

Grunion's northern trek: only a handful made it

by **Jacoba Charles**

On summer nights along the California coast when the tide is high, small silvery fish can be seen flinging themselves from the surf to dance on the sand. Grunions are common in Southern California, where they are popular for their antics and for their flavor when fried. The endangered near-shore fish appeared in Tomales Bay two years ago, further north than they have been seen before.

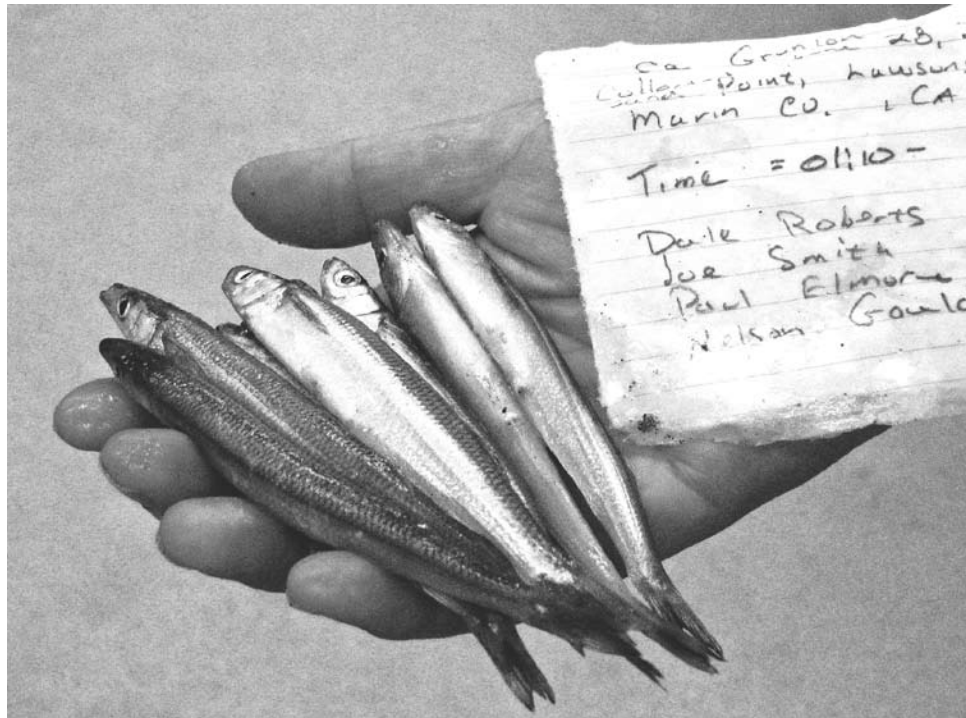
Grunions became established in the San Francisco Bay in 2001, and were discovered on the beach at Lawson's Landing four years later – a northward expansion of 40 miles. Since then, scientists have gone to the popular beach several times a year to see if the population has survived; two weeks ago, marine biologist Dale Roberts worked through the night, documenting their numbers.

“What they are doing out there is laying eggs,” said Willy Vogler, the campground's vice president. “The female digs a hole in the sand with her tail, and then the male just wraps himself around her.” Grunion are the only fish in the world that lay their eggs above the waterline, where they wait to hatch until waves wash them free during the next high tide. At Lawson's Landing, there is a lot of traffic above their nursery. “Trucks and boat trailers park here all day,” Vogler said gesturing at the sand, “and the grunion keep coming back. So they seem to be fine.”

Vogler, who is credited with discovering the fish, first heard about them from people staying at the campground. He thought the sighting was a fisherman's tall tale until he saw one camper's 5-gallon buckets full of a fish he'd never seen in the bay.

The scientists who confirmed the identification, using specimens that had been saved in the campground's freezer, admit the grunion's establishment at Lawson's Landing surprises them.

“I honestly didn't expect to see them this year or even last year,” said Dale Roberts, a biologist with Point Reyes Nation-



A handful of grunion (above) collected from Tomales Bay. Scientists say that their northward expansion is an indicator of changing environmental conditions. Photo by Cassadie Moravek. Grunion lay their eggs at night in the sand at Lawson's Landing (below). Photo by Taylor Templeton.



al Seashore and Cordell Bank National Marine Sanctuary. “I thought 2005 was an unusual situation, but now it seems that they've become established in Tomales Bay.”

Karen Martin, a Professor of Biology at Pepperdine University, said that unusually warm currents flowed north in 2005. These probably carried the fish up the coast from their usual range between Point Conception and Baja. Because ocean temperatures are part of complex systems, it's impossible to determine the cause of any one fluctuation.

“We don't directly say that there's a relationship between this and global warming,” said Robert Lea, an ichthyologist in Monterey who studies grunions, “but something is happening in the environment to cause these increased northern ranges.” The overall ocean temperature has increased during the last two decades, Lea said, adding that other warm water animals, such as jumbo squid, snake eels, and thornback fish, have also been seen further north than usual.

Though it's still too cold for grunion to live in the open ocean this far north, they can survive in the warmer shelter of the bay – but they don't grow as large as their southern relatives, and there are fewer of them. In Southern California, thousands of grunion swim up onto the beaches; whereas here they number in the hundreds, and more recently in the dozens, Martin said.

For many families in San Diego, Los Angeles and Orange County, it's a tradition to go down to the beaches to see the fish dance, and to try to catch them. Grunion are eaten like anchovies, said Martin: skin them, fry them, and eat them whole.

The fish spawn many times each year, starting as early as February and as late as September. In Tomales Bay, they only breed from May until mid-August. The next run will be at the end of the month, when the nighttime tide is highest: around 12 a.m. Grunion have been protected from all forms of fishing during the first half of their breeding season since 1927. But after May, as long as you have a license, it's legal to catch them with your bare hands.