

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

CRUISE REPORT 68-S-3 SHRIMP

Prepared by Steven N. Taylor

Vessel: N. B. SCOFIELD

Dates: Departed Eureka September 5, 1968.
Returned Eureka October 13, 1968.

- Objectives:**
1. To sample concentrations of ocean shrimp, *Pandalus jordani*, for estimating population size and natural mortality rates.
 2. To determine the age and sex composition of the population.
 3. To save rare or unusual invertebrates and fishes for various collections.
 4. To examine stomachs of Pacific hake, *Merluccius productus*, for relative abundance studies of shrimp.
 5. To sample inshore areas to determine the structure of the crab population.

Gear: Shrimp trawls were made with a semiballoon Gulf shrimp trawl with 41 foot head rope, 1 inch stretch mesh, $\frac{1}{4}$ inch mesh liner in the cod end. A $\frac{1}{4}$ inch tickler chain was attached to the doors.

Crab trawls were conducted with a flat Gulf trawl with 41 foot head rope and 1 inch stretch mesh. A $\frac{5}{16}$ tickler chain was attached to the doors.

Operations: A total of 153 randomly selected tows was completed in shrimp survey areas in 28 days. Equipment failure or bad weather kept the boat tied to the dock 7 days.

Forty-two trawls were made at depths ranging from 51 to 88 fathoms in a 105 square mile area between the Oregon-California border and Cape Sebastian, Oregon. The California survey area consisted of 270 square miles located between the mouth of the Mad River and the Oregon border in depths ranging from 40 to 110 fathoms.

Thirty-one crab trawls were made at randomly selected stations between False Cape and Trinidad in depths ranging from 8 to 50 fathoms (Fig. 3). Sixteen of the crab trawls were made during daylight hours and 15 at night.

Results: In the Oregon shrimp survey area, only small areas were found which contained commercial concentrations of shrimp (potential of at least 300 pounds per hour to commercial size nets). The best indications appeared at the southern end of the Oregon survey area (Fig. 2).

Commercial concentrations appeared in patches throughout the California survey area, but the largest area with a 300 plus pounds per hour potential lay west and northwest of Redding Rock (Fig. 1).

Average catch per hour for California and Oregon was computed excluding catches of less than 36 pounds per hour. In Oregon, the catch per hour for 31 trawls was 131 pounds, while 89 trawls in California averaged 334 pounds per hour.

The year class composition by area was:

California		
Age	Numbers	Percent
Zero	1,170,000,000	67.6
I	302,000,000	17.4
II	257,000,000	14.8
III	3,000,000	0.2

Oregon		
Age	Numbers	Percent
Zero	44,000,000	28.7
I	57,000,000	37.3
II	51,000,000	33.3
III	1,000,000	0.7

Poundage estimates combining all age groups were 8.6 million pounds for the California survey area and 0.8 million pounds for the Oregon survey area.

A total of 202 hake stomachs was examined for studies of relative shrimp abundance. The average number of shrimp per stomach was 2.7. Lengths of all hake captured in trawls were also recorded.

The 16 day crab trawls yielded an average of 95 crabs of all sizes and 18 legal size crabs per trawl. Average catch per night trawl was 163 crabs of all sizes and 42 legal size crabs.

Personnel: R. B. Mitchell, Vessel Captain
Dan Gotshall, Biologist - Sept. 14-15, Sept. 18, Oct. 13.
Steve Taylor, Biologist - Sept. 5-13, Sept. 16, Oct. 13.
John Span, Seasonal Aid - Sept. 5-17.

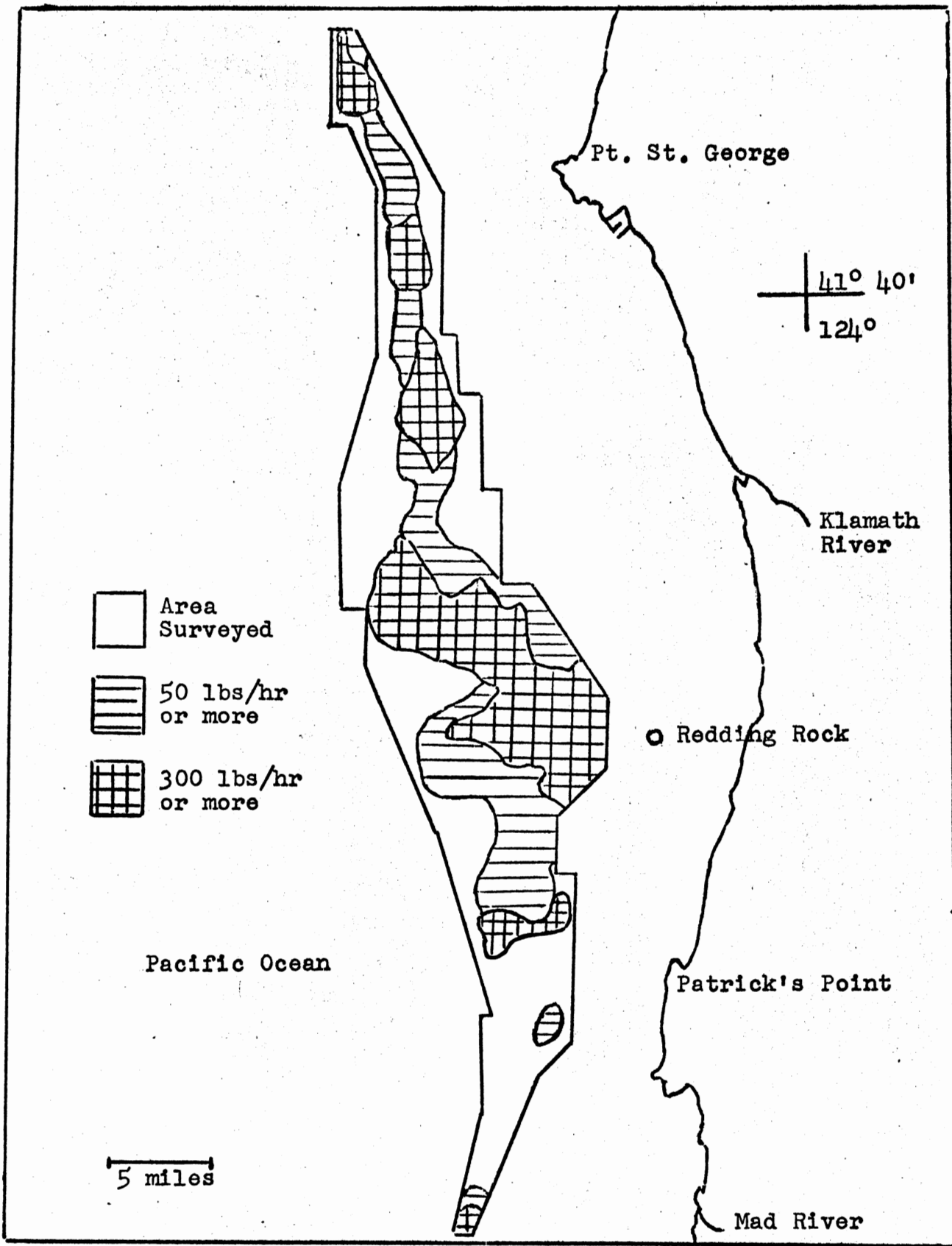


Fig. 1

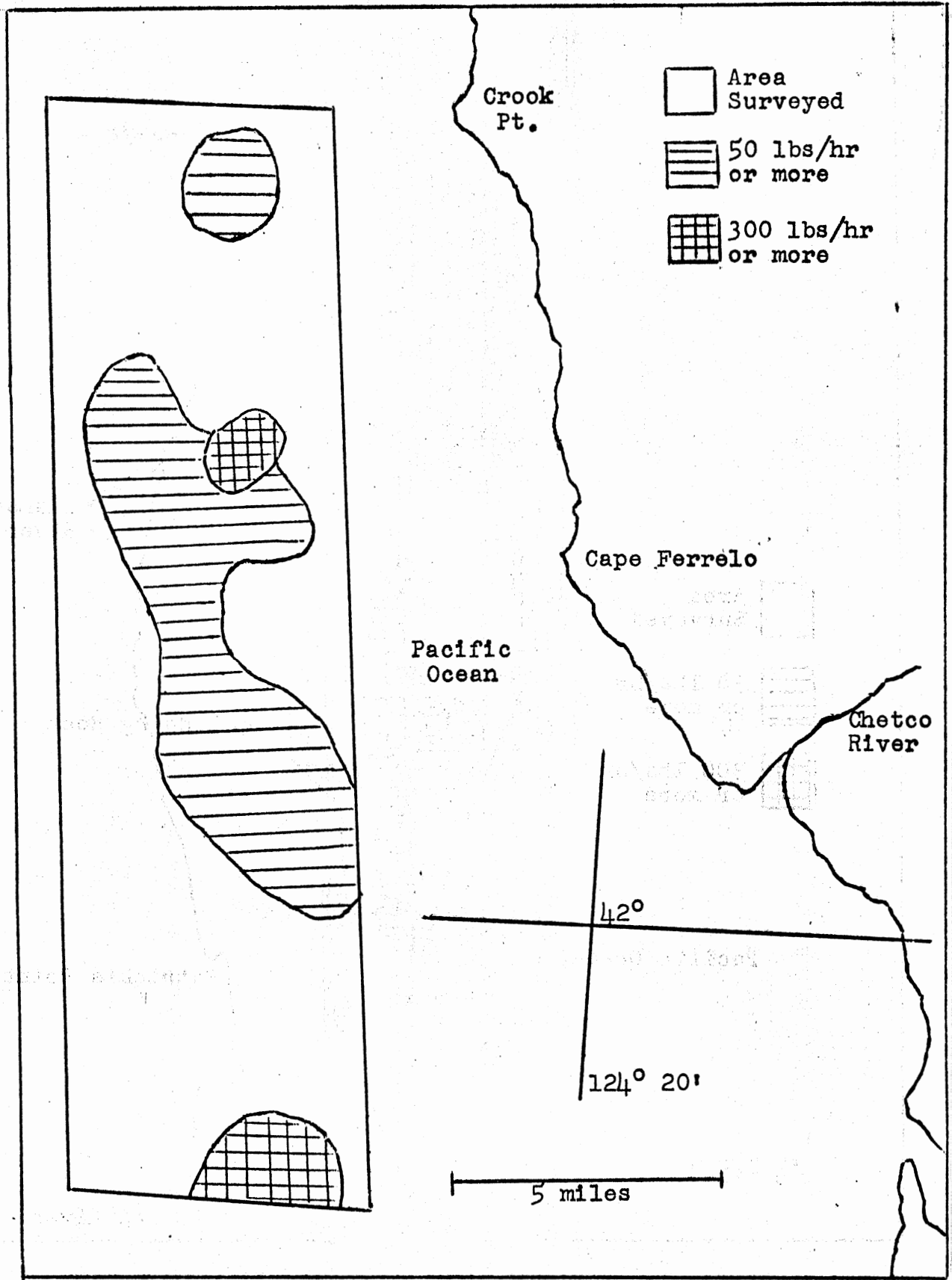


Fig. 2

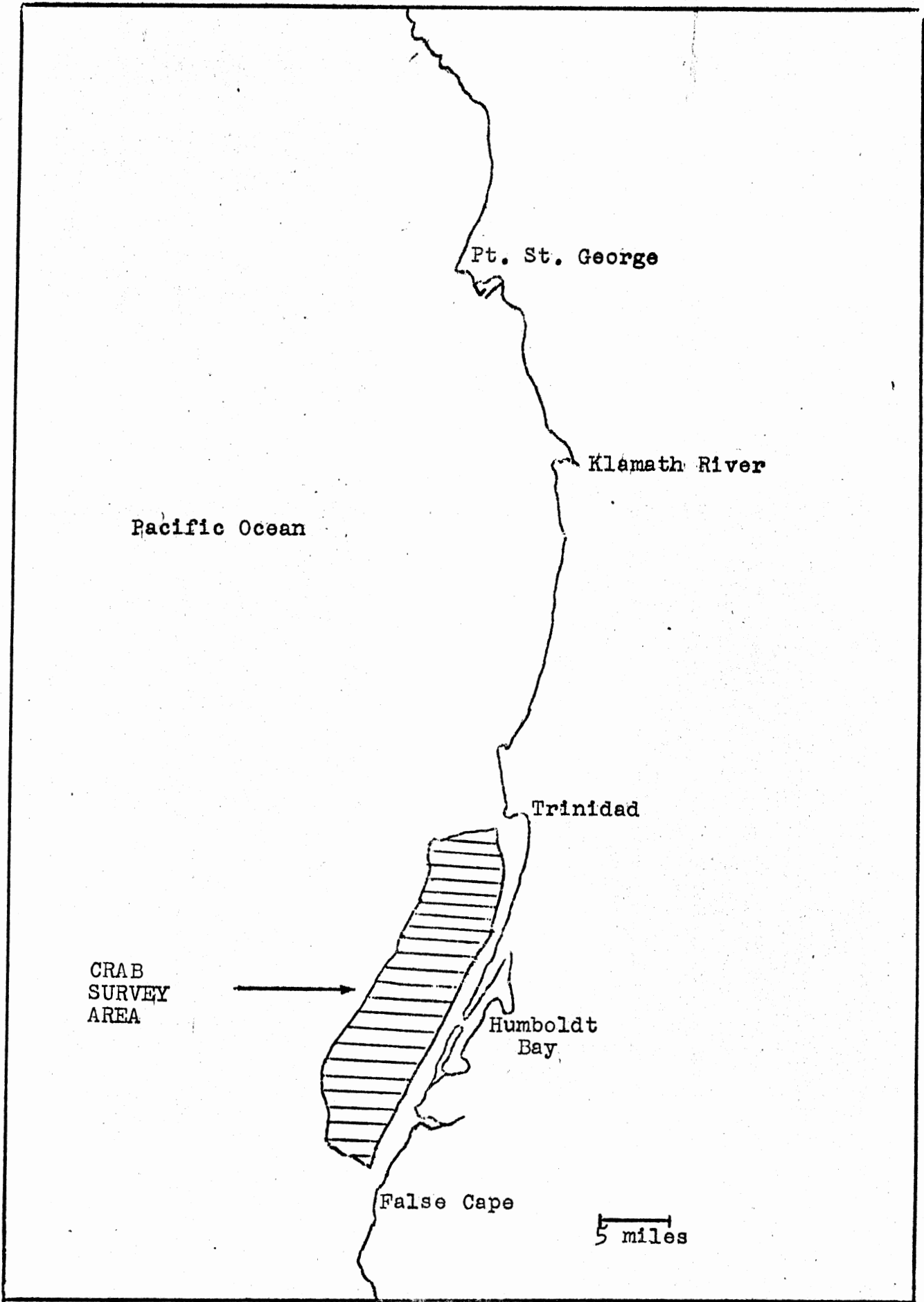


Fig. 3