

## NATURALISTS' NOTES

### Sea Stars at Low Tide

Between July 9-13 and Aug 8-11, we will again experience summer's low tides. The combined gravity of the aligned sun and moon pulls earth's ocean back from the shorelines and exposes the creatures of the low intertidal zone. While this happens all through the year, the summer low tides take place when warm weather makes wading more tempting. There is no better time to explore our shores.

The most prominent of our intertidal animals are the sea stars. Often called starfish, these beautiful creatures are not fish but members of the echinodermata or spiny skins. Touch one, and you'll know how they got their name. Echinoderms are highly evolved animals. They are the only group other than the vertebrates that have hard, internal skeletons. These are composed of lattices, plates and connective tissue that can be relaxed for movement or very quickly hardened into a rigid form. Echinoderms move by pumping water into network of tubes, called the water vascular system, that connect to tube "feet" found in the furrow on the underside of each arm. On land the sea star stays very rigid but its arms move and bend easily when it is traveling in water.

The purple sea star (*Pisaster ochraceus*) is most common sea star in our waters. It is a big star, usually with 5 firm arms around 20 cm long. The topside or aboral surface has a central area called the disc that contains the anus in the centre. Off to the side of the disc is a circular madreporite, which regulates the water vascular system. The flip side or oral side has the mouth in the centre. The stomach is located behind the mouth but can sometimes be seen as an extended, whitish balloon when the animal is feeding. A magnifying glass is useful when observing these features. The animals are not harmed if handled gently and returned to their original position.

Not all sea stars have 5 arms. One of our most beautiful stars is the sunflower star (*Pycnopodia helianthoides*). It can have up to 24 arms of 30-40 cm long and is less rigid than other stars. The aboral surface ranges from deep purple to bright orange with a yellow oral surface.

These are just two of many types of sea stars found on our coast. Philip Lambert of the Royal BC Museum, in his handbook on Sea Stars, describes 43 species or sub species found here. He states that the northern Pacific coast has more diversity than any other temperate coast in the world, the result of the great age of our marine ecosystem and the diversity of habitats it contains.

*This article was written by Ann Clements for the Malaspina Naturalists Club. Photo by Paul Clements. For more information on sea life readers can contact the Malaspina Naturalists Club at 604.485.6134.*