

# CACHE SLOUGH COMPLEX HABITAT CONSERVATION PLAN

## Water Diversion Intake Entrainment Studies and Screening Survey

Please complete the survey and return it by Friday, December 6, 2024, via email or mail:

[CacheSloughHCP@solanocounty.com](mailto:CacheSloughHCP@solanocounty.com) or

Delta Water Division  
Department of Resource Management  
County of Solano  
675 Texas Street, Suite 5500  
Fairfield, CA 94533  
(707) 784 6765 (main)

### Background

Solano County (County), California Department of Water Resources (DWR), National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (USFWS), and other interested parties are collaboratively developing the Cache Slough Complex Habitat Conservation Plan (HCP). An HCP is a planning document required as part of an application for an Incidental Take Permit (ITP) under the federal Endangered Species Act (ESA). The HCP addresses anticipated impacts on threatened or endangered fish species resulting from operations and maintenance of water diversion intakes. This HCP will support the authorization of lawful “taking” of threatened or endangered species in the Cache Slough Complex region through two federal ITPs. One ITP will be issued by NMFS, and another one will be issued by USFWS. The ITPs will be issued to the County who would then extend this incidental take coverage to interested landowners through an enrollment process. The proposed permit term for each ITP is 35 years. The County separately plans to seek a California ESA permit from the California Department of Fish and Wildlife (CDFW).

Through recent meetings with NMFS and USFWS, it has become clear that screening intakes is a high conservation priority for the Services to prevent entrainment of covered fish species<sup>1</sup>. Without a commitment to consider intake screens, HCP negotiations would continue to be unproductive. To address this screening issue, the draft HCP is currently proposing to include screening of up to two intakes if a significant benefit to species from screens can be shown through an entrainment study. If screening is eventually pursued, the planning, permitting, construction, and long-term maintenance of intake screens would be led by the County, funded by DWR, and would require agreement by the landowner(s). The following survey is only related to a request for landowner participation to support the entrainment studies that will inform the need for intake screens and willingness to consider thereof.

The entrainment study would be conducted during the first five years after the ITPs have been issued and would include monitoring and assessment of the extent of loss of covered fish species through the operation of the intakes. The entrainment study would last between 3 and 5 years in

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<sup>1</sup> Species proposed for coverage under the HCP include winter-run Chinook salmon, spring-run Chinook salmon, fall-/late fall-run Chinook salmon, steelhead, green sturgeon, white sturgeon, delta smelt, and longfin smelt.

total, although the study is not expected to last more than 2–3 years at any one site. The number of intakes needed for the entrainment study, as well as the duration of study at each location, would be determined during HCP implementation. However, it is expected that a minimum of three to five intakes would need to be studied for 2–3 years to yield results representative of the area's varied geography and hydrology.

In addition to intake monitoring for the entrainment study, the draft HCP also proposes a telemetry study for green sturgeon. The purpose of the green sturgeon telemetry study is to evaluate the distribution and movement of green sturgeon and how habitat in the HCP plan area is being used by green sturgeon and what entrainment risk exists relative to water intake facilities. This effort would include installation and maintenance of acoustic receivers and their associated solar powering stations would be needed in representative locations (e.g., in the lower, middle, and upper portions of individual channels) throughout the Cache Slough Complex HCP plan area. As with the entrainment study, the telemetry study would occur over a period of 2-3 years during the first five years of the permit term (with the potential for work to start pre-permit). Neither study would affect typical intake operations or maintenance activities and would be at no cost to the participants other than to provide access and coordination with investigators.

The entrainment study is expected to include the following field activities.

- Fitting a fine-mesh net over the discharge end of an intake to capture all fish species (see attached photos for examples of typical field apparatus, Figures 1 and 2).
- Daily maintenance of the fish net and analysis of the entrained fish species captured in the net.
- Installing an acoustical flow meter and water temperature monitor on the discharge end of the intake pipe and monitoring the flows and hourly water temperature.
- Conducting daily sampling for turbidity.
- Up to daily access to maintain and monitor the equipment and collect data during the irrigation season.

The telemetry study is expected to include the following field activities.

- Installing and maintaining acoustic receivers and solar power stations to charge the receivers (see photos of typical telemetry study setups in Figures 3 and 4).
- Weekly to monthly accessing of the acoustic receivers to download data they have collected.

### **Landowner Survey for Directed Studies and Intake Screening**

The survey below is intended to assess your willingness to participate in the directed studies and subsequently, if significant benefits were to be determined, to allow a screen to be installed and maintained on your intake without any financial obligations. The intake screening program and the associated directed studies are voluntary. However, landowner participation in these HCP activities are paramount to the successful implementation of the HCP. HCP planners would

appreciate your feedback so that we have an early indication as to the level of landowner interest.  
Thank you in advance for your responses.

**Survey Questions**

Owner name	
Company/property address	
Email	
Telephone	
Intake location(s) (general slough or waterbody name)	



6. Are you willing to consider the installation of an intake screen(s) on your diversion?<sup>3</sup>

- Yes**             **No**             **Maybe**

*(If **no** or **maybe**, please provide more information under item #7 below to explain.)*

7. Additional Comments and Questions:

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<sup>3</sup> The cost of planning, permitting, installing, and maintaining screens will be covered by DWR.



Fig. 1



Fig. 2

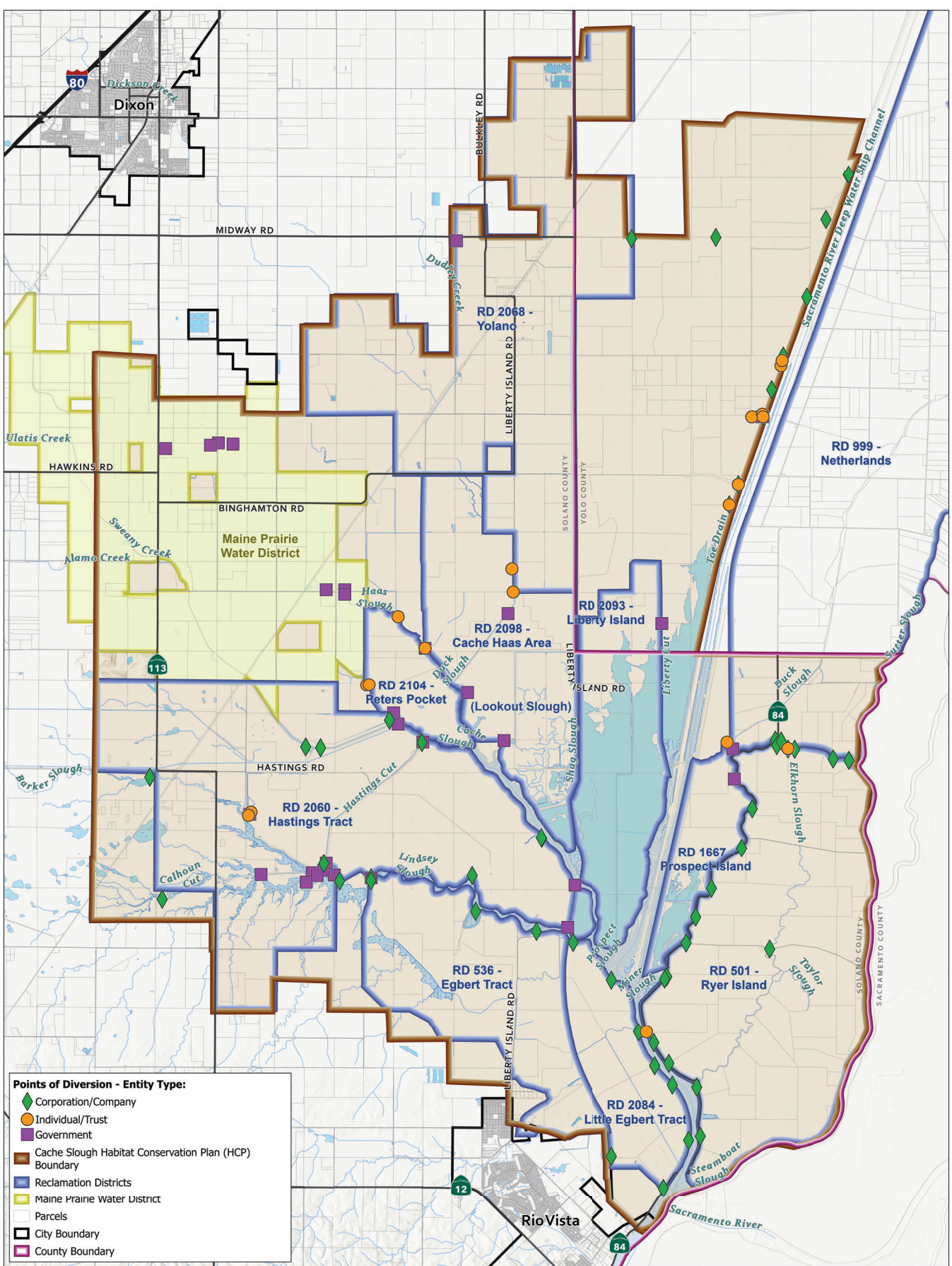
**Figures 1 and 2.** Examples of field equipment such as the fyke net, sampling platform, and associated apparatus used to sample for fish entrainment at intakes. (*Evaluation of Fish Entrainment in 12 Unscreened Sacramento River Diversions, Natural Resource Scientists, Inc., July 2013*)



**Figure 3.** Example of a real-time land based sturgeon telemetry station with communication boxes and solar panel. Acoustic sensors are fixed at the bottom of the water body and connected to the station with a long cable.

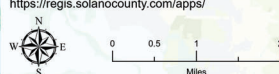


**Figure 4.** Examples of autonomous telemetry receivers with anchors and different types of flotation devices (Left - receiver attached to floating tube. Right – receiver in between float and anchor).



- Points of Diversion - Entity Type:**
- ◆ Corporation/Company
  - Individual/Trust
  - Government
  - ▭ Cache Slough Habitat Conservation Plan (HCP) Boundary
  - ▭ Reclamation Districts
  - ▭ Maine Prairie Water District
  - ▭ Parcels
  - ▭ City Boundary
  - ▭ County Boundary

**Solano Regional GIS Consortium**  
 Solano County GIS Services  
 Department of Information Technology  
 675 Texas Street, Suite 3700, Fairfield, CA 94533  
 Phone: 707-784-7497  
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 Tuesday, October 8, 2024  
<https://regis.solanocounty.com/apps/>



# CACHE SLOUGH COMPLEX

## DRAFT

### HABITAT CONSERVATION PLAN AREA

