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Sea life in peril -- plankton vanishing

Usual seasonal influx of cold water isn't happening

Glen Martin, Chronicle Environment Writer

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Benjamin L. Saenz / SFC
Krill are a key food source for seabirds and larger fish. Photo by Benjamin L. Saenz, special to the Chronicle

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Oceanic plankton have largely disappeared from the waters off Northern California, Oregon and Washington, mystifying scientists, stressing fisheries and causing widespread seabird mortality.

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The phenomenon could have long-term implications if it continues: a general decline in near-shore oceanic life, with far fewer fish, birds and marine mammals. No one is certain how long the condition will last. But even a short duration could severely affect seabird populations because

of drastically reduced nesting success, scientists say.

The plankton disappearance is caused by a slackening of what is known as "upwelling;" the seasonal movement of cold, nutrient-rich offshore water into areas near shore.

This cold water sustains vast quantities of phytoplankton and zooplankton, which are the basis of the marine food web. During periods of vigorous upwelling and consequent plankton "blooms," everything from salmon to blue whales fattens and thrives on the continental shelf of the West Coast.

The larger fish and baleen whales eat mostly krill: free-floating, shrimp-like crustaceans ranging from one to two inches, the upper size limit of the zooplankton realm.

When the water is cold, krill swarm off the Northern California coast by the tens of thousands of tons. Now that they are largely absent, fisheries and wildlife are feeling the effects.

In perhaps the most ominous development, seabird nesting has dropped significantly on the Farallon Islands off San Francisco, the largest Pacific Coast seabird rookery south of Alaska.

Bill Sydeman, the director of marine ecology for the Point Reyes Bird Observatory, a science and conservation organization that maintains a research station on the Farallones, said the collapse of the nesting season is unprecedented in the three decades the group has monitored the islands.

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Cassin's auklets -- a relatively rare seabird that feeds almost exclusively on krill -- have been particularly hard hit, Sydeman said.

"Normally they breed in March," Sydeman said. "They got started late this year, and by May they had virtually disappeared. We expect zero nesting success for them this year, or close to it. We've never seen anything like it."

Sydeman said other seabirds are also showing the effects of the reduced marine productivity.

"We have little or no nesting of pelagic cormorants (at the Farallones), and Brandt's cormorants are nesting at reduced numbers," he said. "Double-crested cormorant nesting is down by 50 percent (in the Bay Area)."

Upwelling cessation is typically caused by El Niño events -- warm water intrusions from the equatorial Pacific. But what is happening off the coast right now is not a true El Niño, Sydeman said.

"We really don't have a clear idea of what it is," Sydeman said, noting that standard El Niños can be tracked as they progress from the equator to temperate waters, something that hasn't occurred in the current case.

"Some are calling it an El Niño Norte; others think it's some sort of anomalous intrusion of warm offshore blue water onto the continental shelf," he said.

A recent study indicated the phenomenon may be long term, and linked to global warming.

Last week, Fisheries and Oceans Canada -- the federal agency dealing with Canada's marine and inland waters -- released a report saying 2004's spring and summer ocean surface temperatures in the Gulf of Alaska and off British Columbia were the warmest in 50 years.

The study concluded the record high temperatures were caused by abnormally warm weather in Alaska and western Canada, as well as "general warming of global lands and oceans."

Some pulses of upwelling occurred off Northern California in June, Sydeman said, but they're unlikely to significantly increase marine productivity.

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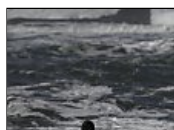
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