Hypoxia Creates New Season on the Oregon Coast?

A deadly area of low oxygen water has been spreading off the Oregon Coast, leading researchers to define a new “season”.

We all know Oregon has some well defined seasons, like the often drenching, soggy wet one we call winter, and the perfect, warm temperatures, and long days of summer. Then of course in between we have pumpkin spice chai latte season and the pollen season for allergy sufferers.

Recently scientists studying the waters off the Oregon coast have come up with a new season. The Hypoxia Season as its called, is when water closest to the ocean floor drops very low in dissolved oxygen, so low in fact that all the creatures living down near the seafloor die. This is especially tough on Oregon’s most valuable commercial fishery, the Dungeness Crab. Since crabs can’t quickly swim away to avoid the low oxygen zones they are the species most often found to suffer in Hypoxic dead zones.

In fact it was crab fisherman who first noted the phenomena starting to happen a little over a decade or so ago when they would pull up crab pots loaded with deceased but otherwise healthy looking crabs.

Scientists say a complex web of factors plays a role in creating the hypoxia conditions. Nutrient runoff from agriculture, wastewater and stormwater can cause spikes in blooming algae, which then respire to consume mass amounts of oxygen, while also blocking sunlight from reaching the underwater plants that would produce more oxygen.

We now have a well defined period of time we consider “Wildfire” season here in the Northwest, it seems we will now have to deal with the “Hypoxia” season as well.

December kicks off the regular commercial crab season here in Oregon, stay tuned to see how hypoxia might affect this year’s catch.

School Field Trip Yields Interesting Aquatic Data.

What happens when you invite 80 second graders, from Forest Ridge Elementary, a fish biologist from Oregon Department of Fish and Wildlife, and the Marion Soil and Water Conservation District out to Keizer Rapids Park for a nature day? The answer is a bunch of excited kids and some happy biologists.

Karen Hans, An ODFW biologist volunteered to do fish dissection and help sample the ponds at Keizer Rapids Park (KRP). The results of seine netting the pond that is infested with Ludwigia and comparing that to the Willamette River provided some interesting data for the city.

The Willamette River fish populations have been in the news a lot lately, especially because of the sea lion population at Williamette Falls that is impacting the Native Spring Chinook and Winter Steelhead populations. The stretch of Willamette River running through Keizer is considered Essential Salmonid Habitat, or habitat that is necessary to prevent the depletion of indigenous anadromous salmonid species during their life history stages of spawning and rearing.

Karen Hans, with ODFW dissects a salmon for the Forest Ridge 2nd graders at Keizer Rapids Park.

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The chart to the left shows the species composition of seine netting conducted in the off channel pond that is infested with a non-native invasive water plant called Ludwigia hexapetala and the Willamette River near the Boat-in campground at Keizer Rapids Park.

An interesting comparison can be drawn between the pond habitat which is sometimes flooded by the Willamette River during high water events, but otherwise is cut off from the main channel and the river itself. The pond contained only non-native fish and amphibians, some like the bullfrog that are invasive. While the seine net sampling of the Willamette River at Keizer Rapids park showed a more diverse assortment of native fish species.

How do you think the invasive weeds in the pond might be effecting the native fish and amphibian populations?

Zinc has benefits but can be toxic in a classic example of “too much of a good thing.”

Zinc is the 24th most abundant element in the earth’s crust. At proper dosages it’s an essential mineral to human development and growth. It’s commonly used in everything from galvanizing to battery plates and is an ingredient in many alloys. As of 1982, the penny is composed of 97.5 percent zinc and 2.5 percent copper.

While zinc is an essential nutrient, ingestion of too much can lead to death due to gastrointestinal bacterial and fungal sepsis. 425 pennies were found to be the magic fatal number if swallowed.

The effects of zinc on the environment can be deadly as well. Studies have shown that zinc shedding off of galvanized roof material entering aquatic ecosystems can prove fatal to the smallest microorganisms in the food chain. This can have drastic consequences on the higher organisms such as fish and macroinvertebrates on up the food chain.

China is both the largest producer and consumer of zinc in the world. Studies have shown that due to refining and smelting of zinc many farm fields in China are severely polluted leading to health issues for the population consuming agriculture products produced on polluted farmland.

Zn
Zinc

A THING IS RIGHT
WHEN IT TENDS TO
PRESERVE THE
INTEGRITY,
STABILITY AND
BEAUTY OF THE
BIOTIC
COMMUNITY. IT IS
WRONG WHEN IT
TENDS OTHERWISE.
ALDO LEOPOLD

Spotlight on Pollution-Zinc

The bullfrog (Lithobates catesbeianus), which is introduced from the East Coast, tends to outcompete native frogs such as the Northern Red Legged Frog (Rana aurora). The Bull Frog is more tolerant of altered ecosystems such as polluted waterways and ponds that lack shade or are overrun with invasive plants like Ludwigia hexapetala.
City Staff Attend ICS Training

The Incident Command System (ICS) is a concept of management hierarchy and procedures for managing temporary incidents of any size. The original idea came about after a series of catastrophic fires hit California in the 1970’s and emergency responders found themselves unprepared for the rapidly spreading fires.

Some City staff recently attended the Advanced ICS 400 training in Eugene. This training will allow Keizer staff to work cooperatively with other agencies in the event of a region wide disaster.

In the event of a large scale emergency situation, the State and Federal Agencies involved with emergency management will likely be called in to respond as well as Marion County. Having staff trained in the National Incident Management System (NIMS) and (ICS) will allow our staff to work cooperatively with any other agency that has been trained under the NIMS/ICS system.

One of the take aways from the training is that it is important for citizens of Keizer to not be solely reliant on the City or other emergency response agencies. They should have the ability to provide themselves with at least two weeks of food, medications and water as well as emergency supplies such as blankets, a tent or emergency shelter, basic first aid kit and spare batteries or charging device for cell phones and most importantly a plan of action prepared ahead of time.

Keizer Lights and Other Fun Christmas Things

Keizer Miracle of Christmas Lights Display started in 1985 as a driving or walking tour of lavishly decorated homes in the Gubser neighborhood. In past years the event has raised as much as 25,000 pounds of food for the Marion-Polk Food share and over $18,000 in funds for community causes. Consider making the trip a walking tour this year to reduce your carbon footprint. Pour a hot cocoa and enjoy the lights on a winter stroll.

Keizer Holiday Lights Parade: Kick off your Christmas festivities on December 8th at 7:00 p.m. and enjoy the lighted floats and displays on parade through town.

Some other area attractions for your holiday season:

Magic at the Mill, a fun display of lights, miniature trains, vendors, blacksmith demonstrations, seasonal food and drink and some really cool musical performances, all at the Historic Mission Mill.

Christmas in the Garden: Ice skating rink, vendors, food and drink booths, fire pits and over 1 million lights on display at Silverton’s Oregon Garden.

ArcGIS Online by Billy Johnson

Keizer’s use of ArcGIS online is in full swing! The Water Division is using the new platform to track the annual exercise and maintenance of fire hydrants across the City. Crews can easily input their work live in the field. Trading in paper maps and notes not only saves time, it keeps managers up to date with live updates that are only a click away. Stay tuned for more updates.

In the picture to the right you can see how water crews progress as they move through the city, the grey have been finished and those that are red are remaining hydrants requiring inspection and/or maintenance.

“NO SPACE OF REGRET CAN MAKE AMENDS FOR ONE LIFE’S OPPORTUNITY MISUSED”
CHARLES DICKENS, A CHRISTMAS CAROL
The Environmental & Technical Division is responsible for implementing the City’s regulatory programs and meeting compliance strategies of stormwater permits. These programs are primarily focused on protecting water quality in local waterways and groundwater. Protection of these resources are required through the federal Clean Water Act and Safe Drinking Water Act.

The City’s 3 mandated programs are as follows:

1. The National Pollutant Discharge Elimination System (NPDES) Phase II permit. This permit allows the City to discharge stormwater to local waterways through implementation and compliance with a Stormwater Management Plan.

2. The Wastewater Pollution Control Facilities (WPCF) permit. This permit allows the City to manage stormwater by injection into the ground through implementation and compliance with a Underground Injection Control Management Plan.

3. The Total Maximum Daily Load (TMDL) Implementation Plan. This plan manages the discharge of stormwater that flows overland directly to waterways.

Holiday City Survey Results: Thanks to all who participated! 48 of 110 responded to the survey, for a response of about 44% of the City.