

'The Blob' consumes North Pacific

By Tara Kulash
The Oregonian

PORTLAND (AP) — Weird things are happening off the Pacific Coast.

And at the center of the action is a warm-water mass that scientists call "the blob."

It's turning the coastal ecosystem on its head. Species are dying along Washington, Oregon and northern California: sea stars, marine birds and sardines, among them.

It started in the fall of 2013 when the Gulf of Alaska's usual winter storms didn't show up to cool down the Pacific.

That gave rise to an expanse of warmer water, according to Bill Peterson of the National Oceanic and Atmospheric Administration.

And it has spread. By last summer the blob had consumed the entire North Pacific from California to Canada. A few months later it had touched the West Coast shore. Now it spans 2,000 miles from Baja, Mexico to Alaska, stretching 500 miles wide.

It's hard to get away from something that big, and while some species are dying, others are behaving strangely.

Tropical plankton are showing up for the first time. Native plankton are breeding much later. Brown pelicans are refusing to mate at all. And toxic algal blooms are spreading rapidly, at times shutting down commercial and recreational fishing.

The blob isn't responsible for all of the strange happenings, though. The cyclical warm-water weather event El Niño is back on the California coast, and it looks as strong as its last severe episode in 1997. That makes this a double whammy for experts trying to get to the bottom of these habitat changes. And that's leaving out the climate change variable, which may or may not be related to both events.

Basically, it's not just a bunch of anomalies anymore. Scientists say these occurrences are part of a rapidly changing ecosystem. In other words, it's the new normal. And rather than try to prevent something that's already here, ocean and fishery management has to evolve with it.

Steve Marx, a Pacific Ocean conservationist at Pew Charitable Trusts, put it this way: Scientists typically look at things like commercial fishing pressure and ocean conditions to predict population cycles. Those models aren't working anymore.

"Everything we know about (forecasting) is getting thrown out the window," he said. "So, yes. Crazy things."

What happened after the blob arrived and started to spread had never been seen before. It brought new visitors to the Northwest: tropical copepods.

Peterson, who teaches oceanography at Oregon State University, said they're beautiful but they're causing problems for predators. The tropical plankton are not as fatty as the native plankton, and predators are passing on them. Meanwhile, the native, cold-water plankton started breeding late this year and their population has dropped below normal.

Scientists also are noticing that krill, another bottom-of-the-chain prey, have been largely absent this year.

Jaime Jahncke, a biologist at Point Blue Conservation Science, said during a research cruise off San Francisco a few weeks ago his team found few adult krill, mostly just juveniles. Data isn't out yet for Alaskan krill, but scientists say it's likely the same situation.

There's speculation that the blob is sending them away, but no one knows enough to confirm it.

Meanwhile, Jahncke and his team are seeing more tropical species, such as sunfish.

He called it a perpetuation of the warm water conditions.

In a separate development, humpback whales reportedly have been spotted this week hanging out in the mouth of the Columbia River near Astoria, presumably for the anchovies. That's odd because humpbacks, unlike gray whales, are not known for swimming near shore.

The blob might also be to blame for a major die-off of Cassin's auklets this past winter.

From California to Canada — but mostly in Oregon — beachgoers have reported hundreds of the small seabirds had washed ashore. By January, that number reached tens of thousands. That's 100 times more than their average mortality rate.

Julia Parrish, a professor of aquatic and fishery sciences at the University of Washington, tracked the die-off and said one theory is that the birds had a particularly good breeding season, which made it harder for juveniles competing for food.

But it also might be the blob. Parrish said it's possible the auklets didn't want to eat the tropical plankton.

"There's reason to believe that basically what was happening was suddenly the grocery store was full of all sorts of different food, and maybe the food wasn't so good," she said.

Peterson, on the other hand, theorized that because the seabirds can't dive deeper than 40 meters, perhaps they couldn't reach their prey, which would seek cooler water below the blob at 80 meters.

Then you've got the massive sea star die-off. Thousands of sea stars are turning to goo from a virus. Not that warm water is the cause, but it's certainly known for spreading the rate of infection.

Not everything can be attributed to the blob, however. Sometimes it's people.

U.S. officials say the nation accounts for 87 percent of all sardine fishing in North America. Supposedly Mexico catches 13 percent and Canada catches none. But Canadians disagree with that assessment, insisting they net a significant share.

The fact the countries disagree points to part of the problem. No one group is accurately tracking the catches. Which helps explain the fact that there's also no standard for how many sardines trawlers can catch.

Though these forage fish normally do well in warm water, cooler water conditions before the blob arrived had brought their population down.

Combine that with overfishing, and the Pacific sardine population collapsed. According to the National Marine Fisheries Service, the West Coast Pacific sardine population has decreased 90 percent since 2007. That's the lowest it's been in decades.

That has spelled disaster for species dependent on sardines. Sea lion pups are starving and brown pelicans are refusing to mate.

And what about the salmon? They feed on sardines, too.

Salmon are a whole topic unto themselves. Populations have been suffering die-offs almost all summer in Oregon, mostly because of warm water in the Columbia River and its tributaries. The biggest mystery has been the disappearance of at least 250,000 sockeye traveling up the river out of an expected return of 500,000.

Ben Enticknap, a senior scientist at the international research group Oceana, said much of this problem is man-made because dams have hampered migration.

"What do you do?" Enticknap said. "Do you ignore it and do nothing and just wait to respond to endangered species listings and extinction events? Or do you become more proactive?"

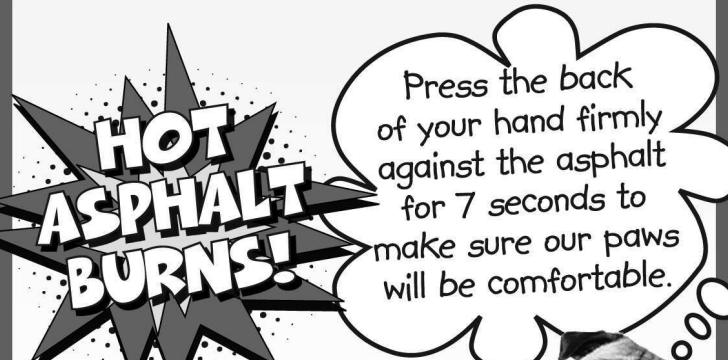
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Estimated Vehicle Interior Air Temperature v. Elapsed Time

Elapsed Time	Outside Air Temperature (F)					
	70	75	80	85	90	95
0 minutes	70	75	80	85	90	95
10 minutes	89	94	99	104	109	114
20 minutes	99	104	109	114	119	124
30 minutes	104	109	114	119	124	129
40 minutes	108	113	118	123	128	133
50 minutes	111	116	121	126	131	136
60 minutes	113	118	123	128	133	138
> 1 hour	115	120	125	130	135	140

Department of Geosciences, San Francisco State University



When the air temperature is...	The asphalt temperature has been measured at...
77° F	125° F
86° F	135° F
87° F	143° F

These temperature correlations represent worst-scenario variables: direct sun, no wind, very low humidity, and high radiant energy.

At 125° F, skin destruction can occur in 60 seconds. An egg can fry in 5 minutes at 131° F.

Data Source: Berens J. Thermal contact burns from streets and highways. Journal of American Medical Association; 214 (11): 2025-2027



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