

State of California - The Resources Agency
Department of Fish and Game
Marine Resources Region
Long Beach, California

CRUISE REPORT 74-KB-2
ABALONE AND LOBSTER INVESTIGATIONS

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Vessel: KELP BASS

Dates: January 19 - 25, 1974

Locality: Santa Rosa Island

- Objectives:
1. Inspect traditional commercial abalone fishing areas to determine species present, spatial distribution and relative abundance.
 2. Identify the common floral and faunal components of the subtidal.
 3. Determine size class distribution, length/weight relationship, and reproductive condition of red abalones, *Haliotis rufescens*.
 4. Determine relative abundance and size class distribution of spiny lobsters, *Panulirus interruptus*.

Procedure: Divers occupied 20 stations in traditional diving areas. Information gathered at each station included: a 20 minute count of all species of abalones, estimates of major floral and faunal components, counts and measurements of spiny lobsters, relative abundance of abalone competitors and predators, an inspection and evaluation of abalone nursery areas, and physical data such as substrate type, depth, temperature and visibility.

Lobster traps were set overnight at Ford Point and Bechers Bay.

Results: Marginal diving weather prevailed during the cruise and daily surveys were often limited to areas where we could find shelter from easterly and westerly swell and NW winds. During some periods wind chop made skiff operations unsafe.

Good concentrations of red abalones were found in giant kelp (*Macrocystis*) beds in the vicinity of Johnson's Lee where five 20-minute counts resulted in a total count of 495 red abalones, 2 pink abalones, *H. corrugata*, and 3 black abalones, *H. cracherodii* (Stations 1, 2, 3, 4, 7 - Figure 1). The habitat was generally considered good to excellent for both adult and juvenile abalones with numerous rocky undercut

ledges, boulders, crevices, and flats. Red sea urchins, *Strongylocentrotus franciscanus*, dominated many areas by occupying most of the available protective niches and limited abalone production.

At Ford Point, Bechers Bay, and Talcott Shoal (Figure 1-2), our stations did not fall in good concentrations of abalones and much of the bottom was considered marginal for abalone production. Three stations off Ford Point (5, 6, 11) in 25 to 45 foot depths produced 234 red abalone and 27 pink abalone. These abalones were generally found on low reefs and large boulders separated by expanses of sand. Deeper stations (9 and 10) just east of Ford Point in 55 to 65 foot depths, fell in fair to poor habitat with sand covering 60 to 90% of the bottom and only 41 reds, 6 pinks and 1 white abalone, *H. sorenseni*, were observed.

Water visibility in Bechers Bay was generally less than 5' restricting our observations. Bottom sediment and precipitous sandstone and loose soil cliffs indicated this may be the normal condition. Two stations (14 and 15) in shallow water *Macrocystis* beds near the ranch pier, yielded 4 and 13 red abalones. Red and purple urchins dominated more than 90% of this area. At Coati Point and Carrington Point, a few reds were seen in shallow water while solitary anemones, *Anthopleura xanthogrammica*, blanketed many rocky surfaces from the rock-sand interface (20 foot depths) up to 10 feet and less.

At Sandy Point the water visibility was less than two feet and heavy sand transport was evident. Tree kelp, *Pterygophora californica*, stipes were often half buried in sand while thousands of sand dollar (*Dendraster excentricus*) tests lined rocky depressions several feet above the sand floor. Only 5 red abalone were observed at two stations (17 and 18).

Two stations outside Talcott Shoal in 65 foot depths fell on flat pavement rock with only a few 6" to 1 foot deep ledges. Water visibility was 2 feet or less, preventing visual location of abalone habitat. Only 4 red abalones were observed. A large swell prevented diving on the shallower reefs in this locality. A dense *Macrocystis* bed covered several square miles of the reefs and shoal in this region of Santa Cruz Island.

Red and purple sea urchins dominated the rocky substrate and occupied most of the abalone habitat. Red urchins were abundant at 16 stations, common at 3 stations and sparse at one station. The scarcity of red urchins at one station was due to the abundance of solitary anemones blanketing most rocky surfaces. Purple urchins were abundant at 6 stations, common at 6 stations, sparse at 5 stations and not present at 3 stations.

FIGURE 1. Diving stations occupied at Santa Rosa Island in the vicinity of Johnson's Lee on January 20-22, 1974

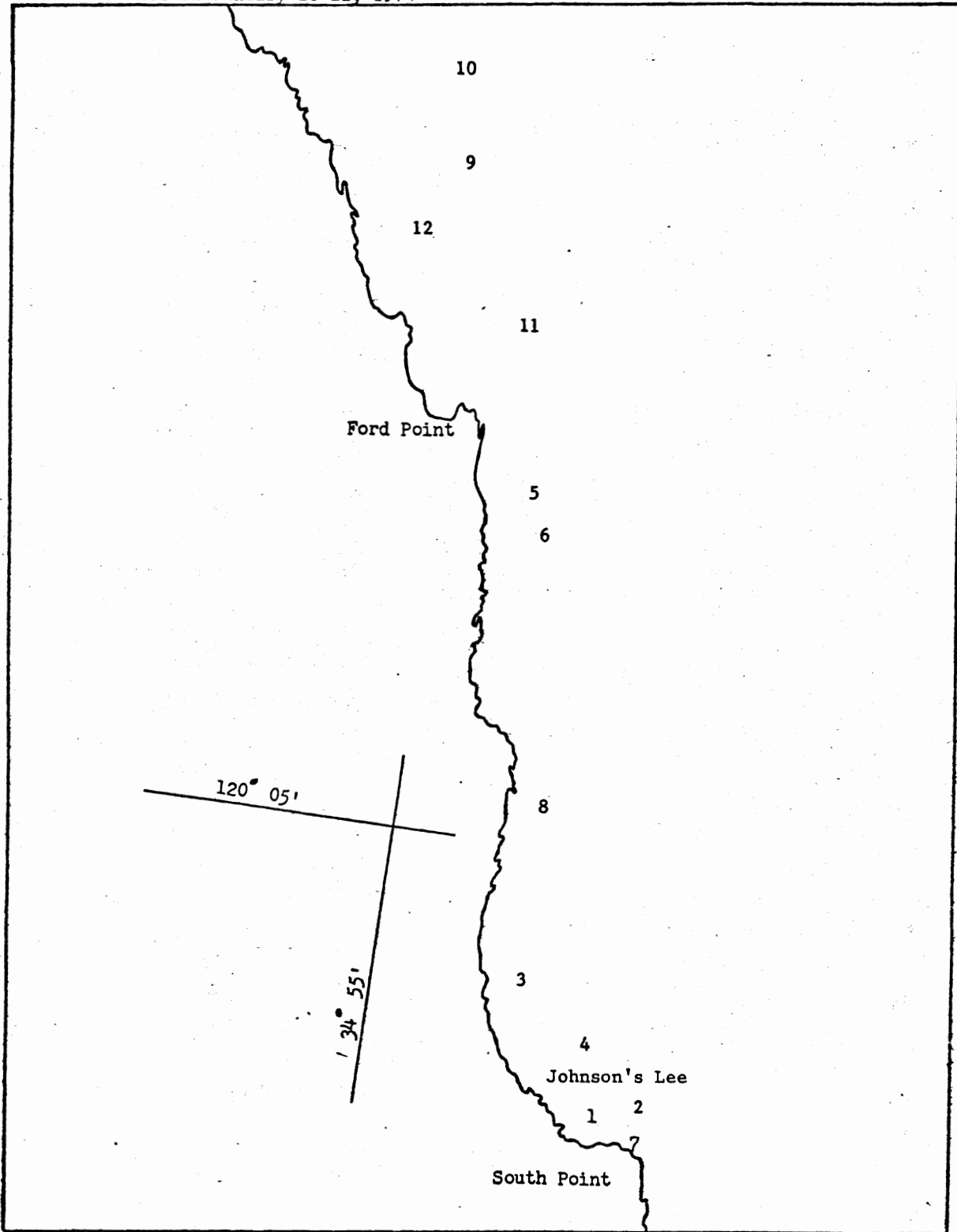
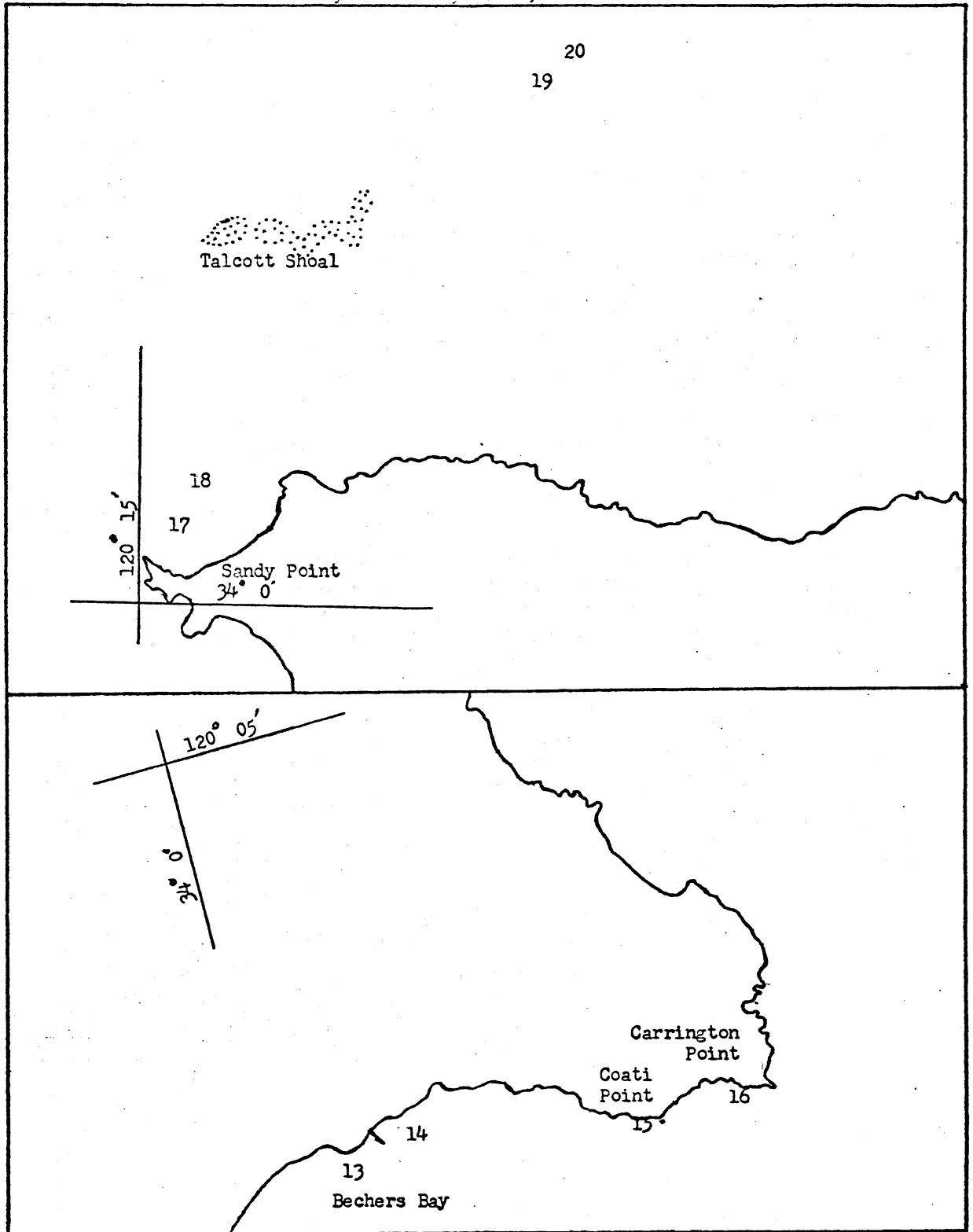


FIGURE 2. Diving stations occupied at Santa Rosa Island in the vicinity of Sandy Point and Bechers Bay on January 23-24, 1974



Sheephead, *Pimelometopon pulchrum* were the most common predator. They were common on Stations 9-12 near Ford Point, while an average of 6 sheephead were observed at Stations 1 through 8. No sheephead were found at Stations 15-20, probably due to poor habitat and water visibility.

Other predators included cabezon, *Scorpaenichthys marmoratus* (6 observed at 2 stations), rock crabs, *Cancer* spp. (6 observed on 3 stations), and sunflower stars, *Pycnopodia helianthoides*. Sunflower stars were often a common animal in the Johnson's Lee to Ford Point area, and were occasionally seen feeding on red urchins.

Red abalones were picked at Johnson's Lee and brought back to the Long Beach laboratory for the following measurements: length, width, total weight, foot weight, gonad weight, and shell weight. Additionally, sex and gonadal condition was noted. In all, 262 red abalone were brought in, ranging from 55 to 241 mm in length. Size class distribution of the emergent red abalones collected at Johnson's Lee was as follows:

<u>Shell diameter (mm)</u>	<u>number</u>	<u>Shell diameter (mm)</u>	<u>number</u>
41 - 60	6	141 - 160	27
61 - 80	8	161 - 180	63
81 - 100	12	181 - 200	68
101 - 120	11	201 - 220	17
121 - 140	23	221 - 240	2
		241 - 260	1

Nearly 15% of the emergent stocks were commercial legal and 42% were sport legal. This compares closely with data from Point Estero prior to the arrival of sea otters.

Six lobster traps were set overnight at Albert Anchorage, Santa Cruz Island. Only two lobster were caught. Carapace lengths were 75 mm and 80 mm respectively. The single female did not carry a sperm packet indicating that mating had not yet taken place.

A total of 23 overnight sets was made at Santa Rosa Island. Nine traps were set off Ford Point in 9-11 fathoms and 14 traps were set at Bechers Bay in 5 fathoms. No lobster were caught in these sets.

Five lobster collected while diving at Santa Rosa Island, ranged in size from 77 to 130 mm CL. Two of these were females which had mated and carried sperm packets.

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