

Sea stars – college essay



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Carrillo 1 The Life Cycle of a Sea Star Between birth and death, a sea stars life follows a cycle of development, adulthood, and eventually parenthood. It is the cycle that produces new sea stars and keeps populations balance. Sea stars begin their lives as tiny larvae that look nothing like the adult sea stars. The larvae have different shaped bodies with many projecting arms. “ It looks more like a blob of Jelly’ (Perry 46). Sea star larvae develop in open water and immediately become part of the plankton, a population of very small plants and animals that floats near the ocean surface.

As soon as it enters this population, a sea star larva begins to search. It eats as many of its tiny neighbors as it can catch. As it eats, it becomes bigger and stronger. Although the plankton stage is a time of great growth and opportunity for a sea star larva, it is also a time of great danger. Sea stars are not the only hunters roaming the plankton. There are many other small but hungry animals searching for food in the same area. Most of these animals do not hesitate to eat a sea star larva. Plankton is also the main food source of some large animals, including some whales and harks.

These animals can swallow huge amounts of plankton in a single gulp. Between predators both small and large, most sea star larva are eaten within days of their birth. If a sea star larva survives the dangers of the plankton life, it eventually gets big and heavy enough to start its Carrillo 2 journey toward the ocean floor. In warm waters, it takes about three weeks for a larva to reach this stage. Cold water larvae do not grow fast, so it may take as much as three months for sea star larvae in cooler climates to become large enough to sink to the ocean floor.

Surviving the plankton stage is an important first step for a sea star, but it is no guarantee of success. Because the plankton drifts freely with the ocean currents, many sea star larvae end up in areas where they cannot survive. The sea floor may be too deep, or there may not be enough food of the right type to keep an adult sea star fed. If a sea star larva finds itself in any of these problems after it leaves the plankton, it will die. Some sea star larvae, however, both survive the plankton and find themselves in favorable conditions when they settle to the ocean floor. If this is the case, a larva transformation.

It takes only a few hours for the larva to completely change the shape of its body and turn itself into a small adult. When the change is done, the new sea star leaves its rocky land and leaves off across the ocean floor in look for food. Its adult life has started. Carrillo 3 It takes most sea stars one or two years to reach maturity after they become adult in form. When maturity is reached, it is time for a sea star to reproduce and create new sea stars. Nearly all sea stars reproduce by spawning. This means that females release eggs and males release sperm into the water around the same time.

Most sea stars are nowhere each other when they spawn. The eggs and sperm meet up by chance as they float through the ocean. Spawning usually happens in the spring or early summer. At these times of the year, light and temperature conditions bring about chemical changes in a female sea stars body. The chemical changes cause the female to release eggs. " A single female may produce over 2 million eggs in one spawn" (fact monster. com, sea star- reproduction). Different species of sea stars release different numbers of eggs, but he numbers are usually large.

Once released, the females eggs drift away on the ocean currents. With a little luck they will drift past male sea stars, who sense the eggs and release sperm in response. The sperm then fertilize the eggs, which eventually grow into brand new larvae. “ Laboratory observations show that, at spawning, the males become restless and move around while the sperms are being discharged like white strings through the gonopores. In most cases about six to eight testes discharge at the same time. The sperm Carrillo 4 becomes very active after release into the sea water and disperse quickly.

The females spawn at the same time and arch the arms to form a brooding chamber in which the eggs are deposited and fertilized. The precise time required for elevation of the fertilization membrane has not been measured but undoubtedly it takes less than ten minutes” (Fu-Shiang, Chia. pg. 3). “ Some sea stars brood their young, where females hold their fertilized eggs in a brood space under the arm, in the stomach, or incubate them in the gonads”(answers. com). Others attach their eggs to the ocean floor and protect them with their bodies until they hatch. In the last two cases, young develop internally and scape through small openings the females body wall called gonopores. Many brooding sea stars inhabit polar and deep sea regions. Some brooding sea stars, however, produce unguarded egg masses that they attach to the protect their young in these ways. Scientists believe that the conditions in cold water make protection necessary for the young sea stars survival. “ When the post larva is forty days old, it assumes the shape of the adult starfish. The eye spot on the terminal tentacle of the sixth ray develops five days later.

The mouth opens as a slit when the young starfish is forty nine days old. Two months after Carrillo 5 fertilization, metamorphosis of the young starfishes can be considered complete, although they are still protected by the female parent" (Fu-Shiang, Chia. pg. 15). " By now the preoral lube has been completely absorbed. The six rays are approximately equal in length; that is, the sixth ray has caught up with the others in size. There are four or five pairs of functional tube feet which have developed on each ray. All the yolk materials are used up when the young starfish is three months old, at which time it appears almost transparent.

The anus has appeared and the young adult is eady to lead an independent life" (Fu-Shaing, Chia. pg. 17). Some types of sea stars can reproduce without spawning. " Asexual reproduction is another method of development that involves either fission or regeneration of entire animal from arm parts" (answers. com). To create new life, these sea stars simply split in half, right down the center of the body disk. " Each piece will grow into a whole new sea star" (Steffoff 23). Before long, there are two health sea stars instead of one. The two new sea stars may not look exactly the same; they may have a different number of rays from the original.