

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

CRUISE REPORT 74-KB-~~15~~ AND 74-M-3 ABALONE-LOBSTER INVESTIGATIONS

Prepared by R. Burge

Vessels: R/V KELP BASS and R/V MOLLUSK

Dates: May 8 - 16, 1974

Locality: Abalone Cove, Palos Verdes Peninsula, San Nicolas Island, Santa Catalina Island.

- Purpose:
1. To inspect traditional commercial abalone fishing areas to determine species composition, spatial distribution and relative abundance.
  2. To catalog common subtidal faunal and floral components.
  3. To determine relative abundance and size class distribution of California spiny lobsters, *Panulirus interruptus*.
  4. To select an area in Abalone Cove to plant juvenile red abalones, *Haliotis rufescens*.

Procedures: The MOLLUSK was moved from Santa Barbara to Long Beach on May 8 to dive Abalone Cove and to secure for towing to San Nicolas Island on May 10.

A diving perusal of the Department's kelp planting areas in Abalone Cove was made on May 9.

Divers using scuba occupied 20 stations at San Nicolas Island in commercial fishing areas (Figure 1), and 12 stations at Santa Catalina Island (Figure 2), of which 11 were on the open seaward side. Information collected at each station included: a 20-minute count of all abalones; estimates of major floral and faunal components; an inspection and evaluation of abalone nursery areas; counts and measurements of California spiny lobsters, and physical data such as substrate type, depth, temperature, and water clarity.

Ten lobster traps were set overnight in Alpha area, San Nicolas Island, and near Catalina Harbor and West End, Santa Catalina Island.

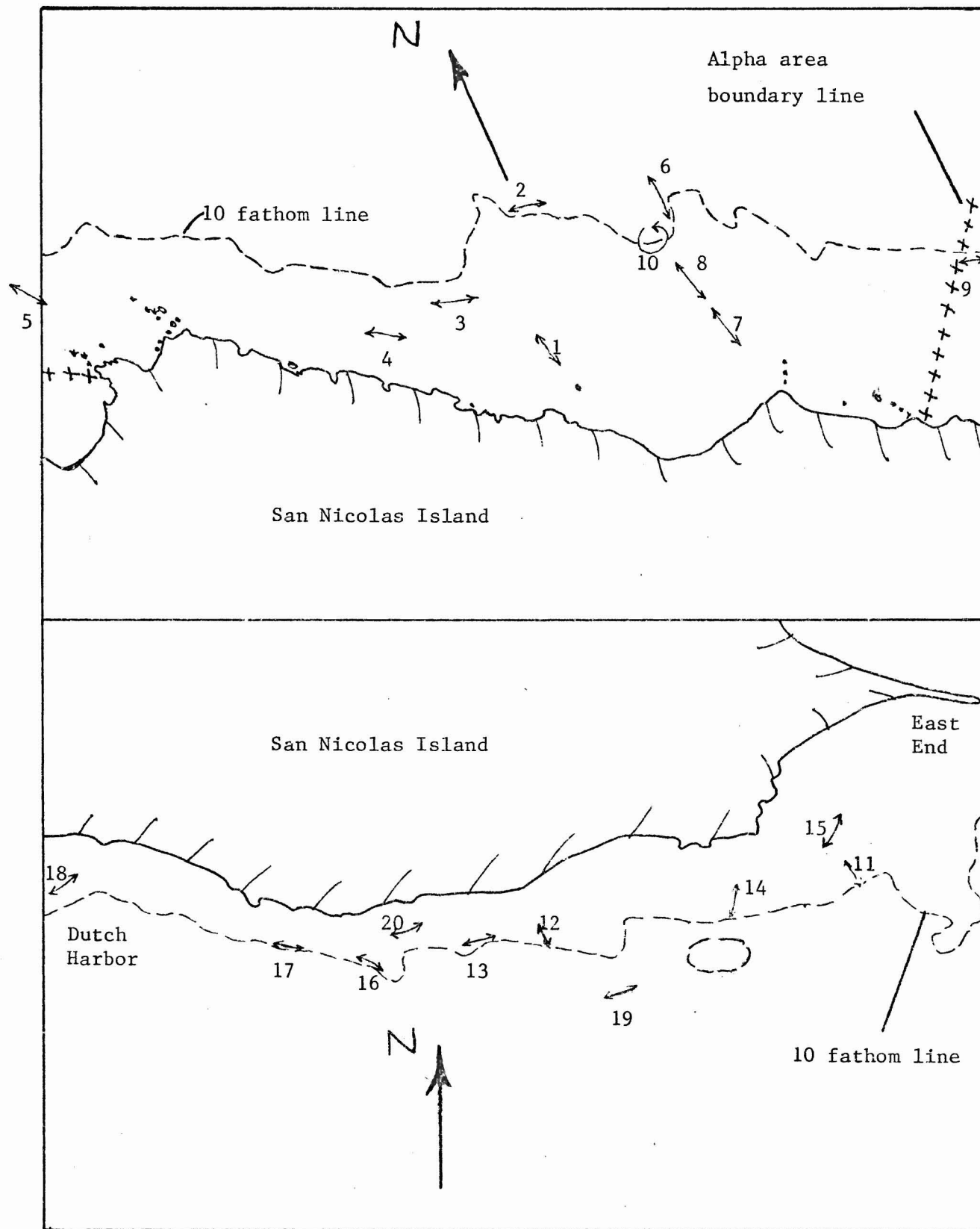


FIGURE 1. Location of survey stations at San Nicolas Island occupied during 74-KB-15 and 74-M-3.

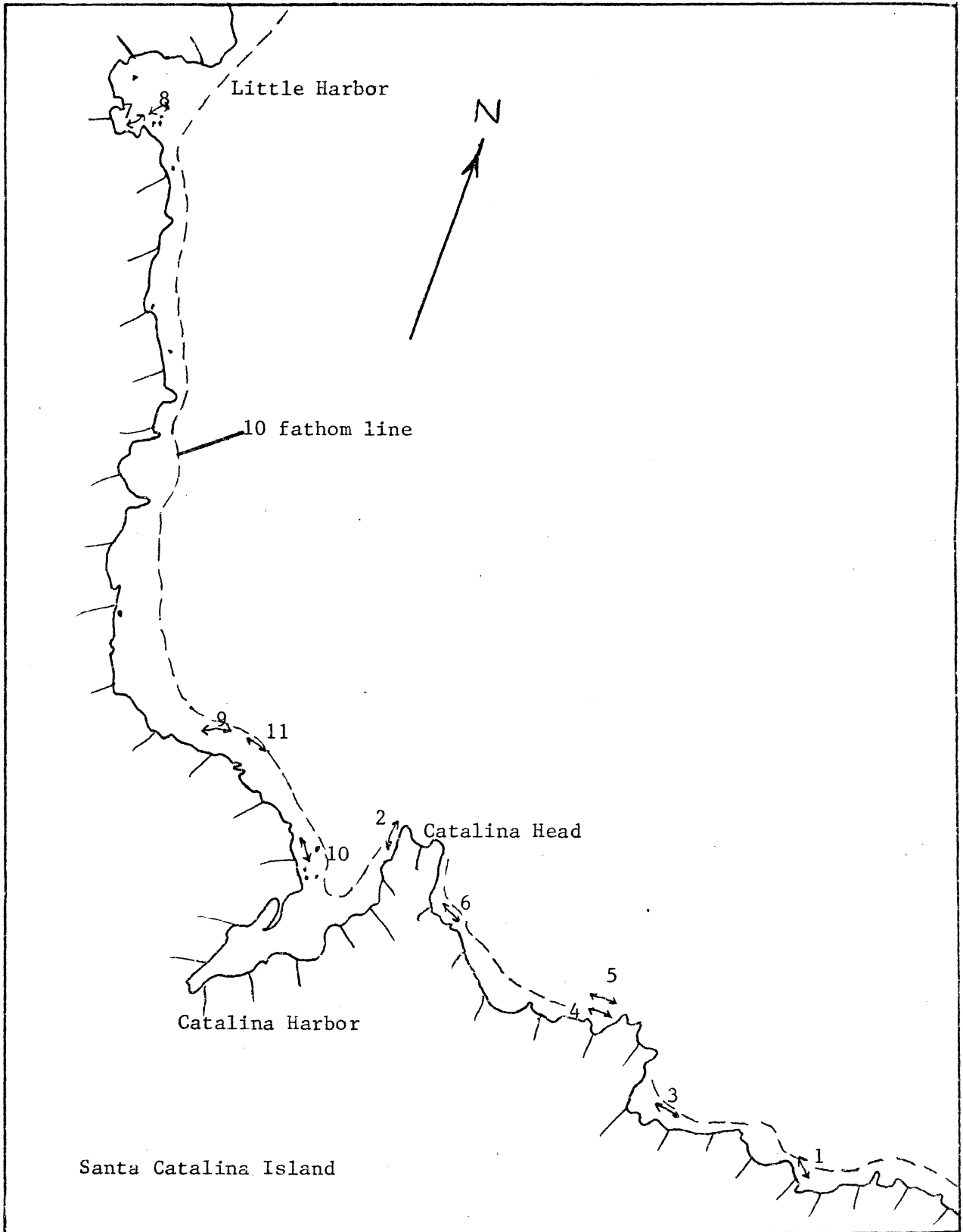


FIGURE 2. Location of survey stations at Santa Catalina Island occupied during 74-KB-15 and 74-KB-3.

**Results:** Moderate winds and ground swell prevented safe work in the foul area and along most of the west side of San Nicolas Island, limiting diving operations to the Naval Restricted Area Alpha on May 11 and to the Dutch Harbor-East End vicinity on May 12.

A total of 980 abalones and 16 lobsters was counted at San Nicolas Island during 400 min bottom time. Red abalones predominated the total count with 760 observed while 214 pink abalones (*H. corrugata*), 5 white abalones (*H. sorenseni*) and one threaded abalone (*H. kamtschatkana assimilis*) were also seen (Table 1).

Very few abalones were seen during 10 dives in Alpha area although the habitat was generally considered adequate for both adults and juveniles. The few red and pink abalones observed were mostly large, old specimens displaying poor growth characteristics. The near absence of juveniles and the presence of very few adults suggest Alpha area may be depleted of abalones when the few remaining adults are picked. There does not appear to be sufficient recruitment to support a continued harvest.

Divers observed fair to good numbers of red abalones and a few pink abalones in the Dutch Harbor-East End vicinity of San Nicolas Island. Red abalone were found along the seaward edge of kelp, *Macrocystis* sp., beds restricted to narrow crevices at rocky reef-sand bottom interfaces and along sand channels that penetrated reefs. Higher relief rocky outcroppings that lacked sand borders were generally dominated by giant red sea urchins, *Strongylocentrotus franciscanus*, and encrusting invertebrates. Moderate ground swell prevented surveyors from diving shallower than 6 m (20 ft) although the few observations made in shallow depths indicated complete dominance by giant red and purple (*S. purpuratus*) sea urchins.

Overnight trapping in Alpha area produced one lobster, while 16 were observed by divers. All appeared to be commercial size. The largest lobster taken to date on our cruises was captured here by hand, measured 174 mm (6.9 inches) CL, and weighed about 4.5 kg (10 lb).

On May 13, under heavy winds and building swell, we moved to Catalina Harbor, Santa Catalina Island. Dives were made in the vicinity of Catalina Harbor, Farnsworth Bank, and near the West End on May 14 and 15 (Figure 2).

Divers counted 897 abalones including 352 pink, 453 green (*H. fulgens*), 89 black (*H. cracherodii*) and 3 white at Catalina Island during 12 dives totalling 236

min bottom time (Table 1). Moderate swell along the exposed seaward side of the island (Stations C 1-11) usually prevented our occupying depths below 6 m (20 ft) where the habitat is most suitable for green and black abalones. However, we did observe fair numbers of green and pink abalones on most stations and considered the populations here to be good in relation to the available habitat.

A total of 57 California spiny lobsters was observed by divers at the 12 Catalina stations. Most were sublegal.

Traps set in the vicinity of Catalina Harbor yielded 3.1 lobster per trap of which 9.7% were legal size. Traps set at Three Rocks on the north-west side of the island where commercial trapping is prohibited resulted in a catch of 4.4 lobster per trap of which 43.2% were legal size.

Ten percent of the female lobsters from Catalina Harbor were ovigerous, while 70% from the Three Rocks area were ovigerous.

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Table 1. Summary of data from diving stations at San Nicolas and Catalina Islands occupied during 74-KB-15 and 74-M-3.

Station and Location	Count	Bottom	Number	Number	Number	Number	Number	Number
	time (min)	depth (m)	red ab.	pink ab.	green ab.	black ab.	white ab.	lobster
SN-1	Alpha area	20	9.1-10.7	0	24	0	0	1
SN-2	"	20	18.3-22.9	2	4	0	0	1
SN-3	"	20	12.2	0	4	0	0	0
SN-4	"	20	6.7	0	4	0	0	2
*SN-5	"	20	7.6	0	13	0	0	1
SN-6	"	20	16.8-18.3	30	12	0	0	0
SN-7	"	20	4.6-9.1	0	8	0	0	6
SN-8	"	20	7.6-10.7	1	31	0	0	3
SN-9	"	20	18.3-21.3	5	5	0	0	1
**SN-10	"	20	15.3	0	5	0	0	1
SN-11	Dutch Harbor vic.	20	13.7-15.2	72	15	0	0	0
SN-12	"	20	6.1-15.2	53	25	0	0	0
SN-13	"	20	7.6-15.2	23	4	0	0	0
SN-14	"	20	13.7-15.2	81	40	0	0	0
SN-15	"	20	6.7	32	5	0	0	0
SN-16	"	20	12.2	214	9	0	0	0
SN-17	"	20	6.1-7.6	143	1	0	0	0
SN-18	"	20	10.7-13.7	71	2	0	1	0
SN-19	"	20	22.9	21	0	0	1	0
SN-20	"	20	6.1-13.7	12	3	0	1	0
sub total		400	---	760	214	0	0	16
SC-1	Catalina Hbr. vic.	20	4.6-13.7	0	48	4	1	0
SC-2	Catalina Hd.	20	1.5-7.6	0	76	7	26	4
SC-3	Catalina Hbr. vic.	20	1.5-6.1	0	9	16	0	9
SC-4	"	20	3.0-7.6	0	21	16	6	2
SC-5	"	20	4.6-10.7	0	25	26	0	1
SC-6	"	20	3.0-4.6	0	55	154	10	0
SC-7	Little Harbor	20	1.5-9.1	0	24	10	0	8
SC-8	"	16	7.6-9.1	0	42	7	0	0
SC-9	Catalina Hbr. vic.	20	4.6-7.6	0	17	65	4	4
SC-10	"	20	3.0-10.7	0	7	10	0	9
SC-11	"	20	4.6-12.2	0	21	17	40	0
SC-12	Three Rocks	20	3.0-4.6	0	7	121	2	20
sub total		236	---	0	352	453	89	57
Total		636	---	760	566	453	89	73

\* One threaded abalone counted on this station.

\*\* Dive made with underwater propulsion devices (Farallones)