

Oregon now has a hypoxia season, just like a wildfire season, say researchers

Kristian FODEN-VENCIL
Oregon Public Broadcasting

Scientists say warming ocean temperatures mean Oregon's coastal waters now have a low-oxygen season, or hypoxia season, just as the state's forests have a fire season.

Hypoxia is a condition in which the ocean water close to the sea floor has such low levels of dissolved oxygen that the organisms living down there die.

Some of the first signs came in 2002 when dead crabs were hauled up in crab pots. Since then, scientists and crabbers say things have worsened.

"We can now say that Oregon has a hypoxia season much like the wildfire season," said Francis Chan, co-chair of the West Coast Ocean Acidification and Hypoxia Science Panel.

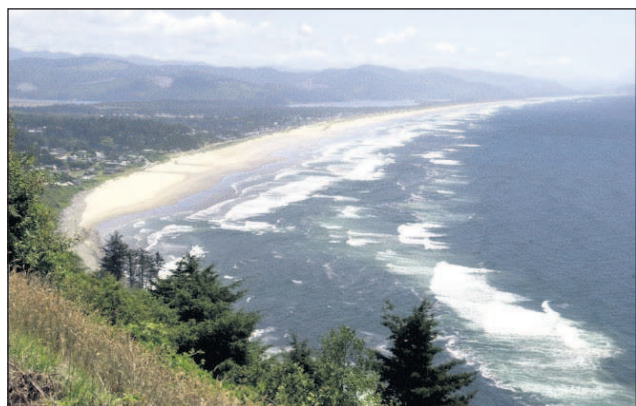
"Every summer we live on the knife's edge and during many years we cross the threshold into danger — including the past two years. When oxygen levels get low enough, many marine organisms who are place-bound, or cannot move away rapidly enough, die of oxygen starvation," he said. "Hypoxia is something we rarely saw throughout the 20th century, but have seen almost annually since the year 2002."

The low-oxygen conditions are caused by warmer ocean temperatures. Those trigger excessive phytoplankton blooms, and when those organisms die they sink to the ocean bottom and suck the oxygen out of the water.

Exacerbating the problem is the lack of mixing ocean waters, as changing wind patterns have led to stratification of ocean layers.

Oregon State University oceanographer and co-chair of the Oregon Coordinating Council on Ocean Acidification and Hypoxia, Jack Barth, is collecting data to draw the first hypoxia maps of Oregon's coast.

"We're actually seeing real interest from the fishing



AP Photo/Don Ryan

An expanse of beach near Rockaway is shown from Nea-kah-nie Mountain.

community. They know how to look at our data and say, 'Where are the layers in the ocean? Where is the high and low oxygen?'" Barth said.

Some Oregonians who make their living from the sea have been aware of the problem for a long time and brought it to the attention of researchers, Barth said.

'Scientists from Oregon State have been involved since day one on both the emerging challenges of coastal ocean hypoxia and ocean acidification.'

Caren Braby,
marine resources program manager at ODFW

"Scientists keep saying that the ocean is changing along with the climate, and people are beginning to get in tune," Barth said. "They see the heat waves and all the smoke from wildfires and are beginning to realize that this is something different."

"The crabbing and the oyster industries were ahead of the curve. They were among the first to notice that the ocean just off our coast is changing and was affecting their live-

lihoods. And they have been working with scientists ever since."

Those same industries alerted people to a different problem — ocean acidification — in 2007. The Whiskey Creek Shellfish Hatchery on Netarts Bay experienced massive die-offs of larval oysters. That threatened to destroy the hatchery's entire operation.

OSU researchers Burke Hales and George Waldbusser responded and found the problem was highly acidified water and that the hatchery could mitigate it by drawing water from the bay at certain times of the day, or treating the water to lower its corrosiveness.

Further research found acidification didn't destroy oyster shells but prevented them from developing in the first place.

"Scientists from Oregon State have been involved since day one on both the emerging challenges of coastal ocean hypoxia and ocean acidification," said Caren Braby, marine resources program manager at the Oregon Department of Fish and Wildlife and co-chair of the Oregon Ocean Acidification and Hypoxia Council.

Scientists say rising levels of carbon dioxide, attributed to the burning of fossil fuels, are major drivers of increased ocean acidification.

In its first biannual report to the Legislature, Oregon's Hypoxia Council said the state needs more monitoring and policy direction on this problem.

Lawsuit seeks return of forced union fees in Oregon

SALEM — Seeking the return of millions of dollars of forced union fees, 12 Oregon public employees filed a federal class-action lawsuit against the state's three largest public sector unions, a smaller union, and affiliates.

The U.S. Supreme Court ruled in June that government workers can't be required to

contribute to labor groups.

The National Right to Work Legal Defense Foundation, which was involved in the Supreme Court case, is handling the Oregon case and 200 others across the country.

The group said the suit, filed Thursday in federal court in Oregon, seeks fees

collected in recent years from thousands of public sector employees who left their unions or never joined.

Defendants include the Service Employees International Union; American Federation of State, Local, and Municipal Employees; and the Oregon Education Association.

Facebook growing its data center in Oregon

PRINEVILLE — Facebook announced it will build two more buildings at its data center outside the Central Oregon town of Prineville, growing it to the size of 66 football fields.

The California social media company said Thursday it expects the expansion to come

online in 2020.

In a statement, Facebook said this new construction will bring its total Prineville footprint to more than 3.2 million square feet, representing an additional investment of \$750 million.

Prineville, where cool high-desert evenings cool the

servers, was the site of Facebook's first data center, which opened in 2011.

The expansion will make the Prineville data center the biggest, a spokeswoman said. The company also has them in Forest City, North Carolina; Lulea, Sweden; and Altoona, Iowa.

OBITUARIES

Crystal Stephens

Astoria

Dec. 17, 1919 — July 6, 2018

Crystal Virginia Stephens, a daughter of two pioneer Oregon families, died in Astoria on July 6, 2018, at the age of 98.

A self-professed "tough Eastern Oregon ranch girl," she was born in Mitchell, Wheeler County, Oregon, Dec. 17, 1919, to Lottie Tilman Howard and Golda Frances Howard, born Keeton. Her mother died in 1971, and her father in 1987, both in Roseburg, Oregon.

Crystal was the second oldest and the first girl among her six siblings. They were a ranching family, and hard work was a way of life. After graduating from Mitchell High School, she moved to Westport to work for a family friend at the Westport Hotel.

In 1940, she and James (Jim) Howard Stephens of Fossil, Oregon, were married. They then moved to Astoria, where Jim worked as a saw filer at the wartime shipyards, helping build wooden minesweepers. He then served as a lieutenant at the Astoria Fire Department. Their son Dennis was born in 1942.

Crystal lived in Astoria for the rest of her long life. After their divorce in 1945, she worked as a waitress, then as a telephone operator for Pacific Northwest Bell in Astoria, retiring in 1975. She told vivid stories of serving as a marine operator during dangerous winter storms, working with fishing boats and ships crossing the Columbia River Bar.

She was a longtime member of Women of the Moose and of the Rebekahs, a fraternal order associated with the Independent Order of Odd Fellows.

She was fond of classic movies, and was a particular fan of Cary Grant. She loved country and western music, and had a large collection of 78 rpm records. Among her memorabilia was an autograph by the popular country singer/songwriter Lefty Frizzell, dated "Roseburg, Ore. Nov. 15, 1952," in her careful handwriting, on the back of half a torn citation issued by the Chief of Police in Astoria. The ticket was issued to "Arthur F.," not to Crystal. There's a

story there, that will remain forever a mystery.

She was proud of her huge collection of salt-and-pepper shakers and decorative spoons, sent to her from far away places by friends and relatives.

She was proud to be known as a thrifty person who didn't throw much away.

She traveled to Alaska and Hawaii, and occasionally took the bus to Reno, where she enjoyed the shows and collected mementos, carefully annotated with the place and date collected, and appropriate notes relevant to the occasion.

Her siblings, of whom she was the last survivor, included Darrell, Tilford, twins Raymond and Rachael, Ralph, and Reatha, all born in Mitchell between 1916 and 1930.

Crystal was proud of the Oregon pioneer heritage of the Keeton and Howard families. She was fiercely independent all her adult life, living alone at her homes on Franklin Avenue and Clatsop Avenue. She often visited the Astoria Senior Center, and was dismayed that she outlived so many of her dear friends. She spent her last years comfortably at Astor Place assisted living home.

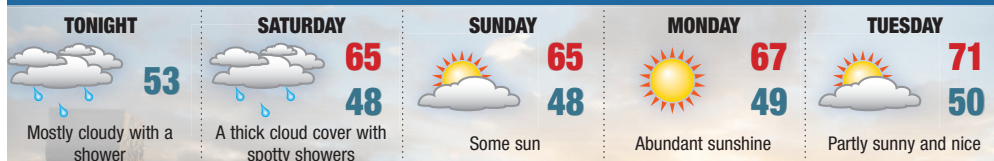
She is preceded in death by her parents; by niece Cindy Nedry; and nephews Dean Howard, Howard Miller, Bruce Miller and Neil Miller.

She is survived by a son, Dennis, of Fairbanks, Alaska; and nieces and nephews Judy Hartwell of Edmonton, Canada, Susan Beguin of Spokane, Washington, David Beguin of Alabama, Tami Hanson of Ponoka, Alberta, Canada, Lisa Davis of Roseburg, Oregon, Vicky Huber of Porterville, California, Lottie Howard of Wyoming, Cande Vanasen of Porterville, California, Terry Barnett of Bakersfield, California, JoAnne Grant of Resaca, Georgia, Darrell Howard of Pepeekeo, Hawaii, Brandt Howard of Okanogan, Washington, and Ginger Nedry of Prineville, Oregon.

A graveside service was held at Greenwood Cemetery on Sept. 15, 2018.

Donations may be made in Crystal's memory to the Clatsop County Animal Shelter, 1315 S.E. 19th St., Warrenton OR 97146 (503-861-0737).

FIVE-DAY FORECAST FOR ASTORIA



ALMANAC

Astoria through Thursday.

Temperatures	Record high	Record low
High/low 66°/47°	86° in 2014	40° in 1985
Month to date 67°/49°		
Normal month to date 1.26"		
Year to date 38.23"		
Normal year to date 39.36"		

Precipitation	Normal year to date
Thursday 0.01"	39.36"
Month to date 1.95"	
Normal month to date 1.26"	
Year to date 38.23"	
Normal year to date 39.36"	

SUN AND MOON

Sunset tonight 7:15 p.m.
Sunrise Saturday 7:02 a.m.
Moonrise today 6:06 p.m.
Moonset today 3:19 a.m.



UNDER THE SKY

Tonight's Sky: The Milky Way arcs high across the east as darkness falls, and directly overhead later on.

Source: Jim Todd, OMS

TOMORROW'S TIDES

Astoria / Port Docks	Time	Low
High	6:38 a.m.	0.0 ft.
Low	6:48 p.m.	1.5 ft.

NATIONAL CITIES

City	Today	Hi	Lo	W	Hi	Lo	Sat.	Hi	Lo	W
Atlanta	90	72	pc	90	71	s				
Boston	72	63	pc	71	55	pc				
Chicago	78	53	pc	67	52	pc				
Denver	78	51	pc	86	54	s				
Des Moines	66	43	pc	68	49	s				
Detroit	84	53	t	67	50	pc				
El Paso	84	61	pc	82	60	s				
Fairbanks	54	41	sh	50	42	r				
Honolulu	88	74	s	87	73	pc				
Indianapolis	86	57	t	67	52	pc				
Kansas City	72	46	pc	72	52	s				
Las Vegas	97	77	s	99	78	s				
Los Angeles	82	62	s	86	64	s				
Memphis	92	71	pc	77	69	t				
Miami	89	79	sh	90	79	t				
Nashville	92	69	t	79	67	t				
New Orleans	90	76	pc	89	77	t				
New York	74	68	c	75	60	pc				
Oklahoma City	74	56	r	70	57	r				
Philadelphia	79	68	pc	77	61	pc				
St. Louis	83	57	t	73	54	c				
Salt Lake City	83	55	s	88	61	s				
San Francisco	77	54	s	71	55	pc				
Seattle	72	58	c	67	53	sh				
Washington, DC	80	72	pc	77	63	pc				

Weather (W): s-sunny, pc-partly cloudy, c-cloudy, sh-showers, t-thunderstorms, r-rain, sf-snow flurries, sn-snow, i-ice.

ON THE RECORD

Assaulting a public safety officer

At 2:52 a.m. Thursday, Jeremiah O'Rourke, 42, of Beaverton, was arrested by Seaside police at Providence Seaside Hospital and charged with assaulting a public safety officer, two counts of harassment, two counts of

resisting arrest, two counts of criminal trespass and third-degree criminal mischief. O'Rourke allegedly became unruly as he was being discharged from the hospital. When police arrived, he allegedly shoved and kicked an officer before being taken into custody.

LOTTERIES

OREGON
Thursday's Pick 4:
1 p.m.: 7-7-8-9
4 p.m.: 5-3-5-0
7 p.m.: 2-6-7-5
10 p.m.: 8-7-6-1

Thursday's Lucky Lines: 4-5-10-16-19-24-26-31
Estimated jackpot: \$32,000

WASHINGTON
Thursday's Daily Game:

0-9-0
Thursday's Keno: 12-14-31-36-38-40-41-46-47-51-52-54-56-57-65-71-73-74-75-77
Thursday's Match 4: 02-04-07-12

OBITUARY POLICY

The Daily Astorian publishes paid obituaries. The obituary can include a small photo and, for veterans, a flag symbol at no charge. The deadline for all obituaries is 10 a.m. the business day prior. Obituaries may be edited for spelling, proper punctuation and style. Death notices and upcoming services will be published at no charge. Notices must be submitted by 9 a.m. the day of publication. Obituaries and notices may be submitted online at www.dailyastorian.com/obituaryform, by email at ewilson@dailyastorian.com, placed via the funeral home or in person at The Daily Astorian office, 949 Exchange St. in Astoria. For more information, call 503-325-3211, ext. 257.

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