

Jellyfish of the Sierra Foothills

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Jellyfish are ocean creatures. Everyone knows that. Jellyfish are those strange-looking, colorless blobs which float passively about the seas, tossed and thrown at the will of the waves. They range from miniscule dabs to sizeable multi-tentacled "things" capable of inflicting painful stings. They are found only in the ocean. Right?

Wrong. Swimmers at a small private lake in El Dorado County in the Sierra foothills, over one hundred miles from the ocean, discovered this last summer, much to their annoyance. The numerous tiny creatures found floating on the lake were identified by the author and Dr. Charles Moser, professor of zoology at California State University, Sacramento, as a species of rare freshwater jellyfish, scientific name *Craspedacusta sowerbii*.



Stages in the life history of *craspedacusta Sowerbii*: (A) typical colony of polyps; (B) a polyp with a maturing medusa bud; (C) the released medusa, or freshwater jellyfish. Author Mary Bacon

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Where is it found? *Craspedacusta sowerbii*, the only known American species of freshwater jellyfish, appears to have been introduced into North America from South America or the West Indies. Its distribution in North America is not fully known. First found in the United States in 1908, it has been noted in at least 50 localities, mostly in states east of the Mississippi River and in a few scattered locations in the West. Freshwater jellyfish are found in small lakes and ponds and abandoned quarries, especially between July and October.

What does it look like? The diameter of the Jellyfish's bell ranges from 5 to 22 millimeters—that's from one-fifth to seven-eighths of an inch.

Around the circumference are 50 to 500 or so solid tentacles of varying lengths arranged in three to seven series, depending on bell size. The sexual glands are located in four radial canals, and one circumferential canal forms the digestive cavity. The jellyfish captures and eats plankton, eggs, worms and aquatic larvae, stunning its prey with cells called nematocysts located around the mouth, on the tentacles and at the edge of the bell.

Jet propulsion produced by contractions of its bell moves the jellyfish through the water. It senses direction and maintains balance by means of chambers at the base of the tentacles called statoliths. Buoyancy comes from the nonliving, secreted jelly that fills two layers of body tissue. By weight, the jellyfish is more than 94 percent water, about 1 percent muscle and 5 percent cell material, circulatory system, digestive system and nerves.

What is the life cycle? Most populations of jellyfish appear to be either all male or all female. The occurrence of mixed populations has been observed only a few times. When both sexes are present, the males produce sperm and the females produce eggs, and both are shed into the water where fertilization occurs. Small larvae are formed. These larvae swim for a time, then settle on the bottom and grow into polyps, which reproduce by three methods: (1) by budding new polyps that remain attached to the parent, forming a polyp colony; (2) by budding polyps that escape, creep along the bottom as individuals or form into their own colony; and (3) by budding jellyfish.

The appearance of the jellyfish form is sporadic and highly unpredictable. It is possible that polyps (transparent, vase-shaped stalks less than 2 millimeters, or one-fifth of an inch, in length) live undetected for long periods, giving rise only occasionally to the *medusoid* (jellyfish) generation. The medusa appear, usually during the warm summer months, as saucer-like buds, which escape when fully developed through an opening at the upper end of the polyp. In some years they may be found in large numbers in a certain pond, but then they may disappear and reappear several years later. In other ponds, they have been found only once.

How do these jellyfish appear in a lake or pond where they were never previously found? One possible explanation is that the polyps attach themselves to the feet of migrating water-associated birds.

Freshwater jellyfish are very rare in California waters. The author and the Department of Fish and Game would be interested in any information readers might have of possible other freshwater jellyfish populations.

