Krill stranding fouls North Coast beaches

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Jacqueline Sones
A closeup photo of krill.

Millions of krill, a tiny shrimp-like animal that is a cornerstone of the marine food chain, perished last month along a 250-mile stretch of beaches from Oregon to northern Humboldt County.

Scientists are still investigating the massive krill stranding in mid-June, but their working hypothesis is that a shift in the wind caught the animals near the ocean surface, possibly in a mating swarm, causing them to be swept ashore.

“Once they get into the surf line they are in trouble,” said Joe Tyburczy, a scientist with the California Sea Grant Extension in Eureka who is a coordinator of the investigation.

The strandings were reported from Newport, Ore. to McKinleyville in northern Humboldt County on June 16-18, making it the geographically largest krill die-off on record, Tyburczy said.

On a beach just north of the mouth of Redwood Creek in Redwood National Park, dead and live krill formed a mile-long pink band on the sand just above the high tide line on June 17, according to David Anderson, fishery biologist at Redwood National and State Parks.

A much more limited stranding of the less than inch-long crustaceans at Bodega Bay was documented by a Bodega Marine Laboratory worker on June 21, but experts said they are not sure whether the events are related.

Jackie Sones, the marine lab's research coordinator, said she noticed a flock of gulls on the beach at Horseshoe Cove, a place the birds seldom visit.

Sones photographed the krill, which the gulls were eating, on the beach and under a lab microscope, and said she hasn't found any since that day.

“I am keeping my eyes open,” she said.

John Largier, an oceanographer at the marine lab, said an unusually strong vortex, a swirling ocean current, occurred off the Sonoma Coast in mid-June. The current might have swept krill away from land and minimized the die-off here, he suggested.

Examination of 10 krill from Newport and Eureka found all were female and most carried sperm packets, leading to the theory they may have perished just after mating, Tyburczy said.

Data from offshore ocean buoys showed that the wind rapidly shifted from the northwest to the southwest just before the strandings, pushing surface waters toward shore, he said.

Northwest winds push surface water offshore, triggering the upwelling of cold, nutrient-rich water that sustains population explosions of krill, which are in turn food for a host of ocean species, including blue whales and salmon.

Scientists and fishermen have noted an abundance of krill this year, drawing a concentration of whales off the Marin and Sonoma coasts and putting hefty salmon on anglers' lines.

Wind shifts to the southwest are typical of occasional summer storms on the West Coast, Tyburczy said.

Lower than normal oxygen levels in the ocean may have contributed to the krill strandings by prompting the animals to swim up to shallower water, he said.

Scientists are counting on the public to monitor the coast for krill strandings, Tyburczy said. Last month's die-off at this point is considered a limited event, a “pulse,” he said.

There have been reports of isolated strandings from Ketchikan, Alaska to La Jolla, he said.

Barring a continuation of major strandings, Tyburczy and said he and a collaborator — Bill Peterson, a National Oceanic and Atmospheric Administration oceanographer based in Newport — don't expect the krill loss to impact the marine environment.

The krill biomass off the west coast is estimated at more than 1 million tons, and the animals reproduce so quickly that about half their mass can be consumed each year without causing a population decline, Tyburczy said.

A blue whale, the largest creature on the planet, consumes up to two tons of krill a day.

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