

INCREASING ABUNDANCE OF ALBATROSSES OFF THE COAST OF CALIFORNIA

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The three albatrosses of the north Pacific, *Diomedea nigripes* (the Black-footed), *D. immutabilis* (the Laysan), and *D. albatrus* (the Short-tailed) have all been recorded in the past as abundant off the Californian coast. By 1924, however, their numbers had greatly decreased, the Short-tailed to the point of extinction (Anthony, 1924). The Black-footed Albatross made a noticeable recovery in the fifteen years preceding 1944 (Grinnell and Miller, 1944) and recent observations suggest that this increase is con-

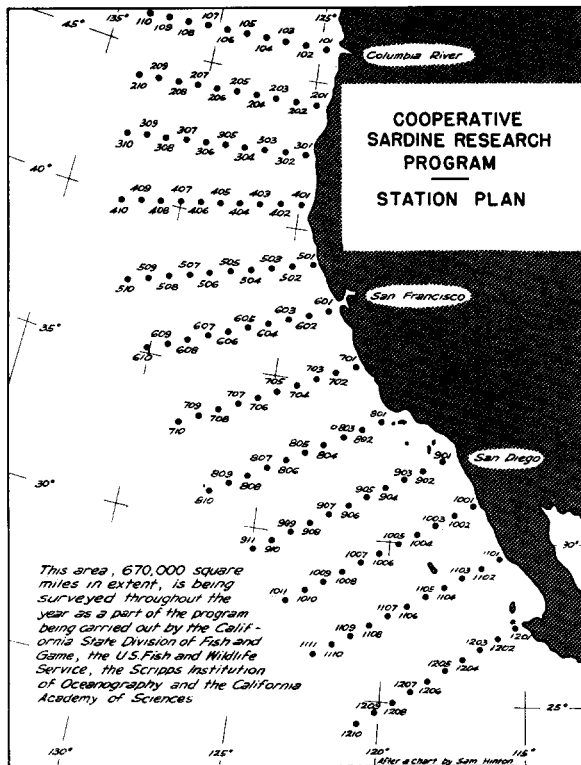


Fig. 30. Plan of stations visited by vessels from which counts of albatrosses were made.

tinuing. A search of the literature reveals no records of *D. albatrus* and only two of *D. immutabilis* from this area since early in the twentieth century.

The last positive record of the Short-tailed Albatross reported by Grinnell and Miller (1944) was in 1898, and these authors suggest that the species may be extinct. This is supported by Austin (1949) and is discussed by Kenyon (1950). It is therefore probable that the more recent records, such as that of Wilder (1940) were based on mistaken identification.

In 1909, a Laysan Albatross was taken off San Nicolas Island, and in 1913 two were seen 600 to 750 miles southwest of San Francisco (Willett, 1913). In 1945, Yocom

(1947a) saw two approximately 500 miles southwest of San Francisco, and Kenyon (1950) collected a specimen in December, 1948, about 75 miles northwest of San Francisco.

In March, 1949, while taking part in cruise 1 of the Scripps Institution vessel "Horizon," the author saw at least two Laysan Albatrosses off central California. The first observation was made at 8:45 a.m. on March 15 at station 803 (fig. 30) and a second bird of the same species appeared at 9:10 a.m. Forty miles closer inshore, at station 802, which was occupied early in the afternoon of the same day, no Laysan Albatrosses were seen, but at station 801, at 6:00 p.m., two appeared and came to rest



Fig. 31. Laysan Albatross seen at station 1010, 11:30 a.m., March 4, 1949.
Photograph by Warren Wooster.

on the water within fifty feet of the stern of the ship. During the same period, from February 28 to March 14, Laysan Albatrosses were also observed by E. H. Ahlstrom and R. L. Wisner from the Scripps Institution vessel "Crest" and by R. C. Wilson and Warren Wooster from the research vessel of the California State Division of Fish and Game, the "N. B. Scofield," while the former cruised off central California and the latter was off northern Lower California. Although this species is generally more timid than *D. nigripes*, on occasion it approached very close to the vessels (fig. 31).

During cruise 2 of the "Horizon," from March 28 to April 11, the following records of *D. immutabilis* were obtained:

Date	Position		Number
	N. Lat.	W. Long.	
March 31	32° 53'	120° 43'	1
April 2	33° 15'	122° 05'	1
April 3	31° 47'	125° 38'	2
April 5	35° 18'	130° 11'	1
April 5	35° 31'	129° 24'	2

The species was also seen off northern Lower California, southern California, northern California and Oregon by scientists on the other two vessels.

At all stations occupied during daylight by the "Horizon" large numbers of Black-footed Albatrosses were seen. The following counts were made during cruise 1:

Station	Date	Time	Maximum number
807	March 14	7:00 a.m.	25
806	March 14	1:00 p.m.	26
805	March 14	6:00 p.m.	22
803	March 15	9:10 a.m.	35
802	March 15	2:00 p.m.	52
801	March 15	6:00 p.m.	55

Most of the birds usually came within a few feet of the ship, especially when garbage was thrown overboard. Since a number of albatrosses always followed the ship closely during the runs between stations, some of those tallied no doubt represented duplications from previous stations. However, on the basis of marking experiments made in 1941 (Miller, 1942), it appears that only a small proportion of the birds seen at one station would follow to the next station, forty miles away. The numbers seen always increased during the period that the ship was at a station, as noted by Yocom (1947a) and as illustrated by the following counts made during cruise 2. Station time varied between an hour and a half and three hours, and averaged about two hours. Counts were usually made soon after arrival and just before departure. It will also be noted that the numbers increased from station to station during the day.

Station	Date	First Count		Second Count	
		Time	Number	Time	Number
801	March 29	2:50 p.m.	3	5:00 p.m.	3
802	March 30	2:50 p.m.	3	6:30 p.m.	20
803	April 2	8:25 a.m.	21	10:25 a.m.	30
807	April 3	6:20 a.m.	7	8:30 a.m.	11
808	April 3	12:30 p.m.	11	3:30 p.m.	31
809	April 3	6:30 p.m.	23	7:00 p.m.	41
710	April 4			7:00 p.m.	27
610	April 5	10:40 a.m.	18	12:40 p.m.	27
609	April 5	4:05 p.m.	29	6:00 p.m.	31
606	April 6	9:15 a.m.	7	10:30 a.m.	15
605	April 6			5:00 p.m.	22
602	April 7			9:00 a.m.	36
601	April 7	12:15 p.m.	21	1:30 p.m.	70
702	April 8	7:30 a.m.	21	8:15 a.m.	30
703	April 8			1:00 p.m.	35
704	April 8			7:00 p.m.	42
706	April 9	6:15 a.m.	8	7:30 a.m.	22
707	April 9			12:45 p.m.	32
708	April 9			5:30 p.m.	41

These numbers represent by far the greatest concentrations of *D. nigripes* seen from the Scripps Institution vessels since cruises were resumed after the end of the war. Miller (1940) reported that the greatest number seen at one station during June and August, 1937 and 1938, was thirty-three. Yocom (1947a, 1947b) listed larger numbers than have been observed by us, but his ship was in an area for periods up to 25 days. Probably as a consequence of this increased abundance along the coast, Black-footed Albatrosses have occurred in 1949 closer to shore than usual, at times within ten miles.

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