

SOUTHWEST FISHERIES SCIENCE CENTER
FOURTH QUARTER REPORT-FY 2003
For the period July 1, 2003 through September 30, 2003

Submitted by: Norman Bartoo, Acting Division Director, Fisheries Resources Division

Title of accomplishment or milestone: Sardine biomass estimate for 2003

Current status: Completed Aug/2003

Background information: The Pacific sardine has been growing at about 30% per year for the last 15 years, from only 6,000 tons to over a million tons. The re-appearance of sardine populations in the north California Current ecosystem adds a major forage base and consumer input to the system, with large expected changes in trophic structure. The spawning biomass of Pacific sardine (*Sardinops sagax*) has been estimated since 1986 using the daily egg production method.

Purpose of activity: The goal of this work is to continue the time series of the estimates of spawning biomass of Pacific sardine

Description of accomplishment and significant results: Based on April CalCOFI cruise (April 6 - May 3, 2003) from San Diego to San Francisco, the estimate of daily egg production of Pacific sardine (*Sardinops sagax*) off California was obtained : 1.46/0.05m² (CV=0.18) compared to 2002 estimates: 0.728/0.05m² (CV =0.17). The spawning biomass was estimated to be 465,169 mt (CV=0.36) for an area of 365906 km², which was computed from the estimate of the daily egg production of 2003 and the estimate of the daily specific fecundity (number of eggs/population weight (gm)/day: 22.94 from the 2002. The survey area in 2003 is greater than the area in 2002: 325,082 km², which covered the area from San Diego to Monterey. The estimates of spawning biomass of Pacific sardine in 1994 and 1996 - 2002 are 129,000 mt, 83,000 mt, 440,000 mt, 310,000 mt, 280,000 mt, 1.06 million mt, 791,000 mt, and 206,000 mt respectively. Therefore, the estimates of spawning biomass have been fluctuating since 1994.

Significance of accomplishment: The estimate of spawning biomass is fishery independent and is a key input to the stock assessment of the biomass of Pacific sardine off California.

Problems: None

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