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EIGHT YEARS OF BANDING OF WESTERN GULLS

WITH FIVE ILLUSTRATIONS

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While the banding operations here recorded date back to July, 1930, and cover eight seasons, the first season is included only because of certain incidental observations, no significant number of gulls having been banded in that year and no returns having been received to date. The banding for the seven subsequent seasons was done on Haystack Rock, about a mile offshore from Cape Kiwanda, Tillamook County, Oregon.

This rock is a fairly large half dome, 327 feet high, covering perhaps two or three acres at the base. The south side is steeply terraced, the east, landward side almost sheer cliff for the lower two-thirds, interrupted by a few inaccessible grassy ledges. The west slope is broken by three steep but shallow, heavily sodded ravines that run down to within 100 feet of the water, whereas the northeast side is practically a sheer drop for the full 327 feet to the water. Precariously poised bits of turf that cling to the ledges of the north and east cliffs are perforated by Tufted Puffin burrows, and presumably by petrels also, as are the sod slopes of the west side, where Puffins, Beal and Fork-tailed petrels, Baird and Brandt cormorants, and a few of the gulls nest. The south ledges furnish nesting sites for a few more of the gulls, and formerly for the Farallon Cormorants, the latter having been driven in more recent years to the less accessible southeast shoulder of the rock by the persecution of the fishermen who land and destroy their nests and young. The main colony of Western Gulls (*Larus occidentalis occidentalis*) is on the more or less rounded and bare top of the rock, where nests in a good season must number 300 or more.

Size 6 aluminum bands of the Biological Survey were used and only young gulls were banded. The actual banding was done by the author with the aid usually of one assistant—sometimes experienced, more often not. The great seasonal fluctuation in numbers banded does not always indicate a corresponding difference in the numbers of young available. It has usually been possible to make only one trip in a season, and at times the weather has not been favorable until the season was too far advanced. In some years it was necessary to leave the colony after only a few hours because of weather conditions. In 1936, however, when only 259 were banded, there were few if any more available. This was a very poor season not only for gulls, but for the other species on the rock, and, I believe, for other colonies in this region as well.

In passing, a word is in order regarding the behavior of the gulls toward their neighbors as I have observed it in this colony, and at Cape Lookout, Oregon, in a large murre colony, where a few gulls were banded in 1930. Most, if not all, of the earlier writers on Western Gulls speak of the wholesale destruction of eggs and young of other species by them. Bent (U. S. Nat. Mus. Bull., 113, 1921, p. 97) quotes Mr. A. W. Anthony, as late as 1906, in this connection, as saying that whole colonies of young cormorants were practically wiped out by the gulls. Although there can be no doubt as to the accuracy of these observations, they certainly do not apply to the colonies on Haystack and at Cape

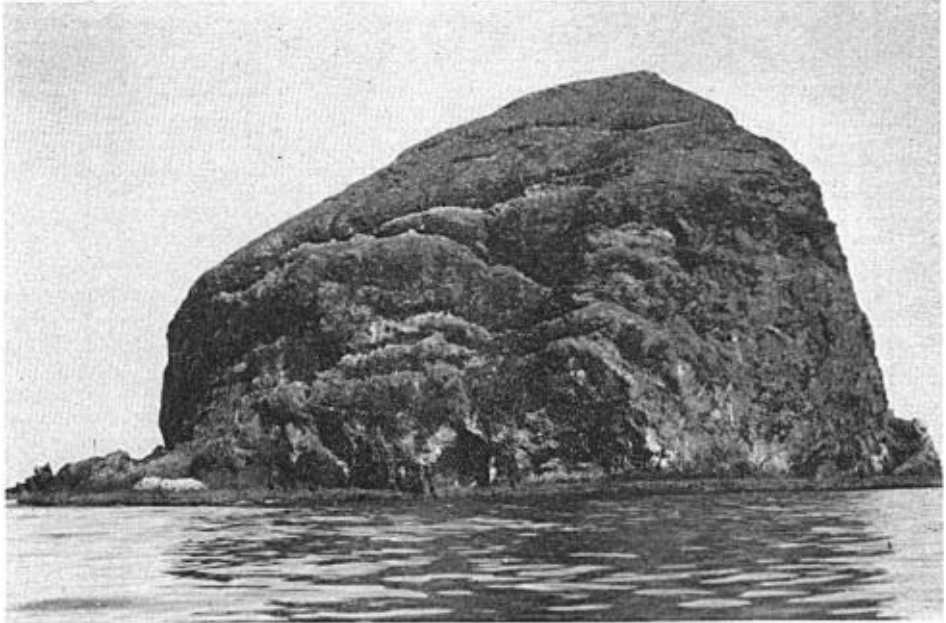


Fig. 50. Haystack Rock, Pacific City, Oregon, from the south.

Lookout. At the latter place I have spent hours on several occasions in a densely populated murre colony, and have only a few times seen eggs or young taken, although the murre were more or less constantly disturbed by our movements among them. Gulls were constantly cruising back and forth above the ledges. Once I saw one seize a young murre from a ledge, but on only three other occasions that I can recall were young attacked even after they had tumbled from the ledge to the rocks or the water 40 feet or so below. Scarcely any destruction of eggs was noted on the two occasions when I visited Cape Lookout in June at the beginning of the breeding season.

On the trip to this colony made on July 31, 1937, a dozen or more young murre were found with their heads eaten. That this was the work of gulls is probable, but the fact that several adult murre and gull bodies and a quantity of empty .22 shells were also found seems to indicate that the young might first have been killed by vandals who had visited the colony about a week before we did. On the other side of the picture, one broken murre's egg and another headless young murre were found beside a recently abandoned gull's nest. This was the only direct evidence against the gulls seen that year, the young gulls being at that time large enough to fly.

On Haystack Rock the cormorants, almost without exception, leave their nests when we are still at some distance from their part of the colony and do not return until we are well out of sight around a shoulder of the rock. Yet I have never seen a set of eggs disturbed, or a young cormorant eaten, although I did see two rather large young that had ventured out to the edge of a ledge, away from the nest, knocked off by the gulls. I am at a loss to explain this apparent discrepancy in conduct except on the ground that the repeated visits of eggers to some of the better known colonies in early years taught the gulls to take advantage of their defenseless neighbors. In any case, their depredations are a negligible factor in these two Oregon colonies, and in one off Cascade Head frequently visited by Mr. Alex Walker in recent years.

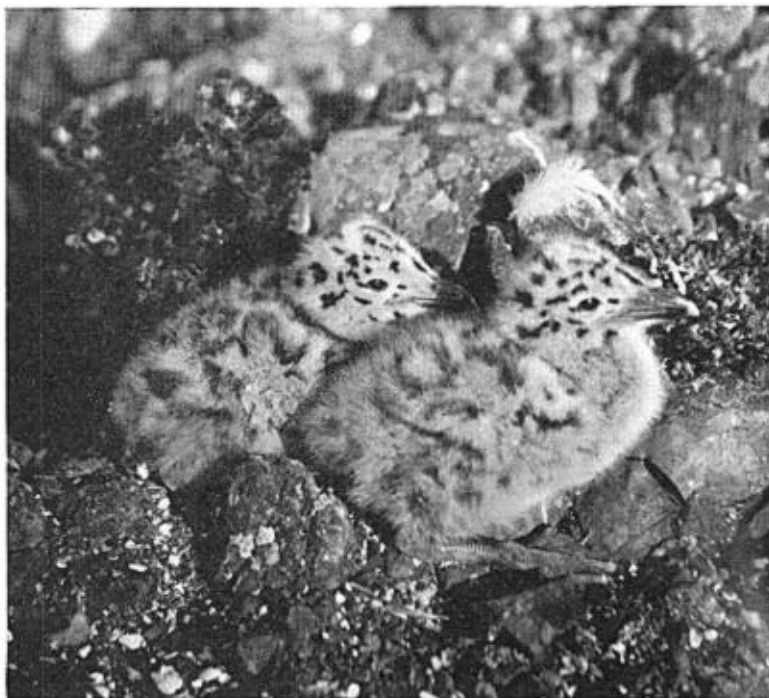


Fig. 51. Young Western Gulls at Haystack Rock.

The principal food of the young gulls on Haystack Rock would seem to be small fish, crustaceans and cephalopods. I have seen no evidence of cannibalism among the older gulls, although I have often seen young gulls that had been attacked and so badly beaten about the head that they probably died. Several times I have found young that had been killed outright. It is my belief that this is due either to the efforts of the parents to drive bewildered young back to their own territory, or to resentment on the part of other adults at the invasion of their nesting territory by wandering young. If this is the case, their efforts are signally unsuccessful, as there are few things more stubborn than a young gull which has made up its mind to go away from the part of the colony which is being disturbed.

Following my earlier experiences at the Lookout and Haystack colonies, I have had the opportunity to visit the south rock of the Three Arch Rock Bird Refuge, near Cape Meares, Oregon, on July 3, 1938, and on July 14, 1939. The bad habits of the gulls in this mixed colony of murre, cormorants and gulls can scarcely be exaggerated. No sooner were the murrens frightened from the small defenseless young and from eggs that were nearly ready to hatch than the gulls were among them, pillaging right and left. Among the almost countless thousands of young murrens on the rock the percentage of loss was probably not great, but certainly considerable numbers of young were killed and eaten, and dozens, at least, of eggs broken, no doubt to be eaten later by the gulls. I saw old gulls swallow fairly large-sized young murrens with considerable difficulty, head first, the youngster still kicking in protest as its feet disappeared down the gull's capacious maw.

Apparently the gulls at this time of year preferred young murrelets to cormorants, for although the Brandt Cormorants in a fairly large colony (perhaps 100 nests) on the north slope of this rock left more readily and stayed away longer than did the murrelets, we saw no evidence that the gulls had disturbed either eggs or young of this species



Fig. 52. Young Western Gull after banding at Haystack Rock.

while we were on the rock. However, we did note a great discrepancy in the size of young in the same nest, which might indicate some stealing of eggs earlier, and we also found fresh eggs, and nests under construction, in a colony where some of the young were as much as one-half grown. Whether this irregularity of nesting time is due to persecution by the gulls, or is characteristic of the species, I do not know.

To return to the banding of gulls on Haystack Rock, the numbers banded in the eight seasons and the returns are shown in the following table. It has seemed best not to include in the present paper the results of the seasons of 1938 and 1939, partly because comparatively few returns have been received as yet, but more because most of the birds banded in the last two years have been marked with colored bands in cooperation with the new coast-wide gull-banding project of the Western Bird Banding Association. The use of different combinations of color for each colony, and for each year, inaugurates a new technique in colony banding that should help solve many of the questions left unanswered by the data gathered previously. The ultimate success of this project will depend largely on the number of trained observers all along the coast who will make a point of checking periodically on the banded gulls seen in their own neighborhoods. Concentrations of gulls along the waterfront near fish-docks, canneries, and garbage dumps should provide particularly good opportunities for such observations.

TABLE 1

Western Gulls banded at Haystack Rock				
Year	Number banded	Number of returns	Percentages	Adult returns
1930	6	—	—	—
1931	240	22	7.1	8
1932	164	14	8.5	2
1933	366	35	9.5	4
1934	475	38	8.0	3
1935	601	44	7.3	2
1936	259	25	9.6	—
1937	563	48	8.5	—
Totals	2674	226	(average, 8.41)	19

In tabulating adult returns I have followed the assumption of Bent (*op. cit.*, p. 95) that the normal, vigorous Western Gull acquires a fully adult plumage at the third nuptial molt, when approximately three years old, and might reasonably be expected to breed in that year. However, I have as yet no direct evidence from banding records that this is the case, and as this view is not accepted by all authorities, it should be noted that some of the returns listed in detail in table 2 and on the map as "adult" are open to question. Dwight, in his monograph "The Gulls of the World" (Bull. Amer. Mus. Nat. Hist., vol. 52, 1925, p. 217), says that *Larus occidentalis* has a four-year plumage cycle, acquiring the fully adult breeding plumage at the fourth nuptial molt. The recovery of two individuals nearly three years old, in April and May, outside the breeding range of the species might tend to confirm this view.

Returns are, of course, much more numerous for birds less than one year old, and it would be premature to attempt to outline the movements of adults on the basis of data so far accumulated. Returns of birds of the year range from Seymore Inlet, British Columbia, to San Pedro, California, and at all seasons, with nearly as many from the north as from the south. Allowing for the fact that there are probably more potential observers who would be apt to notice and report banded gulls in California than in Washington and British Columbia, it would seem that the movement of young birds is in fact, as earlier observations have indicated, a simple dispersal along the coast in both directions. That some of the young remain in the vicinity of the parent colony at least through the first winter is indicated by returns from Nestucca and Tillamook bays, Oregon, in every month from July of the year of banding to February of the year following, and one each in April, July, August, and October of the succeeding year.

A fur farmer at Pacific City told me of a gull which fed regularly at his mink pens until mid-December, when he killed it. He did not save the band or record the number, but the bird was undoubtedly a young of the year. A return card from Newport, Oregon, January 28, 1935, referring to a bird banded in July, 1933, speaks of it as being "very tame—comes for food every day. Has been coming all winter." These instances would tend to confirm, for this species also, the suggestion of Sprout (Condor, vol. 39, 1937, p. 238) with regard to Glaucous-winged Gulls, that individuals may tend to become resident in winter in some particular locality where they find food plentiful. Of three birds of the year trapped and banded at Cape Kiwanda, Oregon, September 17, 1936, one was found dead on the beach about two miles south of this point November 27, 1936. And finally, of three adults trapped and banded on the Nestucca River, at Beaver, in December, 1930, and January, 1931, one was killed in January, 1932, at the mouth of the same river, about twelve miles from Beaver. It is perhaps significant that the extreme returns, from Seymore Inlet, British Columbia, and San Pedro, California, are both for birds in their first winter, tending to confirm the theory that individuals do not usually wander farther afield than they have done in the course of their first year.

Although the returns actually recorded of adults are too few to offer any conclusive evidence, they seem to indicate a tendency of adults to return to the general region of nativity during the breeding season, but not necessarily to the original colony. There are so far nineteen records of birds three years old or more, eighteen of them from Oregon and Washington. Eight are spring and early summer records and all but three of these are from within 120 miles of the original colony. One, a November return, is from Carquinez Straits, California, this being the farthest removed of any of the adult returns. Two of the spring returns outside the 120-mile radius are records of a single bird, banded in July, 1931, and caught by two different individuals on Puget Sound, one near Bremerton, Washington, and the other about twelve miles away, at Bellfair. These, of course, are outside the breeding range of the species. In addition, one recovery from Seattle, Washington, was of a bird nearly three years old. Until 1938, no banded adults were seen in the Haystack colony, but the aluminum band that has been worn three years or more is not very conspicuous. In 1938 at least three banded adults were seen in the colony, and three or four (possibly the same birds) on the beach near it. In 1939 also, three, and possibly more, banded adults were seen. An attempt to trap one of these was unsuccessful.

Griffing Bancroft (Condor, vol. 29, 1927, p. 189) makes the statement that "egg types show that Western Gulls are strongly inclined to remain to breed in the colonies in which they were hatched." While it is, of course, quite possible that the adults captured or found dead during the breeding season near other colonies are non-breeding birds, these returns, together with the small number of adults so far actually seen wearing bands in the Haystack colony, seem to me to throw some doubt on this conclusion. Allowing for 80 per cent mortality, which would seem to be a rather high estimate, there should have been by the time of the 1939 season at least 400 live banded Western Gulls of breeding age in the Haystack colony. I am confident that no very large fraction of that number actually returned to the colony. Color banding should give us a much more accurate idea, in time, of the numbers of birds returning to the original colony to breed and also of the seasonal movements of adults.

TABLE 2
Detailed returns of adult Western Gulls

Banded	Age	Band number	Recovered	Date	Age
July, 1931	jv.	B616448	Bremerton, Wash.	May 1, 1934	—3 yr.
		B616448	Bellfair, Wash.	May 3, 1934	
		B616453	Aberdeen, Wash.	May 6, 1934	—3 yr.
		B616566	Beaver, Ore.	Feb. 10, 1936	4 yr.
		B616570	Marshfield, Ore.	Aug. 29, 1937	6 yr.
		B616529	Cannon Beach, Ore.	Aug. 30, 1937	6 yr.
		B616476	Longview, Wash.	Mar. 28, 1938	7 yr.
Jan., 1931	ad.	A696729	Nestucca River	Jan. 12, 1932	ad.
(less than 10 mi. from place of banding)					
July, 1932	jv.	B616708	Rainier, Ore.	Feb. 24, 1936	4 yr.
		B667040	Kernville, Ore.	May 1, 1938	6 yr.
July, 1933	jv.	B667114	Waldport, Ore.	Nov. 11, 1936	3 yr.
		B689160	De Lake, Ore.	June 27, 1937	4 yr.
		B667246	Hoquiam, Wash.	Mar. 4, 1937	—4 yr.
		B667142	Carquinez Sts., Calif.	Nov. 23, 1937	4 yr.
July, 1934	jv.	B646480	De Poe Bay, Ore.	Jan. 6, 1938	3 yr.
		B646450	Bradwood, Ore.	Jan. 21, 1938	3 yr.
		34-379489	Seattle, Wash.	Apr. 17, 1937	—3 yr.
July, 1935	jv.	34-657349	Columbia River		
			Lightship, Ore.	Dec. 19, 1938	3 yr.
		34-628499	South Bend, Wash.	Aug. 20, 1938	3 yr.

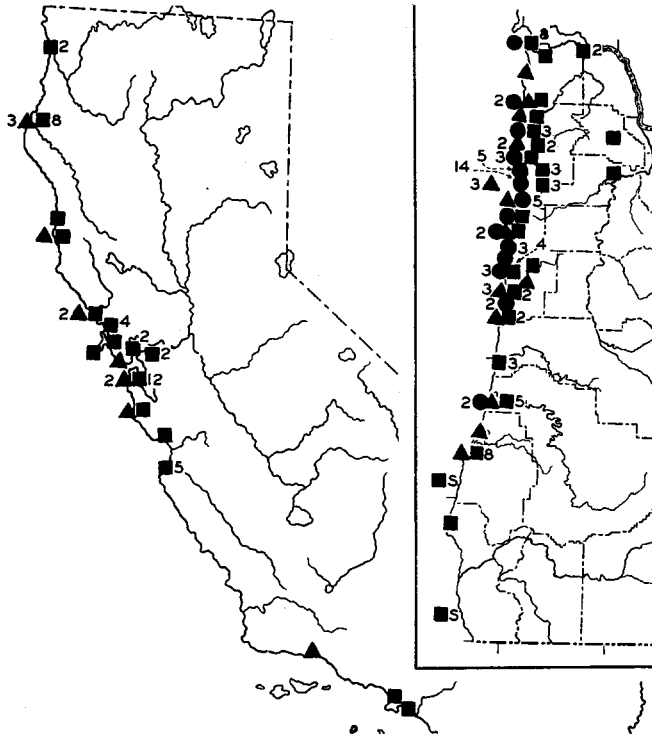


Fig. 53. Returns of immature Western Gulls from California (left) and Oregon (right). Dots represent returns in first summer after banding; squares, returns in fall and winter; triangles, returns in following spring and summer. S, denotes offshore returns. Numbers indicate individuals at locality marked by symbol.

Of the total of 226 returns, 43 are for young birds recovered in the first three months after banding, all within 120 miles of the colony, and about equally distributed north and south. Of the remainder, 41 are spring and summer returns, from April to September, 9 of them being adult. Of the 141 fall and winter returns, October to March, 10 are adults. It would seem, as might be expected, that the mortality of immature birds is much higher in the winter, being greatest in the first winter. This does not seem to be true of adults, if one may judge from the small number of adult returns so far received. By far the heaviest mortality in the first year is in November, December, and January, months when one would expect that a smaller percentage of birds would be found and reported. Not all of these returns are for dead birds, but the great majority of them are. Occasionally one is caught on a fish line or captured in some other way and released alive.

TABLE 3

Year of banding	Returns grouped according to ages						
	Under 10 mo.	10 mo. -2 yr.	2-3 yr.	3-4 yr.	4-5 yr.	5-6 yr.	6-7 yr.
1931	10	2	2	4	1	—	3
1932	6	6	—	1	—	1	—
1933	24	4	3	2	2	—	—
1934	24	9	1	3	—	—	—
1935	29	9	4	2	—	—	—
1936	18	4	3	—	—	—	—
1937	38	10	—	—	—	—	—
Totals	149	44	13	12	3	1	3

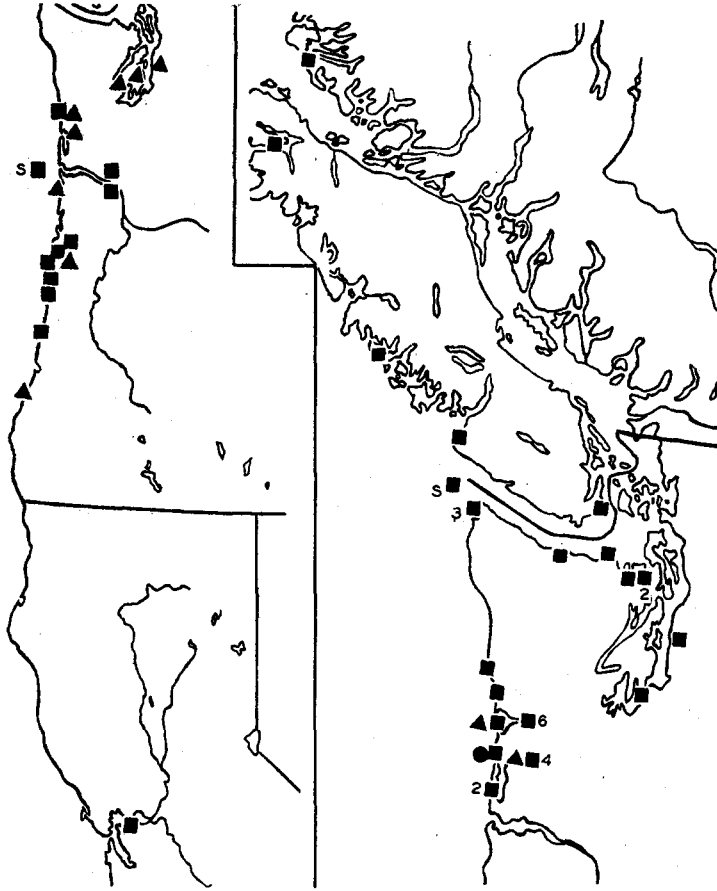


Fig. 54. Returns of Western Gulls. Left, adults from Washington, Oregon and California. Squares represent winter returns; triangles summer returns. Right, immatures from British Columbia and Washington. Symbols as in figure 53.

Another point of common observation that is further confirmed by a glance at the maps (figs. 53 and 54) is that *Larus occidentalis* is strictly a bird of the bays and beaches. Only two returns have been received from points far removed from salt water—one from Dundee, Oregon, and one from Cornelius, Oregon. These are not far from the Willamette River, Dundee being about 45 miles from its confluence with the Columbia, and Cornelius near the Tualatin River, a small tributary of the Willamette nearer the Columbia. It seems likely, in view of the reluctance of these gulls to follow rivers far inland elsewhere, that the Willamette River returns and possibly those from Puget Sound also, are due largely to the habit of following coast-wise shipping. The four offshore returns from steamers and light-ships may be explained in similar fashion.

SUMMARY

The results of seven years banding of juvenal Western Gulls, *Larus occidentalis occidentalis*, using numbered bands only, seem to show that dispersal is general and

nearly equal in numbers north and south from a breeding colony located on the Oregon coast somewhat north of the center of the breeding range of the race.

Only rarely do these gulls leave the vicinity of salt water, except along fairly large navigable rivers.

Adults probably return to the general region, but not necessarily to the colony, in which they were hatched, when of breeding age.

The heaviest mortality, and also the widest dispersal, occurs during the first winter after hatching.

There is at least an indication that individuals tend to become resident during the years of immaturity, in the locality in which they settle in their first winter.

Beaver, Oregon, November 13, 1939.