WATER colours

A kaleidoscope of vivid hues beneath the ocean waves

PHOTOGRAPHY AND TEXT BY SCOTT LESLIE

The rugged St. Mary's Bay shoreline of Southwestern Nova Scotia contrasts with the soft green seaweed being swept by a wave.

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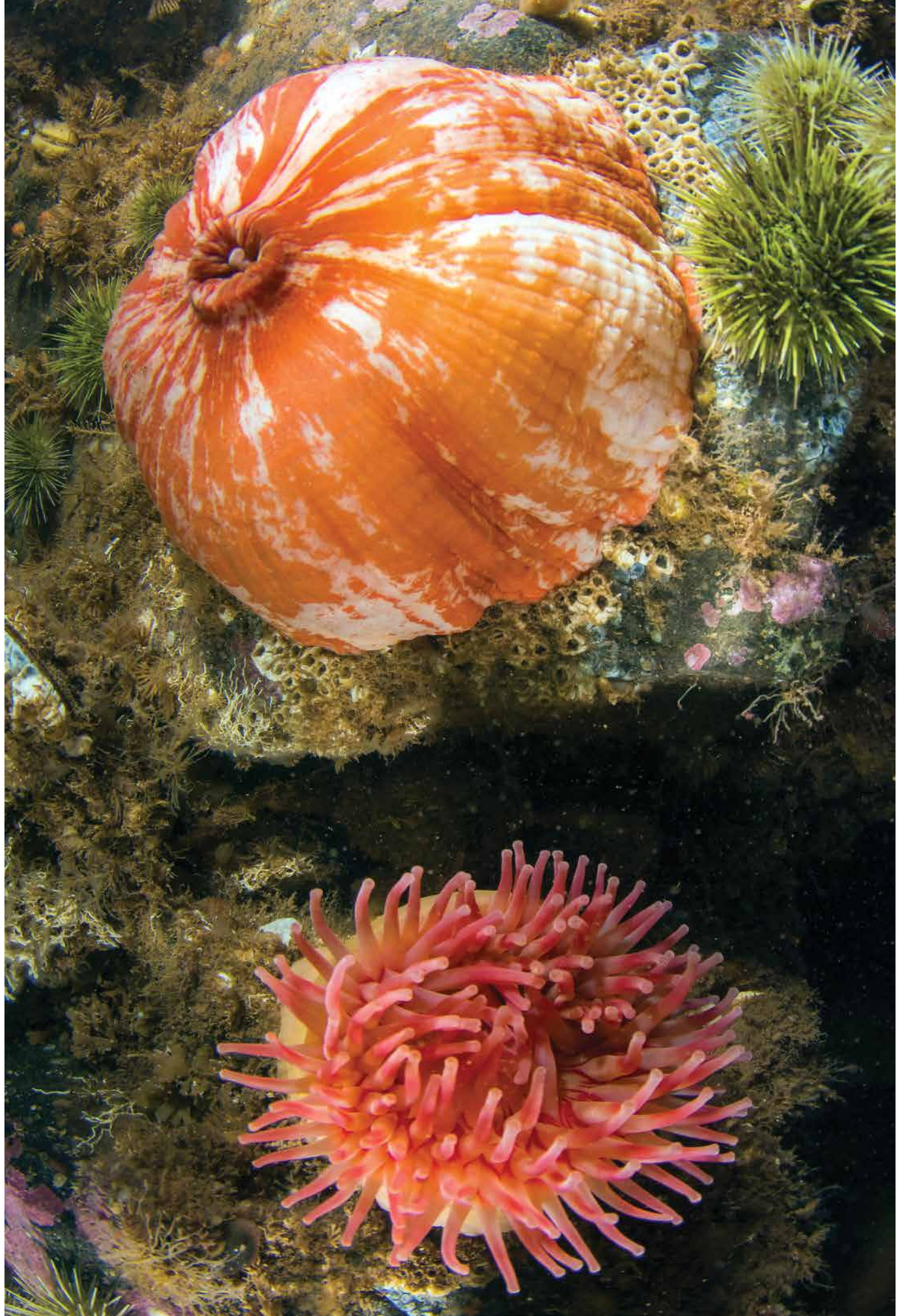
Everyone has seen photos of gaudy tropical coral reef scenes, enticing places teeming with colourful fish swimming through clear turquoise waters. But standing on our Atlantic Canada beaches and looking out to sea, this is the last thing you'd imagine lies beneath the waves. The North Atlantic often appears green or grey, rough and murky, hardly an invitation into a kaleidoscopic netherworld. Nevertheless, this drab exterior can conceal a multi-hued community of life, where sometimes we do find captivating colours. It's an intriguing realm of visual treats that lies in wait for curious eyes where living things span the spectrum from green to purple to red and everything in between.

Ironically, few of these splendidly multi-hued creatures ever get to experience the brilliance of their mates, or of other colourful species around them. Most marine animals, including some of the most flamboyant groups of organisms in our waters, such as the anemones and sea stars with their bright reds and yellows, are barely able to see shapes, let alone colours. And while many species of fish, lobsters and crabs

Top: In late summer, the undersides of the waterlilies of the region's lakes turn a beautiful shade of red.
Above: This brilliantly-hued lobster, surrounded by rocks covered with orange and yellow encrusting sponges and brilliant pink coralline algae, is a perfect illustration of how colourful our Atlantic Canada undersea environment can be.
Right: Some of the gaudiest colours seen in our Atlantic Canada waters are displayed by members of the sea anemone family, such as these northern red anemones in the Bay of Fundy.



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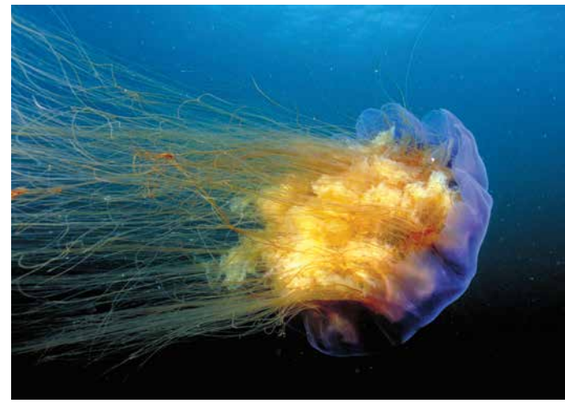
Above: Sea stars are a favourite of children exploring tide pools. This one, with its many legs and rainbow of colour, is commonly known as a sun-star.
Opposite page, top: Like lime soda, the waters of Bonne Bay, NL take on yellow-green hue after a heavy rainfall. Freshwater run-off from the land is stained with natural plant tannins that gives the water its distinctive colour.

may be able to discern shapes quite well, at the depths they are usually found, colours barely register. In fact, the physics of light conspire against the great majority of sea creatures being able to see colours, at all—more on this in a moment. It appears that, for the most part, the pageant of colour at depth can be likened to a tree falling when nobody's around to hear it (or see, as the case may be.) That is, until we came along.

Humans—along with the other primates—have excellent colour vision, far better than most mammals. Our retina's three types of cones are keyed to be sensitive to blue, green, or red. The range and subtlety of our colour perception occurs as our brains process the various combinations and permutations of these three hues. What we can see ranges from red (the longest wavelength) to violet (the shortest). This system works superbly on the surface, but, as I alluded to earlier, there's a problem underwater. That's because as one goes deeper light's spectrum becomes narrower and narrower. In other words, as depth increases, individual colours are lost in a predictable order. Long wavelength or warm colours are first to go. Red, orange, and yellow completely disappear by about 10 metres deep, resulting in an overall greyish appearance of any creature or underwater scene—that's why blood appears black at all but the shallowest depths. Descend a little deeper and the greens, then the blues, and ultimately -at hundreds of metres beneath the surface—even violet, with the shortest wavelength, disappear. The sea and everything in it becomes monochrome.

Yet, we can enjoy colourful pictures from beneath the sea, even scenes of dark northern waters. How? Underwater photographers have a trick up their sleeves that pulls back the veil put there by nature. In a note of historical pride for our region, as long ago as 1926, Nova Scotia born William Longley, a marine biologist, became the first person in history to photograph underwater using artificial light. Although he faced a high risk of getting badly burned, he actually lit fires underwater by igniting magnesium to photograph reef fish in Florida. Underwater photographers everywhere owe him a debt of gratitude.

Today, technology has advanced to the point where a tiny battery-powered light the size of a pop can, called a strobe, is powerful enough to light scenes underwater. Because they emit the full spectrum of light, they are like miniature bottles of sunlight. On these pages I reveal some the vivid colours that await in our North Atlantic waters when this lost sunlight is added back into the mix.



Above: Sea lettuce, a common brilliant green shallow water seaweed of sandy bottoms, is a favourite resting and feeding place for fish such as the winter flounder; a large lion's mane jelly shows off its gold and purple hues as it pulses just below the surface of the water.