

Water Report

For November 20, 2017



This week on Ocean.org

This week on ocean.org we explore super kelp – from storm protection to nutritious snack, we could all use a helping hand. Ocean.org

- New episodes of Ocean Kitchen! Sustainable and delicious, Ocean Wise Executive Chef Ned Bell cooks with kelp.
- Learn [more about kelp](#) (not just a superfood, it's a superhero)
- Good for your skin too, learn how to make a [DIY kelp facemask](#)
- [Riding the Kelp Highway](#) - Pacific kelp forests might have helped people the Americas

The Ocean Wise Conservation Association and Teck recognize water as a critical resource and we have innovative plans to work together and help advance aquatic research and conservation.

Teck ocean wise. 

Editor: Caroline Taylor. Contributors: Neil Tracey, Martin Farncombe, Cindy Yu, Laura Bekar, Kelsey Smith, Olga Espejo. Photo: Katie Gerstle.
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Ecosystems and Biodiversity

Last year, it was discovered that Greenland Sharks might be able to live for centuries. Now Australian researchers have reviewed 53 species of sharks and found that we had underestimated the longevity of many of them. A new method of estimating the age of sharks, based on the concentration of isotopes from nuclear weapons tests, has shown that many of them are decades older than previous studies would suggest possible.

[National Geographic](#)

Our ocean is getting warmer and more acidic as it is rapidly absorbing carbon dioxide emitted into the atmosphere by human activities. Scientists at Lamont-Doherty Earth Observatory and their colleagues find that rising carbon dioxide levels are breaking up helpful interactions between two globally important microbes, *Prochlorococcus* and *Alteromonas*. They warn such changes in interspecies interactions could result in a fundamental change in the future ocean. [Phys.org](#)

Three years ago, West Vancouver Streamkeepers Society documented the first known occurrence of Chinook salmon spawning in a local waterway, Brothers Creek. Now, 3 years later, these Chinook have returned. Chinook are not native to this creek, but Fisheries and Oceans Canada has been trying to introduce a self-sustaining chinook sport fishery in the area. Two consecutive spawning runs to a local creek indicate that these efforts are paying off and that the health of the streams are good. [CBC](#)

Coral reefs are of great importance in the development of coastal structures and ecosystems because they shield the coast from direct wave actions. Rising sea levels could weaken the protective influence of coral reefs by allowing stronger waves to hit populated areas on the Brazilian coastline, according to new research published in *Earth's Future*. [AGU](#)

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Water Quality and Supply

The Dead Sea is dying. Covering over 1,000 square kilometers in the early 18th century, it currently sits at 667 square kilometers and the water level is dropping 1.4 meters per year. A project called Red Sea- Dead Sea Water Conveyance, aims to remedy the situation by pumping 300 million cubic meters of water from the Red Sea into the Dead Sea, and once fully operational could see up to 2 billion cubic meters transferred in one year. [The National](#)

Traditional methods of desalination are hugely expensive, and the early promise shown by fullerene filters has not so far been realised. Now, researchers in California have combined a photocell with two membranes, each passing ions of different polarity. There's a long way to go, but one end result could be a solar cell which would desalinate brackish water. [Phys.org](#)

Harmful algae blooms, triggered by fertilizers washing into lakes, streams, and oceans, have become a top water polluter. Federal and state programs have spent billions of dollars to help

farmers prevent nutrient runoff, yet the algae problem is still spreading across U.S. waterways. [ABC News](#)

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Government Initiatives

The Polar Environment Atmospheric Research Laboratory in Nunavut was just given a lifeline from the federal government. Funds from Environment and Climate Change Canada and the Natural Science and Engineering Research Council will cover operations at PEARL until the fall of 2019. The lab conducts research on climate change, ozone depletion and atmospheric pollution from its location on Ellesmere Island, 1,000 kilometres from the North Pole. [The Globe and Mail](#) or [CTV News](#)

A large area of seamounts off the West coast of Vancouver Island has just been issued a fishing closure by the government of Canada. Seamounts are rare and vulnerable ocean ecosystems that are an important part of the ocean's biodiversity due to their nutrient rich upwellings. The fishing closure will ban all bottom contact fishing on a large number of offshore seamounts and a hydrothermal vent field. Fisheries and Oceans Canada has begun the process to create a very large marine protected area that encompasses the the fishing closure and will be about 140,000 square kilometers in size. Canada is committed

to protect at least 10% of its ocean by 2020. [Wire Service](#)

Two years ago, the British government introduced a £0.05 (\$0.08) tax on each plastic shopping bag issued by a supermarket, and the number of bags taken fell by 85%. Now the government is considering a similar tax on unrecyclable plastics such as coffee cups and takeaway food boxes - specifically, it is calling for evidence on the effects of such a tax, but given the success of the supermarket bag initiative, imposition of such a tax looks likely. [The Guardian](#)

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Energy and Power

Another interesting application of solar cells comes from Japan, where chemists have managed to split water into hydrogen and oxygen using infra-red rather than ultraviolet light. The trick, it seems, is to introduce ruthenium atoms into a ring-based organic compound - the catalyst needs less energy to move electrons around and so can cope with lower-frequency light. Given the potential of hydrogen as a 'green' fuel, this could be a development worth watching. Phys.org

Keystone Pipeline bursts days before decision on KXL. Over 795,000 litres of oil have spilt from the pipeline in South Dakota just days before Nebraska regulators were set to vote on the proposed route for the expansion. TransCanada said it's investigating the cause of the spill after it was discovered on farmland in Marshall County, 250 miles west of Minneapolis. The pipe has been shut down until it gets approval to restart from the U.S. Pipeline and Hazardous Materials Safety Administration. Metro News

An unexpected rise in global emissions of carbon dioxide may be partially attributed to a drought in China. Decreased hydroelectric potential has contributed to an unexpected rise in coal-burning as generation of hydropower was temporarily decreased.

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