

## RUSSIAN RIVER ESTUARY ADAPTIVE MANAGEMENT

SUMMER 2017

### THE RUSSIAN RIVER ESTUARY

An estuary is where a river meets the ocean. The mix of freshwater from the river and saltwater from the sea creates a dynamic environment that supports a broad array of fish, wildlife, and invertebrate and plant species. Salmon and steelhead use estuaries to adapt to saline conditions prior to entering the ocean and to adapt to freshwater before migrating upstream to their spawning grounds.

### THE PROBLEM

During the summer, tidal action forms a sandbar at the mouth of the Russian River near the town of Jenner. The sandbar often becomes high enough to prevent the river from entering the sea. The result is a lagoon that occasionally threatens to flood low-lying properties from Jenner to Duncans Mills.

For many years private citizens would breach the sandbar, enabling the river to flow into the ocean and eliminating the threat of flooding. In the early 1950s, the Sonoma County Public Works Department took over the job, using heavy equipment to breach the sandbar. In the mid-1990s, the task was turned over to the Sonoma County Water Agency (Water Agency) during a county reorganization. Scientists with the National Marine Fisheries Service (NMFS) believe that the large volume of saltwater that enters the estuary when the sandbar is opened creates a less-than-optimal environment for young steelhead to grow before entering the ocean.

### THE SOLUTION

NMFS biologists believe that a summertime freshwater lagoon would create a healthier nursery for young steelhead. In other California rivers, the formation of similar “perched” lagoons has improved conditions for steelhead during the summer months.

For more information visit [www.sonomacountywater.org/estuary](http://www.sonomacountywater.org/estuary)



Since the mid-1990s, the Water Agency has opened the sandbar when flooding threatened low-lying properties. Today, when the sandbar closes between May 15 and October 15, the Water Agency employs a design that reduces flooding risks while allowing the creation of a freshwater lagoon. Harbor seals and other pinnipeds are closely monitored, as is water quality and fisheries.



Salmonid prey availability study



Harbor seals

## THE IMPLEMENTATION

The Russian River Biological Opinion outlines a two-pronged strategy for creating a summertime freshwater lagoon. Part one of the strategy is to reduce the flow of water in the Russian River during the summer (May 15 - October 15). Less water in the river reduces the likelihood of the lagoon flooding nearby properties.

Part two of the strategy requires the Water Agency to adopt adaptive management practices in the estuary that involve the following:

- Instead of employing traditional breaching methods creating an outlet channel when the sandbar closes, the plan allows river water to flow out while preventing ocean water from entering the lagoon (see conceptual illustration).
- Studying the effects of the jetty at Goat Rock State Beach on the estuary and evaluating alternatives that include removing or notching the jetty (study is currently underway).
- If the new method of creating a perched lagoon isn't successful in reducing flood risks, evaluating the possibility of elevating structures in danger of flooding when the sandbar closes.

The plan also requires extensive biological, physical, and water-quality monitoring to help determine whether a closed summertime lagoon is better for salmon. An Environmental Impact Report (EIR) of the project was certified in 2011.

