

DIRECT AUTUMN FLIGHT-LINE FROM FIRE ISLAND, LONG ISLAND, TO THE COAST OF SOUTHERN NEW JERSEY

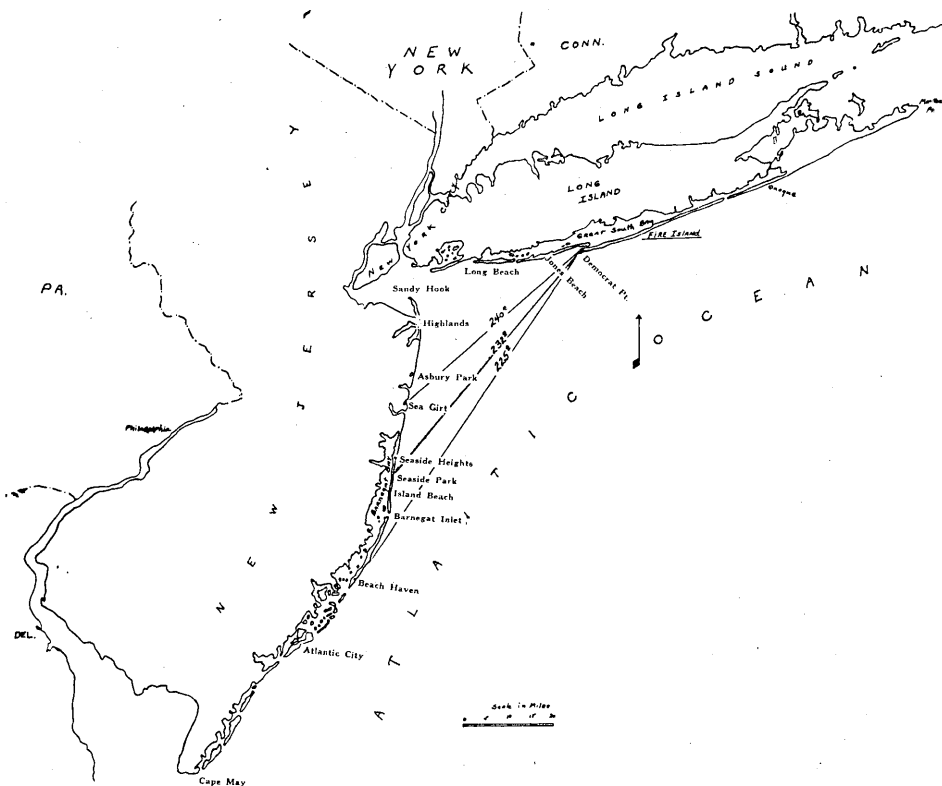
HARRY N. DARROW

There has been considerable dispute as to what extent migrants follow the coast-line as against over-the-ocean short-cuts. During the past twelve years I have spent a good deal of time at Democrat Point, Fire Island, and while my visits to this area are for surf fishing, I was particularly interested in a flight-line, used for the most part by shore-birds, originating at Democrat Point and apparently ending on the coast of southern New Jersey. This would be an over-the-ocean flight of between 50 to 80 land miles, depending upon the bearing used. During these years I have observed many species of shore-birds leave the mud flats just to the northwest of the Point and head out over the Atlantic Ocean in a southwesterly course. The flocks ranged from 15 to 100 individuals. On numerous occasions, with the aid of an Engineers' Corps. prismatic compass, I took bearings on the line of flight and found that the average was 232° , with extremes of 225° and 240° .

Democrat Point is the western extremity of Fire Island, a barrier island on the south shore of Long Island, New York, and is separated from the Oak Beach section of Jones Beach by Fire Island Inlet. This Point is 37.7 miles ENE of Sandy Hook, New Jersey.

As I accumulated records regarding this flight-line, I wondered just where a projection of these bearings would cross the New Jersey coast. With the help of two Coast & Geodetic Survey charts and a set of parallel rulers I came up with the following information. Using the average bearing of 232° , the line of flight from Democrat Point would intersect the New Jersey shore at a point on Island Beach just south of Seaside Park, or in other words, about in the middle of the Barnegat Bay area. This distance would be 65.8 land miles. The extremes, 225° and 240° , would cross the coast in the vicinity of Beach Haven and Sea Girt respectively, which in terms of land miles would be 80.2 and 50.4. Using the average bearing, 232° , it is possible to plot an isosceles triangle with the apex at Sandy Hook. We then find that both Democrat Point and Seaside Park, New Jersey are the same distance from the apex, or 37.7 miles, with the base line 65.8 miles as mentioned above. I am not sure just what this indicates, but in any event, it is quite symmetrical when plotted on a chart. To say that a group, such as shore-birds, which travel thousands of miles in a southward migration are interested in a short-cut which saves them approximately 10 miles would hardly seem to be a logical answer, nevertheless, the majority of these birds in the Democrat Point area follow this flight pattern. Since the coast-line of New Jersey bends to the southwest once past Barnegat Inlet, a course slightly more southerly than the extreme of 225° would undoubtedly miss New Jersey completely. Assuming that this course does not differ drastically with the above bearing, landfall would be somewhere on the Delaware coast or the Delmarva Peninsula. Obviously, it is impossible to pin-point the arrival area in New Jersey from a bearing taken at Democrat Point, but since the flight is relatively short, a degree or two difference will mean only about two to four miles on the New Jersey shore.

At this point it might be well to caution those observers, fortunate enough to get off-shore, that when observing birds passing by at a point out of sight of land, it is essential that the *actual* position of the boat be plotted on a chart. Without an exact base point any extension of a bearing would be worthless. Admittedly, work of this type when not in sight of land is most difficult, unless all the birds flew directly over the boat it would be necessary to plot parallel bearings, the accurate extension of which would require considerable work and understanding.



SHORE-BIRDS

Shore-birds, as a group, seem to show little concern for general weather conditions once they have decided to move on. I have watched them fly out over the ocean under particularly foul weather conditions and am convinced that with the exception of gale force winds, they are seldom bothered to any great extent by the strength or direction of the wind. If head-winds occur the smaller species fly just over the tops of the waves in a manner both strong and direct. Although the title of this article refers to the "Autumn Flight-line", anyone familiar with this group of birds will realize that their southward migration starts during the last week of June for some species and that by the middle of July the migration is well under way.

Since my coverage of this area is mainly on weekends I hesitate to give a complete list of the various species of shore-birds seen using this flight-line in terms of relative abundance. However, it is entirely correct to state that from the last week of June through the third week of August, the Short-billed Dowitcher (*Limnodromus griseus*) is the most dominant species. From the end of this period until the middle of October, the Sanderling (*Crocethia alba*) becomes the most common species. As October begins, the Dunlin (*Erolia alpina*) moves into second place and by the middle of this month has taken over the lead. Three other shore-birds which become very common on both the mud flats and the fly-way are the Piping Plover (*Charadrius melodus*), Semipalmated Plover (*Charadrius semipalmatus*), and Black-bellied Plover (*Squatarola squatarola*). Quite naturally not all the birds seen on the flats were observed using this fly-way, this is particularly true of the more uncommon and rare species. However, an exception to this statement occurred on July 4th a few years ago when I was fortunate enough to see two Hudsonian Godwits (*Limosa haemastica*) still in breeding plumage. They were first observed at about 8:00 AM; later in the morning, while watching them from a considerable distance they suddenly left the flock of other feeding shore-birds and flew directly out to sea. I kept them under observation until they were out of sight. The bearing was 229°.

Certain species are seen flying over the Point in larger numbers than will be found feeding on the mud flats adjacent to Democrat Point. Greater Yellowlegs (*Totanus melanoleucus*) and Hudsonian Curlew (*Numenius phaeopus*) are examples. In the case of the Greater Yellowlegs one seldom finds more than six or seven on the flats at any one time, yet, early in October of 1959 I observed a flock of 18 heading out over the Atlantic. The Hudsonian Curlew is even less likely to be found on the flats but groups ranging from 6 to 20 individuals can be seen flying over during early July.

The following is a list of species which are commonly seen on the flats and use the fly-way in good numbers:

Short-billed Dowitcher, Sanderling, Dunlin, Piping Plover, Semipalmated Plover, Black-bellied Plover.

Species decidedly less common on both the flats and the fly-way than the above:

Ruddy Turnstone (*Arenaria interpres*), Knot (*Calidris canutus*), Least Sandpiper (*Erolia minutilla*), Greater Yellowlegs, Semipalmated Sandpiper (*Ereunetes pusillus*), Hudsonian Curlew.

Species seen feeding on the flats but never definitely observed using the fly-way. (One to four individuals of each species are seen every summer.)

Willet (*Catoptrophorus semipalmatus*), Marbled Godwit (*Limosa fedoa*), 1 Hudsonian Godwit (One record for fly-way).

At the present writing, large scale dredging operations are under way at the Inlet, due to serious filling in of the chanel. This will probably reduce the size of the present mud flats and possibly hamper observations to a degree, but definitely will not affect the shore-birds using the fly-way. The present flats are actually of relatively recent origin (1947).

HERONS

Late one afternoon, during the last week of October, after badly mis-

calculating the tide, I was sitting high and dry on the flats and as the sun edged down towards the horizon, I spotted a flock of 15 Black-crowned Night Herons (*Nycticorax nycticorax*) approaching from Great South Bay. They were flying at approximately 200 feet and passed over Democrat Point a bearing of 233°. Within ten minutes a second flock of 12 appeared following the same course and shortly thereafter a third flock of 18 flew over. By this time the sun had dropped below the horizon and although I heard the characteristic call from other Night Herons, it was impossible to establish the number of birds in the passing flocks. As the evening progressed flocks of herons seemed to be moving closer together. The weather was clear, cold and with a light NW wind. Subsequent night checking, during the fall, indicated that this was an important flight-line for the Night Heron, at least from a local standpoint.

Great Blue Herons (*Ardea herodias*) have been observed using this fly-way during daylight hours but only in small numbers, usually from one to five individuals. An exception to this would be sixteen birds on Oct. 13, 1961 using a bearing of 235°.

My only record of egrets, which I assume were migrating, occurred late in the fall of 1959; 8 Snowy Egrets (*Leucophoyx thula*) flying close to the water about $\frac{1}{2}$ mile off the beach, moving generally west along the beachfront of both Fire Island and Jones Beach. It is my opinion that these particular birds were out over the ocean because of an extremely strong NW wind which was obviously giving them a little trouble. Under more reasonable wind conditions, I believe they would have been seen moving over the bay area.

HAWKS

Other than the shore-birds, the Peregrine Falcon (*Falco peregrinus*), is the only species which is as consistent about using this flight-line. From sixty to seventy-five percent of all the Peregrines which follow the beachfront at Fire Island, during the fall migration, swing out over the ocean after clearing Democrat Point. While there did seem to be variations in the bearings used by these birds, they were never more than four degrees on either side of the average of 232°. The important point here, I believe, is that it is quite probable that most of these falcons have been following the beachfront along the south shore of Long Island for as much as 100 miles, moving generally west, but upon leaving Democrat Point, have made a decided change in direction of between 30 to 45 degrees. Anyone familiar with this area would normally expect these falcons to cross the Inlet and continue west along Jones Beach. Naturally, not all of them use the outer beach when migrating, they are regularly seen over Great South Bay and a few at other more inland locations along the south shore of Long Island. The majority of these birds are accounted for on Jones Beach and points west.

After leaving Democrat Point, some of these Peregrines may by-pass the Jersey coast completely and continue on a more southerly bearing to the Delmarva Peninsula. Under certain weather conditions, a section of this area has long been famous as a concentration point for migrating Peregrines. Most falconers believe that the birds arriving on this beachfront are both tired and hungry because of an extended water flight. While this condition would not apply too well to Fire Island birds, it is undoubtedly true with

regards to the majority of Peregrines found on this beach strip.

The function of this ocean flight seems quite obvious; the shore-birds were flying directly from one excellent feeding area to another, the Peregrines, doubtless, had the same idea, but with one addition, they did not have to wait until they landed on the Jersey shore. Feeding on the wing has never been considered a problem for this group.

It is interesting that neither of the other two falcons, Sparrow Hawk (*Falco sparverius*) nor Pigeon Hawk (*Falco columbarius*) use this fly-way, although the former is an abundant and the latter a common fall migrant along the Fire Island beachfront. In both cases, their line of flight is the same, a westerly course across the Inlet to Jones Beach. While the Pigeon Hawks would occasionally harass the shore-birds at the Point, they were primarily interested in the many small land birds, a job which they handled with great efficiency and dispatch. A small bird, attempting a daylight crossing of Fire Island Inlet, during a Pigeon Hawk flight, was either exhibiting bravery above and beyond the call of duty, or extreme stupidity. In any event, it is a characteristic that might best be described as non-habit forming. Many people are of the opinion that the Sparrow Hawk feeds largely on insects with an occasional dash of small rodents, however, when migrating along the beachfront they are quick to take advantage of any tired land birds as they struggle in off the ocean. Since weather conditions affecting a good movement of both falcons and land birds are the same, it is hardly surprising to find Sparrow Hawks feeding in this manner. On Oct. 1, 1960, I had a count of 546 Sparrow Hawks at the Inlet, between 9:00 AM and 3:15 PM, and upon returning to the Point at 5:00 PM, found birds still moving through. Had I been able to spend the entire day the count, no doubt, would have reached close to 700. The weather was clear, cold and with a strong NW wind.

During a good flight of Sparrow Hawks or Pigeon Hawks there will always be a scattering of Marsh Hawks (*Circus cyaneus*) and Sharp-shinned Hawks (*Accipiter striatus*) but never have I seen either of these species move out over the ocean. Their flight pattern is similar to the two small falcons.

Weather conditions, while important, with regards to a hawk flight along the outer beach strip, are not quite as critical a factor as they would be on a hawk ridge. However, the best flights will generally occur on strong NW winds with it's probable drop in temperature the night before. The Pigeon Hawk seems to move with it's food supply. If the smaller land birds are just filtering through with no pronounced wave, this falcon follows suit, and if the land bird migration is late, as it was in the fall of 1960, the Pigeon Hawks are sill moving through after the middle of October.

While a few migrating Buteos will occasionally be seen from Democrat Point, the area is certainly not conducive to this type of hawk flight. Generally when seen, these birds are circling back towards the mainland where more favorable up-drafts or thermals occur.

The Osprey (*Pandion haliaetus*), which are seen regularly each fall in this area, would seem to be pretty much coastal, generally following a westerly course to Jones Beach. Since the food of the Osprey is also moving down the coast, probably within three miles of the beach, it would follow that the majority of these birds would not bother with this fly-way.

GEESE and BRANT

Flocks of both Canada Geese (*Branta canadensis*) and Brant (*Branta bernicla*) have been observed using this flight-line during daylight hours, but never in consistently large enough numbers to suggest that this is an important fly-way from their standpoint.

PASSERINE SPECIES

Whether or not passerine species use this flight-line to the Jersey coast has always been a course of curiosity to me. Diurnal migrants can easily be checked upon, but in the case of the nocturnal species, the plotting of a bearing, or the recording of individuals would be just about impossible. While migration and it's forces are a most complex subject it is hard even for the layman not to have some thoughts on the matter, particularly after having seen so much of it along the beaches. I believe that it is fair to state that on any fall morning which gives evidence of a good migration the night before, an observer will spend his time in the many patches of cover which characteristically dot the area of a barrier beach just behind the beachfront. It is here he will observe most of his passerine migrants, however, under certain conditions there is also an interesting show on the beachfront proper. Most observers are usually unaware of this situation. During the fall, a drop in temperature, with the normally accompanying NW winds, can usually be counted on for a "wave", and if it is a good high pressure cell, the winds will continue strong even throughout the next day. Under these conditions, as dawn approaches one will hear the notes of land birds as they work back to the beach, and as light comes on, one will see them flying in off the ocean, all along the beachfront. This situation is not in any way peculiar to Democrat Point; it occurs on any of the south shore beaches, and quite probably in a lesser degree, to other areas along the Atlantic coast. While we have no way of knowing exactly how many birds, which were over the ocean at daybreak, continued on to the Jersey shore, I do know that hundreds of them will come into the beach at the Inlet during the first four or five hours after dawn. This undoubtedly occurs all along the south shore of Long Island and my observations are confined to but a pin-point on the coastline of this large area.

During the daylight hours many migrating land birds are probably lost over the ocean, as they attempt to regain a land area. The number lost would depend upon the intensity of the wind and the distance from shore, at daylight, of the majority of the migrants. On many occasions, I have seen birds fail to make the beach by a matter of a few hundred feet. In most of these cases, I believe that this failure was not due to fatigue but rather from poor judgment on their part as to the height of the waves. Land birds flying to the beach against strong NW winds tend to keep as close to the water as is possible, one reason being that the force of the wind would be less at this point, particularly if they are approaching a land area which would then act as a partial windbreak. Salt spray, which they are bound to encounter under these conditions, must be quite troublesome, since it is not only heavier than fresh water but as it dries leaves a powdery residue which would tend to mat the feathers. In this connection, I am thinking mainly of the smaller species. In flying to the beach, most passerine species

seem to head directly into the wind even though land may be closer at a slight variation from this course. As an example, about one mile off Jones Beach, a junco, which was obviously tired, landed on our boat, after a short rest it took off directly into a strong NW wind. As we followed it's flight with binoculars we realized that the bird was dropping closer and closer to the water, and finally, either from the spray or a cresting wave, was swallowed up by the sea. The unfortunate point to this observation was that had the junco flown just a few degrees to the east of north, instead of NW, it could have reduced the distance to the beach by at least 50%.

A tired bird, attempting to reach the beach, always runs the chance of being intercepted by anyone of the falcons which might be moving down the beachfront, also, the Herring Gull (*Larus argentatus*) represents more than just a passing problem. While it may be difficult for us to be sure that a particular bird is tiring as it flies over the water, the Herring Gull recognizes this condition immediately and generally two or more will force their victim higher and higher until one of them finally catches the unfortunate bird. If the bird stays low over the water, the gulls will attempt to force it into the sea.

To varying degrees, most of the nocturnal migrants must contend with these hazards when returning to the beach after dawn, but the same birds at night have entirely different flying conditions;

1. Instead of a headwind they have from a quartering to a full cross wind and while this may cause considerable drift, depending upon it's strength, it would matter little to them whether they cross the Jersey coast at Sea Girt or Cape May.
2. They would be flying high enough off the surface of the ocean to eliminate the spray problem.
3. There would be no predators to contend with during the ocean night flight.

While there are other considerations that might be mentioned, these would seem to be the most important.

While strong NW winds and a heavy migration normally occur together during the fall, more moderate wind conditions from the same direction also provide us with excellent "waves". Under this situation, few birds are seen flying in off the ocean, and generally any movement to the beach would be completed during the first two hours after dawn. This could mean that those over the ocean continued on to the Jersey shore after daybreak, or, once the drift to the southeast has placed them over the edge of the coastal strip during the night, they have made an effort to stay over this area. Of the two possibilities I much prefer the latter one.

I believe that this matter of coastal drift which actually starts as the birds leave eastern Canada and the New England states is the main contributing factor for the exceptionally fine migration on Long Island's south shore each fall. I am referring not only to the number of species and individuals but also to the high percentage of rare and accidental birds. The area receives it's normal allotment of migrants, if there is such a thing, plus those which have drifted or have been pushed to the coastal strip, and then is also blessed with a bonus of many times this amount in birds which have

already passed over the area during the night, and now are flying back to this land area. I feel sure that this form of "reverse migration" would not occur if it were not for the fact that to the south of our area is the Atlantic Ocean. Once again, the reference to our area is not limited just to Democrat Point but includes the entire beach strip to the east for some ninety miles.

The driving urge for this return to the beach of the nocturnal migrants must certainly be the combination of food and cover. In observing birds flying into the beach, I have never seen them show any inclination to move further inland than the beach strip. Once on the beach they carry on what might be called limited diurnal migration, gradually moving west along the strip from one stand of cover to the next. Since this same procedure is also followed by migrants many miles to the east of Democrat Point, there is always a constant stream of birds passing any given point on the beachfront. This movement may be stopped temporarily as the migrants reach an inlet such as Fire Island. The larger birds, which would also include many of the diurnal migrants, will leave the Point on a shallow tangent for Jones Beach, covering between a mile or two miles over open water. Smaller species, particularly the Warblers (*Parulidae*), will work around to the north side of the Point before crossing, thereby cutting down the distance to $\frac{1}{2}$ to $\frac{3}{4}$ of a mile.

Diurnal migrants, such as Flickers (*Colaptes*), Barn Swallow (*Hirundo rustica*) etc., while common inland, are absolutely abundant along the ocean-front but whether they are here because of preference, coastal drift or a combination of both, they obviously make every effort to stay over the beach strip and are seldom seen flying into the beach from offshore. This is particularly true of Flickers. Barn Swallows, during an especially heavy movement, cover a very broad front and many will be seen flying over the ocean but usually always paralleling the coastline. Only occasionally have I observed migrants, which we class as generally diurnal, flying in off the ocean in the manner of the nocturnal species. The daytime migrant when found out over the ocean, is usually there by its own design.

Only twice at Democrat Point have I witnessed a definite migration of a passerine species attempting to use this ocean flight-line to Jersey, during the hours of daylight. Early in the morning of November 13th, a few years back, I realized that a great many Goldfinches (*Spinus tristis*) were feeding in the heavy stand of beach grass just behind the Point. At about 8:00 AM, small flocks began moving out over the ocean, and by 3:00 PM that afternoon I had recorded 42 flocks averaging 30 individuals each, for a total of 1,260 birds. The largest flock was 75. They flew fairly high, approximately 150 to 200 feet, attaining this height shortly after leaving the Point. The bearing was 237°. There was never more than one flock in the air at any one time, although the interval between flocks was much shorter during the morning than the afternoon. The departure area was constantly being replenished by birds working west along Fire Island. The number of Goldfinches which crossed to Jones Beach was less than 10% of those using the ocean. The day was overcast, with light variable winds from the north sector. Normally, I believe that Goldfinches usually cross the Inlet and move west along Jones Beach but that in this particular movement the wind conditions were the controlling factor. One would feel a bit foolish to call a

movement which involved over 1,200 individuals unusual, so it is quite probable that a flight of this type occurs more often than we realize.

On another occasion early in the fall of 1960, I observed another species leave Fire Island and fly out over the ocean with great determination but without success. Throughout the morning a great many flocks of female and/or immature Redwinged Blackbirds (*Agelaius Phoeniceus*) were moving west along the Fire Island strip and upon leaving Democrat Point struck out over the ocean. There was an extremely strong SW wind that morning and as the flocks headed directly into it they began mounting higher and higher in the sky. While this vertical movement was impressive, their horizontal progress was nil. Each flock which left the Point that morning tried very hard to overcome the strong wind, but in the end, they would finally veer off to the NW and settle for Jones Beach. I am sure that had the wind been more favorable, these birds would have made the crossing to Jersey.

Certainly the above mentioned observations are not isolated incidences but I would suggest that daytime crossings to the Jersey shore are much more common further west along the beachfront than they are at Democrat Point.

Earlier in this article I stated that migration on the beach strip to the east was similar to Democrat. As an example of just how heavy this migration really is I should like to mention the banding records of Mr. Leroy Wilcox of Speonk and Mr. Walter Terry of Blue Point. These two men, working as a team, on a section of beachfront just east of Quoque have banded between three and four thousand birds each year for the past three years. This astonishing number, by just two men, covered two months of each year, namely, September and October. Fall migration in this area is very similar to that found at Democrat Point and strong NW winds throughout the night will also cause a heavy movement of migrants flying in off the ocean during the morning hours. Messrs. Wilcox and Terry have a number of projects planned providing they can arrange for enough help. It is hoped that the work they are carrying on will help us to better understand the movements of the outer beach migrants.

Midland Ave., Broxville 8

CALL FOR PAPERS

The 16th Annual Convention of the Federation of New York State Bird Clubs will take place April 26, 27, and 28, 1963, at Jamestown, New York. Members who wish to present a paper during the session of Saturday afternoon, April 27, are urged to submit their names to the Program Chairman, Dr. Allen H. Benton, Department of Biology, State University College, Fredonia, New York. In order to appear on the printed program, papers must be listed with Dr. Benton by April 1. Papers will be limited in length only by the number presentd.

Allen H. Benton, Chairman, Papers Committee
State University College, Fredonia