2012	No Reclamation Water Transfers Proposed	No Reclamation Water Transfers Proposed	No Reclamation Water Transfers Proposed
2013	0	31,406	0
2014	40,650	10,289	15,694
2015	134,190	85,853	40,490
2016	0	0	0

## **VI. Voluntary Best Management Practices (BMP) Implementation**

Reclamation continues to work with water districts participating in idling transfers to determine the best path forward for reporting implementation of BMPs. Water districts have reported that they strive to follow the BMPs detailed in the “Draft Operation and Maintenance Guidelines for Sacramento Valley Water Agencies with Verified GGS Populations” (provided to the Service with the 2015 annual report). There are general maintenance practices that water districts conduct that are consistent with BMPs.

## **VII. References**

U.S. Bureau of Reclamation. 2015. Compliance Report; 2015 Water Transfers – Biological Opinion 08ESMF00-2014-F-0359. 15 pages.