

SEA STAR CATASTROPHE

Article by Andy Lamb and Photos by Neil McDaniel

The marine environment of the Pacific Northwest is one of the planet's epicentres for sea stars. This coastline, from California to Alaska, has the greatest number and diversity of temperate water species as well as the greatest total mass of sea stars. The number of species, depending upon where exactly the geographic "line" is drawn, is in the neighbourhood of one hundred. Several of these are also amongst the largest and fastest-moving in the world.

Biologically, the iconic sea stars are amazing life forms that possess anatomical features and behaviours that are most unique. Rather than attempt to provide details here, I will simply refer the reader to two excellent publications by two outstanding local sea star authorities:

Sea Stars of British Columbia, Southeast Alaska and Puget Sound, by Philip Lambert, 2000, Royal Provincial Museum Handbook, UBC Press, 186 pp.

A Field Guide to Sea Stars of the Pacific Northwest, by Neil McDaniel, 2011, Harbour Publishing, a waterproof 8 panel fold out.

Late this past summer the recreational dive community suddenly began noticing an alarming mass mortality of sea stars in Howe Sound, the fjord adjacent to Vancouver. Nearby Indian Arm was also hit hard. The catastrophic event initially seemed to target two large and obvious species, the giant pink star *Pisaster brevispinus* and the sunflower star *Pycnopodia helianthoides*. Later reports and photography have documented two other species, the mottled star *Evasterias troschellii* and the morning sun star *Solaster dawsoni* as being involved as well. Affected specimens simply seemed to totally disintegrate after severe internal



Boulder #1
Note star with syndrome near center frame, others seem OK
Crocker Island, Indian Arm
Oct. 9, 2013
Neil McDaniel photo



Boulder #1
Crocker Island, Indian Arm
Oct. 29, 2013
Neil McDaniel photo

Upper - Rock outcrop at Crocker Island, Indian Arm, Oct. 9, 2013. Most stars seem OK.
Lower - Two views of the same boulder at Crocker Island taken twenty days apart, on Oct. 9 and Oct. 29, 2013 that show the speed with which the wasting disease spreads. Note star with syndrome near center frame on lower left photo.

disruption. This phenomenon is being referred to as "sea star wasting disease".

More and more such observations from concerned divers were reported electronically, resulting in considerable on line conversation. Eventually, the media became aware of the situation and organizations such as the Vancouver Aquarium, The University of B.C. (UBC) and the Department of Fisheries (DFO) and Oceans became involved trying to address the growing concern. What is happening? What is the cause?

As of this writing, the centre of this catastrophe continues to be Howe Sound. However, divers have apparently found more affected sea stars in Indian Arm, along the Sunshine Coast, off Victoria, in Sechart Inlet, and off Saturna and Savary Islands. Later, some were found near Chemainus Island.

During the first week of November, Seattle Aquarium divers found a similar outbreak in their area. This was the first report of "sea star wasting disease" in Puget Sound and Washington State. A return to the site is planned to collect samples for scientists at Cornell University, New York to investigate. Another afflicted specimen was found and photographed by recreational divers at Day Island, near Tacoma.

Some initial samples sent to DFO and UBC have not isolated a specific causative agent for this sea star die off. More samples are being collected and additional test will be conducted. A definitive answer will eventually arrive -- hopefully.



Pisaster brevispinus
Near Camp Elphinstone, Howe Sound
Oct. 16, 2013



Solaster dawsoni
9 Mile Pt., Sechart Inlet
Oct. 24, 2013
Neil McDaniel photo

Left - *Pisaster brevispinus*, near Camp Elphinstone, Howe Sound, Oct. 16, 2013. **Right** - *Solaster dawsoni*, 9 Mile Pt., Sechart Inlet, Oct. 24, 2013.

As distressing as this event is for those of us in the Pacific Northwest, similar events have occurred elsewhere over the last 30 years. Sea stars have perished in alarming numbers in Mexico, California and other localities. In some cases, the particular causes still remain a mystery.

Amateur and professional SCUBA divers – our “connection to the underwater world” have become very involved as “citizen scientists”. However, several of the particularly vulnerable sea stars are intertidal. This situation provides beachcombers, kayakers and other surface-based naturalists an opportunity to help too. The Vancouver Aquarium has established a link to their website at www.vanaqua.org/act/research/sea-stars. For a Californian perspective, try [www.eeb.ucsc.edu/pacificrockyintertidal/data-products/sea-star](http://www.eeb.ucsc.edu/pacificrockyintertidal/data-products/sea-star-wasting/) wasting/. For a terrific summary and up to the moment developments, check out Jackie Hilderling’s excellent blog by googling “The Marine Detective” and the sea star wasting syndrome.

The Dredgings, Volume 54 No. 2, 2014, Pages 6 - 7

www.PNWSC.org