



Tidewater Gobies at the Giacomini Wetlands

Importance: *The endangered tidewater goby is one of many species that has been affected by habitat loss near Point Reyes National Seashore.*

During the early 1940s, some 550 acres of wetlands at the southern end of Tomales Bay were converted to dairy pasture. Over time, this and other development in the area damaged the habitat and water quality necessary to support the Bay's endangered and threatened species including coho salmon, steelhead trout, California Clapper Rails, and tidewater gobies (*Eucyclogobius newberryi*).

The Project: *National Park Service biologists captured and relocated tidewater gobies to protect them during the Giacomini wetlands restoration project.*



The Giacomini site in a photo taken in August 2008 before restoration (left) and in a photo taken in December 2008 after the restoration was complete (right). Photos courtesy of Robert Campbell.

During the summer of 2008, the National Park Service began the process of repairing some of the damage to Tomales Bay by returning the pastures of the Giacomini ranch to a tidal wetland. Rather than trying to recreate the historic condition of the marsh, the project focused on restoring the natural hydrology and ecology of the site by removing levees, restoring tidal sloughs and historical channels, and filling in drainage ditches. The restored wetland is now being allowed to evolve on its own with minimal management.

Federally endangered tidewater gobies within the project area had to be temporarily relocated before restoration could begin. Park biologists looked for gobies in the creeks, ponds, and drainage ditches on and near the site. Finding these small (2 inch) fish in the steep, murky ditches proved to be difficult. Their efforts were further complicated when one of the levees breached during a storm, temporarily flooding the site.



Tidewater goby (*Eucyclogobius newberryi*)

Because it was possible that gobies could have been moved by the floodwaters and distributed throughout the whole 1.6 mile (2.6 km) ditch system, all the fish in the area needed to be removed. While costly and time consuming, removing all the fish allowed park staff to feel confident that the ditches could be filled using heavy equipment without harming any gobies.

Results: *Biologists found more gobies than they expected, and continue to monitor the success of restoration and relocation efforts.*



Threespine stickleback (*Gasterosteus aculeatus*)

Using a system of pumps and nets, park staff removed a total of 13,745 fish of six different species prior to construction. Over 10,000 of these fish were native threespine stickleback (*Gasterosteus aculeatus*) and 2,350 were non-native mosquitofish (*Gambusia affinis*). Although only 1004 tidewater gobies were found, this was

more than expected given that they are an endangered species and biologists had not documented a significant goby population in the Giacomini ditch system before.

The gobies and the sticklebacks were relocated to nearby sites that had been reserved as refuges. Park biologists hope that gobies will continue to use these relocation areas in addition to recolonizing the restored wetlands. Tidewater gobies are known to be able to recolonize restored habitats, and the site will be resampled in the future to see how they are doing.

In 2009, the National Park Service, California State Parks, and U.S. Fish and Wildlife Service relocated a number of gobies from the recently restored Giacomini Wetlands to Tomales Bay State Park to help further expand the population of tidewater gobies at Point Reyes.

Additional Resources:

To learn more about the tidewater goby see the U.S. Fish and Wildlife Service Species Profile <http://ecos.fws.gov> (enter “tidewater goby” where it says “Search for an endangered species by name”).

For more detail on the Giacomini wetlands restoration project go to http://www.nps.gov/pore/parkmgmt/planning_giacomini_wrp_restoration.htm

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