

and hundreds of volunteers. The results effected significant and lasting change in official beach grooming procedures in San Diego and other municipalities throughout California.

Volunteer citizen scientists—the Grunion Greeters—provide vital observations and information. They collect data during spawning runs and submit reports online to be used for research and beach management.

Research studies include population assessment of the grunion throughout their range in California, staging tables for embryonic development, effects of altered salinity, comparisons of microsatellite DNA between populations, hatching mechanisms, and evaluation of grunion spawning runs as potential indicators for the ecological health of sandy beaches.



BECOME A GRUNION GREETER

All greeters must attend a training workshop. Several workshops are scheduled between March and May at various locations in California. Please see www.Grunion.org for a list of workshop dates and locations and instructions for reserving a space. Volunteers must be at least 18 years old.

Greeters sign up to monitor grunion at a beach of their choice for specific dates and times when the grunion are most likely to appear. The data is sent online through an interactive questionnaire, making it available instantaneously for use by scientists, beach managers, government agencies and environmental organizations—all cooperating to ensure protection of incubating eggs on shore and continued conservation of this remarkable fish.

PROJECT PARTNERS

Pepperdine University, Scripps Institution of Oceanography, Birch Aquarium at Scripps, Cabrillo Marine Aquarium, Surfrider Foundation, Santa Barbara Channel Keeper, Santa Barbara Natural History Museum/Ty Warner Sea Center, Heal The Bay/Santa Monica Pier Aquarium, Aquarium of the Pacific in Long Beach, Port of Oakland, Tijuana River National Estuarine Research Reserve, Southwest Wetlands Interpretive Association, Ocean Institute at Dana Point, Audubon Society, City of San Diego, California Department of Fish and Game, US Fish and Wildlife Service, California State Parks, California Coastal Commission, County of Orange, Los Angeles County Beaches and Harbors, California Coastal Coalition, Ventura County Coastal Coalition, Orange County Coastal Coalition, East Bay Regional Parks, District, Point Reyes National Seashore, Golden Gate National Recreation Area, and Lawson's Landing, California Sea Grant College, National Fish and Wildlife Foundation, and the National Oceanic and Atmospheric Administration.



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Grunion Greeters



In partnership with



NMFS-SWR Habitat Conservation Division



Photo by Jennifer Flannery

Citizen Science on the Beach

Join a diverse team of citizen scientists from many different communities and organizations along the coast of California.

Fun, brief workshops prepare you to monitor beach-spawning populations of the California grunion *Leuresthes tenuis*. Your observations, sightings, and comments become part of a database using interactive web-based questionnaires and e-mail.

This multi-year state-wide assessment program has increased public awareness and improved management efforts to protect and conserve wildlife and beach habitats.

WHAT IS A GRUNION?



Photo by Alan Pitcarin

California Grunion (*Leuresthes tenuis*) are silverside fish about 6 inches (15 cm) long. Their closest relatives are the jacksmelt and topsmelt. These charismatic fish are known for their spectacular and unique spawning habits. After surfing the waves onto shore, thousands of grunion may be seen completely out of water during a run.

SANDY BEACHES ARE CRITICAL GRUNION HABITAT

Grunion are found only in California and Baja California. They spawn on the sandy beaches of the outer coast and protected bays. Their eggs remain buried in the sand incubating for about two weeks until they wash out and hatch. Another species, the Gulf Grunion *L. sardina*, lives in the Gulf of California.



Photo by Bill Hootkins

WHEN DO THE GRUNION RUN?

Grunion may run as early as March on into September but peak season is from April through June. Runs peak later in northern areas. During these months spawning occurs on a few nights after the highest tides associated with a full and new moon.

HOW ARE GRUNION PROTECTED?

Closed Season: During April and May no take of grunion is allowed. This is the best time for observations.

Gear Restrictions: When take is permitted, anglers over the age of 16 must have a valid California fishing license and may not use any form of gear, nets or traps. Only bare hands may be used.

Egg

Conservation: Many public beaches use mechanized maintenance or to remove kelp and debris. During grunion season operators follow a specific protocol to avoid disturbing sand where grunion eggs incubate.



Photo by Karen Martin

WHAT IS THE CULTURAL SIGNIFICANCE OF GRUNION?

Staying late on the beach for a grunion run has long been a tradition for Southern Californians. The importance of grunion to the Native American culture reaches far back in history. Hundreds of years ago tribes such as the Kumeyaay relied on grunion as a food source and a reason for gathering together on the shore. Grunion have inspired music, art, film and television.

WHAT IS THE ROLE OF GRUNION IN THE NATURAL ECOSYSTEM?

Grunion eat zooplankton—tiny marine organisms that graze on algae. In turn grunion are consumed by larger fish such as scorbina, halibut, guitarfish and sharks as well as sea lions, dolphin, squid and many seabirds and shorebirds. During runs they are eaten by herons, egrets and other terrestrial predators. Their eggs are food for shore birds, sand worms and beetles. Many coastal-nesting birds prefer slender baby grunion for feeding their chicks.



Photo by John McLain

WHAT CAN I DO?

- 1) During closed season (April and May) avoid disturbing the spawning fish and encourage others to do the same.
- 2) During open season, follow the Fish and Game Regulations and encourage observation or “catch and release”. Never use any gear, and never take more fish than you need.
- 3) Volunteer to become a “Grunion Greeter” on your local sandy beach to contribute to our understanding of this unique natural resource.

GRUNION GREETERS

After concern that beach grooming practices were harming grunion eggs incubating beneath the surface of the sand during spawning season, the first systematic study of the impact of humans on the sandy beach habitat of this unique fish was conducted in 2002 throughout California.

The study originated in San Diego and involved a massive collaboration of concerned residents, numerous scientists, agencies and organizations,