

United States, West Coast sardine fishery remains closed

A new stock assessment of sardine populations off the West Coast shows that sardine numbers remain low, and remain below the cut-off level where directed fishing for the species could again be allowed. Based on this information, and the management framework in place for this stock, the Pacific Fishery Management Council voted to keep fishing for sardine closed for the second year in a row.

As occurred last year, the Council voted to allow for small amounts of sardine taken (up to a total of 8,000 metric tons) as live bait harvest, Tribal harvest, incidental catch in other fisheries (such as mackerel and anchovy), and for scientific research studies.

Directed commercial fishing for Pacific sardine is not allowed because the assessment estimated the spawning biomass to be approximately 106,000 metric tons. This is below the cut-off level of 150,000 metric tons, the lowest level at which directed fishing is allowed.

This cut-off threshold, included in the Coastal Pelagic Species fishery management plan, is set three times greater than the level at which sardines are considered overfished. This approach limits fishing as the stock declines to help maintain a stable core population of sardines that can jump-start a new cycle of population growth.

The stock biomass is the size of the adult sardine population of reproductive age (a year old and older) as measured by offshore surveys conducted by [NOAA Fisheries](#) in the last year. The estimate does not include very young fish that are not yet part of the spawning population.

There are some indications of stronger sardine reproduction in the last year that could eventually lead to improvements in West Coast sardine numbers, scientists said.

For example, surveys in 2015 counted increased numbers of small sardines off central California and similarly found young sardines along the Oregon-California Coast that would not be included in overall stock biomass estimates, and as such, would not be represented in the stock assessment. That indicates that sardines spawned along the West Coast last year and, if the young fish survive, they could add to the adult population in coming years.

Although sardines usually spawn off central California in the spring, last year they apparently spawned farther north, off Oregon. That suggests that sardine spawning may have shifted, perhaps in response to unusual ocean conditions such as “the blob,” an expanse of warm water that dominated West Coast waters through much of 2014 and 2015, and the *El Niño* climate pattern now affecting the region.

Sardines are known for their wide-ranging “boom-and-bust” population cycles around the world. They have been in decline off the West Coast since a series of cool years from 2010 to 2014 reduced the survival of eggs and very young fish so that few survived to join the adult spawning population. The question now is whether recent

warmer conditions may boost the survival of the large numbers of young fish so that more survive long enough to join the adult population.

Two annual stock assessment surveys, one currently underway this spring and another one planned for this summer will help to answer that question.

“We have had a few years of very unusual conditions on the West Coast, and we’re still learning what that means for sardines and many other species,” said Dale Sweetnam, deputy director of the Fisheries Resources Division at NOAA Fisheries’ Southwest Fisheries Science Center, which leads sardine surveys and stock assessments on the West Coast.

“Our best sources of information are the surveys that tell where the fish are and how well they’re surviving. Preliminary results this spring suggest that we did have good recruitment last year; however, the magnitude and extent of that recruitment will have to wait until we have completed the surveys,” Sweetnam concluded.

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