

Inquiries concerning the California Cooperative Oceanic Fisheries Investigations should be addressed to the State Fisheries Laboratory, California Department of Fish and Game, Terminal Island, California, or to University of California, Scripps Institution of Oceanography, La Jolla, California

CALIFORNIA COOPERATIVE OCEANIC FISHERIES INVESTIGATIONS

Progress Report, 1 April 1955-30 June 1956

E R R A T A

- Page 19, left-hand column, line 24. For "1955-56" read "1956-57".
- Page 25, left-hand column, line 47. For "Onchorhynchus tshauytscha" read "Oncorhynchus tshawytscha".
- Page 28, left-hand column, line 38. Delete sentence beginning "All are small crustaceans...", and substitute "These are small crustaceans and pelagic mollusks found in the upper layers of the ocean".
- Page 29, table 11. Phrases "more than" and "less than" should appear in column headed "Number of fish". Phrase "more than" should be deleted from entries from 1938 through 1950.
- Page 44, right-hand column, line 26. For "guttara" read "guttata".

LETTER OF TRANSMITTAL

1 July 1956

HONORABLE GOODWIN J. KNIGHT
Governor of the State of California
Sacramento, California

DEAR SIR: We respectfully submit a report on the progress of the California Cooperative Oceanic Fisheries Investigations for the period 1 April 1955 to 30 June 1956.

For several years the agencies cooperating in this program have conducted research on other fishes than the sardine. This work has been only briefly reported on in the past. In this report, we have asked the research agencies, after quickly reviewing their activities during the reporting period, to present individual articles summarizing the status of their knowledge of three important marine fisheries: the anchovy, the jack mackerel, the Pacific mackerel. The report thus contains sections on each of these and a single section on their eggs and larvae. Included in the report is an annotated list of publications which have arisen from research conducted under the investigations during the period 1 January 1955-30 June 1956.

Respectfully,

THE MARINE RESEARCH COMMITTEE
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ABSTRACT

In the period 1 April 1955-30 June 1956, the ships of the California Co-operative Oceanic Fisheries Investigations (CCOFI) spent 893 days at sea. In addition to routine oceanographic-biological surveys along the California and Baja California coast, the ships cooperated in the international NORPAC project, the largest single oceanographic survey ever conducted, and made two special cruises to the Gulf of California.

New developments included a very promising technique for electrical fishing and refinements on the method of scouting fish schools from airplanes.

At the close of the reporting period, the outlook for the fisheries was this:

Sardine: Sardines spawned off Southern California again in 1956 and schools appeared off Port Hueneme late in June. None of the year-classes in the fishery approach the strength of the rapidly disappearing 1948 year-class, the last one comprising satisfactory numbers.

Anchovy: The anchovy population off Southern California has probably doubled in numbers since 1951. The airplane spotting surveys in May and June located enormous concentrations of anchovies near shore. The anchovy stock will probably remain at a high level of abundance for several years.

Jack mackerel: The past five years have seen the large jack mackerel become one of the prized sport fishes of California. The catch was 40,000 fish in 1955. During this period it was learned that the jack mackerel spawns extensively off the northwestern coast of the United States during August, eggs and larvae being found far out at sea.

Pacific mackerel: The available Pacific mackerel population is at a low level. Nearly half of some year-classes are caught before they are two years old. The available population in the 1950's is much smaller than in the 1930's and 1940's.

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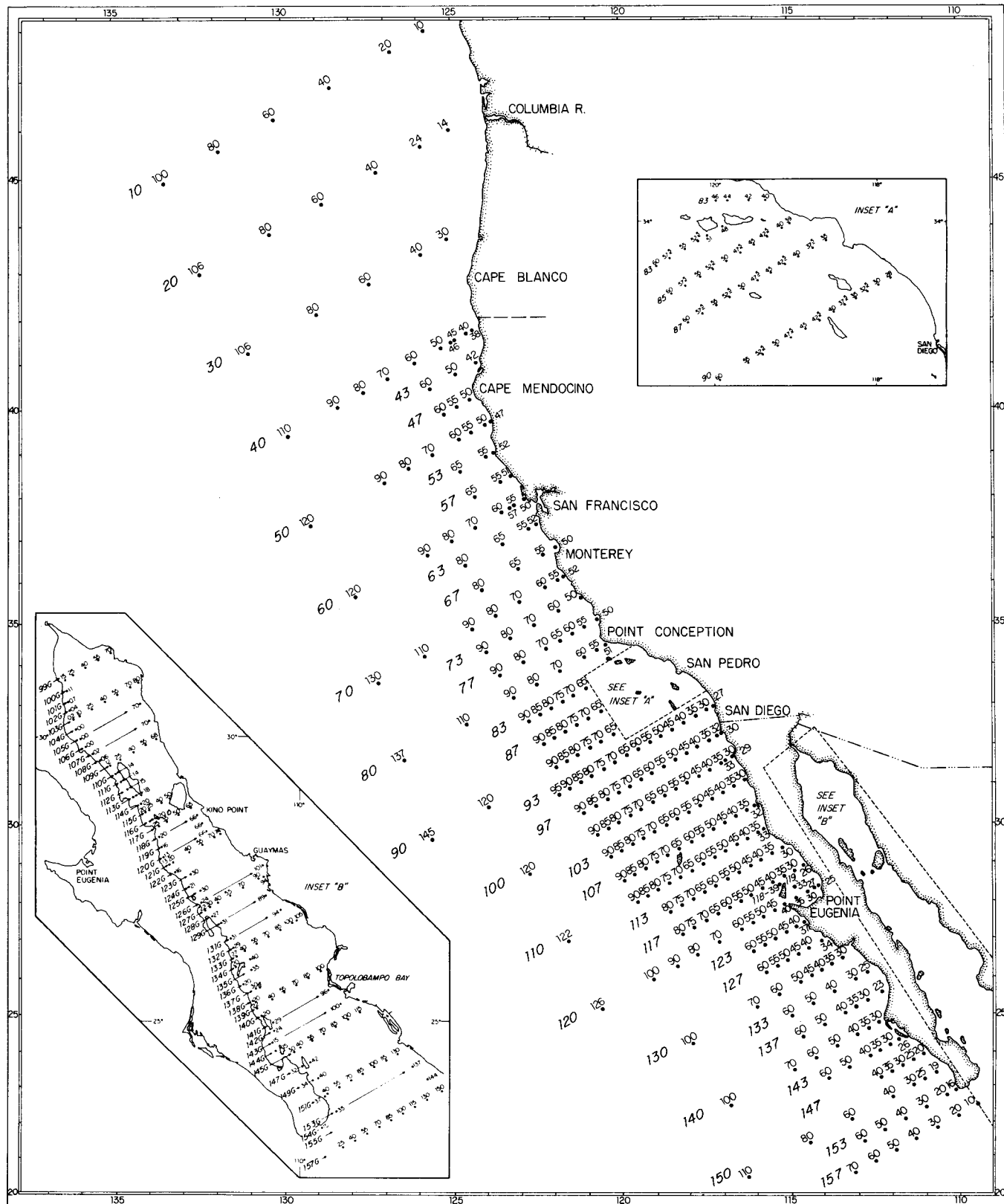


FIGURE 1. Area covered by oceanographic-biological cruises, 1 April 1955 to 30 June 1956 (except during NORPAC project). Numbers in italics indicate lines. Dot indicates station position, numerals indicate station number. To refer to station, the station number is preceeded by the line number; thus Station 97.65 is Station 65 on line 97. Inset "A": Station pattern in Southern California area. Inset "B": Station pattern in Gulf of California.