

The Resources Agency of California
Department of Fish and Game
Marine Resources Operations
California State Fisheries Laboratory
Terminal Island, California

Cruise Reports 62S5, 62S6, 62M1, 62M2 -- Abalone
Prepared by Keith W. Cox

Vessels: N. B. SCOFIELD
M. V. MOLLUSK

Dates: First Cruise August 15 - August 27, 1962 (62S5 and 62M1).
Second Cruise September 5 - September 17, 1962 (62S6 and 62M2).

Locality: Mainland coastal areas of Avila and San Simeon; and the Channel Islands of Santa Catalina, San Clemente, Santa Barbara, San Nicolas, Santa Cruz, Santa Rosa, and Anacapa.

Purpose: To examine areas of commercial and sport abalone fishing.
To examine established stations.
To collect samples for maturity, and growth studies.
To tag a limited number of abalones for transplanting experiments.

Results: First Cruise:

Avila

No abalones were found on any of the dives. There is no explanation for this since the bottom and general environment appeared suitable for them.

San Simeon

The abalones sampled here had well-developed gonads and appeared to be approaching spawning. Sizes ranged from 153 to 216 mm but most were between 190 and 198 mm. All but two showed evidence of last season's growth. Several had added over 2.5 cm of shell.

This season's growth appeared to be just starting; most of the sampled abalones had added 1 to 2 mm of shell.

Because of rough weather plans for diving along the mainland coast were altered and operations were shifted to San Miguel and Santa Cruz Islands.

San Miguel Island

At Station ISM considerable bottom changes had taken place since last year. Sand had moved in over large areas, almost completely covering the rocks; most of the kelp was growing through the sand but no abalones

were present. At the east end of the station, rocks were almost bare and covered with sea urchins. In the middle area, kelp was growing so thickly that it was difficult to get through, but no abalones were found. Abalones were finally located at the extreme west end of the area. Many young were found on the undersides of rocks. Forty abalones, 144 to 220 mm across, were collected for Marineland. Many of these showed evidence of last season's growth; only one or two had started this season's growth.

Santa Cruz Island

Dives were made at Scorpion Cove, a representative abalone area. Almost all red and pink abalones collected showed considerable growth for last season. The ratio of 42 red to 17 pink abalones compared favorably with the trend first observed a year ago, (that is, the red abalones are increasing in numbers on the north shore of Santa Cruz Island). Sizes in the sample of reds ranged from 148 to 201 mm but most were between 175 and 190 mm.

Santa Catalina Island

At Harbor Reef (Station 1C) the kelp has continued to return and is now about as concentrated as it was in 1957, before the influx of warm water. Many young abalones (pinks), all in good condition, were observed feeding. Most showed new shell growth but not an exceptional amount.

Second Cruise:

Santa Rosa Island

An effort was made to inspect black abalones tagged in 1961 at ISR, but rough weather prohibited our sampling them.

Anacapa Island

Diving was delayed because both divers had mild respiratory infections. First dives were made on the north side where bottom conditions appeared good but abalones were scarce. Skin and SCUBA divers frequent this area and as a result it is heavily fished, which may account for the scarcity of abalones. At Anacapa Station IA, on the south side, few abalones were observed. Kelp continues to return, but bottom conditions, adverse to abalones, appeared to be spreading (i.e. increases in sand and sea urchins).

Santa Barbara Island

At Station ISB, kelp was not as dense as last year,

many abalones were close to shore and on the undersides of rocks; there was no evidence of unusual growth. Spot dives on the north side of the main island in the thick growth of Postelsia palmaeformis revealed only an occasional abalone but on the edge of kelp beds great concentrations of sea urchins were observed.

San Nicolas Island

A sample of 40 reds and 11 pink abalones was taken from Station ISN. Reds ranged from 65 to 230 mm across, with 25 between 200 and 230 mm. Considerable last year's growth was evident on almost all shells and only a small amount for the current season.

Pinks showed recent growth of from 2 to 4 mm. Both species had well-developed gonads, approaching spawning condition. The greatest abalone concentrations were found in 50- to 60-foot depths.

San Clemente Island

Abalones appeared to be less numerous at Station ISC than last year. Last season's growth ranged between 3 to 5 mm, and little or no growth for this season was observed for pinks. Growth on green abalones was highly irregular, ranging from 0 to 2 inches.

At Pyramid Cove (Station 2SC), pinks and greens were found in large concentrations, in some areas stacked two and three deep. Abalones were not present in such numbers last year in this area. Several of the greens were in spawning condition but the pinks were not.

At China Cove (Station 3SC), commercial divers were working and we made dives in the immediate area. Legal size pink abalones were scarce. The divers had been working for several hours and had only a few dozen. This area has been worked heavily by the commercial divers during the last year.

Santa Catalina Island

Abalones at Station 2C were more numerous than last year with a noticeable increase in small (1- to 3-inch) individuals.

A pink, tagged October 1958, which had grown 18 mm by September 1962, was recovered from this station. All 145 abalones taken at San Nicolas, San Clemente, and Anacapa were measured, tagged and placed in Station 2C. At Station 3C (Avalon Harbor), approximately 30 abalones (pinks) tagged in 1957 with plastic disks were found. The disks had completely deteriorated, only the wire remained.

At Station IC, we recovered empty shells of two reds transplanted in 1956. Both were recovered in 100 feet of water, neither had grown after tagging. At a depth of 115 feet, three young white abalones H. sorenseni, (3/4, 1 1/2, and 4 inches across) were recovered from the undersurface of a rock. Kelp has returned on the reef and is now about as thick as in 1956. Many young pinks were observed, all appeared to be in good condition.

Summary of observations:

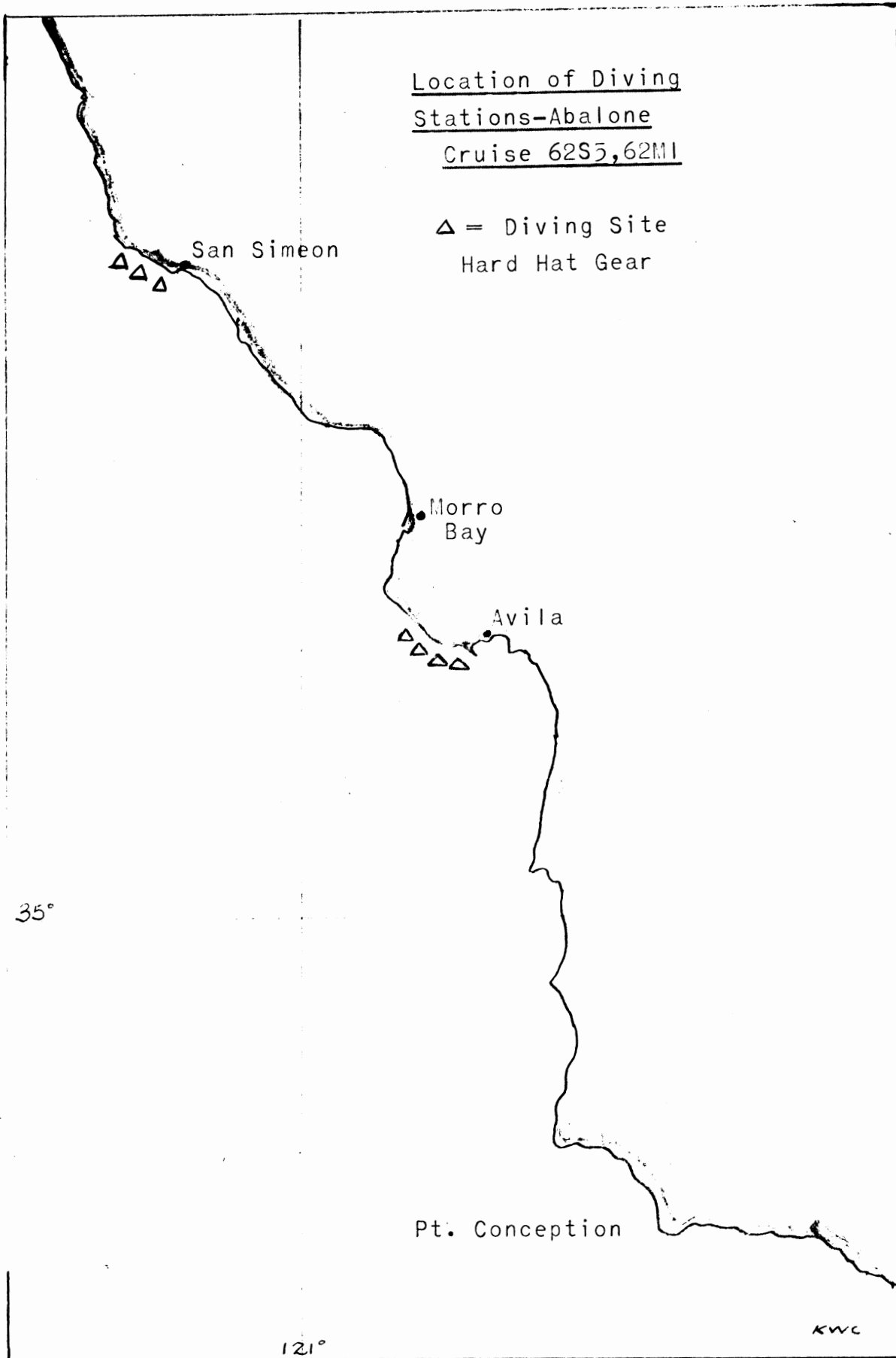
In general the environment of all areas showed a progressive improvement in food supply for the present abalone population. This is reflected in the increase in the numbers of growing young in most areas. Where commercial fishing pressure has been heaviest, legal-size abalones were scarce; where skin diving pressure has been heavy (Anacapa), abalones of all sizes were scanty. Most of the abalones showed considerable growth for last season. This season's growth is just beginning.

Gonad examinations indicated that spawning had not yet occurred, although most were approaching ripeness. The overall condition of the abalone resource is, from a biological standpoint, encouraging and if present conditions prevail, should remain so for the balance of the season.

Personnel: R. B. Mitchell-Captain, N. B. SCOFIELD
M. Mazarovich-Acting Captain
K.W. Cox-Biologist-in-charge
G. Bickford-Diver Deckhand
W. Thomas-Diver Deckhand
Dr. P.C. Orr-Santa Barbara Museum -- guest

Location of Diving
Stations-Abalone
Cruise 62S5,62M1

△ = Diving Site
Hard Hat Gear



Location of Stations

and Diving Sites

Abalone Cruise

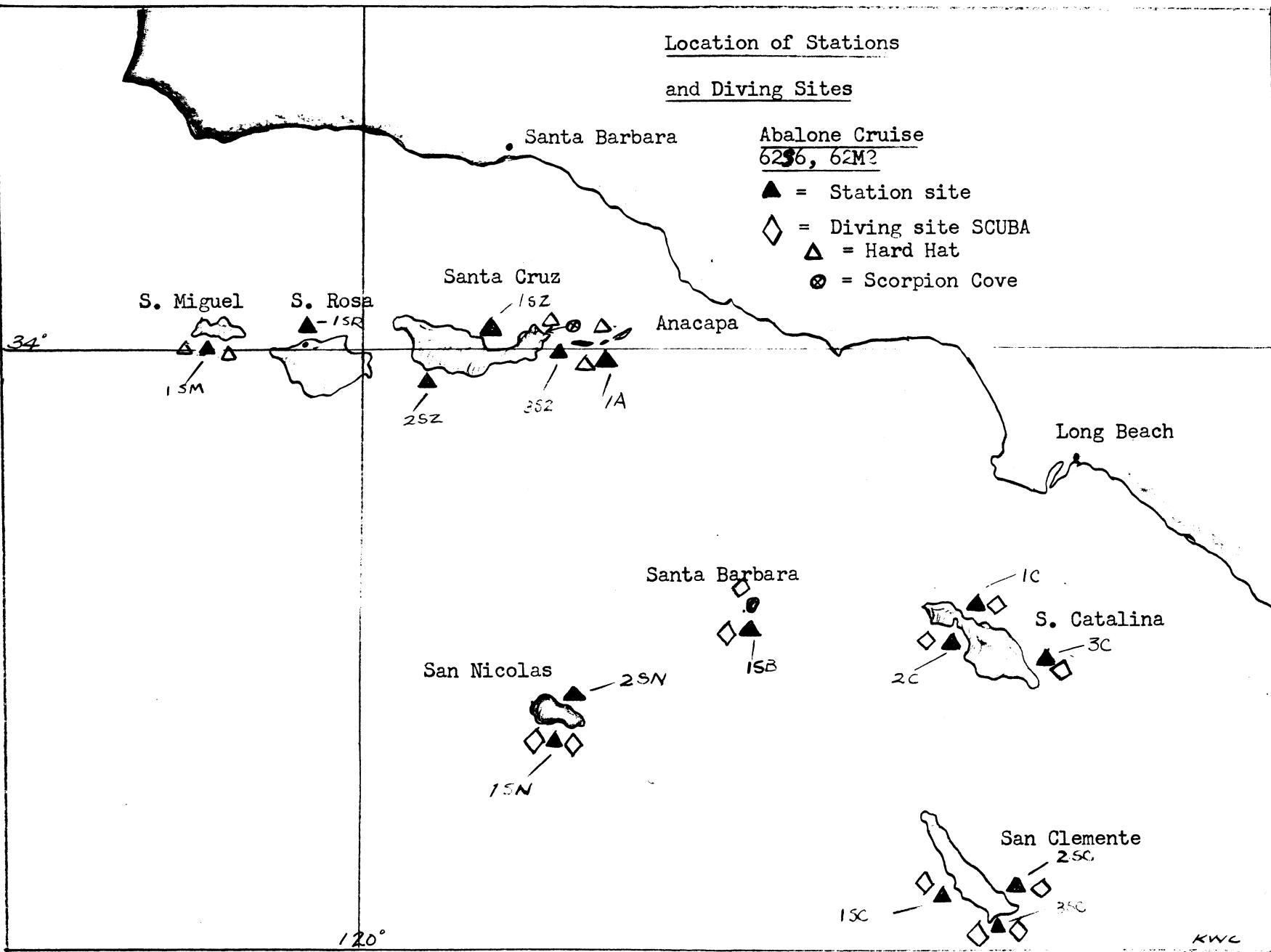
6236, 62M2

▲ = Station site

◇ = Diving site SCUBA

△ = Hard Hat

⊗ = Scorpion Cove



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