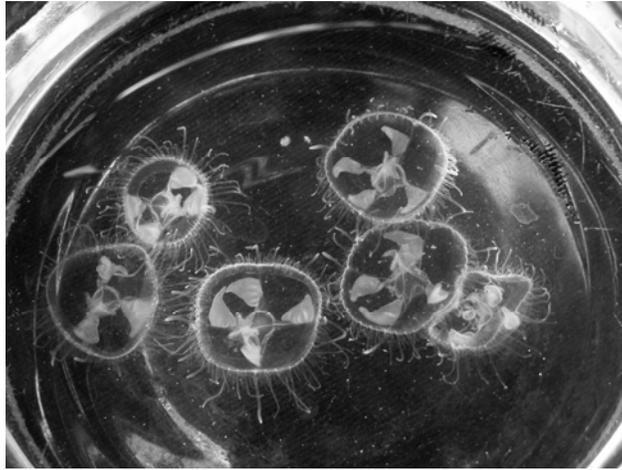


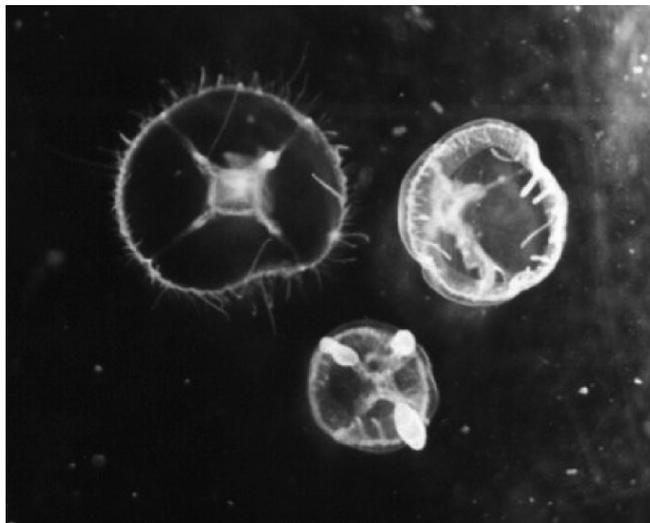
Freshwater Jellyfish



Several adult freshwater jellyfish (*Craspedacusta sowerbii*) in the medusa stage.
Photo by Sharon Milstead

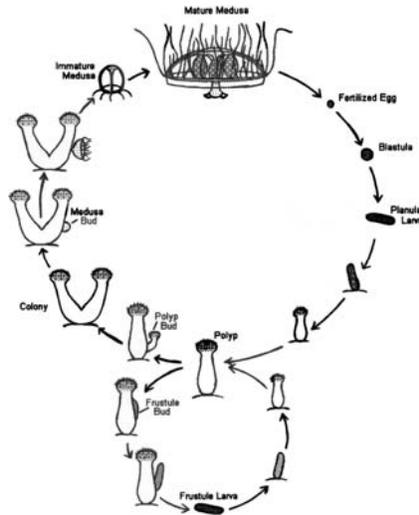
Freshwater Jellyfish in Wisconsin: Biology and Spread

The freshwater jellyfish found in Wisconsin are one of several species of *Craspedacusta* native to China. Two species (*C. sowerbii* and *C. sinensis*) live in the Yangtze River—the world's third longest river and one so vast it makes the Wisconsin River seem like a trout stream! Freshwater jellyfish were first reported in North America as early as 1884. Sightings in Wisconsin date to 1969. Much more remains to be learned about these fascinating creatures. Although they probably evolved from estuarine species, themselves descendants of ocean jellyfish, almost nothing is known about the evolution of freshwater jellyfish. That's because jellyfish leave no fossil records.



Freshwater Jellyfish Biology

Freshwater jellyfish exhibit a varied life cycle. It comprises three primary stages: egg, polyp, and medusa. Two kinds of larvae and a cyst stage also form.



Female Medusae (top) produces **Eggs** (arrow, top right). These are fertilized by the sperm of a male medusa (not shown), each egg hatches into a tiny, flat larva called a **planula**. It swims for a few days before settling down on an underwater plant, log, rock, or piece of sediment. The planula then becomes a **polyp**. The polyp looks like a miniature hydra without tentacles. Like hydra, the polyp does bear stinging cells (nematocysts) to stun prey. The tiny polyp soon forms a bud (bottom left) near its base that stays attached and develops into a second polyp, forming a polyp colony. The two polyps are identical twins, having formed asexually. Soon, the twins form yet more fixed buds, which become polyps that also stay attached and expand the polyp colony. After a few weeks, the colony has as many as 2-10 (sometimes 12) polyps—all so small you'd need a hand lens or, better yet, a microscope to study them. Now and then, jellyfish polyps form a second kind of bud (bottom): a detachable bud. Each of these side buds develops into a tiny, cigar-shaped larva called frustule larvae. The larva frees itself from its parent polyp and either crawls a few inches away or is carried off by water flow. It then settles down to become itself a polyp . . . one that forms fixed buds to produce a new colony of polyps. So far, our life cycle involves asexual reproduction: polyps forming buds that become either attached polyps or larvae that detach to become a new polyp colony.

In some years, especially during hot summers in Wisconsin, the polyp colony produces medusa buds (left, middle). Each of these top buds becomes either a male or female **medusa**. The developing medusa grows from nutrition supplied by the parent polyp. After a week or two, and still quite small, the medusa leaves home to become free swimming. Another five weeks are needed for the medusa to mature. When full grown, the medusa has a nearly transparent body called a bell that dangles long, hair like tentacles we all associate with jellyfish.

Both polyps and medusae feed on zooplankton. The polyps, hardly more than 1/8th -inch long, eat protozoans, rotifers, copepods, and water fleas. The medusae, pushing an inch across the bell, can use their tentacles to sting these same critters and capture even larger prey, such as water mites and insect midge larvae. Only rarely do they stun newly hatched fish fry.

The medusae live but a few weeks, release eggs, and die. The polyps can live from spring until fall, when they may roundup into **cysts**. Covered with a chitinous “skin” that encloses fairly dry cells, the cysts are able to survive drought and cold. In Wisconsin, the cysts survive on the bottoms of ice-covered ponds, lakes, and quiet river pools where the water is slightly above freezing. But the cysts are more than a winter resting stage. They are a vehicle for jellyfish to spread north of their home range and invade new waters.