SEA STARS: *“A star is born”*

Ranger Jim Serpa

Consider this if you will...You are the head of a major motion picture studio reading over possible movie scripts when in walks the young, cocky, avant-garde director of such smash hits as "Creepazoids from 20,000 Fathoms" and "Bikini Beastwoman Attacks." He tells you he's got a fantastic idea for a new movie.

It goes something like this: There is this unbelievably horrid monster destroying this coastal town in Northern California in retribution for all the calamity humans have brought to the oceans. "A sure draw for all those environmentalists,” he exclaims. The monster is completely covered with thick, armored skin, with spines that will actually bite you if you touch it. It has multiple arms that regenerate when severed. This beast even has eyes and a nose on the tip of each arm; the better to seek out it's prey. The animal doesn't really have a brain and has radial symmetry so even if you could reason

with it you wouldn't be able to tell which end to approach. To top things off it has thousands of sucking tubes under its arms in which it can place it's victims in a death grip or rip apart any captive it so chooses. "And the creme de la creme," as he does a drum roll on his leg, "is a stomach that comes out of it's mouth, looking like a baggy full of gray jello, that envelopes the hapless prey, as it's digested outside of the monster's body!"

You try to absorb all this for several minutes, not saying a word. The young director can't stand it any longer and blurts out, "Well, what do you think?" You remember your days spent as a youth, traveling to Doheny State Beach on field trips, and confess, "I think we're talking about a Giant Starfish, not some monster!"

The common sea star (the term Starfish is not politically/biologically correct anymore as the sea star is not a fish) found locally can actually do everything that wild-eyed director was talking about. The Latin name for the group of animals it belongs to, Echinoderm,

actually means spiny-skinned. It uses this skin for protection and is equipped with little embedded devices called pedicellariae, to pinch off any unwanted stragglers that happen to land on it. That is one reason you never see algae or barnacles growing on sea stars. In some species of Echinoderms these pedicellariae are venomous. Although sea stars don't have eyes as we think of eyes, they do have them at the tip of each ray or arm. They mainly use these eyes to detect light and dark which helps them avoid being caught out in the sun's harmful rays.

Sea stars don't have a brain either, more like a group of nerves that do most all that's asked of them. As for those cool tube feet, not only can they exert enough pull to pry apart shellfish like clams and mussels, the primary diet of many local species, they can use them to breathe, as well.

Here at the Doheny Visitor Center we have a good variety of sea stars to observe. In our Tide Pool exhibit you can find at least seven species. These would include the Blood Star, Fragile Star, Bat Star, Short-Spined Star, Ochre Star, Knobby Star and several species of Brittle Stars. Housed in our Eel tank is the beautiful Leather Star. This fellow was living the life of Riley in our Tide Pool enclosure until we discovered that he was dining on our sea anemones! He was then quickly banished to the Eel tank. If you listened real hard, you could hear hundreds of tiny little anemone tentacles applauding their appreciation. Finally in our Pier tank we have the Armored Star. These stars spend most of their time under the sand looking for prey. The best time to see the Armored Star is during our fish feedings, when it will often smell the food in the water and come topside to dine on leftovers.

Many of our stars (Ochre, Knobby and Short-Spined) feed themselves on the mussels we periodically place in the tanks while others (Bat, Fragile, Leather, Blood and Brittle) scrounge on what is left over after feedings. Our stars also like to eat turban snails, limpets, chitons and even immature abalones.

Sea stars move quite differently than most animals. They have what is termed a water vascular system. This is made up of many tubes and bulbs that hydraulically pump water through the body. This fluid propels the muscles and tube feet (podia) which enables the sea stars to move.

Now comes the tricky part to explain. Most Sea Stars reproduce by dumping large amounts of sex cells (ovum and sperm) into the water where fertilization takes place. When lucky eggs are fertilized they develop into planktonic larvae eventually settling down on the bottom for the rest of their lives. More than once I have walked into the Visitor Center only to stare slack-jawed at the tide pool where a mass orgy of sea star spawning is taking place. The water is a milky white and pink and because of the waterfalls agitation there is a white foam sometimes over a foot high covering the surface. In fact, the first time I saw this I was sure that somebody was playing a terrible prank on me by dumping a box of soap suds into the tide pool. Yuck! The only thing we can do is take the offending sea stars out temporarily and do massive water changes. But even that can't completely alleviate the problem. For this we depend on our fantastic skimmer filters, purchased just last year. With these filtering at maximum capacity the tide pool is back to normal in a matter of a day or two. That is, if the other sea stars don't spawn as well, which has happened! This spawning seems to be triggered by warm water changes during the spring and summer months.

And just so you don't think of Sea Stars as Johnny Come Latelys, they have been around since the Paleozoic era and worldwide there are at least 2,000 species. Which brings up everybodys favorite question, "How old is that star fish?" (as they point excitedly at one of our large specimens) which, in turn, brings up my less than stellar answer; "I don't know, we've had that particular one for 4 years." We do know that some species such as Ochre and Knobby Stars can live to the ripe old age of 20. The problem is that you can't gauge

their age by their size, because sea stars that live where the food is plentiful grow much faster and larger than sea stars found where the food is scarce.

Adult sea stars lead a pretty predator-free life, which is good for them because if you have never seen one high tail it in fear, you haven't missed much. In a word, they're SLOW! They are preyed on occasionally by otters, gulls, rock crabs and even some species of cannibalistic sea stars. But by far the most voracious predators are humans. Many areas of the California coast have been stripped clean of the sea stars by inquisitive tide poolers. The sea stars, however, will often get the last laugh, stinking horribly (a major P-E-E-E-E-E-W) in the person's backyard, only to be tossed out with the week's garbage. What a waste! Please enjoy California's tide pools by viewing things in place and not taking anything home with you. Not only is it against the law, it's the right thing to do so we can all enjoy California's wonderful tide pool community.