

# Topic: Barriers

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**Region:** Delta/Lower Sacramento River

**Type of Idea:** Study

**Timeframe:** Five-year study (2020-2025)

**Species and Lifestage:** Protects juvenile, out-migrating salmonids

## Current Requirement

–NMFS 2009 BO, RPA IV.1.3: Reclamation and/or DWR shall consider engineering solutions to further reduce diversion of emigrating juvenile salmonids to the interior and southern delta, and reduce exposure to CVP and SWP export facilities.

–WIIN Act, 4001 (b)(3): Collaborate with DWR to install a deflection barrier at Georgian Slough and the Delta Cross Channel Gate to protect migrating salmonids, consistent with knowledge gained from activities carried out during 2014 and 2015.

**Idea** – Reclamation will work with DWR to conduct a pilot study similar to those conducted by DWR in 2011, 2012, and 2014. The pilot study will focus on multiple non-physical barrier technologies including; bioacoustic fish fence (BAFF), floating fish guidance structure (FFGS), and infrasound fish fence (IFF). The barriers will be setup in an array of different combinations at Georgiana Slough, Steamboat Slough, Sutter Slough, and potentially the Delta Cross Channel gates throughout the multi-year pilot study. Tagged salmonids will be released upstream and their entrainment/predation into Georgiana Slough, Sutter Slough, and Steamboat Slough will be tracked as the barriers are position “on” or “off.” It is anticipated that barriers at Steamboat Slough and Sutter Slough will be tested in a combination of “on” or “off”, while Georgiana Slough may or may not remain primarily in the “on” position as opposed to a combination of “on” or “off.” Steamboat Slough and Sutter Slough may provide increased survival for outmigrating salmonids when compared to the southern portion of the main-stem of the Sacramento River by Georgiana Slough.

**Past Implementation** – No permanent barrier at Georgiana Slough currently exists. DWR conducted a study utilizing the BAFF in 2011 and 2012, and the FFGS in 2014.

## Current Science –

The study supports RPA IV.1.3 and the WIIN Act, 4001 (b)(13). Previous studies conducted in 2011, 2012, and 2014 (DWR 2011, 2012) (DWR 2014) show supporting evidence that non-physical barriers reduce entrainment of outmigrating, juvenile salmonids into Georgiana Slough. This proposed study will further determine the best combination of non-physical barrier technologies, as well as their preferred locations.

## Modeling Assumptions –

Non-Applicable

**Sources**

California Department of Water Resources 2012. 2011 *Georgiana Slough Non-Physical Barrier Performance Evaluation Project Report*. California Department of Water Resources, Sacramento, CA.

California Department of Water Resources 2014. *Georgiana Slough Floating Fish Guidance Structure Performance Evaluation Project Report*. California Department of Water Resources, Sacramento, CA.

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